

CATALOG &
TECHNICAL
GUIDE – INCH



SOLID END MILLS



SOLUTIONS & SUPPORT

By choosing Seco, you get more than just a comprehensive portfolio of advanced metal-cutting solutions and expert services. You get a partnership based on trust, respect and communication and a team that is always ready to help you gain the competitive advantage.

Globally headquartered in Fagersta, Sweden and present in more than 50 countries, Seco develops cutting tools, processes and services for high productivity and profitability. Our team of over 5,000 dedicated employees maintains partnerships around the world to identify and overcome the challenges faced by today's manufacturers.

Our broad selection of milling, turning, holmaking and toolholding solutions include over 30,000 standard products, custom items for special applications and a team of metal-cutting experts who help customers identify and implement cost-effective solutions.

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JABRO was founded in 1976 in Lottum, Netherlands.

JABRO is Seco's competence center for solid milling solutions, and has global responsibility for Research & Development, Manufacturing and Application Engineering.

Seco JABRO's products provide the world market with a wide range of standard tools and custom tool solutions, including reconditioning, mainly for General Engineering, Aerospace, Energy, Medical and Mold & Die customers.

Advanced manufacturing technology and an environmental focus ensures JABRO's sustainable development and production of products that successfully respond to market demands in milling operations for both ferrous and non-ferrous materials.

- General Engineering
- Mold & Die
- Aerospace
- Medical
- Power Generation

JABRO® – SOLID²



Jabro-Solid² is a range of solid carbide end mills for applications in general machining that offer flexibility, speed and cost efficiency. Jabro-Solid² is available in a diameter range of $\varnothing 1$ - $\varnothing 25$ mm and in inch $\varnothing 1/32$ - $1\ 1/4$.

Jabro-Solid² also includes a group of dedicated advanced roughing tools (554 3C).

These tools offer excellent performance when applied in well defined tool paths with constant arc of contact with high cutting speed and high cutting depth applications.

For the complete range of JS500 series tools all chamfer ($c^{\circ}45^{\circ}$) have the following tolerances: $c = D_c \leq 3 = +0.01$, $3 < D_c \leq 6 = +0.02$, $6 < D_c \leq 10 = +0.03$,

$10 < D_c \leq 14 = +0.04$, $14 < D_c \leq 18 = +0.05$, $18 < D_c \leq 24 = +0.06$,

All Jabro-Solid² product codes begin with JS.

Please see page 8 for a grouped overview of JS² products.

JABRO® – HSM/TORNADO (High speed machining)



A complete range of peak performance coated solid carbide milling cutters specially developed for High Speed Machining (HSM) with a diameter range from 2-20 mm in various geometrical styles.

All HSM/Tornado product codes begin with JH.

Please see page 8 for a grouped overview of HSM 'tornado' products.

JABRO® – HPM (High performance machining)



A complete range of peak performance coated solid carbide milling cutters specially developed to reach high metal removal rates in different materials.

Diameter range from 2-25 mm.

All HPM product codes begin with JHP.

Please see page 8 for a grouped overview of high performance machining (HPM) products.

JABRO® – HFM (High feed machining)



A range of solid carbide tools for High Feed Machining.
Can also be used for plunge milling.
Diameter range from 1.5-12 mm.
All HFM product codes begin with JHF.
Please see page 8 for a grouped overview of high feed machining (HFM) products.

JABRO® – MINI (Micro machining)



Miniature 'MEGA-64-T', 'MEGA-T' and 'DIAMOND' coated solid carbide milling cutters with a diameter range from 0.1 mm (.0039") to 2.0 mm (.0787")
All MINI product codes begin with JM.
Please see page 9 for a grouped overview of micro machining (MINI) products.

JABRO® – DIAMOND



Solid carbide milling cutters with Chemical Vapour Deposition (CVD) 'DIAMOND' coating for machining abrasive materials like graphite.
Diameter range from 3-12 mm.
DIAMOND product codes begin with JD and JM for MINI DIAMOND.
Please see page 9 for a grouped overview of diamond coated (DIAMOND) products.

JABRO® – COMPOSITE



The Jabro JC800 range cutters are specifically designed to efficiently machine composite parts.

The JC family of tools includes a wide range of cutters with the high degree of specialization needed to meet the specific requirements of these diverse composite materials. The cutters are designed for elimination of fiber break out and delamination as well as improved edge finish.

All Composite product codes begin with JC.

Please see page 9 for a grouped overview of Composite (JC) products.

The Jabro JPD800 series are brazed PCD end mills designed for machining composites. All PCD product codes begin with JPD.

JABRO® – VHM (General engineering)



A selection of solid carbide coated and uncoated cutters.

Diameter range from 1-32 mm.

All VHM product codes begin with J.

Please see page 9 for a grouped overview of the (VHM) products.

The quality of a tool is dependent on the tool material, geometry and coating.

Solid carbide:

A solid carbide tool is highly dependent on the quality of the cemented carbide.

Seco-Jabro determines the carbide used in new developments after extensive research and by using results from laboratory and field tests.

Advanced technology ensures high quality carbide, therefore longer and repeatable tool life.

Coating:

Coating is an important factor in the success of a carbide cutting tool.

Seco applies PVD and CVD coatings.

The PVD coatings are: MEGA-T (MT), MEGA-64 (M64), SIRON-A (SIRA) and NXT

The CVD coatings are: DIAMOND and DURA.

The coating protects the cutting edge of the tool against wear. During machining the temperature can reach 900°.

The insulating properties of the coating protect the basic material. The hardness of a typical PVD coating is higher than the hardness of carbide.

The new NXT coating is an advanced TiAlN based coating specifically designed to perform in wide range of materials.

Due to this the tool has higher resistance to wear with a longer tool life as a result.

The coating also ensures reduced friction, so the wear develops less rapidly and the chip removal is optimized.

DIAMOND coating is specially developed for machining graphite, a highly abrasive material.

The very hard and homogeneous structure of the Dura coating makes the tool very resistant to the wear caused by machining composites.

Product family	Technology	Product	1**	4**	5**	6**	7**	8**	9**
Jabro-Solid ²	General machining	JS		■	■				
Jabro - HPM	High performance machining	JHP	■	■			■		■
Jabro - HFM	High feed machining	JHF	■						■
Jabro - Mini	Micro machining	JM	■	■		■			■
Jabro - HSM/Tornado	High speed machining	JH	■	■			■		■
Jabro - Diamond	Graphite machining	JD				■			
Jabro - Composites	Composite machining	JC, JPD						■	
Jabro - VHM	General machining	J		■					■
Jabro-HSS-E	General machining	JCO					■		■
SMG									
P1-8					■				■
P11					■				■
M1-3					■		■		
M4-5					■		■		
K1-7					■				■
S1-3					■		■		
S11-13					■		■		
H			■		■				
N1				■	■				
N2-3				■	■				
N11				■	■				
TS				■	■			■	
TP				■	■			■	
GR						■			
For further explanation on SMG please see page 347.									

	Page	Family name	Name	P1-8	P11	M1-3	M4-5	K1-7	N1	N2-3	N11	S1-3	S11-13	H3-31	TS1	TS2-3	TS4	TP1	TP2-3	TP4	Honeycomb	GR
	26-30	JS²	JS512	•	•	•	○	•	○	○	○	○	•	○	○			○				○
	31-36		JS513	•	•	•	○	•	○	○	○	○	•	○	○			○				○
	37-41		JS514	•	•	○	○	•	○	○	○	○	•	○	○			○				○
	42-53		JS553	•	•	•	•	•	•	•	•	•	•	•	•			•				○
	54-79		JS554	•	•	•	•	•	•	•	•	•	•	•	•			•				○
	195-197		JS412						•	•					•			•				
	198-200		JS413						•	•					•			•				
	201-205		JS452						•	•					•			•				
	206-210		JS453						•	•					•			•				
	80-83		JS520	•	•	○	○	•	•	•	•	○	•	○	•			•				○
	84-87		JS522	•	•	•	•	•	•	•	•	○	•		•			•				○
	88-93		JS532	•	•	•	•	•	•	•	•	○	•	○	•			•				○
	94-97		JS533	•	•	•	•	•	•	•	•	○	•	○	•			•				○
	98-102		JS534	•	•	•	•	•	•	•	•	○	•	○	•			•				○
	103-105		JS506	•	•	•	•	•	•	•	•	○	•	•	•			•				○
	106-108		JS509	•	•	•	•	•	•	•	•	○	•	•	•			•				○
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	247-248		JH120											•								
	249-250		JH130											•								
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	219-222		JH421						•	•	•				•			•				
	227-228		JH440						•	•	•				•			•				
	229-230		JH450						•	•	•				•			•				
	231-232		JH460						•	•	•				•			•				
	189-190		JH720			•	•					○	•									
	223-224		JH820							•												
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	173-175		JHP750									•	•									
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	183-185		JHP780									•										
	211-214		JHP490						•	•	•											
	156-158		JHP951	•	•			•	•	•	•											
	153-155		JHP993	•	•			•	•	•	•											
	243-246	HFM	JHF180		○									•								
	120-122		JHF980	•	•	•	•	•				•	•	•								

• Preferred choice, ○ Alternative choice

	Page	Family name	Name	P1-8	P11	M1-3	M4-5	K1-7	N1	N2-3	N11	S1-3	S11-13	H3-31	TS1	TS2-3	TS4	TP1	TP2-3	TP4	Honeycomb	GR
	328-329	MINI DIAMOND	JM600																			•
	330-331		JM610																			•
	332-333		JM650																			•
	334-335		JM655																			•
	264-266	MINI	JM103/JM106											•								
	267-268		JM113/JM116											•								
	233-234		JM403/04/06						•	•	•				•			•				
	235-236		JM413/4/16						•	•	•				•			•				
	142-146		JM905	•	•	•	•		○	○	○		•	○								○
	147-149		JM915	•	•	•	•		○	○	○		•	○								○
	142-146		JM920	•	•	•	•		○	○	○		•	○								○
	147-149		JM925	•	•	•	•		○	○	○		•	○								○
	316-317	DIAMOND	JD620																			•
	318-319		JD630																			•
	320-321		JD640																			•
	322-323		JD660																			•
	324-325		JD665VL																			•
	326-327		JD670																			•
	273-275	COMPOSITE	JC840													•			•			
	276-277		JC845													•			•			
	278-279		JC850													•			•			
	280-282		JC860													•			•		•	
	283-287		JC870													•			•		•	
	288-292		JC871													•			•		•	
	293-295		JC875													•			•			
	296-297		JC880													•			•			
	298-299		JC885													•			•			
	300-301	PCD	JPD840													•			•			
	302-303		JPD850													•			•			
	304-305		JPD880													•			•			
	306-308		JPD890													•			•			
	311-312	VHM	J28												•							
	123-124		J29	•	•	•	•	•	•	•	•	•	•	•	•			•				•
	140-141		V31	•	•	•	•	•	•	•	•	•	•	•	•			•				•
	125-126		J36	○	○	○	○	○	○	○	•	○	○	○	○			○				
	127-137		HK/HKM	•	•	•	•	•	○	○	•	•	•	•	•	•		•				•
	138-139		TDM	•	•	•	•	•	•	•	•	•	•	•	•			•				
	309-310		J93/J99-F												•			•				
	186-188	Hss-Co	JCO710			•	•						•									

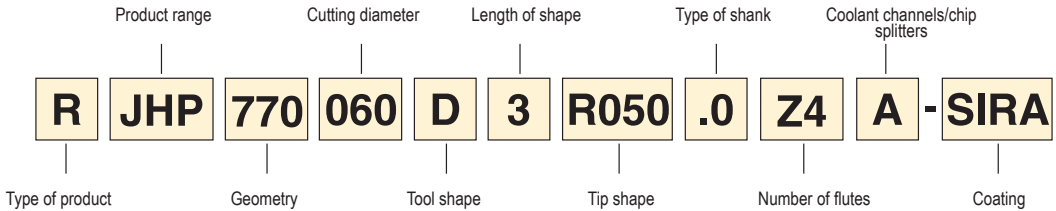
● Preferred choice, ○ Alternative choice

Code key – For catalog products, valid for following geometries:

JS512,513,514,553,554,520,506,509,412,413,452,453

JHP951,993,770,780

JC845, 875, 885, JPD840, 850, 880, 890, JCO710



Product range

J = JABRO® VHM
JC = JABRO® Composites
JD = JABRO® Diamond
JH = JABRO® HSM/Tornado
JHF = JABRO® HFM
JHP = JABRO® HPM
JM = JABRO® Mini
JS = JABRO® SOLID²
JPD = JABRO® PCD
JCO = JABRO® HSS-Co

Type of product

BLANK = Standard (catalog) product
R = Reconditioned product (complete)
RK = Reconditioned product (frontal)

Length of shape

A single digit that gives an indication of the length of the cutter compared to other products with the same cutting geometry. This replaces the previous L, XL, SL, K, and other versions. For most products 1=K, 2=N, 3=L, 4=XL

Number of flutes

This figure indicates the number of flutes in the cutter. For example; Z2= 2 flutes, Z6 = 6 flutes

Cutting diameter

Metric = 3 digit code (in case of 4 digit code – xx,xx mm)
Imperial = a dot followed by a 3 digit code
For example: (050 = metric, 5 mm) / (.500 = imperial, ½ inch)

Coolant channels/chip splitters

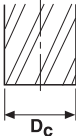
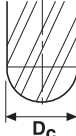
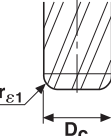
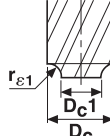
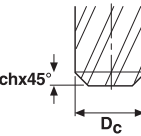
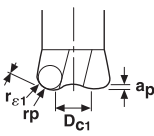
BLANK = No coolant channels
A = Internal coolant channel(s)
C = Chip splitters

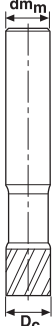
Geometry

Geometry
A three-digit combination specifying the cutting geometry. For example; 111, 950, 553, 514, etc.

Type of shank

Indicates the shank types that are available.
.0 = Cylindrical
.3 = Weldon
.5 = Whistle Notch
.9 = Safe-Lock

Tip shape						Coating
Sharp	Ball-nose	Corner radius	Concave radius	Chamfer	High feed	4 character code specifying the coating on the cutter.
						MEGA = MEGA MT = MEGA-T M64 = MEGA-64 M64T = MEGA-64-T TRI = TRIBON SIRA = SIRON-A HEMI = HEMI DIA = DIAMOND DURA = DURA NXT = NXT
S	B	R...	K...	C	H	
Size of radius for convex and concave radius tipped products 000 = For metric products the tip shape is shown by a three-digit figure. By dividing this figure by 100 you will get the actual corner radius size in millimetres. .000 = For imperial products the tip shape is shown by a dot, followed by a three-digit figure. This figure actually shows the size of the corner radius in inch (e.g. R.100 would indicate a radius of 0.100 inch).						

Tool shape						
(D _c = dm _m)		(D _c < dm _m)				(D _c > dm _m)
						
D	E	F	G	J	N	P

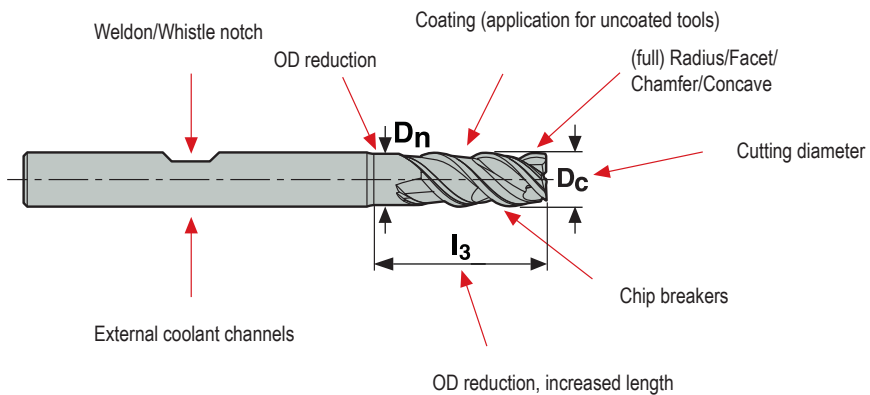
Custom tools

A significant part of Seco's offer is in the form of custom tools. Here there is expertise in all the major customer segments including Aerospace, Power Generation and Medical Engineering. Seco engineers work in close cooperation with customers to provide the best possible solution to specific machining challenges where the demands stretch beyond standard tools.



Modified tools

Seco offers a quick delivery solution for standard tools requiring modification to meet specific dimensional requirements.



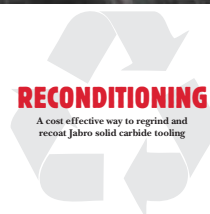
For further information on custom, modified and reconditioned tools please contact your local Seco representative.

Reconditioning cuts cost and tools inventory



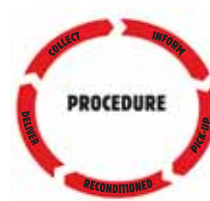
Seco's modern carbide tools offer remarkable performance by utilizing the best combinations of carbide substrates with highly wear resistant coatings, optimized cutting geometry and controlled edge preparation. However good a tool is, as part of its function, it will eventually show signs of wear on the cutting edge. Controlling this wear and the timely replacement of the tool will allow the used tool to be reconditioned, thus reducing tool investment costs.

At Seco, your solid carbide tools are reconditioned using the same advanced technology and care that we use to manufacture our new products.



Your benefits from reconditioning

- Manufactured to Seco's high standards with the original Seco geometry, edge preparation and coating processes.
- Savings on tooling costs by repeated use of the same solid carbide tool.
- Our easy to use and free 'reconditioning box' includes a pre-prepared delivery note.
- Free, reliable collection on the following day when you call your Seco contact for pick up.
- An easy process due to the package service, reconditioning box and prepared delivery note. Delivery via the normal Seco channels.
- Safe transportation and storage of the reconditioned tools by packaging them in similar packaging as new tools.
- A new packaging label is included.
- Work towards greener and cleaner environment. Seco's processes are globally certified with ISO14001.
- Guaranteed quality, as all processes are ISO9001 certified.



Basic operations:

- Face milling
- Slot milling
- Side milling
- Copy milling

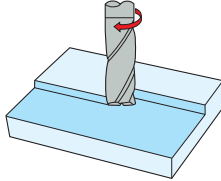
Definitions, basic operations:

Face milling:

Operation where the tool is in engagement with less than 180° arc of contact.

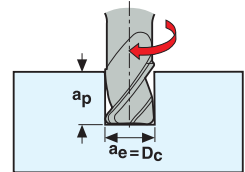
Tool engagement:

Small a_p and large a_e .



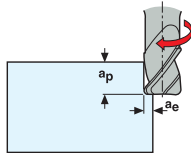
Slot milling:

Operation where the full diameter is in engagement, a_e is equal to D_c and a_p up to $1\frac{1}{2}$ times D_c depending on the machining strategy in use.



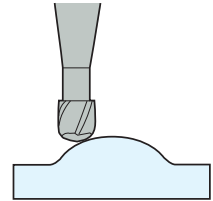
Side milling:

Operation where the side of the tool is in engagement, a_p is large and a_e is small.



Copy milling:

Operation where the radius is in engagement. a_p and a_e are both small.



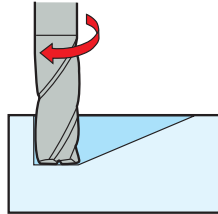
Advanced machining methods:

- Ramping
- Advanced roughing / Optirough
- Helical interpolation
- Trochoidal milling
- Push-pull
- Plunge milling
- Z-leveling
- Drilling

Definitions, advanced machining methods:

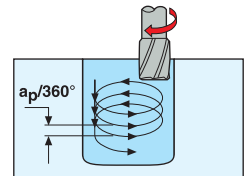
Ramping:

Opening up a pocket by making a Z axis at an angle.



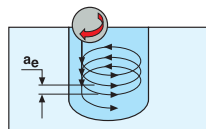
Helical interpolation ramping:

Opening a pocket by making a circular movement with the tool while ramping in Z axis.



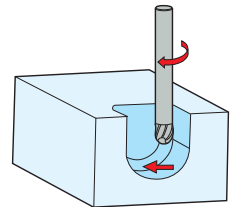
Trochoidal:

Opening a slot by using side milling, making a partial circular movement in X- or Y-axis. (changing slot milling into side milling).



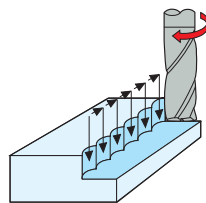
Push-pull:

Machining a 3D form by making a down and up copying movement following the profile of the form.



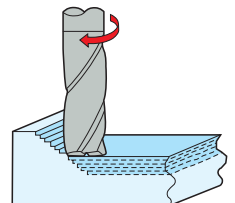
Plunge milling:

Opening up a deep slot by using drilling (Z) axis.



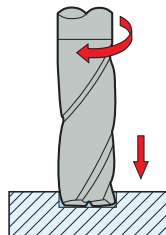
Z-leveling:

Machining a surface by making a small drilling or ramping in Z axis then opening the pocket with X and Y movements.



Drilling:

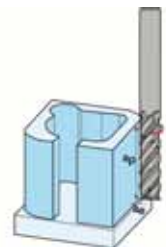
Making a hole with movement in Z axis.



Advanced roughing/Optirough

Well defined tool paths with constant arc of contact for reliable roughing of simple & complex shapes.

The large axial depths (a_p) & small radial depths (a_e) of cut combined with high feeds per tooth (f_z) and cutting speeds (V_c) results in high productivity.



Definitions:

Machining strategies:

- General machining
- High speed machining
- High performance machining
- High feed machining
- Micro machining
- Advanced roughing / Optirough

Definitions, machining strategies:

General machining:

A machining strategy for general use. a_e - a_p ratio can vary depending on the operation.

Tool characteristics: Tools have relatively long cutting lengths and thin core diameters. There are no high requirements on the tolerances.

Machine requirements: There are no special machine requirements needed.

With basic CNC technology, difficult advanced machining methods are not possible.

Average results will be reached on metal removal rate Q (cm³/min).

The application area usually includes small batch sizes and a wide range of materials.

High speed machining:

A machining strategy where a combination of a small radial depth of cut and high cutting speed and table feeds are used.

Depending on the method, a high metal removal and a low R_a value can be reached. Typical for this strategy are low cutting forces, less heat build up in the tool and workpiece, less burr formation and high dimensional accuracy on the workpiece.

With HSM (High Speed Machining) you achieve high metal removal rate and/or surface finish by using a much higher cutting speed compared to general machining.

Tool characteristics: Stable, (thick core diameter and a short cutting length) clear and well formed chip space for good chip evacuation, coating.

Machine requirements: Quick CNC control, high RPM, quick transmission to the axis.

The applications area is: Mold & Die industry on pre-finishing and finishing operations in hardened steel (48-62 HRc) in a short lead time.

This technique can also be applied in most other materials when using the right tool and advanced machining method.

High Performance Machining:

A machining strategy where very high metal removal rates can be achieved. Typical for this strategy is that a_e is 1 times D_c and a_p is 1 to 1½ times D_c depending the workpiece material.

With HPM (High Performance Machining) you achieve an extremely high metal removal rate by using a much higher chip load than in general machining.

Tool characteristics: Specially developed chip formers in the flute of the tool, tip protection with a small 45° face or corner radius, special smooth formed chip space and coating, with or without Weldon shank.

Machine requirements: High stability, high power requirements, CNC control, rigid clamping system.

The application areas are: Operations in a mass production environment where production time/lead time is of great importance or on single products where a high metal removal rate Q (cm³/min.) is required.

High Feed Machining:

A machining strategy where high feed rates can be reached with large radial engagements (a_e) in combination with a small a_p .

With HFM (High Feed Machining) you achieve high metal removal rates and/or surface finish by using a much higher table feed compared to general machining.

Tool characteristics: Specially developed front teeth, very short cutting length and coating.

Machine requirements: Good stability, CNC, possibility for high table feed (v_f).

The big advantage of this technology is that it is very user friendly, easy, safe and quick to program in CAM. By using the so called Z-leveling strategy it is relatively easy to program complex forms without the necessity of having extensive experience in programming.

The application area is: soft to hardened steel, titanium and stainless steel. It is very good as a pre-operation before HSM is used.

It can also be applied in deep pocket machining.

Micro machining:

A machining strategy where extremely small tool diameters are used.

Tool characteristics: Diameter range Ø 0.1 to 2.0 mm, small cutting lengths, a wide range of OD reductions, high accuracy, coating.

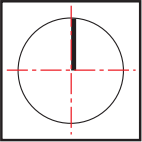
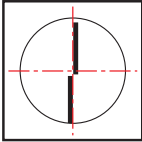
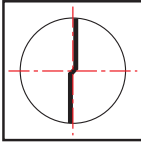
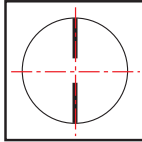
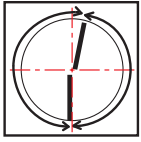
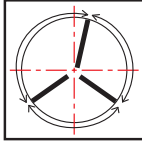
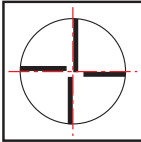
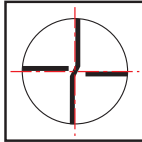
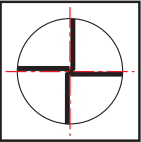
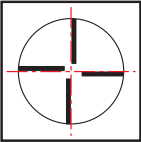
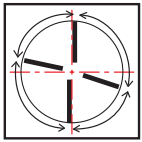
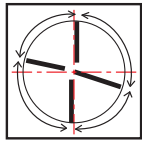
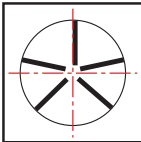
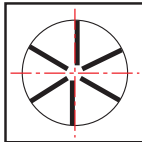
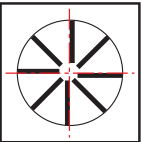
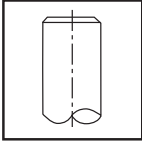
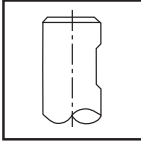
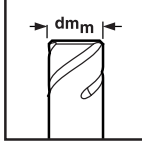
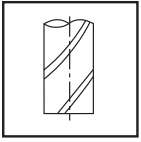
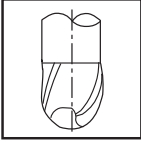
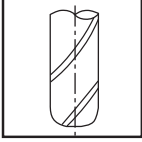
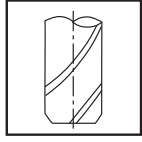
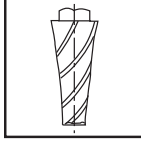
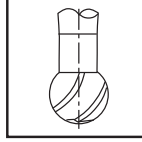
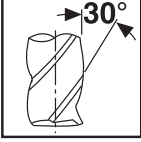
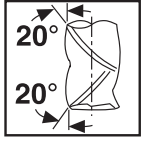
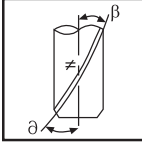
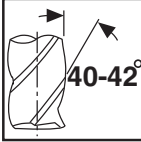
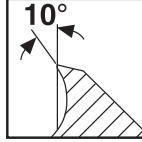
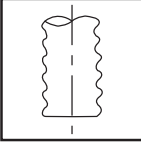
Machine requirements: High spindle accuracy, high RPM, CNC, thermal stability against spindle growth.

Application area is: Production of cavities like slots, pockets, holes or engravings in many types of material.

Advanced roughing / Optirough:

Advanced roughing / Optirough (method/strategy): Well defined tool paths with constant arc of contact for reliable roughing of simple & complex shapes.

Large axial depths (a_p) & small radial depths (a_e) of cut combined with high feeds per tooth (f_z) and cutting speeds (V_c) result in high productivity.

 Center cut $z_n=1$	 Center cut $z_n=2$	 2 teeth across center $z_n=2$	 No center cut $z_n=2$	 Uneven pitch $z_n=2$	 No center cut $z_n=3$
 Center cut $z_n=3$	 Uneven pitch $z_n=3$	 Center cut $z_n=4$	 2 teeth across center $z_n=4$	 4 teeth across center $z_n=4$	 No teeth across center $z_n=4$
 Uneven pitch $z_n=4$	 Uneven pitch / 1 tooth across center $z_n=4$	 No center cut $z_n=5$	 No center cut $z_n=6$	 No center cut $z_n=8$	PCD PCD
HSS-Co	 Cylindrical shank	 Weldon	 Safelock	 Sharp	 Full radius
 Corner radius	 Chamfer	 Tapered sharp	 250° sphere	 Helix angle 30°	 Double helix 20° - 20°
 Helix angle left 15°	 Curved helix	 Unequal helix	 Cutting rake 10°	ICC	 Roughing profile

Remark: not all picture key symbols are mentioned.

		MEGA-64-T	DURA	HEMI	MEGA-T
Chip splitters	Variable flute profile	Mega-64-T (M64)	Dura	Hemi	Mega-T (MT)
MEGA	MEGA-64	TRIBON	SIRON-A	DIAMOND	M64
Mega	Mega-64 (M64)	Tribon(TRI)	Siron-A (SIRA)	Diamond (DIA)	M64
NXT	MT	SIRA			
NXT	MT	SIRA	Advanced roughing	Radial	Radial/ ramping
Radial ramping / plunging / drilling					

Remark: not all picture key symbols are mentioned.

JS554 3C applied in advanced roughing.

Find the JS554-3C offering including cutting data on page 68-79.



						
						
Name		JS512	JS513	JS514	JS553	JS554*
Page		26-30	31-36	37-41	42-53	54-79
Family		JS ²	JS ²	JS ²	JS ²	JS ²
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon	■	■	■	■	■
Number of flutes		2	3	4	3	4
ICC						
Diameter range	Metric	1-25	1-25	1-25	2-25	3-25
	Inch				1/8-1	1/4-1
Lengths available, based on length index		 2,3,4	 2,3,4	 2,3,4	 2,3	 2,3
Operation						
						
						
SMG						
P1-8		●	●	●	●	●
P11		●	●	●	●	●
M1-3		●	●	○	●	●
M4-5		○	○	○	●	●
K1-7		●	●	●	●	●
S1-3		○	○	○	●	●
S11-13		●	●	●	●	●
H5 H8 H11 H12 H21		○	○	○	●	●
N1		○	○	○	●	●
N2-3		○	○	○	●	●
N11		○	○	○	●	●
TS1		○	○	○	●	●
TP1		○	○	○	●	●
GR		○	○	○	○	○

■ Stock standard □ Weldon available, delivery time is 3 days. ● Preferred choice, ○ Alternative choice

*JS554 3C also available. Can be applied in advanced roughing.

						
						
Name		JS520	JS522	JS532	JS533	JS534
Page		80-83	84-87	88-93	94-97	98-102
Family		JS ²	JS ²	JS ²	JS ²	JS ²
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon	□		□	□	□
Number of flutes		5-8	2	2	3	4
ICC						
Diameter range	Metric	4-25	6-32	1-20	1-20	2-20
	Inch		5/16-1 1/4	1/32-3/4		1/32-3/4
Lengths available, based on length index		 2,3	 4	 1,2,3	 1,2	 1,2,3
Operation						
						
SMG						
P1-8		●	●	●	●	●
P11		●	●	●	●	●
M1-3		○	●	●	●	●
M4-5		○	●	●	●	●
K1-7		●	●	●	●	●
S1-3		○	○	○	○	○
S11-13		●	●	●	●	●
H5 H8 H11 H12 H21		○		○	○	○
N1		●	●	●	●	●
N2-3		●	●	●	●	●
N11		●	●	●	●	●
TS1		●	●	●	●	●
TP1		●	●	●	●	●
GR		○	○	○	○	○

■ Stock standard □ Weldon available, delivery time is 3 days. ● Preferred choice, ○ Alternative choice

Name		JS506	JS509	JH910	JH930	JH970
Page		103-105	106-108	109-114	115-117, 251-253	118-119, 162-163
Family		JS ²	JS ²	HSM/TORNADO	HSM/TORNADO	HSM/TORNADO
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon	■	■			
Number of flutes		3-4	3-4	3	5-6, 8	2
Diameter range	Metric	4-12	4-12	2-20	6-20	2-16
	Inch					
Lengths available, based on length index		 2	 2	 2,3,4	 2	 1,2,3
Operation						
SMG						
P1-8		●	●	●	●	●
P11		●	●	●	●	●
M1-3		●	●	●		●
M4-5		●	●	●		●
K1-7		●	●	●	●	
S1-3		○	○	●	●	●
S11-13		●	●	●	●	●
H5 H8 H11 H12 H21		●	●		●	
N1		●	●			
N2-3		●	●			
N11		●	●			
TS1		●	●	●		
TP1		●	●	●		
GR		○	○	●		

■ Stock standard □ Weldon available, delivery time is 3 days. ● Preferred choice, ○ Alternative choice

Name		JHF980	J29	J36	HK/HKM	TDM
Page		120-122	123-124	125-126	127-137	138-139
Family		HFM	VHM	VHM	VHM	VHM
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon		□	□	□	□
Number of flutes		3-5	1	3	2-4	2-4
ICC						
Diameter range	Metric	0.5-6	0.2-6	2-20	1-10	3-10
	Inch					
Lengths available, based on length index		 1,2,3	 2	 2	 2	 2
Operation						
SMG						
P1-8		•	•	○	•	•
P11		•	•	○	•	•
M1-3		•	•	○	•	•
M4-5		•	•	○	•	•
K1-7		•	•	○	•	•
S1-3		•	•	○	•	•
S11-13		•	•	○	•	•
H5 H8 H11 H12 H21		•			•	
N1			•	○	•	•
N2-3			•		○	•
N11			•	•	•	•
TS1			•	○	•	•
TP1			•	○	•	•
GR			•		•	

■ Stock standard □ Weldon available, delivery time is 3 days. • Preferred choice, ○ Alternative choice

Name		V31	JM905	JM915	JM920	JM925
Page		140-141	142-146	147-149	142-146	147-149
Family		VHM	MINI	MINI	MINI	MINI
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon	□				
Number of flutes		4	2 & 4	2	2 & 4	2
ICC						
Diameter range	Metric	6-28	0.1-2.0	0.1-2.0	0.1-2.0	0.1-2.0
	Inch					
Lengths available, based on length index		 2	 1,2,3,4,5,6,7	 1,2,3,4,5,6	 1,2,3,4,5,6,7	 1,2,3,4,5,6
Operation						
SMG						
P1-8		•	•	•	•	•
P11		•	•	•	•	•
M1-3		•	•	•	•	•
M4-5		•	•	•	•	•
K1-7		•				
S1-3		•				
S11-13		•	•	•	•	•
H5 H8 H11 H12 H21		•	○	○	○	○
N1		•	○	○	○	○
N2-3		•	○	○	○	○
N11		•	○	○	○	○
TS1		•				
TP1		•				
GR		•	○	○	○	○

■ Stock standard □ Weldon available, delivery time is 3 days. • Preferred choice, ○ Alternative choice

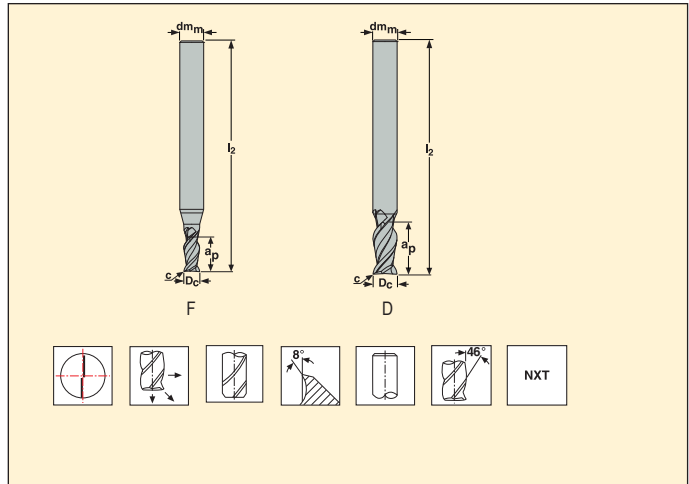
JS512 – Solid carbide end mill – cylindrical – two flute – 45° chamfer



Tolerances:

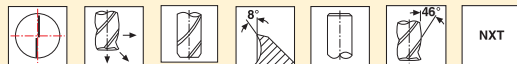
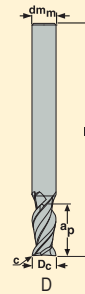
$dm_m = h5$

$D_c = e8$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm					z_n	Cylindrical
				D_c	dm_m	a_p	l_2	$c \times 45^\circ$		
01544	JS512010F2C.0Z2-NXT	2	F	1	3	2	38	0.01	2	■
01547	JS512015F2C.0Z2-NXT	2	F	1.5	3	3	38	0.015	2	■
01553	JS512021F2C.0Z2-NXT	2	F	2	3	4	38	0.02	2	■
01552	JS512020F2C.0Z2-NXT	2	F	2	6	4	57	0.02	2	■
01561	JS512030D2C.0Z2-NXT	2	D	3	3	6	38	0.03	2	■
01555	JS512030F2C.0Z2-NXT	2	F	3	6	6	57	0.03	2	■
01580	JS512040D2C.0Z2-NXT	2	D	4	4	8	50	0.04	2	■
01569	JS512040F2C.0Z2-NXT	2	F	4	6	8	57	0.04	2	■
01587	JS512050D2C.0Z2-NXT	2	D	5	5	10	50	0.05	2	■
01586	JS512050F2C.0Z2-NXT	2	F	5	6	10	57	0.05	2	■
01589	JS512060D2C.0Z2-NXT	2	D	6	6	12	57	0.06	2	■
01590	JS512080D2C.0Z2-NXT	2	D	8	8	16	63	0.08	2	■
01591	JS512100D2C.0Z2-NXT	2	D	10	10	20	72	0.1	2	■
01592	JS512120D2C.0Z2-NXT	2	D	12	12	24	83	0.12	2	■
01593	JS512160D2C.0Z2-NXT	2	D	16	16	30	92	0.16	2	■
01736	JS512200D2C.0Z2-NXT	2	D	20	20	35	104	0.2	2	■
01737	JS512250D2C.0Z2-NXT	2	D	25	25	40	125	0.25	2	■
01738	JS512010F3C.0Z2-NXT	3	F	1	3	3	38	0.01	2	■
01739	JS512015F3C.0Z2-NXT	3	F	1.5	3	6	38	0.015	2	■
01685	JS512020F3C.0Z2-NXT	3	F	2	6	7	57	0.02	2	■
01708	JS512030F3C.0Z2-NXT	3	F	3	6	10	57	0.03	2	■
01709	JS512040F3C.0Z2-NXT	3	F	4	6	14	57	0.04	2	■
01741	JS512050F3C.0Z2-NXT	3	F	5	6	18	57	0.05	2	■
01713	JS512060D3C.0Z2-NXT	3	D	6	6	20	63	0.06	2	■
01719	JS512080D3C.0Z2-NXT	3	D	8	8	28	80	0.08	2	■
01725	JS512100D3C.0Z2-NXT	3	D	10	10	35	89	0.1	2	■
01726	JS512120D3C.0Z2-NXT	3	D	12	12	42	100	0.12	2	■
01742	JS512160D3C.0Z2-NXT	3	D	16	16	50	115	0.16	2	■
01747	JS512200D3C.0Z2-NXT	3	D	20	20	60	125	0.2	2	■
01748	JS512250D3C.0Z2-NXT	3	D	25	25	70	150	0.25	2	■
01727	JS512020F4C.0Z2-NXT	4	F	2	6	10	57	0.02	2	■
01729	JS512030F4C.0Z2-NXT	4	F	3	6	15	57	0.03	2	■
01732	JS512040F4C.0Z2-NXT	4	F	4	6	20	63	0.04	2	■
01751	JS512050F4C.0Z2-NXT	4	F	5	6	25	63	0.05	2	■
01733	JS512060D4C.0Z2-NXT	4	D	6	6	30	75	0.06	2	■
01734	JS512080D4C.0Z2-NXT	4	D	8	8	40	100	0.08	2	■
01735	JS512100D4C.0Z2-NXT	4	D	10	10	50	100	0.1	2	■

■ Stock standard. Subject to change, refer to current price-and stock-list.

$$D_c = e8$$
[illegible]

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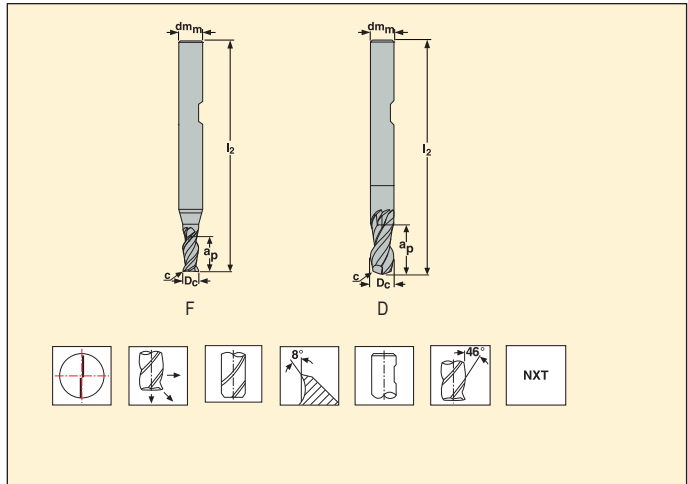
JS512 – Solid carbide end mill – Weldon – two flute – 45° chamfer



Tolerances:

$dm_m = h5$

$D_c = e8$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm					z_n	Weldon
				D_c	dm_m	a_p	l_2	$c \times 45^\circ$		
01793	JS512020F2C.3Z2-NXT	2	F	2	6	4	57	0.02	2	☐
01794	JS512030F2C.3Z2-NXT	2	F	3	6	6	57	0.03	2	☐
01795	JS512040F2C.3Z2-NXT	2	F	4	6	8	57	0.04	2	☐
01796	JS512050F2C.3Z2-NXT	2	F	5	6	10	57	0.05	2	☐
01797	JS512060D2C.3Z2-NXT	2	D	6	6	12	57	0.06	2	☐
01798	JS512080D2C.3Z2-NXT	2	D	8	8	16	63	0.08	2	☐
01799	JS512100D2C.3Z2-NXT	2	D	10	10	20	72	0.1	2	☐
01800	JS512120D2C.3Z2-NXT	2	D	12	12	24	83	0.12	2	☐
01801	JS512160D2C.3Z2-NXT	2	D	16	16	30	92	0.16	2	☐
01802	JS512200D2C.3Z2-NXT	2	D	20	20	35	104	0.2	2	☐
01805	JS512250D2C.3Z2-NXT	2	D	25	25	40	125	0.25	2	☐
01806	JS512020F3C.3Z2-NXT	3	F	2	6	7	57	0.02	2	☐
01809	JS512030F3C.3Z2-NXT	3	F	3	6	10	57	0.03	2	☐
01818	JS512040F3C.3Z2-NXT	3	F	4	6	14	57	0.04	2	☐
01824	JS512050F3C.3Z2-NXT	3	F	5	6	18	57	0.05	2	☐
01827	JS512060D3C.3Z2-NXT	3	D	6	6	20	63	0.06	2	☐
01828	JS512080D3C.3Z2-NXT	3	D	8	8	28	80	0.08	2	☐
01840	JS512100D3C.3Z2-NXT	3	D	10	10	35	89	0.1	2	☐
01845	JS512120D3C.3Z2-NXT	3	D	12	12	42	100	0.12	2	☐
01849	JS512160D3C.3Z2-NXT	3	D	16	16	50	115	0.16	2	☐
01850	JS512200D3C.3Z2-NXT	3	D	20	20	60	125	0.2	2	☐
01851	JS512250D3C.3Z2-NXT	3	D	25	25	70	150	0.25	2	☐
01874	JS512020F4C.3Z2-NXT	4	F	2	6	10	57	0.02	2	☐
01875	JS512030F4C.3Z2-NXT	4	F	3	6	15	57	0.03	2	☐
01878	JS512040F4C.3Z2-NXT	4	F	4	6	20	63	0.04	2	☐
01881	JS512050F4C.3Z2-NXT	4	F	5	6	25	63	0.05	2	☐
01914	JS512060D4C.3Z2-NXT	4	D	6	6	30	75	0.06	2	☐
01933	JS512080D4C.3Z2-NXT	4	D	8	8	40	100	0.08	2	☐
01934	JS512100D4C.3Z2-NXT	4	D	10	10	50	100	0.1	2	☐
01935	JS512120D4C.3Z2-NXT	4	D	12	12	60	125	0.12	2	☐
01936	JS512160D4C.3Z2-NXT	4	D	16	16	70	130	0.16	2	☐
01937	JS512200D4C.3Z2-NXT	4	D	20	20	80	150	0.2	2	☐
01945	JS512250D4C.3Z2-NXT	4	D	25	25	90	165	0.25	2	☐

☐ Weldon available, delivery time is 3 days.

Cutting data – JS512 Slotting

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
P1	E	1.0	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.070	0.080	0.085	0.090	0.10	165 (140 – 195)
P2	E	1.0	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.085	0.095	0.11	160 (135 – 190)
P3	E	1.0	0.0050	0.010	0.016	0.020	0.026	0.032	0.042	0.050	0.060	0.070	0.075	0.085	0.090	0.10	140 (120 – 165)
P4	E	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	125 (105 – 145)
P5	E	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	120 (100 – 140)
P6	E	1.0	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	135 (110 – 155)
P7	E	1.0	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	125 (105 – 145)
P8	E	1.0	0.0050	0.010	0.016	0.020	0.026	0.032	0.042	0.050	0.060	0.070	0.075	0.085	0.090	0.10	120 (100 – 140)
P11	E	1.0	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	120 (100 – 145)
M1	E	0.80	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.085	0.095	0.11	95 (85 – 110)
M2	E	0.80	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	80 (70 – 90)
M3	E	0.65	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	65 (55 – 70)
M4	E	0.48	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.055	0.060	0.065	48 (42 – 55)
M5	E	0.48	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.055	0.060	0.065	40 (35 – 45)
K1	E	1.0	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.085	0.095	0.11	145 (125 – 165)
K2	E	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	130 (110 – 145)
K3	E	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	110 (95 – 125)
K4	E	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	105 (90 – 120)
K5	E	1.0	0.0046	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.065	0.070	0.075	0.085	65 (55 – 70)
K6	E	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	90 (80 – 105)
K7	E	1.0	0.0046	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.065	0.070	0.075	0.085	80 (70 – 90)
N1	E	0.40	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.11	620 (465 – 770)
N2	E	0.40	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.11	400 (300 – 500)
N3	E	0.40	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.11	265 (200 – 330)
N11	E	1.0	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.11	295 (200 – 395)
S1	E	0.40	0.0032	0.0065	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.044	0.048	0.050	0.055	0.060	39 (30 – 49)
S2	E	0.40	0.0032	0.0065	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.044	0.048	0.050	0.055	0.060	39 (30 – 49)
S3	E	0.40	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.055	23 (14 – 33)
S11	E	0.60	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	90 (65 – 115)
S12	E	0.60	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	70 (50 – 90)
S13	E	0.50	0.0034	0.0070	0.010	0.014	0.017	0.020	0.028	0.034	0.042	0.046	0.050	0.055	0.060	0.065	55 (40 – 70)
H5	M/A/D	0.22	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	47 (38 – 55)
H8	M/A/D	0.20	0.0024	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.036	0.040	0.044	49 (39 – 60)
H11	M/A/D	0.22	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	60 (49 – 75)
H12	M/A/D	0.22	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	100 (80 – 120)
H21	M/A/D	0.20	0.0024	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.036	0.040	0.044	49 (39 – 60)
TS1	A	1.0	0.0070	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.11	0.12	0.13	510 (410 – 610)
TP1	A	1.0	0.0070	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.11	0.12	0.13	510 (410 – 610)
GR1	D/A	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	530 (430 – 640)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS512 Side milling $a_p/D_c = 0.4$

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
P1	M/A/D/E	1.2	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.090	0.095	0.11	205 (175 — 240)
P2	M/A/D/E	1.2	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.085	0.090	0.095	0.11	200 (170 — 235)
P3	M/A/D/E	1.2	0.0055	0.011	0.016	0.022	0.026	0.032	0.042	0.055	0.065	0.070	0.080	0.085	0.090	0.10	175 (145 — 205)
P4	M/A/D/E	1.2	0.0050	0.010	0.016	0.020	0.026	0.032	0.042	0.050	0.060	0.070	0.075	0.085	0.090	0.10	155 (130 — 180)
P5	M/A/D/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	150 (125 — 175)
P6	M/A/D/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.095	165 (140 — 195)
P7	M/A/D/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.095	160 (130 — 185)
P8	M/A/D/E	1.2	0.0055	0.011	0.016	0.022	0.026	0.032	0.042	0.055	0.065	0.070	0.080	0.085	0.090	0.10	145 (120 — 170)
P11	M/A/D/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.095	155 (130 — 180)
M1	E/M/A	1.0	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.085	0.090	0.095	0.11	120 (105 — 135)
M2	E/M/A	1.0	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	100 (85 — 110)
M3	E/M/A	0.80	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	80 (70 — 90)
M4	E/M/A	0.60	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.048	0.055	0.055	0.060	0.070	60 (55 — 70)
M5	E/M/A	0.60	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.048	0.055	0.055	0.060	0.070	50 (44 — 55)
K1	A/D/M/E	1.2	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.085	0.090	0.095	0.11	180 (160 — 205)
K2	A/D/M/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	160 (140 — 185)
K3	A/D/M/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	135 (120 — 155)
K4	A/D/M/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	130 (115 — 150)
K5	A/D/M/E	1.2	0.0046	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.070	0.075	0.080	0.090	80 (70 — 90)
K6	A/D/M/E	1.2	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	115 (100 — 130)
K7	A/D/M/E	1.2	0.0046	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.070	0.075	0.080	0.090	100 (85 — 115)
TS1	A/D	1.0	0.0070	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.11	0.12	0.14	640 (510 — 770)
TP1	A/D	1.0	0.0070	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.11	0.12	0.14	640 (510 — 770)
GR1	A/D	1.4	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	670 (530 — 800)

Cutting data – JS512 Side milling $a_p/D_c = 0.2$

SMG		a _p / D _c	f _z													v _c
			1	2	3	4	5	6	8	10	12	16	20	25		
N1	E/M/A	1.3	0.0075	0.015	0.022	0.030	0.038	0.046	0.060	0.075	0.090	0.11	0.13	0.14	860 (650 — 1075)	
N2	E/M/A	1.3	0.0075	0.015	0.022	0.030	0.038	0.046	0.060	0.075	0.090	0.11	0.13	0.14	560 (415 — 690)	
N3	E/M/A	1.3	0.0075	0.015	0.022	0.030	0.038	0.046	0.060	0.075	0.090	0.11	0.13	0.14	370 (280 — 465)	
S1	E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	0.075	55 (41 — 70)	
S2	E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	0.075	55 (41 — 70)	
S3	E	1.0	0.0038	0.0075	0.011	0.015	0.019	0.022	0.030	0.038	0.044	0.055	0.065	0.070	32 (19 — 45)	
S11	E	1.3	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.095	125 (90 — 160)	
S12	E	1.3	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.095	95 (70 — 125)	
S13	E	1.1	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.065	0.075	0.085	75 (55 — 100)	
H5	M/A/D	0.22	0.0038	0.0075	0.011	0.015	0.019	0.022	0.030	0.038	0.044	0.055	0.065	0.070	65 (55 — 80)	
H8	M/A/D	0.20	0.0028	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.042	0.048	0.055	70 (55 — 80)	
H21	M/A/D	0.20	0.0028	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.042	0.048	0.055	70 (55 — 80)	
H31	M/A/D	0.20	0.0026	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.036	0.042	0.048	50 (42 — 65)	

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

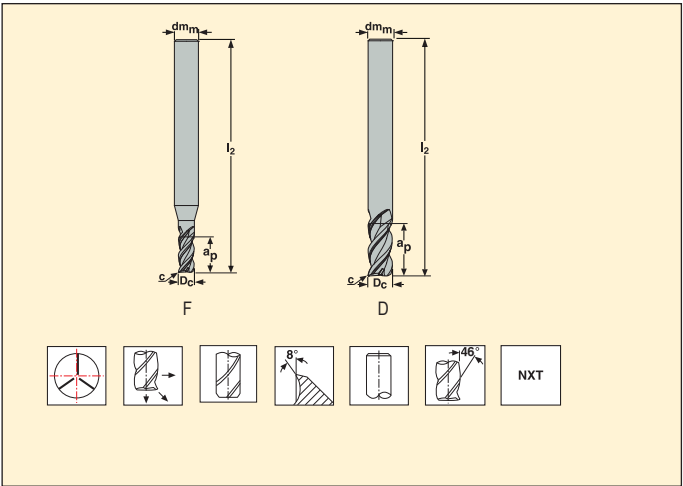
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JS513 – Solid carbide end mill – cylindrical – three flute – 45° chamfer



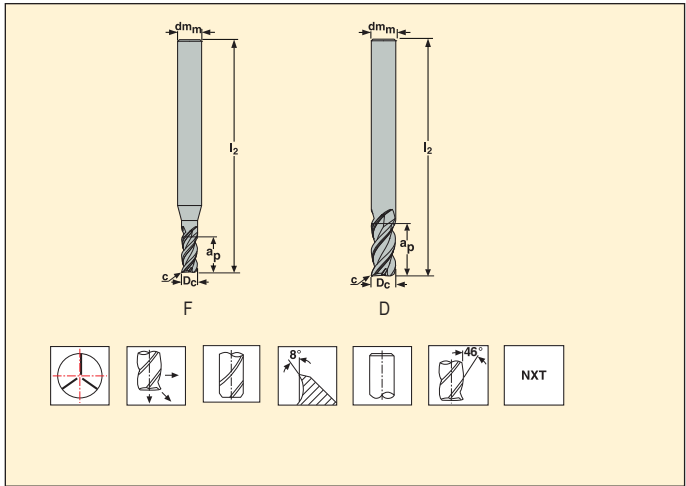
Tolerances:
 $dm_m=h5$
 $D_c=e8$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm					z_n	Cylindrical
				D_c	dm_m	a_p	l_2	$c \times 45^\circ$		
01946	JS513010F2C.0Z3-NXT	2	F	1	3	2	38	0.01	3	■
06474	JS513015F2C.0Z3-NXT	2	F	1.5	3	3	38	0.015	3	■
01952	JS513021F2C.0Z3-NXT	2	F	2	3	4	38	0.02	3	■
01951	JS513020F2C.0Z3-NXT	2	F	2	6	4	57	0.02	3	■
01969	JS513025F2C.0Z3-NXT	2	F	2.5	6	5	57	0.025	3	■
01971	JS513030F2C.0Z3-NXT	2	F	3	6	6	57	0.03	3	■
01973	JS513030D2C.0Z3-NXT	2	D	3	3	6	38	0.03	3	■
01974	JS513040F2C.0Z3-NXT	2	F	4	6	8	57	0.04	3	■
01976	JS513040D2C.0Z3-NXT	2	D	4	4	8	50	0.04	3	■
01980	JS513050F2C.0Z3-NXT	2	F	5	6	10	57	0.05	3	■
01989	JS513050D2C.0Z3-NXT	2	D	5	5	10	50	0.05	3	■
01992	JS513060D2C.0Z3-NXT	2	D	6	6	12	57	0.06	3	■
02024	JS513080D2C.0Z3-NXT	2	D	8	8	16	63	0.08	3	■
02037	JS513100D2C.0Z3-NXT	2	D	10	10	20	72	0.1	3	■
02043	JS513120D2C.0Z3-NXT	2	D	12	12	24	83	0.12	3	■
02047	JS513140D2C.0Z3-NXT	2	D	14	14	28	83	0.14	3	■
02055	JS513160D2C.0Z3-NXT	2	D	16	16	30	92	0.16	3	■
02057	JS513180D2C.0Z3-NXT	2	D	18	18	35	100	0.18	3	■
02339	JS513200D2C.0Z3-NXT	2	D	20	20	35	104	0.2	3	■
02347	JS513250D2C.0Z3-NXT	2	D	25	25	40	125	0.25	3	■
01948	JS513010F3C.0Z3-NXT	3	F	1	3	3	38	0.01	3	■
02070	JS513015F3C.0Z3-NXT	3	F	1.5	3	6	38	0.015	3	■
02071	JS513020F3C.0Z3-NXT	3	F	2	6	7	57	0.02	3	■
02349	JS513025F3C.0Z3-NXT	3	F	2.5	6	9	57	0.025	3	■
02076	JS513030F3C.0Z3-NXT	3	F	3	6	10	57	0.03	3	■
02081	JS513040F3C.0Z3-NXT	3	F	4	6	14	57	0.04	3	■
02084	JS513050F3C.0Z3-NXT	3	F	5	6	18	57	0.05	3	■
02101	JS513060D3C.0Z3-NXT	3	D	6	6	20	63	0.06	3	■
02177	JS513080D3C.0Z3-NXT	3	D	8	8	28	80	0.08	3	■
02212	JS513100D3C.0Z3-NXT	3	D	10	10	35	89	0.1	3	■
02218	JS513120D3C.0Z3-NXT	3	D	12	12	42	100	0.12	3	■
02248	JS513140D3C.0Z3-NXT	3	D	14	14	50	120	0.14	3	■
02249	JS513160D3C.0Z3-NXT	3	D	16	16	50	115	0.16	3	■
02250	JS513200D3C.0Z3-NXT	3	D	20	20	60	125	0.2	3	■
02355	JS513250D3C.0Z3-NXT	3	D	25	25	70	150	0.25	3	■

■ Stock standard. Subject to change, refer to current price-and stock-list.

The image shows three drill bits of increasing length and diameter, arranged vertically. The shortest bit is on the left, the medium one in the center, and the longest one on the right. This visualizes the concept of stiffness, where longer and larger diameter bits are less stiff and more prone to deflection during drilling.

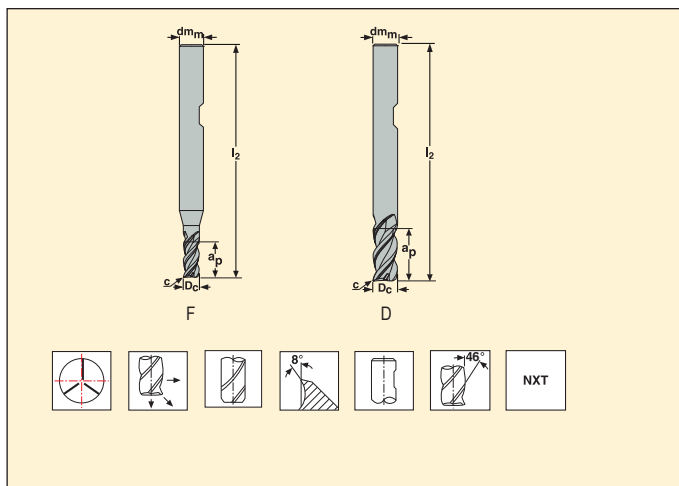
$$D_c = e8$$
[illegible]

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JS513 – Solid carbide end mill – Weldon – three flute – 45° chamfer

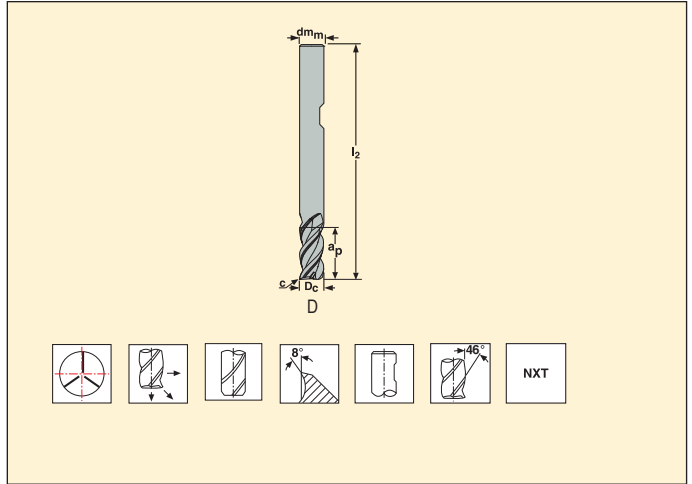


Tolerances:
 $dm_m = h5$
 $D_c = e8$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm					z_n	Weldon
				D_c	dm_m	a_p	l_2	$c \times 45^\circ$		
02491	JS513020F2C.3Z3-NXT	2	F	2	6	4	57	0.02	3	☐
02512	JS513025F2C.3Z3-NXT	2	F	2.5	6	5	57	0.025	3	☐
02515	JS513030F2C.3Z3-NXT	2	F	3	6	6	57	0.03	3	☐
02516	JS513040F2C.3Z3-NXT	2	F	4	6	8	57	0.04	3	☐
02532	JS513050F2C.3Z3-NXT	2	F	5	6	10	57	0.05	3	☐
02533	JS513060D2C.3Z3-NXT	2	D	6	6	12	57	0.06	3	☐
02540	JS513080D2C.3Z3-NXT	2	D	8	8	16	63	0.08	3	☐
02542	JS513100D2C.3Z3-NXT	2	D	10	10	20	72	0.1	3	☐
02547	JS513120D2C.3Z3-NXT	2	D	12	12	24	83	0.12	3	☐
02549	JS513140D2C.3Z3-NXT	2	D	14	14	28	83	0.14	3	☐
02551	JS513160D2C.3Z3-NXT	2	D	16	16	30	92	0.16	3	☐
02552	JS513180D2C.3Z3-NXT	2	D	18	18	35	100	0.18	3	☐
02553	JS513200D2C.3Z3-NXT	2	D	20	20	35	104	0.2	3	☐
02554	JS513250D2C.3Z3-NXT	2	D	25	25	40	125	0.25	3	☐
02555	JS513020F3C.3Z3-NXT	3	F	2	6	7	57	0.02	3	☐
02556	JS513025F3C.3Z3-NXT	3	F	2.5	6	9	57	0.025	3	☐
02557	JS513030F3C.3Z3-NXT	3	F	3	6	10	57	0.03	3	☐
02558	JS513040F3C.3Z3-NXT	3	F	4	6	14	57	0.04	3	☐
02559	JS513050F3C.3Z3-NXT	3	F	5	6	18	57	0.05	3	☐
02560	JS513060D3C.3Z3-NXT	3	D	6	6	20	63	0.06	3	☐
02561	JS513080D3C.3Z3-NXT	3	D	8	8	28	80	0.08	3	☐
02562	JS513100D3C.3Z3-NXT	3	D	10	10	35	89	0.1	3	☐
02563	JS513120D3C.3Z3-NXT	3	D	12	12	42	100	0.12	3	☐
02564	JS513140D3C.3Z3-NXT	3	D	14	14	50	120	0.14	3	☐
02566	JS513160D3C.3Z3-NXT	3	D	16	16	50	115	0.16	3	☐
02567	JS513200D3C.3Z3-NXT	3	D	20	20	60	125	0.2	3	☐
02568	JS513250D3C.3Z3-NXT	3	D	25	25	70	150	0.25	3	☐
02569	JS513020F4C.3Z3-NXT	4	F	2	6	10	57	0.02	3	☐
02570	JS513025F4C.3Z3-NXT	4	F	2.5	6	13	57	0.025	3	☐
02571	JS513030F4C.3Z3-NXT	4	F	3	6	15	57	0.03	3	☐
02572	JS513040F4C.3Z3-NXT	4	F	4	6	20	63	0.04	3	☐
02574	JS513050F4C.3Z3-NXT	4	F	5	6	25	63	0.05	3	☐
02575	JS513060D4C.3Z3-NXT	4	D	6	6	30	80	0.06	3	☐
02576	JS513080D4C.3Z3-NXT	4	D	8	8	40	100	0.08	3	☐
02577	JS513100D4C.3Z3-NXT	4	D	10	10	50	100	0.1	3	☐
02582	JS513120D4C.3Z3-NXT	4	D	12	12	60	125	0.12	3	☐
02583	JS513140D4C.3Z3-NXT	4	D	14	14	65	140	0.14	3	☐

☐ Weldon available, delivery time is 3 days.

$$D_c = e8$$
[illegible]

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Cutting data – JS513 Slotting

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
P1	E	0.70	0.0044	0.0085	0.013	0.017	0.022	0.026	0.034	0.044	0.050	0.060	0.065	0.070	0.075	0.085	165 (140 – 195)
P2	E	0.70	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.060	0.065	0.070	0.075	0.085	160 (135 – 190)
P3	E	0.70	0.0042	0.0085	0.012	0.017	0.020	0.024	0.034	0.042	0.050	0.055	0.060	0.065	0.070	0.080	140 (115 – 165)
P4	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	125 (105 – 145)
P5	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	120 (100 – 140)
P6	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.046	0.055	0.060	0.065	0.065	0.075	135 (110 – 155)
P7	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.046	0.055	0.060	0.065	0.065	0.075	125 (105 – 145)
P8	E	0.70	0.0042	0.0085	0.012	0.017	0.020	0.024	0.034	0.042	0.050	0.055	0.060	0.065	0.070	0.080	120 (100 – 140)
P11	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.046	0.055	0.060	0.065	0.065	0.075	125 (100 – 145)
M1	E	0.60	0.0034	0.0065	0.010	0.013	0.017	0.020	0.026	0.034	0.040	0.044	0.048	0.050	0.055	0.065	95 (85 – 110)
M2	E	0.60	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.055	80 (70 – 90)
M3	E	0.48	0.0024	0.0048	0.0070	0.0095	0.012	0.014	0.019	0.024	0.028	0.032	0.036	0.038	0.040	0.046	65 (55 – 70)
M4	E	0.36	0.0022	0.0042	0.0065	0.0085	0.011	0.013	0.017	0.022	0.024	0.028	0.030	0.034	0.036	0.040	48 (42 – 55)
M5	E	0.36	0.0022	0.0042	0.0065	0.0085	0.011	0.013	0.017	0.022	0.024	0.028	0.030	0.034	0.036	0.040	40 (35 – 45)
K1	E	0.70	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.060	0.065	0.070	0.075	0.085	140 (120 – 160)
K2	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	125 (105 – 140)
K3	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	105 (90 – 120)
K4	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	100 (85 – 110)
K5	E	0.70	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.048	0.055	0.055	0.060	0.070	60 (50 – 70)
K6	E	0.70	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	85 (75 – 100)
K7	E	0.70	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.048	0.055	0.055	0.060	0.070	75 (65 – 85)
N11	E	0.70	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.11	300 (200 – 395)
S1	E	0.30	0.0032	0.0065	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.044	0.048	0.050	0.055	0.060	40 (30 – 49)
S2	E	0.30	0.0032	0.0065	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.044	0.048	0.050	0.055	0.060	40 (30 – 49)
S3	E	0.30	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.055	24 (14 – 33)
S11	E	0.40	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.055	80 (65 – 90)
S12	E	0.40	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.055	60 (50 – 70)
S13	E	0.34	0.0026	0.0055	0.0080	0.011	0.013	0.016	0.022	0.026	0.032	0.036	0.038	0.042	0.044	0.050	47 (40 – 55)
H5	M/A/D	0.22	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	47 (38 – 55)
H8	M/A/D	0.20	0.0024	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.036	0.040	0.044	49 (39 – 60)
H11	M/A/D	0.22	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	60 (49 – 75)
H12	M/A/D	0.22	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	100 (80 – 120)
H21	M/A/D	0.20	0.0024	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.036	0.040	0.044	49 (39 – 60)
TP1	A	0.80	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.11	495 (395 – 600)
GR1	A	0.80	0.0080	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.13	0.14	0.15	495 (395 – 600)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS513 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
P1	M/A/D/E	1.0	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.060	0.065	0.070	0.075	0.085	205 (175 — 240)
P2	M/A/D/E	1.0	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.060	0.065	0.070	0.075	0.085	200 (170 — 235)
P3	M/A/D/E	1.0	0.0042	0.0085	0.013	0.017	0.022	0.026	0.034	0.042	0.050	0.055	0.060	0.065	0.070	0.080	175 (145 — 205)
P4	M/A/D/E	1.0	0.0042	0.0085	0.012	0.017	0.020	0.024	0.034	0.042	0.050	0.055	0.060	0.065	0.070	0.080	155 (130 — 180)
P5	M/A/D/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	150 (125 — 175)
P6	M/A/D/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	165 (140 — 195)
P7	M/A/D/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	155 (130 — 185)
P8	M/A/D/E	1.0	0.0042	0.0085	0.013	0.017	0.022	0.026	0.034	0.042	0.050	0.055	0.060	0.065	0.070	0.080	145 (125 — 170)
P11	M/A/D/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	155 (125 — 180)
M1	E/M/A	1.0	0.0034	0.0065	0.010	0.013	0.017	0.020	0.026	0.034	0.040	0.046	0.050	0.055	0.055	0.065	120 (105 — 135)
M2	E/M/A	1.0	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.046	0.048	0.050	0.060	100 (85 — 110)
M3	E/M/A	0.80	0.0024	0.0048	0.0075	0.010	0.012	0.015	0.020	0.024	0.028	0.032	0.036	0.038	0.042	0.046	80 (70 — 90)
M4	E/M/A	0.60	0.0022	0.0042	0.0065	0.0085	0.011	0.013	0.017	0.022	0.026	0.028	0.032	0.034	0.036	0.042	60 (50 — 65)
M5	E/M/A	0.60	0.0022	0.0042	0.0065	0.0085	0.011	0.013	0.017	0.022	0.026	0.028	0.032	0.034	0.036	0.042	49 (43 — 55)
K1	A/D/M/E	1.0	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.060	0.065	0.070	0.075	0.085	175 (150 — 195)
K2	A/D/M/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	155 (135 — 175)
K3	A/D/M/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	130 (110 — 145)
K4	A/D/M/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	125 (105 — 140)
K5	A/D/M/E	1.0	0.0036	0.0075	0.011	0.015	0.018	0.022	0.030	0.036	0.044	0.050	0.055	0.060	0.060	0.070	75 (65 — 85)
K6	A/D/M/E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.080	110 (95 — 125)
K7	A/D/M/E	1.0	0.0036	0.0075	0.011	0.015	0.018	0.022	0.030	0.036	0.044	0.050	0.055	0.060	0.060	0.070	95 (85 — 110)
N11	E/M/A	1.0	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.12	370 (250 — 495)
S11	E	1.0	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.046	0.048	0.050	0.060	95 (80 — 110)
S12	E	1.0	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.046	0.048	0.050	0.060	75 (60 — 85)
S13	E	0.85	0.0026	0.0055	0.0080	0.011	0.013	0.016	0.022	0.026	0.032	0.036	0.040	0.042	0.046	0.050	60 (49 — 70)
TS1	A/D	1.4	0.0080	0.016	0.024	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.13	0.14	0.16	620 (495 — 750)
TP1	A/D	1.0	0.0060	0.012	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.080	0.090	0.095	0.10	0.12	620 (495 — 750)
GR1	A/D	1.4	0.0080	0.016	0.024	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.13	0.14	0.16	620 (495 — 750)

Cutting data – JS513 Side milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
N1	E/M/A	1.2	0.0065	0.013	0.019	0.026	0.032	0.038	0.050	0.065	0.075	0.085	0.090	0.10	0.11	0.12	800 (640 — 960)
N2	E/M/A	1.2	0.0065	0.013	0.019	0.026	0.032	0.038	0.050	0.065	0.075	0.085	0.090	0.10	0.11	0.12	520 (410 — 620)
N3	E/M/A	1.2	0.0065	0.013	0.019	0.026	0.032	0.038	0.050	0.065	0.075	0.085	0.090	0.10	0.11	0.12	345 (275 — 410)
S1	E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	55 (41 — 70)
S2	E	1.0	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	55 (41 — 70)
S3	E	1.0	0.0038	0.0075	0.011	0.015	0.019	0.022	0.030	0.038	0.044	0.050	0.055	0.060	0.065	0.070	32 (19 — 45)
H5	M/A/D	0.22	0.0038	0.0075	0.011	0.015	0.019	0.022	0.030	0.038	0.044	0.050	0.055	0.060	0.065	0.070	65 (55 — 80)
H8	M/A/D	0.20	0.0028	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.038	0.042	0.046	0.048	0.055	70 (55 — 80)
H21	M/A/D	0.20	0.0028	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.038	0.042	0.046	0.048	0.055	70 (55 — 80)
H31	M/A/D	0.20	0.0026	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.034	0.036	0.040	0.042	0.048	50 (42 — 65)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

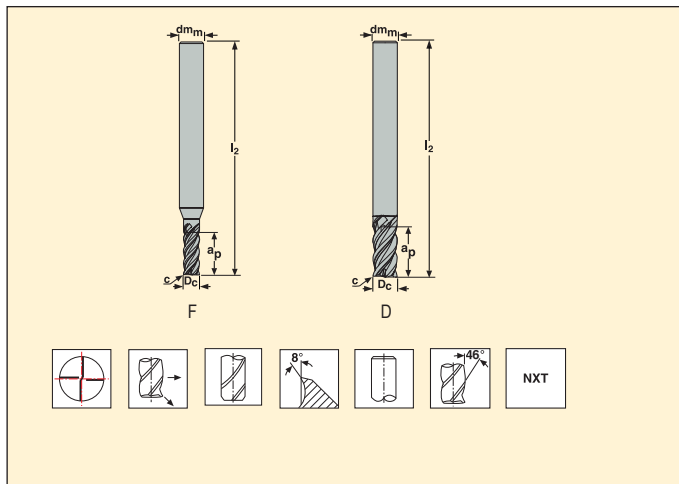
JS514 – Solid carbide end mill – cylindrical – four flute – 45° chamfer



Tolerances:

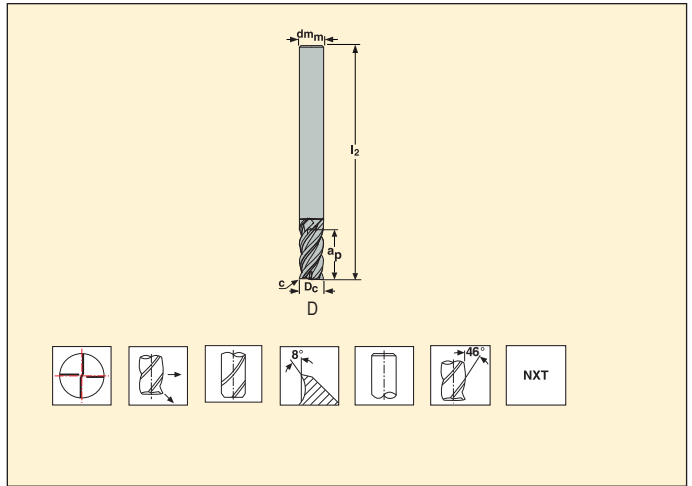
$dm_m = h5$

$D_c = e8$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm					z_n	Cylindrical
				D_c	dm_m	a_p	l_2	$c \times 45^\circ$		
02603	JS514010F2C.0Z4-NXT	2	F	1	3	2	38	0.01	4	■
02604	JS514015F2C.0Z4-NXT	2	F	1.5	3	3	38	0.015	4	■
02606	JS514020F2C.0Z4-NXT	2	F	2	6	5	57	0.02	4	■
02610	JS514021F2C.0Z4-NXT	2	F	2	3	5	38	0.02	4	■
02612	JS514030F2C.0Z4-NXT	2	F	3	6	7	57	0.03	4	■
02613	JS514030D2C.0Z4-NXT	2	D	3	3	7	38	0.03	4	■
02614	JS514040F2C.0Z4-NXT	2	F	4	6	10	57	0.04	4	■
02615	JS514040D2C.0Z4-NXT	2	D	4	4	10	50	0.04	4	■
02616	JS514050F2C.0Z4-NXT	2	F	5	6	12	57	0.05	4	■
02617	JS514050D2C.0Z4-NXT	2	D	5	5	12	50	0.05	4	■
02618	JS514060D2C.0Z4-NXT	2	D	6	6	13	57	0.06	4	■
02619	JS514080D2C.0Z4-NXT	2	D	8	8	18	63	0.08	4	■
02626	JS514100D2C.0Z4-NXT	2	D	10	10	22	72	0.1	4	■
02631	JS514120D2C.0Z4-NXT	2	D	12	12	26	83	0.12	4	■
02633	JS514160D2C.0Z4-NXT	2	D	16	16	32	92	0.16	4	■
02635	JS514200D2C.0Z4-NXT	2	D	20	20	40	104	0.2	4	■
02638	JS514250D2C.0Z4-NXT	2	D	25	25	50	125	0.25	4	■
02639	JS514010F3C.0Z4-NXT	3	F	1	3	3	38	0.01	4	■
02658	JS514015F3C.0Z4-NXT	3	F	1.5	3	6	38	0.015	4	■
02659	JS514020F3C.0Z4-NXT	3	F	2	6	8	57	0.02	4	■
02673	JS514030F3C.0Z4-NXT	3	F	3	6	12	57	0.03	4	■
02678	JS514040F3C.0Z4-NXT	3	F	4	6	16	57	0.04	4	■
02701	JS514050F3C.0Z4-NXT	3	F	5	6	21	63	0.05	4	■
02702	JS514060D3C.0Z4-NXT	3	D	6	6	23	63	0.06	4	■
02704	JS514080D3C.0Z4-NXT	3	D	8	8	32	80	0.08	4	■
02705	JS514100D3C.0Z4-NXT	3	D	10	10	40	89	0.1	4	■
02706	JS514120D3C.0Z4-NXT	3	D	12	12	45	100	0.12	4	■
02716	JS514160D3C.0Z4-NXT	3	D	16	16	55	115	0.16	4	■
02717	JS514200D3C.0Z4-NXT	3	D	20	20	65	125	0.2	4	■
02718	JS514250D3C.0Z4-NXT	3	D	25	25	80	150	0.25	4	■
02720	JS514020F4C.0Z4-NXT	4	F	2	6	10	57	0.02	4	■
02722	JS514030F4C.0Z4-NXT	4	F	3	6	17	57	0.03	4	■
02723	JS514040F4C.0Z4-NXT	4	F	4	6	25	63	0.04	4	■
02724	JS514050F4C.0Z4-NXT	4	F	5	6	28	75	0.05	4	■
02726	JS514060D4C.0Z4-NXT	4	D	6	6	35	75	0.06	4	■
02733	JS514080D4C.0Z4-NXT	4	D	8	8	45	100	0.08	4	■
02740	JS514100D4C.0Z4-NXT	4	D	10	10	55	100	0.1	4	■

■ Stock standard. Subject to change, refer to current price-and stock-list.

$$D_c = e8$$
[illegible]

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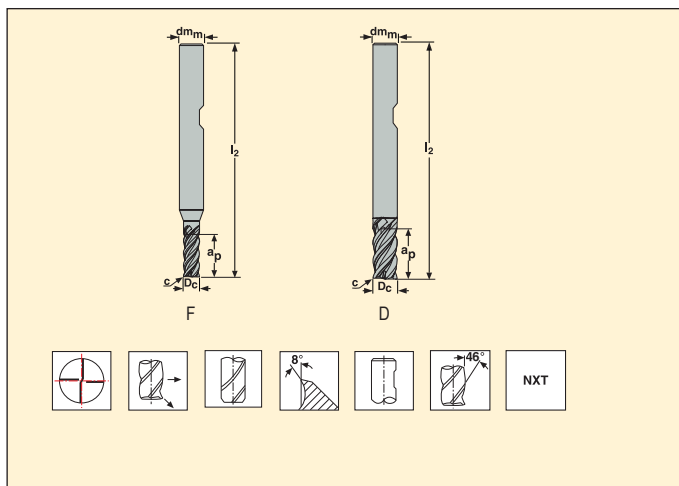
JS514 – Solid carbide end mill – Weldon – 45° chamfer



Tolerances:

$dm_m = h5$

$D_c = e8$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm					z_n	Weldon
				D_c	dm_m	a_p	l_2	$c \times 45^\circ$		
02752	JS514020F2C.3Z4-NXT	2	F	2	6	5	57	0.02	4	☐
02753	JS514030F2C.3Z4-NXT	2	F	3	6	7	57	0.03	4	☐
02755	JS514040F2C.3Z4-NXT	2	F	4	6	10	57	0.04	4	☐
02756	JS514050F2C.3Z4-NXT	2	F	5	6	12	57	0.05	4	☐
02757	JS514060D2C.3Z4-NXT	2	D	6	6	13	57	0.06	4	☐
02758	JS514080D2C.3Z4-NXT	2	D	8	8	18	63	0.08	4	☐
02759	JS514100D2C.3Z4-NXT	2	D	10	10	22	72	0.1	4	☐
02760	JS514120D2C.3Z4-NXT	2	D	12	12	26	83	0.12	4	☐
02761	JS514160D2C.3Z4-NXT	2	D	16	16	32	92	0.16	4	☐
02762	JS514200D2C.3Z4-NXT	2	D	20	20	40	104	0.2	4	☐
02763	JS514250D2C.3Z4-NXT	2	D	25	25	50	125	0.25	4	☐
02764	JS514020F3C.3Z4-NXT	3	F	2	6	8	57	0.02	4	☐
02765	JS514030F3C.3Z4-NXT	3	F	3	6	12	57	0.03	4	☐
02766	JS514040F3C.3Z4-NXT	3	F	4	6	16	57	0.04	4	☐
02767	JS514050F3C.3Z4-NXT	3	F	5	6	21	63	0.05	4	☐
02768	JS514060D3C.3Z4-NXT	3	D	6	6	23	63	0.06	4	☐
02769	JS514080D3C.3Z4-NXT	3	D	8	8	32	80	0.08	4	☐
02771	JS514100D3C.3Z4-NXT	3	D	10	10	40	89	0.1	4	☐
02772	JS514120D3C.3Z4-NXT	3	D	12	12	45	100	0.12	4	☐
02773	JS514160D3C.3Z4-NXT	3	D	16	16	55	115	0.16	4	☐
02775	JS514200D3C.3Z4-NXT	3	D	20	20	65	125	0.2	4	☐
02783	JS514250D3C.3Z4-NXT	3	D	25	25	80	150	0.25	4	☐
02785	JS514020F4C.3Z4-NXT	4	F	2	6	10	57	0.02	4	☐
02786	JS514030F4C.3Z4-NXT	4	F	3	6	17	57	0.03	4	☐
02789	JS514040F4C.3Z4-NXT	4	F	4	6	25	63	0.04	4	☐
02796	JS514050F4C.3Z4-NXT	4	F	5	6	28	75	0.05	4	☐
02797	JS514060D4C.3Z4-NXT	4	D	6	6	35	75	0.06	4	☐
02799	JS514080D4C.3Z4-NXT	4	D	8	8	45	100	0.08	4	☐
02802	JS514100D4C.3Z4-NXT	4	D	10	10	55	100	0.1	4	☐
02803	JS514120D4C.3Z4-NXT	4	D	12	12	65	125	0.12	4	☐
02804	JS514160D4C.3Z4-NXT	4	D	16	16	80	150	0.16	4	☐
02805	JS514200D4C.3Z4-NXT	4	D	20	20	90	150	0.2	4	☐
02814	JS514250D4C.3Z4-NXT	4	D	25	25	110	196	0.25	4	☐

☐ Weldon available, delivery time is 3 days.

Cutting data – JS514 Slotting

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
P1	M/A/D/E	0.55	0.0055	0.011	0.016	0.022	0.026	0.032	0.044	0.055	0.065	0.070	0.080	0.085	0.090	0.10	165 (140 — 195)
P2	M/A/D/E	0.55	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.095	0.11	160 (135 — 190)
P3	M/A/D/E	0.55	0.0050	0.010	0.016	0.020	0.026	0.032	0.042	0.050	0.060	0.070	0.075	0.085	0.090	0.10	140 (120 — 165)
P4	M/A/D/E	0.55	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.080	0.085	0.10	125 (105 — 145)
P5	M/A/D/E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	120 (100 — 140)
P6	M/A/D/E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	135 (110 — 155)
P7	M/A/D/E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	125 (105 — 145)
P8	M/A/D/E	0.55	0.0050	0.010	0.016	0.020	0.026	0.032	0.042	0.050	0.060	0.070	0.075	0.085	0.090	0.10	120 (100 — 140)
P11	M/A/D/E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	125 (100 — 145)
M1	E	0.55	0.0022	0.0044	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.030	0.032	0.034	0.038	0.042	95 (85 — 110)
M2	E	0.55	0.0020	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.026	0.030	0.032	0.034	0.038	80 (70 — 90)
M3	E	0.44	0.0016	0.0032	0.0048	0.0065	0.0080	0.0095	0.013	0.016	0.019	0.022	0.024	0.026	0.028	0.030	60 (55 — 70)
M4	E	0.34	0.0014	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.019	0.020	0.022	0.024	0.026	48 (42 — 55)
M5	E	0.34	0.0014	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.019	0.020	0.022	0.024	0.026	40 (35 — 45)
K1	E	0.55	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.095	0.11	135 (115 — 150)
K2	E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	120 (100 — 135)
K3	E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	100 (85 — 115)
K4	E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	95 (80 — 110)
K5	E	0.55	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.060	0.065	0.070	0.075	0.085	60 (50 — 65)
K6	E	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	85 (75 — 95)
K7	E	0.55	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.060	0.065	0.070	0.075	0.085	75 (65 — 85)
N11	E	0.55	0.0070	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.085	0.095	0.10	0.11	0.12	0.13	275 (185 — 370)
S1	E	0.34	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.055	0.060	0.065	39 (29 — 48)
S2	E	0.34	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.055	0.060	0.065	39 (29 — 48)
S3	E	0.34	0.0032	0.0065	0.010	0.013	0.016	0.020	0.026	0.032	0.038	0.044	0.048	0.050	0.055	0.060	23 (14 — 32)
S11	E	0.38	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	80 (70 — 95)
S12	E	0.38	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.065	0.070	0.075	60 (50 — 75)
S13	E	0.34	0.0036	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.055	0.060	0.065	49 (41 — 60)
H5	M/A/D	0.26	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	47 (38 — 55)
H8	M/A/D	0.22	0.0024	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.036	0.040	0.044	49 (39 — 60)
H11	M/A/D	0.26	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	60 (48 — 75)
H12	M/A/D	0.26	0.0030	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.048	0.050	0.060	100 (80 — 115)
H21	M/A/D	0.22	0.0024	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.036	0.040	0.044	49 (39 — 60)
H31	M/A/D	0.22	0.0020	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.026	0.030	0.032	0.034	0.038	38 (30 — 45)
GR1	A	0.55	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	0.095	550 (445 — 670)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS514 Side milling $a_g/D_c = 0.3$

SMG		a_p / D_c	f_z														v_c
			1	2	3	4	5	6	8	10	12	14	16	18	20	25	
P1	M/A/D/E	1.1	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.085	0.095	0.10	0.11	215 (180 — 255)
P2	M/A/D/E	1.1	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.12	210 (175 — 245)
P3	M/A/D/E	1.1	0.0055	0.011	0.017	0.022	0.028	0.034	0.046	0.055	0.065	0.075	0.085	0.090	0.095	0.11	185 (155 — 215)
P4	M/A/D/E	1.1	0.0055	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.090	0.095	0.11	165 (135 — 190)
P5	M/A/D/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.090	0.10	155 (130 — 180)
P6	M/A/D/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.070	0.080	0.085	0.090	0.10	175 (145 — 205)
P7	M/A/D/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.070	0.080	0.085	0.090	0.10	165 (140 — 195)
P8	M/A/D/E	1.1	0.0055	0.011	0.017	0.022	0.028	0.032	0.046	0.055	0.065	0.075	0.085	0.090	0.095	0.11	155 (130 — 180)
P11	M/A/D/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.070	0.080	0.085	0.090	0.10	160 (135 — 185)
M1	E/M/A	1.3	0.0024	0.0048	0.0070	0.0095	0.012	0.014	0.019	0.024	0.028	0.032	0.036	0.038	0.040	0.046	125 (110 — 140)
M2	E/M/A	1.3	0.0022	0.0044	0.0065	0.0085	0.011	0.013	0.017	0.022	0.026	0.030	0.032	0.034	0.036	0.042	105 (90 — 115)
M3	E/M/A	1.0	0.0017	0.0034	0.0050	0.0070	0.0085	0.010	0.014	0.017	0.020	0.024	0.026	0.028	0.030	0.034	80 (70 — 90)
M4	E/M/A	0.75	0.0015	0.0030	0.0046	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.020	0.022	0.024	0.026	0.030	60 (55 — 70)
M5	E/M/A	0.75	0.0015	0.0030	0.0046	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.020	0.022	0.024	0.026	0.030	50 (45 — 60)
K1	A/D/M/E	1.1	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	0.12	175 (150 — 195)
K2	A/D/M/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.090	0.10	155 (135 — 175)
K3	A/D/M/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.090	0.10	130 (115 — 145)
K4	A/D/M/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.090	0.10	125 (105 — 140)
K5	A/D/M/E	1.1	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.070	0.080	0.085	0.095	75 (65 — 85)
K6	A/D/M/E	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.090	0.10	110 (95 — 125)
K7	A/D/M/E	1.1	0.0050	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.070	0.080	0.085	0.095	95 (85 — 110)
N1	E/M/A	1.1	0.0085	0.017	0.026	0.034	0.044	0.050	0.070	0.085	0.10	0.12	0.13	0.14	0.15	0.17	780 (620 — 940)
N2	E/M/A	1.1	0.0085	0.017	0.026	0.034	0.044	0.050	0.070	0.085	0.10	0.12	0.13	0.14	0.15	0.17	500 (400 — 600)
N3	E/M/A	1.1	0.0085	0.017	0.026	0.034	0.044	0.050	0.070	0.085	0.10	0.12	0.13	0.14	0.15	0.17	335 (270 — 400)
N11	E/M/A	1.1	0.0075	0.015	0.022	0.030	0.038	0.046	0.060	0.075	0.090	0.10	0.11	0.12	0.13	0.15	365 (245 — 485)
TS1	A/D	1.3	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.14	0.16	0.17	0.19	710 (600 — 1075)
TP1	A/D	1.3	0.0060	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.085	0.095	0.11	0.12	0.15	730 (610 — 1100)
GR1	A/D	1.1	0.0055	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.085	0.090	0.10	720 (580 — 870)

Cutting data – JS514 Side milling $a_g/D_c = 0.2$

SMG		a _p / D _c	f _z													v _c
			1	2	3	4	5	6	8	10	12	14	16	20	25	
S1	E	0.85	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.060	0.065	0.075	0.085	55 (40 — 65)
S2	E	0.85	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.060	0.065	0.075	0.085	55 (40 — 65)
S3	E	0.85	0.0040	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.080	32 (19 — 45)
S11	E	0.95	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	115 (95 — 130)
S12	E	0.95	0.0050	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	85 (70 — 100)
S13	E	0.85	0.0044	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.060	0.065	0.075	0.085	70 (55 — 80)
H5	M/A/D	0.26	0.0038	0.0075	0.011	0.015	0.019	0.022	0.030	0.038	0.044	0.050	0.055	0.065	0.070	65 (50 — 80)
H8	M/A/D	0.22	0.0028	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.038	0.042	0.048	0.055	70 (55 — 80)
H21	M/A/D	0.22	0.0028	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.038	0.042	0.048	0.055	70 (55 — 80)
H31	M/A/D	0.22	0.0026	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.034	0.036	0.042	0.048	50 (42 — 65)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

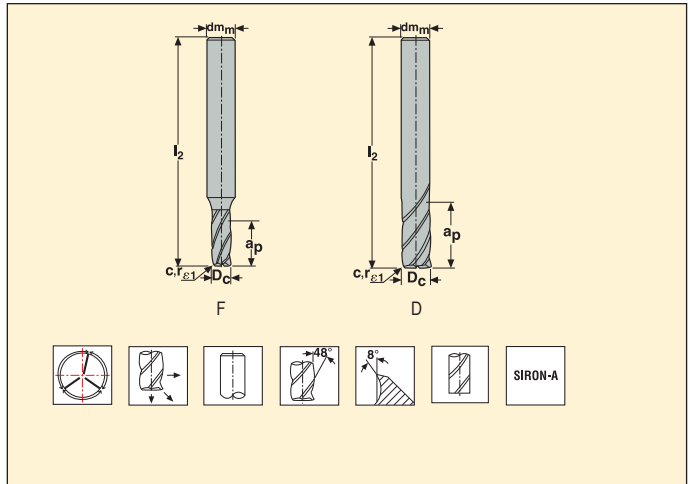
v_c = m/min

f_z = mm

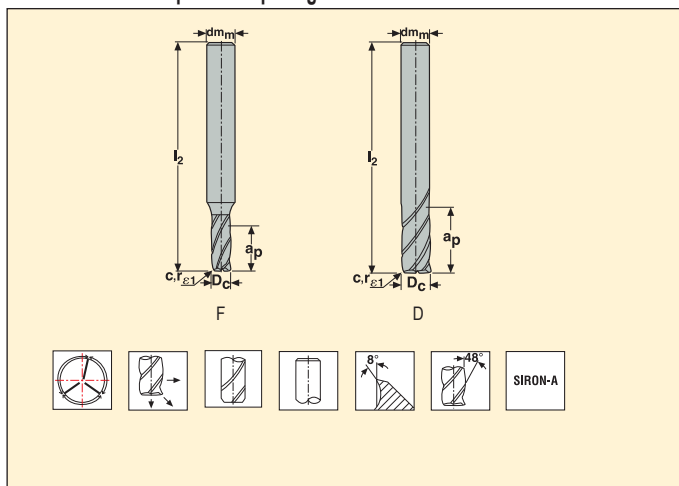
a_p (mm)/ D_c (mm)= factor

a_g (mm)/ D_c (mm)= factor

All cutting data are target values

$$D_c = e7$$
[illegible]

42

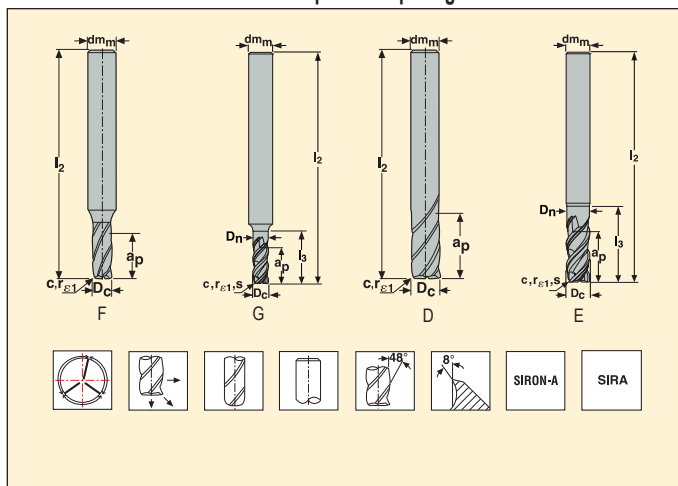
 $D_c = e7$ [illegible]

43

JS553 – Solid carbide end mill – cylindrical – three flute – corner radius – OD reduction – unequal flute spacing

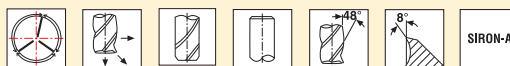
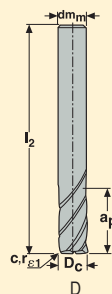


Tolerances:

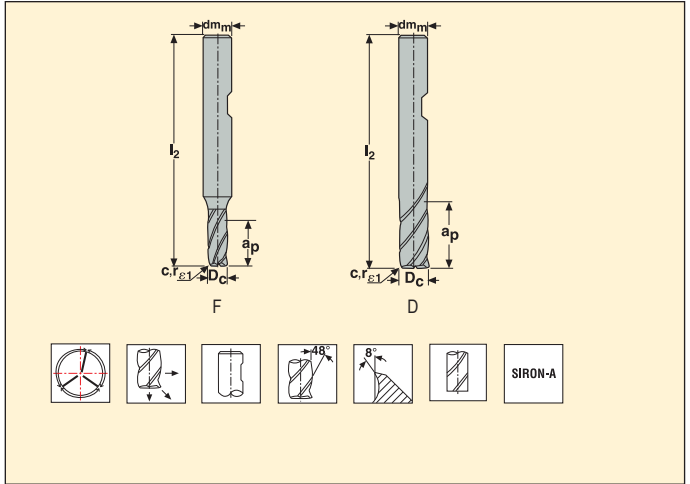
$$dm_m = h5$$
 $D_c = e7$ $r_{s1} = \pm 0.02 \text{ mm}$ [illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

$D_c = e7$

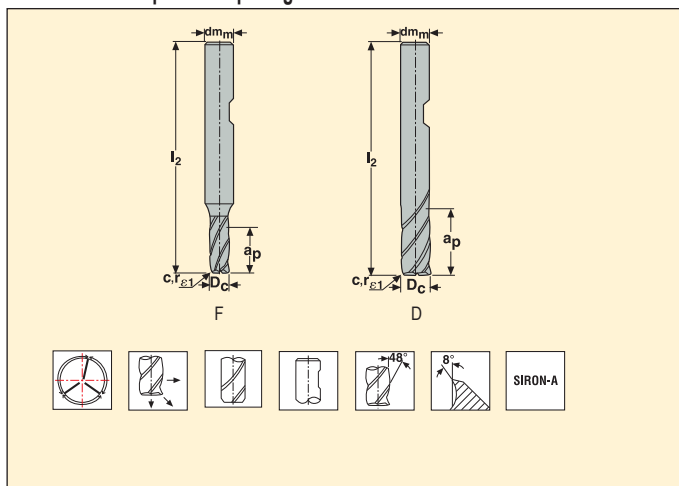
[illegible]

45

$$D_c = e7$$
[illegible]

46

D_c=e7

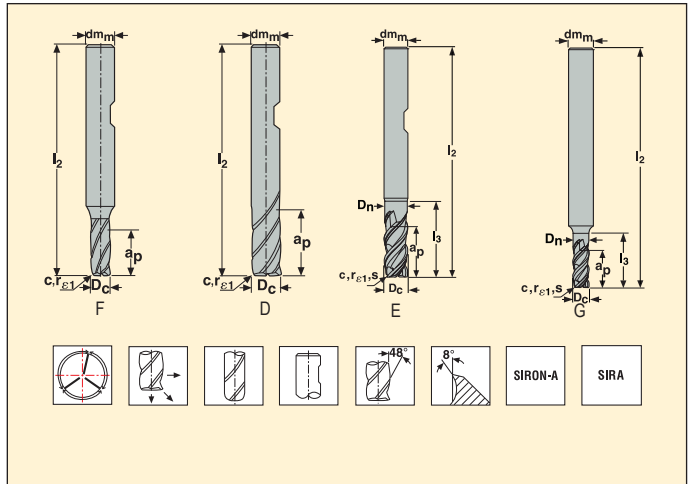
[illegible]

47

JS553 – Solid carbide end mill – Weldon – three flute – corner radius – OD-reduction – unequal flute spacing



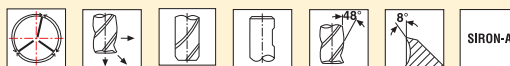
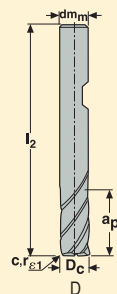
Tolerances:
 $dm_m = h5$
 $D_c = e7$
 $r_{\epsilon 1} = +/ - 0.02 \text{ mm}$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm							z _n	Weldon
				D _c	dm _m	a _p	l ₂	l ₃	D _n	r _{ε1}		
84380	JS553020G2R050.3Z3-SIRA	2	G	2	6	5	57	8	1.9	0.5	3	☐
64166	553030R015Z3.0-SIRON-AW	2	F	3	6	7	50	—	—	0.15	3	☐
84381	JS553030G2R050.3Z3-SIRA	2	G	3	6	7	57	11	2.85	0.5	3	☐
64168	553040R020Z3.0-SIRON-AW	2	F	4	6	10	55	—	—	0.2	3	☐
84382	JS553040G2R050.3Z3-SIRA	2	G	4	6	10	57	13	3.8	0.5	3	☐
57280	553050R020Z3.0-SIRON-AW	2	F	5	6	12	55	—	—	0.2	3	☐
84383	JS553050G2R050.3Z3-SIRA	2	G	5	6	10	57	15	4.75	0.5	3	☐
55686	553060R020Z3.0-SIRON-AW	2	D	6	6	14	55	—	—	0.2	3	☐
84384	JS553060E2R050.3Z3-SIRA	2	E	6	6	14	57	19	5.7	0.5	3	☐
84385	JS553060E2R100.3Z3-SIRA	2	E	6	6	14	57	19	5.7	1	3	☐
55688	553080R050Z3.0-SIRON-AW	2	D	8	8	18	60	—	—	0.5	3	☐
55690	553100R050Z3.0-SIRON-AW	2	D	10	10	22	70	—	—	0.5	3	☐
55692	553100R100Z3.0-SIRON-AW	2	D	10	10	22	70	—	—	1	3	☐
10166	553100R200Z3.3-SIRON-A	2	D	10	10	22	70	—	—	2	3	☐
10167	553100R250Z3.3-SIRON-A	2	D	10	10	22	70	—	—	2.5	3	☐
10168	553100R310Z3.3-SIRON-A	2	D	10	10	22	70	—	—	3.1	3	☐
55695	553120R050Z3.0-SIRON-AW	2	D	12	12	26	80	—	—	0.5	3	☐
55696	553120R100Z3.0-SIRON-AW	2	D	12	12	26	80	—	—	1	3	☐
10173	553120R200Z3.3-SIRON-A	2	D	12	12	26	80	—	—	2	3	☐
10174	553120R250Z3.3-SIRON-A	2	D	12	12	26	80	—	—	2.5	3	☐
10179	553120R310Z3.3-SIRON-A	2	D	12	12	26	80	—	—	3.1	3	☐
55698	553160R050Z3.0-SIRON-AW	2	D	16	16	34	90	—	—	0.5	3	☐
55699	553160R100Z3.0-SIRON-AW	2	D	16	16	34	90	—	—	1	3	☐
10182	553160R200Z3.3-SIRON-A	2	D	16	16	34	90	—	—	2	3	☐
10184	553160R250Z3.3-SIRON-A	2	D	16	16	34	90	—	—	2.5	3	☐
10185	553160R310Z3.3-SIRON-A	2	D	16	16	34	90	—	—	3.1	3	☐
10186	553160R400Z3.3-SIRON-A	2	D	16	16	34	90	—	—	4	3	☐
55701	553200R050Z3.0-SIRON-AW	2	D	20	20	42	110	—	—	0.5	3	☐
55702	553200R100Z3.0-SIRON-AW	2	D	20	20	42	110	—	—	1	3	☐
84386	JS553200E2R200.3Z3-SIRA	2	E	20	20	42	110	54	19	2	3	☐
55703	553250R100Z3.0-SIRON-AW	2	D	25	25	52	125	—	—	1	3	☐
55704	553250R050Z3.0-SIRON-AW	2	D	25	25	52	125	—	—	0.5	3	☐

☐ Weldon available, delivery time is 3 days.

$D_c = e7$

[illegible]

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Cutting data – JS553 Slotting

SMG		a_p / D_c	f_z												v_c
			2	3	4	5	6	8	10	12	14	16	20	25	
P1	M/A/D/E	1.0	0.015	0.022	0.030	0.038	0.046	0.060	0.075	0.090	0.10	0.11	0.13	0.14	195 (170 — 225)
P2	M/A/D/E	1.0	0.015	0.024	0.030	0.038	0.046	0.060	0.075	0.090	0.10	0.11	0.13	0.15	190 (165 — 220)
P3	M/A/D/E	1.0	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	0.14	165 (140 — 185)
P4	M/A/D/E	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	145 (125 — 170)
P5	M/A/D/E	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	140 (120 — 160)
P6	M/A/D/E	1.0	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.080	0.095	0.10	0.12	0.13	160 (135 — 180)
P7	M/A/D/E	1.0	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.080	0.095	0.10	0.12	0.13	150 (125 — 170)
P8	M/A/D/E	1.0	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	0.14	140 (120 — 160)
P11	M/A/D/E	1.0	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.080	0.095	0.10	0.12	0.13	145 (125 — 165)
M1	E	0.80	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.095	0.11	95 (85 — 110)
M2	E	0.80	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	80 (70 — 90)
M3	E	0.65	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.075	65 (55 — 70)
M4	E	0.48	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.060	0.065	49 (43 — 55)
M5	E	0.48	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.046	0.050	0.060	0.065	41 (36 — 46)
K1	E	1.0	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.10	0.11	160 (140 — 180)
K2	E	1.0	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.090	0.10	140 (125 — 160)
K3	E	1.0	0.011	0.016	0.022	0.028	0.032	0.044	0.055	0.065	0.075	0.080	0.090	0.10	120 (105 — 135)
K4	E	0.70	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	115 (100 — 130)
K5	E	0.70	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.060	0.065	0.075	0.085	70 (65 — 80)
K6	E	0.70	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	105 (90 — 115)
K7	E	0.70	0.0090	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.060	0.065	0.075	0.085	90 (80 — 105)
N1	E	0.70	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	930 (780 — 1100)
N2	E	0.70	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	600 (500 — 700)
N3	E	0.70	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	400 (335 — 465)
N11	E	0.70	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	290 (240 — 340)
S1	E	0.40	0.0065	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.044	0.048	0.055	0.060	40 (30 — 50)
S2	E	0.40	0.0065	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.044	0.048	0.055	0.060	40 (30 — 50)
S3	E	0.40	0.0060	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055	25 (15 — 35)
S11	E	1.0	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.10	0.11	85 (60 — 110)
S12	E	1.0	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.080	0.090	0.10	0.11	65 (48 — 85)
S13	E	0.85	0.011	0.016	0.022	0.026	0.032	0.042	0.055	0.060	0.070	0.075	0.090	0.10	55 (38 — 70)
H5	M/A/D	0.50	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.026	0.030	0.034	0.038	50 (40 — 60)
H8	M/A/D	0.50	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.040	0.044	49 (39 — 60)
H11	M/A/D	0.50	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.026	0.030	0.034	0.038	65 (50 — 75)
H12	M/A/D	0.50	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.026	0.030	0.034	0.038	105 (85 — 125)
H21	M/A/D	0.50	0.0046	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.030	0.034	0.040	0.044	49 (39 — 60)
TS1	A	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	250 (200 — 300)
TP1	A	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	230 (135 — 320)
GR1	A	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	500 (450 — 550)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS553 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z												v_c
			2	3	4	5	6	8	10	12	14	16	20	25	
P1	M/A/D/E	1.0	0.015	0.024	0.030	0.038	0.046	0.060	0.075	0.090	0.10	0.11	0.13	0.15	245 (210 — 280)
P2	M/A/D/E	1.0	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.13	0.15	235 (200 — 270)
P3	M/A/D/E	1.0	0.015	0.022	0.030	0.038	0.044	0.060	0.075	0.090	0.10	0.11	0.13	0.14	205 (175 — 235)
P4	M/A/D/E	1.0	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	0.14	180 (155 — 205)
P5	M/A/D/E	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	0.14	175 (150 — 200)
P6	M/A/D/E	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	200 (170 — 225)
P7	M/A/D/E	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	185 (160 — 215)
P8	M/A/D/E	1.0	0.015	0.022	0.030	0.038	0.044	0.060	0.075	0.090	0.10	0.11	0.13	0.14	175 (150 — 200)
P11	M/A/D/E	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	180 (155 — 205)
M1	E	1.0	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.085	0.095	0.11	120 (105 — 135)
M2	E	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.085	0.10	100 (90 — 115)
M3	E	0.80	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.080	80 (70 — 90)
M4	E	0.60	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.048	0.055	0.060	0.070	60 (55 — 70)
M5	E	0.60	0.0070	0.011	0.014	0.018	0.022	0.028	0.036	0.042	0.048	0.055	0.060	0.070	50 (45 — 55)
K1	E	1.0	0.012	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.080	0.090	0.10	0.12	200 (175 — 225)
K2	E	1.0	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.095	0.11	180 (155 — 200)
K3	E	1.0	0.011	0.017	0.022	0.028	0.034	0.044	0.055	0.065	0.075	0.080	0.095	0.11	150 (130 — 170)
K4	E	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.085	0.10	145 (130 — 165)
K5	E	1.0	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.070	0.080	0.090	90 (75 — 100)
K6	E	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.085	0.10	130 (115 — 145)
K7	E	1.0	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.070	0.080	0.090	115 (100 — 125)
N1	E	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	0.14	1175 (970 — 1350)
N2	E	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	0.14	750 (630 — 880)
N3	E	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	0.14	500 (415 — 580)
N11	E	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	0.14	360 (300 — 425)
S11	E	1.0	0.012	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.080	0.090	0.10	0.12	110 (80 — 140)
S12	E	1.0	0.012	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.080	0.090	0.10	0.12	85 (60 — 110)
S13	E	0.85	0.011	0.016	0.022	0.026	0.032	0.042	0.055	0.065	0.070	0.080	0.090	0.10	65 (47 — 85)
TS1	A	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.20	315 (250 — 380)
TP1	A	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.20	285 (170 — 400)
GR1	A	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.20	630 (570 — 690)

Cutting data – JS553 Side milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z												v_c
			2	3	4	5	6	8	10	12	14	16	20	25	
S1	E	0.60	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.075	55 (41 — 70)
S2	E	0.60	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.075	55 (41 — 70)
S3	E	0.60	0.0075	0.011	0.015	0.019	0.022	0.030	0.038	0.044	0.050	0.055	0.065	0.070	35 (21 — 48)
H5	M/A/D	1.0	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.034	0.036	0.042	0.048	70 (55 — 85)
H8	M/A/D	1.0	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.038	0.042	0.048	0.055	70 (55 — 80)
H21	M/A/D	1.0	0.0060	0.0085	0.012	0.014	0.017	0.024	0.028	0.034	0.038	0.042	0.048	0.055	70 (55 — 80)
H31	M/A/D	1.0	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.034	0.036	0.042	0.048	50 (42 — 60)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS553 Slotting

SMG		a_p / D_c	f_z									v_c
			1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	
P1	M/A/D/E	0.95	0.00095	0.0014	0.0019	0.0024	0.0028	0.0038	0.0044	0.0048	0.0060	650 (560 — 750)
P2	M/A/D/E	0.95	0.00095	0.0014	0.0019	0.0024	0.0030	0.0038	0.0044	0.0050	0.0060	630 (540 — 720)
P3	M/A/D/E	0.95	0.00095	0.0013	0.0018	0.0024	0.0028	0.0036	0.0044	0.0048	0.0055	550 (470 — 630)
P4	M/A/D/E	0.95	0.00085	0.0013	0.0018	0.0022	0.0028	0.0036	0.0040	0.0048	0.0055	480 (415 — 550)
P5	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0048	0.0055	470 (400 — 540)
P6	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0044	0.0050	530 (450 — 600)
P7	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0044	0.0050	495 (425 — 570)
P8	M/A/D/E	0.95	0.00095	0.0013	0.0018	0.0024	0.0028	0.0036	0.0044	0.0048	0.0055	460 (395 — 530)
P11	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0044	0.0050	480 (415 — 550)
M1	E	0.75	0.00065	0.0010	0.0013	0.0017	0.0020	0.0028	0.0032	0.0036	0.0044	325 (285 — 365)
M2	E	0.75	0.00065	0.00095	0.0013	0.0016	0.0019	0.0024	0.0030	0.0032	0.0038	265 (235 — 300)
M3	E	0.65	0.00050	0.00075	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0030	210 (185 — 240)
M4	E	0.42	0.00044	0.00065	0.00085	0.0011	0.0013	0.0017	0.0020	0.0024	0.0028	165 (145 — 185)
M5	E	0.42	0.00044	0.00065	0.00085	0.0011	0.0013	0.0017	0.0020	0.0024	0.0028	135 (120 — 155)
K1	E	0.95	0.00075	0.0011	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	540 (470 — 600)
K2	E	0.95	0.00065	0.0010	0.0013	0.0017	0.0020	0.0028	0.0032	0.0036	0.0044	475 (415 — 530)
K3	E	0.95	0.00065	0.0010	0.0013	0.0017	0.0020	0.0028	0.0032	0.0036	0.0044	400 (350 — 450)
K4	E	0.65	0.00065	0.00095	0.0013	0.0016	0.0019	0.0024	0.0030	0.0032	0.0038	390 (340 — 435)
K5	E	0.65	0.00055	0.00085	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0034	235 (210 — 265)
K6	E	0.65	0.00065	0.00095	0.0013	0.0016	0.0019	0.0024	0.0030	0.0032	0.0038	340 (300 — 385)
K7	E	0.65	0.00055	0.00085	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0034	305 (265 — 340)
N1	E	0.65	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0048	0.0055	3125 (2600 — 3650)
N2	E	0.65	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0048	0.0055	2000 (1675 — 2350)
N3	E	0.65	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0048	0.0055	1350 (1125 — 1550)
N11	E	0.65	0.00085	0.0013	0.0017	0.0022	0.0026	0.0034	0.0040	0.0048	0.0055	970 (810 — 1125)
S1	E	0.36	0.00040	0.00060	0.00080	0.0010	0.0012	0.0016	0.0019	0.0022	0.0024	130 (100 — 165)
S2	E	0.36	0.00040	0.00060	0.00080	0.0010	0.0012	0.0016	0.0019	0.0022	0.0024	130 (100 — 165)
S3	E	0.36	0.00038	0.00055	0.00075	0.00095	0.0011	0.0015	0.0017	0.0020	0.0024	85 (50 — 115)
S11	E	0.95	0.00075	0.0011	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	290 (210 — 375)
S12	E	0.95	0.00075	0.0011	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	225 (160 — 290)
S13	E	0.75	0.00065	0.0010	0.0013	0.0017	0.0020	0.0026	0.0030	0.0034	0.0040	180 (125 — 230)
H5	M/A/D	0.48	0.00026	0.00038	0.00050	0.00065	0.00075	0.00095	0.0012	0.0013	0.0015	170 (135 — 200)
H8	M/A/D	0.48	0.00030	0.00044	0.00060	0.00070	0.00085	0.0011	0.0013	0.0015	0.0017	165 (130 — 195)
H11	M/A/D	0.48	0.00026	0.00038	0.00050	0.00065	0.00075	0.00095	0.0012	0.0013	0.0015	215 (170 — 255)
H12	M/A/D	0.48	0.00026	0.00038	0.00050	0.00065	0.00075	0.00095	0.0012	0.0013	0.0015	325 (260 — 385)
H21	M/A/D	0.48	0.00030	0.00044	0.00060	0.00070	0.00085	0.0011	0.0013	0.0015	0.0017	165 (130 — 195)
TS1	A	0.95	0.0013	0.0019	0.0026	0.0032	0.0038	0.0048	0.0060	0.0065	0.0075	830 (670 — 1000)
TP1	A	0.95	0.0013	0.0019	0.0026	0.0032	0.0038	0.0048	0.0060	0.0065	0.0075	760 (455 — 1075)
GR1	A	0.95	0.0013	0.0019	0.0026	0.0032	0.0038	0.0048	0.0060	0.0065	0.0075	1675 (1500 — 1825)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

a_g/D_c = factor

All cutting data are target values

Cutting data – JS553 Side milling $a_p/D_c = 0.4$

SMG		a_p / D_c	f_z									v_c
			1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	
P1	M/A/D/E	0.95	0.00095	0.0014	0.0020	0.0024	0.0030	0.0038	0.0044	0.0050	0.0060	810 (690 — 920)
P2	M/A/D/E	0.95	0.00095	0.0015	0.0020	0.0024	0.0030	0.0038	0.0044	0.0050	0.0060	790 (670 — 900)
P3	M/A/D/E	0.95	0.00095	0.0014	0.0019	0.0024	0.0028	0.0036	0.0044	0.0048	0.0055	690 (590 — 790)
P4	M/A/D/E	0.95	0.00095	0.0013	0.0018	0.0024	0.0028	0.0036	0.0044	0.0048	0.0055	610 (520 — 690)
P5	M/A/D/E	0.95	0.00085	0.0013	0.0018	0.0022	0.0028	0.0036	0.0040	0.0048	0.0055	580 (495 — 660)
P6	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0036	0.0040	0.0048	0.0055	660 (570 — 750)
P7	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0036	0.0040	0.0048	0.0055	620 (530 — 710)
P8	M/A/D/E	0.95	0.00095	0.0014	0.0019	0.0024	0.0028	0.0036	0.0044	0.0048	0.0055	580 (495 — 660)
P11	M/A/D/E	0.95	0.00085	0.0013	0.0017	0.0022	0.0026	0.0036	0.0040	0.0048	0.0055	610 (520 — 690)
M1	E	0.75	0.00070	0.0010	0.0014	0.0017	0.0022	0.0028	0.0032	0.0036	0.0044	400 (350 — 450)
M2	E	0.75	0.00065	0.00095	0.0013	0.0016	0.0019	0.0026	0.0030	0.0034	0.0040	335 (290 — 375)
M3	E	0.65	0.00050	0.00075	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0032	265 (230 — 300)
M4	E	0.42	0.00044	0.00065	0.00085	0.0011	0.0013	0.0017	0.0020	0.0024	0.0028	205 (180 — 230)
M5	E	0.42	0.00044	0.00065	0.00085	0.0011	0.0013	0.0017	0.0020	0.0024	0.0028	170 (150 — 190)
K1	E	0.95	0.00075	0.0012	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	660 (580 — 740)
K2	E	0.95	0.00070	0.0010	0.0014	0.0017	0.0022	0.0028	0.0032	0.0036	0.0044	580 (510 — 660)
K3	E	0.95	0.00070	0.0010	0.0014	0.0017	0.0022	0.0028	0.0032	0.0036	0.0044	495 (430 — 550)
K4	E	0.65	0.00065	0.00095	0.0013	0.0016	0.0019	0.0026	0.0030	0.0034	0.0040	485 (425 — 550)
K5	E	0.65	0.00060	0.00085	0.0012	0.0014	0.0017	0.0022	0.0026	0.0030	0.0036	295 (255 — 330)
K6	E	0.65	0.00065	0.00095	0.0013	0.0016	0.0019	0.0026	0.0030	0.0034	0.0040	430 (375 — 480)
K7	E	0.65	0.00060	0.00085	0.0012	0.0014	0.0017	0.0022	0.0026	0.0030	0.0036	375 (330 — 425)
N1	E	1.0	0.00085	0.0013	0.0018	0.0022	0.0028	0.0036	0.0040	0.0048	0.0055	3825 (3200 — 4475)
N2	E	1.0	0.00085	0.0013	0.0018	0.0022	0.0028	0.0036	0.0040	0.0048	0.0055	2475 (2050 — 2875)
N3	E	1.0	0.00085	0.0013	0.0018	0.0022	0.0028	0.0036	0.0040	0.0048	0.0055	1650 (1375 — 1925)
N11	E	1.0	0.00085	0.0013	0.0018	0.0022	0.0028	0.0036	0.0040	0.0048	0.0055	1200 (990 — 1400)
S11	E	0.95	0.00075	0.0012	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	360 (255 — 460)
S12	E	0.95	0.00075	0.0012	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	275 (195 — 355)
S13	E	0.75	0.00065	0.0010	0.0013	0.0017	0.0020	0.0026	0.0032	0.0036	0.0040	225 (160 — 285)
TS1	A	0.95	0.0013	0.0019	0.0026	0.0032	0.0038	0.0050	0.0060	0.0065	0.0080	1050 (840 — 1250)
TP1	A	0.95	0.0013	0.0019	0.0026	0.0032	0.0038	0.0050	0.0060	0.0065	0.0080	960 (570 — 1350)
GR1	A	0.95	0.0013	0.0019	0.0026	0.0032	0.0038	0.0050	0.0060	0.0065	0.0080	2100 (1900 — 2300)

Cutting data – JS553 Side milling $a_p/D_c = 0.2$

SMG		a_p / D_c	f_z									v_c
			1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	1	
S1	E	0.36	0.00050	0.00075	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0032	185 (140 — 230)
S2	E	0.36	0.00050	0.00075	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0032	185 (140 — 230)
S3	E	0.36	0.00048	0.00070	0.00095	0.0012	0.0014	0.0018	0.0022	0.0024	0.0030	115 (70 — 160)
H5	M/A/D	0.48	0.00032	0.00048	0.00065	0.00080	0.00095	0.0013	0.0014	0.0017	0.0019	230 (185 — 280)
H8	M/A/D	0.48	0.00036	0.00055	0.00070	0.00085	0.0011	0.0014	0.0017	0.0019	0.0022	230 (180 — 275)
H21	M/A/D	0.48	0.00036	0.00055	0.00070	0.00085	0.0011	0.0014	0.0017	0.0019	0.0022	230 (180 — 275)
H31	M/A/D	0.48	0.00032	0.00048	0.00065	0.00080	0.00095	0.0013	0.0014	0.0017	0.0019	175 (140 — 210)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

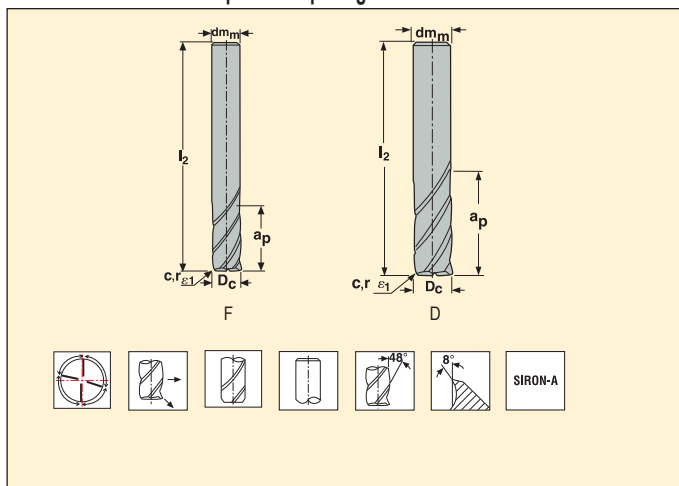
a_g/D_c = factor

All cutting data are target values

$$D_c = e7$$
[illegible]

54

$D_c = e7$

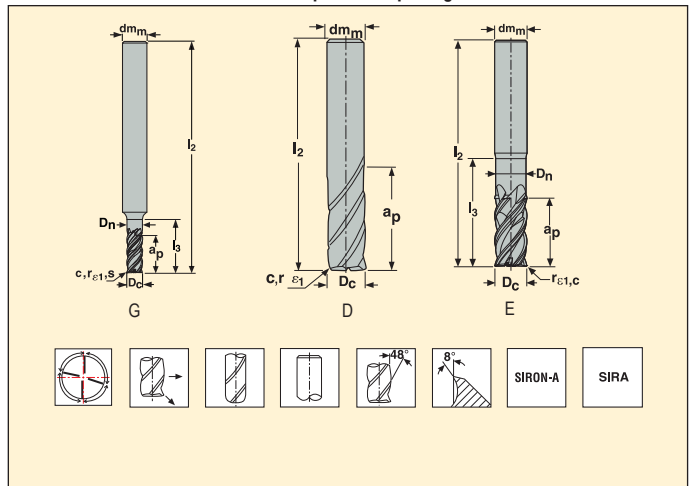


■ Stock standard. Subject to change, refer to current price-and stock-list.

JS554 – Solid carbide end mill – cylindrical – four flute – corner radius – OD-reduction – unequal flute spacing

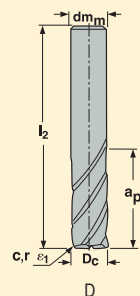


Tolerances:

$$dm_m = h5$$
$$D_c = e7$$
 $r_{\varepsilon 1} = \pm 0.02 \text{ mm}$ [illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

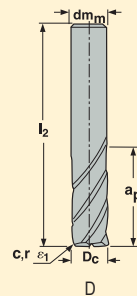
$D_c = e7$



SIRON-A

[illegible]

57

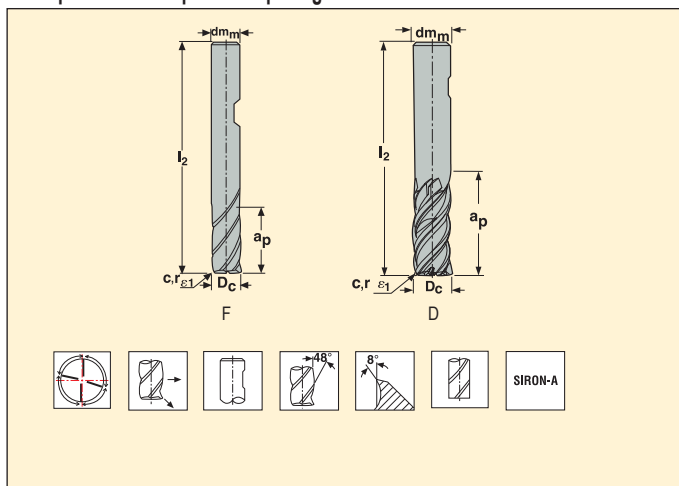
 $r_{\varepsilon 1} = \pm 0.0008$ 

SIRON-A

[illegible]

58

$D_c = e7$

[illegible]

59

Technical drawings of two drill bits, F and D, showing their dimensions and cross-sections.

Drawing F: Shows a drill bit with dimensions l_2 , dm , a_p , D_c , and c, r_{gl} .

Drawing D: Shows a drill bit with dimensions l_2 , dm , a_p , D_c , c, r , and ε_1 .

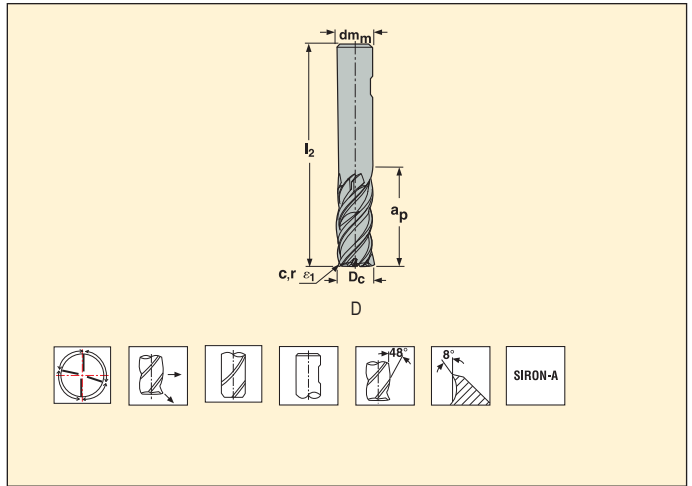
Below the drawings are six cross-sectional views of the drill bits, showing the cutting edge geometry and the SIRON-A coating.

[illegible]

60

[illegible]

61

$$D_c = e7$$
[illegible]

62

[illegible]

63

Cutting data – JS554 Slotting

SMG		a_p / D_c	f_z										v_c
			3	4	5	6	8	10	12	16	20	25	
P1	M/A/D/E	1.0	0.019	0.026	0.032	0.038	0.050	0.065	0.075	0.095	0.11	0.12	195 (170 – 225)
P2	M/A/D/E	1.0	0.020	0.026	0.034	0.040	0.055	0.065	0.080	0.095	0.11	0.13	190 (165 – 220)
P3	M/A/D/E	1.0	0.019	0.024	0.032	0.038	0.050	0.060	0.075	0.090	0.11	0.12	165 (145 – 190)
P4	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	145 (125 – 170)
P5	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	140 (120 – 160)
P6	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.085	0.10	0.11	160 (135 – 180)
P7	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.085	0.10	0.11	150 (125 – 170)
P8	M/A/D/E	1.0	0.019	0.024	0.032	0.038	0.050	0.060	0.075	0.090	0.11	0.12	140 (120 – 160)
P11	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.085	0.10	0.11	145 (125 – 165)
M1	E	0.80	0.013	0.018	0.022	0.026	0.036	0.044	0.050	0.065	0.075	0.085	100 (85 – 110)
M2	E	0.80	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	0.075	80 (70 – 90)
M3	E	0.65	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.048	0.055	0.060	65 (55 – 70)
M4	E	0.48	0.0085	0.011	0.014	0.017	0.022	0.028	0.034	0.042	0.048	0.055	49 (43 – 55)
M5	E	0.48	0.0085	0.011	0.014	0.017	0.022	0.028	0.034	0.042	0.048	0.055	41 (36 – 46)
K1	E	1.0	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.095	160 (140 – 180)
K2	E	1.0	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.065	0.075	0.085	140 (125 – 160)
K3	E	1.0	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.065	0.075	0.085	120 (105 – 135)
K4	E	0.80	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.095	110 (100 – 125)
K5	E	0.80	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.065	0.075	0.085	70 (60 – 75)
K6	E	0.80	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.095	100 (85 – 110)
K7	E	0.80	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.065	0.075	0.085	85 (75 – 100)
N1	E	0.50	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	930 (780 – 1100)
N2	E	0.50	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	600 (500 – 700)
N3	E	0.50	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	400 (335 – 465)
N11	E	0.50	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	300 (250 – 350)
S1	E	0.40	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.048	0.055	0.060	40 (30 – 50)
S2	E	0.40	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	0.048	0.055	0.060	40 (30 – 50)
S3	E	0.40	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	0.055	25 (15 – 35)
S11	E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	85 (70 – 95)
S12	E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.11	65 (55 – 75)
S13	E	0.85	0.016	0.022	0.026	0.032	0.042	0.055	0.060	0.075	0.090	0.10	50 (44 – 60)
H5	M/A/D	0.40	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	0.038	50 (40 – 60)
H8	M/A/D	0.50	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.034	0.040	0.044	49 (39 – 60)
H11	M/A/D	0.40	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	0.038	65 (50 – 80)
H12	M/A/D	0.40	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	0.038	105 (85 – 125)
H21	M/A/D	0.50	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.034	0.040	0.044	49 (39 – 60)
TS1	A	0.80	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	0.19	250 (150 – 350)
TP1	A	0.80	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	0.19	230 (135 – 320)
GR1	A	0.80	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	0.19	500 (400 – 600)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS554 Side milling roughing $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z										v_c
			3	4	5	6	8	10	12	16	20	25	
P1	M/A/D/E	1.0	0.020	0.026	0.034	0.040	0.055	0.065	0.080	0.095	0.11	0.13	245 (210 – 280)
P2	M/A/D/E	1.0	0.020	0.026	0.034	0.040	0.055	0.065	0.080	0.10	0.11	0.13	240 (205 – 275)
P3	M/A/D/E	1.0	0.019	0.026	0.032	0.038	0.050	0.065	0.075	0.095	0.11	0.12	205 (175 – 235)
P4	M/A/D/E	1.0	0.019	0.024	0.032	0.038	0.050	0.060	0.075	0.090	0.11	0.12	185 (160 – 210)
P5	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.090	0.10	0.12	175 (150 – 200)
P6	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	200 (170 – 225)
P7	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	185 (160 – 215)
P8	M/A/D/E	1.0	0.019	0.026	0.032	0.038	0.050	0.065	0.075	0.095	0.11	0.12	175 (150 – 200)
P11	M/A/D/E	1.0	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	180 (155 – 205)
M1	E	1.0	0.013	0.018	0.022	0.026	0.036	0.044	0.055	0.065	0.075	0.085	120 (105 – 135)
M2	E	1.0	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	0.080	100 (90 – 115)
M3	E	0.80	0.010	0.013	0.016	0.020	0.026	0.032	0.038	0.048	0.055	0.065	80 (70 – 90)
M4	E	0.60	0.0085	0.011	0.014	0.017	0.022	0.028	0.034	0.042	0.048	0.055	60 (55 – 70)
M5	E	0.60	0.0085	0.011	0.014	0.017	0.022	0.028	0.034	0.042	0.048	0.055	50 (44 – 55)
K1	E	1.0	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.10	200 (175 – 225)
K2	E	1.0	0.014	0.019	0.024	0.028	0.038	0.046	0.055	0.070	0.080	0.090	175 (155 – 200)
K3	E	1.0	0.014	0.019	0.024	0.028	0.038	0.046	0.055	0.070	0.080	0.090	150 (130 – 170)
K4	E	1.0	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.10	140 (125 – 160)
K5	E	1.0	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.070	0.080	0.090	85 (75 – 95)
K6	E	1.0	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	0.10	125 (110 – 140)
K7	E	1.0	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.070	0.080	0.090	110 (95 – 125)
N1	E	1.2	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	1150 (970 – 1350)
N2	E	1.2	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	750 (620 – 870)
N3	E	1.2	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	495 (415 – 580)
N11	E	1.2	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	0.12	375 (310 – 435)
S11	E	1.0	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.090	0.10	0.12	105 (90 – 120)
S12	E	1.0	0.018	0.024	0.030	0.036	0.050	0.060	0.070	0.090	0.10	0.12	80 (70 – 90)
S13	E	0.85	0.016	0.022	0.026	0.032	0.042	0.055	0.065	0.080	0.090	0.10	65 (55 – 75)
TS1	A	1.1	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	0.20	315 (190 – 440)
TP1	A	1.1	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	0.20	285 (170 – 400)
GR1	A	1.1	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	0.20	630 (500 – 750)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS554 Slotting

SMG		a_p / D_c	f_z							v_c
			1/4	5/16	3/8	1/2	5/8	3/4	1	
P1	M/A/D/E	0.95	0.0017	0.0020	0.0024	0.0032	0.0038	0.0044	0.0050	610 (520 — 700)
P2	M/A/D/E	0.95	0.0017	0.0020	0.0026	0.0032	0.0038	0.0044	0.0050	590 (510 — 680)
P3	M/A/D/E	0.95	0.0016	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	520 (445 — 590)
P4	M/A/D/E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	460 (390 — 520)
P5	M/A/D/E	0.95	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	435 (375 — 500)
P6	M/A/D/E	0.95	0.0015	0.0019	0.0022	0.0030	0.0034	0.0040	0.0044	490 (420 — 560)
P7	M/A/D/E	0.95	0.0015	0.0019	0.0022	0.0030	0.0034	0.0040	0.0044	465 (395 — 530)
P8	M/A/D/E	0.95	0.0016	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	435 (375 — 500)
P11	M/A/D/E	0.95	0.0015	0.0019	0.0022	0.0030	0.0034	0.0040	0.0044	450 (385 — 510)
M1	E	0.70	0.0011	0.0013	0.0017	0.0022	0.0026	0.0028	0.0034	305 (265 — 345)
M2	E	0.70	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0030	250 (220 — 285)
M3	E	0.55	0.00080	0.0010	0.0012	0.0016	0.0018	0.0022	0.0024	200 (175 — 225)
M4	E	0.48	0.00070	0.00085	0.0010	0.0013	0.0016	0.0018	0.0022	155 (135 — 175)
M5	E	0.48	0.00070	0.00085	0.0010	0.0013	0.0016	0.0018	0.0022	130 (115 — 145)
K1	E	0.85	0.0013	0.0016	0.0019	0.0024	0.0030	0.0032	0.0038	510 (445 — 570)
K2	E	0.85	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0036	445 (390 — 500)
K3	E	0.85	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0036	380 (330 — 425)
K4	E	0.70	0.0013	0.0016	0.0019	0.0024	0.0030	0.0032	0.0038	355 (310 — 400)
K5	E	0.70	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0034	215 (190 — 240)
K6	E	0.70	0.0013	0.0016	0.0019	0.0024	0.0030	0.0032	0.0038	315 (275 — 350)
K7	E	0.70	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0034	275 (240 — 310)
N1	E	0.48	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	2900 (2425 — 3375)
N2	E	0.48	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	1875 (1550 — 2175)
N3	E	0.48	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	1250 (1025 — 1450)
N11	E	0.48	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	940 (780 — 1100)
S1	E	0.36	0.00080	0.0010	0.0012	0.0016	0.0019	0.0022	0.0024	125 (95 — 155)
S2	E	0.36	0.00080	0.0010	0.0012	0.0016	0.0019	0.0022	0.0024	125 (95 — 155)
S3	E	0.36	0.00075	0.00095	0.0011	0.0015	0.0017	0.0020	0.0024	80 (47 — 110)
S11	E	0.95	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	260 (225 — 295)
S12	E	0.95	0.0015	0.0019	0.0022	0.0030	0.0036	0.0040	0.0048	200 (170 — 230)
S13	E	0.80	0.0013	0.0017	0.0020	0.0026	0.0030	0.0034	0.0040	160 (140 — 185)
H5	M/A/D	0.36	0.00050	0.00065	0.00075	0.00095	0.0012	0.0013	0.0015	165 (130 — 195)
H8	M/A/D	0.48	0.00060	0.00070	0.00085	0.0011	0.0013	0.0015	0.0017	160 (125 — 190)
H11	M/A/D	0.36	0.00050	0.00065	0.00075	0.00095	0.0012	0.0013	0.0015	205 (165 — 250)
H12	M/A/D	0.36	0.00050	0.00065	0.00075	0.00095	0.0012	0.0013	0.0015	315 (250 — 375)
H21	M/A/D	0.48	0.00060	0.00070	0.00085	0.0011	0.0013	0.0015	0.0017	160 (125 — 190)
TS1	A	0.70	0.0026	0.0032	0.0038	0.0048	0.0060	0.0065	0.0075	780 (470 — 1100)
TP1	A	0.70	0.0026	0.0032	0.0038	0.0048	0.0060	0.0065	0.0075	710 (430 — 1000)
GR1	A	0.70	0.0026	0.0032	0.0038	0.0048	0.0060	0.0065	0.0075	1550 (1250 — 1875)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

a_g/D_c = factor

All cutting data are target values

Cutting data – JS554 Side milling roughing $a_p/D_c = 0.4$

SMG		a_p / D_c	f_z							v_c
			1/4	5/16	3/8	1/2	5/8	3/4	1	
P1	M/A/D/E	0.95	0.0017	0.0022	0.0026	0.0032	0.0038	0.0044	0.0050	770 (660 — 880)
P2	M/A/D/E	0.95	0.0017	0.0022	0.0026	0.0034	0.0040	0.0044	0.0050	740 (630 — 840)
P3	M/A/D/E	0.95	0.0016	0.0020	0.0024	0.0032	0.0038	0.0040	0.0048	640 (550 — 730)
P4	M/A/D/E	0.95	0.0016	0.0020	0.0024	0.0030	0.0036	0.0040	0.0048	570 (490 — 660)
P5	M/A/D/E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	550 (470 — 630)
P6	M/A/D/E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	620 (530 — 700)
P7	M/A/D/E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	580 (500 — 660)
P8	M/A/D/E	0.95	0.0016	0.0020	0.0024	0.0032	0.0038	0.0040	0.0048	540 (465 — 620)
P11	M/A/D/E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	560 (485 — 650)
M1	E	0.70	0.0011	0.0014	0.0017	0.0022	0.0026	0.0030	0.0034	385 (335 — 430)
M2	E	0.70	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0032	315 (275 — 355)
M3	E	0.55	0.00080	0.0010	0.0013	0.0016	0.0019	0.0022	0.0026	250 (220 — 285)
M4	E	0.48	0.00070	0.00085	0.0011	0.0014	0.0017	0.0019	0.0022	190 (170 — 215)
M5	E	0.48	0.00070	0.00085	0.0011	0.0014	0.0017	0.0019	0.0022	160 (140 — 180)
K1	E	0.85	0.0013	0.0016	0.0019	0.0026	0.0030	0.0034	0.0040	620 (550 — 700)
K2	E	0.85	0.0012	0.0014	0.0017	0.0022	0.0028	0.0030	0.0036	560 (490 — 630)
K3	E	0.85	0.0012	0.0014	0.0017	0.0022	0.0028	0.0030	0.0036	475 (415 — 530)
K4	E	0.70	0.0013	0.0016	0.0019	0.0026	0.0030	0.0034	0.0040	435 (380 — 490)
K5	E	0.70	0.0012	0.0014	0.0017	0.0022	0.0026	0.0030	0.0036	270 (235 — 305)
K6	E	0.70	0.0013	0.0016	0.0019	0.0026	0.0030	0.0034	0.0040	385 (335 — 435)
K7	E	0.70	0.0012	0.0014	0.0017	0.0022	0.0026	0.0030	0.0036	345 (300 — 390)
N1	E	1.1	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	3625 (3025 — 4225)
N2	E	1.1	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	2325 (1950 — 2725)
N3	E	1.1	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	1550 (1300 — 1800)
N11	E	1.1	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	1175 (970 — 1375)
S11	E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	325 (280 — 375)
S12	E	0.95	0.0015	0.0019	0.0024	0.0030	0.0036	0.0040	0.0048	250 (215 — 285)
S13	E	0.80	0.0013	0.0017	0.0020	0.0026	0.0032	0.0036	0.0040	200 (175 — 230)
TS1	A	1.0	0.0026	0.0032	0.0038	0.0050	0.0060	0.0065	0.0080	960 (570 — 1350)
TP1	A	1.0	0.0026	0.0032	0.0038	0.0050	0.0060	0.0065	0.0080	880 (530 — 1225)
GR1	A	1.0	0.0026	0.0032	0.0038	0.0050	0.0060	0.0065	0.0080	1925 (1525 — 2300)

Cutting data – JS554 Side milling roughing $a_p/D_c 0.2$

SMG		a_p / D_c	f_z							v_c
			1/4	5/16	3/8	1/2	5/8	3/4	1	
S1	E	0.36	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0032	175 (130 — 220)
S2	E	0.36	0.0010	0.0013	0.0015	0.0020	0.0024	0.0026	0.0032	175 (130 — 220)
S3	E	0.36	0.00095	0.0012	0.0014	0.0018	0.0022	0.0024	0.0030	110 (65 — 155)
H5	M/A/D	0.36	0.00065	0.00080	0.00095	0.0013	0.0014	0.0017	0.0019	225 (180 — 270)
H8	M/A/D	0.48	0.00070	0.00085	0.0011	0.0014	0.0017	0.0019	0.0022	220 (175 — 265)
H21	M/A/D	0.48	0.00070	0.00085	0.0011	0.0014	0.0017	0.0019	0.0022	220 (175 — 265)
H31	M/A/D	0.48	0.00065	0.00080	0.00095	0.0013	0.0014	0.0017	0.0019	170 (135 — 200)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

a_p/D_c = factor

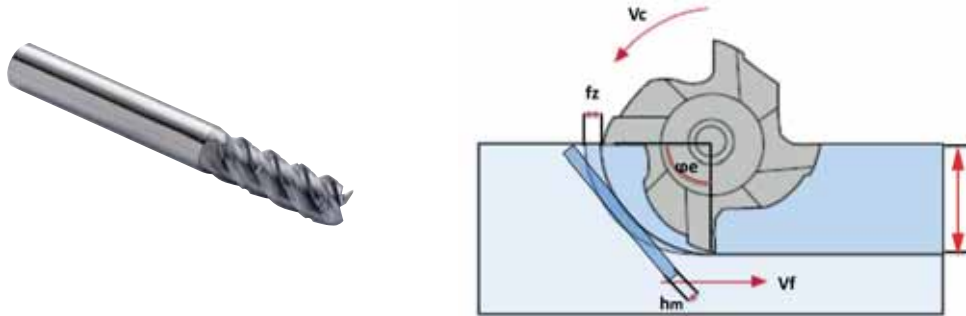
All cutting data are target values

Advanced Roughing, what does it mean?

These CAM-based rough-machining, or dynamic milling, strategies center on a cutting tool's arc of contact and its average chip load.

When reducing the arc of contact, the amount of heat generated during roughing operations is reduced. As the radial depth of cut decreases, so does a cutter's arc of contact. A smaller amount of contact results in less friction and, therefore, less heat between the tool's cutting edges and the workpiece it is machining. These lower machining temperatures allow for increased cutting speeds, prolonged tool life and shorter cycle times.

JS554-2C/3C Cutter designs for advanced roughing machining methods



To cover a wide range of workpiece materials, Seco recently modified the geometries of its Jibro®-Solid² 550 line of cutters specifically for optimized rough-machining strategies.

Two series are added, 554-2C and 554-3C offering two different length versions covering a wide range of applications.

When a steady arc of contact is maintained, these tools experience consistent and evenly distributed wear along their flutes and provide a long and predictable tool life.

To create chips that are smaller and more manageable, SECO modified the cutter design by adding chip splitters.

JS554-2C/3C applied in Advanced roughing

Today's CAM packages offer toolpath strategies specifically for inside/outside radii shapes where changing arcs of contact are common when using conventional toolpaths. These software packages automatically apply different feeds to control arc of contact and keep chip loads consistent.

In advanced roughing, to maintain arc of contact, CAM packages need to employ trochoidal machining and peel milling techniques when entering a radius.

When using an optimized roughing toolpath and maintaining consistent arc of contact, the cutter's radius can match that of the inside radius being cut without risk of cutter overload, grabbing or overcutting. This capability allows the JS554-2C/3C to remove more stock in the roughing pass, thus reducing the amount of stock the finish pass has to cut – all of which translates to faster machining cycle times.



[illegible]

70

Technical drawing of a double-flute drill bit. The drawing shows a side view of the drill bit with the following dimensions and labels:

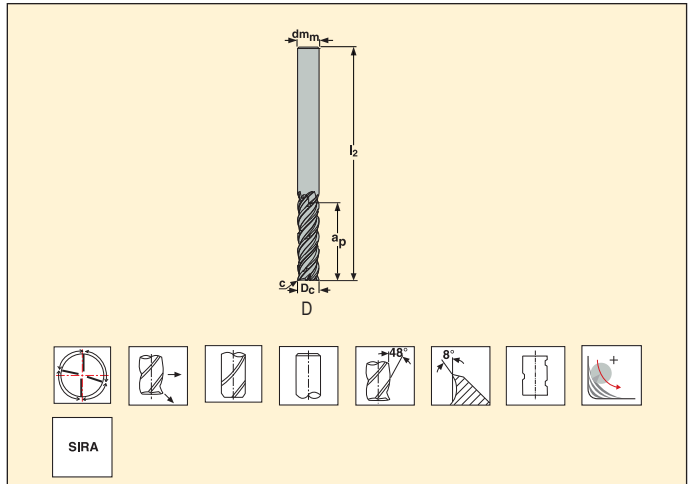
- d_{m1} : Maximum diameter of the drill bit.
- l_2 : Length of the drill bit.
- a_p : Depth of the cutting edge.
- D_c : Diameter of the cutting edge.
- $c \times 45$: Angle of the cutting edge.
- D : Diameter of the drill bit.

Below the drawing are eight icons in a row, each representing a different type of drill bit or tool:

- Icon 1: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 2: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 3: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 4: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 5: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 6: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 7: A drill bit with a double-flute design and a red arrow indicating the cutting direction.
- Icon 8: A drill bit with a double-flute design and a red arrow indicating the cutting direction.

[illegible]

71

$$D_c = e7$$
[illegible]

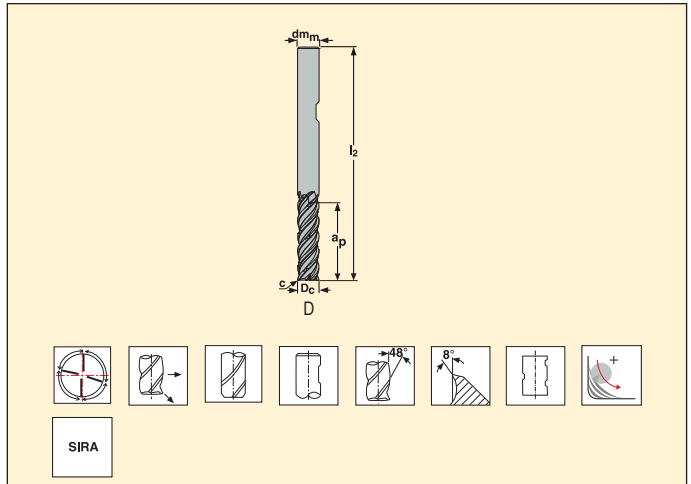
72

Technical drawing of a SIRON-A drill bit. The main view shows a side profile with dimensions: d_{mm} (outer diameter), l_2 (total length), a_p (point angle), and D_c (core diameter). Below the main view is a row of seven small diagrams illustrating the bit's geometry and cutting action:

- 1. Top view showing the cutting edges and the 48° point angle.
- 2. Side view showing the cutting edges and the 8° flank angle.
- 3. Side view showing the cutting edges and the 8° flank angle.
- 4. Side view showing the cutting edges and the 8° flank angle.
- 5. Side view showing the cutting edges and the 8° flank angle.
- 6. Side view showing the cutting edges and the 8° flank angle.
- 7. Side view showing the cutting edges and the 8° flank angle.

[illegible]

73

$$D_c = e7$$
[illegible]

74

[illegible]

75

Cutting data – JS554 – 2C SIRA advanced roughing $a_p/D_c = 0.12$

SMG		a_p / D_c	f_z								v_c
			4	5	6	8	10	12	16	20	
P1	M/A/D/E	2.5	0.044	0.055	0.065	0.090	0.11	0.13	0.16	0.19	255 (205 — 300)
P2	M/A/D/E	2.5	0.044	0.055	0.065	0.090	0.11	0.13	0.16	0.19	245 (200 — 295)
P3	M/A/D/E	2.5	0.042	0.055	0.065	0.085	0.11	0.12	0.16	0.18	250 (200 — 295)
P4	M/A/D/E	2.5	0.042	0.050	0.060	0.085	0.10	0.12	0.15	0.18	245 (195 — 290)
P5	M/A/D/E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	245 (195 — 290)
P6	M/A/D/E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	275 (220 — 330)
P7	M/A/D/E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	260 (205 — 310)
P8	M/A/D/E	2.5	0.042	0.055	0.065	0.085	0.11	0.12	0.16	0.18	240 (190 — 285)
P11	M/A/D/E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	250 (200 — 300)
M1	E	2.5	0.024	0.030	0.036	0.050	0.060	0.075	0.090	0.10	145 (120 — 180)
M2	E	2.5	0.022	0.028	0.034	0.044	0.055	0.065	0.080	0.095	135 (110 — 165)
M3	E	2.5	0.024	0.030	0.036	0.050	0.060	0.075	0.090	0.10	110 (85 — 125)
K1	E	2.5	0.044	0.055	0.065	0.090	0.11	0.13	0.16	0.19	285 (240 — 335)
K2	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	255 (210 — 295)
K3	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	215 (180 — 250)
K4	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	205 (170 — 240)
K5	E	2.5	0.036	0.046	0.055	0.075	0.090	0.11	0.13	0.15	275 (250 — 300)
K6	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	430 (395 — 470)
K7	E	2.5	0.036	0.046	0.055	0.075	0.090	0.11	0.13	0.15	395 (375 — 425)
N1	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	680 (580 — 780)
N2	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	680 (580 — 780)
N11	E	2.5	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	340 (290 — 390)

Cutting data – JS554 – 2C SIRA advanced roughing $a_p/D_c = 0.10$

SMG		a_p / D_c	f_z								v_c
			4	5	6	8	10	12	16	20	
M4	E	2.5	0.026	0.032	0.038	0.050	0.065	0.075	0.095	0.11	80 (55 — 100)
M5	E	2.5	0.026	0.032	0.038	0.050	0.065	0.075	0.095	0.11	65 (47 — 85)
N3	E	2.5	0.048	0.060	0.075	0.095	0.12	0.14	0.18	0.20	480 (410 — 550)
S11	E	2.0	0.030	0.036	0.044	0.060	0.075	0.085	0.11	0.12	85 (80 — 105)
S12	E	2.0	0.030	0.036	0.044	0.060	0.075	0.085	0.11	0.12	125 (100 — 150)
S13	E	2.0	0.026	0.032	0.038	0.050	0.065	0.075	0.095	0.11	100 (80 — 115)
H5	M/A/D	2.5	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	170 (145 — 195)
H8	M/A/D	2.5	0.015	0.019	0.022	0.030	0.038	0.046	0.055	0.065	180 (155 — 200)
H11	M/A/D	2.5	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	220 (190 — 250)
H12	M/A/D	2.5	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	330 (285 — 375)
H21	M/A/D	2.5	0.015	0.019	0.022	0.030	0.038	0.046	0.055	0.065	180 (155 — 200)
H31	M/A/D	2.5	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	130 (110 — 150)

Cutting data – JS554 – 2C SIRA advanced roughing $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z								v_c
			4	5	6	8	10	12	16	20	
S1	E	2.0	0.030	0.038	0.046	0.060	0.075	0.090	0.11	0.13	85 (70 — 95)
S2	E	2.0	0.030	0.038	0.046	0.060	0.075	0.090	0.11	0.13	65 (60 — 75)
S3	E	2.0	0.028	0.036	0.042	0.055	0.070	0.085	0.10	0.12	49 (44 — 60)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS554 – 3C Advanced roughing $a_p/D_c = 0.1$

SMG		a_p / D_c	f_z							v_c
			6	8	10	12	16	20	25	
P1	M/A/D/E	3.5	0.065	0.085	0.11	0.13	0.16	0.18	0.20	420 (350 — 630)
P2	M/A/D/E	3.5	0.065	0.090	0.11	0.13	0.16	0.19	0.22	410 (345 — 610)
P3	M/A/D/E	3.5	0.065	0.085	0.10	0.12	0.15	0.18	0.20	360 (300 — 540)
P4	M/A/D/E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.20	315 (265 — 470)
P5	M/A/D/E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	300 (255 — 450)
P6	M/A/D/E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	340 (285 — 510)
P7	M/A/D/E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	320 (270 — 475)
P8	M/A/D/E	3.5	0.065	0.085	0.10	0.12	0.15	0.18	0.20	300 (255 — 450)
P11	M/A/D/E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	310 (260 — 465)
M1	E	3.5	0.085	0.11	0.14	0.16	0.20	0.24	0.26	175 (145 — 260)
M2	E	3.5	0.075	0.10	0.13	0.15	0.19	0.22	0.24	140 (120 — 215)
M3	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	115 (95 — 170)
M4	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	85 (70 — 130)
M5	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	70 (60 — 105)
K1	E	3.5	0.065	0.090	0.11	0.13	0.16	0.19	0.22	345 (290 — 510)
K2	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	305 (255 — 455)
K3	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	260 (215 — 385)
K4	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	245 (205 — 370)
K5	E	3.5	0.055	0.075	0.090	0.11	0.13	0.15	0.17	150 (125 — 225)
K6	E	3.5	0.060	0.080	0.10	0.12	0.15	0.17	0.19	215 (180 — 325)
K7	E	3.5	0.055	0.075	0.090	0.11	0.13	0.15	0.17	190 (160 — 285)
N1	E	3.5	0.085	0.11	0.14	0.17	0.20	0.24	0.28	1075 (910 — 1625)
N2	E	3.5	0.085	0.11	0.14	0.17	0.20	0.24	0.28	700 (590 — 1050)
N3	E	3.5	0.085	0.11	0.14	0.17	0.20	0.24	0.28	465 (390 — 700)
N11	E	3.5	0.085	0.11	0.14	0.17	0.20	0.24	0.28	350 (295 — 520)
H5	M/A/D	3.5	0.026	0.034	0.044	0.050	0.065	0.075	0.085	230 (195 — 345)
H8	M/A/D	3.5	0.030	0.040	0.050	0.060	0.075	0.085	0.095	225 (190 — 340)
H11	M/A/D	3.5	0.026	0.034	0.044	0.050	0.065	0.075	0.085	295 (250 — 445)
H12	M/A/D	3.5	0.026	0.034	0.044	0.050	0.065	0.075	0.085	480 (400 — 720)
H21	M/A/D	3.5	0.030	0.040	0.050	0.060	0.075	0.085	0.095	225 (190 — 340)

Cutting data – JS554 – 3C Advanced roughing $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z							v_c
			6	8	10	12	16	20	25	
S1	E	3.5	0.046	0.060	0.075	0.090	0.11	0.13	0.15	48 (40 — 70)
S2	E	3.5	0.046	0.060	0.075	0.090	0.11	0.13	0.15	48 (40 — 70)
S3	E	3.5	0.042	0.055	0.070	0.085	0.11	0.12	0.14	24 (20 — 36)
S11	E	3.5	0.036	0.046	0.060	0.070	0.085	0.10	0.11	190 (160 — 285)
S12	E	3.5	0.036	0.046	0.060	0.070	0.085	0.10	0.11	145 (125 — 220)
S13	E	3.5	0.030	0.040	0.050	0.060	0.075	0.085	0.10	115 (100 — 175)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS554..3C Opti $a_p/D_c = 0.1$

SMG		a_p / D_c	f_z						v_c
			1/4	3/8	1/2	5/8	3/4	1	
P1	M/A/D/E	3.0	0.0030	0.0044	0.0055	0.0065	0.0075	0.0085	1325 (1125 — 2000)
P2	M/A/D/E	3.0	0.0030	0.0044	0.0055	0.0065	0.0075	0.0085	1300 (1100 — 1950)
P3	M/A/D/E	3.0	0.0028	0.0040	0.0055	0.0065	0.0070	0.0085	1125 (940 — 1675)
P4	M/A/D/E	3.0	0.0028	0.0040	0.0050	0.0065	0.0070	0.0080	1000 (840 — 1500)
P5	M/A/D/E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	960 (800 — 1425)
P6	M/A/D/E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	1075 (900 — 1600)
P7	M/A/D/E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	1025 (850 — 1525)
P8	M/A/D/E	3.0	0.0028	0.0040	0.0055	0.0065	0.0070	0.0085	940 (790 — 1400)
P11	M/A/D/E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	980 (830 — 1475)
M1	E	3.0	0.0038	0.0055	0.0070	0.0085	0.0095	0.011	550 (460 — 820)
M2	E	3.0	0.0034	0.0050	0.0065	0.0075	0.0085	0.010	455 (385 — 680)
M3	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	365 (305 — 540)
M4	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	275 (230 — 410)
M5	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	230 (190 — 340)
K1	E	3.0	0.0030	0.0044	0.0055	0.0065	0.0075	0.0085	1100 (920 — 1650)
K2	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	970 (810 — 1450)
K3	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	820 (690 — 1225)
K4	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	780 (660 — 1175)
K5	E	3.0	0.0024	0.0036	0.0048	0.0055	0.0065	0.0070	475 (400 — 710)
K6	E	3.0	0.0026	0.0040	0.0050	0.0060	0.0065	0.0080	690 (580 — 1025)
K7	E	3.0	0.0024	0.0036	0.0048	0.0055	0.0065	0.0070	610 (510 — 910)
N1	E	3.0	0.0038	0.0055	0.0070	0.0085	0.0095	0.011	3450 (2900 — 5150)
N2	E	3.0	0.0038	0.0055	0.0070	0.0085	0.0095	0.011	2200 (1850 — 3300)
N3	E	3.0	0.0038	0.0055	0.0070	0.0085	0.0095	0.011	1475 (1250 — 2200)
N11	E	3.0	0.0038	0.0055	0.0070	0.0085	0.0095	0.011	1100 (930 — 1650)
H5	M/A/D	3.0	0.0011	0.0017	0.0022	0.0026	0.0030	0.0034	760 (640 — 1125)
H8	M/A/D	3.0	0.0013	0.0020	0.0026	0.0030	0.0034	0.0040	740 (620 — 1100)
H11	M/A/D	3.0	0.0011	0.0017	0.0022	0.0026	0.0030	0.0034	960 (810 — 1450)
H12	M/A/D	3.0	0.0011	0.0017	0.0022	0.0026	0.0030	0.0034	1450 (1225 — 2175)
H21	M/A/D	3.0	0.0013	0.0020	0.0026	0.0030	0.0034	0.0040	740 (620 — 1100)

Cutting data – JS554..3C Optirough $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z						v_c
			1/4	3/8	1/2	5/8	3/4	1	
S1	E	3.5	0.0022	0.0032	0.0044	0.0050	0.0055	0.0065	160 (135 — 240)
S2	E	3.5	0.0022	0.0032	0.0044	0.0050	0.0055	0.0065	160 (135 — 240)
S3	E	3.5	0.0020	0.0030	0.0040	0.0048	0.0050	0.0060	80 (70 — 120)
S11	E	3.5	0.0017	0.0024	0.0032	0.0038	0.0044	0.0050	650 (550 — 970)
S12	E	3.5	0.0017	0.0024	0.0032	0.0038	0.0044	0.0050	500 (420 — 750)
S13	E	3.5	0.0014	0.0022	0.0028	0.0034	0.0038	0.0044	395 (330 — 590)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

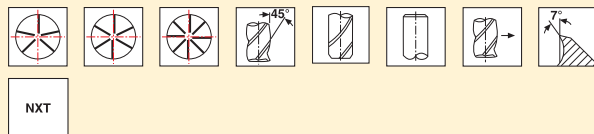
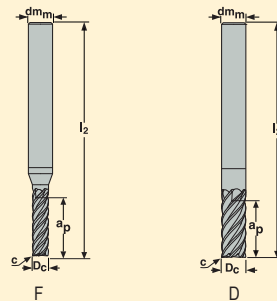
a_p/D_c = factor

a_e/D_c = factor

All cutting data are target values

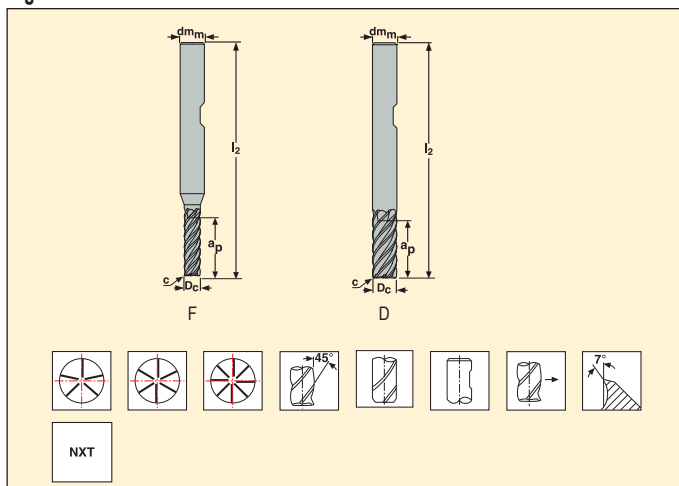
SEE JS554 3C in action



$D_c = e7$ [illegible]

80

D_c=e7

[illegible]

81

Cutting data – JS520 Side milling finishing $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z										v_c
			4	5	6	8	10	12	14	16	20	25	
P1	E/M/A	2.0	0.080	0.10	0.12	0.16	0.20	0.24	0.26	0.28	0.32	0.36	255 (170 — 340)
P2	E/M/A	2.0	0.080	0.10	0.12	0.16	0.20	0.24	0.26	0.30	0.34	0.38	250 (165 — 330)
P3	E/M/A	2.0	0.075	0.095	0.11	0.15	0.19	0.22	0.26	0.28	0.32	0.36	215 (145 — 290)
P4	E/M/A	2.0	0.075	0.090	0.11	0.15	0.18	0.22	0.24	0.26	0.30	0.34	190 (130 — 255)
P5	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	185 (120 — 245)
P6	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	205 (135 — 275)
P7	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	195 (130 — 260)
P8	E/M/A	2.0	0.075	0.095	0.11	0.15	0.19	0.22	0.26	0.28	0.32	0.36	180 (120 — 240)
P11	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	190 (125 — 250)
M1	E/M/A	2.0	0.080	0.10	0.12	0.16	0.20	0.24	0.26	0.30	0.34	0.38	150 (110 — 185)
M2	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	120 (90 — 155)
M3	E/M/A	2.0	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.20	0.24	0.28	95 (75 — 120)
M4	E/M/A	2.0	0.050	0.060	0.075	0.10	0.12	0.15	0.17	0.18	0.20	0.24	75 (55 — 95)
M5	E/M/A	2.0	0.050	0.060	0.075	0.10	0.12	0.15	0.17	0.18	0.20	0.24	60 (47 — 80)
K1	E/M/A	2.0	0.080	0.10	0.12	0.16	0.20	0.24	0.26	0.30	0.34	0.38	180 (120 — 240)
K2	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	160 (105 — 210)
K3	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	135 (90 — 180)
K4	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	130 (85 — 170)
K5	E/M/A	2.0	0.065	0.080	0.095	0.13	0.16	0.19	0.22	0.24	0.28	0.30	80 (50 — 105)
K6	E/M/A	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	115 (75 — 150)
K7	E/M/A	2.0	0.065	0.080	0.095	0.13	0.16	0.19	0.22	0.24	0.28	0.30	100 (65 — 135)
N1	E/M/A	2.0	0.090	0.11	0.13	0.18	0.22	0.26	0.32	0.36	0.44	0.48	730 (640 — 820)
N2	E/M/A	2.0	0.090	0.11	0.13	0.18	0.22	0.26	0.32	0.36	0.44	0.48	470 (410 — 530)
N3	E/M/A	2.0	0.090	0.11	0.13	0.18	0.22	0.26	0.32	0.36	0.44	0.48	315 (275 — 350)
N11	E/M/A	2.0	0.090	0.11	0.13	0.18	0.22	0.26	0.32	0.36	0.44	0.48	470 (410 — 530)
S1	E/M/A	2.0	0.048	0.060	0.070	0.095	0.12	0.14	0.16	0.18	0.20	0.22	65 (55 — 75)
S2	E/M/A	2.0	0.048	0.060	0.070	0.095	0.12	0.14	0.16	0.18	0.20	0.22	65 (55 — 75)
S3	E/M/A	2.0	0.044	0.055	0.065	0.090	0.11	0.13	0.15	0.16	0.19	0.22	44 (33 — 55)
S11	E/M/A	2.0	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.20	0.24	0.28	135 (115 — 150)
S12	E/M/A	2.0	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.20	0.24	0.28	100 (90 — 115)
S13	E/M/A	2.0	0.050	0.060	0.075	0.10	0.12	0.15	0.17	0.18	0.20	0.24	80 (70 — 90)
H5	M/A	2.0	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.19	0.22	125 (60 — 185)
H8	M/A	2.0	0.034	0.042	0.050	0.065	0.085	0.10	0.11	0.12	0.14	0.16	125 (65 — 190)
H11	M/A	2.0	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.19	0.22	160 (80 — 240)
H12	M/A	2.0	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.19	0.22	255 (130 — 385)
H21	M/A	2.0	0.034	0.042	0.050	0.065	0.085	0.10	0.11	0.12	0.14	0.16	125 (65 — 190)
TS1	A/D	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	610 (490 — 730)
TP1	A/D	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	610 (490 — 730)
GR1	A/D	2.0	0.070	0.090	0.11	0.14	0.18	0.22	0.24	0.26	0.30	0.34	610 (490 — 730)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS520 Side milling roughing $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z										v_c
			4	5	6	8	10	12	14	16	20	25	
P1	E/M/A	0.65	0.044	0.055	0.065	0.090	0.11	0.13	0.15	0.16	0.19	0.22	225 (150 – 300)
P2	E/M/A	0.65	0.044	0.055	0.065	0.090	0.11	0.13	0.15	0.16	0.19	0.22	220 (145 – 290)
P3	E/M/A	0.65	0.042	0.055	0.065	0.085	0.11	0.13	0.14	0.16	0.18	0.20	190 (125 – 250)
P4	E/M/A	0.65	0.042	0.050	0.060	0.085	0.10	0.12	0.14	0.15	0.18	0.20	170 (110 – 225)
P5	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	160 (105 – 215)
P6	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	180 (120 – 240)
P7	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	170 (115 – 225)
P8	E/M/A	0.65	0.042	0.055	0.065	0.085	0.11	0.13	0.14	0.16	0.18	0.20	160 (105 – 210)
P11	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	165 (110 – 220)
M1	E/M/A	0.65	0.044	0.055	0.065	0.090	0.11	0.13	0.15	0.16	0.19	0.22	130 (100 – 165)
M2	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	105 (80 – 135)
M3	E/M/A	0.50	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.16	85 (65 – 105)
M4	E/M/A	0.38	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	65 (49 – 80)
M5	E/M/A	0.38	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	55 (41 – 70)
K1	E/M/A	0.65	0.044	0.055	0.065	0.090	0.11	0.13	0.15	0.16	0.19	0.22	160 (105 – 210)
K2	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	140 (95 – 185)
K3	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	120 (80 – 155)
K4	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	115 (75 – 150)
K5	E/M/A	0.65	0.036	0.046	0.055	0.075	0.090	0.11	0.12	0.13	0.15	0.17	70 (46 – 90)
K6	E/M/A	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	100 (65 – 130)
K7	E/M/A	0.65	0.036	0.046	0.055	0.075	0.090	0.11	0.12	0.13	0.15	0.17	85 (60 – 115)
N1	E/M/A	0.65	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.22	0.24	0.28	620 (550 – 700)
N2	E/M/A	0.65	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.22	0.24	0.28	400 (350 – 450)
N3	E/M/A	0.65	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.22	0.24	0.28	265 (235 – 300)
N11	E/M/A	0.65	0.055	0.070	0.085	0.11	0.14	0.17	0.19	0.22	0.24	0.28	400 (350 – 450)
S1	E/M/A	0.11	0.028	0.034	0.042	0.055	0.070	0.080	0.090	0.10	0.12	0.13	55 (48 – 65)
S2	E/M/A	0.11	0.028	0.034	0.042	0.055	0.070	0.080	0.090	0.10	0.12	0.13	55 (48 – 65)
S3	E/M/A	0.11	0.026	0.032	0.038	0.050	0.065	0.075	0.085	0.095	0.11	0.12	39 (29 – 48)
S11	E/M/A	0.44	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.16	115 (100 – 130)
S12	E/M/A	0.44	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.16	90 (80 – 100)
S13	E/M/A	0.38	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	70 (60 – 80)
H5	M/A	0.65	0.026	0.032	0.038	0.050	0.065	0.075	0.085	0.095	0.11	0.12	105 (55 – 160)
H8	M/A	0.55	0.019	0.024	0.030	0.038	0.048	0.055	0.065	0.070	0.080	0.095	110 (55 – 165)
H21	M/A	0.55	0.019	0.024	0.030	0.038	0.048	0.055	0.065	0.070	0.080	0.095	110 (55 – 165)
H31	M/A	0.55	0.017	0.020	0.026	0.034	0.042	0.050	0.055	0.060	0.070	0.080	85 (42 – 125)
TS1	A/D	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	540 (430 – 640)
TP1	A/D	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	540 (430 – 640)
GR1	A/D	0.65	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.19	540 (430 – 640)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

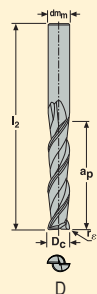
a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JS520 long flute finisher, with special geometry designed to machine high shoulders with excellent surface finish and perpendicularity.



$$r_{\varepsilon 1}=0.1+0.1 \quad r_{\varepsilon 1}=0.5+/-0.03 \quad r_{\varepsilon 1}=3.1+/-0.05 \quad r_{\varepsilon 1}=4+/-0.05$$


■ Stock standard. Subject to change, refer to current price-and stock-list.

Cutting data – JS522 Side milling finishing $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	16	20	25	32	
P1	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.22	0.26	225 (195 — 260)
P2	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.22	0.26	220 (190 — 255)
P3	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.19	0.22	0.24	190 (165 — 220)
P4	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.19	0.22	0.24	170 (145 — 190)
P5	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	160 (135 — 185)
P6	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	180 (155 — 205)
P7	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	170 (145 — 195)
P8	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.19	0.22	0.24	160 (135 — 185)
P11	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	165 (140 — 190)
M1	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.16	135 (105 — 170)
M2	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.16	110 (85 — 135)
M3	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	85 (65 — 105)
M4	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.095	0.10	0.12	65 (49 — 80)
M5	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.095	0.10	0.12	55 (41 — 65)
K1	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.22	0.26	135 (115 — 160)
K2	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	120 (100 — 140)
K3	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	100 (85 — 115)
K4	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	95 (80 — 110)
K5	E/M/A	4.0	0.060	0.080	0.10	0.12	0.14	0.17	0.19	0.20	55 (48 — 65)
K6	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	85 (70 — 100)
K7	E/M/A	4.0	0.060	0.080	0.10	0.12	0.14	0.17	0.19	0.20	75 (60 — 85)
N1	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.24	0.32	530 (355 — 710)
N2	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.24	0.32	345 (230 — 460)
N3	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.24	0.32	230 (155 — 305)
N11	E/M/A	4.0	0.060	0.080	0.10	0.12	0.16	0.20	0.24	0.32	345 (285 — 400)
S1	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.16	55 (43 — 65)
S2	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.16	55 (43 — 65)
S3	E/M/A	4.0	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.16	43 (32 — 43)
S11	E/M/A	4.0	0.050	0.070	0.085	0.10	0.13	0.15	0.17	0.19	150 (120 — 180)
S12	E/M/A	4.0	0.050	0.070	0.085	0.10	0.13	0.15	0.17	0.19	115 (95 — 140)
S13	E/M/A	4.0	0.046	0.060	0.075	0.090	0.11	0.13	0.14	0.16	90 (75 — 110)
TS1	A/D	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	1150 (1025 — 1250)
TP1	A/D	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	570 (460 — 690)
GR1	A/D	4.0	0.060	0.080	0.10	0.12	0.16	0.18	0.20	0.24	1150 (1025 — 1250)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_g (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS522 Side milling semi finishing $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	16	20	25	32	
P1	E/M/A	4.0	0.046	0.060	0.075	0.090	0.11	0.13	0.14	0.16	160 (140 – 180)
P2	E/M/A	4.0	0.046	0.060	0.075	0.090	0.11	0.13	0.15	0.17	155 (135 – 175)
P3	E/M/A	4.0	0.044	0.060	0.075	0.085	0.11	0.12	0.14	0.16	165 (140 – 190)
P4	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.14	0.15	145 (125 – 170)
P5	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	140 (120 – 160)
P6	E/M/A	4.0	0.042	0.055	0.070	0.080	0.10	0.12	0.13	0.15	120 (100 – 140)
P7	E/M/A	4.0	0.042	0.055	0.070	0.080	0.10	0.12	0.13	0.15	115 (95 – 130)
P8	E/M/A	4.0	0.044	0.060	0.075	0.085	0.11	0.12	0.14	0.16	105 (90 – 125)
P11	E/M/A	4.0	0.042	0.055	0.070	0.080	0.10	0.12	0.13	0.15	110 (90 – 130)
M1	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	90 (70 – 110)
M2	E/M/A	4.0	0.038	0.050	0.065	0.075	0.095	0.11	0.12	0.14	75 (55 – 90)
M3	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	80 (60 – 100)
M4	E/M/A	4.0	0.036	0.048	0.060	0.070	0.090	0.10	0.12	0.13	60 (46 – 75)
M5	E/M/A	4.0	0.036	0.048	0.060	0.070	0.090	0.10	0.12	0.13	50 (38 – 65)
K1	E/M/A	4.0	0.046	0.060	0.075	0.090	0.11	0.13	0.15	0.17	120 (100 – 140)
K2	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	105 (85 – 120)
K3	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	90 (75 – 105)
K4	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	85 (70 – 100)
K5	E/M/A	4.0	0.038	0.050	0.065	0.075	0.090	0.11	0.12	0.14	100 (80 – 120)
K6	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	150 (120 – 180)
K7	E/M/A	4.0	0.038	0.050	0.065	0.075	0.090	0.11	0.12	0.14	130 (105 – 155)
N1	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	400 (300 – 500)
N2	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	300 (200 – 400)
N3	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	200 (135 – 265)
N11	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	300 (250 – 350)
S11	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	125 (100 – 150)
S12	E/M/A	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	95 (75 – 115)
S13	E/M/A	4.0	0.036	0.048	0.060	0.070	0.090	0.10	0.12	0.13	75 (60 – 90)
TS1	A/D	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	500 (400 – 600)
TP1	A/D	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	400 (300 – 500)
GR1	A/D	4.0	0.042	0.055	0.070	0.085	0.10	0.12	0.13	0.15	500 (400 – 600)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

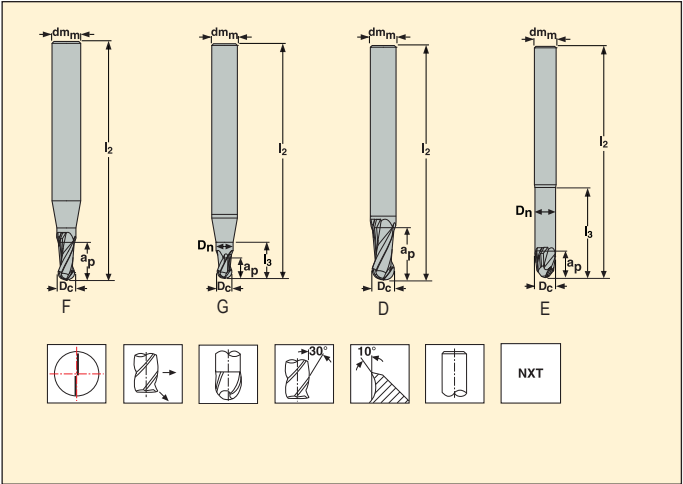
All cutting data are target values



JS532 – Solid carbide end mill – cylindrical – ball nose – two flute



Tolerances:
 $dm_m=h5$
 $D_c=e8$
 $r_{\epsilon1}=+/-0.01\text{ mm}$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm							z_n	Cylindrical
				D_c	dm_m	a_p	l_2	l_3	D_n	$r_{\epsilon1}$		
06909	JS532010F1B.0Z2-NXT	1	F	1	3	2	38	—	—	0.5	2	■
06929	JS532015F1B.0Z2-NXT	1	F	1.5	3	3	38	—	—	0.75	2	■
06930	JS532020F1B.0Z2-NXT	1	F	2	3	4	38	—	—	1	2	■
06963	JS532025F1B.0Z2-NXT	1	F	2.5	3	5	38	—	—	1.25	2	■
06992	JS532030D1B.0Z2-NXT	1	D	3	3	6	38	—	—	1.5	2	■
07051	JS532035F1B.0Z2-NXT	1	F	3.5	6	7	57	—	—	1.75	2	■
07053	JS532040F1B.0Z2-NXT	1	F	4	6	8	57	—	—	2	2	■
07063	JS532045F1B.0Z2-NXT	1	F	4.5	6	9	57	—	—	2.25	2	■
07065	JS532050F1B.0Z2-NXT	1	F	5	6	10	57	—	—	2.5	2	■
07087	JS532060D1B.0Z2-NXT	1	D	6	6	12	57	—	—	3	2	■
07101	JS532080D1B.0Z2-NXT	1	D	8	8	16	63	—	—	4	2	■
07124	JS532100D1B.0Z2-NXT	1	D	10	10	20	72	—	—	5	2	■
07138	JS532120D1B.0Z2-NXT	1	D	12	12	24	83	—	—	6	2	■
07163	JS532160D1B.0Z2-NXT	1	D	16	16	32	92	—	—	8	2	■
07192	JS532200D1B.0Z2-NXT	1	D	20	20	40	104	—	—	10	2	■
06931	JS532020G2B.0Z2-NXT	2	G	2	3	2	38	8	1.9	1	2	■
06973	JS532025G2B.0Z2-NXT	2	G	2.5	3	2.5	38	8	2.4	1.25	2	■
07013	JS532030E2B.0Z2-NXT	2	E	3	3	3	38	10	2.85	1.5	2	■
07059	JS532040G2B.0Z2-NXT	2	G	4	6	4	57	15	3.8	2	2	■
07085	JS532050G2B.0Z2-NXT	2	G	5	6	5	57	20	4.8	2.5	2	■
07088	JS532060E2B.0Z2-NXT	2	E	6	6	6	63	25	5.7	3	2	■
07102	JS532080E2B.0Z2-NXT	2	E	8	8	8	80	40	7.6	4	2	■
07126	JS532100E2B.0Z2-NXT	2	E	10	10	10	82	40	9.5	5	2	■
07140	JS532120E2B.0Z2-NXT	2	E	12	12	12	100	50	11.4	6	2	■
07185	JS532160E2B.0Z2-NXT	2	E	16	16	16	125	72	15.2	8	2	■
07049	JS532030E3B.0Z2-NXT	3	E	3	3	3	52	20	2.85	1.5	2	■
07061	JS532040G3B.0Z2-NXT	3	G	4	6	4	63	24	3.8	2	2	■
07086	JS532050G3B.0Z2-NXT	3	G	5	6	5	75	35	4.8	2.5	2	■
07099	JS532060E3B.0Z2-NXT	3	E	6	6	6	80	42	5.7	3	2	■
07103	JS532080E3B.0Z2-NXT	3	E	8	8	8	100	60	7.6	4	2	■
07127	JS532100E3B.0Z2-NXT	3	E	10	10	10	125	80	9.5	5	2	■
07159	JS532120E3B.0Z2-NXT	3	E	12	12	12	125	75	11.4	6	2	■
07191	JS532160E3B.0Z2-NXT	3	E	16	16	16	150	100	15.2	8	2	■

■ Stock standard. Subject to change, refer to current price-and stock-list.

Figure 1 illustrates four methods (F, G, D, E) for measuring the diameter of a tapered shaft. The diagrams show the shaft with its tapered section and the measurement points. Key parameters labeled include the diameter dm_m , the length l_2 , the diameter at the measurement point D_n , the diameter at the base D_c , and the distance from the base to the measurement point l_3 . The diagrams also show the distance from the measurement point to the end of the shaft l_1 and the distance from the measurement point to the base l_2 . The diagrams are labeled F, G, D, and E.

[illegible]

90

[illegible]

91

Cutting data – JS532 Copy milling roughing $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z											v_c
			1	2	3	4	5	6	8	10	12	16	20	
P1	M/A/D/E	0.30	0.0030	0.0065	0.010	0.015	0.020	0.026	0.034	0.042	0.050	0.065	0.070	285 (245 — 320)
P2	M/A/D/E	0.30	0.0032	0.0065	0.010	0.015	0.020	0.026	0.034	0.044	0.050	0.065	0.075	275 (240 — 315)
P3	M/A/D/E	0.30	0.0030	0.0060	0.010	0.014	0.019	0.024	0.032	0.042	0.048	0.060	0.070	240 (205 — 270)
P4	M/A/D/E	0.30	0.0028	0.0060	0.0095	0.014	0.019	0.024	0.032	0.040	0.048	0.060	0.070	210 (185 — 240)
P5	M/A/D/E	0.30	0.0028	0.0060	0.0095	0.013	0.018	0.024	0.032	0.040	0.046	0.060	0.065	200 (175 — 230)
P6	M/A/D/E	0.30	0.0028	0.0060	0.0095	0.013	0.018	0.024	0.032	0.040	0.046	0.060	0.065	225 (195 — 255)
P7	M/A/D/E	0.30	0.0028	0.0060	0.0095	0.013	0.018	0.024	0.032	0.040	0.046	0.060	0.065	215 (185 — 240)
P8	M/A/D/E	0.30	0.0030	0.0060	0.010	0.014	0.019	0.024	0.032	0.042	0.048	0.060	0.070	200 (175 — 225)
P11	M/A/D/E	0.30	0.0028	0.0060	0.0095	0.013	0.018	0.024	0.032	0.040	0.046	0.060	0.065	210 (180 — 235)
K1	E	0.30	0.0028	0.0060	0.0095	0.014	0.019	0.024	0.032	0.040	0.048	0.060	0.070	270 (240 — 300)
K2	E	0.30	0.0026	0.0055	0.0085	0.012	0.017	0.022	0.030	0.036	0.044	0.055	0.060	235 (210 — 260)
K3	E	0.30	0.0026	0.0055	0.0085	0.012	0.017	0.022	0.030	0.036	0.044	0.055	0.060	200 (180 — 220)
N1	E	0.40	0.0044	0.0090	0.014	0.020	0.026	0.032	0.050	0.060	0.075	0.090	0.11	1300 (1100 — 1525)
N2	E	0.40	0.0044	0.0090	0.014	0.020	0.026	0.032	0.050	0.060	0.075	0.090	0.11	840 (700 — 980)
N3	E	0.40	0.0044	0.0090	0.014	0.020	0.026	0.032	0.050	0.060	0.075	0.090	0.11	560 (470 — 660)
N11	E	0.40	0.0028	0.0060	0.0090	0.013	0.017	0.022	0.032	0.040	0.048	0.060	0.070	560 (490 — 630)
S11	E	0.30	0.0028	0.0060	0.0095	0.014	0.019	0.024	0.032	0.040	0.048	0.060	0.070	145 (125 — 160)
S12	E	0.30	0.0028	0.0060	0.0095	0.014	0.019	0.024	0.032	0.040	0.048	0.060	0.070	110 (95 — 125)
S13	E	0.30	0.0026	0.0055	0.0085	0.012	0.016	0.022	0.028	0.036	0.042	0.050	0.060	85 (75 — 100)
TS1	A	0.50	0.0044	0.0090	0.014	0.019	0.024	0.030	0.044	0.060	0.075	0.090	0.11	990 (910 — 1075)
TP1	A	0.50	0.0044	0.0090	0.014	0.019	0.024	0.030	0.044	0.060	0.075	0.090	0.11	830 (750 — 910)
GR1	A	0.50	0.0044	0.0090	0.014	0.019	0.024	0.030	0.044	0.060	0.075	0.090	0.11	990 (830 — 1150)

Cutting data – JS532 Copy milling roughing $a_p/D_c = 0.15$

SMG		a_p / D_c	f_z											v_c
			1	2	3	4	5	6	8	10	12	16	20	
M1	E	0.40	0.0040	0.0080	0.013	0.018	0.024	0.030	0.044	0.055	0.065	0.080	0.095	200 (160 — 235)
M2	E	0.40	0.0036	0.0075	0.012	0.016	0.022	0.028	0.040	0.050	0.060	0.075	0.085	160 (130 — 190)
M3	E	0.20	0.0030	0.0065	0.011	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	130 (105 — 150)
M4	E	0.20	0.0026	0.0055	0.0095	0.014	0.017	0.020	0.028	0.034	0.042	0.050	0.060	95 (80 — 115)
M5	E	0.20	0.0026	0.0055	0.0095	0.014	0.017	0.020	0.028	0.034	0.042	0.050	0.060	80 (65 — 95)
K4	E	0.20	0.0030	0.0065	0.011	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	215 (190 — 240)
K5	E	0.20	0.0026	0.0055	0.0095	0.014	0.018	0.022	0.028	0.036	0.042	0.055	0.060	130 (115 — 140)
K6	E	0.20	0.0030	0.0065	0.011	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	190 (170 — 210)
K7	E	0.20	0.0026	0.0055	0.0095	0.014	0.018	0.022	0.028	0.036	0.042	0.055	0.060	165 (145 — 180)
S1	E	0.20	0.0022	0.0048	0.0080	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	85 (70 — 95)
S2	E	0.20	0.0022	0.0048	0.0080	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	85 (70 — 95)
S3	E	0.15	0.0015	0.0034	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	40 (26 — 55)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS532 Copy milling roughing $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z										v_c
			1/32	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	
P1	M/A/D/E	0.30	0.000095	0.00022	0.00050	0.00080	0.0011	0.0013	0.0017	0.0022	0.0022	0.0028	970 (840 — 1100)
P2	M/A/D/E	0.30	0.00010	0.00022	0.00050	0.00080	0.0011	0.0013	0.0017	0.0022	0.0022	0.0028	950 (820 — 1075)
P3	M/A/D/E	0.30	0.000095	0.00020	0.00048	0.00080	0.0010	0.0013	0.0016	0.0020	0.0020	0.0028	820 (710 — 930)
P4	M/A/D/E	0.30	0.000095	0.00020	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0020	0.0026	720 (630 — 820)
P5	M/A/D/E	0.30	0.000085	0.00019	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0019	0.0026	690 (600 — 780)
P6	M/A/D/E	0.30	0.000085	0.00019	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0019	0.0026	770 (670 — 880)
P7	M/A/D/E	0.30	0.000085	0.00019	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0019	0.0026	730 (630 — 830)
P8	M/A/D/E	0.30	0.000095	0.00020	0.00048	0.00080	0.0010	0.0013	0.0016	0.0020	0.0020	0.0028	690 (600 — 780)
P11	M/A/D/E	0.30	0.000085	0.00019	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0019	0.0026	710 (620 — 800)
K1	E	0.30	0.000095	0.00020	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0020	0.0026	920 (830 — 1025)
K2	E	0.30	0.000085	0.00018	0.00044	0.00070	0.00095	0.0012	0.0014	0.0018	0.0018	0.0024	810 (720 — 890)
K3	E	0.30	0.000085	0.00018	0.00044	0.00070	0.00095	0.0012	0.0014	0.0018	0.0018	0.0024	680 (610 — 750)
N1	E	0.40	0.00014	0.00030	0.00065	0.0011	0.0016	0.0020	0.0024	0.0032	0.0030	0.0040	4575 (3825 — 5350)
N2	E	0.40	0.00014	0.00030	0.00065	0.0011	0.0016	0.0020	0.0024	0.0032	0.0030	0.0040	2950 (2450 — 3450)
N3	E	0.40	0.00014	0.00030	0.00065	0.0011	0.0016	0.0020	0.0024	0.0032	0.0030	0.0040	1975 (1650 — 2300)
N11	E	0.40	0.000095	0.00019	0.00044	0.00075	0.0010	0.0013	0.0015	0.0020	0.0019	0.0026	1925 (1700 — 2175)
S11	E	0.30	0.000095	0.00020	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0020	0.0026	495 (430 — 560)
S12	E	0.30	0.000095	0.00020	0.00048	0.00075	0.0010	0.0013	0.0015	0.0020	0.0020	0.0026	380 (330 — 425)
S13	E	0.30	0.000080	0.00017	0.00040	0.00065	0.00085	0.0011	0.0013	0.0017	0.0017	0.0024	295 (260 — 335)
TS1	A	0.48	0.00014	0.00030	0.00065	0.0010	0.0016	0.0020	0.0024	0.0032	0.0030	0.0040	3525 (3225 — 3825)
TP1	A	0.48	0.00014	0.00030	0.00065	0.0010	0.0016	0.0020	0.0024	0.0032	0.0030	0.0040	2950 (2650 — 3225)
GR1	A	0.48	0.00014	0.00030	0.00065	0.0010	0.0016	0.0020	0.0024	0.0032	0.0030	0.0040	3525 (2950 — 4125)

Cutting data – JS532 Copy milling roughing $a_p/D_c = 0.15$

SMG		a_p / D_c	f_z										v_c
			1/32	1/16	1/8	3/16	1/4	5/16	3/8	1/2	5/8	3/4	
M1	E	0.40	0.00013	0.00028	0.00060	0.0010	0.0014	0.0018	0.0022	0.0028	0.0034	0.0038	690 (560 — 810)
M2	E	0.40	0.00012	0.00024	0.00055	0.00095	0.0013	0.0017	0.0020	0.0026	0.0030	0.0034	560 (455 — 660)
M3	E	0.20	0.000095	0.00022	0.00050	0.00080	0.0010	0.0013	0.0016	0.0020	0.0024	0.0028	430 (350 — 510)
M4	E	0.20	0.000085	0.00019	0.00044	0.00065	0.00085	0.0011	0.0013	0.0017	0.0022	0.0024	320 (265 — 380)
M5	E	0.20	0.000085	0.00019	0.00044	0.00065	0.00085	0.0011	0.0013	0.0017	0.0022	0.0024	270 (220 — 315)
K4	E	0.20	0.000095	0.00022	0.00050	0.00080	0.0010	0.0013	0.0016	0.0020	0.0024	0.0028	720 (640 — 800)
K5	E	0.20	0.000085	0.00020	0.00048	0.00070	0.00095	0.0012	0.0014	0.0018	0.0022	0.0024	430 (385 — 475)
K6	E	0.20	0.000095	0.00022	0.00050	0.00080	0.0010	0.0013	0.0016	0.0020	0.0024	0.0028	630 (570 — 700)
K7	E	0.20	0.000085	0.00020	0.00048	0.00070	0.00095	0.0012	0.0014	0.0018	0.0022	0.0024	550 (490 — 610)
S1	E	0.20	0.000070	0.00016	0.00040	0.00060	0.00080	0.00095	0.0012	0.0015	0.0018	0.0020	275 (230 — 320)
S2	E	0.20	0.000070	0.00016	0.00040	0.00060	0.00080	0.00095	0.0012	0.0015	0.0018	0.0020	275 (230 — 320)
S3	E	0.15	0.000048	0.00012	0.00026	0.00040	0.00050	0.00065	0.00080	0.0010	0.0012	0.0013	130 (85 — 170)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

a_p/D_c = factor

All cutting data are target values

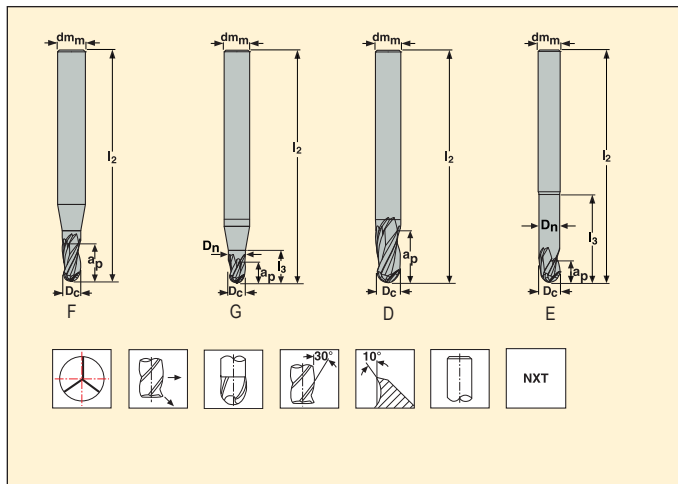
JS533 – Solid carbide end mill – cylindrical – ball nose – three flute



Tolerances:

$$dm_m = h5$$

D_c=e8

 $r_{s1} = \pm 0.01 \text{ mm}$ [illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

[illegible]☐ Weldon available, delivery time is 3 days.

Cutting data – JS533 Copy milling roughing $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z											v_c
			1	2	3	4	5	6	8	10	12	16	20	
P1	M/A/D/E	0.20	0.0034	0.0070	0.011	0.015	0.020	0.024	0.032	0.040	0.048	0.065	0.080	310 (270 — 355)
P2	M/A/D/E	0.20	0.0036	0.0070	0.011	0.016	0.020	0.024	0.032	0.040	0.048	0.065	0.080	305 (265 — 345)
P3	M/A/D/E	0.20	0.0034	0.0070	0.011	0.015	0.020	0.024	0.032	0.040	0.048	0.065	0.080	260 (225 — 295)
P4	M/A/D/E	0.20	0.0032	0.0065	0.010	0.015	0.019	0.024	0.032	0.040	0.048	0.065	0.080	230 (200 — 260)
P5	M/A/D/E	0.20	0.0032	0.0065	0.010	0.014	0.019	0.024	0.032	0.040	0.048	0.065	0.075	220 (190 — 250)
P6	M/A/D/E	0.20	0.0032	0.0065	0.010	0.014	0.019	0.024	0.032	0.040	0.048	0.065	0.075	250 (215 — 280)
P7	M/A/D/E	0.20	0.0032	0.0065	0.010	0.014	0.019	0.024	0.032	0.040	0.048	0.065	0.075	235 (205 — 265)
P8	M/A/D/E	0.20	0.0034	0.0070	0.011	0.015	0.020	0.024	0.032	0.040	0.048	0.065	0.080	220 (190 — 250)
P11	M/A/D/E	0.20	0.0032	0.0065	0.010	0.014	0.019	0.024	0.032	0.040	0.048	0.065	0.075	225 (195 — 260)
M1	E	0.15	0.0036	0.0075	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.065	0.080	200 (165 — 235)
M2	E	0.15	0.0032	0.0065	0.011	0.015	0.020	0.024	0.032	0.040	0.048	0.065	0.075	165 (135 — 190)
M3	E	0.15	0.0032	0.0065	0.011	0.015	0.020	0.024	0.032	0.040	0.048	0.065	0.075	125 (100 — 145)
M4	E	0.15	0.0028	0.0060	0.0095	0.013	0.018	0.024	0.032	0.040	0.046	0.060	0.065	95 (75 — 110)
M5	E	0.15	0.0028	0.0060	0.0095	0.013	0.018	0.024	0.032	0.040	0.046	0.060	0.065	80 (65 — 95)
K1	E	0.30	0.0024	0.0048	0.0070	0.010	0.013	0.016	0.022	0.030	0.040	0.048	0.055	300 (270 — 330)
K2	E	0.30	0.0022	0.0042	0.0065	0.0090	0.011	0.014	0.020	0.028	0.036	0.044	0.050	265 (235 — 290)
K3	E	0.30	0.0022	0.0042	0.0065	0.0090	0.011	0.014	0.020	0.028	0.036	0.044	0.050	225 (200 — 245)
K4	E	0.30	0.0022	0.0042	0.0065	0.0090	0.011	0.014	0.020	0.028	0.036	0.044	0.050	210 (190 — 235)
K5	E	0.30	0.0019	0.0038	0.0060	0.0080	0.010	0.013	0.018	0.024	0.032	0.040	0.046	125 (115 — 140)
K6	E	0.30	0.0022	0.0042	0.0065	0.0090	0.011	0.014	0.020	0.028	0.036	0.044	0.050	185 (165 — 205)
K7	E	0.30	0.0019	0.0038	0.0060	0.0080	0.010	0.013	0.018	0.024	0.032	0.040	0.046	165 (145 — 180)
N1	E	0.30	0.0050	0.010	0.015	0.020	0.026	0.034	0.048	0.065	0.085	0.10	0.12	1425 (1175 — 1650)
N2	E	0.30	0.0050	0.010	0.015	0.020	0.026	0.034	0.048	0.065	0.085	0.10	0.12	910 (760 — 1050)
N3	E	0.30	0.0050	0.010	0.015	0.020	0.026	0.034	0.048	0.065	0.085	0.10	0.12	610 (510 — 710)
N11	E	0.30	0.0032	0.0065	0.010	0.013	0.017	0.022	0.030	0.042	0.055	0.065	0.075	650 (570 — 730)
S1	E	0.30	0.0022	0.0042	0.0065	0.0090	0.011	0.014	0.020	0.028	0.036	0.044	0.050	80 (70 — 95)
S2	E	0.30	0.0022	0.0042	0.0065	0.0090	0.011	0.014	0.020	0.028	0.036	0.044	0.050	80 (70 — 95)
S11	E	0.40	0.0032	0.0065	0.0095	0.013	0.017	0.020	0.028	0.038	0.048	0.065	0.075	160 (140 — 180)
S12	E	0.40	0.0032	0.0065	0.0095	0.013	0.017	0.020	0.028	0.038	0.048	0.065	0.075	125 (110 — 140)
S13	E	0.40	0.0028	0.0055	0.0085	0.011	0.015	0.018	0.024	0.032	0.042	0.060	0.065	95 (85 — 110)
TS1	A	0.40	0.0050	0.010	0.015	0.020	0.026	0.032	0.044	0.060	0.075	0.10	0.12	780 (720 — 850)
TP1	A	0.40	0.0050	0.010	0.015	0.020	0.026	0.032	0.044	0.060	0.075	0.10	0.12	650 (590 — 720)
GR1	A	0.40	0.0050	0.010	0.015	0.020	0.026	0.032	0.044	0.060	0.075	0.10	0.12	780 (720 — 850)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JS533 Copy milling roughing

SMG		a_p / D_c	f_z									v_c
			1/32	1/16	1/8	3/16	1/4	3/8	1/2	5/8	3/4	
P1	M/A/D/E	0.20	0.00012	0.00026	0.00065	0.00095	0.0013	0.0019	0.0024	0.0030	0.0032	1075 (940 — 1225)
P2	M/A/D/E	0.20	0.00012	0.00026	0.00065	0.00095	0.0013	0.0019	0.0026	0.0030	0.0034	1050 (920 — 1200)
P3	M/A/D/E	0.20	0.00011	0.00026	0.00060	0.00085	0.0012	0.0018	0.0024	0.0028	0.0032	910 (790 — 1025)
P4	M/A/D/E	0.20	0.00011	0.00026	0.00060	0.00085	0.0012	0.0018	0.0024	0.0028	0.0032	800 (700 — 910)
P5	M/A/D/E	0.20	0.00011	0.00024	0.00060	0.00085	0.0012	0.0017	0.0022	0.0028	0.0030	770 (660 — 870)
P6	M/A/D/E	0.20	0.00010	0.00024	0.00060	0.00085	0.0012	0.0017	0.0022	0.0026	0.0030	860 (750 — 980)
P7	M/A/D/E	0.20	0.00010	0.00024	0.00060	0.00085	0.0012	0.0017	0.0022	0.0026	0.0030	810 (700 — 920)
P8	M/A/D/E	0.20	0.00011	0.00026	0.00060	0.00085	0.0012	0.0018	0.0024	0.0028	0.0032	770 (660 — 870)
P11	M/A/D/E	0.20	0.00010	0.00024	0.00060	0.00085	0.0012	0.0017	0.0022	0.0026	0.0030	790 (680 — 890)
M1	E	0.15	0.00012	0.00030	0.00065	0.00095	0.0013	0.0019	0.0026	0.0030	0.0034	690 (560 — 810)
M2	E	0.15	0.00011	0.00026	0.00060	0.00085	0.0012	0.0017	0.0022	0.0028	0.0030	550 (455 — 660)
M3	E	0.15	0.00011	0.00026	0.00060	0.00085	0.0012	0.0017	0.0022	0.0028	0.0030	425 (345 — 500)
M4	E	0.15	0.000095	0.00024	0.00050	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	315 (260 — 375)
M5	E	0.15	0.000095	0.00024	0.00050	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	265 (215 — 310)
K1	E	0.30	0.000075	0.00017	0.00040	0.00065	0.00085	0.0013	0.0017	0.0020	0.0022	1050 (940 — 1150)
K2	E	0.30	0.000070	0.00015	0.00036	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	910 (810 — 1000)
K3	E	0.30	0.000070	0.00015	0.00036	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	770 (690 — 850)
K4	E	0.30	0.000070	0.00015	0.00036	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	730 (660 — 810)
K5	E	0.30	0.000065	0.00013	0.00032	0.00050	0.00070	0.0010	0.0013	0.0016	0.0018	435 (390 — 485)
K6	E	0.30	0.000070	0.00015	0.00036	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	650 (580 — 710)
K7	E	0.30	0.000065	0.00013	0.00032	0.00050	0.00070	0.0010	0.0013	0.0016	0.0018	560 (500 — 620)
N1	E	0.30	0.00017	0.00036	0.00085	0.0013	0.0018	0.0028	0.0036	0.0044	0.0048	5275 (4400 — 6150)
N2	E	0.30	0.00017	0.00036	0.00085	0.0013	0.0018	0.0028	0.0036	0.0044	0.0048	3375 (2825 — 3950)
N3	E	0.30	0.00017	0.00036	0.00085	0.0013	0.0018	0.0028	0.0036	0.0044	0.0048	2250 (1875 — 2625)
N11	E	0.30	0.00010	0.00022	0.00055	0.00085	0.0012	0.0017	0.0022	0.0028	0.0030	2325 (2025 — 2625)
S1	E	0.30	0.000070	0.00015	0.00036	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	280 (235 — 330)
S2	E	0.30	0.000070	0.00015	0.00036	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	280 (235 — 330)
S11	E	0.40	0.00010	0.00022	0.00048	0.00085	0.0012	0.0017	0.0022	0.0028	0.0030	580 (510 — 660)
S12	E	0.40	0.00010	0.00022	0.00048	0.00085	0.0012	0.0017	0.0022	0.0028	0.0030	450 (390 — 500)
S13	E	0.40	0.000085	0.00019	0.00044	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	350 (305 — 395)
TS1	A	0.40	0.00016	0.00034	0.00075	0.0013	0.0018	0.0028	0.0036	0.0044	0.0048	2975 (2725 — 3225)
TP1	A	0.40	0.00016	0.00034	0.00075	0.0013	0.0018	0.0028	0.0036	0.0044	0.0048	2475 (2225 — 2725)
GR1	A	0.40	0.00016	0.00034	0.00075	0.0013	0.0018	0.0028	0.0036	0.0044	0.0048	2975 (2725 — 3225)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

a_w/D_c = factor

All cutting data are target values

The image shows three drill bits of increasing length and diameter. The shortest bit is on the left, the medium one in the center, and the longest one on the right. This visualizes the concept of stiffness, where longer and larger bits are less stiff and more prone to deflection.

[illegible]

98

[illegible]

99

[illegible]

Cutting data – JS534 Copy milling roughing $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
P1	M/A/D/E	0.15	0.0060	0.0095	0.014	0.018	0.024	0.032	0.040	0.048	0.060	0.070	320 (275 — 360)
P2	M/A/D/E	0.15	0.0060	0.0095	0.014	0.019	0.024	0.032	0.040	0.048	0.060	0.070	310 (270 — 355)
P3	M/A/D/E	0.15	0.0055	0.0090	0.013	0.018	0.024	0.030	0.038	0.046	0.055	0.065	270 (235 — 305)
P4	M/A/D/E	0.15	0.0055	0.0090	0.013	0.017	0.022	0.030	0.038	0.044	0.055	0.065	235 (205 — 270)
P5	M/A/D/E	0.15	0.0055	0.0090	0.013	0.017	0.022	0.030	0.038	0.044	0.055	0.065	225 (195 — 255)
P6	M/A/D/E	0.15	0.0055	0.0085	0.012	0.017	0.022	0.030	0.036	0.044	0.055	0.060	255 (220 — 290)
P7	M/A/D/E	0.15	0.0055	0.0085	0.012	0.017	0.022	0.030	0.036	0.044	0.055	0.060	240 (210 — 275)
P8	M/A/D/E	0.15	0.0055	0.0090	0.013	0.018	0.024	0.030	0.038	0.046	0.055	0.065	225 (195 — 255)
P11	M/A/D/E	0.15	0.0055	0.0085	0.012	0.017	0.022	0.030	0.036	0.044	0.055	0.060	235 (205 — 265)
M1	E	0.10	0.0050	0.0090	0.013	0.017	0.020	0.026	0.034	0.040	0.048	0.055	205 (165 — 240)
M2	E	0.10	0.0048	0.0080	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	165 (135 — 195)
M3	E	0.10	0.0060	0.010	0.015	0.019	0.022	0.030	0.038	0.044	0.055	0.065	125 (100 — 150)
M4	E	0.10	0.0050	0.0085	0.013	0.016	0.019	0.026	0.032	0.038	0.048	0.055	95 (75 — 110)
M5	E	0.10	0.0050	0.0085	0.013	0.016	0.019	0.026	0.032	0.038	0.048	0.055	80 (65 — 95)
K1	E	0.15	0.0044	0.0070	0.010	0.014	0.018	0.024	0.030	0.036	0.044	0.050	315 (280 — 345)
K2	E	0.15	0.0040	0.0065	0.0095	0.013	0.016	0.022	0.028	0.032	0.040	0.046	270 (245 — 300)
K3	E	0.15	0.0040	0.0065	0.0095	0.013	0.016	0.022	0.028	0.032	0.040	0.046	230 (205 — 255)
K4	E	0.10	0.0060	0.010	0.015	0.019	0.022	0.030	0.038	0.044	0.055	0.065	215 (190 — 235)
K5	E	0.10	0.0055	0.0090	0.013	0.017	0.020	0.026	0.034	0.040	0.048	0.055	130 (115 — 140)
K6	E	0.10	0.0060	0.010	0.015	0.019	0.022	0.030	0.038	0.044	0.055	0.065	190 (170 — 210)
K7	E	0.10	0.0055	0.0090	0.013	0.017	0.020	0.026	0.034	0.040	0.048	0.055	165 (145 — 180)
N1	E	0.20	0.0085	0.014	0.019	0.024	0.032	0.048	0.060	0.070	0.090	0.10	1650 (1525 — 1800)
N2	E	0.20	0.0085	0.014	0.019	0.024	0.032	0.048	0.060	0.070	0.090	0.10	1050 (970 — 1150)
N3	E	0.20	0.0085	0.014	0.019	0.024	0.032	0.048	0.060	0.070	0.090	0.10	710 (650 — 770)
N11	E	0.20	0.0055	0.0085	0.012	0.016	0.020	0.030	0.038	0.044	0.055	0.065	690 (600 — 780)
S1	E	0.10	0.0042	0.0070	0.011	0.013	0.016	0.022	0.026	0.032	0.040	0.046	85 (70 — 100)
S2	E	0.10	0.0042	0.0070	0.011	0.013	0.016	0.022	0.026	0.032	0.040	0.046	85 (70 — 100)
S3	E	0.10	0.0040	0.0065	0.010	0.013	0.015	0.020	0.026	0.030	0.036	0.042	41 (27 — 55)
S11	E	0.10	0.0048	0.0080	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	170 (150 — 190)
S12	E	0.10	0.0048	0.0080	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	130 (115 — 145)
S13	E	0.10	0.0042	0.0070	0.010	0.013	0.016	0.020	0.026	0.032	0.038	0.044	100 (90 — 115)
TS1	A	0.30	0.0085	0.013	0.018	0.022	0.028	0.040	0.055	0.070	0.090	0.10	1225 (1125 — 1325)
TP1	A	0.30	0.0085	0.013	0.018	0.022	0.028	0.040	0.055	0.070	0.090	0.10	1025 (920 — 1125)
GR1	A	0.30	0.0085	0.013	0.018	0.022	0.028	0.040	0.055	0.070	0.090	0.10	1225 (1125 — 1325)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JS534 Copy milling roughing

SMG		a_p / D_c	f_z								v_c
			1/16	1/8	3/16	1/4	3/8	1/2	5/8	3/4	
P1	M/A/D/E	0.12	0.00026	0.00050	0.00080	0.0010	0.0016	0.0020	0.0024	0.0028	1075 (920 — 1200)
P2	M/A/D/E	0.12	0.00026	0.00055	0.00080	0.0011	0.0016	0.0022	0.0024	0.0028	1050 (900 — 1175)
P3	M/A/D/E	0.12	0.00026	0.00050	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	890 (770 — 1000)
P4	M/A/D/E	0.12	0.00024	0.00050	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	780 (680 — 890)
P5	M/A/D/E	0.12	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	750 (650 — 850)
P6	M/A/D/E	0.12	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	840 (730 — 950)
P7	M/A/D/E	0.12	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	790 (690 — 900)
P8	M/A/D/E	0.12	0.00026	0.00050	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	750 (650 — 850)
P11	M/A/D/E	0.12	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	770 (670 — 870)
M1	E	0.080	0.00022	0.00044	0.00065	0.00085	0.0013	0.0017	0.0020	0.0022	640 (520 — 750)
M2	E	0.080	0.00020	0.00040	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	510 (420 — 600)
M3	E	0.080	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	395 (325 — 465)
M4	E	0.080	0.00022	0.00044	0.00065	0.00085	0.0013	0.0017	0.0020	0.0022	295 (240 — 350)
M5	E	0.080	0.00022	0.00044	0.00065	0.00085	0.0013	0.0017	0.0020	0.0022	245 (200 — 290)
K1	E	0.12	0.00020	0.00040	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	1025 (910 — 1125)
K2	E	0.12	0.00017	0.00036	0.00055	0.00070	0.0011	0.0014	0.0017	0.0019	870 (780 — 960)
K3	E	0.12	0.00017	0.00036	0.00055	0.00070	0.0011	0.0014	0.0017	0.0019	740 (660 — 820)
K4	E	0.080	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	680 (610 — 750)
K5	E	0.080	0.00022	0.00044	0.00065	0.00085	0.0013	0.0017	0.0020	0.0022	400 (360 — 445)
K6	E	0.080	0.00024	0.00048	0.00070	0.00095	0.0014	0.0019	0.0022	0.0026	600 (540 — 660)
K7	E	0.080	0.00022	0.00044	0.00065	0.00085	0.0013	0.0017	0.0020	0.0022	510 (460 — 570)
N1	E	0.17	0.00034	0.00080	0.0012	0.0016	0.0024	0.0032	0.0036	0.0040	5850 (5350 — 6325)
N2	E	0.17	0.00034	0.00080	0.0012	0.0016	0.0024	0.0032	0.0036	0.0040	3750 (3450 — 4075)
N3	E	0.17	0.00034	0.00080	0.0012	0.0016	0.0024	0.0032	0.0036	0.0040	2500 (2300 — 2700)
N11	E	0.17	0.00022	0.00050	0.00075	0.0010	0.0015	0.0020	0.0024	0.0026	2350 (2050 — 2650)
S1	E	0.080	0.00017	0.00036	0.00050	0.00070	0.0010	0.0013	0.0017	0.0018	260 (215 — 305)
S2	E	0.080	0.00017	0.00036	0.00050	0.00070	0.0010	0.0013	0.0017	0.0018	260 (215 — 305)
S3	E	0.080	0.00017	0.00034	0.00048	0.00065	0.00095	0.0013	0.0015	0.0017	125 (85 — 170)
S11	E	0.080	0.00020	0.00040	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	520 (460 — 590)
S12	E	0.080	0.00020	0.00040	0.00060	0.00080	0.0012	0.0015	0.0018	0.0020	400 (350 — 455)
S13	E	0.080	0.00017	0.00034	0.00050	0.00065	0.0010	0.0013	0.0016	0.0018	305 (270 — 345)
TS1	A	0.26	0.00032	0.00080	0.0012	0.0016	0.0024	0.0032	0.0036	0.0040	4500 (4125 — 4875)
TP1	A	0.26	0.00032	0.00080	0.0012	0.0016	0.0024	0.0032	0.0036	0.0040	3750 (3375 — 4125)
GR1	A	0.26	0.00032	0.00080	0.0012	0.0016	0.0024	0.0032	0.0036	0.0040	4500 (4125 — 4875)

For cutting data recalculations, see pages 336-344.

SMG = Seco Material Group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = sf/min

f_z = in/tooth

a_p/D_c = factor

a_d/D_c = factor

All cutting data are target values

A close-up photograph of a double-flute end mill, showing its two distinct flutes and sharp cutting edge.

Technical drawing of a shaft with a keyway. The main view shows a shaft of length l_2 and diameter d_{mm} . A keyway is cut into the shaft, with a depth a_p and a width D_{ci} at the inner diameter and D_c at the outer diameter. The keyway is labeled SIG . The shaft is supported by a bearing, indicated by the letter N . Below the main view are eight small square boxes containing different cross-sections or details of the shaft, including a circular cross-section with a keyway, a rectangular cross-section, and a cross-section with a keyway and a bearing.

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A close-up photograph of a single-point tool tip, showing the cutting edge and the tool's geometry.

The diagram shows a vertical pile with the following dimensions and labels:

- dm_m : Maximum diameter of the pile.
- l_2 : Length of the pile.
- SIG : Angle of the pile's axis relative to the vertical.
- δp : Vertical displacement of the pile head.
- D_{c1} : Diameter of the pile at the head.
- D_c : Diameter of the pile at the base.
- N : Normal force acting on the pile.

Below the diagram are seven icons in boxes:

- A circle with a crosshair and a red dot in the center.
- A rectangle with diagonal hatching.
- A rectangle with diagonal hatching and a red dot in the center.
- A rectangle with diagonal hatching and a red dot in the center.
- A rectangle with diagonal hatching and a red dot in the center.
- A rectangle with diagonal hatching and a red dot in the center.
- A rectangle with diagonal hatching and a red dot in the center.

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Cutting data – JS506 Chamfering $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z						v_c
			3	4	6	8	10	12	
P1	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	230 (190 — 340)
P2	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	225 (185 — 335)
P3	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	190 (160 — 285)
P4	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	170 (140 — 250)
P5	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	160 (135 — 240)
P6	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	180 (150 — 270)
P7	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	170 (145 — 255)
P8	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	160 (135 — 240)
P11	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	165 (140 — 250)
M1	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	135 (110 — 200)
M2	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	105 (90 — 160)
M3	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	80 (70 — 120)
M4	E/M/A	0.24	0.022	0.028	0.044	0.060	0.070	0.085	60 (50 — 90)
M5	E/M/A	0.24	0.022	0.028	0.044	0.060	0.070	0.085	50 (43 — 75)
K1	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	205 (170 — 305)
K2	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	175 (150 — 265)
K3	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	150 (125 — 225)
K4	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	145 (120 — 215)
K5	A/D/M/E	0.30	0.022	0.030	0.044	0.060	0.075	0.090	85 (70 — 130)
K6	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	125 (105 — 190)
K7	A/D/M/E	0.30	0.022	0.030	0.044	0.060	0.075	0.090	110 (95 — 165)
N1	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	840 (700 — 1250)
N2	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	540 (450 — 800)
N3	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	360 (300 — 540)
N11	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	540 (450 — 800)
S1	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	50 (42 — 75)
S2	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	50 (42 — 75)
S3	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	30 (25 — 45)
S11	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	105 (90 — 155)
S12	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	80 (70 — 120)
S13	E	0.26	0.022	0.028	0.044	0.060	0.070	0.085	65 (55 — 95)
H5	M/A/D	0.34	0.024	0.032	0.048	0.065	0.080	0.095	65 (55 — 100)
H8	M/A/D	0.30	0.024	0.032	0.048	0.065	0.080	0.095	65 (55 — 95)
H11	M/A/D	0.34	0.024	0.032	0.048	0.065	0.080	0.095	85 (70 — 125)
H12	M/A/D	0.34	0.024	0.032	0.048	0.065	0.080	0.095	135 (115 — 205)
H21	M/A/D	0.30	0.024	0.032	0.048	0.065	0.080	0.095	65 (55 — 95)
TS1	A/D	0.30	0.028	0.036	0.055	0.070	0.090	0.11	530 (440 — 790)
TP1	A/D	0.30	0.028	0.036	0.055	0.070	0.090	0.11	530 (440 — 790)
GR1	A/D	0.30	0.028	0.036	0.055	0.070	0.090	0.11	530 (440 — 790)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

A close-up photograph of the tip of a metal drill bit. The bit is dark grey or black, showing a sharp, double-flute design. The background is plain white.

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Cutting data – JS509 Chamfering $a_p/D_c = 0.1$

SMG		a_p / D_c	f_z						v_c
			3	4	6	8	10	12	
P1	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	230 (190 – 340)
P2	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	225 (185 – 335)
P3	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	190 (160 – 285)
P4	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	170 (140 – 250)
P5	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	160 (135 – 240)
P6	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	180 (150 – 270)
P7	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	170 (145 – 255)
P8	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	160 (135 – 240)
P11	M/A/D/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	165 (140 – 250)
M1	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	135 (110 – 200)
M2	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	105 (90 – 160)
M3	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	80 (70 – 120)
M4	E/M/A	0.24	0.022	0.028	0.044	0.060	0.070	0.085	60 (50 – 90)
M5	E/M/A	0.24	0.022	0.028	0.044	0.060	0.070	0.085	50 (43 – 75)
K1	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	205 (170 – 305)
K2	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	175 (150 – 265)
K3	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	150 (125 – 225)
K4	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	145 (120 – 215)
K5	A/D/M/E	0.30	0.022	0.030	0.044	0.060	0.075	0.090	85 (70 – 130)
K6	A/D/M/E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	125 (105 – 190)
K7	A/D/M/E	0.30	0.022	0.030	0.044	0.060	0.075	0.090	110 (95 – 165)
N1	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	840 (700 – 1250)
N2	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	540 (450 – 800)
N3	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	360 (300 – 540)
N11	E/M/A	0.30	0.024	0.032	0.048	0.065	0.080	0.095	540 (450 – 800)
S1	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	50 (42 – 75)
S2	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	50 (42 – 75)
S3	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	30 (25 – 45)
S11	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	105 (90 – 155)
S12	E	0.30	0.024	0.032	0.048	0.065	0.080	0.095	80 (70 – 120)
S13	E	0.26	0.022	0.028	0.044	0.060	0.070	0.085	65 (55 – 95)
H5	M/A/D	0.34	0.024	0.032	0.048	0.065	0.080	0.095	65 (55 – 100)
H8	M/A/D	0.30	0.024	0.032	0.048	0.065	0.080	0.095	65 (55 – 95)
H11	M/A/D	0.34	0.024	0.032	0.048	0.065	0.080	0.095	85 (70 – 125)
H12	M/A/D	0.34	0.024	0.032	0.048	0.065	0.080	0.095	135 (115 – 205)
H21	M/A/D	0.30	0.024	0.032	0.048	0.065	0.080	0.095	65 (55 – 95)
TS1	A/D	0.30	0.028	0.036	0.055	0.070	0.090	0.11	530 (440 – 790)
TP1	A/D	0.30	0.028	0.036	0.055	0.070	0.090	0.11	530 (440 – 790)
GR1	A/D	0.30	0.028	0.036	0.055	0.070	0.090	0.11	530 (440 – 790)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

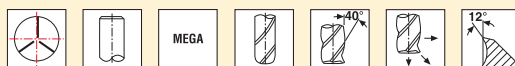
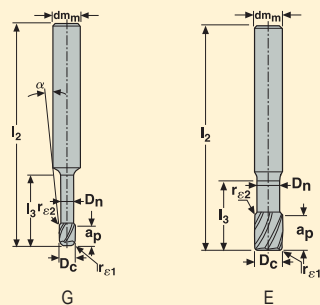
v_c = m/min

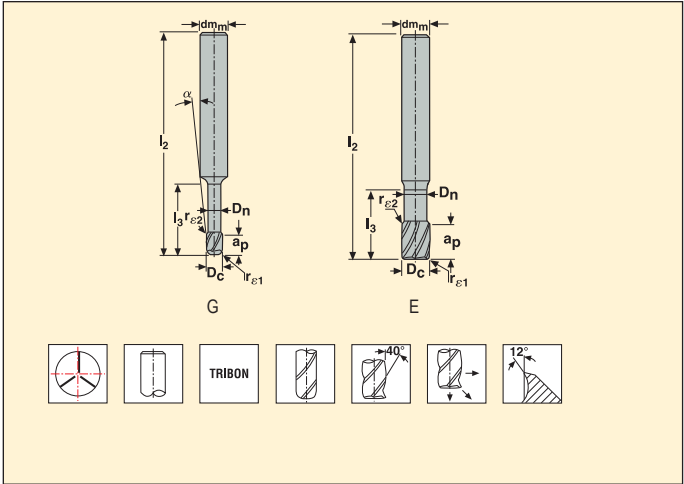
f_z = mm

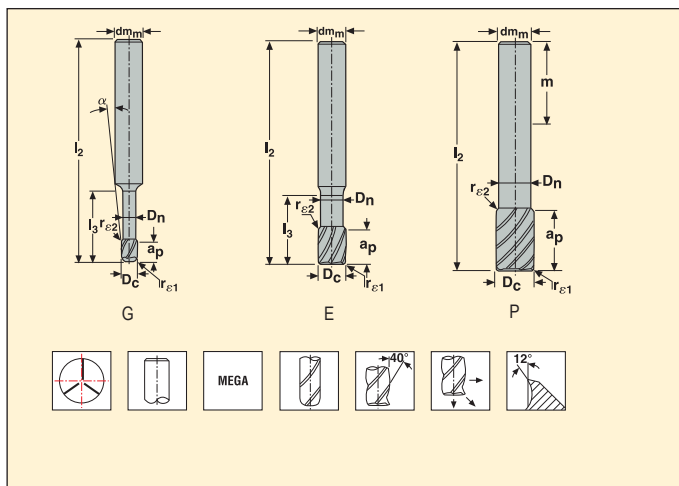
a_p (mm)/ D_c (mm)= factor

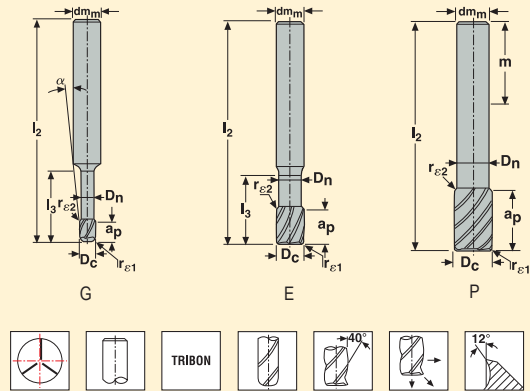
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

 $r_{s1} = \pm 0.05 \text{ mm}$ 109

$$\begin{aligned} dm_m &= h_5 \\ D_c &= 0.02/-0.04 \text{ mm} \\ r_{\varepsilon 1} &= +/-0.05 \text{ mm} \end{aligned}$$
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 $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ 

$$\begin{aligned} dm_m &= h5 \\ D_c &= 0.02/-0.04 \text{ mm} \\ r_{\varepsilon 1} &= +/-0.05 \text{ mm} \end{aligned}$$
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Cutting data – JH910 Slotting

SMG		a_p / D_c	f_z														v_c
			2	3	4	5	6	8	9	10	11	12	13	16	17	20	
P1	M/E/A	0.30	0.011	0.017	0.022	0.028	0.032	0.044	0.048	0.055	0.060	0.065	0.070	0.080	0.085	0.10	245 (195 — 280)
P2	M/E/A	0.30	0.012	0.017	0.022	0.028	0.034	0.044	0.050	0.055	0.060	0.065	0.070	0.080	0.085	0.10	235 (190 — 275)
P3	M/E/A	0.30	0.011	0.016	0.022	0.026	0.032	0.042	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	205 (165 — 240)
P4	M/E/A	0.30	0.011	0.016	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	185 (145 — 210)
P5	M/E/A	0.30	0.011	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	175 (140 — 205)
P6	M/E/A	0.30	0.010	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	195 (160 — 225)
P7	M/E/A	0.30	0.010	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	185 (150 — 215)
P8	M/E/A	0.30	0.011	0.016	0.022	0.026	0.032	0.042	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	175 (140 — 205)
P11	M/E/A	0.30	0.010	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	180 (145 — 210)
M1	M/E/A	0.10	0.014	0.018	0.022	0.026	0.032	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	90 (75 — 110)
M2	M/E/A	0.10	0.014	0.018	0.022	0.026	0.032	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	75 (60 — 90)
M3	M/E/A	0.095	0.014	0.018	0.022	0.026	0.032	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	90 (65 — 110)
M4	M/E/A	0.075	0.014	0.017	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	70 (50 — 85)
M5	M/E/A	0.075	0.014	0.017	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	55 (43 — 70)
K1	A/E	0.30	0.011	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	140 (115 — 170)
K2	A/E	0.30	0.011	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	120 (100 — 145)
K3	A/E	0.30	0.011	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	105 (85 — 125)
K4	A/E	0.30	0.011	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	100 (80 — 120)
K5	A/E	0.16	0.012	0.016	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	110 (80 — 135)
K6	A/E	0.16	0.012	0.016	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	160 (120 — 200)
K7	A/E	0.16	0.012	0.016	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	140 (105 — 175)
S1	E/M/A	0.14	0.012	0.016	0.022	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	43 (32 — 55)
S2	E/M/A	0.14	0.012	0.016	0.022	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	35 (26 — 43)
S3	E/M/A	0.080	0.015	0.019	0.022	0.028	0.032	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	20 (15 — 26)
S11	E/M/A	0.24	0.011	0.016	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	90 (75 — 105)
S12	E/M/A	0.24	0.011	0.016	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	70 (55 — 80)
S13	E/M/A	0.20	0.010	0.015	0.020	0.026	0.030	0.040	0.046	0.050	0.055	0.060	0.065	0.080	0.085	0.10	55 (44 — 60)
TP1	A	0.24	0.012	0.018	0.024	0.030	0.036	0.048	0.055	0.060	0.065	0.070	0.080	0.095	0.10	0.12	140 (125 — 155)
GR1	A	0.30	0.014	0.022	0.028	0.036	0.042	0.055	0.065	0.070	0.080	0.085	0.090	0.11	0.12	0.14	600 (500 — 700)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

Cutting data – JH910 Side milling roughing $a_e/D_c = 0.05$

SMG		a_p / D_c	f_z														v_c
			2	3	4	5	6	8	9	10	11	12	13	16	17	20	
P1	M/E/A	1.0	0.070	0.10	0.14	0.17	0.20	0.28	0.32	0.34	0.38	0.42	0.44	0.50	0.55	0.60	365 (295 – 425)
P2	M/E/A	1.0	0.070	0.11	0.14	0.18	0.22	0.28	0.32	0.36	0.38	0.42	0.44	0.50	0.55	0.60	350 (280 – 405)
P3	M/E/A	1.0	0.065	0.10	0.13	0.17	0.20	0.26	0.30	0.34	0.36	0.40	0.42	0.48	0.50	0.55	305 (245 – 355)
P4	M/E/A	1.0	0.065	0.10	0.13	0.16	0.20	0.26	0.30	0.32	0.36	0.38	0.42	0.48	0.50	0.55	275 (220 – 315)
P5	M/E/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.36	0.38	0.40	0.46	0.48	0.55	260 (210 – 305)
P6	M/E/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	295 (235 – 340)
P7	M/E/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	275 (225 – 320)
P8	M/E/A	1.0	0.065	0.10	0.13	0.17	0.20	0.26	0.30	0.34	0.36	0.40	0.42	0.48	0.50	0.55	255 (205 – 300)
P11	M/E/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	270 (215 – 310)
M1	M/E/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.50	130 (105 – 155)
M2	M/E/A	1.0	0.055	0.085	0.11	0.14	0.17	0.22	0.26	0.28	0.30	0.34	0.36	0.42	0.42	0.48	110 (90 – 130)
M3	M/E/A	0.90	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.50	125 (95 – 160)
M4	M/E/A	0.70	0.055	0.080	0.11	0.14	0.16	0.22	0.24	0.28	0.30	0.32	0.34	0.40	0.42	0.46	100 (75 – 125)
M5	M/E/A	0.70	0.055	0.080	0.11	0.14	0.16	0.22	0.24	0.28	0.30	0.32	0.34	0.40	0.42	0.46	80 (60 – 105)
K1	A/E	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	210 (170 – 250)
K2	A/E	1.0	0.060	0.085	0.12	0.14	0.17	0.24	0.26	0.28	0.32	0.34	0.36	0.42	0.44	0.48	190 (150 – 225)
K3	A/E	1.0	0.060	0.085	0.12	0.14	0.17	0.24	0.26	0.28	0.32	0.34	0.36	0.42	0.44	0.48	160 (130 – 190)
K4	A/E	1.0	0.060	0.085	0.12	0.14	0.17	0.24	0.26	0.28	0.32	0.34	0.36	0.42	0.44	0.48	150 (120 – 185)
K5	A/E	0.80	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	160 (120 – 200)
K6	A/E	0.80	0.070	0.11	0.14	0.18	0.22	0.28	0.32	0.36	0.40	0.42	0.44	0.50	0.55	0.60	230 (170 – 285)
K7	A/E	0.80	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	205 (150 – 255)
S1	E/M/A	0.70	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	65 (47 – 80)
S2	E/M/A	0.70	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	50 (38 – 65)
S3	E/M/A	0.50	0.065	0.095	0.12	0.16	0.19	0.24	0.28	0.30	0.34	0.36	0.40	0.46	0.46	0.50	29 (22 – 36)
S11	E/M/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	130 (110 – 155)
S12	E/M/A	1.0	0.065	0.095	0.13	0.16	0.19	0.26	0.28	0.32	0.34	0.38	0.40	0.46	0.48	0.55	100 (85 – 120)
S13	E/M/A	0.90	0.055	0.085	0.11	0.14	0.17	0.22	0.24	0.28	0.30	0.32	0.34	0.40	0.42	0.46	80 (65 – 95)
TP1	A	1.0	0.044	0.065	0.090	0.11	0.13	0.18	0.20	0.22	0.24	0.26	0.28	0.32	0.34	0.36	235 (210 – 260)
GR1	A	1.1	0.080	0.12	0.16	0.20	0.24	0.32	0.36	0.40	0.42	0.46	0.50	0.55	0.60	0.65	900 (750 – 1050)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

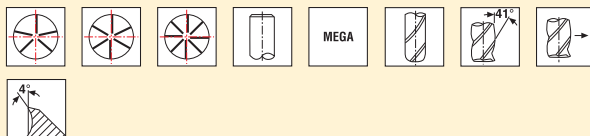
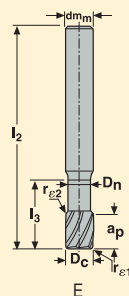
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

 $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ 115

Cutting data – JH930 Side milling finishing $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z						v_c
			6	8	10	12	16	20	
P1	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	530 (495 — 560)
P2	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	510 (480 — 550)
P3	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	445 (415 — 470)
P4	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	390 (365 — 415)
P5	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	370 (350 — 395)
P6	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	420 (390 — 445)
P7	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	395 (370 — 420)
P8	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	370 (350 — 395)
P11	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	385 (360 — 410)
K1	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	300 (275 — 325)
K2	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	260 (240 — 280)
K3	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	220 (205 — 240)
K4	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.26	210 (195 — 230)
K5	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.24	125 (115 — 135)
K6	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.26	185 (170 — 200)
K7	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.24	160 (150 — 175)
S1	E/M/A	1.2	0.085	0.12	0.15	0.17	0.22	0.24	85 (65 — 110)
S2	E/M/A	1.2	0.085	0.12	0.15	0.17	0.22	0.24	85 (65 — 110)
S3	E/M/A	0.50	0.055	0.070	0.090	0.11	0.14	0.18	44 (33 — 55)
S11	E/M/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	185 (155 — 220)
S12	E/M/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	145 (120 — 170)
S13	E/M/A	1.0	0.065	0.090	0.11	0.13	0.16	0.19	115 (95 — 135)
H3	M/A	0.50	0.018	0.024	0.030	0.036	0.048	0.060	165 (155 — 180)
H5	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	285 (265 — 310)
H7	M/A	0.44	0.018	0.024	0.030	0.036	0.048	0.060	170 (155 — 180)
H8	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	285 (265 — 310)
H21	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	285 (265 — 310)
H31	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	215 (200 — 235)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JH930 Side milling roughing $a_e/D_c = 0.03$

SMG		a_p / D_c	f_z						v_c
			6	8	10	12	16	20	
P1	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.24	455 (430 — 485)
P2	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.24	445 (415 — 475)
P3	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.22	385 (360 — 410)
P4	M/E/A	1.0	0.080	0.10	0.13	0.16	0.19	0.22	335 (315 — 360)
P5	M/E/A	1.0	0.080	0.10	0.13	0.15	0.19	0.22	320 (300 — 345)
P6	M/E/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	360 (340 — 385)
P7	M/E/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	340 (320 — 365)
P8	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.22	320 (300 — 345)
P11	M/E/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	330 (310 — 355)
K1	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.24	260 (240 — 280)
K2	E/M/A	1.0	0.080	0.10	0.13	0.15	0.19	0.22	225 (205 — 245)
K3	E/M/A	1.0	0.080	0.10	0.13	0.15	0.19	0.22	190 (175 — 205)
K4	E/M/A	0.80	0.080	0.10	0.13	0.15	0.19	0.22	185 (170 — 195)
K5	E/M/A	0.80	0.070	0.095	0.12	0.14	0.17	0.20	110 (100 — 120)
K6	E/M/A	0.80	0.080	0.10	0.13	0.15	0.19	0.22	160 (150 — 175)
K7	E/M/A	0.80	0.070	0.095	0.12	0.14	0.17	0.20	140 (130 — 150)
S1	E/M/A	0.95	0.070	0.095	0.12	0.14	0.17	0.20	80 (60 — 100)
S2	E/M/A	0.95	0.070	0.095	0.12	0.14	0.17	0.20	80 (60 — 100)
S3	E/M/A	0.50	0.055	0.070	0.090	0.11	0.14	0.18	38 (28 — 47)
S11	E/M/A	0.70	0.060	0.080	0.10	0.12	0.15	0.17	170 (140 — 200)
S12	E/M/A	0.70	0.060	0.080	0.10	0.12	0.15	0.17	130 (110 — 155)
S13	E/M/A	0.60	0.055	0.070	0.090	0.11	0.13	0.15	105 (85 — 120)
H5	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	255 (235 — 275)
H8	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	255 (235 — 275)
H21	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	255 (235 — 275)
H31	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	195 (175 — 210)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

* The effective under -neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Cutting data – JH970 Copy milling rough $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z									v_c
			2	3	4	5	6	8	10	12	16	
P1	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	320 (280 — 365)
P2	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	315 (270 — 355)
P3	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	270 (235 — 305)
P4	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	240 (205 — 270)
P5	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	225 (195 — 255)
P6	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	255 (220 — 290)
P7	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	240 (210 — 275)
P8	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	225 (195 — 255)
P11	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	235 (205 — 265)
S11	E	0.22	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.19	140 (120 — 160)
S12	E	0.22	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.19	105 (90 — 120)
S13	E	0.22	0.022	0.034	0.046	0.055	0.070	0.090	0.11	0.13	0.17	85 (70 — 95)

Cutting data – JH970 Copy milling rough $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z									v_c
			2	3	4	5	6	8	10	12	16	
M1	M	0.13	0.028	0.042	0.055	0.070	0.085	0.11	0.14	0.17	0.22	155 (135 — 175)
M2	M	0.13	0.028	0.042	0.055	0.070	0.085	0.11	0.14	0.17	0.22	125 (110 — 140)
M3	M	0.090	0.028	0.042	0.055	0.070	0.085	0.11	0.14	0.17	0.22	90 (80 — 105)
M4	M	0.090	0.028	0.042	0.055	0.070	0.085	0.11	0.14	0.17	0.22	70 (60 — 80)
M5	M	0.090	0.028	0.042	0.055	0.070	0.085	0.11	0.14	0.17	0.22	60 (50 — 65)
S1	E	0.17	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.19	70 (60 — 85)
S2	E	0.17	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.19	70 (60 — 85)
S3	E	0.11	0.022	0.032	0.044	0.055	0.065	0.090	0.11	0.13	0.18	41 (27 — 55)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

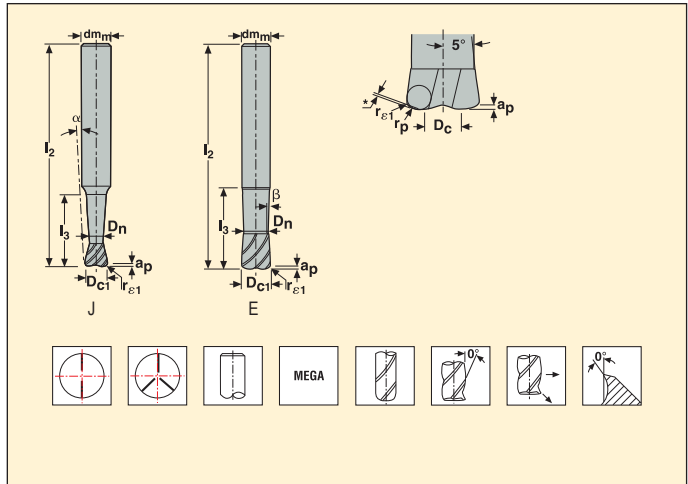
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JHF980 – Solid carbide end mill – cylindrical – high feed geometry



Tolerances:
 $dm_m = h5$
 $D_c = \pm 0.05 \text{ mm}$
 $r_{c1} = \pm 0.05 \text{ mm}$
 $\beta = 0.5$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm										UTCN	α°	z_n
				D _c	D _{c1}	dm _m	a _p	l ₂	l ₃	D _n	r _ε	r _p				
33646	980K080Z3-MEGA	1	E	4	8	8	0.4	70	12	3	0.6	0.935	0.198	–	3	
33647	980K100Z3-MEGA	1	E	5	10	10	0.45	80	15	3.8	0.8	1.176	0.232	–	3	
33648	980K120Z3-MEGA	1	E	6	12	12	0.5	80	18	4.6	1	1.417	0.266	–	3	
33643	980010-MEGA	2	G	0.5	1	6	0.07	40	3	0.7	0.07	0.127	0.028	19.5	2	
24561	980015-MEGA	2	G	0.75	1.5	6	0.1	40	4.5	1.2	0.1	0.183	0.043	14	2	
24564	980020-MEGA	2	G	1	2	6	0.15	40	6	1.7	0.15	0.269	0.055	11	2	
24567	980030-MEGA	2	G	1.5	3	6	0.2	50	9	2.6	0.2	0.366	0.085	7	2	
24570	980040-MEGA	2	G	2	4	6	0.25	60	12	3.5	0.3	0.503	0.107	4	2	
24573	980050-MEGA	2	G	2.5	5	6	0.3	60	15	4.4	0.4	0.641	0.128	2	2	
24580	980060-MEGA	2	G	3	6	8	0.35	60	18	5.2	0.5	0.778	0.150	3	2	
24584	980080-MEGA	2	E	4	8	8	0.4	70	24	7	0.6	0.935	0.198	–	2	
24589	980100-MEGA	2	E	5	10	10	0.45	80	30	8.8	0.8	1.176	0.232	–	2	
24590	980100Z3-MEGA	2	E	5	10	10	0.45	80	30	8.8	0.8	1.176	0.232	–	3	
24593	980120-MEGA	2	E	6	12	12	0.5	80	36	10.6	1	1.417	0.266	–	2	
24594	980120Z3-MEGA	2	E	6	12	12	0.5	80	36	10.6	1	1.417	0.266	–	3	
33644	980ML010-MEGA	3	G	0.5	1	6	0.07	40	5	0.7	0.07	0.127	0.028	15.5	2	
24562	980ML015-MEGA	3	G	0.75	1.5	6	0.1	40	7.5	1.2	0.1	0.183	0.043	10.5	2	
24565	980ML020-MEGA	3	G	1	2	6	0.15	40	10	1.7	0.15	0.269	0.055	8	2	
24568	980ML030-MEGA	3	G	1.5	3	6	0.2	50	15	2.6	0.2	0.366	0.085	5	2	
24571	980ML040-MEGA	3	G	2	4	6	0.25	70	20	3.5	0.3	0.503	0.107	2.5	2	
24574	980ML050-MEGA	3	G	2.5	5	6	0.3	80	25	4.4	0.4	0.641	0.128	1.5	2	
24581	980ML060-MEGA	3	G	3	6	8	0.35	80	30	5.2	0.5	0.778	0.150	2	2	
24587	980ML080-MEGA	3	E	4	8	8	0.4	80	40	7	0.6	0.935	0.198	–	2	
24591	980ML100-MEGA	3	E	5	10	10	0.45	90	50	8.8	0.8	1.176	0.232	–	2	
24595	980ML120-MEGA	3	E	6	12	12	0.5	110	60	10.6	1	1.417	0.266	–	2	
33645	980TL010-MEGA	4	J	0.5	1	6	0.07	40	7	0.7	0.07	0.127	0.028	13	2	
24563	980TL015-MEGA	4	J	0.75	1.5	6	0.1	40	10.5	1.2	0.1	0.183	0.043	8.5	2	
24566	980TL020-MEGA	4	J	1	2	6	0.15	50	14	1.7	0.15	0.269	0.055	6.5	2	
24569	980TL030-MEGA	4	J	1.5	3	6	0.2	60	21	2.6	0.2	0.366	0.085	3.5	2	
24572	980TL040-MEGA	4	J	2	4	6	0.25	80	28	3.5	0.3	0.503	0.107	2	2	
24575	980TL050-MEGA	4	J	2.5	5	6	0.3	90	35	4.4	0.4	0.641	0.128	1	2	
24583	980TL060-MEGA	4	J	3	6	8	0.35	100	42	5.2	0.5	0.778	0.150	1.5	2	
24588	980TL080-MEGA	4	E	4	8	8	0.4	100	56	7	0.6	0.935	0.198	–	2	
24592	980TL100-MEGA	4	E	5	10	10	0.45	110	70	8.8	0.8	1.176	0.232	–	2	
24596	980TL120-MEGA	4	E	6	12	12	0.5	130	84	10.6	1	1.417	0.266	–	2	

* UTCN=uncut thickness

Cutting data – JHF980 Slotting

SMG		a_p / D_c	f_z										v_c
			0.5	0.75	1	1.5	2	2.5	3	4	5	6	
P1	E/M/A	0.090	0.032	0.050	0.065	0.10	0.13	0.16	0.20	0.26	0.32	0.38	340 (300 – 375)
P2	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	325 (290 – 360)
P3	E/M/A	0.090	0.032	0.048	0.065	0.095	0.13	0.16	0.19	0.26	0.32	0.38	285 (250 – 315)
P4	E/M/A	0.090	0.030	0.046	0.060	0.095	0.12	0.15	0.19	0.24	0.30	0.36	255 (225 – 280)
P5	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	240 (215 – 270)
P6	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	270 (240 – 300)
P7	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	255 (230 – 285)
P8	E/M/A	0.090	0.032	0.048	0.065	0.095	0.13	0.16	0.19	0.26	0.32	0.38	240 (210 – 265)
P11	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	250 (220 – 275)
M1	E/M/A	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	175 (150 – 195)
M2	E/M/A	0.065	0.024	0.036	0.048	0.070	0.095	0.12	0.14	0.19	0.24	0.28	140 (125 – 155)
M3	E/M/A	0.065	0.019	0.028	0.038	0.060	0.075	0.095	0.12	0.15	0.19	0.22	110 (100 – 125)
M4	E/M/A	0.065	0.017	0.026	0.034	0.050	0.070	0.085	0.10	0.14	0.17	0.20	85 (75 – 95)
M5	E/M/A	0.065	0.017	0.026	0.034	0.050	0.070	0.085	0.10	0.14	0.17	0.20	70 (60 – 80)
K1	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	185 (155 – 210)
K2	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	165 (140 – 185)
K3	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	140 (120 – 160)
K4	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	130 (115 – 150)
K5	E/M/A	0.090	0.028	0.040	0.055	0.080	0.11	0.14	0.16	0.22	0.28	0.32	80 (70 – 90)
K6	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	115 (100 – 135)
K7	E/M/A	0.090	0.028	0.040	0.055	0.080	0.11	0.14	0.16	0.22	0.28	0.32	100 (85 – 115)
S1	E	0.040	0.020	0.030	0.040	0.060	0.080	0.10	0.12	0.16	0.20	0.24	55 (44 – 65)
S2	E	0.040	0.020	0.030	0.040	0.060	0.080	0.10	0.12	0.16	0.20	0.24	55 (44 – 65)
S3	E	0.040	0.018	0.028	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	33 (22 – 44)
S11	E	0.040	0.018	0.028	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	165 (145 – 185)
S12	E	0.040	0.018	0.028	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	125 (110 – 145)
S13	E	0.040	0.016	0.024	0.032	0.048	0.065	0.080	0.095	0.13	0.16	0.19	100 (85 – 115)
H5	M/A/D	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	105 (90 – 125)
H8	M/A/D	0.065	0.024	0.034	0.046	0.070	0.095	0.12	0.14	0.19	0.24	0.28	105 (90 – 125)
H21	M/A/D	0.065	0.024	0.034	0.046	0.070	0.095	0.12	0.14	0.19	0.24	0.28	105 (90 – 125)
H31	M/A/D	0.065	0.020	0.030	0.040	0.060	0.080	0.10	0.12	0.16	0.20	0.24	85 (70 – 95)

Plunging data available on page 341.

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JHF980 Side milling $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z										v_c
			0.75	0.75	1	1.5	2	2.5	3	4	5	6	
P1	E/M/A	0.090	0.036	0.055	0.070	0.10	0.14	0.18	0.20	0.28	0.36	0.42	495 (440 – 550)
P2	E/M/A	0.090	0.036	0.055	0.070	0.10	0.14	0.18	0.20	0.28	0.36	0.42	485 (430 – 540)
P3	E/M/A	0.090	0.034	0.050	0.070	0.10	0.14	0.17	0.20	0.28	0.34	0.42	420 (370 – 465)
P4	E/M/A	0.090	0.034	0.050	0.070	0.10	0.14	0.17	0.20	0.28	0.34	0.40	370 (330 – 410)
P5	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	350 (315 – 390)
P6	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	395 (350 – 440)
P7	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	375 (330 – 415)
P8	E/M/A	0.090	0.034	0.050	0.070	0.10	0.14	0.17	0.20	0.28	0.34	0.42	350 (315 – 390)
P11	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	360 (320 – 400)
M1	E/M/A	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	250 (220 – 280)
M2	E/M/A	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	205 (180 – 225)
M3	E/M/A	0.065	0.022	0.032	0.042	0.065	0.085	0.11	0.13	0.17	0.22	0.26	160 (140 – 175)
M4	E/M/A	0.065	0.019	0.028	0.038	0.055	0.075	0.095	0.11	0.15	0.19	0.22	120 (105 – 135)
M5	E/M/A	0.065	0.019	0.028	0.038	0.055	0.075	0.095	0.11	0.15	0.19	0.22	100 (90 – 115)
K1	E/M/A	0.090	0.036	0.055	0.070	0.10	0.14	0.18	0.20	0.28	0.36	0.42	270 (235 – 310)
K2	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	235 (205 – 270)
K3	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	200 (170 – 230)
K4	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	190 (165 – 220)
K5	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	115 (100 – 135)
K6	E/M/A	0.090	0.034	0.050	0.065	0.10	0.13	0.17	0.20	0.26	0.34	0.40	170 (145 – 195)
K7	E/M/A	0.090	0.030	0.046	0.060	0.090	0.12	0.15	0.18	0.24	0.30	0.36	150 (130 – 170)
H5	M/A/D	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	155 (130 – 180)
H8	M/A/D	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	155 (130 – 180)
H21	M/A/D	0.065	0.024	0.038	0.050	0.075	0.10	0.12	0.15	0.20	0.24	0.30	155 (130 – 180)
H31	M/A/D	0.065	0.022	0.034	0.044	0.065	0.090	0.11	0.13	0.18	0.22	0.26	120 (100 – 135)

Plunging data available on page 341.

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

123

Cutting data – J29 Slotting

SMG		a_p / D_c	f_z			v_c
			0.2	0.2	0.2	
P1	E	0.24	0.060	0.060	0.060	780 (710 — 860)
P2	E	0.24	0.065	0.065	0.065	750 (680 — 830)
P3	E	0.24	0.060	0.060	0.060	660 (590 — 720)
P4	E	0.24	0.060	0.060	0.060	580 (520 — 640)
P5	E	0.24	0.060	0.060	0.060	550 (500 — 610)
P6	E	0.24	0.055	0.055	0.055	630 (570 — 700)
P7	E	0.24	0.055	0.055	0.055	600 (540 — 660)
P8	E	0.24	0.060	0.060	0.060	550 (500 — 610)
P11	E	0.24	0.055	0.055	0.055	580 (520 — 640)
M1	E	0.24	0.065	0.065	0.065	670 (610 — 740)
M2	E	0.24	0.060	0.060	0.060	550 (500 — 610)
M3	E	0.24	0.046	0.046	0.046	445 (400 — 490)
M4	E	0.24	0.040	0.040	0.040	340 (310 — 375)
M5	E	0.24	0.040	0.040	0.040	285 (255 — 315)
K1	E	0.24	0.065	0.065	0.065	540 (490 — 600)
K2	E	0.24	0.060	0.060	0.060	480 (430 — 530)
K3	E	0.24	0.060	0.060	0.060	405 (365 — 445)
K4	E	0.24	0.060	0.060	0.060	385 (350 — 425)
K5	E	0.24	0.050	0.050	0.050	240 (215 — 265)
K6	E	0.24	0.060	0.060	0.060	340 (305 — 375)
K7	E	0.24	0.050	0.050	0.050	305 (275 — 335)
N1	E	0.24	0.080	0.080	0.080	810 (730 — 890)
N2	E	0.24	0.080	0.080	0.080	520 (465 — 570)
N3	E	0.24	0.080	0.080	0.080	345 (310 — 380)
N11	E	0.24	0.080	0.080	0.080	520 (465 — 570)
S1	E	0.24	0.040	0.040	0.040	600 (540 — 660)
S2	E	0.24	0.040	0.040	0.040	600 (540 — 660)
S3	E	0.24	0.038	0.038	0.038	600 (540 — 660)
S11	E	0.24	0.046	0.046	0.046	760 (680 — 830)
S12	E	0.24	0.046	0.046	0.046	580 (530 — 640)
S13	E	0.24	0.040	0.040	0.040	465 (420 — 510)
H3	M/A/D	0.24	0.026	0.026	0.026	350 (315 — 380)
H5	M/A/D	0.24	0.040	0.040	0.040	600 (540 — 660)
H7	M/A/D	0.24	0.026	0.026	0.026	350 (315 — 380)
H8	M/A/D	0.24	0.030	0.030	0.030	630 (570 — 690)
H11	M/A/D	0.24	0.040	0.040	0.040	770 (690 — 850)
H12	M/A/D	0.24	0.040	0.040	0.040	1250 (1125 — 1375)
H21	M/A/D	0.24	0.030	0.030	0.030	630 (570 — 690)
H31	M/A/D	0.24	0.026	0.026	0.026	485 (435 — 530)
TS1	E	0.24	0.060	0.060	0.060	550 (500 — 610)
TP1	E	0.24	0.060	0.060	0.060	550 (500 — 610)
GR1	D	0.24	0.060	0.060	0.060	550 (500 — 610)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

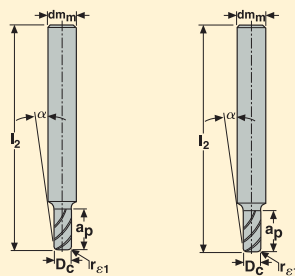
Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

All cutting data are target values

$$r_{s1} = \varnothing 2 - 12 = +0.05, \varnothing 14 - 25 = +0.1 \text{ mm}$$


F

C



MEGA

[illegible]

Cutting data – J36 Side milling – $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z												v_c
			2	3	4	5	6	8	10	12	14	16	18	20	
P1	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.17	0.18	215 (180 — 245)
P2	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.17	0.18	205 (180 — 235)
P3	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	180 (155 — 205)
P4	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	155 (135 — 180)
P5	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	150 (130 — 170)
P6	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.14	0.16	0.17	170 (145 — 190)
P7	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.14	0.16	0.17	160 (135 — 180)
P8	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	150 (130 — 170)
P11	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.14	0.16	0.17	155 (130 — 175)
M1	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.17	0.18	130 (105 — 155)
M2	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	105 (85 — 125)
M3	E	1.0	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.13	0.13	85 (65 — 100)
M4	E	0.80	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.080	0.090	0.10	0.11	0.12	65 (50 — 80)
M5	E	0.80	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.080	0.090	0.10	0.11	0.12	55 (42 — 65)
K1	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.17	0.18	170 (145 — 195)
K2	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	145 (125 — 170)
K3	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	125 (105 — 140)
K4	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	120 (100 — 135)
K5	E	1.3	0.018	0.026	0.036	0.044	0.055	0.070	0.090	0.11	0.12	0.13	0.14	0.15	70 (60 — 85)
K6	E	1.3	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.16	0.17	105 (90 — 120)
K7	E	1.3	0.018	0.026	0.036	0.044	0.055	0.070	0.090	0.11	0.12	0.13	0.14	0.15	95 (80 — 105)
N1	E	1.4	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.17	0.19	0.22	0.24	1275 (1050 — 1475)
N2	E	1.4	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.17	0.19	0.22	0.24	820 (680 — 950)
S1	E	1.0	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	80 (70 — 95)
S2	E	1.0	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.080	0.085	80 (70 — 110)
S3	E	1.0	0.0090	0.014	0.018	0.022	0.028	0.036	0.046	0.055	0.060	0.065	0.075	0.080	48 (36 — 60)
S11	E	1.0	0.015	0.024	0.030	0.038	0.046	0.060	0.075	0.090	0.10	0.11	0.12	0.13	155 (140 — 175)
S12	E	1.0	0.015	0.024	0.030	0.038	0.046	0.060	0.075	0.090	0.10	0.11	0.12	0.13	120 (105 — 135)
S13	E	0.85	0.013	0.020	0.026	0.034	0.040	0.055	0.065	0.080	0.090	0.10	0.11	0.11	95 (85 — 110)
TS1	A	1.4	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.16	0.18	0.19	0.20	680 (610 — 750)
TP1	A	1.4	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.16	0.18	0.19	0.20	550 (475 — 610)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

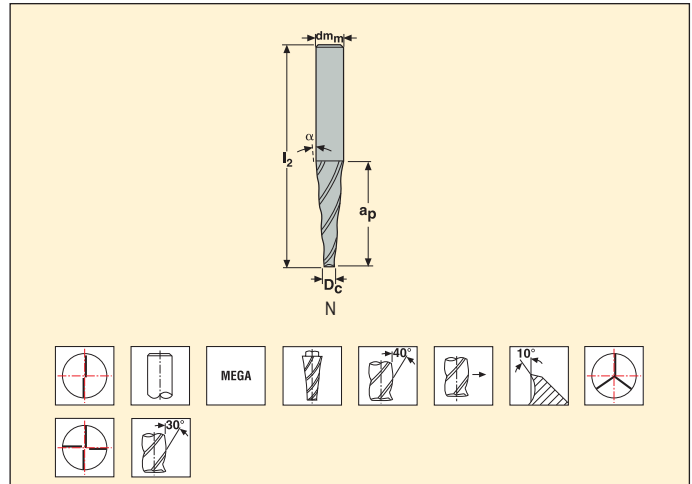
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HK/HKM – Solid carbide tapered end mill 3° – cylindrical – multi flute



Tolerances:

$$D_c = \text{HKM} + 0.07 / +0.03 \text{ HK} + 0.1 / 0 \text{ mm}$$
$$\alpha^{\circ} = \pm 0.1^{\circ}$$
$$dm_m = h5$$
[illegible]

Technical drawing of a MEGA drill bit. The main view shows the drill bit with dimensions: d_{min} (minimum diameter), l_2 (length of the cutting edge), α (cutting angle), a_p (point angle), and D_C (core diameter). The letter 'N' is at the bottom. Below the main view are eight small square boxes containing different cross-sections and views of the drill bit, including a cross-section with three flutes, a cross-section with four flutes, a cross-section with a central flute, a cross-section with a central flute and a 30° angle, a cross-section with a central flute and a 10° angle, a cross-section with a central flute and a 40° angle, a cross-section with a central flute and a 30° angle, and a cross-section with a central flute and a 10° angle.

[illegible]

Technical drawing of a drill bit with the following dimensions and labels:

- d_{mm} : Drill bit diameter
- l_2 : Length of the cutting edge
- α : Cutting angle
- a_p : Depth of cut
- D_c : Drill bit diameter at the cutting edge
- N : Drill bit material

Below the drawing is a sequence of seven icons:

- A circle with a crosshair and a central dot.
- A rectangle with a vertical line and a horizontal line.
- A rectangle with the word "MEGA" inside.
- A drill bit with a cross-hatched cutting edge.
- A drill bit with a cross-hatched cutting edge and a 30° angle.
- A drill bit with a cross-hatched cutting edge and a 10° angle.
- A drill bit with a cross-hatched cutting edge and a 10° angle.

[illegible]

Two metal drill bits are shown side-by-side, standing upright. They have a double-flute design and a silver-colored finish. The bit on the left is slightly shorter than the one on the right. They are set against a plain white background.

Technical drawing of a drill bit. The main view shows a side profile with dimensions: d_{min} (minimum diameter), l_2 (length of the cutting edge), α (cutting angle), a_p (cutting depth), and D_C (core diameter). The bit is labeled 'N' at the bottom. Below the main view are five small diagrams: a cross-section showing a circle with a crosshair, a side view of a cylinder, a side view of a drill bit with a 30° angle, a side view of a drill bit with a 10° angle, and a side view of a drill bit with a 10° angle.

[illegible]

Two metal drill bits are shown standing vertically side-by-side. They have a double-flute design and are casting a shadow to the left.

Technical drawing of a tapered drill bit. The drawing shows a side view with dimensions: d_{min} (minimum diameter), α (taper angle), l_2 (length of the tapered section), a_p (cutting edge length), and D_c (core diameter). A cross-section view is shown at the bottom with the letter 'N'.

Below the drawing is a row of icons:

- Icon 1: A circle with a red crosshair.
- Icon 2: A circle with a red crosshair.
- Icon 3: A cylinder with a dashed line indicating a hidden feature.
- Icon 4: The word "MEGA" in a box.
- Icon 5: A tapered drill bit with a 30° angle.
- Icon 6: A tapered drill bit with a 30° angle.
- Icon 7: A tapered drill bit with a 30° angle.
- Icon 8: A tapered drill bit with a 10° angle.

[illegible]

A single-flute drill bit, which is a type of cutting tool with one longitudinal flute. It is shown vertically against a white background.

Technical drawing of a drill bit with the following dimensions and labels:

- dm_m : Minor diameter at the cutting edge.
- α : Cutting angle.
- l_2 : Length of the cutting edge.
- a_p : Depth of cut.
- D_c : Major diameter at the cutting edge.
- N : Label below the drill bit.

Below the drawing are seven icons in boxes:

- Icon 1: A circle with a crosshair (red and black lines).
- Icon 2: A circle with a crosshair (red and black lines).
- Icon 3: A cylinder with a crosshair (red and black lines).
- Icon 4: A cylinder with a crosshair (red and black lines).
- Icon 5: A cylinder with a crosshair (red and black lines).
- Icon 6: A cylinder with a crosshair (red and black lines).
- Icon 7: A cylinder with a crosshair (red and black lines).

[illegible]

A single-flute drill bit, which is a type of cutting tool with one longitudinal flute. It is shown vertically against a white background.

Technical drawing of a double-flute drill bit. The main view shows the bit with dimensions: d_{min} (minimum diameter), l_2 (length), α (flute angle), a_p (cutting edge length), and D_c (cutting edge diameter). The letter 'N' is below the main view.

Below the main view are eight small square boxes containing different views of the drill bit:

- Top view (circle with three radial lines).
- Front view (circle with four radial lines).
- Side view (rectangle with a curved line).
- Label: MEGA.
- Side view (rectangle with a curved line).
- Side view (rectangle with a curved line and a 30° angle).
- Side view (rectangle with a curved line and a 10° angle).
- Side view (rectangle with a curved line and a 10° angle).

[illegible]

A single-flute drill bit, which is a type of cutting tool with one longitudinal groove (flute) for chip removal. It is shown vertically against a white background.

[illegible]

A single-flute drill bit, which is a type of cutting tool with one longitudinal flute for chip removal. It is shown vertically against a white background.

The technical drawing shows a conical drill bit with the following dimensions and features:

- d : Diameter of the cutting edge.
- d_m : Diameter of the middle section.
- l_2 : Length of the middle section.
- α : Angle of the cutting edge.
- a_p : Depth of the cutting edge.
- D_c : Diameter of the cutting edge.
- N : Label for the cutting edge.

Below the main drawing are seven small boxes, each containing a different view of the drill bit:

- Top view (circular cross-section with a central hole and a crosshair).
- Side view (circular cross-section with a central hole and a crosshair).
- Front view (cylindrical shape with a central hole and a crosshair).
- Label: MEGA.
- Side view (cylindrical shape with a central hole and a crosshair).
- Side view (cylindrical shape with a central hole and a crosshair, with a 30° angle indicated).
- Side view (cylindrical shape with a central hole and a crosshair, with a 10° angle indicated).

[illegible]

[illegible]

Cutting data – TDM Copy milling roughing $a_e/D_c = 0.08$

SMG		a_p / D_c	f_z					v_c
			3	4	6	8	10	
P1	E	0.15	0.020	0.026	0.040	0.055	0.065	440 (395 — 490)
P2	E	0.15	0.020	0.028	0.042	0.055	0.070	430 (385 — 475)
P3	E	0.15	0.019	0.026	0.038	0.050	0.065	370 (330 — 410)
P4	E	0.15	0.019	0.026	0.038	0.050	0.065	325 (290 — 360)
P5	E	0.15	0.019	0.024	0.038	0.050	0.060	310 (280 — 345)
P6	E	0.15	0.018	0.024	0.036	0.050	0.060	350 (310 — 385)
P7	E	0.15	0.018	0.024	0.036	0.050	0.060	330 (295 — 365)
P8	E	0.15	0.019	0.026	0.038	0.050	0.065	310 (280 — 345)
P11	E	0.15	0.018	0.024	0.036	0.050	0.060	320 (285 — 355)
M1	E	0.12	0.018	0.024	0.036	0.048	0.060	280 (245 — 320)
M2	E	0.12	0.017	0.022	0.034	0.044	0.055	225 (195 — 255)
M3	E	0.12	0.017	0.022	0.034	0.044	0.055	170 (150 — 195)
M4	E	0.12	0.015	0.019	0.030	0.038	0.048	130 (110 — 145)
M5	E	0.12	0.015	0.019	0.030	0.038	0.048	105 (90 — 120)
K1	E	0.19	0.024	0.032	0.048	0.065	0.080	335 (300 — 370)
K2	E	0.19	0.022	0.028	0.044	0.060	0.070	290 (260 — 320)
K3	E	0.19	0.022	0.028	0.044	0.060	0.070	245 (220 — 270)
K4	E	0.12	0.013	0.018	0.026	0.036	0.044	220 (195 — 245)
K5	E	0.12	0.012	0.016	0.024	0.032	0.040	130 (115 — 145)
K6	E	0.12	0.013	0.018	0.026	0.036	0.044	195 (175 — 215)
K7	E	0.12	0.012	0.016	0.024	0.032	0.040	165 (150 — 185)
N1	E	0.19	0.030	0.040	0.060	0.080	0.10	2350 (2050 — 2650)
N2	E	0.12	0.026	0.036	0.055	0.070	0.090	1475 (1300 — 1650)
N3	E	0.12	0.026	0.036	0.055	0.070	0.090	980 (860 — 1100)
N11	E	0.12	0.020	0.026	0.040	0.055	0.065	640 (560 — 720)
S11	E	0.12	0.017	0.022	0.034	0.046	0.055	205 (160 — 245)
S12	E	0.12	0.017	0.022	0.034	0.046	0.055	155 (125 — 185)
S13	E	0.12	0.015	0.020	0.030	0.040	0.050	120 (95 — 145)
TS1	A	0.19	0.030	0.040	0.060	0.080	0.10	1325 (1225 — 1425)
TP1	A	0.19	0.030	0.040	0.060	0.080	0.10	1125 (1025 — 1225)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

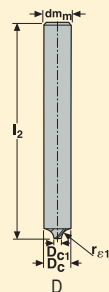
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

$r_{\varepsilon 1} = \pm 0.02 \text{ mm}$ [illegible]

Cutting data – V31 Side milling finishing $a_p/D_c = 0.024$

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	16	20	25	28	
P1	E/M/A	0.24	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.10	290 (195 – 310)
P2	E/M/A	0.24	0.024	0.034	0.042	0.050	0.065	0.080	0.095	0.10	280 (190 – 305)
P3	E/M/A	0.24	0.024	0.032	0.040	0.046	0.060	0.075	0.090	0.095	240 (165 – 260)
M1	E/M/A	0.24	0.024	0.034	0.042	0.050	0.065	0.080	0.095	0.10	255 (170 – 270)
M2	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)
K1	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)
K2	E/M/A	0.24	0.020	0.028	0.034	0.040	0.055	0.065	0.080	0.085	175 (120 – 190)
N1	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	315 (215 – 340)
N2	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)
N3	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	135 (90 – 145)
S1	E/M/A	0.24	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.10	205 (140 – 220)
S2	E/M/A	0.24	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.10	205 (140 – 220)
S3	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)
S11	E/M/A	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	265 (180 – 285)
H3	M/A	—	—	—	—	—	—	—	—	—	—
TS1	A/D	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)
TP1	A/D	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)
GR1	A/D	0.24	0.022	0.030	0.038	0.046	0.060	0.075	0.085	0.095	205 (135 – 220)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

All cutting data are target values

The top section contains three technical diagrams of a conical nozzle, labeled J, J, and G from left to right. Each diagram shows a nozzle with a conical tip. Key dimensions and parameters are labeled: d_{m1} (top diameter), l_2 (height to the start of the cone), l_{p2} (height of the cone), α (cone angle), a_p (height of the nozzle body), d_c (base diameter), and $r_{\varepsilon 1}$ (fillet radius). The middle diagram (J) includes an additional dimension D_n (nozzle diameter at the base of the cone). The rightmost diagram (G) shows the nozzle mounted on a blue rectangular block, with an additional dimension $l_{\alpha\eta}$ (height of the block) and an angle $\alpha\eta$ between the nozzle axis and the block's top surface.

The bottom section contains a series of seven small diagrams illustrating the application of the nozzle. The first diagram shows a circular cross-section with a red crosshair. The second diagram shows a cylindrical component with a conical nozzle attached. The third diagram is labeled "MEGA-T" and shows a cylindrical component with a conical nozzle attached. The fourth diagram shows a cylindrical component with a conical nozzle attached. The fifth diagram shows a cylindrical component with a conical nozzle attached, with a dimension 20° indicated. The sixth diagram shows a cylindrical component with a conical nozzle attached, with a dimension 20° indicated. The seventh diagram shows a cylindrical component with a conical nozzle attached, with a dimension 20° indicated.

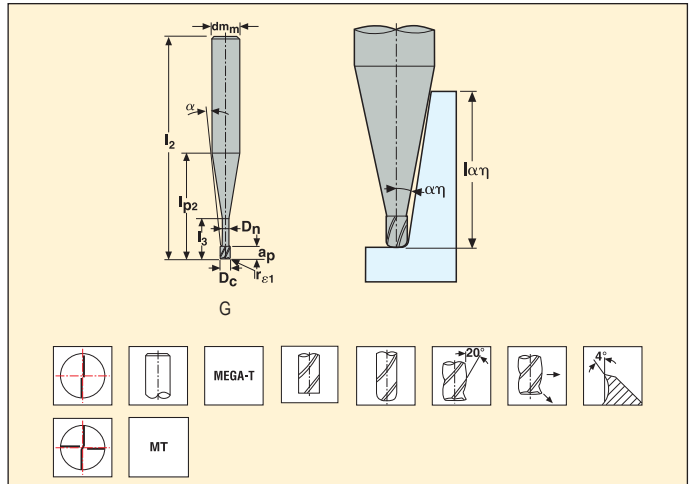
EDP No.	Part No.	Length index	Tool shape	Dimensions in mm										α°	β	z_n	Max. cut depth rel. to $\alpha\eta$ ($\alpha\eta$, ref)*					
				D _c	dm _m	a _p	l ₂	l ₃	l _{p2}	D _n	r _{ε1}	0°	0.5°				1°	1.5°	2°	3°		
08172	9050010-MEGA-T	1	J	0.1	3	0.15	40	–	5.7	–	–	14.5	–	2	0.15	0.3	0.3	0.3	0.3	0.3	0.3	
08173	9050015-MEGA-T	1	J	0.15	3	0.25	40	–	5.7	–	–	14	–	2	0.25	0.4	0.4	0.4	0.4	0.4	0.4	
08174	905002-MEGA-T	1	J	0.2	3	0.3	40	–	5.7	–	–	14	–	2	0.3	0.5	0.5	0.5	0.5	0.6	0.6	
08175	905003-MEGA-T	1	J	0.3	3	0.45	40	–	5.6	–	–	13.5	–	2	0.45	0.6	0.6	0.7	0.7	0.8	0.8	
08176	905004-MEGA-T	1	J	0.4	3	0.6	40	–	5.6	–	–	13	–	2	0.6	0.8	0.8	0.8	0.9	0.9	0.9	
08177	905005-MEGA-T	1	J	0.5	3	0.7	40	–	5.5	–	0.05	13	–	2	0.7	0.9	0.9	0.9	1	1.1	1.1	
08178	905006-MEGA-T	1	J	0.6	3	0.9	40	–	5.5	–	0.05	12.5	–	2	0.9	1.1	1.1	1.2	1.2	1.3	1.3	
08179	905008-MEGA-T	1	J	0.8	3	1.2	40	–	5.5	–	0.05	11.5	–	2	1.2	1.4	1.4	1.5	1.6	1.7	1.7	
08180	905010-MEGA-T	1	J	1	3	1.5	40	–	5.4	–	0.1	11	–	2	1.5	1.7	1.8	1.8	1.9	2	2	
08181	905012-MEGA-T	1	J	1.2	3	1.8	40	–	5.3	–	0.1	10	–	2	1.8	2	2.1	2.2	2.2	2.4	2.4	
08182	905015-MEGA-T	1	J	1.5	3	2.2	40	–	5.1	–	0.15	8.5	–	2	2.2	2.4	2.5	2.6	2.7	2.9	2.9	
08240	920ML005-MEGA-T	2	G	0.5	6	0.7	50	1.5	17.2	0.45	0.05	9.5	–	2	1.3	1.4	1.5	1.6	1.7	1.9	1.9	
08241	920ML006-MEGA-T	2	G	0.6	6	0.9	50	2	17.4	0.55	0.05	9	–	2	1.8	1.9	2	2.2	2.3	2.6	2.6	
08242	920ML008-MEGA-T	2	G	0.8	6	1.2	50	2.5	17.3	0.75	0.05	9	–	2	2.3	2.5	2.6	2.8	2.9	3.3	3.3	
08243	920ML010-MEGA-T	2	G	1	6	1.5	50	4	17	0.95	0.1	8.5	–	2	3.8	4	4.2	4.4	4.7	5.2	5.2	
08244	920ML012-MEGA-T	2	G	1.2	6	1.8	50	4.5	17	1.15	0.1	8.5	–	2	4.3	4.8	4.8	5	5.3	5.9	5.9	
12555	905SL015-MEGA-T	4.5	G	1.5	3	2.2	60	16	19.1	1.4	0.15	2.5	–	2	15.9	16.4	17	17.6	18.3	∞	∞	
08245	920ML015-MEGA-T	2	G	1.5	6	2.2	50	5	15.8	1.4	0.15	8.5	–	2	4.9	5.1	5.4	5.6	5.9	6.5	6.5	
12530	920ML018-MEGA-T	2	G	1.8	6	2.7	50	5	13.1	1.7	0.15	9.5	–	2	4.9	5	5.2	5.4	5.6	6.1	6.1	
12556	905SL020-MEGA-T	4.5	G	2	3	2.2	60	20	22.1	1.9	0.15	1.5	–	2	19.9	20.6	21.3	∞	∞	∞	∞	
08246	920ML020-MEGA-T	2	G	2	6	2.2	50	6	14.3	1.9	0.15	8.5	–	2	5.9	6.1	6.3	6.6	6.8	7.4	7.4	
04799	JM905008G2R005.0Z4-MT	2	G	0.8	3	1.2	40	2	12	1	0.05	5.5	6.9	4	2.3	2.5	2.7	3	3.3	4.2	4	
04813	JM920008G2R005.0Z4-MT	2	G	0.8	6	1.2	50	2	14	1	0.05	11.0	13.0	4	2.3	2.4	2.5	2.6	2.7	3	3	
04800	JM905010G2R010.0Z4-MT	2	G	1	3	1.5	40	4	12	1	0.1	5.0	7.5	4	3.8	4.1	4.4	4.8	5.2	6.4	6.4	
04814	JM920010G2R010.0Z4-MT	2	G	1	6	1.5	50	4	14	1	0.1	10.5	14.2	4	3.8	3.9	4.1	4.3	4.4	4.8	4.8	
04801	JM905012G2R010.0Z4-MT	2	G	1.2	3	1.8	40	4	12	1	0.1	4.5	7.2	4	4.3	4.6	5	5.5	6	7.5	7.5	
04815	JM920012G2R010.0Z4-MT	2	G	1.2	6	1.8	50	4	13	1	0.1	10.5	15.2	4	4.3	4.4	4.6	4.8	5	5.4	5.4	
04802	JM905015G2R015.0Z4-MT	2	G	1.5	3	2.2	40	5	11	1	0.15	4.0	7.3	4	4.8	5.2	5.6	6.1	6.7	8.3	8.3	
04818	JM920015G2R015.0Z4-MT	2	G	1.5	6	2.2	50	5	14	1	0.15	9.5	14.3	4	4.8	5	5.2	5.4	5.6	6.1	6.1	
04803	JM905020G2R015.0Z4-MT	2	G	2	3	2.2	40	6	12	2	0.15	2.5	5.1	4	5.8	6.5	7.3	8.3	9.7	∞	∞	
04819	JM920020G2R015.0Z4-MT	2	G	2	6	2.2	50	6	14	2	0.15	8.5	14.5	4	5.8	6	6.2	6.5	6.7	7.3	7.3	

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

JM905/JM920 – Solid carbide end mill sharp and with corner radius – multi flute – z_n2 and z_n4



Tolerances:
Runout < 0.005 mm
 $dm_m = h5$
 $D_c = 0.01/-0.02$ mm.
 $r_{c1} = +/-0.02$ mm



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm									α°	β	z_n	Max. cut depth rel. to α_1 (α_n , ref)*					
				D _c	dm _m	a _p	l ₂	l ₃	l _{p2}	D _n	r _{c1}	0°				0.5°	1°	1.5°	2°	3°	
08184	905L005-MEGA-T	3	G	0.5	3	0.7	40	2.5	7.4	0.45	0.05	10	—	2	2.3	2.4	2.5	2.5	2.6	2.9	
08247	920TL005-MEGA-T	3	G	0.5	6	0.7	50	3.5	17.8	0.45	0.05	9	—	2	3.3	3.5	3.7	3.8	4.1	4.6	
08186	905L006-MEGA-T	3	G	0.6	3	0.9	40	3	7.7	0.55	0.05	9	—	2	2.8	2.9	3	3.1	3.2	3.5	
08248	920TL006-MEGA-T	3	G	0.6	6	0.9	50	4	16.8	0.55	0.05	9.5	—	2	3.8	4	4.2	4.4	4.6	5.1	
08187	905L008-MEGA-T	3	G	0.8	3	1.2	40	4	8.3	0.75	0.05	8	—	2	3.8	3.9	4.1	4.2	4.4	4.7	
08249	920TL008-MEGA-T	3	G	0.8	6	1.2	50	5.5	16.9	0.75	0.05	9	—	2	5.3	5.5	5.7	6	6.3	6.9	
08188	905L010-MEGA-T	3	G	1	3	1.5	40	5	8.9	0.95	0.1	6.5	—	2	4.8	5	5.1	5.3	5.5	5.9	
08250	920TL010-MEGA-T	3	G	1	6	1.5	50	7	17.2	0.95	0.1	8.5	—	2	6.8	7	7.3	7.6	7.9	8.6	
08189	905L012-MEGA-T	3	G	1.2	3	1.8	40	6	9.5	1.15	0.1	5.5	—	2	5.8	6	6.2	6.4	6.7	7.2	
08251	920TL012-MEGA-T	3	G	1.2	6	1.8	50	8	16.6	1.15	0.1	8.5	—	2	7.8	8	8.3	8.6	8.9	9.5	
08190	905L015-MEGA-T	3	G	1.5	3	2.2	40	7.5	10.6	1.4	0.15	4.5	—	2	7.4	7.6	7.9	8.2	8.5	9.2	
08252	920TL015-MEGA-T	3	G	1.5	6	2.2	50	10	18.7	1.4	0.15	7	—	2	9.9	10.2	10.6	10.9	11.4	12.3	
12531	920TL018-MEGA-T	3	G	1.8	6	2.7	50	10	18.1	1.7	0.15	7	—	2	9.9	10.2	10.6	10.9	11.4	12.3	
08253	920TL020-MEGA-T	3	G	2	6	2.2	50	12	19.7	1.9	0.15	6	—	2	11.9	12.3	12.7	13.2	13.7	14.8	
08192	905XL005-MEGA-T	4	G	0.5	3	0.7	40	4	8.9	0.45	0.05	8.5	—	2	3.8	3.9	4.1	4.2	4.4	4.7	
08193	905XL006-MEGA-T	4	G	0.6	3	0.9	40	5	9.7	0.55	0.05	7.5	—	2	4.8	5	5.1	5.3	5.5	6	
08194	905XL008-MEGA-T	4	G	0.8	3	1.2	40	7	11.3	0.75	0.05	6	—	2	6.8	7	7.3	7.5	7.8	8.4	
08195	905XL010-MEGA-T	4	G	1	3	1.5	40	8.5	12.4	0.95	0.1	5	—	2	8.3	8.6	8.9	9.2	9.5	10.3	
08254	920SL010-MEGA-T	4	G	1	6	1.5	50	10	19.5	0.95	0.1	7.5	—	2	9.8	10.1	10.5	10.8	11.3	12.2	
08197	905XL015-MEGA-T	4	G	1.5	3	2.2	60	12	15.1	1.4	0.15	3	—	2	11.9	12.3	12.7	13.2	13.7	∞	
08255	920SL015-MEGA-T	4	G	1.5	6	2.2	50	15	23.7	1.4	0.15	5.5	—	2	14.9	15.4	15.9	16.5	17.1	18.5	
12529	920SL018-MEGA-T	4	G	1.8	6	2.7	50	15	23.1	1.7	0.15	5.5	—	2	14.9	15.4	15.9	16.5	17.1	18.5	
08198	905XL020-MEGA-T	4	G	2	3	2.2	60	16	18.1	1.9	0.15	2	—	2	15.9	16.4	17	17.6	∞	∞	
08256	920SL020-MEGA-T	4	G	2	6	2.2	50	18	25.7	1.9	0.15	4.5	—	2	17.9	18.5	19.1	19.8	20.6	22.2	
04823	JM920008G4R005.0Z4-MT	4	G	0.8	6	1.2	50	6	14	1	0.05	11.0	17.4	4	5.3	5.5	5.6	5.8	6	6.4	
04805	JM905008G4R005.0Z4-MT	4	G	0.8	3	1.2	40	6	12	1	0.05	5.5	10.2	4	5.3	5.6	5.9	6.2	6.6	7.6	
04806	JM905010G4R010.0Z4-MT	4	G	1	3	1.5	40	7	12	1	0.1	5.0	12.2	4	6.8	7.1	7.4	7.8	8.1	9	
04809	JM905012G4R010.0Z4-MT	4	G	1.2	3	1.8	40	8	12	1	0.1	4.5	14.0	4	7.8	8.1	8.4	8.7	9.1	9.9	
04825	JM920010G4R010.0Z4-MT	4	G	1	6	1.5	50	7	14	1	0.1	10.5	19.9	4	6.8	7	7.2	7.3	7.5	8	
04826	JM920012G4R010.0Z4-MT	4	G	1.2	6	1.8	50	8	13	1	0.1	10.5	24.2	4	7.8	8	8.1	8.3	8.5	8.9	
12532	920XXL010-MEGA-T	5	G	1	6	1.5	80	15	24.5	0.95	0.1	6	—	2	14.8	15.3	15.8	16.4	17	18.4	
12557	905XXL015-MEGA-T	5	G	1.5	3	2.2	60	20	23.1	1.4	0.15	2	—	2	19.9	20.6	21.3	22	∞	∞	
12533	920XXL015-MEGA-T	5	G	1.5	6	2.2	80	20	28.7	1.4	0.15	5	—	2	19.9	20.6	21.3	22	22.9	24.7	
12534	920XXL020-MEGA-T	5	G	2	6	2.2	80	30	37.7	1.9	0.15	3.5	—	2	29.9	30.9	32	33.1	34.4	37.1	

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Three different types of drill bits are shown standing vertically. From left to right, they are a standard double-flute drill bit, a more complex multi-flute drill bit, and a long, thin, high-speed steel drill bit. Each bit has a distinct cutting edge and a central flute for chip removal.

Technical drawing of a conical nozzle assembly. The left view is a longitudinal section showing dimensions: d_{m1} (top diameter), l_2 (height to start of cone), α (cone angle), l_{p2} (height of nozzle body), l_3 (height of nozzle tip), D_n (nozzle exit diameter), a_p (tip radius), D_c (base diameter), and $r_{\varepsilon 1}$ (fillet radius). The right view shows the nozzle on a base with dimensions $l\alpha\eta$ and $\alpha\eta$. Below the drawing are seven cross-sectional views: a circle with a red cross (top), a circle with a vertical red line (side), a rectangle labeled 'MEGA-T', a rectangle with diagonal hatching (side), a rectangle with diagonal hatching (side), a rectangle with diagonal hatching and a 20° angle (side), a rectangle with diagonal hatching and a horizontal arrow (side), and a triangle with a 4° angle and diagonal hatching (bottom).

[illegible]

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Cutting data – JM905/JM920 Slotting

SMG		a_p / D_c	f_z													v_c
			0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	2	
P1	M/E/A	0.32	0.0014	0.0022	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.020	0.022	0.024	280 (250 — 310)
P2	M/E/A	0.32	0.0014	0.0022	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.020	0.022	0.024	270 (240 — 300)
P3	M/E/A	0.32	0.0014	0.0020	0.0028	0.0040	0.0055	0.0070	0.0080	0.011	0.014	0.016	0.019	0.022	0.022	235 (210 — 260)
P4	M/E/A	0.32	0.0013	0.0020	0.0026	0.0040	0.0055	0.0065	0.0080	0.011	0.013	0.016	0.019	0.022	0.022	205 (185 — 230)
P5	M/E/A	0.32	0.0013	0.0019	0.0026	0.0038	0.0050	0.0065	0.0080	0.010	0.013	0.015	0.018	0.020	0.022	200 (175 — 220)
P6	M/E/A	0.32	0.0013	0.0019	0.0026	0.0038	0.0050	0.0065	0.0075	0.010	0.013	0.015	0.018	0.020	0.022	220 (195 — 245)
P7	M/E/A	0.32	0.0013	0.0019	0.0026	0.0038	0.0050	0.0065	0.0075	0.010	0.013	0.015	0.018	0.020	0.022	210 (185 — 235)
P8	M/E/A	0.32	0.0014	0.0020	0.0028	0.0040	0.0055	0.0070	0.0080	0.011	0.014	0.016	0.019	0.022	0.022	195 (175 — 220)
P11	M/E/A	0.32	0.0013	0.0019	0.0026	0.0038	0.0050	0.0065	0.0075	0.010	0.013	0.015	0.018	0.020	0.022	205 (180 — 225)
M1	E/M/A	0.32	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	0.038	145 (120 — 170)
M2	E/M/A	0.32	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	115 (95 — 135)
M3	E/M/A	0.32	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	90 (70 — 105)
M4	E/M/A	0.24	0.0018	0.0028	0.0036	0.0055	0.0070	0.0090	0.011	0.014	0.018	0.022	0.026	0.028	0.030	70 (55 — 80)
M5	E/M/A	0.24	0.0018	0.0028	0.0036	0.0055	0.0070	0.0090	0.011	0.014	0.018	0.022	0.026	0.028	0.030	55 (47 — 65)
N1	E/M/A	0.24	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	670 (580 — 750)
N2	E/M/A	0.24	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	430 (375 — 480)
N3	E/M/A	0.24	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	285 (250 — 320)
N11	E/M/A	0.24	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	390 (335 — 445)
S11	E/M/A	0.36	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	190 (165 — 220)
S12	E/M/A	0.36	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	145 (125 — 170)
S13	E/M/A	0.30	0.0018	0.0026	0.0036	0.0055	0.0070	0.0090	0.011	0.014	0.018	0.020	0.024	0.028	0.030	115 (100 — 135)
H3	M/A	0.050	0.0014	0.0022	0.0028	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	95 (85 — 110)
H5	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	160 (140 — 185)
H7	M/A	0.044	0.0014	0.0022	0.0028	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	0.036	95 (85 — 110)
H8	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.036	0.040	160 (140 — 185)
H11	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	210 (180 — 235)
H12	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	335 (290 — 380)
H21	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.036	0.040	160 (140 — 185)
H31	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.028	0.032	0.034	120 (105 — 140)
GR1	A	0.50	0.0015	0.0022	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.022	0.024	0.026	370 (315 — 420)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JM905/JM920 Side milling roughing $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z													v_c
			0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	2	
P1	M/E/A	0.60	0.0017	0.0024	0.0032	0.0048	0.0065	0.0080	0.0095	0.013	0.017	0.019	0.024	0.026	0.028	460 (410 — 510)
P2	M/E/A	0.60	0.0017	0.0024	0.0032	0.0050	0.0065	0.0080	0.010	0.014	0.017	0.020	0.024	0.026	0.028	450 (400 — 495)
P3	M/E/A	0.60	0.0016	0.0024	0.0032	0.0048	0.0060	0.0080	0.0095	0.013	0.016	0.019	0.022	0.024	0.028	385 (340 — 430)
P4	M/E/A	0.60	0.0016	0.0024	0.0032	0.0046	0.0060	0.0075	0.0090	0.013	0.016	0.018	0.022	0.024	0.028	340 (300 — 375)
P5	M/E/A	0.60	0.0015	0.0024	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.020	0.024	0.028	325 (290 — 360)
P6	M/E/A	0.60	0.0015	0.0024	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.020	0.024	0.028	365 (325 — 405)
P7	M/E/A	0.60	0.0015	0.0024	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.020	0.024	0.028	345 (305 — 380)
P8	M/E/A	0.60	0.0016	0.0024	0.0032	0.0048	0.0060	0.0080	0.0095	0.013	0.016	0.019	0.022	0.024	0.028	325 (290 — 360)
P11	M/E/A	0.60	0.0015	0.0024	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.020	0.024	0.028	335 (295 — 370)
M1	E/M/A	0.32	0.0024	0.0036	0.0048	0.0075	0.0095	0.013	0.015	0.020	0.024	0.028	0.034	0.038	0.040	245 (200 — 290)
M2	E/M/A	0.32	0.0024	0.0036	0.0048	0.0075	0.0095	0.013	0.015	0.020	0.024	0.028	0.034	0.038	0.040	200 (165 — 235)
M3	E/M/A	0.32	0.0024	0.0036	0.0048	0.0075	0.0095	0.013	0.015	0.020	0.024	0.028	0.034	0.038	0.040	150 (125 — 180)
M4	E/M/A	0.24	0.0024	0.0034	0.0044	0.0065	0.0090	0.012	0.014	0.018	0.024	0.026	0.032	0.036	0.040	115 (95 — 135)
M5	E/M/A	0.24	0.0024	0.0034	0.0044	0.0065	0.0090	0.012	0.014	0.018	0.024	0.026	0.032	0.036	0.040	95 (80 — 115)
N1	E/M/A	0.75	0.0024	0.0034	0.0044	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.032	0.036	0.040	1100 (960 — 1225)
N2	E/M/A	0.75	0.0024	0.0034	0.0044	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.032	0.036	0.040	710 (620 — 790)
N3	E/M/A	0.75	0.0024	0.0034	0.0044	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.032	0.036	0.040	470 (410 — 530)
N11	E/M/A	0.75	0.0024	0.0034	0.0044	0.0070	0.0090	0.012	0.014	0.018	0.024	0.028	0.032	0.036	0.040	640 (550 — 730)
S11	E/M/A	0.36	0.0024	0.0036	0.0048	0.0070	0.0095	0.012	0.015	0.020	0.024	0.028	0.034	0.038	0.040	330 (285 — 375)
S12	E/M/A	0.36	0.0024	0.0036	0.0048	0.0070	0.0095	0.012	0.015	0.020	0.024	0.028	0.034	0.038	0.040	255 (215 — 290)
S13	E/M/A	0.30	0.0022	0.0032	0.0044	0.0065	0.0085	0.011	0.013	0.018	0.022	0.026	0.032	0.036	0.040	200 (170 — 225)
H3	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.036	0.040	150 (130 — 170)
H5	M/A	0.44	0.0022	0.0032	0.0044	0.0065	0.0090	0.011	0.014	0.018	0.022	0.026	0.032	0.036	0.040	270 (235 — 305)
H7	M/A	0.20	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.036	0.040	150 (130 — 170)
H8	M/A	0.44	0.0024	0.0038	0.0050	0.0075	0.010	0.013	0.015	0.020	0.024	0.030	0.036	0.040	0.042	265 (230 — 300)
H11	M/A	0.44	0.0022	0.0032	0.0044	0.0065	0.0090	0.011	0.014	0.018	0.022	0.026	0.032	0.036	0.040	345 (300 — 390)
H12	M/A	0.44	0.0022	0.0032	0.0044	0.0065	0.0090	0.011	0.014	0.018	0.022	0.026	0.032	0.036	0.040	560 (480 — 630)
H21	M/A	0.44	0.0024	0.0038	0.0050	0.0075	0.010	0.013	0.015	0.020	0.024	0.030	0.036	0.040	0.042	265 (230 — 300)
H31	M/A	0.44	0.0022	0.0032	0.0044	0.0065	0.0090	0.011	0.014	0.018	0.022	0.026	0.032	0.036	0.040	200 (175 — 230)

Cutting data – JM905/JM920 Side milling roughing $a_p/D_c = 0.5$

SMG		a_p / D_c	f_z												v_c		
			0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8			2
GR1	A	0.50	0.0015	0.0022	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.022	0.024	0.026	435 (370 — 495)	

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

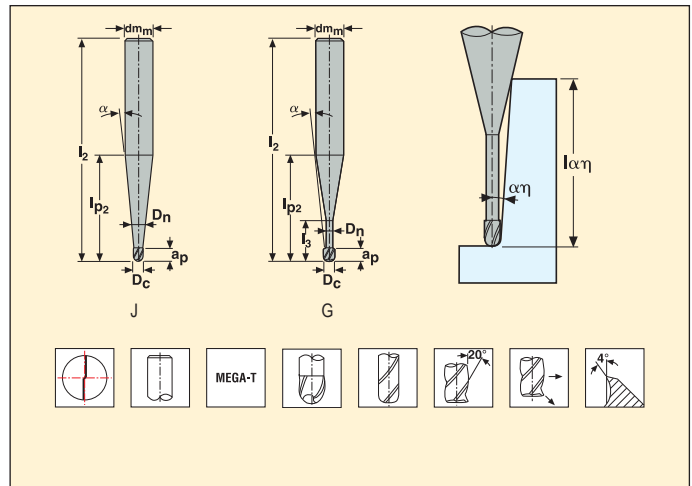
a_s (mm)/ D_c (mm)= factor

All cutting data are target values

JM915/JM925 – Solid carbide end mill - ball nose – two flute



Tolerances:
Runout < 0.005 mm
 $dm_m = h_5$
 $D_c = -0.01/-0.02$ mm
Radius ± 0.005 mm

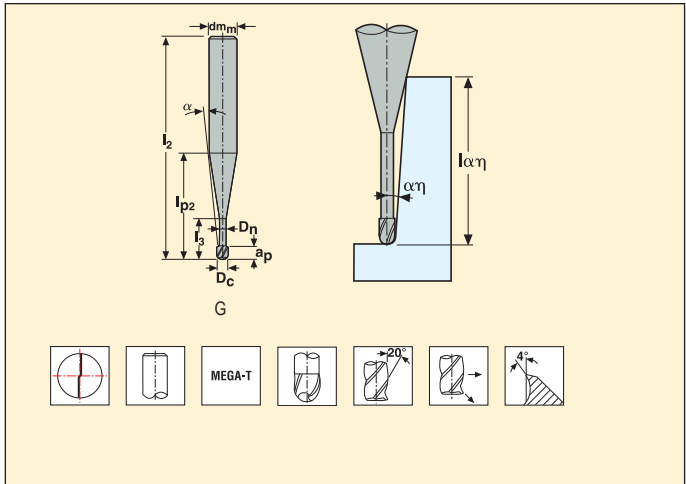


EDP No.	Part No.	Length index	Tool shape	Dimensions in mm										Max. cut depth rel. to α_n (l_{α_n} , ref)*					
				D_c	dm_m	a_p	l_2	l_3	l_{p2}	D_n	r_{c1}	α°	z_n	0°	0.5°	1°	1.5°	2°	3°
08199	9150010-MEGA-T	1	J	0.1	3	0.15	40	—	5.7	—	0.05	14.5	2	0.15	0.3	0.3	0.3	0.3	0.3
08200	9150015-MEGA-T	1	J	0.15	3	0.2	40	—	5.7	—	0.075	14.5	2	0.2	0.4	0.4	0.4	0.4	0.4
08201	915002-MEGA-T	1	J	0.2	3	0.2	40	—	5.6	—	0.1	14.5	2	0.2	0.4	0.4	0.4	0.4	0.4
08202	915003-MEGA-T	1	J	0.3	3	0.3	40	—	5.5	—	0.15	14.5	2	0.3	0.5	0.5	0.5	0.5	0.5
08203	915004-MEGA-T	1	J	0.4	3	0.4	40	—	5.4	—	0.2	14.5	2	0.4	0.5	0.5	0.5	0.6	0.6
08204	915005-MEGA-T	1	J	0.5	3	0.5	40	—	5.3	—	0.25	14	2	0.5	0.7	0.7	0.7	0.7	0.8
08205	915006-MEGA-T	1	J	0.6	3	0.6	40	—	5.6	—	0.3	13	2	0.6	0.8	0.8	0.8	0.8	0.9
08206	915008-MEGA-T	1	J	0.8	3	0.8	40	—	5.1	—	0.4	13.5	2	0.8	1	1	1	1	1.1
08207	915010-MEGA-T	1	J	1	3	1	40	—	4.9	—	0.5	—	2	∞	∞	∞	∞	∞	∞
08208	915012-MEGA-T	1	J	1.2	3	1.2	40	—	4.7	—	0.6	12.5	2	1.2	1.4	1.4	1.4	1.5	1.5
08209	915015-MEGA-T	1	J	1.5	3	1.5	40	—	4.4	—	0.75	11.5	2	1.5	1.7	1.7	1.8	1.8	1.9
08269	925ML005-MEGA-T	2	G	0.5	6	0.5	50	1.5	17.2	0.45	0.25	9.5	2	1.3	1.4	1.5	1.5	1.6	1.8
08270	925ML006-MEGA-T	2	G	0.6	6	0.6	50	2	17.4	0.55	0.3	9	2	1.8	1.9	2	2.1	2.2	2.5
08271	925ML008-MEGA-T	2	G	0.8	6	0.8	50	2.5	17.3	0.75	0.4	9	2	2.3	2.4	2.6	2.7	2.8	3.2
08272	925ML010-MEGA-T	2	G	1	6	1	50	4	17	0.95	0.5	9	2	3.8	4	4.2	4.4	4.6	5.1
08273	925ML012-MEGA-T	2	G	1.2	6	1.2	50	4.5	15.9	1.15	0.6	9	2	4.3	4.5	4.7	4.8	5.1	5.6
08274	925ML015-MEGA-T	2	G	1.5	6	1.5	50	5	15	1.4	0.75	9	2	4.9	5.1	5.3	5.5	5.7	6.2
12519	925ML018-MEGA-T	2	G	1.8	6	1.8	50	5	14.4	1.7	0.9	9	2	4.9	5.1	5.2	5.4	5.6	6.1
08276	925ML020-MEGA-T	2	G	2	6	2	50	6	14.3	1.9	1	9	2	5.9	6.1	6.3	6.5	6.7	7.2
08211	915L005-MEGA-T	3	G	0.5	3	0.5	40	2.5	7.4	0.45	0.25	10	2	2.3	2.4	2.4	2.5	2.6	2.8
08277	925TL005-MEGA-T	3	G	0.5	6	0.5	50	3.5	17.8	0.45	0.25	9	2	3.3	3.5	3.6	3.8	4	4.5
08278	925TL006-MEGA-T	3	G	0.6	6	0.6	50	4	16.8	0.55	0.3	9.5	2	3.8	4	4.1	4.3	4.5	5
08213	915L008-MEGA-T	3	G	0.8	3	0.8	40	4	8.3	0.75	0.4	8	2	3.8	3.9	4	4.2	4.3	4.6
08279	925TL008-MEGA-T	3	G	0.8	6	0.8	50	5.5	16.9	0.75	0.4	9	2	5.3	5.5	5.7	5.9	6.2	6.8
08214	915L010-MEGA-T	3	G	1	3	1	40	5	8.9	0.95	0.5	7	2	4.8	4.9	5.1	5.3	5.4	5.9
08280	925TL010-MEGA-T	3	G	1	6	1	50	7	16.5	0.95	0.5	9	2	6.8	7	7.2	7.5	7.7	8.3
08216	915L012-MEGA-T	3	G	1.2	3	1.2	40	6	9.5	1.15	0.6	6	2	5.8	6	6.2	6.4	6.6	7.1
08281	925TL012-MEGA-T	3	G	1.2	6	1.2	50	8	16.6	1.15	0.6	9	2	7.8	8	8.3	8.5	8.8	9.4
08217	915L015-MEGA-T	3	G	1.5	3	1.5	40	7.5	10.6	1.4	0.75	4.5	2	7.4	7.6	7.9	8.1	8.4	9
12547	915SL015-MEGA-T	4.5	G	1.5	3	1.5	60	16	19.1	1.4	0.75	2.5	2	15.9	16.4	16.9	17.5	18.2	∞
08282	925TL015-MEGA-T	3	G	1.5	6	1.5	50	10	17.3	1.4	0.75	8	2	9.9	10.1	10.4	10.7	11	11.6
12520	925TL018-MEGA-T	3	G	1.8	6	1.8	50	10	19.4	1.7	0.9	6.5	2	9.9	10.3	10.7	11.1	11.5	12.6
08218	915L020-MEGA-T	3	G	2	3	2	40	10	12.1	1.9	1	3	2	9.9	10.2	10.5	10.9	11.2	∞
08283	925TL020-MEGA-T	3	G	2	6	2	50	12	20.9	1.9	1	6	2	11.9	12.3	12.8	13.3	13.9	15.1
12548	915SL020-MEGA-T	4.5	G	2	3	2	60	20	22.1	1.9	1	1.5	2	19.9	20.5	21.2	∞	∞	∞

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Three different types of drill bits are shown standing vertically. From left to right, they are a standard double-flute drill bit, a more complex multi-flute design, and a long, thin, high-speed steel drill bit.

Radius = ± 0.005 mm

[illegible]

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Cutting data – JM915/JM925 Copy milling roughing $a_e/D_c = 0.05$

SMG		a_p / D_c	f_z													v_c
			0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	2	
P1	M/E/A	0.60	0.0032	0.0046	0.0060	0.0095	0.013	0.017	0.020	0.030	0.040	0.055	0.060	0.070	0.075	560 (500—630)
P2	M/E/A	0.60	0.0032	0.0048	0.0065	0.0095	0.014	0.017	0.020	0.032	0.042	0.055	0.065	0.070	0.075	550 (490—610)
P3	M/E/A	0.60	0.0030	0.0044	0.0060	0.0090	0.013	0.016	0.020	0.028	0.040	0.050	0.060	0.065	0.070	475 (425—530)
P4	M/E/A	0.60	0.0028	0.0044	0.0060	0.0090	0.013	0.016	0.020	0.028	0.038	0.048	0.060	0.065	0.070	420 (375—465)
P5	M/E/A	0.60	0.0028	0.0044	0.0055	0.0085	0.012	0.016	0.019	0.028	0.038	0.048	0.055	0.065	0.070	400 (355—445)
P6	M/E/A	0.60	0.0028	0.0042	0.0055	0.0085	0.012	0.016	0.019	0.028	0.036	0.048	0.055	0.065	0.065	450 (400—500)
P7	M/E/A	0.60	0.0028	0.0042	0.0055	0.0085	0.012	0.016	0.019	0.028	0.036	0.048	0.055	0.065	0.065	425 (380—470)
P8	M/E/A	0.60	0.0030	0.0044	0.0060	0.0090	0.013	0.016	0.020	0.028	0.040	0.050	0.060	0.065	0.070	400 (355—445)
P11	M/E/A	0.60	0.0028	0.0042	0.0055	0.0085	0.012	0.016	0.019	0.028	0.036	0.048	0.055	0.065	0.065	415 (365—460)
N1	E/M/A	0.75	0.0032	0.0046	0.0060	0.0095	0.013	0.017	0.020	0.028	0.038	0.048	0.060	0.070	0.075	1350 (1200—1525)
N2	E/M/A	0.75	0.0032	0.0046	0.0060	0.0095	0.013	0.017	0.020	0.028	0.038	0.048	0.060	0.070	0.075	870 (760—980)
N3	E/M/A	0.75	0.0032	0.0046	0.0060	0.0095	0.013	0.017	0.020	0.028	0.038	0.048	0.060	0.070	0.075	580 (510—660)
N11	E/M/A	0.75	0.0032	0.0046	0.0060	0.0095	0.013	0.017	0.020	0.028	0.038	0.048	0.060	0.070	0.075	780 (670—890)
H3	M/A	0.50	0.0011	0.0017	0.0022	0.0036	0.0048	0.0065	0.0080	0.012	0.016	0.019	0.022	0.026	0.026	200 (175—225)
H5	M/A	0.28	0.0015	0.0022	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.022	0.028	0.030	355 (310—400)
H7	M/A	0.50	0.0020	0.0030	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.036	0.040	200 (175—225)
H8	M/A	0.44	0.0030	0.0044	0.0060	0.0090	0.013	0.017	0.022	0.032	0.042	0.050	0.060	0.065	0.070	360 (315—405)
H11	M/A	0.28	0.0015	0.0022	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.022	0.028	0.030	455 (400—510)
H12	M/A	0.28	0.0015	0.0022	0.0030	0.0044	0.0060	0.0075	0.0090	0.012	0.015	0.018	0.022	0.028	0.030	730 (640—830)
H21	M/A	0.44	0.0030	0.0044	0.0060	0.0090	0.013	0.017	0.022	0.032	0.042	0.050	0.060	0.065	0.070	360 (315—405)
H31	M/A	0.44	0.0026	0.0040	0.0055	0.0080	0.012	0.015	0.019	0.028	0.038	0.044	0.050	0.060	0.060	270 (235—305)

Cutting data – JM915/JM925 Copy milling roughing $a_e/D_c = 0.03$

SMG		a_p / D_c	f_z													v_c
			0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8	2	
M1	E/M/A	0.60	0.0050	0.0075	0.010	0.015	0.020	0.026	0.032	0.044	0.055	0.070	0.085	0.11	0.12	315 (260 — 375)
M2	E/M/A	0.60	0.0050	0.0075	0.010	0.015	0.020	0.026	0.032	0.044	0.055	0.070	0.085	0.11	0.12	255 (210 — 300)
M3	E/M/A	0.60	0.0050	0.0075	0.010	0.015	0.020	0.026	0.032	0.044	0.055	0.070	0.085	0.11	0.12	195 (160 — 230)
M4	E/M/A	0.60	0.0044	0.0065	0.0085	0.013	0.018	0.022	0.028	0.036	0.048	0.060	0.075	0.085	0.095	150 (125 — 175)
M5	E/M/A	0.60	0.0044	0.0065	0.0085	0.013	0.018	0.022	0.028	0.036	0.048	0.060	0.075	0.085	0.095	125 (100 — 150)
S11	E/M/A	0.60	0.0050	0.0075	0.010	0.015	0.020	0.026	0.032	0.044	0.055	0.070	0.085	0.11	0.12	420 (360 — 480)
S12	E/M/A	0.60	0.0050	0.0075	0.010	0.015	0.020	0.026	0.032	0.044	0.055	0.070	0.085	0.11	0.12	325 (280 — 370)
S13	E/M/A	0.60	0.0044	0.0065	0.0085	0.013	0.018	0.022	0.028	0.036	0.048	0.060	0.075	0.085	0.095	260 (220 — 295)

Cutting data – JM915/JM925 Copy milling roughing $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z												v_c		
			0.1	0.15	0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	1.8			2
GR1	A	0.50	0.0011	0.0016	0.0022	0.0032	0.0044	0.0055	0.0065	0.0090	0.012	0.015	0.019	0.022	0.026	540 (460 — 610)	

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



				
				
Name		JHP993	JHP951	JH141
Page		153-155	156-158	159, 161, 254-256
Family		HPM	HPM	HSM/TORNADO
Type of mill				
Shank	Cylindrical	■	■	■
	Weldon	■	■	
Number of flutes		3-6	3-5	2-4
ICC		■		
Diameter range	Metric	4-25	3-25	2-10
	Inch			
Lengths available, based on length index		 2,3	 2	 2,3,4,5
Operation				
				
				
SMG				
P1		•	•	•
P2		•	•	•
P3		•	•	•
P4		•	•	•
P5		•	•	•
P6		•	•	•
P7		•	•	•
P8		•	•	•
P11		•	•	•
K1		•	•	•
K2		•	•	•
K3		•	•	•
K4		•	•	•
K5		•	•	•
K6		•	•	•
K7		•	•	•

■ Stock standard □ Weldon available, delivery time is 3 days
 ● Preferred choice, ○ Alternative choice

					
					
Name		JH970	JH111	JH150	JH160
Page		118-119, 162-163	164-166, 257-259	167-168, 260-261	169-170, 262-263
Family		HSM/TORNADO	HSM/TORNADO	HSM/TORNADO	HSM/TORNADO
Type of mill					
Shank	Cylindrical	■	■	■	■
	Weldon				
Number of flutes		2	2	4	4
ICC					
Diameter range	Metric	2-16	2-16	6-12	4-12
	Inch				
Lengths available, based on length index		 1,2,3	 1,2,3,4,5	 2	 2
Operation					
					
SMG					
P1		●		●	●
P2		●		●	●
P3		●		●	●
P4		●		●	●
P5		●		●	●
P6		●		●	●
P7		●		●	●
P8		●		●	●
P11		●		●	●
K1			●	●	
K2			●	●	
K3			●	●	
K4			●	●	
K5			●	●	
K6			●	●	
K7			●	●	

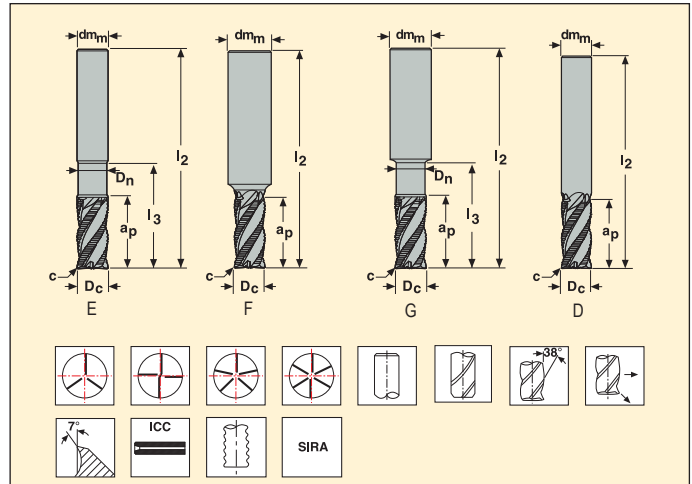
■ Stock standard □ Weldon available, delivery time is 3 days

● Preferred choice, ○ Alternative choice

JHP993 – Solid carbide end mill – advanced roughing profile – cylindrical shank – 45° corner chamfer



Tolerances:
 $dm_m = h5$
 $D_c = -0.02/-0.1 \text{ mm}$
 $c = \pm 0.05 \text{ mm}$



EDP No.	Part No.	Length index	Tool shape	ICC	Dimensions in mm							z_n	Cylindrical
					D_c	dm_m	a_p	l_2	l_3	D_n	$c \times 45^\circ$		
84658	JHP993040F2C.0Z3-SIRA	2	F		4	6	10	50	–	–	0.15	3	■
84661	JHP993050F2C.0Z4-SIRA	2	F		5	6	12	55	–	–	0.15	4	■
84646	JHP993060D2C.0Z4-SIRA	2	D		6	6	14	55	–	–	0.2	4	■
84647	JHP993075F2C.0Z4-SIRA	2	F		7.5	8	17	60	–	–	0.2	4	■
84665	JHP993080D2C.0Z4A-SIRA	2	D	■	8	8	18	60	–	–	0.2	4	■
84208	JHP993080D2C.0Z4-SIRA	2	D		8	8	18	60	–	–	0.2	4	■
84655	JHP993095F2C.0Z4-SIRA	2	F		9.5	10	20	70	–	–	0.2	4	■
84649	JHP993100D2C.0Z4A-SIRA	2	D	■	10	10	22	70	–	–	0.2	4	■
84666	JHP993100D2C.0Z4-SIRA	2	D		10	10	22	70	–	–	0.2	4	■
84652	JHP993115F2C.0Z4-SIRA	2	F		11.5	12	25	80	–	–	0.2	4	■
84664	JHP993120D2C.0Z4A-SIRA	2	D	■	12	12	26	80	–	–	0.2	4	■
84656	JHP993120D2C.0Z4-SIRA	2	D		12	12	26	80	–	–	0.2	4	■
84660	JHP993140D2C.0Z4-SIRA	2	D		14	14	30	80	–	–	0.3	4	■
80261	JHP993160D2C.0Z4A-SIRA	2	D	■	16	16	34	90	–	–	0.3	4	■
80259	JHP993160D2C.0Z4-SIRA	2	D		16	16	34	90	–	–	0.3	4	■
80267	JHP993200D2C.0Z4A-SIRA	2	D	■	20	20	42	100	–	–	0.5	4	■
80266	JHP993200D2C.0Z4-SIRA	2	D		20	20	42	100	–	–	0.5	4	■
80284	JHP993250D2C.0Z4A-SIRA	2	D	■	25	25	52	125	–	–	0.5	4	■
84648	JHP993160D2C.0Z5A-SIRA	2	D	■	16	16	34	90	–	–	0.3	5	■
84659	JHP993160D2C.0Z5-SIRA	2	D		16	16	34	90	–	–	0.3	5	■
84209	JHP993200D2C.0Z5A-SIRA	2	D	■	20	20	42	100	–	–	0.5	5	■
84654	JHP993200D2C.0Z5-SIRA	2	D		20	20	42	100	–	–	0.5	5	■
76109	JHP993250D2C.0Z6A-SIRA	2	D	■	25	25	52	125	–	–	0.5	6	■
84207	JHP993040G3C.0Z3-SIRA	3	G		4	6	10	55	15	3.7	0.15	3	■
84653	JHP993060E3C.0Z4-SIRA	3	E		6	6	14	65	24	5.6	0.2	4	■
84650	JHP993080E3C.0Z4-SIRA	3	E		8	8	18	70	32	7.4	0.2	4	■
84662	JHP993100E3C.0Z4-SIRA	3	E		10	10	22	85	40	9.4	0.2	4	■
84663	JHP993120E3C.0Z4-SIRA	3	E		12	12	26	100	50	11.4	0.2	4	■
80262	JHP993160E3C.0Z4-SIRA	3	E		16	16	34	110	60	15.4	0.3	4	■
80268	JHP993200E3C.0Z4-SIRA	3	E		20	20	42	125	70	19.2	0.5	4	■
84657	JHP993160E3C.0Z5-SIRA	3	E		16	16	34	110	60	15.4	0.3	5	■
84651	JHP993200E3C.0Z5-SIRA	3	E		20	20	42	125	70	19.2	0.5	5	■

SIRA = SIRON-A, ICC = Internal Coolant Channels

■ Stock standard. Subject to change, refer to current price-and stock-list.

JHP993 – Solid carbide end mill – advanced roughing profile – Weldon shank – 45° corner chamfer

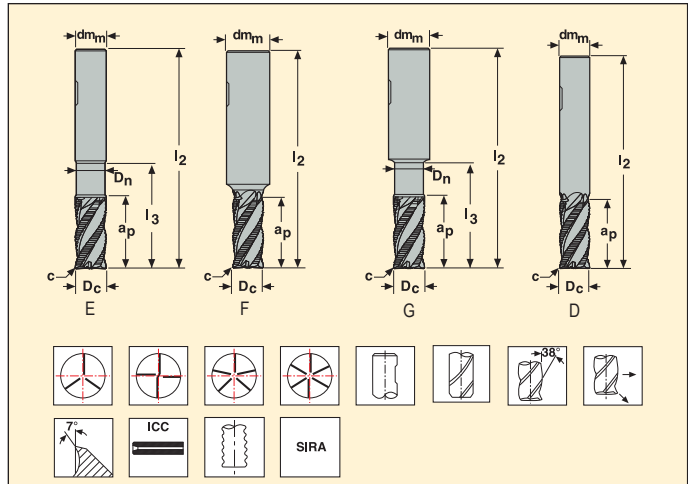


Tolerances:

$dm_m = h5$

$D_c = -0.02/-0.1 \text{ mm}$

$c = \pm 0.05 \text{ mm}$



EDP No.	Part No.	Length index	Tool shape	ICC	Dimensions in mm							z_n	Weldon
					D_c	dm_m	a_p	l_2	l_3	D_n	$c \times 45^\circ$		
84674	JHP993040F2C.3Z3-SIRA	2	F		4	6	10	50	–	–	0.15	3	■
84681	JHP993050F2C.3Z4-SIRA	2	F		5	6	12	55	–	–	0.15	4	■
84679	JHP993060D2C.3Z4-SIRA	2	D		6	6	14	55	–	–	0.2	4	■
84684	JHP993075F2C.3Z4-SIRA	2	F		7.5	8	17	60	–	–	0.2	4	■
84729	JHP993080D2C.3Z4A-SIRA	2	D	■	8	8	16	60	–	–	0.2	4	□
84688	JHP993080D2C.3Z4-SIRA	2	D		8	8	18	60	–	–	0.2	4	■
84687	JHP993095F2C.3Z4-SIRA	2	F		9.5	10	20	70	–	–	0.2	4	■
84731	JHP993100D2C.3Z4A-SIRA	2	D	■	10	10	20	70	–	–	0.2	4	□
84675	JHP993100D2C.3Z4-SIRA	2	D		10	10	22	70	–	–	0.2	4	■
84678	JHP993115F2C.3Z4-SIRA	2	F		11.5	12	25	80	–	–	0.2	4	■
84727	JHP993120D2C.3Z4A-SIRA	2	D	■	12	12	26	80	–	–	0.2	4	□
84670	JHP993120D2C.3Z4-SIRA	2	D		12	12	26	80	–	–	0.2	4	■
84676	JHP993140D2C.3Z4-SIRA	2	D		14	14	30	80	–	–	0.3	4	■
80286	JHP993160D2C.3Z4A-SIRA	2	D	■	16	16	34	90	–	–	0.3	4	■
80260	JHP993160D2C.3Z4-SIRA	2	D		16	16	34	90	–	–	0.3	4	■
80287	JHP993200D2C.3Z4A-SIRA	2	D	■	20	20	42	100	–	–	0.5	4	□
80264	JHP993200D2C.3Z4-SIRA	2	D		20	20	42	100	–	–	0.5	4	■
80288	JHP993250D2C.3Z4A-SIRA	2	D	■	25	25	52	125	–	–	0.5	4	■
80270	JHP993250D2C.3Z4-SIRA	2	D		25	25	52	125	–	–	0.5	4	■
84730	JHP993160D2C.3Z5A-SIRA	2	D	■	16	16	34	90	–	–	0.3	5	□
84677	JHP993160D2C.3Z5-SIRA	2	D		16	16	34	90	–	–	0.3	5	■
84728	JHP993200D2C.3Z5A-SIRA	2	D	■	20	20	42	100	–	–	0.5	5	□
84686	JHP993200D2C.3Z5-SIRA	2	D		20	20	42	100	–	–	0.5	5	■
84680	JHP993250D2C.3Z6A-SIRA	2	D	■	25	25	52	125	–	–	0.5	6	□
84668	JHP993250D2C.3Z6-SIRA	2	D		25	25	52	125	–	–	0.5	6	■
84673	JHP993040G3C.3Z3-SIRA	3	G		4	6	10	55	15	3.7	0.15	3	■
84685	JHP993060E3C.3Z4-SIRA	3	F		6	6	14	65	24	5.6	0.2	4	■
84683	JHP993080E3C.3Z4-SIRA	3	E		8	8	18	70	32	7.4	0.2	4	■
84682	JHP993100E3C.3Z4-SIRA	3	E		10	10	22	85	40	9.4	0.2	4	■
84667	JHP993120E3C.3Z4-SIRA	3	E		12	12	26	100	50	11.4	0.2	4	■
80263	JHP993160E3C.3Z4-SIRA	3	E		16	16	34	110	60	15.4	0.3	4	■
80269	JHP993200E3C.3Z4-SIRA	3	E		20	20	42	125	70	19.2	0.5	4	■
80285	JHP993250E3C.3Z4-SIRA	3	E		25	25	52	150	90	24	0.5	4	■
84671	JHP993160E3C.3Z5-SIRA	3	E		16	16	34	110	60	15.4	0.3	5	■
84669	JHP993200E3C.3Z5-SIRA	3	E		20	20	42	125	70	19.2	0.5	5	■
84672	JHP993250E3C.3Z6-SIRA	3	E		25	25	52	150	90	24	0.5	6	■

SIRA = SIRON-A, ICC = Internal Coolant Channels.

■ Stock standard. Subject to change, refer to current price-and stock-list. □ Weldon available, delivery time is 3 days.

Cutting data – JHP993 Slotting $Z_n=3$ and $Z_n=4$

SMG		a_p / D_c	f_z										v_c
			4	5	6	8	10	12	14	16	20	25	
P1	E/M/A	1.6	0.034	0.044	0.050	0.070	0.085	0.10	0.12	0.13	0.15	0.17	195 (170 — 225)
P2	E/M/A	1.6	0.036	0.044	0.055	0.070	0.090	0.10	0.12	0.13	0.15	0.17	190 (160 — 215)
P3	E/M/A	1.6	0.034	0.042	0.050	0.065	0.085	0.10	0.11	0.12	0.14	0.16	165 (140 — 190)
P4	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.16	150 (125 — 170)
P5	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	140 (120 — 160)
P6	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.13	0.15	160 (135 — 180)
P7	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.13	0.15	150 (130 — 170)
P8	E/M/A	1.6	0.034	0.042	0.050	0.065	0.085	0.10	0.11	0.12	0.14	0.16	140 (120 — 160)
P11	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.13	0.15	145 (125 — 165)
K1	E/M/A	1.6	0.036	0.044	0.055	0.070	0.090	0.10	0.12	0.13	0.15	0.17	175 (150 — 200)
K2	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	155 (135 — 180)
K3	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	135 (115 — 150)
K4	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	125 (110 — 145)
K5	E/M/A	1.6	0.028	0.036	0.044	0.060	0.070	0.085	0.095	0.11	0.12	0.14	80 (65 — 90)
K6	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	110 (95 — 125)
K7	E/M/A	1.6	0.028	0.036	0.044	0.060	0.070	0.085	0.095	0.11	0.12	0.14	100 (85 — 115)

Cutting data – JHP993 Side milling $z_n=4,5,6$ $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z										v_c
			4	5	6	8	10	12	14	16	20	25	
P1	E/M/A	1.6	0.036	0.044	0.055	0.070	0.090	0.10	0.12	0.13	0.15	0.17	245 (210 — 280)
P2	E/M/A	1.6	0.036	0.044	0.055	0.070	0.090	0.11	0.12	0.13	0.15	0.17	240 (205 — 270)
P3	E/M/A	1.6	0.034	0.042	0.050	0.070	0.085	0.10	0.11	0.12	0.14	0.16	205 (180 — 235)
P4	E/M/A	1.6	0.034	0.042	0.050	0.065	0.085	0.10	0.11	0.12	0.14	0.16	185 (155 — 210)
P5	E/M/A	1.6	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.14	0.16	175 (150 — 200)
P6	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	200 (170 — 225)
P7	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	190 (160 — 215)
P8	E/M/A	1.6	0.034	0.042	0.050	0.070	0.085	0.10	0.11	0.12	0.14	0.16	175 (150 — 200)
P11	E/M/A	1.6	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.12	0.14	0.15	180 (155 — 210)
K1	E/M/A	1.6	0.036	0.044	0.055	0.070	0.090	0.11	0.12	0.13	0.15	0.17	220 (190 — 250)
K2	E/M/A	1.6	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.14	0.16	195 (170 — 225)
K3	E/M/A	1.6	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.14	0.16	165 (145 — 190)
K4	E/M/A	1.6	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.14	0.16	160 (135 — 180)
K5	E/M/A	1.6	0.030	0.036	0.044	0.060	0.075	0.085	0.10	0.11	0.12	0.14	95 (85 — 110)
K6	E/M/A	1.6	0.032	0.040	0.050	0.065	0.080	0.095	0.11	0.12	0.14	0.16	140 (120 — 160)
K7	E/M/A	1.6	0.030	0.036	0.044	0.060	0.075	0.085	0.10	0.11	0.12	0.14	125 (105 — 140)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

A close-up photograph of the tip of a metal drill bit, showing the double-flute design and the sharp cutting edges. The bit is oriented vertically against a plain white background.[illegible]

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EDP No.	Part No.	Length index	Tool shape	Dimensions in mm								z _n	Weldon
				D _c	dm _m	a _p	l ₂	l ₃	D _n	r _{c1}	c x 45°		
84708	JHP951030F2C.3Z3-SIRA	2	F	3	6	8	50	–	–	0	0.1	3	■
84746	JHP951030F2R020.3Z3-SIRA	2	F	3	6	8	50	–	–	0.2	–	3	□
84743	JHP951030F2R050.3Z3-SIRA	2	F	3	6	8	50	–	–	0.5	–	3	□
84711	JHP951040F2C.3Z4-SIRA	2	F	4	6	10	55	–	–	0	0.15	4	■
84735	JHP951040F2R020.3Z4-SIRA	2	F	4	6	10	55	–	–	0.2	–	4	□
84747	JHP951040F2R050.3Z4-SIRA	2	F	4	6	10	55	–	–	0.5	–	4	□
84703	JHP951050F2C.3Z4-SIRA	2	F	5	6	12	55	–	–	0	0.2	4	■
84738	JHP951050F2R020.3Z4-SIRA	2	F	5	6	12	55	–	–	0.2	–	4	□
84739	JHP951050F2R050.3Z4-SIRA	2	F	5	6	12	55	–	–	0.5	–	4	□
84719	JHP951060D2C.3Z4-SIRA	2	D	6	6	14	55	–	–	0	0.2	4	■
84744	JHP951060D2R020.3Z4-SIRA	2	D	6	6	14	55	–	–	0.2	–	4	□
84737	JHP951060D2R050.3Z4-SIRA	2	D	6	6	14	55	–	–	0.5	–	4	□
84714	JHP951080D2C.3Z4-SIRA	2	D	8	8	18	60	–	–	0	0.3	4	■
84740	JHP951080D2R020.3Z4-SIRA	2	D	8	8	18	60	–	–	0.2	–	4	□
84742	JHP951080D2R050.3Z4-SIRA	2	D	8	8	18	60	–	–	0.5	–	4	□
84745	JHP951080D2R100.3Z4-SIRA	2	D	8	8	18	60	–	–	1	–	4	□
84716	JHP951100E2C.3Z4-SIRA	2	E	10	10	22	70	28	9.4	0	0.3	4	■
84734	JHP951100E2R050.3Z4-SIRA	2	E	10	10	22	70	28	9.4	0.5	–	4	□
84736	JHP951100E2R100.3Z4-SIRA	2	E	10	10	22	70	28	9.4	1	–	4	□
84705	JHP951120E2C.3Z4-SIRA	2	E	12	12	26	80	33	11.4	0	0.4	4	■
84732	JHP951120E2R050.3Z4-SIRA	2	E	12	12	26	80	33	11.4	0.5	–	4	□
84741	JHP951120E2R100.3Z4-SIRA	2	E	12	12	26	80	33	11.4	1	–	4	□
04832	JHP951160E2C.3Z4-SIRA	2	E	16	16	34	90	40	15	0	0.5	4	■
04838	JHP951160E2R050.3Z4-SIRA	2	E	16	16	34	90	40	15	0.5	–	4	□
04847	JHP951160E2R100.3Z4-SIRA	2	E	16	16	34	90	40	15	1	–	4	□
04835	JHP951200E2R050.3Z4-SIRA	2	E	20	20	42	100	48	19	0.5	–	4	□
04836	JHP951200E2R100.3Z4-SIRA	2	E	20	20	42	100	48	19	1	–	4	□
84721	JHP951160E2C.3Z5-SIRA	2	E	16	16	34	90	40	15.4	0	0.5	5	■
84748	JHP951160E2R050.3Z5-SIRA	2	E	16	16	34	90	40	15.4	0.5	–	5	□
84733	JHP951160E2R100.3Z5-SIRA	2	E	16	16	34	90	40	15.4	1	–	5	□
84709	JHP951200E2R050.3Z5-SIRA	2	E	20	20	42	100	48	19.4	0.5	–	5	■
84722	JHP951200E2R100.3Z5-SIRA	2	E	20	20	42	100	48	19.4	1	–	5	■
84706	JHP951250E2R050.3Z5-SIRA	2	E	25	25	52	125	65	24.4	0.5	–	5	■
84691	JHP951250E2R100.3Z5-SIRA	2	E	25	25	52	125	65	24.4	1	–	5	■

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Cutting data – JHP951 Slotting

SMG		a_p / D_c	f_z											v_c
			3	4	6	8	10	12	14	16	18	20	25	
P1	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.20	160 (140 — 180)
P2	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.20	155 (135 — 175)
P3	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.20	165 (145 — 190)
P4	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.20	145 (125 — 170)
P5	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	140 (120 — 160)
P6	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	110 (95 — 130)
P7	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	105 (90 — 125)
P8	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.20	100 (85 — 115)
P11	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	105 (85 — 120)
K1	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.20	195 (170 — 225)
K2	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	170 (145 — 195)
K3	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	145 (125 — 165)
K4	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	135 (115 — 155)
K5	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.15	0.17	60 (48 — 70)
K6	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	0.19	85 (70 — 100)
K7	E/M/A	1.5	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.15	0.17	75 (60 — 85)

Cutting data – JHP951 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z											v_c
			3	4	6	8	10	12	14	16	18	20	25	
P1	E/M/A	1.7	0.034	0.044	0.065	0.090	0.11	0.13	0.15	0.16	0.17	0.19	0.22	185 (165 — 210)
P2	E/M/A	1.7	0.034	0.044	0.065	0.090	0.11	0.13	0.15	0.17	0.18	0.19	0.22	180 (160 — 205)
P3	E/M/A	1.7	0.032	0.042	0.065	0.085	0.11	0.13	0.14	0.16	0.17	0.18	0.20	195 (165 — 220)
P4	E/M/A	1.7	0.032	0.042	0.060	0.085	0.10	0.12	0.14	0.15	0.17	0.18	0.20	175 (150 — 200)
P5	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.20	165 (145 — 190)
P6	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.19	135 (110 — 155)
P7	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.19	125 (105 — 145)
P8	E/M/A	1.7	0.032	0.042	0.065	0.085	0.11	0.13	0.14	0.16	0.17	0.18	0.20	115 (95 — 135)
P11	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.19	120 (100 — 145)
K1	E/M/A	1.7	0.034	0.044	0.065	0.090	0.11	0.13	0.15	0.17	0.18	0.19	0.22	225 (195 — 260)
K2	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.20	200 (175 — 230)
K3	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.20	170 (145 — 195)
K4	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.20	165 (140 — 185)
K5	E/M/A	1.7	0.028	0.036	0.055	0.075	0.090	0.11	0.12	0.14	0.15	0.16	0.18	70 (60 — 85)
K6	E/M/A	1.7	0.030	0.040	0.060	0.080	0.10	0.12	0.14	0.15	0.16	0.17	0.20	100 (85 — 120)
K7	E/M/A	1.7	0.028	0.036	0.055	0.075	0.090	0.11	0.12	0.14	0.15	0.16	0.18	90 (75 — 105)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JH141 – Solid carbide end mill – corner radius – cylindrical



Tolerances:

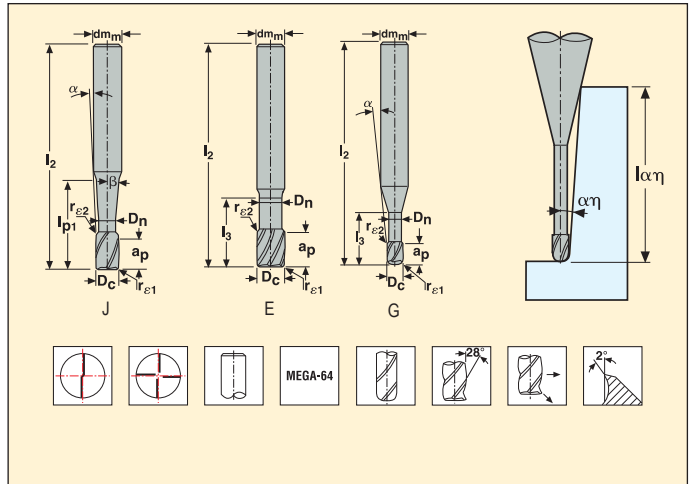
$dm_m = h5$

$D_c = \varnothing 2-6 = -0.005/-0.015 \text{ mm}$, $\varnothing 8-10 = -0.005/-0.02 \text{ mm}$,

$\varnothing 12-16 = -0.005/-0.025 \text{ mm}$

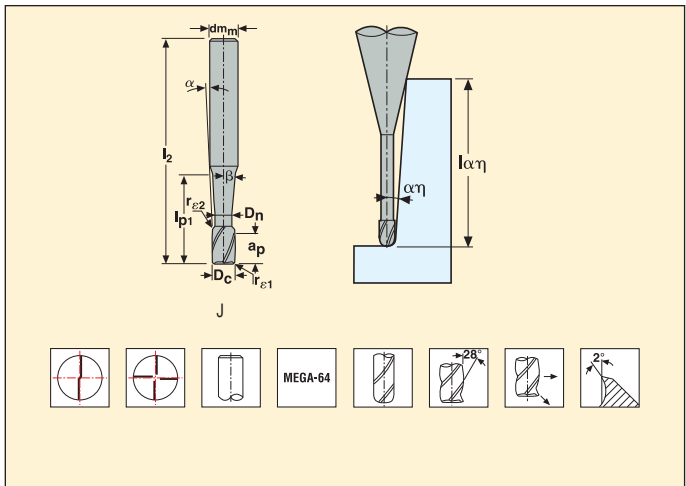
$r_{e1} = +0.01 \text{ mm}$

$\beta = 0.9$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm									α°	z_n	Max. cut depth rel. to $\alpha\eta$ ($l\alpha\eta$, ref)*					
				D_c	dm_m	a_p	l_2	l_3	l_{p1}	D_n	r_{e1}	r_{e2}			0°	0.5°	1°	1.5°	2°	3°
32945	141V020R030Z2-MEGA-64	2	G	2	4	2	40	4	4	1.9	0.3	2	7.5	2	4	4.6	4.7	4.9	5.1	5.5
32946	141V020R050Z2-MEGA-64	2	G	2	4	2	40	4	4	1.9	0.5	2	7.5	2	4	4.6	4.7	4.9	5	5.4
32951	141V030R050Z2-MEGA-64	2	G	3	4	3	40	6	6	2.8	0.5	2	4	2	6	7	7.2	7.4	7.7	8.3
32952	141V030R100Z2-MEGA-64	2	G	3	4	3	40	6	6	2.8	1	2	4	2	6	7	7.2	7.4	7.6	8.2
32957	141V040R030Z2-MEGA-64	2	G	4	6	4	50	8	8	3.7	0.3	2	5	2	8	9.4	9.7	10	10.4	11.2
32958	141V040R050Z2-MEGA-64	2	G	4	6	4	50	8	8	3.7	0.5	2	5	2	8	9.4	9.7	10	10.4	11.2
32959	141V040R100Z2-MEGA-64	2	G	4	6	4	50	8	8	3.7	1	2	5	2	8	9.4	9.7	10	10.3	11.1
39391	141V060R050Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	0.5	2	—	4	12	∞	∞	∞	∞	∞
32967	141V060R100Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	1	2	—	4	12	∞	∞	∞	∞	∞
32968	141V060R150Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	1.5	2	—	4	12	∞	∞	∞	∞	∞
32969	141V060R200Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	2	2	—	4	12	∞	∞	∞	∞	∞
39395	141V080R050Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	0.5	2	—	4	16	∞	∞	∞	∞	∞
32980	141V080R100Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	1	2	—	4	16	∞	∞	∞	∞	∞
32981	141V080R150Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	1.5	2	—	4	16	∞	∞	∞	∞	∞
32982	141V080R200Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	2	2	—	4	16	∞	∞	∞	∞	∞
32983	141V080R300Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	3	2	—	4	16	∞	∞	∞	∞	∞
39399	141V100R050Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	0.5	2	—	4	20	∞	∞	∞	∞	∞
32996	141V100R100Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	1	2	—	4	20	∞	∞	∞	∞	∞
32998	141V100R200Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	2	2	—	4	20	∞	∞	∞	∞	∞
32999	141V100R250Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	2.5	2	—	4	20	∞	∞	∞	∞	∞
33011	141V120R100Z4-MEGA-64	2	E	12	12	12	75	24	24	11.4	1	3	—	4	24	∞	∞	∞	∞	∞
33012	141V120R200Z4-MEGA-64	2	E	12	12	12	75	24	24	11.4	2	3	—	4	24	∞	∞	∞	∞	∞
33013	141V120R300Z4-MEGA-64	2	E	12	12	12	75	24	24	11.4	3	3	—	4	24	∞	∞	∞	∞	∞
33018	141V160R400Z4-MEGA-64	2	E	16	16	16	90	32	32	15.4	4	4	—	4	32	∞	∞	∞	∞	∞
32947	141VL020R030TNZ2-MEGA-64	3	J	2	6	2	50	—	10	1.9	0.3	2	7	2	5.6	10.3	10.7	11	11.4	12.3
32948	141VL020R050TNZ2-MEGA-64	3	J	2	6	2	50	—	10	1.9	0.5	2	7	2	5.6	10.3	10.6	11	11.4	12.3
32953	141VL030R050TNZ2-MEGA-64	3	J	3	6	3	60	—	15	2.8	0.5	2	4.5	2	9.9	15.5	16.1	16.6	17.2	18.6
32954	141VL030R100TNZ2-MEGA-64	3	J	3	6	3	60	—	15	2.8	1	2	4.5	2	9.9	15.5	16	16.6	17.2	18.5
32961	141VL040R030TNZ2-MEGA-64	3	J	4	6	4	60	—	20	3.7	0.3	2	2.5	2	14.3	20.8	21.5	22.3	23.1	∞
32962	141VL040R050TNZ2-MEGA-64	3	J	4	6	4	60	—	20	3.7	0.5	2	2.5	2	14.3	20.8	21.5	22.3	23.1	∞
32963	141VL040R100TNZ2-MEGA-64	3	J	4	6	4	60	—	20	3.7	1	2	3	2	14.3	20.8	21.5	22.2	23	∞
39392	141VL060R050TNZ4-MEGA-64	3	J	6	8	6	75	—	30	5.6	0.5	2	1.8	4	18.8	30.9	32	33	∞	∞
32970	141VL060R100TNZ4-MEGA-64	3	J	6	8	6	75	—	30	5.6	1	2	2	4	19.6	31.1	32.1	33.2	∞	∞
32971	141VL060R150TNZ4-MEGA-64	3	J	6	8	6	75	—	30	5.6	1.5	2	2	4	19.6	31.1	32.1	33.2	∞	∞
32972	141VL060R200TNZ4-MEGA-64	3	J	6	8	6	75	—	30	5.6	2	2	2	4	19.6	31	32	33.1	∞	∞
39396	141VL080R050TNZ4-MEGA-64	3	J	8	10	8	85	—	40	7.4	0.5	2	1.4	4	27.3	41.4	42.8	∞	∞	∞
32984	141VL080R100TNZ4-MEGA-64	3	J	8	10	8	85	—	40	7.4	1	2	1.5	4	41.6	43	∞	∞	∞	∞

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

 $\beta = 0.9$ 

EDP No.	Part No.	Length index	Tool shape	Dimensions in mm									α_1°	z_n	Max. cut depth rel. to α_1 (α_η , ref)*					
				D_c	dm_m	a_p	l_2	l_{p1}	D_n	r_{c1}	r_{c2}	0°			0.5°	1°	1.5°	2°	3°	
32985	141VL080R150TNZ4-MEGA-64	3	J	8	10	8	85	40	7.4	1.5	2	1.5	4	28.1	∞	∞	∞	∞	∞	∞
32986	141VL080R200TNZ4-MEGA-64	3	J	8	10	8	85	40	7.4	2	2	1.5	4	41.5	42.9	∞	∞	∞	∞	∞
39400	141VL100R050TNZ4-MEGA-64	3	J	10	12	10	100	50	9.4	0.5	2	1.1	4	29.1	51.6	53.2	∞	∞	∞	∞
33002	141VL100R100TNZ4-MEGA-64	3	J	10	12	10	100	50	9.4	1	2	1.5	4	30.1	51.7	53.4	∞	∞	∞	∞
33003	141VL100R200TNZ4-MEGA-64	3	J	10	12	10	100	50	9.4	2	2	1.5	4	30.1	51.6	53.3	∞	∞	∞	∞
32949	141VXL020R030TNZ2-MEGA-64	4	J	2	6	2	60	20	1.9	0.3	2	4.5	2	5.6	12.3	20.7	21.5	22.3	24	24
32950	141VXL020R050TNZ2-MEGA-64	4	J	2	6	2	60	20	1.9	0.5	2	4.5	2	5.6	12	20.7	21.4	22.2	24	24
32955	141VXL030R050TNZ2-MEGA-64	4	J	3	6	3	75	30	2.8	0.5	2	3	2	9.9	21.9	31.2	32.3	33.5	∞	∞
32956	141VXL030R100TNZ2-MEGA-64	4	J	3	6	3	75	30	2.8	1	2	3	2	9.9	21.2	31.1	32.2	33.4	∞	∞
32964	141VXL040R030TNZ2-MEGA-64	4	J	4	6	4	80	40	3.7	0.3	2	1.5	2	14.3	31.8	41.7	∞	∞	∞	∞
32965	141VXL040R050TNZ2-MEGA-64	4	J	4	6	4	80	40	3.7	0.5	2	1.5	2	14.3	31.6	41.6	∞	∞	∞	∞
32966	141VXL040R100TNZ2-MEGA-64	4	J	4	6	4	80	40	3.7	1	2	1.5	2	14.3	30.9	41.6	∞	∞	∞	∞
39393	141VXL060R050TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	0.5	2	1.0	4	18.8	41.6	∞	∞	∞	∞	∞
32973	141VXL060R100TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	1	2	1	4	19.6	42.9	62.3	∞	∞	∞	∞
32975	141VXL060R150TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	1.5	2	1	4	19.6	42.2	∞	∞	∞	∞	∞
32976	141VXL060R200TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	2	2	1	4	19.6	41.6	∞	∞	∞	∞	∞
39397	141VXL080R050TNZ4-MEGA-64	4	J	8	10	8	125	80	7.4	0.5	2	0.8	4	27.3	60.9	∞	∞	∞	∞	∞
32988	141VXL080R100TNZ4-MEGA-64	4	J	8	10	8	125	80	7.4	1	2	1	4	41.5	42.8	∞	∞	∞	∞	∞
39401	141VXL100R050TNZ4-MEGA-64	4	J	10	16	10	150	100	9.4	0.5	2	0.6	4	29.1	65	∞	∞	∞	∞	∞
33005	141VXL100R100TNZ4-MEGA-64	4	J	10	16	10	150	100	9.4	1	2	2	4	30.1	66.6	103.8	107.5	∞	∞	∞
39394	141VXXL060R050TNZ2-MEGA-64	5	J	6	10	6	130	90	5.6	0.5	2	1.3	2	18.8	41.6	92.1	∞	∞	∞	∞
39398	141VXXL080R050TNZ2-MEGA-64	5	J	8	12	8	165	120	7.4	0.5	2	1.0	2	27.3	60.9	∞	∞	∞	∞	∞
39402	141VXXL100R050TNZ2-MEGA-64	5	J	10	16	10	200	150	9.4	0.5	2	1.2	2	29.1	65	154	∞	∞	∞	∞

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Cutting data – JH141 Copy milling roughing $a_e/D_c = 0.05$

SMG		a_p / D_c	f_z								v_c
			2	3	4	6	8	10	12	16	
P1	M/E	0.050	0.018	0.028	0.036	0.055	0.075	0.090	0.11	0.13	510 (465 – 550)
P2	M/E	0.050	0.019	0.028	0.038	0.055	0.075	0.095	0.11	0.14	495 (450 – 530)
P3	M/E	0.050	0.018	0.026	0.036	0.055	0.070	0.090	0.10	0.13	425 (390 – 465)
P4	M/E	0.050	0.017	0.026	0.034	0.050	0.070	0.085	0.10	0.13	380 (345 – 410)
P5	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	360 (330 – 390)
P6	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	405 (370 – 440)
P7	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	385 (350 – 415)
P8	M/E	0.050	0.018	0.026	0.036	0.055	0.070	0.090	0.10	0.13	360 (330 – 390)
P11	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	370 (340 – 405)
K1	A/E	0.050	0.019	0.028	0.038	0.055	0.075	0.095	0.11	0.14	355 (325 – 385)
K2	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	315 (285 – 340)
K3	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	265 (245 – 285)
K4	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	255 (230 – 275)
K5	A/E	0.050	0.015	0.022	0.030	0.046	0.060	0.075	0.090	0.11	155 (140 – 165)
K6	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	225 (205 – 240)
K7	A/E	0.050	0.015	0.022	0.030	0.046	0.060	0.075	0.090	0.11	195 (180 – 210)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

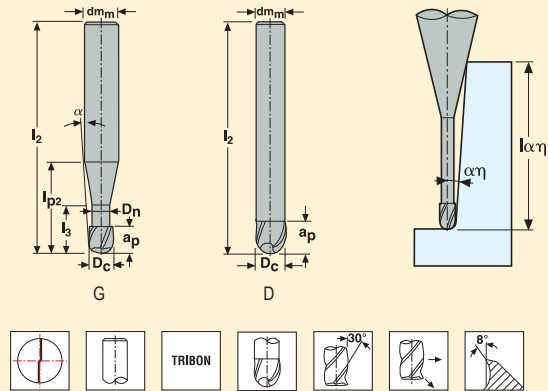
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

$dm_m = h5$
 $D_c = 0.02 / -0.04 \text{ mm}$
 $\text{Radius} = + / -0.01 \text{ mm}$



* The effective under -neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Cutting data – JH970 Copy milling rough $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z									v_c
			2	3	4	5	6	8	10	12	16	
P1	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	320 (280 — 365)
P2	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	315 (270 — 355)
P3	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	270 (235 — 305)
P4	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	240 (205 — 270)
P5	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	225 (195 — 255)
P6	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	255 (220 — 290)
P7	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	240 (210 — 275)
P8	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	225 (195 — 255)
P11	M	0.13	0.036	0.055	0.070	0.090	0.11	0.14	0.18	0.22	0.28	235 (205 — 265)
S11	E	0.22	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.19	140 (120 — 160)
S12	E	0.22	0.024	0.036	0.048	0.060	0.070	0.095	0.12	0.14	0.19	105 (90 — 120)
S13	E	0.22	0.022	0.034	0.046	0.055	0.070	0.090	0.11	0.13	0.17	85 (70 — 95)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JH111 – Solid carbide end mill – ball nose – cylindrical – two flute

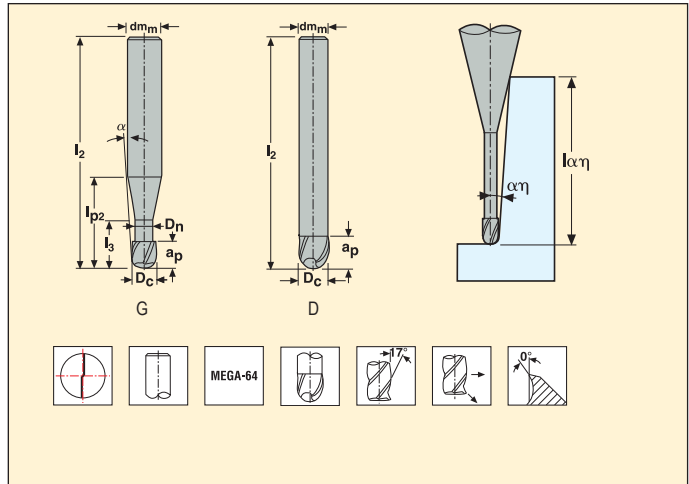


Tolerances:

$dm_m = h5$

$D_c = -0.02/-0.04$ mm

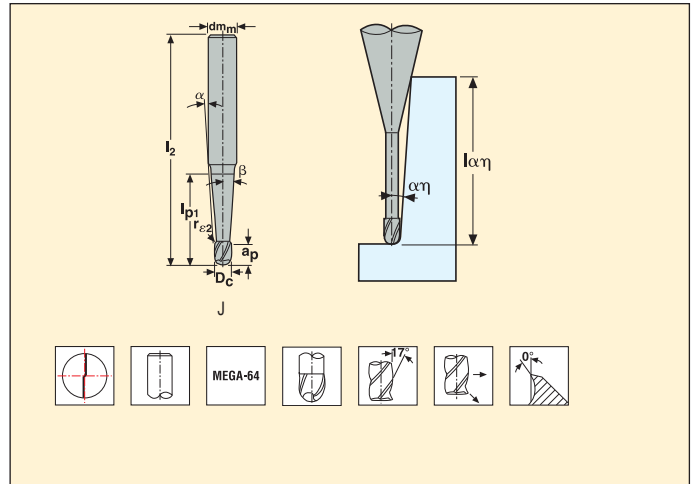
Radius = ± 0.01 mm



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm								α°	z_n	Max. cut depth rel. to α_η ($l_{a\eta}$, ref)*					
				D _c	dm _m	a _p	l ₂	l ₃	l _{p2}	D _n	0°			0.5°	1°	1.5°	2°	3°	
10331	111K020-MEGA-64	1	G	2	4	2	40	4	10	1.9	6.5	2	4	4.4	4.6	4.8	5	5.6	
10332	111K030-MEGA-64	1	G	3	4	3	40	6	9.9	2.9	3.5	2	6	6.6	7	7.5	8	9.3	
10333	111K040-MEGA-64	1	D	4	4	4	40	—	—	—	—	2	4	∞	∞	∞	∞	∞	
10334	111K050-MEGA-64	1	G	5	6	5	50	10	18	4.6	2	2	10	13.3	14.7	16.4	∞	∞	
10335	111K060-MEGA-64	1	D	6	6	6	50	—	—	—	—	2	6	∞	∞	∞	∞	∞	
10336	111K080-MEGA-64	1	D	8	8	8	65	—	—	—	—	2	∞	∞	∞	∞	∞	∞	
10337	111K100-MEGA-64	1	D	10	10	10	65	—	—	—	—	2	10	∞	∞	∞	∞	∞	
12509	111021-MEGA-64	2	G	2	3	2	50	10	12	1.9	3	2	10	10.4	10.8	11.1	11.5	12.4	
12510	111031-MEGA-64	2	D	3	3	3	50	—	—	—	—	2	3	∞	∞	∞	∞	∞	
12516	111041-MEGA-64	2	D	4	4	4	60	—	—	—	—	2	4	∞	∞	∞	∞	∞	
12517	111051-MEGA-64	2	D	5	5	5	60	—	—	—	—	2	5	∞	∞	∞	∞	∞	
12518	111061-MEGA-64	2	D	6	6	6	75	—	—	—	—	2	6	∞	∞	∞	∞	∞	
10320	111020-MEGA-64	3	G	2	6	2	60	4	16	1.9	8	2	4	4.4	4.6	4.8	5	5.6	
10321	111025-MEGA-64	3	G	2.5	6	2.5	60	5	15.2	2.4	7.5	2	5	5.4	5.7	5.9	6.2	7	
10322	111030-MEGA-64	3	G	3	6	3	60	6	18.1	2.8	5.5	2	6	7.1	7.5	8	8.6	10.2	
10323	111035-MEGA-64	3	G	3.5	6	3.5	65	7	23	3.2	3.5	2	7	9.4	10.4	11.6	13.3	19.1	
10324	111040-MEGA-64	3	G	4	6	4	65	8	21.1	3.7	3	2	8	10.5	11.6	13	14.8	21.3	
10325	111050-MEGA-64	3	G	5	6	5	65	10	18	4.6	2	2	10	13.3	14.7	16.4	∞	∞	
10326	111060-MEGA-64	3	G	6	8	6	75	12	25.7	5.6	3	2	12	15.5	17.1	19.1	21.8	∞	
10327	111080-MEGA-64	3	G	8	8	8	75	—	—	—	—	2	8	∞	∞	∞	∞	∞	
10328	111100-MEGA-64	3	D	10	10	10	80	—	—	—	—	2	10	∞	∞	∞	∞	∞	
10329	111120-MEGA-64	3	D	12	12	12	90	—	—	—	—	2	12	∞	∞	∞	∞	∞	
10330	111160-MEGA-64	3	D	16	16	16	100	—	—	—	—	2	16	∞	∞	∞	∞	∞	
10338	111L020-MEGA-64	4	G	2	6	2	80	4	15.6	1.9	8	2	4	4.4	4.6	4.8	5	5.6	
10339	111L030-MEGA-64	4	G	3	6	3	80	6	18.1	2.8	5.5	2	6	7.1	7.5	8	8.6	10.2	
10340	111L040-MEGA-64	4	G	4	6	4	80	8	21.1	3.7	3	2	8	10.5	11.6	13	14.8	21.3	
10341	111L050-MEGA-64	4	G	5	6	5	100	10	18	4.6	2	2	10	13.3	14.7	16.4	∞	∞	
10342	111L060-MEGA-64	4	G	6	8	6	100	12	25.7	5.6	3	2	12	15.5	17.1	19.1	21.8	∞	
10343	111L080-MEGA-64	4	D	8	8	8	110	—	—	—	—	2	8	∞	∞	∞	∞	∞	
10344	111L100-MEGA-64	4	G	10	10	10	125	—	—	—	—	2	10	∞	∞	∞	∞	∞	
10345	111L120-MEGA-64	4	D	12	12	12	125	—	—	—	—	2	12	∞	∞	∞	∞	∞	
10346	111L160-MEGA-64	4	G	16	16	16	150	—	—	—	—	2	16	∞	∞	∞	∞	∞	

* The effective under -neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

$dm_m = h5$
 $D_c = 0.02 / -0.04 \text{ mm}$
 $\text{Radius} = \pm 0.01 \text{ mm}$

[illegible]

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Cutting data – JH111 Copy milling roughing $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
K4	E	0.30	0.024	0.030	0.036	0.044	0.055	0.070	0.095	0.12	0.16	0.18	0.22	215 (175 — 260)
K5	E	0.30	0.020	0.026	0.034	0.040	0.048	0.065	0.085	0.11	0.14	0.17	0.20	130 (105 — 160)
K6	E	0.30	0.024	0.030	0.036	0.044	0.055	0.070	0.095	0.12	0.16	0.18	0.22	190 (150 — 230)
K7	E	0.30	0.020	0.026	0.034	0.040	0.048	0.065	0.085	0.11	0.14	0.17	0.20	170 (135 — 205)
H3	M	0.20	0.024	0.032	0.042	0.050	0.060	0.080	0.095	0.12	0.16	0.18	0.22	125 (100 — 145)
H7	M	0.17	0.026	0.034	0.044	0.055	0.060	0.080	0.095	0.12	0.16	0.18	0.22	125 (105 — 145)

Cutting data – JH111 Copy milling roughing $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
K1	E	0.30	0.020	0.026	0.032	0.038	0.046	0.060	0.080	0.11	0.13	0.16	0.20	295 (235 — 350)
K2	E	0.30	0.018	0.024	0.030	0.036	0.042	0.055	0.075	0.10	0.12	0.14	0.18	260 (205 — 310)
K3	E	0.30	0.018	0.024	0.030	0.036	0.042	0.055	0.075	0.10	0.12	0.14	0.18	220 (175 — 260)
H5	M	0.20	0.030	0.040	0.050	0.065	0.080	0.10	0.12	0.16	0.20	0.24	0.28	200 (165 — 235)
H8	M	0.20	0.036	0.048	0.060	0.075	0.090	0.11	0.14	0.18	0.22	0.26	0.34	195 (160 — 230)
H21	M	0.20	0.036	0.048	0.060	0.075	0.090	0.11	0.14	0.18	0.22	0.26	0.34	195 (160 — 230)
H31	M	0.20	0.030	0.040	0.050	0.065	0.080	0.10	0.12	0.16	0.20	0.24	0.28	150 (125 — 175)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

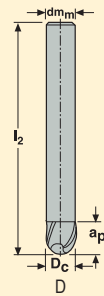
f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

Radius=+/-0.01 mm

[illegible]

Cutting data – JH150 Copy milling roughing $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
K5	A	0.15	0.090	0.12	0.15	0.17	120 (85 — 135)
K6	A	0.15	0.090	0.12	0.15	0.18	180 (125 — 200)
K7	A	0.15	0.090	0.12	0.15	0.17	155 (110 — 170)
H3	M	0.030	0.065	0.085	0.11	0.13	110 (95 — 125)
H5	M	0.060	0.090	0.12	0.15	0.18	210 (185 — 235)
H7	M	0.026	0.065	0.085	0.11	0.13	110 (95 — 120)
H8	M	0.060	0.090	0.12	0.15	0.18	210 (185 — 235)
H11	M	0.060	0.090	0.12	0.15	0.18	270 (235 — 300)
H12	M	0.060	0.090	0.12	0.15	0.18	435 (380 — 485)
H21	M	0.060	0.090	0.12	0.15	0.18	210 (185 — 235)
H31	M	0.060	0.090	0.12	0.15	0.18	160 (140 — 175)

Cutting data – JH150 Copy milling roughing $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
K1	A	0.15	0.080	0.11	0.13	0.16	240 (165 — 265)
K2	A	0.15	0.075	0.095	0.12	0.14	210 (145 — 230)
K3	A	0.15	0.075	0.095	0.12	0.14	175 (125 — 195)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

Cutting data – JH160 Copy milling finishing $a_p/D_c = 0.1$

SMG		a_p / D_c	f_z						v_c
			4	5	6	8	10	12	
P1	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	490 (405 — 570)
P2	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	475 (395 — 550)
P3	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	410 (340 — 475)
P4	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	360 (300 — 420)
P5	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	345 (285 — 400)
P6	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	385 (320 — 450)
P7	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	365 (305 — 425)
P8	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	345 (285 — 400)
P11	M/E/A	0.022	0.40	0.50	0.60	0.80	1.0	1.2	355 (295 — 415)
H3	M/E/A	0.0075	0.40	0.50	0.60	0.80	1.0	1.2	165 (110 — 220)
H5	M/E/A	0.015	0.40	0.50	0.60	0.80	1.0	1.2	305 (205 — 405)
H7	M/E/A	0.0075	0.40	0.50	0.60	0.80	1.0	1.2	165 (110 — 220)
H8	M/E/A	0.015	0.36	0.46	0.55	0.75	0.90	1.1	270 (215 — 325)
H21	M/E/A	0.015	0.36	0.46	0.55	0.75	0.90	1.1	270 (215 — 325)
H31	M/E/A	0.015	0.40	0.50	0.60	0.80	1.0	1.2	215 (160 — 265)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



Name		JHP750	JHP760	JHP770	JHP780	JCO710	JH720
Page		173-175	176-178	179-182	183-185	186-188	189-190
Family		HPM	HPM	HPM	HPM	Hss-Co	HSM/TORNADO
Type of mill							
Shank	Cylindrical	■	■	■	■		■
	Weldon	■	■	■	■	■	
Number of flutes		2-4	2-4	4-5	4	4-6	3
ICC			■	■			
Diameter range	Metric	2-25	4-25	6-25	6-25	16-50	2-16
	Inch						
Lengths available, based on length index		 1,2	 2,3	 2	 2	 2,4	 2,3,4
Operation							
SMG							
M1			•			•	•
M2			•			•	•
M3			•			•	•
M4			•			•	•
M5			•			•	•
S1		•			•		○
S2		•			•		○
S3		•			•		○
S11		•		•		•	•
S12		•		•		•	•
S13		•		•		•	•

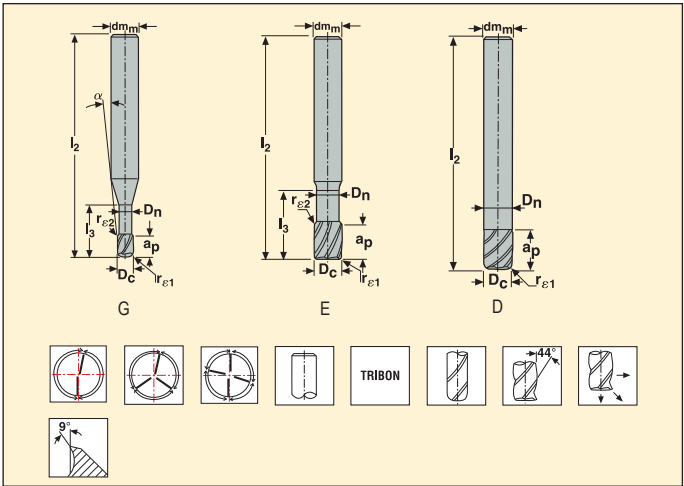
■ Stock standard □ Weldon available, delivery time is 3 days

• Preferred choice, ○ Alternative choice

JHP750 – Solid carbide end mill – corner radius, polished coating, cylindrical shank – unequal flute spacing



Tolerances:
 $dm_m=h5$
 $D_c=-0.02/-0.04\text{ mm}$
 $r_{\varepsilon1}=+/-0.02\text{ mm}$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm									α°	z_n	Cylindrical
				D _c	dm _m	a _p	l ₂	l ₃	D _n	r _{ε1}	r _{ε2}				
26423	750K080R040.0-TRIBON	1	D	8	8	16	55	–	–	0.4	–	–	4	■	
26425	750K100R040.0-TRIBON	1	D	10	10	20	65	–	–	0.4	–	–	4	■	
26427	750K100R150.0-TRIBON	1	D	10	10	20	65	–	–	1.5	–	–	4	■	
26430	750K120R040.0-TRIBON	1	D	12	12	24	75	–	–	0.4	–	–	4	■	
26432	750K120R150.0-TRIBON	1	D	12	12	24	75	–	–	1.5	–	–	4	■	
26434	750K160R040.0-TRIBON	1	D	16	16	32	90	–	–	0.4	–	–	4	■	
26436	750K160R310.0-TRIBON	1	D	16	16	32	90	–	–	3.1	–	–	4	■	
26438	750K160R400.0-TRIBON	1	D	16	16	32	90	–	–	4	–	–	4	■	
26440	750K160R150.0-TRIBON	1	D	16	16	32	90	–	–	1.5	–	–	4	■	
26442	750K200R080.0-TRIBON	1	D	20	20	40	100	–	–	0.8	–	–	4	■	
26444	750K200R310.0-TRIBON	1	D	20	20	40	100	–	–	3.1	–	–	4	■	
26446	750K200R400.0-TRIBON	1	D	20	20	40	100	–	–	4	–	–	4	■	
24360	750020R020.0-TRIBON	2	G	2	3	3	40	6	1.9	0.2	2	4	2	■	
24361	750030R020.0-TRIBON	2	E	3	3	4.5	40	9	2.8	0.2	2	–	2	■	
24362	750040R020.0-TRIBON	2	G	4	6	6	40	9	3.7	0.2	2	5	2	■	
24363	750050R030.0-TRIBON	2	G	5	6	7.5	40	9	4.6	0.3	2	3	2	■	
24364	750060R030.0-TRIBON	2	E	6	6	9	50	19	5.6	0.3	2	–	3	■	
24365	750080R040.0-TRIBON	2	E	8	8	16	60	24	7.4	0.4	2	–	4	■	
24366	750100R040.0-TRIBON	2	E	10	10	20	70	30	9.4	0.4	2	–	4	■	
24369	750100R080.0-TRIBON	2	E	10	10	20	70	30	9.4	0.8	2	–	4	■	
24371	750100R200.0-TRIBON	2	E	10	10	20	70	30	9.4	2	2	–	4	■	
24373	750120R040.0-TRIBON	2	E	12	12	24	80	35	11.4	0.4	3	–	4	■	
24376	750120R080.0-TRIBON	2	E	12	12	24	80	35	11.4	0.8	3	–	4	■	
24379	750120R200.0-TRIBON	2	E	12	12	24	80	35	11.4	2	3	–	4	■	
24381	750120R310.0-TRIBON	2	E	12	12	24	80	35	11.4	3.1	3	–	4	■	
24383	750140R080.0-TRIBON	2	E	14	14	28	90	45	13.4	0.8	4	–	4	■	
24385	750140R250.0-TRIBON	2	E	14	14	28	90	45	13.4	2.5	4	–	4	■	
24387	750160R040.0-TRIBON	2	E	16	16	32	100	52	15.4	0.4	4	–	4	■	
24389	750160R080.0-TRIBON	2	E	16	16	32	100	52	15.4	0.8	4	–	4	■	
24391	750160R200.0-TRIBON	2	E	16	16	32	100	52	15.4	2	4	–	4	■	
24393	750160R310.0-TRIBON	2	E	16	16	32	100	52	15.4	3.1	4	–	4	■	
24395	750160R400.0-TRIBON	2	E	16	16	32	100	52	15.4	4	4	–	4	■	
24397	750180R250.0-TRIBON	2	E	18	18	36	100	52	17.4	2.5	4	–	4	■	
24399	750200R080.0-TRIBON	2	E	20	20	40	125	75	19.4	0.8	4	–	4	■	
24401	750200R200.0-TRIBON	2	E	20	20	40	125	75	19.4	2	4	–	4	■	
24403	750200R310.0-TRIBON	2	E	20	20	40	125	75	19.4	3.1	4	–	4	■	
24405	750200R400.0-TRIBON	2	E	20	20	40	125	75	19.4	4	4	–	4	■	

■ Stock standard. Subject to change, refer to current price-and stock-list.

JHP750 – Solid carbide end mill – corner radius, polished coating, Weldon shank – unequal flute spacing

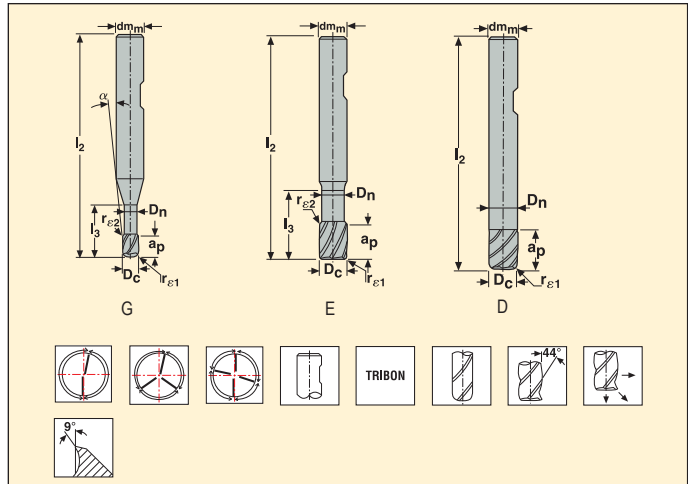


Tolerances:

$dm_m = h5$

$D_c = -0.02/-0.04 \text{ mm}$

$r_{\epsilon 1} = +/ -0.02 \text{ mm}$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm						z_n	Weldon
				D_c	dm_m	a_p	l_2	l_3	$r_{\epsilon 1}$		
26422	750K080R040-TRIBON	1	D	8	8	16	55	16	0.4	4	■
26424	750K100R040-TRIBON	1	D	10	10	20	65	20	0.4	4	■
26426	750K100R150-TRIBON	1	D	10	10	20	65	20	1.5	4	■
26428	750K120R040-TRIBON	1	D	12	12	24	75	24	0.4	4	■
26431	750K120R150-TRIBON	1	D	12	12	24	75	24	1.5	4	■
26433	750K160R040-TRIBON	1	D	16	16	32	90	32	0.4	4	■
26435	750K160R310-TRIBON	1	D	16	16	32	90	32	3.1	4	■
26437	750K160R400-TRIBON	1	D	16	16	32	90	32	4	4	■
26439	750K160R150-TRIBON	1	D	16	16	32	90	32	1.5	4	■
26441	750K200R080-TRIBON	1	D	20	20	40	100	40	0.8	4	■
26443	750K200R310-TRIBON	1	D	20	20	40	100	40	3.1	4	■
26445	750K200R400-TRIBON	1	D	20	20	40	100	40	4	4	■
37931	750K250R050-TRIBON	1	D	25	25	50	125	50	0.5	4	■
37932	750K250R100-TRIBON	1	D	25	25	50	125	50	1	4	■
37933	750K250R200-TRIBON	1	D	25	25	50	125	50	2	4	■
37934	750K250R400-TRIBON	1	D	25	25	50	125	50	4	4	■
26448	750080R040-TRIBON	2	E	8	8	16	60	16	0.4	4	■
24367	750100R040-TRIBON	2	E	10	10	20	70	20	0.4	4	■
24368	750100R080-TRIBON	2	E	10	10	20	70	20	0.8	4	■
24370	750100R200-TRIBON	2	E	10	10	20	70	20	2	4	■
24372	750120R040-TRIBON	2	E	12	12	24	80	24	0.4	4	■
24374	750120R080-TRIBON	2	E	12	12	24	80	24	0.8	4	■
24377	750120R200-TRIBON	2	E	12	12	24	80	24	2	4	■
24380	750120R310-TRIBON	2	E	12	12	24	80	24	3.1	4	■
24382	750140R080-TRIBON	2	E	14	14	28	90	28	0.8	4	■
24384	750140R250-TRIBON	2	E	14	14	28	90	28	2.5	4	■
24386	750160R040-TRIBON	2	E	16	16	32	100	32	0.4	4	■
24388	750160R080-TRIBON	2	E	16	16	32	100	32	0.8	4	■
24390	750160R200-TRIBON	2	E	16	16	32	100	32	2	4	■
24392	750160R310-TRIBON	2	E	16	16	32	100	32	3.1	4	■
24394	750160R400-TRIBON	2	E	16	16	32	100	32	4	4	■
24396	750180R250-TRIBON	2	E	18	18	36	100	36	2.5	4	■
24398	750200R080-TRIBON	2	E	20	20	40	125	40	0.8	4	■
24400	750200R200-TRIBON	2	E	20	20	40	125	40	2	4	■
24402	750200R310-TRIBON	2	E	20	20	40	125	40	3.1	4	■
24404	750200R400-TRIBON	2	E	20	20	40	125	40	4	4	■

Remark: if corner radius >15% of D_c then $a_p = -30\%$, $f_z = -20\%$

■ Stock standard. Subject to change, refer to current price-and stock-list.

Cutting data – JHP750 Slotting

SMG		a_p / D_c	f_z											v_c
			2	3	4	6	8	10	12	14	16	18	20	
S1	E/M/A	0.44	0.014	0.020	0.028	0.042	0.055	0.070	0.085	0.10	0.11	0.13	0.14	33 (22 — 43)
S2	E/M/A	0.44	0.014	0.020	0.028	0.042	0.055	0.070	0.085	0.10	0.11	0.13	0.14	33 (22 — 43)
S3	E/M/A	0.44	0.014	0.020	0.028	0.042	0.055	0.070	0.085	0.10	0.11	0.13	0.14	19 (16 — 21)
S11	E/M/A	0.70	0.012	0.018	0.024	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	95 (80 — 110)
S12	E/M/A	0.70	0.012	0.018	0.024	0.036	0.048	0.060	0.070	0.080	0.090	0.095	0.10	75 (65 — 85)
S13	E/M/A	0.60	0.011	0.016	0.022	0.032	0.042	0.055	0.060	0.070	0.075	0.085	0.090	60 (50 — 65)

Cutting data – JHP750 Side milling $a_e/D_c = 0.06$

SMG		a_p / D_c	f_z											v_c
			2	3	4	6	8	10	12	14	16	18	20	
S1	E/M/A	1.3	0.018	0.026	0.036	0.050	0.070	0.085	0.11	0.12	0.13	0.14	0.15	60 (39 — 80)
S2	E/M/A	1.3	0.018	0.026	0.036	0.050	0.070	0.085	0.11	0.12	0.13	0.14	0.15	60 (39 — 80)
S3	E/M/A	1.3	0.018	0.026	0.036	0.050	0.070	0.085	0.11	0.12	0.13	0.14	0.15	34 (28 — 38)
S11	E/M/A	1.3	0.016	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	170 (145 — 195)
S12	E/M/A	1.3	0.016	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	130 (110 — 150)
S13	E/M/A	1.3	0.016	0.024	0.032	0.048	0.065	0.080	0.095	0.11	0.13	0.14	0.16	100 (85 — 115)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

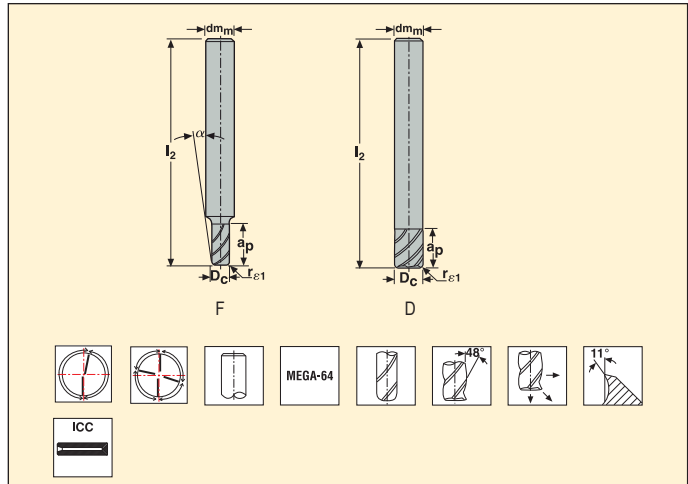
a_e (mm)/ D_c (mm) = factor

All cutting data are target values

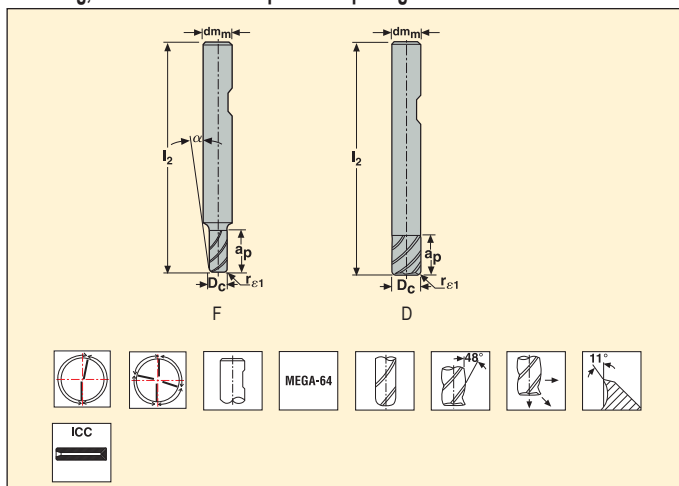
JHP760 – Solid carbide end mill – corner radius, polished coating, cylindrical shank – unequal flute spacing



Tolerances:
 $dm_m = h5$
 $D_c = -0.02 / -0.04 \text{ mm}$
 $r_{\varepsilon 1} = \pm 0.03 \text{ mm}$

[illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.
ICC= Internal Coolant Channel

 $r_{s1} = \pm 0.03 \text{ mm}$ 

EDP No.	Part No.	Length index	Tool shape	ICC	Dimensions in mm					z _n	Weldon
					D _c	dm _m	a _p	l ₂	r _{ε1}		
64251	760040R020Z2.0A-MEGA-64W	2	F	■	4	6	8	50	0.2	2	□
68989	760040R040Z2.0A-MEGA-64W	2	F	■	4	6	8	50	0.4	2	□
64252	760050R020Z2.0A-MEGA-64W	2	F	■	5	6	10	50	0.2	2	□
68990	760050R040Z2.0A-MEGA-64W	2	F	■	5	6	10	50	0.4	2	□
64253	760060R020Z4.0A-MEGA-64W	2	D	■	6	6	12	50	0.2	4	□
68991	760060R040Z4.0A-MEGA-64W	2	D	■	6	6	12	50	0.4	4	□
68992	760080R040Z4.0A-MEGA-64W	2	D	■	8	8	16	55	0.4	4	□
68993	760080R100Z4.0A-MEGA-64W	2	D	■	8	8	16	55	1	4	□
40047	760100R040Z4A-MEGA-64	2	D	■	10	10	20	65	0.4	4	■
40051	760100R100Z4A-MEGA-64	2	D	■	10	10	20	65	1	4	■
40054	760100R150Z4A-MEGA-64	2	D	■	10	10	20	65	1.5	4	■
40058	760100R200Z4A-MEGA-64	2	D	■	10	10	20	65	2	4	■
40407	760120R040Z4A-MEGA-64	2	D	■	12	12	24	75	0.4	4	■
40411	760120R100Z4A-MEGA-64	2	D	■	12	12	24	75	1	4	■
40414	760120R150Z4A-MEGA-64	2	D	■	12	12	24	75	1.5	4	■
40417	760120R200Z4A-MEGA-64	2	D	■	12	12	24	75	2	4	■
40422	760120R400Z4A-MEGA-64	2	D	■	12	12	24	75	4	4	■
40429	760160R040Z4A-MEGA-64	2	D	■	16	16	40	90	0.4	4	■
40433	760160R100Z4A-MEGA-64	2	D	■	16	16	40	90	1	4	■
40439	760160R150Z4A-MEGA-64	2	D	■	16	16	40	90	1.5	4	■
40450	760160R200Z4A-MEGA-64	2	D	■	16	16	40	90	2	4	■
64245	760200R040Z4A-MEGA-64	2	D	■	20	20	45	100	0.4	4	■
40459	760200R080Z4A-MEGA-64	2	D	■	20	20	45	100	0.8	4	■
64247	760250R050Z4A-MEGA-64	2	D	■	25	25	45	110	0.5	4	■
64249	760250R100Z4A-MEGA-64	2	D	■	25	25	45	110	1	4	■
62387	760L080R040Z4.0A-MEGA-64W	3	D	■	8	8	28	65	0.4	4	□
68994	760L100R040Z4.0A-MEGA-64W	3	D	■	10	10	36	75	0.4	4	□
68995	760L100R100Z4.0A-MEGA-64W	3	D	■	10	10	36	75	1	4	□
68996	760L100R150Z4.0A-MEGA-64W	3	D	■	10	10	36	75	1.5	4	□
68997	760L100R200Z4.0A-MEGA-64W	3	D	■	10	10	36	75	2	4	□
68999	760L120R040Z4.0A-MEGA-64W	3	D	■	12	12	42	90	0.4	4	□
69000	760L120R100Z4.0A-MEGA-64W	3	D	■	12	12	42	90	1	4	□
69001	760L120R150Z4.0A-MEGA-64W	3	D	■	12	12	42	90	1.5	4	□
69002	760L120R200Z4.0A-MEGA-64W	3	D	■	12	12	42	90	2	4	□
69005	760L160R040Z4.0A-MEGA-64W	3	D	■	16	16	50	100	0.4	4	□
69006	760L160R100Z4.0A-MEGA-64W	3	D	■	16	16	50	100	1	4	□
69007	760L160R150Z4.0A-MEGA-64W	3	D	■	16	16	50	100	1.5	4	□
69008	760L160R200Z4.0A-MEGA-64W	3	D	■	16	16	50	100	2	4	□

ICC= Internal Coolant Channel

Cutting data – JHP760 Slotting

SMG		a_p / D_c	f_z								v_c
			4	5	6	8	10	12	16	20	
M1	E	1.0	0.018	0.022	0.026	0.036	0.044	0.050	0.065	0.075	105 (90 — 125)
M2	E	1.0	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	90 (75 — 105)
M3	E	0.80	0.013	0.016	0.019	0.026	0.032	0.038	0.048	0.055	70 (60 — 85)
M4	E	0.60	0.011	0.014	0.017	0.022	0.028	0.034	0.042	0.048	55 (45 — 65)
M5	E	0.60	0.011	0.014	0.017	0.022	0.028	0.034	0.042	0.048	45 (37 — 55)

Cutting data – JHP760 Side milling $a_e/D_c = 0.06$

SMG		a_p / D_c	f_z									v_c
			4	5	6	8	10	12	16	20	25	
M1	E	1.5	0.019	0.024	0.028	0.038	0.048	0.055	0.070	0.080	0.090	140 (115 — 165)
M2	E	1.5	0.017	0.022	0.026	0.034	0.044	0.050	0.065	0.075	0.085	115 (95 — 135)
M3	E	1.2	0.014	0.017	0.020	0.028	0.034	0.042	0.050	0.060	0.065	90 (75 — 105)
M4	E	0.90	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	0.060	70 (60 — 80)
M5	E	0.90	0.012	0.015	0.018	0.024	0.030	0.036	0.044	0.050	0.060	60 (48 — 70)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

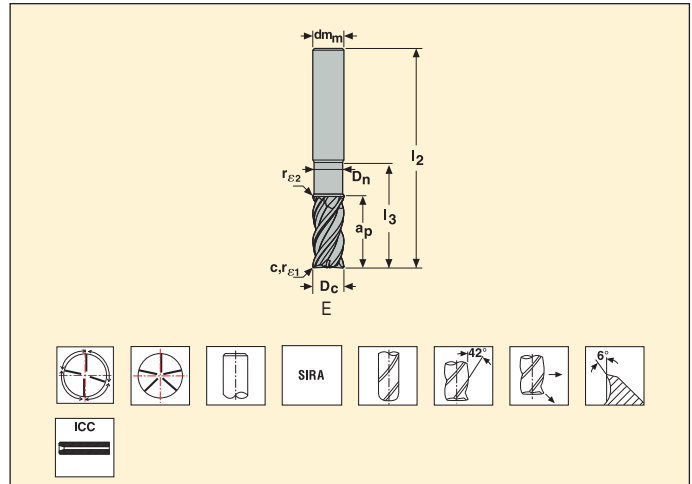
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JHP770 – Solid carbide end mill – corner radius – polished coating, cylindrical shank – unequal flute spacing



Tolerances:
 $dm_m = h5$
 $D_c = e7$
 $r_{\varepsilon 1} = \pm 0.02 \text{ mm}$



EDP No.	Part No.	Length index	Tool shape	ICC	Dimensions in mm								z_n	Cylindrical
					D_c	dm_m	a_p	l_2	l_3	D_n	$r_{\varepsilon 1}$	$r_{\varepsilon 2}$		
67255	JHP770060E2R030.0Z4A-SIRA	2	E	■	6	6	12	60	18	5.6	0.3	2	4	■
84898	JHP770080E2R050.0Z4A-SIRA	2	E	■	8	8	16	65	24	7.4	0.5	2	4	■
84899	JHP770100E2R050.0Z4A-SIRA	2	E	■	10	10	20	75	30	9.4	0.5	2	4	■
84900	JHP770100E2R100.0Z4A-SIRA	2	E	■	10	10	20	75	30	9.4	1	2	4	■
84901	JHP770120E2R050.0Z4A-SIRA	2	E	■	12	12	24	90	36	11.4	0.5	2	4	■
84902	JHP770120E2R100.0Z4A-SIRA	2	E	■	12	12	24	90	36	11.4	1	2	4	■
67262	JHP770120E2R250.0Z4A-SIRA	2	E	■	12	12	24	90	36	11.4	2.5	2	4	■
84903	JHP770140E2R050.0Z4A-SIRA	2	E	■	14	14	28	95	42	13.4	0.5	2	4	■
84904	JHP770160E2R050.0Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	0.5	2	4	■
84905	JHP770160E2R100.0Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	1	2	4	■
67266	JHP770160E2R250.0Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	2.5	2	4	■
67267	JHP770160E2R310.0Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	3.1	2	4	■
67268	JHP770160E2R400.0Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	4	2	4	■
84906	JHP770200E2R050.0Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	0.5	2	4	■
84907	JHP770200E2R100.0Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	1	2	4	■
67271	JHP770200E2R250.0Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	2.5	2	4	■
67272	JHP770200E2R310.0Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	3.1	2	4	■
67273	JHP770200E2R400.0Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	4	2	4	■
84908	JHP770250E2R050.0Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	0.5	2	4	■
84909	JHP770250E2R100.0Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	1	2	4	■
67276	JHP770250E2R310.0Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	3.1	2	4	■
67277	JHP770250E2R400.0Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	4	2	4	■
00757	JHP770160E2R050.0Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	0.5	2	5	■
00758	JHP770160E2R100.0Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	1	2	5	■
00761	JHP770160E2R250.0Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	2.5	2	5	■
00810	JHP770160E2R310.0Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	3.1	2	5	■
10479	JHP770160E2R400.0Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	4	2	5	■
10480	JHP770200E2R050.0Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	0.5	2	5	■
10481	JHP770200E2R100.0Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	1	2	5	■
10494	JHP770200E2R250.0Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	2.5	2	5	■
10496	JHP770200E2R310.0Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	3.1	2	5	■
10498	JHP770200E2R400.0Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	4	2	5	■
10499	JHP770250E2R050.0Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	0.5	2	5	■
10500	JHP770250E2R100.0Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	1	2	5	■
10501	JHP770250E2R310.0Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	3.1	2	5	■
10502	JHP770250E2R400.0Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	4	2	5	■

Remark: if corner radius > 15% of D_c then $a_p = -30\%$, $f_z = -20\%$

■ Stock standard. Subject to change, refer to current price-and stock-list.

ICC = Internal Coolant Channel

JHP770 – Solid carbide end mill – corner radius – polished coating, Weldon shank – unequal flute spacing

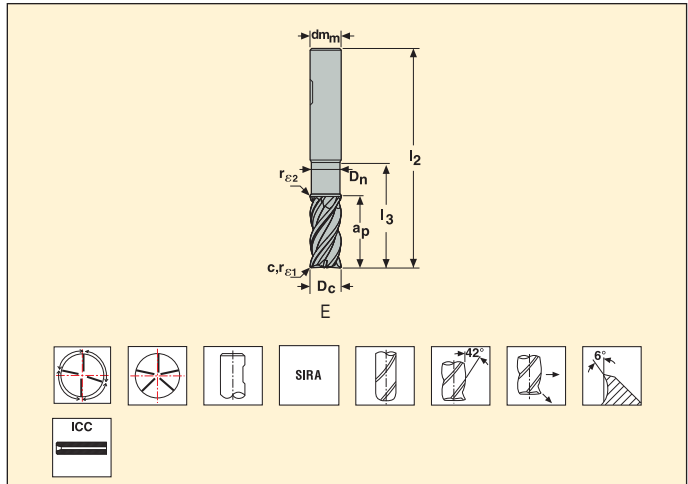


Tolerances:

$dm_m = h5$

$D_c = e7$

$r_{e1} = \pm 0.02 \text{ mm}$



EDP No.	Part No.	Length index	Tool shape	ICC	Dimensions in mm								z _n	Weldon
					D _c	dm _m	a _p	l ₂	l ₃	D _n	r _{e1}	r _{e2}		
67280	JHP770060E2R030.3Z4A-SIRA	2	E	■	6	6	12	60	18	5.6	0.3	2	4	■
84910	JHP770080E2R050.3Z4A-SIRA	2	E	■	8	8	16	65	24	7.4	0.5	2	4	■
84911	JHP770100E2R050.3Z4A-SIRA	2	E	■	10	10	20	75	30	9.4	0.5	2	4	■
84912	JHP770100E2R100.3Z4A-SIRA	2	E	■	10	10	20	75	30	9.4	1	2	4	■
84913	JHP770120E2R050.3Z4A-SIRA	2	E	■	12	12	24	90	36	11.4	0.5	2	4	■
84914	JHP770120E2R100.3Z4A-SIRA	2	E	■	12	12	24	90	36	11.4	1	2	4	■
67286	JHP770120E2R250.3Z4A-SIRA	2	E	■	12	12	24	90	36	11.4	2.5	2	4	■
84916	JHP770140E2R050.3Z4A-SIRA	2	E	■	14	14	28	95	42	13.4	0.5	2	4	■
84918	JHP770160E2R050.3Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	0.5	2	4	■
84920	JHP770160E2R100.3Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	1	2	4	■
67289	JHP770160E2R250.3Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	2.5	2	4	■
67290	JHP770160E2R310.3Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	3.1	2	4	■
67291	JHP770160E2R400.3Z4A-SIRA	2	E	■	16	16	32	100	45	15.4	4	2	4	■
84921	JHP770200E2R050.3Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	0.5	2	4	■
84922	JHP770200E2R100.3Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	1	2	4	■
67294	JHP770200E2R250.3Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	2.5	2	4	■
67296	JHP770200E2R310.3Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	3.1	2	4	■
67297	JHP770200E2R400.3Z4A-SIRA	2	E	■	20	20	40	115	55	19.4	4	2	4	■
84923	JHP770250E2R050.3Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	0.5	2	4	■
84924	JHP770250E2R100.3Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	1	2	4	■
67300	JHP770250E2R310.3Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	3.1	2	4	■
67303	JHP770250E2R400.3Z4A-SIRA	2	E	■	25	25	50	130	65	24.4	4	2	4	■
10503	JHP770160E2R050.3Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	0.5	2	5	■
10504	JHP770160E2R100.3Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	1	2	5	■
10505	JHP770160E2R250.3Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	2.5	2	5	■
10506	JHP770160E2R310.3Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	3.1	2	5	■
10507	JHP770160E2R400.3Z5A-SIRA	2	E	■	16	16	32	100	45	15.4	4	2	5	■
10508	JHP770200E2R050.3Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	0.5	2	5	■
10517	JHP770200E2R100.3Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	1	2	5	■
10520	JHP770200E2R250.3Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	2.5	2	5	■
10521	JHP770200E2R310.3Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	3.1	2	5	■
10525	JHP770200E2R400.3Z5A-SIRA	2	E	■	20	20	40	115	55	19.4	4	2	5	■
10538	JHP770250E2R050.3Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	0.5	2	5	■
10545	JHP770250E2R100.3Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	1	2	5	■
10548	JHP770250E2R310.3Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	3.1	2	5	■
10550	JHP770250E2R400.3Z5A-SIRA	2	E	■	25	25	50	130	65	24.4	4	2	5	■

Remark: if corner radius > 15% of D_c then a_p = -30%, f_z = -20%

■ Stock standard. Subject to change, refer to current price-and stock-list.

ICC = Internal Coolant Channel

Technical drawing of a double-flute drill bit (SIRA) showing dimensions and cross-sections.

Main View (Top): A side view of the drill bit. The cutting edge is labeled d_{m1} . The length of the cutting edge is l_2 . The length of the cutting edge is l_3 . The length of the cutting edge is a_p . The length of the cutting edge is $r_{\pm 1}$. The length of the cutting edge is D_{m1} .

Section E (Bottom): A cross-section of the drill bit. The cutting edge is labeled d_{m1} . The cutting edge is labeled 42° . The cutting edge is labeled 6° .

Other Views: Two circular cross-sections showing the cutting edge. The cutting edge is labeled d_{m1} . The cutting edge is labeled 42° . The cutting edge is labeled 6° .

Legend: The legend shows the cutting edge labeled **ICC**.

EDP No.	Part No.	Length index	Tool shape	Dimensions in mm									z _n	Safe lock
				D _c	dm _m	a _p	l ₂	l ₃	D _n	r _{e1}	r _{e2}			
05039	JHP770120E2R050.9Z4A-SIRA	2	E	12	12	24	90	36	11	0.5	2	4	☐	
05098	JHP770120E2R100.9Z4A-SIRA	2	E	12	12	24	90	36	11	1	2	4	☐	
05099	JHP770120E2R250.9Z4A-SIRA	2	E	12	12	24	90	36	11	2.5	2	4	☐	
05106	JHP770140E2R050.9Z4A-SIRA	2	E	14	14	28	95	42	13	0.5	2	4	☐	
05109	JHP770160E2R100.9Z4A-SIRA	2	E	16	16	32	100	45	15	1	2	4	☐	
05139	JHP770160E2R250.9Z4A-SIRA	2	E	16	16	32	100	45	15	2.5	2	4	☐	
05165	JHP770160E2R310.9Z4A-SIRA	2	E	16	16	32	100	45	15	3.1	2	4	☐	
05201	JHP770160E2R400.9Z4A-SIRA	2	E	16	16	32	100	45	15	4	2	4	☐	
05236	JHP770200E2R050.9Z4A-SIRA	2	E	20	20	40	115	55	19	0.5	2	4	☐	
05254	JHP770200E2R100.9Z4A-SIRA	2	E	20	20	40	115	55	19	1	2	4	☐	
05260	JHP770200E2R250.9Z4A-SIRA	2	E	20	20	40	115	55	19	2.5	2	4	☐	
05283	JHP770200E2R310.9Z4A-SIRA	2	E	20	20	40	115	55	19	3.1	2	4	☐	
05285	JHP770200E2R400.9Z4A-SIRA	2	E	20	20	40	115	55	19	4	2	4	☐	
05322	JHP770250E2R050.9Z4A-SIRA	2	E	25	25	50	130	65	24	0.5	2	4	☐	
05331	JHP770250E2R100.9Z4A-SIRA	2	E	25	25	50	130	65	24	1	2	4	☐	
05357	JHP770250E2R310.9Z4A-SIRA	2	E	25	25	50	130	65	24	3.1	2	4	☐	
05382	JHP770250E2R400.9Z4A-SIRA	2	E	25	25	50	130	65	24	4	2	4	☐	
05423	JHP770160E2R050.9Z4A-SIRA	2	E	16	16	32	100	45	15	0.5	2	4	☐	
05104	JHP770160E2R050.9Z5A-SIRA	2	E	16	16	32	100	45	15	0.5	2	5	☐	
05115	JHP770160E2R100.9Z5A-SIRA	2	E	16	16	32	100	45	15	1	2	5	☐	
05158	JHP770160E2R250.9Z5A-SIRA	2	E	16	16	32	100	45	15	2.5	2	5	☐	
05166	JHP770160E2R310.9Z5A-SIRA	2	E	16	16	32	100	45	15	3.1	2	5	☐	
05204	JHP770160E2R400.9Z5A-SIRA	2	E	16	16	32	100	45	15	4	2	5	☐	
05252	JHP770200E2R050.9Z5A-SIRA	2	E	20	20	40	115	55	19	0.5	2	5	☐	
05257	JHP770200E2R100.9Z5A-SIRA	2	E	20	20	40	115	55	19	1	2	5	☐	
05263	JHP770200E2R250.9Z5A-SIRA	2	E	20	20	40	115	55	19	2.5	2	5	☐	
05284	JHP770200E2R310.9Z5A-SIRA	2	E	20	20	40	115	55	19	3.1	2	5	☐	
05288	JHP770200E2R400.9Z5A-SIRA	2	E	20	20	40	115	55	19	4	2	5	☐	
05323	JHP770250E2R050.9Z5A-SIRA	2	E	25	25	50	130	65	24	0.5	2	5	☐	
05333	JHP770250E2R100.9Z5A-SIRA	2	E	25	25	50	130	65	24	1	2	5	☐	
05348	JHP770250E2R310.9Z5A-SIRA	2	E	25	25	50	130	65	24	3.1	2	5	☐	
05402	JHP770250E2R400.9Z5A-SIRA	2	E	25	25	50	130	65	24	4	2	5	☐	

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Cutting data – JHP770 Slotting

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	14	16	20	25	
S11	E	1.0	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	110 (95 — 120)
S12	E	1.0	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	85 (75 — 95)
S13	E	0.85	0.026	0.036	0.044	0.050	0.060	0.065	0.075	0.085	65 (60 — 75)

Cutting data – JHP770 Slotting $z_n 5$

SMG		a_p / D_c	f_z			v_c
			16	20	25	
S11	E	1.0	0.075	0.085	0.095	100 (85 — 110)
S12	E	1.0	0.075	0.085	0.095	75 (65 — 85)
S13	E	0.85	0.065	0.075	0.085	60 (55 — 70)

Cutting data – JHP770 Slotting $z_n 5$ Internal coolant

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	14	16	20	25	
S11	E	1.6	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	100 (85 — 110)
S12	E	1.6	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	75 (65 — 85)
S13	E	1.4	0.026	0.036	0.044	0.050	0.060	0.065	0.075	0.085	60 (55 — 70)

Cutting data – JHP770 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	14	16	20	25	
S11	E	1.8	0.030	0.040	0.050	0.060	0.070	0.075	0.085	0.10	135 (115 — 150)
S12	E	1.8	0.030	0.040	0.050	0.060	0.070	0.075	0.085	0.10	100 (90 — 115)
S13	E	1.8	0.026	0.036	0.044	0.055	0.060	0.065	0.075	0.085	80 (70 — 90)

Cutting data – JHP770 Side milling roughing $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z			v_c
			16	20	25	
S11	E	1.8	0.075	0.085	0.10	120 (105 — 135)
S12	E	1.8	0.075	0.085	0.10	95 (80 — 105)
S13	E	1.8	0.065	0.075	0.085	75 (65 — 85)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

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[illegible]

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Cutting data – JHP780 Slotting

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	14	16	20	25	
S1	E	0.80	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055	38 (35 — 42)
S2	E	0.80	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055	31 (28 — 34)
S3	E	0.60	0.018	0.024	0.030	0.036	0.040	0.044	0.050	0.055	25 (28 — 22)

Cutting data – JHP780 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z								v_c
			6	8	10	12	14	16	20	25	
S1	E	1.0	0.020	0.026	0.032	0.038	0.044	0.048	0.055	0.065	50 (46 — 55)
S2	E	1.0	0.020	0.026	0.032	0.038	0.044	0.048	0.055	0.065	41 (37 — 45)
S3	E	0.80	0.020	0.026	0.032	0.038	0.044	0.048	0.055	0.065	32 (36 — 28)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Technical drawing of a drill bit with the following dimensions and features:

- $d_{m,m}$: Maximum drill diameter
- l_2 : Length of the drill body
- a_p : Cutting edge length
- $r_{\phi 1}$: Fillet radius at the cutting edge
- D_c : Drill diameter at the cutting edge
- D : Drill diameter

Below the drawing are eight icons in a row, each representing a different drill bit design or feature:

- Icon 1: A circle with a crosshair, representing a standard double-flute drill bit.
- Icon 2: A circle with a crosshair and a shaded area, representing a drill bit with a specific cutting edge design.
- Icon 3: A rectangle with a crosshair, representing a drill bit with a specific cutting edge design.
- Icon 4: A rectangle with a crosshair and a shaded area, representing a drill bit with a specific cutting edge design.
- Icon 5: A rectangle with a crosshair and a shaded area, representing a drill bit with a specific cutting edge design.
- Icon 6: A rectangle with a crosshair and a shaded area, representing a drill bit with a specific cutting edge design.
- Icon 7: A rectangle with a crosshair and a shaded area, representing a drill bit with a specific cutting edge design.
- Icon 8: A rectangle with a crosshair and a shaded area, representing a drill bit with a specific cutting edge design.

Below the icons is a box containing the text:

HSS-Co

[illegible]

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Technical drawing of a drill bit with the following dimensions and features:

- d_{mm} : Drill bit diameter
- l_2 : Length of the drill bit
- a_p : Cutting edge angle
- $r_{\phi 1}$: Fillet radius
- D_c : Drill bit diameter at the cutting edge
- D : Drill bit diameter

Below the main drawing, a row of seven boxes shows different cutting edge profiles:

- Standard double-flute drill bit profile.
- Double-flute drill bit profile with a 12° cutting edge angle.
- Double-flute drill bit profile with a 35° cutting edge angle.
- Double-flute drill bit profile with a 35° cutting edge angle and a 35° cutting edge angle.
- Double-flute drill bit profile with a 35° cutting edge angle and a 35° cutting edge angle.
- Double-flute drill bit profile with a 35° cutting edge angle and a 35° cutting edge angle.
- Double-flute drill bit profile with a 35° cutting edge angle and a 35° cutting edge angle.

The material is specified as **HSS-Co**.

[illegible]

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Cutting data – JC710 Slotting (for $z_n=4$ only)

SMG		a_p / D_c	f_z						v_c
			16	20	25	32	40	50	
M1	E	1.0	0.065	0.080	0.10	0.13	0.16	0.19	18 (12 — 24)
M2	E	1.0	0.065	0.080	0.10	0.12	0.15	0.17	14 (10 — 19)
M3	E	0.50	0.048	0.060	0.075	0.090	0.11	0.12	12 (8 — 16)
M4	E	0.50	0.048	0.060	0.075	0.090	0.11	0.12	9 (6 — 12)
M5	E	0.50	0.048	0.060	0.075	0.090	0.11	0.12	7 (5 — 10)
S11	E	0.75	0.048	0.060	0.075	0.095	0.11	0.13	10 (8 — 15)
S12	E	0.75	0.048	0.060	0.075	0.095	0.11	0.13	8 (6 — 12)
S13	E	0.65	0.042	0.050	0.065	0.080	0.095	0.11	6 (5 — 10)

Cutting data – JC710 Side milling $a_e/D_c = 0.5$ for length index 2

SMG		a_p / D_c	f_z						v_c
			16	20	25	32	40	50	
M1	E	1.0	0.065	0.080	0.10	0.13	0.16	0.19	21 (14 — 28)
M2	E	1.0	0.065	0.080	0.10	0.12	0.15	0.17	17 (11 — 23)
S11	E	0.75	0.048	0.060	0.075	0.095	0.11	0.13	12 (9 — 18)
S12	E	0.75	0.048	0.060	0.075	0.095	0.11	0.13	9 (7 — 14)
S13	E	0.65	0.042	0.050	0.065	0.080	0.095	0.11	8 (6 — 11)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

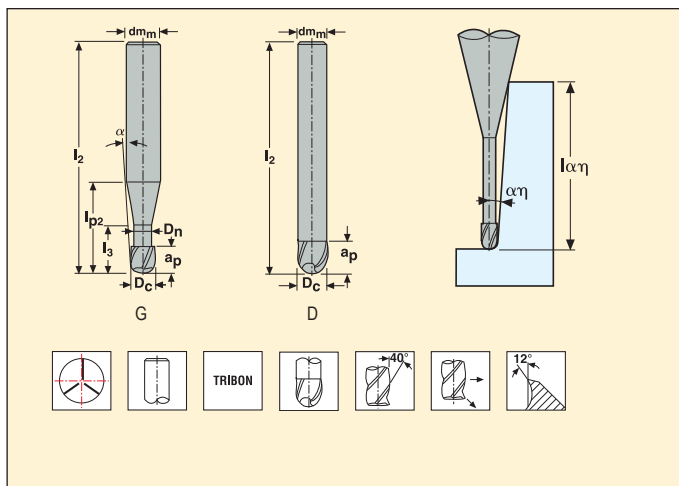
a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

*For length index

All cutting data are target values

Radius=+/-0.01 mm

[illegible]

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Cutting data – JH720 Side rough milling $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
M1	M/E/A	0.040	0.080	0.11	0.13	0.15	0.17	0.20	0.24	0.32	0.40	0.48	0.60	190 (135 — 245)
M2	M/E/A	0.040	0.080	0.11	0.13	0.15	0.17	0.20	0.24	0.32	0.40	0.48	0.60	155 (110 — 195)
M3	M/E/A	0.040	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	115 (85 — 150)
M4	M/E/A	0.040	0.048	0.060	0.070	0.080	0.095	0.12	0.14	0.19	0.24	0.28	0.34	85 (60 — 110)
M5	M/E/A	0.040	0.048	0.060	0.070	0.080	0.095	0.12	0.14	0.19	0.24	0.28	0.34	75 (50 — 95)
N1	E/M/A	0.060	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	2300 (1850 — 2775)
N2	E/M/A	0.060	0.080	0.11	0.13	0.15	0.17	0.20	0.24	0.32	0.40	0.48	0.60	1450 (1175 — 1750)
N3	E/M/A	0.060	0.080	0.11	0.13	0.15	0.17	0.20	0.24	0.32	0.40	0.48	0.60	970 (780 — 1175)
N11	E/M/A	0.060	0.12	0.15	0.18	0.20	0.24	0.28	0.36	0.48	0.60	0.70	0.80	750 (630 — 880)
S1	E/M/A	0.030	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	90 (75 — 110)
S2	E/M/A	0.030	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	90 (75 — 110)
S3	E/M/A	0.030	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	55 (36 — 70)
S11	E/M/A	0.040	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	225 (190 — 255)
S12	E/M/A	0.040	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	175 (150 — 195)
S13	E/M/A	0.040	0.048	0.060	0.070	0.080	0.095	0.12	0.14	0.19	0.24	0.28	0.34	135 (115 — 155)
TS1	A	0.060	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	1250 (940 — 1550)
TP1	M	0.060	0.055	0.065	0.080	0.095	0.11	0.14	0.16	0.22	0.28	0.32	0.40	1250 (940 — 1550)

Cutting data – JH720 Copy rough milling $a_p/D_c = 0.01$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
M1	M/E/A	0.040	0.050	0.065	0.075	0.090	0.10	0.13	0.15	0.20	0.24	0.30	0.36	175 (125 — 225)
M2	M/E/A	0.040	0.050	0.065	0.075	0.090	0.10	0.13	0.15	0.20	0.24	0.30	0.36	140 (100 — 180)
M3	M/E/A	0.040	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	105 (75 — 135)
M4	M/E/A	0.040	0.032	0.040	0.046	0.055	0.060	0.075	0.090	0.13	0.16	0.19	0.24	80 (55 — 105)
M5	M/E/A	0.040	0.032	0.040	0.046	0.055	0.060	0.075	0.090	0.13	0.16	0.19	0.24	65 (48 — 85)
N1	E/M/A	0.060	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	2100 (1700 — 2525)
N2	E/M/A	0.060	0.050	0.065	0.075	0.090	0.10	0.13	0.15	0.20	0.24	0.30	0.36	1350 (1075 — 1625)
N3	E/M/A	0.060	0.050	0.065	0.075	0.090	0.10	0.13	0.15	0.20	0.24	0.30	0.36	900 (720 — 1075)
N11	E/M/A	0.060	0.065	0.085	0.10	0.12	0.14	0.17	0.20	0.28	0.34	0.40	0.48	700 (580 — 820)
S1	E/M/A	0.030	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	85 (65 — 100)
S2	E/M/A	0.030	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	85 (65 — 100)
S3	E/M/A	0.030	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	49 (32 — 65)
S11	E/M/A	0.040	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	205 (175 — 235)
S12	E/M/A	0.040	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	160 (135 — 180)
S13	E/M/A	0.040	0.032	0.040	0.046	0.055	0.060	0.075	0.090	0.13	0.16	0.19	0.24	120 (105 — 140)
TS1	A	0.060	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	1150 (860 — 1425)
TP1	M	0.060	0.036	0.044	0.055	0.060	0.070	0.085	0.11	0.14	0.18	0.20	0.26	1150 (860 — 1425)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



						
						
Name		JS412	JS413	JS452	JS453	JHP490
Page		195-197	198-200	201-205	206-210	211-214
Family		JS²	JS²	JS²	JS²	HPM
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon	■	■	□	□	■
Number of flutes		2	3	2	3	2-3
ICC						■
Diameter range	Metric	2-20	2-20	8-20	3-20	10-25
	Inch					
Lengths available, based on length index						
		2	2,3	3	2,3	2,3,4
Operation						
						
SMG						
N1		•	•	•	•	•
N2		•	•	•	•	•
N3		•	•	•	•	•
N11						•
TS1		•	•	•	•	
TP1		•	•	•	•	

■ Stock standard □ Weldon available, delivery time is 3 days

• Preferred choice, ○ Alternative choice

						
						
Name		JH40	JH410	JH421	JH820	JH830
Page		215-216	217-218	219-222	223-224	225-226
Family		HSM/TORNADO	HSM/TORNADO	HSM/TORNADO	HSM/TORNADO	HSM/TORNADO
Type of mill						
Shank	Cylindrical					
	Weldon					
Number of flutes		2	1	2-3	2	3
ICC						
Diameter range	Metric	6-20	2-17	3-25	4-12	2-12
	Inch					
Lengths available, based on length index		 1,2	 2,3,4	 2,3	 2	 2
Operation						
						
SMG						
N1		•	•	•		
N2		•			•	•
N3		•			•	•
N11		•	•	•		
TS1		•	•	•		
TP1		•	•	•		

■ Stock standard □ Weldon available, delivery time is 3 days

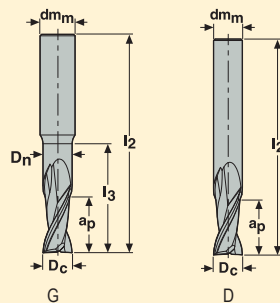
● Preferred choice, ○ Alternative choice

Name		JH440	JH450	JH460	JM403/04/06	JM413/416
Page		227-228	229-230	231-232	233-234	235-236
Family		HSM/TORNADO	HSM/TORNADO	HSM/TORNADO	MINI	MINI
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon					
Number of flutes		2	2	2	1	2
ICC						
Diameter range	Metric	6-16	2-20	4-12	0.2-2	0.5-2
	Inch					
Lengths available, based on length index		 2	 2,3	 2	 1,2,5	 2,3,5
Operation						
SMG						
N1		●	●	●	●	●
N2		●	●		●	●
N3		●	●		●	●
N11		●	●	●	●	●
TS1		●	●	●	●	●
TP1		●	●	●	●	●

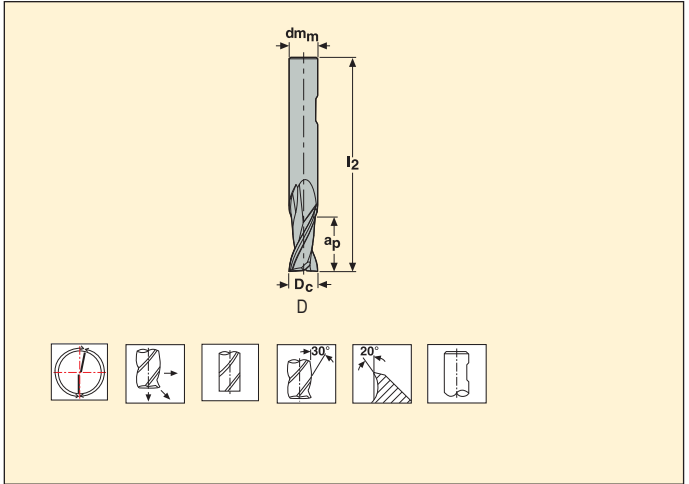
■ Stock standard □ Weldon available, delivery time is 3 days

● Preferred choice, ○ Alternative choice

D_c=e8

[illegible]

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$$D_c = e8$$
[illegible]

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Cutting data – JS412 Slotting

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	590 (440 — 730)
N2	E	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	380 (285 — 470)
TS1	A	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	550 (440 — 660)
TP1	A	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	440 (330 — 550)

Cutting data – JS412 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E/M/A	1.5	0.022	0.032	0.044	0.055	0.065	0.085	0.11	0.13	0.15	0.16	0.19	780 (580 — 970)
N2	E/M/A	1.5	0.022	0.032	0.044	0.055	0.065	0.085	0.11	0.13	0.15	0.16	0.19	500 (375 — 620)
TS1	A/D	1.5	0.016	0.024	0.032	0.040	0.046	0.060	0.080	0.090	0.10	0.11	0.13	710 (570 — 860)
TP1	A/D	1.5	0.016	0.024	0.032	0.040	0.046	0.060	0.080	0.090	0.10	0.11	0.13	570 (430 — 710)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

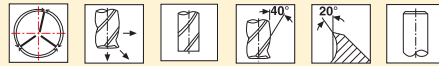
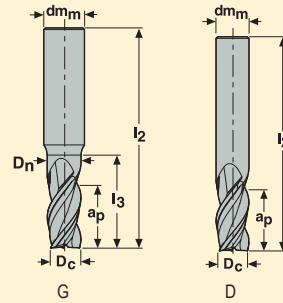
f_z = mm

a_p (mm)/ D_c (mm)= factor

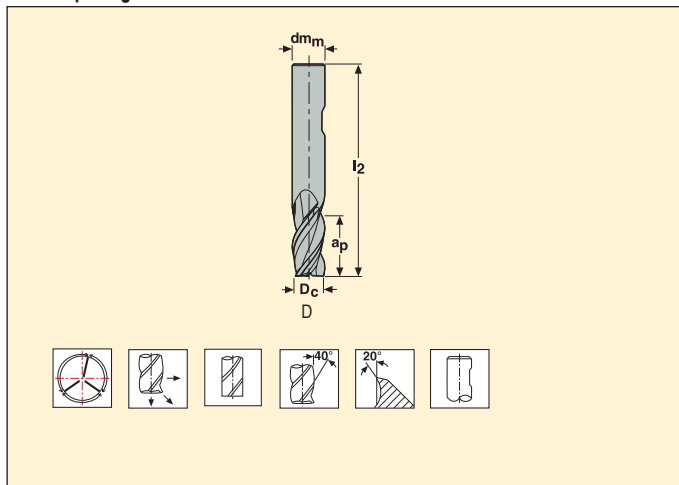
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

$D_c = e8$

[illegible]

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 $D_c = e8$ [illegible]

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Cutting data – JS413 Slotting

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	570 (425 — 710)
N2	E	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	365 (275 — 455)
N3	E	1.0	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	245 (185 — 305)
TS1	A	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	550 (440 — 660)
TP1	A	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.11	0.12	440 (330 — 550)

Cutting data – JS413 Side milling $a_p/D_c = 0.4$

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E/M/A	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	720 (540 — 890)
N2	E/M/A	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	460 (345 — 570)
N3	E/M/A	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	305 (230 — 385)
TS1	A/D	1.5	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	680 (540 — 810)
TP1	A/D	1.5	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	540 (405 — 680)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

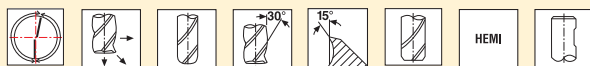
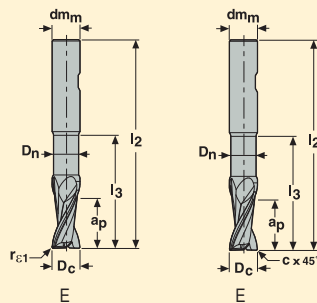
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

201

Chamfer +0.04

[illegible]

202

[illegible]

203

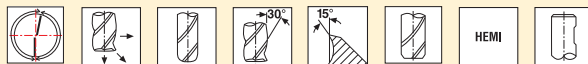
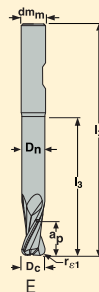
JS452 L – Solid carbide end mill for non ferrous materials – weldon – polished coating, unequal flute spacing



Tolerances:

$$dm_m = h5$$
 $D_c = e7$

Corner radius ± 0.02

[illegible]

☐ Weldon available, delivery time is 3 days.

Cutting data – JS452 Slotting*

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.20	500 (405 — 600)
N2	E	1.2	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.13	0.16	405 (305 — 500)
N3	E	1.2	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	0.11	0.13	0.16	270 (200 — 335)
TS1	A	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.20	500 (405 — 600)
TP1	A	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.16	0.20	405 (300 — 500)

Cutting data – JS452 Side milling roughing $a_e/D_c = 0.2^*$

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E/M/A	1.7	0.040	0.060	0.10	0.13	0.15	0.20	0.26	0.30	0.34	0.36	0.42	700 (560 — 840)
N2	E/M/A	1.7	0.030	0.044	0.075	0.095	0.11	0.15	0.19	0.22	0.24	0.28	0.32	580 (430 — 720)
N3	E/M/A	1.7	0.030	0.044	0.075	0.095	0.11	0.15	0.19	0.22	0.24	0.28	0.32	385 (290 — 480)

For cutting data recalculations, see pages 336-344.

* Remark: If corner radius is >15% of D_c then $a_p = -30\%$, $f_z = -20\%$

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

$v_c =$ m/min

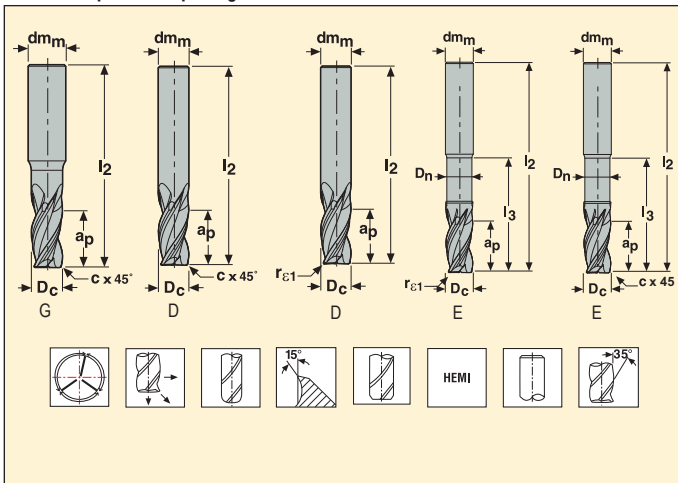
$f_z =$ mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

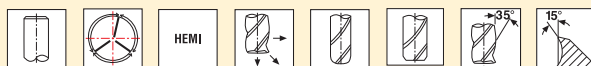
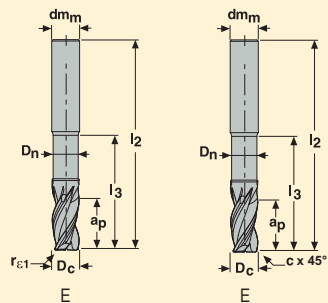
All cutting data are target values

Chamfer +0.04

[illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

chamfer +0.04 mm

[illegible]

207

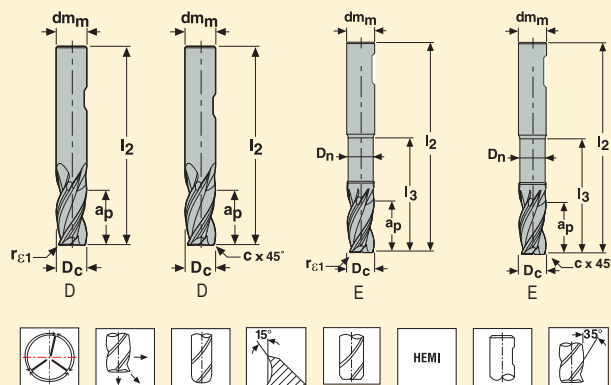
JS453 – Solid carbide end mill – unequal flute spacing – three flute



Tolerances:

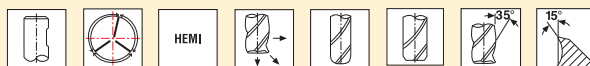
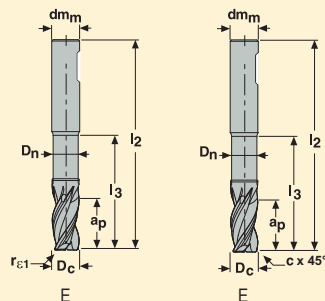
$$dm_m = h5$$
 $D_c = e7$

corner radius = $\pm 0.02\text{mm}$

[illegible]

☐ Weldon available, delivery time is 3 days.

chamfer +0.04 mm

[illegible]

209

Cutting data – JS453 Slotting

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	590 (440 — 730)
N2	E	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	415 (310 — 520)
N3		1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	275 (205 — 345)
TS1	A	1.5	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	570 (455 — 680)
TP1	A	1.5	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	455 (340 — 570)

Cutting data – JS453 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	8	10	12	14	16	20	
N1	E/M/A	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	710 (540 — 890)
N2	E/M/A	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	500 (375 — 630)
N3	E/M/A	1.2	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	335 (250 — 420)
TS1	A/D	1.5	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	680 (540 — 810)
TP1	A/D	1.5	0.015	0.022	0.030	0.036	0.044	0.060	0.075	0.085	0.095	0.11	0.12	540 (405 — 680)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Technical drawing of a MEGA-T anchor bolt. The drawing shows a side view with dimensions: l_2 for the total length, d_m for the diameter of the upper part, l_3 for the length of the lower part, r_{E2} for the fillet radius, D_n for the nominal diameter, a_p for the thread pitch, D_c for the core diameter, and r_{E1} for the fillet radius at the base. Below the drawing is a table with 8 columns: 1. Top view (circle with crosshair), 2. Side view (circle with crosshair), 3. Side view (cylinder), 4. Label 'MEGA-T', 5. Side view (cylinder with diagonal lines), 6. Side view (cylinder with diagonal lines and arrows), 7. Detail view of the base with a 16° angle, 8. ICC logo.

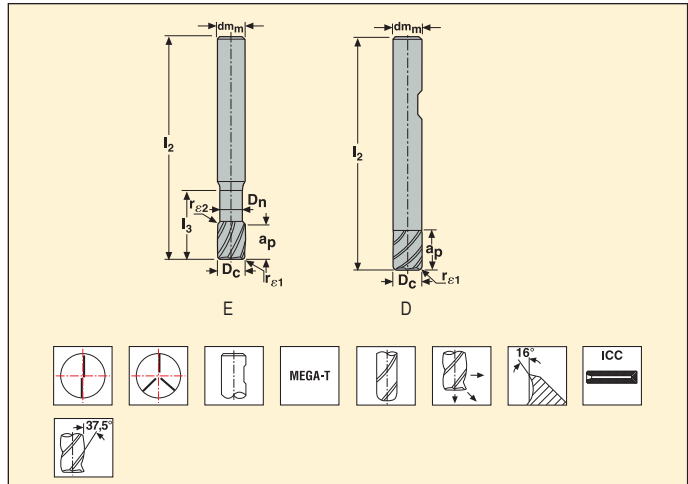
[illegible]

211

JHP490 – Solid carbide end mill – corner radius, polished coating – roughing profile – Weldon

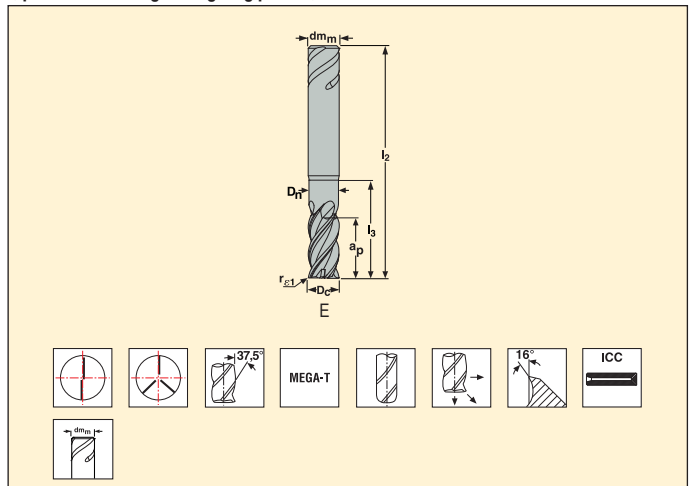


Tolerances:

$$dm_m = h5$$
 $D_c = -0.02/-0.1 \text{ mm}$ $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ [illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list. □ Weldon available, delivery time is 3 days.

ICC = Internal Coolant Channel

$$\begin{aligned} dm_m &= h_5 \\ D_c &= -0.02/-0.1 \text{ mm} \\ r_{\varepsilon 1} &= +/-.05 \text{ mm} \end{aligned}$$
[illegible]

ICC = Internal Coolant Channel

Cutting data – JHP490 Slotting

SMG		a_p / D_c	f_z					v_c
			10	12	16	20	25	
N1	E/M/A	1.0	0.20	0.24	0.30	0.34	0.38	810 (650 — 970)
N2	E/M/A	1.0	0.20	0.24	0.30	0.34	0.38	520 (415 — 620)
N3	E/M/A	1.0	0.20	0.24	0.30	0.34	0.38	345 (275 — 415)

Cutting data – JHP490 Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z					v_c
			10	12	16	20	25	
N1	E/M/A	1.0	0.20	0.24	0.30	0.34	0.38	950 (760 — 1150)
N2	E/M/A	1.0	0.20	0.24	0.30	0.34	0.38	610 (490 — 740)
N3	E/M/A	1.0	0.20	0.24	0.30	0.34	0.38	410 (325 — 490)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

215

Cutting data – JH40 Slotting

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
N1	E/M/A	0.60	0.026	0.038	0.050	0.065	0.080	0.10	0.13	0.15	0.19	0.22	600 (500 – 710)
N11	E/M/A	0.60	0.026	0.038	0.050	0.065	0.080	0.10	0.13	0.15	0.19	0.22	355 (265 – 440)
TS1	A	0.60	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.15	0.17	650 (540 – 760)

Cutting data – JH40 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
N1	E/M/A	1.2	0.026	0.040	0.055	0.065	0.080	0.11	0.13	0.16	0.20	0.22	660 (550 – 780)
N11	E/M/A	1.2	0.026	0.040	0.055	0.065	0.080	0.11	0.13	0.16	0.20	0.22	390 (290 – 485)

Cutting data – JH40 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
TS1	A	1.2	0.022	0.032	0.044	0.055	0.065	0.085	0.11	0.13	0.16	0.19	770 (640 – 900)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

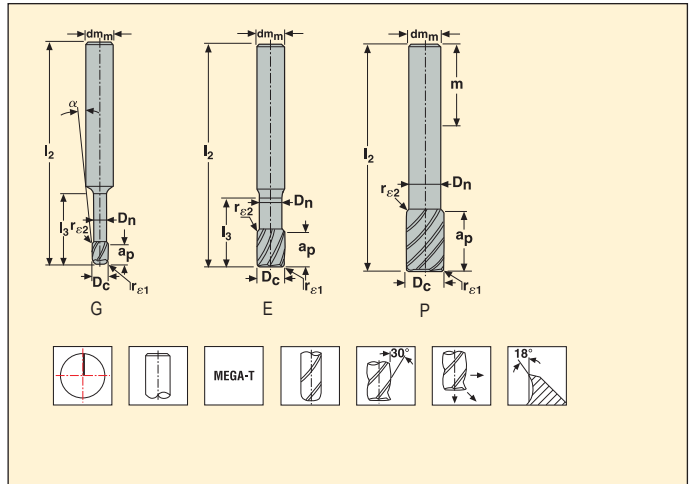
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

$dm_m = h5$
 $D_c = -0/-0.05 \text{ mm}$
 $r_{\varepsilon 1} = 0/-0.05 \text{ mm}$

[illegible]

217

Cutting data – JH410 Slotting

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	7	9	11	13	15	17	
N1	E/M/A	0.75	0.060	0.090	0.12	0.15	0.18	0.22	0.28	0.34	0.38	0.44	0.48	570 (475 — 670)
N11	E/M/A	0.44	0.030	0.044	0.060	0.075	0.090	0.10	0.13	0.16	0.19	0.22	0.24	355 (265 — 440)
TS1	A	1.1	0.060	0.090	0.12	0.15	0.18	0.20	0.26	0.32	0.38	0.44	0.48	580 (485 — 680)

Cutting data – JH410 Side roughing $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	7	9	11	13	15	17	
N11	E/M/A	0.60	0.032	0.050	0.065	0.080	0.10	0.12	0.15	0.18	0.22	0.24	0.26	530 (395 — 660)

Cutting data – JH410 Side roughing $a_p/D_c = 0.4$

SMG		a_p / D_c	f_z											v_c
			2	3	4	5	6	7	9	11	13	15	17	
N1	E/M/A	1.0	0.060	0.090	0.12	0.15	0.18	0.22	0.28	0.34	0.40	0.44	0.48	690 (570 — 800)
TS1	A	1.0	0.060	0.090	0.12	0.15	0.18	0.22	0.28	0.34	0.40	0.44	0.48	690 (580 — 810)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

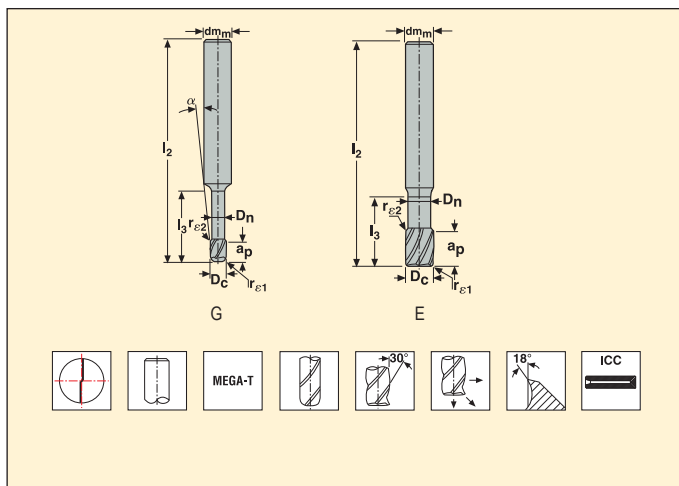
v_c = m/min

f_z = mm

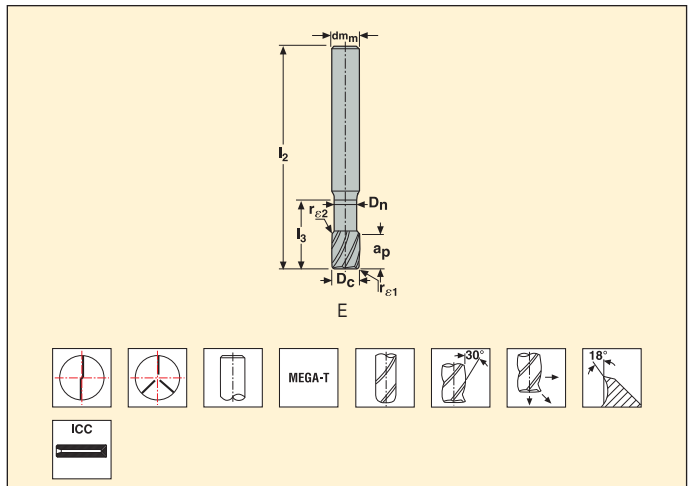
a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

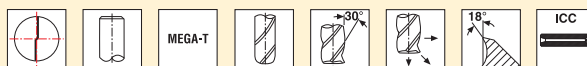
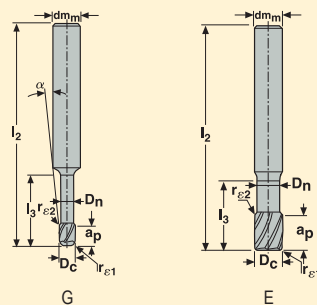
All cutting data are target values

 $r_{s1} = \pm 0.05 \text{ mm}$ [illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

$$\begin{aligned} dm_m &= h5 \\ D_c &= -0.02/-0.04 \text{ mm} \\ r_{\varepsilon 1} &= +/-0.05 \text{ mm} \end{aligned}$$
[illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

 $r_{s1} = \pm 0.05 \text{ mm}$ [illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

Cutting data – JH421 Slotting

SMG		a_p / D_c	f_z												v_c
			2	3	4	5	6	8	10	12	14	16	20	25	
N1	E/M/A	0.50	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	620 (510 — 720)
N11	E/M/A	0.50	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.075	410 (310 — 510)
TS1	A	0.50	0.014	0.020	0.028	0.034	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.13	620 (510 — 720)
TP1	M	0.50	0.010	0.015	0.020	0.024	0.030	0.040	0.050	0.060	0.065	0.075	0.085	0.095	410 (310 — 510)

Cutting data – JH421 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z												v_c
			2	3	4	5	6	8	10	12	14	16	20	25	
N1	E/M/A	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	760 (640 — 890)
N11	E/M/A	1.0	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.060	0.070	0.080	510 (380 — 630)
TS1	A	1.0	0.014	0.022	0.028	0.036	0.042	0.055	0.070	0.085	0.095	0.10	0.12	0.14	760 (640 — 890)
TP1	M	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.070	0.075	0.085	0.10	510 (380 — 630)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

223

Cutting data – JH820 Slotting

SMG		a_p / D_c	f_z					v_c
			4	6	8	10	12	
N2	E	0.32	0.024	0.036	0.048	0.060	0.070	370 (315 — 560)
N3	E	0.32	0.024	0.036	0.048	0.060	0.070	250 (210 — 370)

Cutting data – JH820 Side milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z					v_c
			4	6	8	10	12	
N2	E	1.0	0.032	0.048	0.065	0.080	0.095	660 (550 — 980)
N3	E	1.0	0.032	0.048	0.065	0.080	0.095	440 (370 — 660)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

The image displays two technical drawings of drill bits, labeled G and E, with their respective dimensions and cross-sectional views.

Drill Bit G:

- Overall length: l_2
- Shank diameter: $\varnothing dm_m$
- Point angle: α
- Length of the cutting edge: l_3
- Outer diameter at the cutting edge: D_n
- Radius at the cutting edge: r_{e2}
- Point diameter: D_c
- Radius at the point: r_{e1}
- Depth of the cutting edge: a_p

Drill Bit E:

- Overall length: l_2
- Shank diameter: $\varnothing dm_m$
- Length of the cutting edge: l_3
- Outer diameter at the cutting edge: D_n
- Radius at the cutting edge: r_{e2}
- Point diameter: D_c
- Radius at the point: r_{e1}
- Depth of the cutting edge: a_p

Cross-sections:

- Drill Bit G:** The cross-section shows a standard double-flute design with a point angle α .
- Drill Bit E:** The cross-section shows a more complex design with a point angle of 40° and a secondary angle of 12° .

[illegible]

225

Cutting data – JH830 Slotting

SMG		a_p / D_c	f_z								v_c
			2	3	4	5	6	8	10	12	
N2	E	0.32	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	270 (225 — 405)
N3	E	0.32	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	180 (150 — 270)

Cutting data – JH830 Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z								v_c
			2	3	4	5	6	8	10	12	
N2	E	1.0	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	480 (405 — 720)
N3	E	1.0	0.016	0.024	0.032	0.040	0.048	0.065	0.080	0.095	320 (270 — 480)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Technical drawing of a MEGA-T screw. The main view shows a screw with dimensions: d_{mm} (nominal diameter), l_2 (length of the threaded part), δ (thread depth), r_{E2} (fillet radius), l_3 (length of the unthreaded part), a_p (pitch), D_c (core diameter), and r_{E1} (fillet radius). Below the main view is a section view labeled 'E'. To the right of the section view are six small icons: a circle with a red cross, a cylinder, a box labeled 'MEGA-T', a cylinder with a diagonal line, a cylinder with a 30° angle, a cylinder with a 18° angle, and a cylinder with a 18° angle.

[illegible]

227

Cutting data – JH440 Copy milling $a_e/D_c = 0.6$

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
N1	E/M/A	0.060	0.070	0.095	0.12	0.14	0.19	1350 (1000 — 1675)
N2	E/M/A	0.060	0.070	0.095	0.12	0.14	0.19	860 (650 — 1075)
N3	E/M/A	0.060	0.070	0.095	0.12	0.14	0.19	580 (430 — 720)
N11	E/M/A	0.060	0.070	0.095	0.12	0.14	0.19	425 (210 — 640)
TS1	A	0.060	0.070	0.095	0.12	0.14	0.18	1300 (1100 — 1525)
TP1	A	0.060	0.070	0.095	0.12	0.14	0.18	760 (540 — 970)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

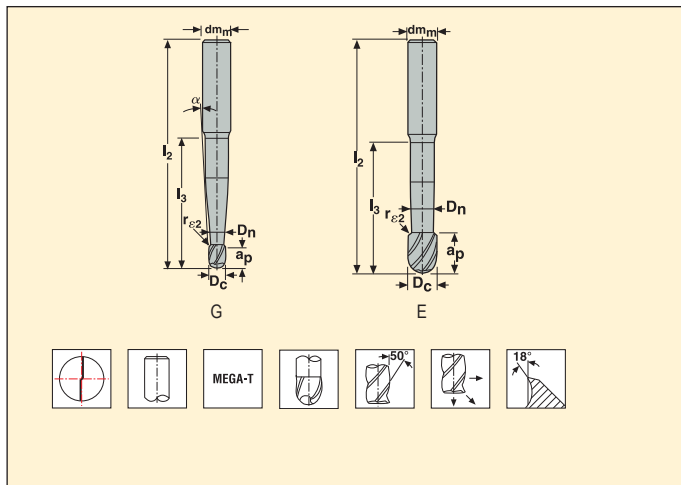
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Tolerances:
 $dm_m = h5$
 $D_c = -0.02 / -0.04 \text{ mm}$
 $r_{f1} = \pm 0.02 \text{ mm}$

[illegible]

229

Cutting data – JH450 Copy rough milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
N1	E/M/A	0.38	0.028	0.044	0.060	0.075	0.090	0.13	0.17	0.20	0.30	0.34	610 (510 — 710)
N2	E/M/A	0.38	0.028	0.044	0.060	0.075	0.090	0.13	0.17	0.20	0.30	0.34	390 (325 — 455)
N3	E/M/A	0.38	0.028	0.044	0.060	0.075	0.090	0.13	0.17	0.20	0.30	0.34	260 (215 — 305)
N11	E/M/A	0.38	0.028	0.044	0.060	0.075	0.090	0.13	0.17	0.20	0.30	0.34	770 (640 — 900)
TS1	A	0.38	0.020	0.030	0.042	0.055	0.065	0.090	0.12	0.15	0.20	0.24	1000 (750 — 1250)
TP1	M	0.38	0.020	0.030	0.042	0.055	0.065	0.090	0.12	0.15	0.20	0.24	255 (210 — 295)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

231

Cutting data – JH460 Copy rough milling $a_e/D_c = 0.6$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
N1	E/M/A	0.32	0.060	0.085	0.11	0.14	0.18	0.24	0.28	1050 (880 — 1225)
N11	E/M/A	0.32	0.060	0.085	0.11	0.14	0.18	0.24	0.28	920 (770 — 1075)
S11	E/M/A	0.32	0.044	0.060	0.080	0.10	0.16	0.20	0.24	175 (155 — 190)
S12	E/M/A	0.32	0.044	0.060	0.080	0.10	0.16	0.20	0.24	135 (120 — 150)
S13	E/M/A	0.32	0.040	0.055	0.070	0.090	0.14	0.17	0.20	110 (95 — 120)
TS1	A	0.80	0.060	0.080	0.10	0.13	0.17	0.22	0.28	920 (770 — 1075)
TP1	M	0.32	0.060	0.085	0.11	0.14	0.18	0.24	0.28	280 (210 — 350)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

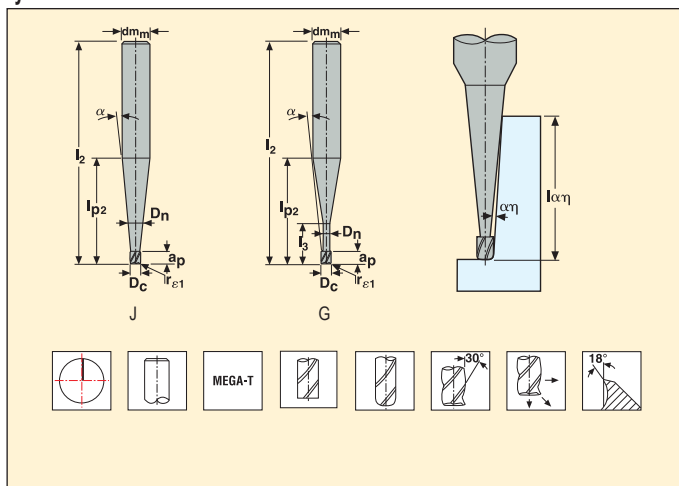
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

$r_{s1} = \pm 0.01 \text{ mm}$ [illegible]

233

Cutting data – JM403/JM404/406 Slotting

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
N1	E	0.40	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.070	510 (425 — 600)
N2	E	0.40	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.070	330 (275 — 385)
N3	E	0.40	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.055	0.070	220 (185 — 255)

Cutting data – JM403/JM404/406 Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
N1	E	0.70	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.046	0.055	0.065	590 (490 — 680)
N2	E	0.70	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.046	0.055	0.065	375 (315 — 440)
N3	E	0.70	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.046	0.055	0.065	250 (210 — 295)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

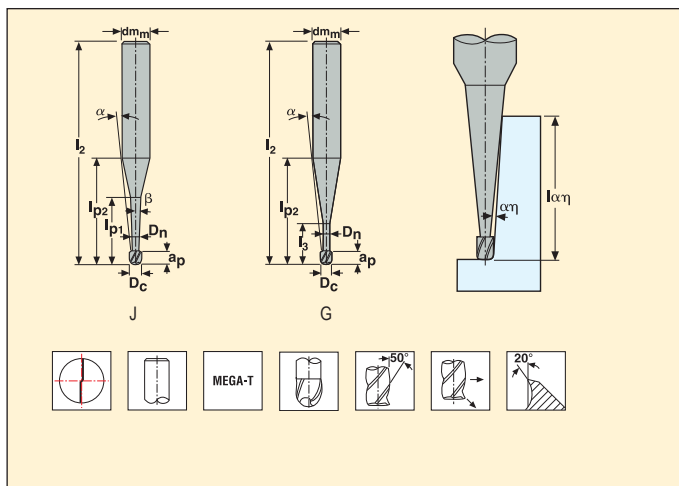
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

radius=+/-0.005 mm

[illegible]

235

Cutting data – JM413/416 Copy finishing $a_e/D_c = 0.05$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
N1	E	0.30	0.012	0.018	0.024	0.030	0.040	0.050	0.065	0.075	0.090	0.12	1275 (1075 — 1500)
N2	E	0.30	0.012	0.018	0.024	0.030	0.040	0.050	0.065	0.075	0.090	0.12	830 (690 — 960)
N3	E	0.30	0.012	0.018	0.024	0.030	0.040	0.050	0.065	0.075	0.090	0.12	550 (460 — 640)
TS1	A	0.30	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.12	830 (690 — 970)
TP1	A	0.30	0.012	0.018	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.12	830 (690 — 970)

Cutting data – JM413/416 Copy roughing $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
N1	E	0.30	0.0075	0.012	0.016	0.020	0.026	0.036	0.050	0.065	0.075	0.090	880 (730 — 1025)
N2	E	0.30	0.0075	0.012	0.016	0.020	0.026	0.036	0.050	0.065	0.075	0.090	560 (470 — 660)
N3	E	0.30	0.0075	0.012	0.016	0.020	0.026	0.036	0.050	0.065	0.075	0.090	375 (315 — 440)
N11	E	0.30	0.0075	0.012	0.016	0.020	0.026	0.036	0.050	0.065	0.075	0.090	560 (470 — 660)
TS1	A	0.30	0.0055	0.0085	0.011	0.015	0.018	0.026	0.036	0.046	0.055	0.065	590 (495 — 690)
TP1	A	0.30	0.0055	0.0085	0.011	0.015	0.018	0.026	0.036	0.046	0.055	0.065	590 (495 — 690)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



Name		JHP170	JHF180	JH120	JH130	JH930	JH141
Page		240-242	243-246	247-248	249-250	115-117, 251-253,	159-161, 254-256
Family		HPM	HFM	HSM/TORNADO	HSM/TORNADO	HSM/TORNADO	HSM/TORNADO
Type of mill							
Shank	Cylindrical	■	■	■	■	■	■
	Weldon	■					
Number of flutes		3-4	3-5	4	5-6, 8	5-6, 8	2-4
ICC							
Diameter range	Metric	2-20	2-16	2-16	6-20	6-20	2-10
	Inch						
Lengths available, based on length index		 2	 2,3,4	 2	 2	 2	 2,3,4,5
Operation							
SMG							
H3		●	●	●	●	●	●
H5		●	●	●	●	●	●
H7		●	●	●	●	●	●
H8		●	●	●	●	●	●
H11		●	●	●	●	●	●
H12		●	●	●	●	●	●
H21		●	●	●	●	●	●
H31		●	●	●	●	●	●

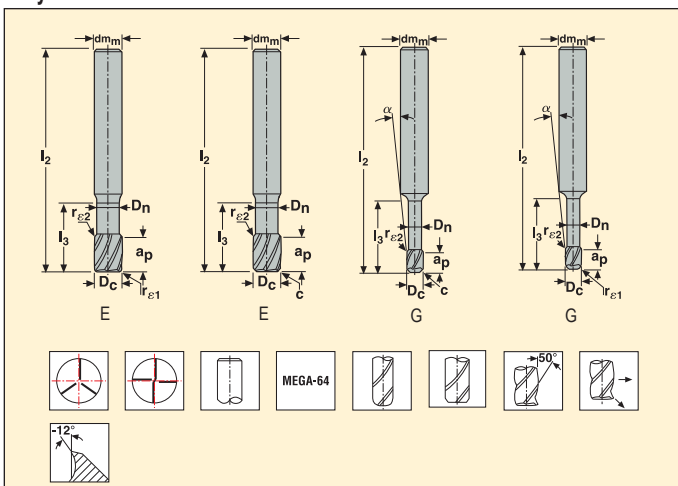
■ Stock standard □ Weldon available, delivery time is 3 days
 ● Preferred choice, ○ Alternative choice

Name		JH111	JH150	JH160	JM103/JM106	JM113/JM116
Page		164-166, 257-259	167-168, 260-261	169-170, 262-263	264-266	267-268
Family		HSM/TORNADO	HSM/TORNADO	HSM/TORNADO	MINI	MINI
Type of mill						
Shank	Cylindrical	■	■	■	■	■
	Weldon					
Number of flutes		2	4	4	2	2
ICC						
Diameter range	Metric	2-16	6-12	4-12	0.2-2.0	0.2-2.0
	Inch					
Lengths available, based on length index		 1,2,3,4,5	 2	 2	 1,2,3,4,5,6	 1,2,3,4,5,6
Operation						
SMG						
H3		●	●	●	●	●
H5		●	●	●	●	●
H7		●	●	●	●	●
H8		●	●	●	●	●
H11		●	●	●	●	●
H12		●	●	●	●	●
H21		●	●	●	●	●
H31		●	●	●	●	●

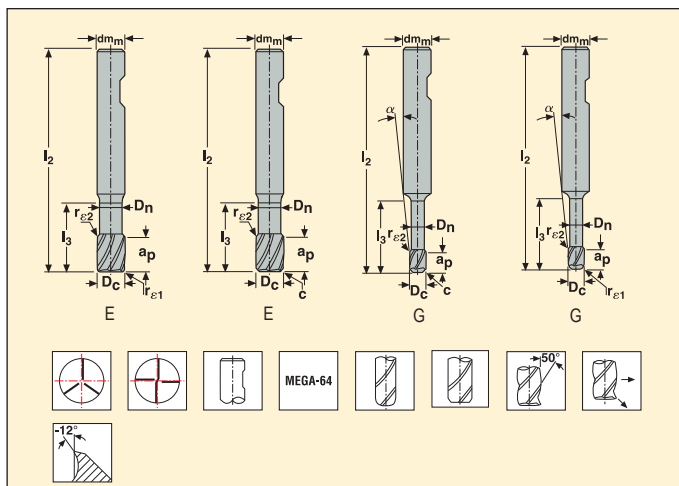
■ Stock standard

● Preferred choice, ○ Alternative choice

$dm_m = h_5$
 $D_c = -0.02 / -0.04 \text{ mm}$
 $c = \varnothing 2-4 = +0.05, \varnothing 5-16 = +0.1$
 $r_{c1} = \pm 0.05 \text{ mm}$

[illegible]

■ Stock standard. Subject to change, refer to current price-and stock-list.

A close-up photograph of the tip of a metal drill bit, showing its double-flute design and sharp edges. $r_{s1} = \pm 0.05 \text{ mm}$ [illegible]

241

Cutting data – JHP170 Slotting

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
H3	M	0.40	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	31 (28 — 34)
H5	M	0.60	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	50 (46 — 55)
H7	M	0.36	0.0040	0.0060	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	0.034	31 (28 — 34)
H8	M	0.60	0.0090	0.014	0.018	0.024	0.028	0.036	0.046	0.055	0.070	0.080	50 (45 — 55)
H11	M	0.60	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	65 (60 — 70)
H12	M	0.60	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	105 (95 — 115)
H21	M	0.60	0.0090	0.014	0.018	0.024	0.028	0.036	0.046	0.055	0.070	0.080	50 (45 — 55)
H31	M	0.60	0.0080	0.012	0.016	0.020	0.024	0.032	0.040	0.048	0.060	0.070	38 (34 — 42)

Cutting data – JHP170 Side milling $a_p/D_c = 0.2$

SMG		a_p / D_c	f_z										v_c
			2	3	4	5	6	8	10	12	16	20	
H3	M	0.80	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.036	0.042	42 (38 — 47)
H5	M	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	70 (65 — 80)
H7	M	0.80	0.0050	0.0075	0.010	0.013	0.015	0.020	0.026	0.030	0.036	0.042	42 (38 — 47)
H8	M	1.0	0.012	0.017	0.024	0.028	0.034	0.046	0.060	0.070	0.085	0.10	70 (60 — 75)
H11	M	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	90 (80 — 100)
H12	M	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	145 (130 — 160)
H21	M	1.0	0.012	0.017	0.024	0.028	0.034	0.046	0.060	0.070	0.085	0.10	70 (60 — 75)
H31	M	1.0	0.010	0.015	0.020	0.026	0.030	0.040	0.050	0.060	0.075	0.085	55 (48 — 60)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

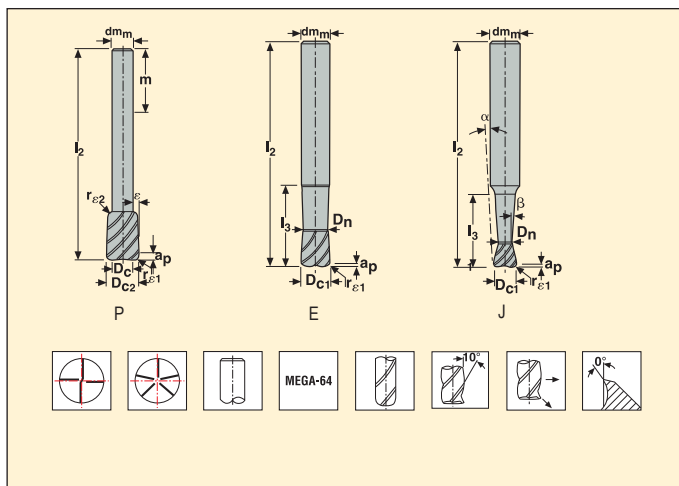
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_s (mm)/ D_c (mm)= factor

All cutting data are target values

 $r_{s1} = \pm 0.01 \text{ mm}$ 

EDP No.	Part No.	Length index	Tool shape	Dimensions in mm										α°	β	z_n	Cylindrical
				D _c	D _{c1}	dm _m	a _p	l ₂	l ₃	D _n	r _{ε1}	r _{ε2}					
39929	180020R050Z4-4-MEGA-64	1	J	1	2	4	0.5	40	4	0.8	0.5	2	9	—	4	■	
39931	180020R050Z4-6-MEGA-64	1	J	1	2	6	0.5	50	4	0.8	0.5	2	15	—	4	■	
39937	180030R075Z4-MEGA-64	1	J	1.5	3	6	0.75	50	6	1.2	0.75	2	10	—	4	■	
39949	180040R100Z4-MEGA-64	1	J	2	4	6	1	50	8	1.6	1	2	6	—	4	■	
39953	180060R150Z4-MEGA-64	1	E	3	6	6	1.5	50	12	2.4	1.5	2	—	—	4	■	
39957	180070R150Z4-MEGA-64	1	P	4	7	6	1.5	65	—	3	1.5	2	—	—	4	■	
39958	180080R200Z4-MEGA-64	1	E	4	8	8	2	55	16	3.3	2	2	—	—	4	■	
39963	180090R200Z4-MEGA-64	1	P	5	9	8	2	70	—	4	2	2	—	—	4	■	
39964	180100R200Z4-MEGA-64	1	E	6	10	10	2	65	20	5.2	2	2	—	—	4	■	
39965	180100R200Z5-MEGA-64	1	E	6	10	10	2	65	20	5.2	2	2	—	—	5	■	
39969	180110R200Z4-MEGA-64	1	P	7	11	10	2	85	—	6	2	3	—	—	4	■	
39970	180120R300Z4-MEGA-64	1	E	6	12	12	3	75	24	5	3	3	—	—	4	■	
39971	180120R300Z5-MEGA-64	1	E	6	12	12	3	75	24	5	3	3	—	—	5	■	
39975	180130R300Z4-MEGA-64	1	P	7	13	12	3	100	—	6	3	4	—	—	4	■	
39976	180160R300Z4-MEGA-64	1	E	10	16	16	3	80	32	8.8	3	4	—	—	4	■	
39977	180160R300Z5-MEGA-64	1	E	10	16	16	3	80	32	8.8	3	4	—	—	5	■	
39932	180ML020R050Z4-MEGA-64	2	J	1	2	6	0.5	50	8	0.8	0.5	2	10	—	4	■	
39940	180ML030R075Z4-MEGA-64	2	J	1.5	3	6	0.75	50	12	1.2	0.75	2	6	—	4	■	
39950	180ML040R100Z4-MEGA-64	2	J	2	4	6	1	50	16	1.6	1	2	3.5	—	4	■	
39954	180ML060R150Z4-MEGA-64	2	E	3	6	6	1.5	65	24	2.4	1.5	2	—	—	4	■	
39959	180ML080R200Z4-MEGA-64	2	E	4	8	8	2	70	32	3.3	2	2	—	—	4	■	
39966	180ML100R200Z4-MEGA-64	2	E	6	10	10	2	85	40	5.2	2	2	—	—	4	■	
39972	180ML120R300Z4-MEGA-64	2	E	6	12	12	3	100	48	5	3	3	—	—	4	■	
39978	180ML160R300Z4-MEGA-64	2	E	10	16	16	3	125	64	8.8	3	4	—	—	4	■	
39930	180L020R050TNZ4-4-MEGA-64	3	J	1	2	4	0.5	40	10	0.8	0.5	2	5	0.9	4	■	
39933	180L020R050TNZ4-6-MEGA-64	3	J	1	2	6	0.5	50	10	0.8	0.5	2	8.5	0.9	4	■	
39941	180L030R075TNZ4-MEGA-64	3	J	1.5	3	6	0.75	50	15	1.2	0.75	2	5	0.9	4	■	
39951	180L040R100TNZ4-MEGA-64	3	J	2	4	6	1	60	20	1.6	1	2	3	0.9	4	■	
39955	180L060R150TNZ4-MEGA-64	3	E	3	6	8	1.5	65	30	2.4	1.5	2	2	0.9	4	■	
39960	180L080R200TNZ4-MEGA-64	3	E	4	8	10	2	85	40	3.3	2	2	1.5	0.9	4	■	
39967	180L100R200TNZ4-MEGA-64	3	E	6	10	12	2	100	50	5.2	2	2	1.5	0.9	4	■	
39973	180L120R300TNZ4-MEGA-64	3	E	6	12	16	3	100	60	5	3	3	2	0.9	4	■	
39979	180L160R300TNZ4-MEGA-64	3	E	10	16	20	3	130	80	8.8	3	4	1.5	0.9	4	■	

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A close-up photograph of the tip of a diamond drill bit. The bit is made of metal and has a sharp, double-flute design. The tip is dark and appears to be coated with a diamond material. The background is a plain, light-colored surface.

Technical drawing of a J-type reamer. The main view shows the reamer with dimensions: dm_m (major diameter), α (flute angle), I_2 (length), I_3 (length of cutting edge), β (flute angle at tip), d_n (minor diameter), a_p (cutting edge radius), D_{C1} (cutting edge diameter), and $r_{\varepsilon 1}$ (fillet radius). The label 'J' is at the bottom. Below the main view are six cross-sections: a circular cross-section with a three-flute pattern, a cylindrical cross-section, a cross-section labeled 'MEGA-64', a cross-section with a 10° angle, a cross-section with a 0° angle, and a cross-section with a 0° angle and a shaded area.

[illegible]

244

Cutting data – JHF180 Slotting z_{n3}

SMG		a_p / D_c	f_z							v_c
			2	3	4	6	8	10	12	
P6	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	330 (305 — 350)
P7	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	310 (290 — 330)
P8	E/M/A	0.055	0.022	0.032	0.042	0.16	0.22	0.26	0.32	290 (270 — 310)
P11	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	300 (280 — 320)
K1	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.34	245 (210 — 280)
K2	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	220 (190 — 250)
K3	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	185 (160 — 210)
K4	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	175 (150 — 200)
K5	E/M/A	0.055	0.018	0.028	0.036	0.14	0.18	0.22	0.28	105 (90 — 120)
K6	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	155 (135 — 180)
K7	E/M/A	0.055	0.018	0.028	0.036	0.14	0.18	0.22	0.28	135 (115 — 155)
H3	M/A/D	0.028	0.014	0.022	0.028	0.15	0.20	0.24	0.30	110 (100 — 125)
H5	M/A/D	0.028	0.022	0.032	0.044	0.18	0.24	0.30	0.36	200 (175 — 220)
H7	M/A/D	0.028	0.014	0.022	0.028	0.15	0.20	0.24	0.30	110 (100 — 125)
H8	M/A/D	0.028	0.017	0.026	0.034	0.17	0.22	0.28	0.34	200 (180 — 225)
H21	M/A/D	0.028	0.017	0.026	0.034	0.17	0.22	0.28	0.34	200 (180 — 225)
H31	M/A/D	0.028	0.014	0.022	0.028	0.15	0.20	0.24	0.30	155 (135 — 170)

Cutting data – JHF180 Slotting z_{n4}

SMG		a_p / D_c	f_z												v_c
			2	3	4	6	7	8	9	10	11	12	13	16	
P6	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	325 (305 — 345)
P7	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	305 (285 — 325)
P8	E/M/A	0.055	0.022	0.032	0.042	0.16	0.19	0.22	0.24	0.26	0.30	0.32	0.34	0.38	285 (265 — 305)
P11	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	300 (280 — 320)
K1	E/M/A	0.055	0.022	0.034	0.044	0.17	0.20	0.22	0.26	0.28	0.30	0.34	0.36	0.42	245 (210 — 280)
K2	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	215 (185 — 250)
K3	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	185 (155 — 210)
K4	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	175 (150 — 200)
K5	E/M/A	0.055	0.018	0.028	0.036	0.14	0.16	0.18	0.20	0.22	0.26	0.28	0.28	0.34	105 (90 — 120)
K6	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.38	155 (130 — 175)
K7	E/M/A	0.055	0.018	0.028	0.036	0.14	0.16	0.18	0.20	0.22	0.26	0.28	0.28	0.34	135 (115 — 155)
H3	M/A/D	0.028	0.014	0.022	0.028	0.15	0.17	0.20	0.22	0.24	0.28	0.30	0.32	0.36	110 (100 — 120)
H5	M/A/D	0.028	0.022	0.032	0.044	0.18	0.20	0.24	0.28	0.30	0.32	0.36	0.40	0.48	195 (175 — 220)
H7	M/A/D	0.028	0.014	0.022	0.028	0.15	0.17	0.20	0.22	0.24	0.28	0.30	0.32	0.36	110 (100 — 120)
H8	M/A/D	0.028	0.017	0.026	0.034	0.17	0.20	0.22	0.26	0.28	0.32	0.34	0.36	0.42	200 (175 — 220)
H21	M/A/D	0.028	0.017	0.026	0.034	0.17	0.20	0.22	0.26	0.28	0.32	0.34	0.36	0.42	200 (175 — 220)
H31	M/A/D	0.028	0.014	0.022	0.028	0.15	0.17	0.20	0.22	0.24	0.28	0.30	0.32	0.36	155 (135 — 170)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JHF180 Side roughing $z_n 3, a_p/D_c = 0.3$

SMG		a_p / D_c	f_z							v_c
			2	3	4	6	8	10	12	
P6	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.32	380 (355 — 410)
P7	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.32	360 (335 — 385)
P8	E/M/A	0.055	0.024	0.034	0.046	0.17	0.24	0.30	0.34	340 (320 — 365)
P11	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.32	350 (325 — 375)
K1	E/M/A	0.055	0.024	0.036	0.050	0.18	0.24	0.30	0.36	290 (250 — 335)
K2	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.34	255 (220 — 290)
K3	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.34	215 (185 — 245)
K4	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.34	205 (175 — 235)
K5	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	125 (110 — 145)
K6	E/M/A	0.055	0.022	0.034	0.044	0.17	0.22	0.28	0.34	180 (155 — 205)
K7	E/M/A	0.055	0.020	0.030	0.040	0.15	0.20	0.26	0.30	160 (140 — 185)
H3	M/A/D	0.028	0.016	0.024	0.032	0.16	0.22	0.28	0.32	125 (115 — 140)
H5	M/A/D	0.028	0.024	0.036	0.048	0.18	0.24	0.30	0.36	230 (205 — 255)
H7	M/A/D	0.028	0.016	0.024	0.032	0.16	0.22	0.28	0.32	125 (115 — 140)
H8	M/A/D	0.028	0.018	0.028	0.036	0.18	0.24	0.30	0.36	230 (205 — 255)
H21	M/A/D	0.028	0.018	0.028	0.036	0.18	0.24	0.30	0.36	230 (205 — 255)
H31	M/A/D	0.028	0.016	0.024	0.032	0.16	0.22	0.28	0.32	175 (155 — 195)

Cutting data – JHF180 Side roughing $z_n 4, a_p/D_c = 0.3$

SMG		a_p / D_c	f_z												v_c
			2	3	4	6	7	8	9	10	11	12	13	16	
P6	E/M/A	0.055	0.022	0.034	0.044	0.17	0.19	0.22	0.24	0.28	0.30	0.32	0.34	0.40	380 (355 — 405)
P7	E/M/A	0.055	0.022	0.034	0.044	0.17	0.19	0.22	0.24	0.28	0.30	0.32	0.34	0.40	355 (335 — 380)
P8	E/M/A	0.055	0.024	0.034	0.046	0.17	0.20	0.24	0.26	0.30	0.32	0.34	0.36	0.42	335 (315 — 360)
P11	E/M/A	0.055	0.022	0.034	0.044	0.17	0.19	0.22	0.24	0.28	0.30	0.32	0.34	0.40	345 (325 — 370)
K1	E/M/A	0.055	0.024	0.036	0.050	0.18	0.20	0.24	0.28	0.30	0.32	0.36	0.38	0.46	290 (245 — 330)
K2	E/M/A	0.055	0.022	0.034	0.044	0.17	0.20	0.22	0.26	0.28	0.30	0.34	0.36	0.42	255 (215 — 290)
K3	E/M/A	0.055	0.022	0.034	0.044	0.17	0.20	0.22	0.26	0.28	0.30	0.34	0.36	0.42	215 (185 — 245)
K4	E/M/A	0.055	0.022	0.034	0.044	0.17	0.20	0.22	0.26	0.28	0.30	0.34	0.36	0.42	205 (175 — 235)
K5	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.36	125 (105 — 140)
K6	E/M/A	0.055	0.022	0.034	0.044	0.17	0.20	0.22	0.26	0.28	0.30	0.34	0.36	0.42	180 (155 — 205)
K7	E/M/A	0.055	0.020	0.030	0.040	0.15	0.18	0.20	0.22	0.26	0.28	0.30	0.32	0.36	160 (135 — 180)
H3	M/A/D	0.028	0.016	0.024	0.032	0.16	0.19	0.22	0.24	0.28	0.30	0.32	0.34	0.40	125 (110 — 140)
H5	M/A/D	0.028	0.024	0.036	0.048	0.18	0.20	0.24	0.28	0.30	0.32	0.36	0.40	0.48	230 (205 — 255)
H7	M/A/D	0.028	0.016	0.024	0.032	0.16	0.19	0.22	0.24	0.28	0.30	0.32	0.34	0.40	125 (110 — 140)
H8	M/A/D	0.028	0.018	0.028	0.036	0.18	0.20	0.24	0.28	0.30	0.32	0.36	0.40	0.46	230 (205 — 255)
H21	M/A/D	0.028	0.018	0.028	0.036	0.18	0.20	0.24	0.28	0.30	0.32	0.36	0.40	0.46	230 (205 — 255)
H31	M/A/D	0.028	0.016	0.024	0.032	0.16	0.19	0.22	0.24	0.28	0.30	0.32	0.34	0.40	175 (155 — 195)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

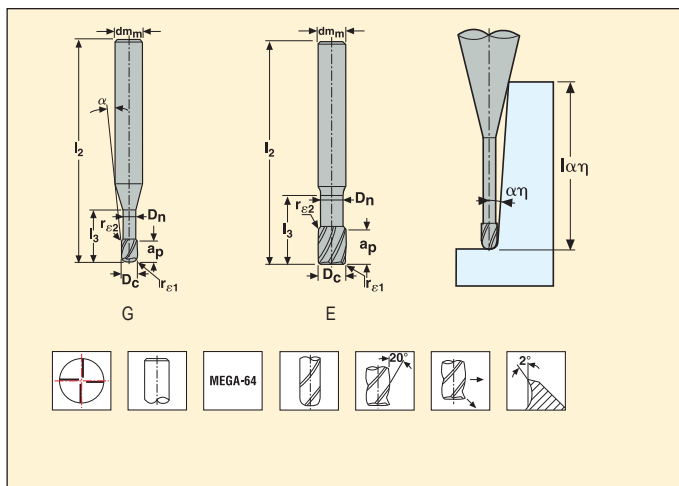
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

 $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ [illegible]

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Cutting data – JH120 Slotting

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
H3	M	0.050	0.0028	0.0050	0.0060	0.0070	0.0080	0.010	0.012	0.016	0.020	0.024	0.030	80 (65 — 95)
H5	M	0.18	0.0080	0.010	0.012	0.014	0.016	0.020	0.024	0.032	0.040	0.048	0.060	125 (100 — 145)
H7	M	0.044	0.0028	0.0055	0.0065	0.0075	0.0085	0.011	0.013	0.017	0.022	0.026	0.032	80 (65 — 95)
H8	M	0.18	0.0090	0.012	0.014	0.016	0.018	0.024	0.028	0.036	0.046	0.055	0.070	120 (100 — 145)
H21	M	0.18	0.0090	0.012	0.014	0.016	0.018	0.024	0.028	0.036	0.046	0.055	0.070	120 (100 — 145)
H31	M	0.18	0.0080	0.010	0.012	0.014	0.016	0.020	0.024	0.032	0.040	0.048	0.060	95 (75 — 110)

Cutting data – JH120 Side milling $a_e/D_c = 0.03$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
H3	M	0.050	0.0080	0.010	0.012	0.014	0.016	0.020	0.024	0.032	0.040	0.048	0.065	140 (115 — 165)
H5	M	1.2	0.011	0.014	0.016	0.019	0.020	0.028	0.032	0.042	0.055	0.060	0.080	225 (185 — 265)
H7	M	0.044	0.0080	0.010	0.012	0.014	0.016	0.020	0.024	0.032	0.040	0.048	0.065	140 (115 — 165)
H8	M	1.2	0.012	0.015	0.018	0.020	0.024	0.030	0.036	0.048	0.060	0.070	0.085	220 (180 — 260)
H21	M	1.2	0.012	0.015	0.018	0.020	0.024	0.030	0.036	0.048	0.060	0.070	0.085	220 (180 — 260)
H31	M	1.2	0.011	0.014	0.016	0.019	0.020	0.028	0.032	0.042	0.055	0.060	0.080	170 (140 — 200)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Technical drawing of a shaft-hub assembly. The shaft has a diameter d and length l_2 . The hub has an outer diameter D_n , an inner diameter D_c , and a height l_3 . The shaft is inserted into the hub, with a fit of r_{E2} and a hub thickness of a_p . The shaft has a fillet radius r_{E1} at its base. Below the drawing is a row of eight icons: a circle with a cross, a circle with a cross, a circle with a cross, a cylinder, a cylinder with a cross, a cylinder with a cross, a cylinder with a cross, and a cylinder with a cross.

E

[illegible]

Cutting data – JH130 Side milling finishing $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z						v_c
			6	8	10	12	16	20	
H3	M	1.0	0.018	0.024	0.030	0.036	0.048	0.060	170 (155 — 180)
H5	M	1.0	0.030	0.040	0.050	0.060	0.080	0.10	305 (280 — 330)
H7	M	1.0	0.018	0.024	0.030	0.036	0.048	0.060	170 (155 — 180)
H8	M	1.0	0.034	0.044	0.055	0.065	0.085	0.10	305 (280 — 330)
H21	M	1.0	0.034	0.044	0.055	0.065	0.085	0.10	305 (280 — 330)
H31	M	1.0	0.030	0.040	0.050	0.060	0.080	0.10	230 (210 — 250)

Cutting data – JH130 Side milling roughing $a_p/D_c = 0.2$

SMG		a_p / D_c	f_z						v_c
			6	8	10	12	16	20	
H3	M	1.0	0.018	0.024	0.030	0.036	0.048	0.060	155 (140 — 165)
H5	M	1.0	0.030	0.040	0.050	0.060	0.080	0.10	275 (255 — 295)
H7	M	1.0	0.018	0.024	0.030	0.036	0.048	0.060	155 (140 — 165)
H8	M	1.0	0.030	0.040	0.050	0.060	0.080	0.10	275 (255 — 295)
H21	M	1.0	0.030	0.040	0.050	0.060	0.080	0.10	275 (255 — 295)
H31	M	1.0	0.030	0.040	0.050	0.060	0.080	0.10	205 (190 — 225)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

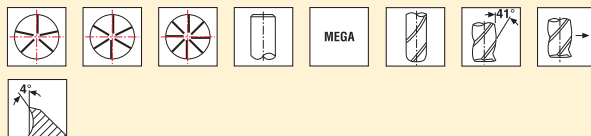
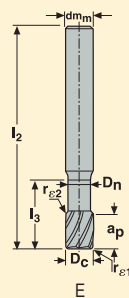
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

 $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ 251

Cutting data – JH930 Side milling finishing $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z						v_c
			6	8	10	12	16	20	
P1	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	530 (495 — 560)
P2	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	510 (480 — 550)
P3	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	445 (415 — 470)
P4	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	390 (365 — 415)
P5	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	370 (350 — 395)
P6	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	420 (390 — 445)
P7	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	395 (370 — 420)
P8	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	370 (350 — 395)
P11	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	385 (360 — 410)
K1	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	300 (275 — 325)
K2	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	260 (240 — 280)
K3	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.26	220 (205 — 240)
K4	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.26	210 (195 — 230)
K5	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.24	125 (115 — 135)
K6	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.26	185 (170 — 200)
K7	E/M/A	0.80	0.080	0.10	0.13	0.16	0.20	0.24	160 (150 — 175)
S1	E/M/A	1.2	0.085	0.12	0.15	0.17	0.22	0.24	85 (65 — 110)
S2	E/M/A	1.2	0.085	0.12	0.15	0.17	0.22	0.24	85 (65 — 110)
S3	E/M/A	0.50	0.055	0.070	0.090	0.11	0.14	0.18	44 (33 — 55)
S11	E/M/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	185 (155 — 220)
S12	E/M/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	145 (120 — 170)
S13	E/M/A	1.0	0.065	0.090	0.11	0.13	0.16	0.19	115 (95 — 135)
H3	M/A	0.50	0.018	0.024	0.030	0.036	0.048	0.060	165 (155 — 180)
H5	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	285 (265 — 310)
H7	M/A	0.44	0.018	0.024	0.030	0.036	0.048	0.060	170 (155 — 180)
H8	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	285 (265 — 310)
H21	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	285 (265 — 310)
H31	M/A	1.5	0.030	0.040	0.050	0.060	0.080	0.10	215 (200 — 235)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Cutting data – JH930 Side milling roughing $a_e/D_c = 0.03$

SMG		a_p / D_c	f_z						v_c
			6	8	10	12	16	20	
P1	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.24	455 (430 — 485)
P2	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.24	445 (415 — 475)
P3	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.22	385 (360 — 410)
P4	M/E/A	1.0	0.080	0.10	0.13	0.16	0.19	0.22	335 (315 — 360)
P5	M/E/A	1.0	0.080	0.10	0.13	0.15	0.19	0.22	320 (300 — 345)
P6	M/E/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	360 (340 — 385)
P7	M/E/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	340 (320 — 365)
P8	M/E/A	1.0	0.080	0.10	0.13	0.16	0.20	0.22	320 (300 — 345)
P11	M/E/A	1.0	0.075	0.10	0.13	0.15	0.19	0.22	330 (310 — 355)
K1	E/M/A	1.0	0.080	0.10	0.13	0.16	0.20	0.24	260 (240 — 280)
K2	E/M/A	1.0	0.080	0.10	0.13	0.15	0.19	0.22	225 (205 — 245)
K3	E/M/A	1.0	0.080	0.10	0.13	0.15	0.19	0.22	190 (175 — 205)
K4	E/M/A	0.80	0.080	0.10	0.13	0.15	0.19	0.22	185 (170 — 195)
K5	E/M/A	0.80	0.070	0.095	0.12	0.14	0.17	0.20	110 (100 — 120)
K6	E/M/A	0.80	0.080	0.10	0.13	0.15	0.19	0.22	160 (150 — 175)
K7	E/M/A	0.80	0.070	0.095	0.12	0.14	0.17	0.20	140 (130 — 150)
S1	E/M/A	0.95	0.070	0.095	0.12	0.14	0.17	0.20	80 (60 — 100)
S2	E/M/A	0.95	0.070	0.095	0.12	0.14	0.17	0.20	80 (60 — 100)
S3	E/M/A	0.50	0.055	0.070	0.090	0.11	0.14	0.18	38 (28 — 47)
S11	E/M/A	0.70	0.060	0.080	0.10	0.12	0.15	0.17	170 (140 — 200)
S12	E/M/A	0.70	0.060	0.080	0.10	0.12	0.15	0.17	130 (110 — 155)
S13	E/M/A	0.60	0.055	0.070	0.090	0.11	0.13	0.15	105 (85 — 120)
H5	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	255 (235 — 275)
H8	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	255 (235 — 275)
H21	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	255 (235 — 275)
H31	M/A	1.0	0.030	0.040	0.050	0.060	0.080	0.10	195 (175 — 210)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JH141 – Solid carbide end mill – corner radius – cylindrical



Tolerances:

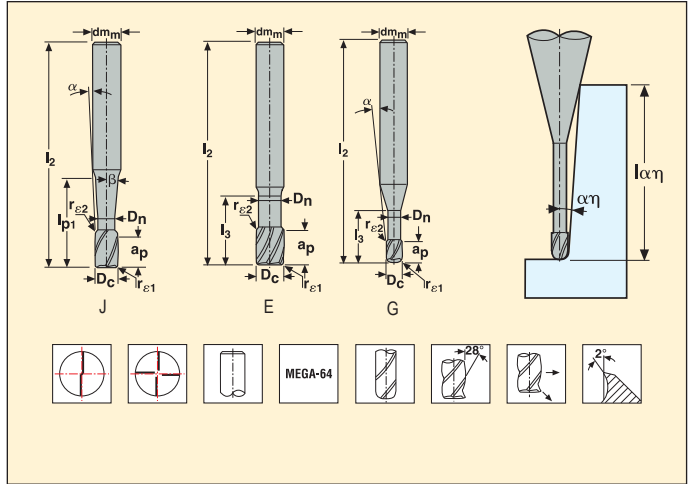
$dm_m = h5$

$D_c = \varnothing 2-6 = -0.005/-0.015$ mm, $\varnothing 8-10 = -0.005/-0.02$ mm,

$\varnothing 12-16 = -0.005/-0.025$ mm

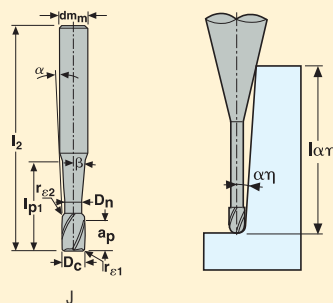
$r_{e1} = +/-0.01$ mm

$\beta = 0.9$



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm										α°	z_n	Max. cut depth rel. to $\alpha\eta$ ($\alpha\eta$, ref)*					
				D_c	dm_m	a_p	l_2	l_3	l_{p1}	D_n	r_{e1}	r_{e2}	0°			0.5°	1°	1.5°	2°	3°	
32945	141V020R030Z2-MEGA-64	2	G	2	4	2	40	4	4	1.9	0.3	2	7.5	2	4	4.6	4.7	4.9	5.1	5.5	
32946	141V020R050Z2-MEGA-64	2	G	2	4	2	40	4	4	1.9	0.5	2	7.5	2	4	4.6	4.7	4.9	5	5.4	
32951	141V030R050Z2-MEGA-64	2	G	3	4	3	40	6	6	2.8	0.5	2	4	2	6	7	7.2	7.4	7.7	8.3	
32952	141V030R100Z2-MEGA-64	2	G	3	4	3	40	6	6	2.8	1	2	4	2	6	7	7.2	7.4	7.6	8.2	
32957	141V040R030Z2-MEGA-64	2	G	4	6	4	50	8	8	3.7	0.3	2	5	2	8	9.4	9.7	10	10.4	11.2	
32958	141V040R050Z2-MEGA-64	2	G	4	6	4	50	8	8	3.7	0.5	2	5	2	8	9.4	9.7	10	10.4	11.2	
32959	141V040R100Z2-MEGA-64	2	G	4	6	4	50	8	8	3.7	1	2	5	2	8	9.4	9.7	10	10.3	11.1	
39391	141V060R050Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	0.5	2	—	4	12	∞	∞	∞	∞	∞	
32967	141V060R100Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	1	2	—	4	12	∞	∞	∞	∞	∞	
32968	141V060R150Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	1.5	2	—	4	12	∞	∞	∞	∞	∞	
32969	141V060R200Z4-MEGA-64	2	E	6	6	6	50	12	12	5.6	2	2	—	4	12	∞	∞	∞	∞	∞	
39395	141V080R050Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	0.5	2	—	4	16	∞	∞	∞	∞	∞	
32980	141V080R100Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	1	2	—	4	16	∞	∞	∞	∞	∞	
32981	141V080R150Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	1.5	2	—	4	16	∞	∞	∞	∞	∞	
32982	141V080R200Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	2	2	—	4	16	∞	∞	∞	∞	∞	
32983	141V080R300Z4-MEGA-64	2	E	8	8	8	60	16	16	7.4	3	2	—	4	16	∞	∞	∞	∞	∞	
39399	141V100R050Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	0.5	2	—	4	20	∞	∞	∞	∞	∞	
32996	141V100R100Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	1	2	—	4	20	∞	∞	∞	∞	∞	
32998	141V100R200Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	2	2	—	4	20	∞	∞	∞	∞	∞	
32999	141V100R250Z4-MEGA-64	2	E	10	10	10	70	20	20	9.4	2.5	2	—	4	20	∞	∞	∞	∞	∞	
33011	141V120R100Z4-MEGA-64	2	E	12	12	12	75	24	24	11.4	1	3	—	4	24	∞	∞	∞	∞	∞	
33012	141V120R200Z4-MEGA-64	2	E	12	12	12	75	24	24	11.4	2	3	—	4	24	∞	∞	∞	∞	∞	
33013	141V120R300Z4-MEGA-64	2	E	12	12	12	75	24	24	11.4	3	3	—	4	24	∞	∞	∞	∞	∞	
33018	141V160R400Z4-MEGA-64	2	E	16	16	16	90	32	32	15.4	4	4	—	4	32	∞	∞	∞	∞	∞	
32947	141VL020R030TN2-MEGA-64	3	J	2	6	2	50	—	10	1.9	0.3	2	7	2	5.6	10.3	10.7	11	11.4	12.3	
32948	141VL020R050TN2-MEGA-64	3	J	2	6	2	50	—	10	1.9	0.5	2	7	2	5.6	10.3	10.6	11	11.4	12.3	
32953	141VL030R050TN2-MEGA-64	3	J	3	6	3	60	—	15	2.8	0.5	2	4.5	2	9.9	15.5	16.1	16.6	17.2	18.6	
32954	141VL030R100TN2-MEGA-64	3	J	3	6	3	60	—	15	2.8	1	2	4.5	2	9.9	15.5	16	16.6	17.2	18.5	
32961	141VL040R030TN2-MEGA-64	3	J	4	6	4	60	—	20	3.7	0.3	2	2.5	2	14.3	20.8	21.5	22.3	23.1	∞	
32962	141VL040R050TN2-MEGA-64	3	J	4	6	4	60	—	20	3.7	0.5	2	2.5	2	14.3	20.8	21.5	22.3	23.1	∞	
32963	141VL040R100TN2-MEGA-64	3	J	4	6	4	60	—	20	3.7	1	2	3	2	14.3	20.8	21.5	22.2	23	∞	
39392	141VL060R050TN2-MEGA-64	3	J	6	8	6	75	—	30	5.6	0.5	2	1.8	4	18.8	30.9	32	33	∞	∞	
32970	141VL060R100TN2-MEGA-64	3	J	6	8	6	75	—	30	5.6	1	2	2	4	19.6	31.1	32.1	33.2	∞	∞	
32971	141VL060R150TN2-MEGA-64	3	J	6	8	6	75	—	30	5.6	1.5	2	2	4	19.6	31.1	32.1	33.2	∞	∞	
32972	141VL060R200TN2-MEGA-64	3	J	6	8	6	75	—	30	5.6	2	2	2	4	19.6	31	32	33.1	∞	∞	
39396	141VL080R050TN2-MEGA-64	3	J	8	10	8	85	—	40	7.4	0.5	2	1.4	4	27.3	41.4	42.8	∞	∞	∞	
32984	141VL080R100TN2-MEGA-64	3	J	8	10	8	85	—	40	7.4	1	2	1.5	4	41.6	43	∞	∞	∞	∞	

* The effective under -neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

 $\beta = 0.9$ 

EDP No.	Part No.	Length index	Tool shape	Dimensions in mm									α_1°	z_n	Max. cut depth rel. to $\alpha\eta$ ($ \alpha\eta$, ref)*					
				D _c	dm _m	a _p	l ₂	l _{p1}	D _n	r _{c1}	r _{c2}	0°			0.5°	1°	1.5°	2°	3°	
32985	141VL080R150TNZ4-MEGA-64	3	J	8	10	8	85	40	7.4	1.5	2	1.5	4	28.1	∞	∞	∞	∞	∞	
32986	141VL080R200TNZ4-MEGA-64	3	J	8	10	8	85	40	7.4	2	2	1.5	4	41.5	42.9	∞	∞	∞	∞	
39400	141VL100R050TNZ4-MEGA-64	3	J	10	12	10	100	50	9.4	0.5	2	1.1	4	29.1	51.6	53.2	∞	∞	∞	
33002	141VL100R100TNZ4-MEGA-64	3	J	10	12	10	100	50	9.4	1	2	1.5	4	30.1	51.7	53.4	∞	∞	∞	
33003	141VL100R200TNZ4-MEGA-64	3	J	10	12	10	100	50	9.4	2	2	1.5	4	30.1	51.6	53.3	∞	∞	∞	
32949	141VXL020R030TNZ2-MEGA-64	4	J	2	6	2	60	20	1.9	0.3	2	4.5	2	5.6	12.3	20.7	21.5	22.3	24	
32950	141VXL020R050TNZ2-MEGA-64	4	J	2	6	2	60	20	1.9	0.5	2	4.5	2	5.6	12	20.7	21.4	22.2	24	
32955	141VXL030R050TNZ2-MEGA-64	4	J	3	6	3	75	30	2.8	0.5	2	3	2	9.9	21.9	31.2	32.3	33.5	∞	
32956	141VXL030R100TNZ2-MEGA-64	4	J	3	6	3	75	30	2.8	1	2	3	2	9.9	21.2	31.1	32.2	33.4	∞	
32964	141VXL040R030TNZ2-MEGA-64	4	J	4	6	4	80	40	3.7	0.3	2	1.5	2	14.3	31.8	41.7	∞	∞	∞	
32965	141VXL040R050TNZ2-MEGA-64	4	J	4	6	4	80	40	3.7	0.5	2	1.5	2	14.3	31.6	41.6	∞	∞	∞	
32966	141VXL040R100TNZ2-MEGA-64	4	J	4	6	4	80	40	3.7	1	2	1.5	2	14.3	30.9	41.6	∞	∞	∞	
39393	141VXL060R050TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	0.5	2	1.0	4	18.8	41.6	∞	∞	∞	∞	
32973	141VXL060R100TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	1	2	1	4	19.6	42.9	62.3	∞	∞	∞	
32975	141VXL060R150TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	1.5	2	1	4	19.6	42.2	∞	∞	∞	∞	
32976	141VXL060R200TNZ4-MEGA-64	4	J	6	8	6	100	60	5.6	2	2	1	4	19.6	41.6	∞	∞	∞	∞	
39397	141VXL080R050TNZ4-MEGA-64	4	J	8	10	8	125	80	7.4	0.5	2	0.8	4	27.3	60.9	∞	∞	∞	∞	
32988	141VXL080R100TNZ4-MEGA-64	4	J	8	10	8	125	80	7.4	1	2	1	4	41.5	42.8	∞	∞	∞	∞	
39401	141VXL100R050TNZ4-MEGA-64	4	J	10	16	10	150	100	9.4	0.5	2	0.6	4	29.1	65	∞	∞	∞	∞	
33005	141VXL100R100TNZ4-MEGA-64	4	J	10	16	10	150	100	9.4	1	2	2	4	30.1	66.6	103.8	107.5	∞	∞	
39394	141VXXL060R050TNZ2-MEGA-64	5	J	6	10	6	130	90	5.6	0.5	2	1.3	2	18.8	41.6	92.1	∞	∞	∞	
39398	141VXXL080R050TNZ2-MEGA-64	5	J	8	12	8	165	120	7.4	0.5	2	1.0	2	27.3	60.9	∞	∞	∞	∞	
39402	141VXXL100R050TNZ2-MEGA-64	5	J	10	16	10	200	150	9.4	0.5	2	1.2	2	29.1	65	154	∞	∞	∞	
									</											

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Cutting data – JH141 Copy milling roughing $a_p/D_c = 0.05$

SMG		a_p / D_c	f_z								v_c
			2	3	4	6	8	10	12	16	
P1	M/E	0.050	0.018	0.028	0.036	0.055	0.075	0.090	0.11	0.13	510 (465 — 550)
P2	M/E	0.050	0.019	0.028	0.038	0.055	0.075	0.095	0.11	0.14	495 (450 — 530)
P3	M/E	0.050	0.018	0.026	0.036	0.055	0.070	0.090	0.10	0.13	425 (390 — 465)
P4	M/E	0.050	0.017	0.026	0.034	0.050	0.070	0.085	0.10	0.13	380 (345 — 410)
P5	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	360 (330 — 390)
P6	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	405 (370 — 440)
P7	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	385 (350 — 415)
P8	M/E	0.050	0.018	0.026	0.036	0.055	0.070	0.090	0.10	0.13	360 (330 — 390)
P11	M/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	370 (340 — 405)
K1	A/E	0.050	0.019	0.028	0.038	0.055	0.075	0.095	0.11	0.14	355 (325 — 385)
K2	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	315 (285 — 340)
K3	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	265 (245 — 285)
K4	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	255 (230 — 275)
K5	A/E	0.050	0.015	0.022	0.030	0.046	0.060	0.075	0.090	0.11	155 (140 — 165)
K6	A/E	0.050	0.017	0.026	0.034	0.050	0.065	0.085	0.10	0.12	225 (205 — 240)
K7	A/E	0.050	0.015	0.022	0.030	0.046	0.060	0.075	0.090	0.11	195 (180 — 210)

Cutting data – JH141 Copy milling roughing $a_p/D_c = 0.03$

SMG		a_p / D_c	f_z								v_c
			2	3	4	6	8	10	12	16	
H3	M/A	0.030	0.013	0.019	0.026	0.038	0.050	0.065	0.075	0.095	200 (185 — 215)
H5	M/A	0.030	0.013	0.019	0.026	0.038	0.050	0.065	0.075	0.095	370 (340 — 400)
H7	M/A	0.030	0.013	0.019	0.026	0.038	0.050	0.065	0.075	0.095	200 (185 — 215)
H8	M/A	0.030	0.015	0.022	0.030	0.044	0.060	0.075	0.085	0.11	370 (335 — 400)
H21	M/A	0.030	0.015	0.022	0.030	0.044	0.060	0.075	0.085	0.11	370 (335 — 400)
H31	M/A	0.030	0.013	0.019	0.026	0.038	0.050	0.065	0.075	0.095	280 (255 — 305)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

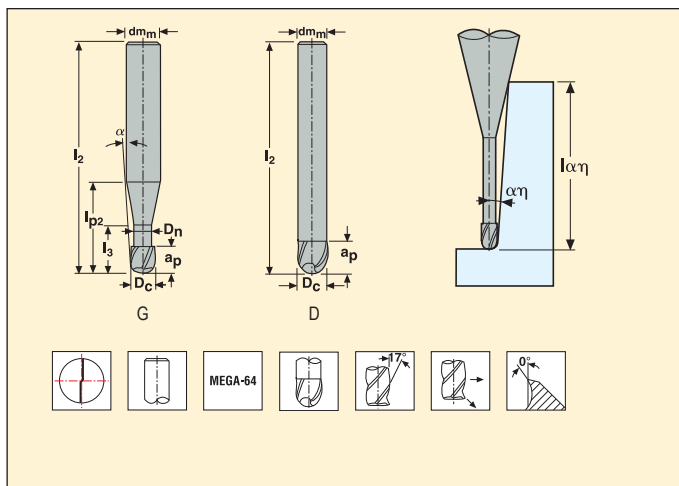
f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

Radius=+/-0.01 mm



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm								α°	z_n	Max. cut depth rel. to $\alpha\eta$ ($\alpha\eta$, ref)*					
				D _c	dm _m	a _p	l ₂	l ₃	l _{p2}	D _n	0°			0.5°	1°	1.5°	2°	3°	
10331	111K020-MEGA-64	1	G	2	4	2	40	4	10	1.9	6.5	2	4	4.4	4.6	4.8	5	5.6	
10332	111K030-MEGA-64	1	G	3	4	3	40	6	9.9	2.9	3.5	2	6	6.6	7	7.5	8	9.3	
10333	111K040-MEGA-64	1	D	4	4	4	40	—	—	—	—	2	4	∞	∞	∞	∞	∞	
10334	111K050-MEGA-64	1	G	5	6	5	50	10	18	4.6	2	2	10	13.3	14.7	16.4	∞	∞	
10335	111K060-MEGA-64	1	D	6	6	6	50	—	—	—	—	2	6	∞	∞	∞	∞	∞	
10336	111K080-MEGA-64	1	D	8	8	8	65	—	—	—	—	2	∞	∞	∞	∞	∞	∞	
10337	111K100-MEGA-64	1	D	10	10	10	65	—	—	—	—	2	10	∞	∞	∞	∞	∞	
12509	111021-MEGA-64	2	G	2	3	2	50	10	12	1.9	3	2	10	10.4	10.8	11.1	11.5	12.4	
12510	111031-MEGA-64	2	D	3	3	3	50	—	—	—	—	2	3	∞	∞	∞	∞	∞	
12516	111041-MEGA-64	2	D	4	4	4	60	—	—	—	—	2	4	∞	∞	∞	∞	∞	
12517	111051-MEGA-64	2	D	5	5	5	60	—	—	—	—	2	5	∞	∞	∞	∞	∞	
12518	111061-MEGA-64	2	D	6	6	6	75	—	—	—	—	2	6	∞	∞	∞	∞	∞	
10320	111020-MEGA-64	3	G	2	6	2	60	4	16	1.9	8	2	4	4.4	4.6	4.8	5	5.6	
10321	111025-MEGA-64	3	G	2.5	6	2.5	60	5	15.2	2.4	7.5	2	5	5.4	5.7	5.9	6.2	7	
10322	111030-MEGA-64	3	G	3	6	3	60	6	18.1	2.8	5.5	2	6	7.1	7.5	8	8.6	10.2	
10323	111035-MEGA-64	3	G	3.5	6	3.5	65	7	23	3.2	3.5	2	7	9.4	10.4	11.6	13.3	19.1	
10324	111040-MEGA-64	3	G	4	6	4	65	8	21.1	3.7	3	2	8	10.5	11.6	13	14.8	21.3	
10325	111050-MEGA-64	3	G	5	6	5	65	10	18	4.6	2	2	10	13.3	14.7	16.4	∞	∞	
10326	111060-MEGA-64	3	G	6	8	6	75	12	25.7	5.6	3	2	12	15.5	17.1	19.1	21.8	∞	
10327	111080-MEGA-64	3	G	8	8	8	75	—	—	—	—	2	8	∞	∞	∞	∞	∞	
10328	111100-MEGA-64	3	D	10	10	10	80	—	—	—	—	2	10	∞	∞	∞	∞	∞	
10329	111120-MEGA-64	3	D	12	12	12	90	—	—	—	—	2	12	∞	∞	∞	∞	∞	
10330	111160-MEGA-64	3	D	16	16	16	100	—	—	—	—	2	16	∞	∞	∞	∞	∞	
10338	111L020-MEGA-64	4	G	2	6	2	80	4	15.6	1.9	8	2	4	4.4	4.6	4.8	5	5.6	
10339	111L030-MEGA-64	4	G	3	6	3	80	6	18.1	2.8	5.5	2	6	7.1	7.5	8	8.6	10.2	
10340	111L040-MEGA-64	4	G	4	6	4	80	8	21.1	3.7	3	2	8	10.5	11.6	13	14.8	21.3	
10341	111L050-MEGA-64	4	G	5	6	5	100	10	18	4.6	2	2	10	13.3	14.7	16.4	∞	∞	
10342	111L060-MEGA-64	4	G	6	8	6	100	12	25.7	5.6	3	2	12	15.5	17.1	19.1	21.8	∞	
10343	111L080-MEGA-64	4	D	8	8	8	110	—	—	—	—	2	8	∞	∞	∞	∞	∞	
10344	111L100-MEGA-64	4	G	10	10	10	125	—	—	—	—	2	10	∞	∞	∞	∞	∞	
10345	111L120-MEGA-64	4	D	12	12	12	125	—	—	—	—	2	12	∞	∞	∞	∞	∞	
10346	111L160-MEGA-64	4	G	16	16	16	150	—	—	—	—	2	16	∞	∞	∞	∞	∞	

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[illegible]

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Cutting data – JH111 Copy milling roughing $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
K4	E	0.30	0.024	0.030	0.036	0.044	0.055	0.070	0.095	0.12	0.16	0.18	0.22	215 (175 — 260)
K5	E	0.30	0.020	0.026	0.034	0.040	0.048	0.065	0.085	0.11	0.14	0.17	0.20	130 (105 — 160)
K6	E	0.30	0.024	0.030	0.036	0.044	0.055	0.070	0.095	0.12	0.16	0.18	0.22	190 (150 — 230)
K7	E	0.30	0.020	0.026	0.034	0.040	0.048	0.065	0.085	0.11	0.14	0.17	0.20	170 (135 — 205)
H3	M	0.20	0.024	0.032	0.042	0.050	0.060	0.080	0.095	0.12	0.16	0.18	0.22	125 (100 — 145)
H7	M	0.17	0.026	0.034	0.044	0.055	0.060	0.080	0.095	0.12	0.16	0.18	0.22	125 (105 — 145)

Cutting data – JH111 Copy milling roughing $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z											v_c
			2	2.5	3	3.5	4	5	6	8	10	12	16	
K1	E	0.30	0.020	0.026	0.032	0.038	0.046	0.060	0.080	0.11	0.13	0.16	0.20	295 (235 — 350)
K2	E	0.30	0.018	0.024	0.030	0.036	0.042	0.055	0.075	0.10	0.12	0.14	0.18	260 (205 — 310)
K3	E	0.30	0.018	0.024	0.030	0.036	0.042	0.055	0.075	0.10	0.12	0.14	0.18	220 (175 — 260)
H5	M	0.20	0.030	0.040	0.050	0.065	0.080	0.10	0.12	0.16	0.20	0.24	0.28	200 (165 — 235)
H8	M	0.20	0.036	0.048	0.060	0.075	0.090	0.11	0.14	0.18	0.22	0.26	0.34	195 (160 — 230)
H21	M	0.20	0.036	0.048	0.060	0.075	0.090	0.11	0.14	0.18	0.22	0.26	0.34	195 (160 — 230)
H31	M	0.20	0.030	0.040	0.050	0.065	0.080	0.10	0.12	0.16	0.20	0.24	0.28	150 (125 — 175)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

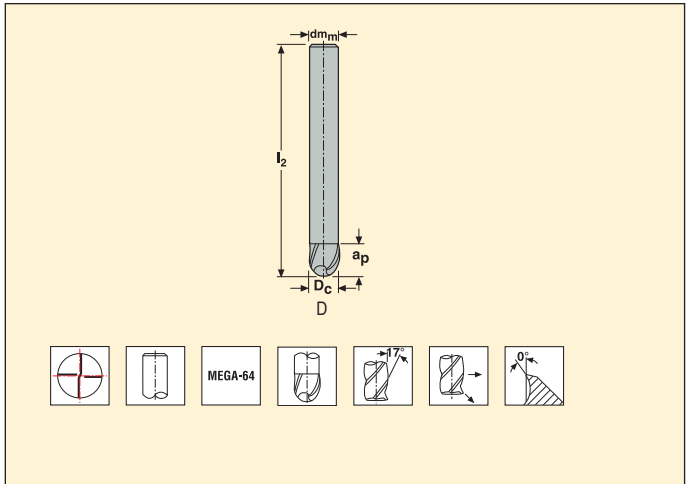
a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Three different types of drill bits are shown standing vertically. From left to right, they are a standard double-flute drill bit, a more complex multi-flute drill bit, and a smaller, simpler drill bit. They are all made of metal and have a polished finish.

$dm_m = h5$
 $D_c = -0.02 / -0.04 \text{ mm}$
 $\text{Radius} = \pm 0.01 \text{ mm}$

[illegible]

Cutting data – JH150 Copy milling roughing $a_p/D_c = 0.1$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
K5	A	0.15	0.090	0.12	0.15	0.17	120 (85 — 135)
K6	A	0.15	0.090	0.12	0.15	0.18	180 (125 — 200)
K7	A	0.15	0.090	0.12	0.15	0.17	155 (110 — 170)
H3	M	0.030	0.065	0.085	0.11	0.13	110 (95 — 125)
H5	M	0.060	0.090	0.12	0.15	0.18	210 (185 — 235)
H7	M	0.026	0.065	0.085	0.11	0.13	110 (95 — 120)
H8	M	0.060	0.090	0.12	0.15	0.18	210 (185 — 235)
H11	M	0.060	0.090	0.12	0.15	0.18	270 (235 — 300)
H12	M	0.060	0.090	0.12	0.15	0.18	435 (380 — 485)
H21	M	0.060	0.090	0.12	0.15	0.18	210 (185 — 235)
H31	M	0.060	0.090	0.12	0.15	0.18	160 (140 — 175)

Cutting data – JH150 Copy milling roughing $a_p/D_c = 0.3$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
K1	A	0.15	0.080	0.11	0.13	0.16	240 (165 — 265)
K2	A	0.15	0.075	0.095	0.12	0.14	210 (145 — 230)
K3	A	0.15	0.075	0.095	0.12	0.14	175 (125 — 195)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

Cutting data – JH160 Copy milling finishing $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
P1	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	940 (880 — 1000)
P2	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	920 (860 — 980)
P3	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	790 (740 — 840)
P4	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	700 (650 — 740)
P5	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	660 (620 — 710)
P6	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	750 (700 — 790)
P7	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	700 (660 — 750)
P8	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	660 (620 — 710)
P11	M/E/A	0.048	0.044	0.060	0.075	0.090	0.12	0.15	0.18	680 (640 — 730)
H3	M/E/A	0.032	0.044	0.060	0.075	0.090	0.12	0.15	0.18	255 (235 — 275)
H5	M/E/A	0.60	0.028	0.040	0.050	0.060	0.090	0.13	0.16	510 (475 — 550)
H7	M/E/A	0.032	0.044	0.060	0.075	0.090	0.12	0.15	0.18	255 (235 — 275)
H8	M/E/A	0.032	0.044	0.060	0.075	0.090	0.12	0.15	0.18	470 (435 — 500)
H21	M/E/A	0.032	0.044	0.060	0.075	0.090	0.12	0.15	0.18	470 (435 — 500)
H31	M/E/A	0.032	0.044	0.060	0.075	0.090	0.12	0.15	0.18	355 (330 — 380)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

JM103/JM106 – Solid carbide end mill – corner radius – two flute



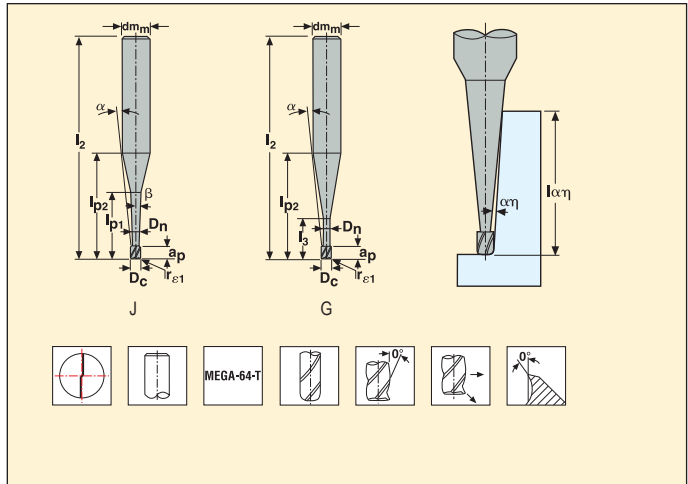
Tolerances:

Runout<0.005 mm

$dm_m=h5$

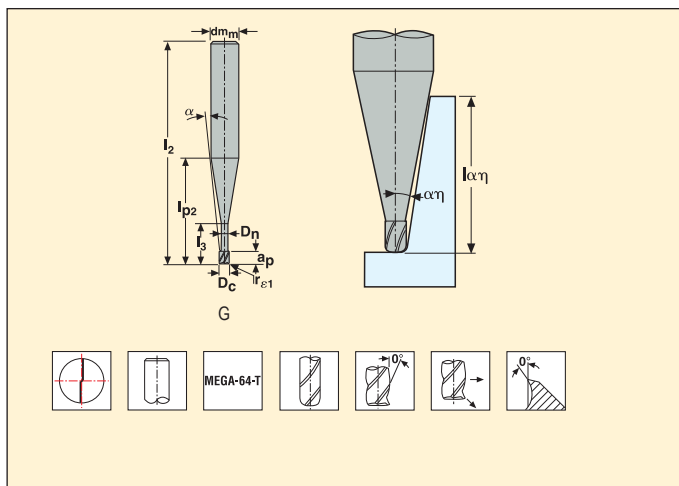
$D_c<0.6=-0.005/-0.013$, $D_c\geq 0.6=-0.005/-0.015$ mm

$r_{\epsilon 1}=+/-0.01$ mm



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm										Max. cut depth rel. to $\alpha\eta$ ($l_{\alpha\eta}$, ref)*						
				D_c	dm_m	a_p	l_2	l_3	l_{p2}	D_n	$r_{\epsilon 1}$	z_n	α°	β	0°	0.5°	1°	1.5°	2°	3°
32080	103ML002R002TN-MEGA-64-T	2	J	0.2	3	0.1	40	—	6.2	0.18	0.02	2	13	0.9	0.6	0.6	0.6	0.6	0.6	0.7
32082	103ML003R003TN-MEGA-64-T	2	J	0.3	3	0.15	40	—	6.3	0.28	0.03	2	12.5	0.9	0.7	0.9	0.9	0.9	1	1.1
32084	103ML004R004TN-MEGA-64-T	2	J	0.4	3	0.2	40	—	6.4	0.37	0.04	2	12	0.9	1.1	1.2	1.2	1.3	1.3	1.4
32087	103ML005R005TN-MEGA-64-T	2	J	0.5	3	0.25	40	—	6.6	0.45	0.05	2	11	0.9	1.5	1.5	1.6	1.6	1.7	1.8
32088	103ML005R010TN-MEGA-64-T	2	J	0.5	3	0.25	40	—	6.6	0.45	0.1	2	11	0.9	1.5	1.5	1.6	1.6	1.7	1.8
32102	103ML006R005TN-MEGA-64-T	2	J	0.6	3	0.3	40	—	6.9	0.55	0.05	2	10.5	0.9	1.8	2	2.1	2.2	2.2	2.4
32110	103ML008R005TN-MEGA-64-T	2	J	0.8	3	0.4	40	—	7	0.75	0.05	2	9.5	0.9	1.9	2.5	2.6	2.7	2.8	3
32119	103ML010R005TN-MEGA-64-T	2	J	1	3	0.5	40	—	8	0.95	0.05	2	7.5	0.9	2	4	4.1	4.3	4.4	4.8
32120	103ML010R010TN-MEGA-64-T	2	J	1	3	0.5	40	—	8	0.95	0.1	2	7.5	0.9	2	4	4.1	4.2	4.4	4.8
32121	103ML010R020TN-MEGA-64-T	2	J	1	3	0.5	40	—	8	0.95	0.2	2	7.5	0.9	2	4	4.1	4.2	4.4	4.7
32157	106ML012R010TN-MEGA-64-T	2	J	1.2	6	0.6	50	—	13.7	1.15	0.1	2	10.5	0.9	2.1	4.8	4.6	4.8	5	5.4
32166	106ML015R010TN-MEGA-64-T	2	J	1.5	6	0.75	50	—	13.7	1.4	0.1	2	9.5	0.9	3.9	5.1	5.2	5.4	5.6	6.1
32167	106ML015R020TN-MEGA-64-T	2	J	1.5	6	0.75	50	—	13.7	1.4	0.2	2	9.5	0.9	3.9	5.1	5.2	5.4	5.6	6
32179	106ML020R010TN-MEGA-64-T	2	J	2	6	1	50	—	13.8	1.9	0.1	2	8.5	0.9	4.1	6	6.2	6.5	6.7	7.3
32180	106ML020R020TN-MEGA-64-T	2	J	2	6	1	50	—	13.8	1.9	0.2	2	8.5	0.9	4.1	6	6.2	6.5	6.7	7.2
32181	106ML020R030TN-MEGA-64-T	2	J	2	6	1	50	—	13.8	1.9	0.3	2	8.5	0.9	4.1	6	6.2	6.4	6.7	7.2
32090	103L005R005-MEGA-64-T	3	G	0.5	3	0.25	40	—	7.7	0.45	0.05	2	9.5	—	2.5	2.6	2.7	2.8	2.9	3.2
32092	103L005R010-MEGA-64-T	3	G	0.5	3	0.25	40	2.5	7.7	0.45	0.1	2	9.5	—	2.5	2.6	2.7	2.8	2.9	3.2
32104	103L006R005-MEGA-64-T	3	G	0.6	3	0.3	40	—	8	0.55	0.05	2	9	—	3	3.1	3.3	3.4	3.5	3.8
32112	103L008R005-MEGA-64-T	3	G	0.8	3	0.4	40	—	8.6	0.75	0.05	2	7.5	—	4	4.2	4.3	4.5	4.6	5
32123	103L010R005-MEGA-64-T	3	G	1	3	0.5	40	—	9.3	0.95	0.05	2	6.5	—	5	5.2	5.4	5.6	5.8	6.3
32124	103L010R010TN-MEGA-64-T	3	J	1	3	0.5	40	—	9	0.95	0.1	2	—	0.9	—	—	—	—	—	—
32125	103L010R010-MEGA-64-T	3	G	1	3	0.5	40	5	9.3	0.95	0.1	2	6.5	—	5	5.2	5.4	5.6	5.8	6.3
32127	103L010R020-MEGA-64-T	3	G	1	3	0.5	40	5	9.3	0.95	0.2	2	6.5	—	5	5.2	5.4	5.6	5.8	6.2
32158	106L012R010TN-MEGA-64-T	3	G	1.2	6	0.6	50	—	15.1	1.15	0.1	2	—	0.9	—	—	—	—	—	—
32159	106L012R010-MEGA-64-T	3	G	1.2	6	0.6	50	6	15.5	1.15	0.1	2	9	—	6	6.2	6.5	6.7	6.9	7.5
32168	106L015R010TN-MEGA-64-T	3	G	1.5	6	0.75	50	—	16.1	1.4	0.1	2	—	0.9	—	—	—	—	—	—
32170	106L015R010-MEGA-64-T	3	G	1.5	6	0.75	50	7.5	16.5	1.4	0.1	2	8	—	7.6	7.9	8.2	8.5	8.8	9.5
32172	106L015R020-MEGA-64-T	3	G	1.5	6	0.75	50	7.5	16.5	1.4	0.2	2	8	—	7.6	7.9	8.2	8.4	8.8	9.5
32182	106L020R010TN-MEGA-64-T	3	G	2	6	1	50	—	17.5	1.9	0.1	2	—	0.9	—	—	—	—	—	—
32183	106L020R010-MEGA-64-T	3	G	2	6	1	50	10	18.1	1.9	0.1	2	6.5	—	10.1	10.5	10.8	11.2	11.6	12.6
32185	106L020R020-MEGA-64-T	3	G	2	6	1	50	10	18.1	1.9	0.2	2	6.5	—	10.1	10.5	10.8	11.2	11.6	12.6
32187	106L020R030-MEGA-64-T	3	G	2	6	1	50	10	18.1	1.9	0.3	2	6.5	—	10.1	10.5	10.8	11.2	11.6	12.5

* The effective under -neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

 $r_{s1} = \pm 0.01 \text{ mm}$ [illegible]

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Cutting data – JM103/JM106 Slotting

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
H3	M	0.010	0.0014	0.0022	0.0028	0.0036	0.0042	0.0055	0.0070	0.0085	0.010	0.012	60 (48 — 70)
H5	M	0.020	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.020	0.024	110 (90 — 135)
H7	M	0.0085	0.0015	0.0024	0.0030	0.0038	0.0046	0.0060	0.0075	0.0090	0.011	0.013	60 (48 — 70)
H8	M	0.020	0.0032	0.0050	0.0065	0.0080	0.010	0.013	0.016	0.019	0.022	0.028	110 (90 — 130)
H11	M	0.020	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.020	0.024	145 (120 — 170)
H12	M	0.020	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.020	0.024	230 (190 — 275)
H21	M	0.020	0.0032	0.0050	0.0065	0.0080	0.010	0.013	0.016	0.019	0.022	0.028	110 (90 — 130)
H31	M	0.020	0.0028	0.0042	0.0055	0.0070	0.0085	0.011	0.014	0.017	0.020	0.024	85 (70 — 100)

Cutting data – JM103/JM106 Side milling $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
H3	M	0.020	0.0024	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.044	105 (85 — 125)
H5	M	0.050	0.0044	0.0075	0.010	0.013	0.015	0.020	0.024	0.030	0.036	0.044	205 (170 — 245)
H7	M	0.020	0.0024	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.044	105 (85 — 125)
H8	M	0.050	0.0044	0.0085	0.012	0.014	0.017	0.024	0.028	0.032	0.040	0.048	205 (170 — 245)
H11	M	0.050	0.0044	0.0075	0.010	0.013	0.015	0.020	0.024	0.030	0.036	0.044	265 (215 — 315)
H12	M	0.050	0.0044	0.0075	0.010	0.013	0.015	0.020	0.024	0.030	0.036	0.044	425 (350 — 500)
H21	M	0.050	0.0044	0.0085	0.012	0.014	0.017	0.024	0.028	0.032	0.040	0.048	205 (170 — 245)
H31	M	0.050	0.0044	0.0075	0.010	0.013	0.015	0.020	0.024	0.030	0.036	0.044	155 (125 — 185)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_s (mm)/ D_c (mm)= factor

All cutting data are target values

The image shows two dental burs side-by-side. The bur on the left is a standard high-speed steel bur with a long, tapered, and relatively smooth shank. The bur on the right is a diamond-coated bur, which has a shorter, wider, and more rounded shank. Both burs have a similar fluted design at the tip.

EDP No.	Part No.	Length index	Tool shape	Dimensions in mm							α_1°	β	z_n	Max. cut depth rel. to α_1 ($ \alpha_1$, ref)*						
				D _c	dm _m	a _p	l ₂	l ₃	l _{p1}	l _{p2}				D _n	0°	0.5°	1°	1.5°	2°	3°
32206	113005-MEGA-64-T	1	J	0.5	3	0.375	40	—	—	5.6	—	13.5	—	2	0.375	0.5	0.5	0.5	0.5	0.5
32213	113006-MEGA-64-T	1	J	0.6	3	0.45	40	—	—	5.6	—	13	—	2	0.45	0.6	0.6	0.6	0.7	0.7
32220	113008-MEGA-64-T	1	J	0.8	3	0.6	40	—	—	5.4	—	13	—	2	0.6	0.8	0.8	0.8	0.8	0.8
32228	113010-MEGA-64-T	1	J	1	3	0.75	40	—	—	5.1	—	12.5	—	2	0.75	0.9	0.9	0.9	1	1
32246	116012-MEGA-64-T	1	J	1.2	6	0.9	50	—	—	10.5	—	14	—	2	0.9	1.1	1.1	1.1	1.1	1.2
32253	116015-MEGA-64-T	1	J	1.5	6	1.125	50	—	—	10.2	—	14	—	2	1.125	1.3	1.3	1.3	1.4	1.4
32201	113ML002TN-MEGA-64-T	2	J	0.2	3	0.15	40	—	0.6	6.3	0.18	13	0.9	2	0.6	0.6	0.7	0.7	0.7	0.8
32203	113ML003TN-MEGA-64-T	2	J	0.3	3	0.225	40	—	0.9	6.4	0.28	12.5	0.9	2	0.9	0.9	1	1	1	1.1
32205	113ML004TN-MEGA-64-T	2	J	0.4	3	0.3	40	—	1.2	6.5	0.35	12	0.9	2	1.2	1.2	1.3	1.3	1.3	1.4
33066	116ML005TN-MEGA-64-T	2	J	0.5	6	0.375	50	—	1.5	12.2	0.45	13.5	0.9	2	1.5	1.5	1.6	1.6	1.7	1.8
33067	116ML006TN-MEGA-64-T	2	J	0.6	6	0.45	50	—	2	12.5	0.55	13	0.9	2	2	2	2.1	2.1	2.2	2.4
33068	116ML008TN-MEGA-64-T	2	J	0.8	6	0.6	50	—	2.5	12.6	0.75	12.5	0.9	2	2.1	2.5	2.6	2.7	2.7	2.9
33069	116ML010TN-MEGA-64-T	2	J	1	6	0.75	50	—	4	13.6	0.95	11	0.9	2	2.3	4	4.1	4.2	4.4	4.7
32247	116ML012TN-MEGA-64-T	2	J	1.2	6	0.9	50	—	4.5	13.7	1.15	10.5	0.9	2	2.4	4.5	4.6	4.7	4.9	5.3
32254	116ML015TN-MEGA-64-T	2	J	1.5	6	1.125	50	—	5	13.8	1.4	10	0.9	2	4.3	5.1	5.2	5.4	5.5	5.9
32261	116ML020TN-MEGA-64-T	2	J	2	6	1.5	50	—	6	13.8	1.9	9	0.9	2	4.6	6	6.2	6.4	6.6	7.1
32208	113L005TN-MEGA-64-T	3	G	0.5	3	0.375	40	—	2.5	7.5	0.45	—	0.9	2	∞	∞	∞	∞	∞	∞
32209	113L005-MEGA-64-T	3	G	0.5	3	0.375	40	2.5	2.5	7.7	0.45	10	—	2	2.5	2.6	2.7	2.8	2.9	3.1
32216	113L006-MEGA-64-T	3	G	0.6	3	0.45	40	3	3	8	0.55	9	—	2	3	3.1	3.2	3.3	3.5	3.7
32223	113L008-MEGA-64-T	3	G	0.8	3	0.6	40	4	4	8.6	0.75	8	—	2	4	4.2	4.3	4.4	4.6	4.9
32231	113L010-MEGA-64-T	3	G	1	3	0.75	40	5	5	9.3	0.95	7	—	2	5	5.2	5.4	5.5	5.7	6.2
32249	116L012-MEGA-64-T	3	G	1.2	6	0.9	50	6	6	15.5	1.15	9.5	—	2	6	6.2	6.4	6.6	6.9	7.4
32256	116L015-MEGA-64-T	3	G	1.5	6	1.125	50	7.5	7.5	16.5	1.4	8.5	—	2	7.6	7.9	8.1	8.4	8.7	9.3
32263	116L020-MEGA-64-T	3	G	2	6	1.5	50	10	10	18.1	1.9	7	—	2	10.1	10.4	10.8	11.1	11.5	12.4
32212	113XL005-MEGA-64-T	5	G	0.5	3	0.375	40	4	4	9.2	0.45	8	—	2	4	4.2	4.3	4.5	4.6	5
32219	113XL006-MEGA-64-T	5	G	0.6	3	0.45	40	5	5	10	0.55	7.5	—	2	5	5.2	5.4	5.6	5.8	6.2
32227	113XL008-MEGA-64-T	5	G	0.8	3	0.6	40	7	7	11.6	0.75	6	—	2	7	7.3	7.5	7.8	8	8.7
32234	113XL010-MEGA-64-T	5	G	1	3	0.75	40	8.5	8.5	12.8	0.95	5	—	2	8.5	8.8	9.1	9.4	9.8	10.5
32252	116XL012-MEGA-64-T	5	G	1.2	6	0.9	50	10	10	19.5	1.15	7.5	—	2	10	10.4	10.7	11.1	11.5	12.4
32259	116XL015-MEGA-64-T	5	G	1.5	6	1.125	60	12	12	21	1.4	6.5	—	2	12.1	12.5	12.9	13.4	13.9	14.9
32266	116XL020-MEGA-64-T	5	G	2	6	1.5	60	16	16	24.1	1.9	5	—	2	16.1	16.6	17.2	17.8	18.4	19.8

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Cutting data – JM113/JM116 Copy milling finishing $a_p/D_c = 0.02$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
H3	M	0.15	0.0044	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.044	200 (175 — 225)
H5	M	0.15	0.0065	0.013	0.017	0.020	0.024	0.032	0.040	0.048	0.055	0.065	390 (340 — 435)
H7	M	0.15	0.0044	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.044	200 (175 — 225)
H8	M	0.15	0.0075	0.014	0.019	0.024	0.028	0.038	0.048	0.055	0.065	0.075	390 (345 — 435)
H11	M	0.15	0.0065	0.013	0.017	0.020	0.024	0.032	0.040	0.048	0.055	0.065	495 (440 — 560)
H12	M	0.15	0.0065	0.013	0.017	0.020	0.024	0.032	0.040	0.048	0.055	0.065	800 (710 — 900)
H21	M	0.15	0.0075	0.014	0.019	0.024	0.028	0.038	0.048	0.055	0.065	0.075	390 (345 — 435)
H31	M	0.15	0.0065	0.013	0.017	0.020	0.024	0.032	0.040	0.048	0.055	0.065	290 (260 — 325)

Cutting data – JM113/JM116 Copy milling roughing $a_p/D_c = 0.2$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
H3	M	0.15	0.0020	0.0036	0.0050	0.0060	0.0075	0.010	0.012	0.015	0.017	0.020	155 (135 — 170)
H5	M	0.15	0.0042	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.042	290 (255 — 325)
H7	M	0.15	0.0020	0.0036	0.0050	0.0060	0.0075	0.010	0.012	0.015	0.017	0.020	155 (135 — 170)
H8	M	0.15	0.0044	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.044	290 (255 — 325)
H11	M	0.15	0.0042	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.042	375 (330 — 415)
H12	M	0.15	0.0042	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.042	600 (530 — 670)
H21	M	0.15	0.0044	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.044	290 (255 — 325)
H31	M	0.15	0.0042	0.0065	0.0090	0.011	0.013	0.018	0.022	0.026	0.032	0.042	220 (195 — 245)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



						
						
Name		JC840	JC845	JC850	JC860	JC870
Page		273-275	276-277	278-279	280-282	283-287
Family		COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE
Type of mill						
Shank	Cylindrical					
	Weldon					
Number of flutes		4-9	3-5	4	5-11	
ICC						
Diameter range	Metric	6-12	6-12	3-12	6-16	3-12
	Inch	1/4 - 1/2			1/4 - 1/2	1/4 - 1/2
Lengths available, based on length index		 2	 2	 2	 2	 2
Operation						
						
						
SMG						
TS1						
TS2		●	●	●	●	●
TS3		●	●	●	●	●
TP1						
TP2		●	●	●	●	●
TP3		●	●	●	●	●
honeycomb*					●	●

*honeycomb refers to a honeycomb-like base structure.

■ Stock standard

● Preferred choice, ○ Alternative choice

					
					
Name		JC871	JC875	JC880	JC885
Page		288-292	293-295	296-297	298-299
Family		COMPOSITE	COMPOSITE	COMPOSITE	COMPOSITE
Type of mill					
Shank	Cylindrical				
	Weldon				
Number of flutes			5-6, 10	4	4
ICC					
Diameter range	Metric	3-12	3-12	4-20	4-12
	Inch	1/4 -1/2	1/4 -1/2		
Lengths available, based on length index		 2	 2	 2	 2
Operation					
					
SMG					
TS1					
TS2		•	•	•	•
TS3		•	•	•	•
TP1					
TP2		•	•	•	•
TP3		•	•	•	•
honeycomb*		•			

*honeycomb refers to a honeycomb-like base structure.

■ Stock standard

• Preferred choice, ○ Alternative choice

Name		JPD840	JPD850	JPD880	JPD890	J93/J99-F	J28
Page		300-301	302-303	304-305	306-308	309-310	311-312
Family		PCD	PCD	PCD	PCD	VHM	VHM
Type of mill							
Shank	Cylindrical	■	■	■	■	■	■
	Weldon						
Number of flutes		1-2	2-3	3	2	2	1
ICC		■	■	■	■		
Diameter range	Metric	6-16	4-16	6-16	6-16	1-25	2-12
	Inch						
Lengths available, based on length index							
		2	2	2,3	2,3	1,2,3	2
Operation							
SMG							
TS1						•	•
TS2		•	•	•	•		
TS3		•	•	•	•		
TP1						•	
TP2		•	•	•	•		
TP3		•	•	•	•		
honeycomb*							

*honeycomb refers to a honeycomb-like base structure.

■ Stock standard

• Preferred choice, ○ Alternative choice

The diagram shows a vertical pile with the following dimensions and features:

- Height: l_2
- Top diameter: d_{m1}
- Bottom diameter: d_{m2}
- Split length: $a_{D \text{ split}}$
- Split depth: a_D
- Center of gravity: D_C
- Force: F_{E1}
- Section: D

The cross-section view D shows a circular pile with a split. Below the main diagram, five small diagrams illustrate different pile cross-sections and their behavior under load:

- A pile with a vertical split.
- A pile with a vertical split and the word "DURA" (Durable).
- A pile with a vertical split and a 20° angle.
- A pile with a vertical split and a 20° angle.
- A pile with a vertical split and a 12° angle.

[illegible]

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Technical drawing of a mechanical part D. The side view shows a vertical shaft with diameter d_{mm} , length l_2 , and a split section of length a_p . The cross-section view shows a circular profile with a central hole of diameter D_c and a split section of length a_p . The part is labeled D.

[illegible]

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Cutting data – JC840 Slotting

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
TS2	E/A/D	1.0	0.024	0.032	0.040	0.048	105 (50 — 155)
TS3	E/A/D	1.0	0.024	0.032	0.040	0.048	70 (50 — 95)
TP2	E/A/D	1.0	0.024	0.032	0.040	0.048	155 (105 — 205)
TP3	E/A/D	1.0	0.024	0.032	0.040	0.048	105 (70 — 135)

Cutting data – JC840 Side milling roughing $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
TS2	E/A/D	1.0	0.024	0.032	0.040	0.048	130 (65 — 195)
TS3	E/A/D	1.0	0.024	0.032	0.040	0.048	90 (65 — 115)
TP2	E/A/D	1.0	0.024	0.032	0.040	0.048	195 (130 — 255)
TP3	E/A/D	1.0	0.024	0.032	0.040	0.048	130 (90 — 165)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

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Cutting data – JC845 Slotting

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
TS2	E/A/D	1.0	0.024	0.032	0.040	0.048	105 (50 — 160)
TS3	E/A/D	1.0	0.024	0.032	0.040	0.048	75 (50 — 95)
TP2	E/A/D	1.0	0.024	0.032	0.040	0.048	155 (105 — 210)
TP3	E/A/D	1.0	0.024	0.032	0.040	0.048	105 (75 — 135)

Cutting data – JC845 Side milling roughing $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
TS2	E/A/D	1.0	0.024	0.032	0.040	0.048	130 (65 — 195)
TS3	E/A/D	1.0	0.024	0.032	0.040	0.048	90 (65 — 115)
TP2	E/A/D	1.0	0.024	0.032	0.040	0.048	195 (130 — 260)
TP3	E/A/D	1.0	0.024	0.032	0.040	0.048	130 (90 — 170)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

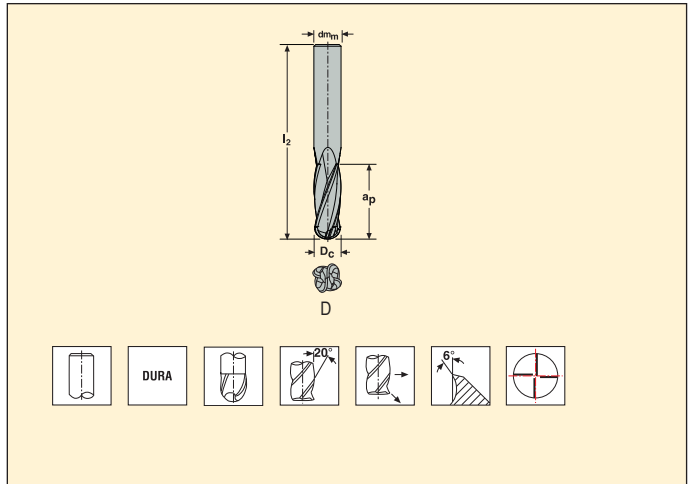
a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



Radius=+/-0.02 mm

[illegible]

Cutting data – JC850 Copy milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z						v_c
			3	4	6	8	10	12	
TS2	E/A/D	0.20	0.032	0.046	0.070	0.095	0.12	0.14	310 (155 — 460)
TS3	E/A/D	0.20	0.032	0.046	0.070	0.095	0.12	0.14	145 (75 — 220)
TP2	E/A/D	0.20	0.032	0.046	0.070	0.095	0.12	0.14	385 (310 — 460)
TP3	E/A/D	0.20	0.032	0.046	0.070	0.095	0.12	0.14	220 (145 — 295)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

[illegible]

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[illegible]

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Cutting data – JC860 Slotting

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	0.50	0.018	0.024	0.030	0.036	0.044	100 (75 — 125)
TS3	E/A/D	0.50	0.018	0.024	0.030	0.036	0.044	50 (30 — 70)
TP2	E/A/D	0.50	0.018	0.024	0.030	0.036	0.044	150 (125 — 175)
TP3	E/A/D	0.50	0.018	0.024	0.030	0.036	0.044	100 (80 — 120)

Cutting data – JC860 Side milling roughing $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.0	0.030	0.040	0.050	0.060	0.075	170 (125 — 210)
TS3	E/A/D	1.0	0.030	0.040	0.050	0.060	0.075	85 (50 — 120)
TP2	E/A/D	1.0	0.030	0.040	0.050	0.060	0.075	255 (210 — 295)
TP3	E/A/D	1.0	0.030	0.040	0.050	0.060	0.075	170 (135 — 200)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

A close-up photograph of a diamond-coated drill bit. The bit features a series of small, dark, diamond-shaped particles embedded in a lighter-colored matrix, forming a textured surface along its length. The tip of the bit is visible at the top, showing a standard double-flute design.

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

A close-up photograph of a diamond-coated drill bit. The bit is cylindrical and features a dense, textured surface of small, dark, diamond-shaped particles. The top of the bit is slightly wider and has a different, smoother texture. The background is a plain, light gray.

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

A close-up photograph of a diamond-coated drill bit. The bit features a series of small, dark, diamond-shaped particles embedded in a lighter-colored matrix, forming a textured cutting edge. The bit is shown vertically against a plain white background.

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

A close-up photograph of a diamond drill bit, showing the textured, diamond-encrusted cutting edge. The bit is oriented vertically, with the cutting tip at the top. The background is a plain, light gray.

Technical drawing of a mechanical part D. The main view is a side elevation showing a vertical cylinder with diameter d and length l_2 . The bottom flange has diameter D_c and thickness a_p . Below the main view are four cross-sectional views labeled 1, 2, 3, and 4. View 1 shows a central hole. View 2 shows a diagonal slot. View 3 shows a cross-hatched section. View 4 shows a 7-degree chamfer.

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

Cutting data – JC870 Slotting

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
TS2	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	105 (80 — 130)
TS3	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	55 (32 — 75)
TP2	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	160 (130 — 185)
TP3	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	105 (85 — 125)

Cutting data – JC870 Side milling roughing $a_e/D_c = 0.35$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
TS2	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	155 (115 — 195)
TS3	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	75 (46 — 110)
TP2	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	230 (195 — 270)
TP3	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	155 (125 — 185)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

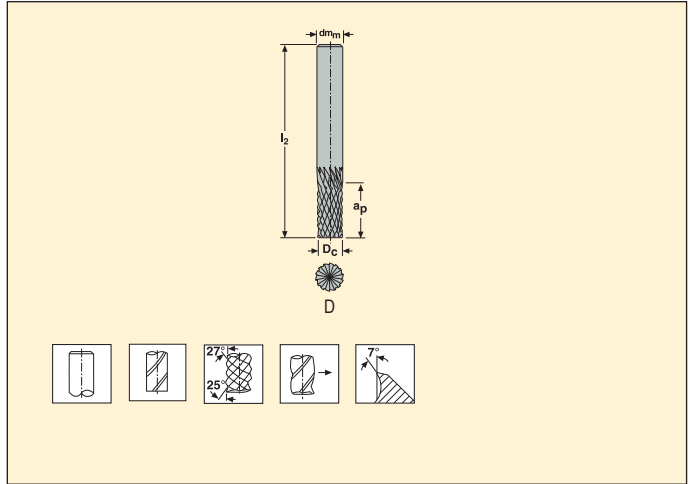
All cutting data are target values

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

$$D_C = -0.02 / -0.04$$
[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

Technical drawing of a mechanical part labeled **D**. The main view is a side elevation showing a vertical cylindrical component. The total height is labeled l_2 . The top section has a diameter labeled $\varnothing m_n$. The bottom section has a diameter labeled $\varnothing D_c$ and a height labeled a_p . Below the main view is a circular cross-section showing radial lines, indicating a flange or a similar feature. Below the main view are five alternative views in a row, each enclosed in a box:

- 1. A side view showing a cylindrical shape with a small circular feature at the bottom.
- 2. A side view showing a cylindrical shape with diagonal hatching.
- 3. A side view showing a cylindrical shape with diagonal hatching and dimensions 27 ± 0.1 and 25 ± 0.1 .
- 4. A side view showing a cylindrical shape with diagonal hatching and an arrow pointing to the right.
- 5. A side view showing a cylindrical shape with diagonal hatching and a dimension of 7° .

[illegible]

■ **Stock standard.** Subject to change, refer to current price-and stock-list.

Cutting data – JC871 Slotting

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
TS2	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	105 (80 — 130)
TS3	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	55 (32 — 75)
TP2	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	160 (130 — 185)
TP3	E/A/D	0.50	0.0090	0.012	0.015	0.018	0.024	0.030	0.036	105 (85 — 125)

Cutting data – JC871 Side milling roughing $a_p/D_c = 0.35$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
TS2	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	155 (115 — 195)
TS3	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	75 (46 — 110)
TP2	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	230 (195 — 270)
TP3	E/A/D	2.0	0.0095	0.013	0.016	0.019	0.026	0.032	0.038	155 (125 — 185)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

Diagram of a vertical column with a central shaded core of diameter d_{mm} and length l_2 . The column has a total height of 1m. The bottom section has a height of a_D and a width of D_c . The top section has a height of $1m - a_D$. The column is labeled D at the bottom.

Below the diagram are five small square boxes containing different cross-sectional shapes of the column:

- Box 1: A circle with a vertical dashed line through the center.
- Box 2: A circle with a diagonal line from the top-left to the bottom-right.
- Box 3: A circle with a diagonal line from the top-left to the bottom-right, labeled $\pm 20^\circ$.
- Box 4: A circle with a diagonal line from the top-left to the bottom-right, labeled 6° .
- Box 5: A circle with a diagonal line from the top-left to the bottom-right, with arrows pointing outwards from the top and bottom.

To the right of these boxes is a box labeled **DURA**.

[illegible]

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The diagram shows a vertical cross-section of a beam. The top part is a light blue rectangle with width dm_m and height l_2 . The bottom part is a hatched rectangle with width d_c and height a_p . The total height is $l_2 + a_p$. The bottom edge is labeled D . Below the diagram are five boxes containing different shear stress distribution patterns:

- Box 1: A uniform distribution across the entire height.
- Box 2: A linear distribution, zero at the top and maximum at the bottom.
- Box 3: A linear distribution with a 20° angle indicated at the bottom.
- Box 4: A linear distribution with a 6° angle indicated at the bottom.
- Box 5: A parabolic distribution with a maximum value at the interface between the two materials.

To the right of these boxes is a box labeled **DURA**.

[illegible]

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Cutting data – JC875 Slotting

SMG		a_p / D_c	f_z						v_c
			4	5	6	8	10	12	
TS2	E/A/D	0.50	0.012	0.015	0.018	0.024	0.030	0.036	105 (90 — 155)
TS3	E/A/D	0.50	0.012	0.015	0.018	0.024	0.030	0.036	55 (44 — 80)
TP2	E/A/D	0.50	0.012	0.015	0.018	0.024	0.030	0.036	160 (135 — 235)
TP3	E/A/D	0.50	0.012	0.015	0.018	0.024	0.030	0.036	105 (90 — 155)

Cutting data – JC875 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z						v_c
			4	5	6	8	10	12	
TS2	E/A/D	2.0	0.013	0.016	0.019	0.026	0.032	0.038	135 (110 — 200)
TS3	E/A/D	2.0	0.013	0.016	0.019	0.026	0.032	0.038	65 (55 — 100)
TP2	E/A/D	2.0	0.013	0.016	0.019	0.026	0.032	0.038	200 (170 — 300)
TP3	E/A/D	2.0	0.013	0.016	0.019	0.026	0.032	0.038	135 (110 — 200)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

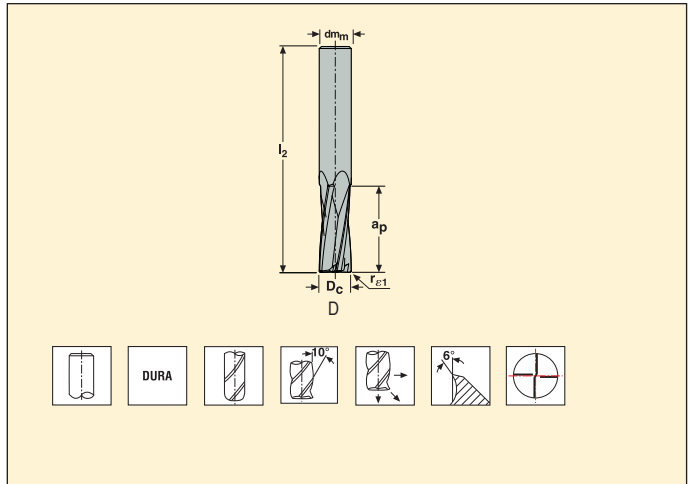
v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values


$$\begin{aligned} dm_m &= h5 \\ D_c &= -0.02/-0.04 \text{ mm} \\ r_{\varepsilon 1} &= \pm 0.01 \text{ mm} \end{aligned}$$
[illegible]

Cutting data – JC880 Slotting

SMG		a_p / D_c	f_z								v_c
			4	5	6	8	10	12	16	20	
TS2	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	105 (80 — 135)
TS3	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	49 (29 — 70)
TP2	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	160 (135 — 185)
TP3	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	0.090	0.10	100 (80 — 115)

Cutting data – JC880 Side milling roughing $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z							v_c
			4	6	8	10	12	16	20	
TS2	E/A/D	2.0	0.026	0.040	0.050	0.065	0.080	0.095	0.11	160 (120 — 200)
TS3	E/A/D	2.0	0.026	0.040	0.050	0.065	0.080	0.095	0.11	75 (44 — 100)
TP2	E/A/D	2.0	0.026	0.040	0.050	0.065	0.080	0.095	0.11	235 (200 — 275)
TP3	E/A/D	2.0	0.026	0.040	0.050	0.065	0.080	0.095	0.11	145 (115 — 175)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

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Cutting data – JC885 Slotting

SMG		a_p / D_c	f_z						v_c
			4	5	6	8	10	12	
TS2	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	105 (80 — 135)
TS3	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	49 (29 — 70)
TP2	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	160 (130 — 185)
TP3	E/A/D	1.0	0.024	0.030	0.036	0.048	0.060	0.070	95 (80 — 115)

Cutting data – JC885 Side milling roughing $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z						v_c
			4	5	6	8	10	12	
TS2	E/A/D	2.0	0.026	0.032	0.040	0.050	0.065	0.075	155 (120 — 195)
TS3	E/A/D	2.0	0.026	0.032	0.040	0.050	0.065	0.075	70 (43 — 100)
TP2	E/A/D	2.0	0.026	0.032	0.040	0.050	0.065	0.075	235 (195 — 275)
TP3	E/A/D	2.0	0.026	0.032	0.040	0.050	0.065	0.075	145 (115 — 175)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

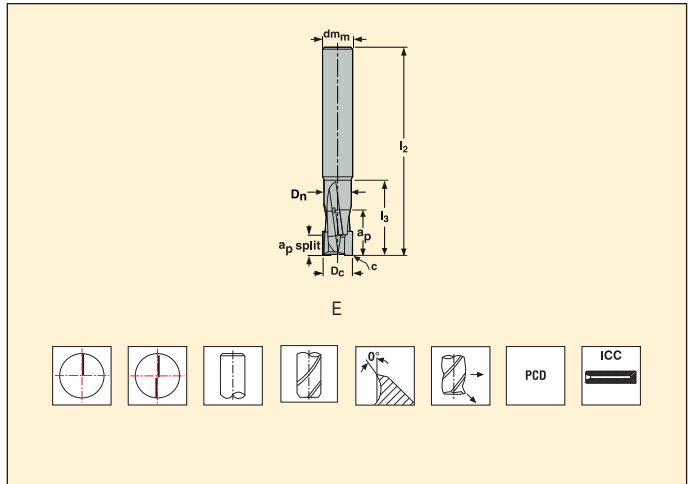
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

ICC=Y

[illegible]

ICC = Internal Coolant Channel

Cutting data – JPD840 Slotting

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	375 (315 — 560)
TS3	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	205 (170 — 305)
TP2	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	600 (500 — 900)
TP3	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	385 (325 — 580)

Cutting data – JPD840 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.4	0.065	0.085	0.11	0.13	0.16	495 (415 — 740)
TS3	E/A/D	1.4	0.065	0.085	0.11	0.13	0.16	270 (230 — 405)
TP2	E/A/D	1.4	0.065	0.085	0.11	0.13	0.16	790 (670 — 1175)
TP3	E/A/D	1.4	0.065	0.085	0.11	0.13	0.16	510 (430 — 770)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

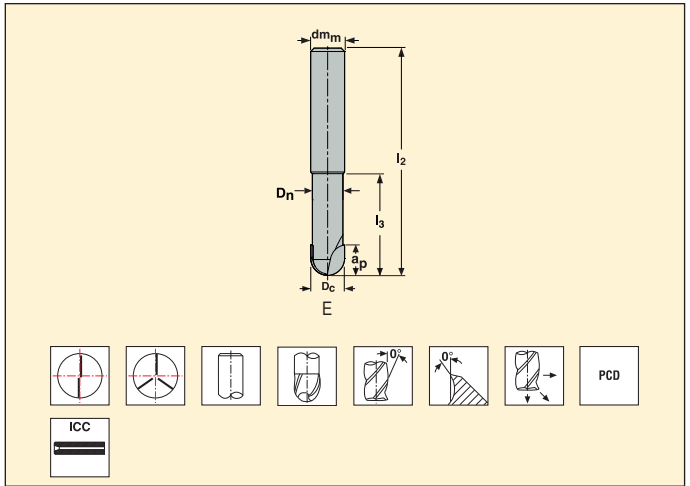
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

ICC

[illegible]

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Cutting data – JPD850 Copy milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z							v_c
			4	5	6	8	10	12	16	
TS2	E/A/D	0.50	0.030	0.040	0.050	0.075	0.10	0.12	0.15	475 (400 — 710)
TS3	E/A/D	0.50	0.030	0.040	0.050	0.075	0.10	0.12	0.15	265 (225 — 400)
TP2	E/A/D	0.50	0.030	0.040	0.050	0.075	0.10	0.12	0.15	760 (640 — 1125)
TP3	E/A/D	0.50	0.030	0.040	0.050	0.075	0.10	0.12	0.15	500 (425 — 750)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

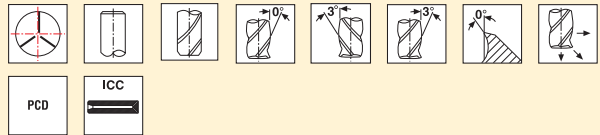
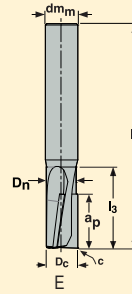
f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

ICC=Y

[illegible]

ICC = Internal Coolant Channel

Cutting data – JPD880 Slotting

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	375 (315 — 560)
TS3	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	205 (170 — 305)
TP2	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	600 (500 — 900)
TP3	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	385 (325 — 580)

Cutting data – JPD880 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	495 (415 — 740)
TS3	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	270 (230 — 405)
TP2	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	790 (670 — 1175)
TP3	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	510 (430 — 770)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

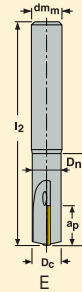
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

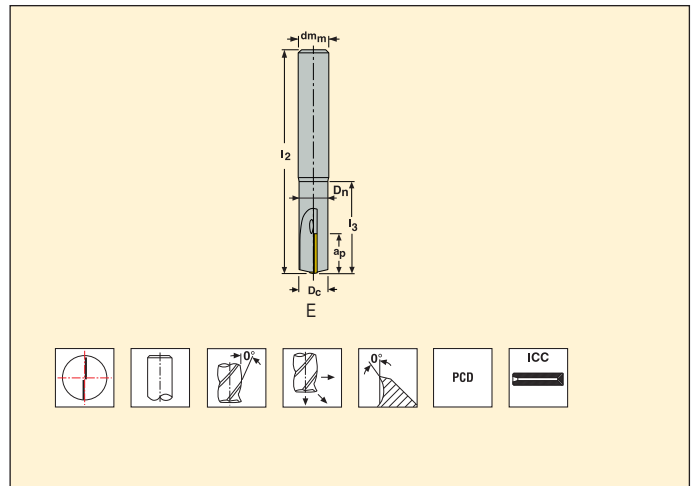
All cutting data are target values

ICC=2 straight channels

[illegible]

ICC = Internal Coolant Channel

ICC=2 straight channels

[illegible]

ICC = Internal Coolant Channel

Cutting data – JPD890 Slotting

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	375 (250 — 500)
TS3	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	205 (135 — 275)
TP2	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	600 (500 — 700)
TP3	E/A/D	1.0	0.060	0.080	0.10	0.12	0.15	390 (275 — 500)

Cutting data – JPD890 Side milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z					v_c
			6	8	10	12	16	
TS2	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	495 (330 — 660)
TS3	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	270 (180 — 360)
TP2	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	790 (660 — 930)
TP3	E/A/D	1.2	0.065	0.085	0.11	0.13	0.16	510 (360 — 660)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

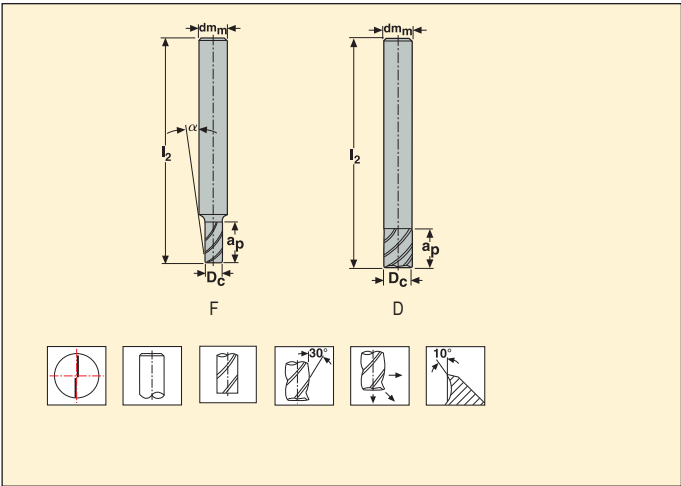
a_e (mm)/ D_c (mm)= factor

All cutting data are target values

J99-F/J93-F (uncoated) – Solid carbide end mill – cylindrical – sharp



Tolerances:
dm_m=h5
D_c=Ø1-6=-0.02/-0.04 mm



EDP No.	Part No.	Length index	Tool shape	Dimensions in mm				α°	z _n
				D _c	dm _m	l ₂	a _p		
37503	99010-F	1	F	1	3	40	2	7.5	2
37504	99020-F	1	F	2	3	40	4	3.5	2
37505	99030-F	1	D	3	3	40	6	–	2
37506	99040-F	1	D	4	4	50	8	–	2
37507	99050-F	1	D	5	5	50	11	–	2
37508	99060-F	1	D	6	6	50	13	–	2
37509	99080-F	1	D	8	8	50	13	–	2
37510	99100-F	1	D	10	10	50	16	–	2
37511	99120-F	1	D	12	12	65	19	–	2
37458	93015-F	2	D	1.5	3	40	6	4	2
37459	93020-F	2	F	2	3	40	9	2.5	2
37480	93025-F	2	F	2.5	3	40	9	1.5	2
37481	93030-F	2	D	3	3	40	12	–	2
37482	93040-F	2	D	4	4	50	14	–	2
37483	93050-F	2	D	5	5	50	20	–	2
37484	93060-F	2	D	6	6	65	20	–	2
37485	93080-F	2	D	8	8	70	20	–	2
37486	93100-F	2	D	10	10	80	25	–	2
37487	93120-F	2	D	12	12	90	25	–	2
37488	93140-F	2	D	14	14	90	30	1.0	2
37489	93160-F	2	D	16	16	90	30	–	2
37490	93200-F	2	D	20	20	100	35	–	2
37491	93250-F	2	D	25	25	125	40	–	2
37492	93L060-F	3	D	6	6	100	40	–	2
37493	93L080-F	3	D	8	8	100	40	–	2
37494	93L100-F	3	D	10	10	100	40	–	2
37495	93L120-F	3	D	12	12	100	45	–	2
37496	93L140-F	3	D	14	14	100	45	–	2
37497	93L160-F	3	D	16	16	100	45	–	2
37498	93L200-F	3	D	20	20	125	55	–	2
37500	93XL120-F	4	D	12	12	150	30	–	2
37501	93XL160-F	4	D	16	16	150	65	–	2
37502	93XL200-F	4	D	20	20	150	65	–	2

■ Stock standard. Subject to change, refer to current price-and stock-list.

Cutting data – J99/J93 Slotting

SMG		a_p / D_c	f_z													v_c
			1	2	3	4	5	6	8	10	12	14	16	20	25	
TS1	A	0.50	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	470 (375 — 570)
TP1	A	0.50	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.13	0.15	0.17	0.19	455 (365 — 550)

Cutting data – J99/J93 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z													v_c
			1	2	3	4	5	6	8	10	12	14	16	20	25	
TS1	A/D	1.7	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.20	860 (690 — 1025)
TP1	A/D	1.7	0.010	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	0.14	0.15	0.17	0.20	830 (670 — 1000)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

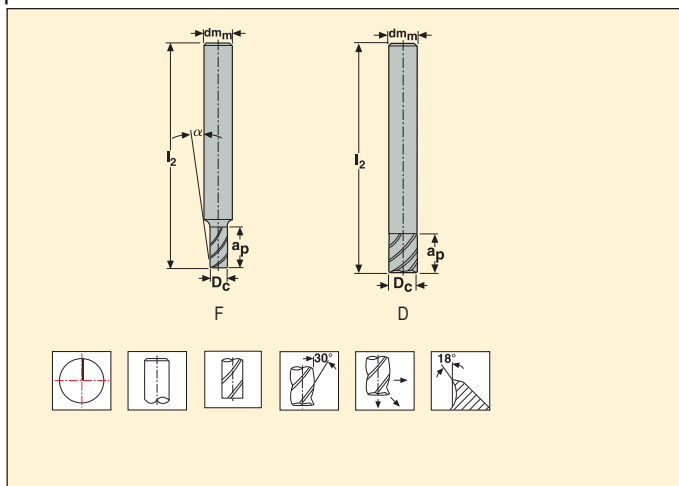
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

$D_c = \varnothing 2-6 = -0.02/-0.034 \text{ mm}, \varnothing 8-12 = -0.02/-0.044 \text{ mm}$

[illegible]

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Cutting data – J28 Slotting

SMG		a_p / D_c	f_z								v_c
			2	3	4	5	6	8	10	12	
TS1	A/D	1.2	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	410 (310 — 520)

Cutting data – J28 Side milling $a_e/D_c = 0.4$

SMG		a_p / D_c	f_z								v_c
			2	3	4	5	6	8	10	12	
TS1	A/D	1.5	0.020	0.030	0.040	0.050	0.060	0.080	0.10	0.12	490 (365 — 610)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values



							
							
Name		JD620	JD630	JD640	JD660	JD665VL	JD670
Page		316-317	318-319	320-321	322-323	324-325	326-327
Family		DIAMOND	DIAMOND	DIAMOND	DIAMOND	DIAMOND	DIAMOND
Type of mill							
Shank	Cylindrical						
	Weldon						
Number of flutes		2	3	4	2	4	3
ICC							
Diameter range	Metric	3-12	3-8	6-12	3-12	6-12	5-10
	Inch						
Lengths available, based on length index		 2,3,4	 1,2,3	 1,2,3	 1,2,3,4	 4	 5,6
Operation							
							
							
SMG							
GR		•	•	•	•	•	•

-  Stock standard
  Weldon available, delivery time is 3 days
 • Preferred choice, ○ Alternative choice

					
					
Name		JM600	JM610	JM650	JM655
Page		328-329	330-331	332-333	334-335
Family		MINI DIAMOND	MINI DIAMOND	MINI DIAMOND	MINI DIAMOND
Type of mill					
Shank	Cylindrical				
	Weldon				
Number of flutes		2	2	2	2
ICC					
Diameter range	Metric	0.2-2	1-2	0.2-2	1-2
	Inch				
Lengths available, based on length index		 1,3,5,6	 4,5	 1,3,5,6	 1,3,4,5
Operation					
					
					
SMG					
GR		●	●	●	●

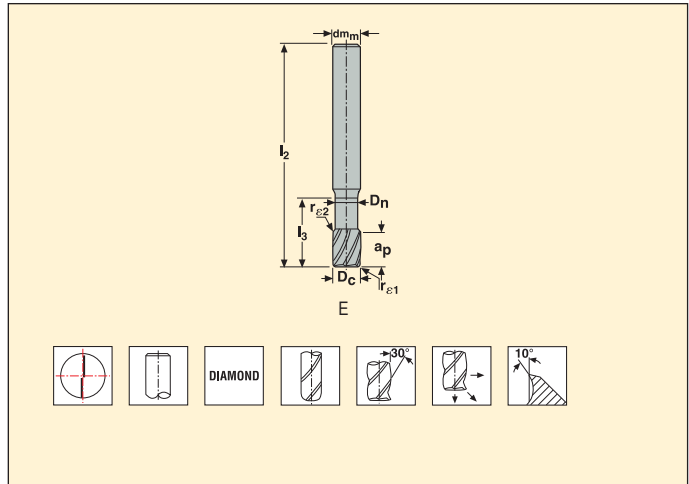
■ Stock standard □ Weldon available, delivery time is 3 days
● Preferred choice, ○ Alternative choice

JD620 – Solid carbide end mill – corner radius



Tolerances:

Runout<0.01 mm

$$dm_m = h5$$
$$D_c = -0.02/-0.04 \text{ mm}$$
 $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ [illegible]

Cutting data – JD620 V (2) Slotting

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.50	0.024	0.032	0.040	0.048	0.065	0.080	0.095	630 (520 — 730)

Cutting data – JD620 V (2) Side milling $a_e/D_c = 0,5$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.50	0.024	0.032	0.040	0.048	0.065	0.080	0.095	740 (620 — 870)

Cutting data – JD620 VL Slotting

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.50	0.024	0.032	0.040	0.048	0.065	0.080	0.095	630 (520 — 730)

Cutting data – JD620 VL Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.50	0.024	0.032	0.040	0.048	0.065	0.080	0.095	740 (620 — 870)

Cutting data – JD620 VSL (4) Slotting

SMG		a_p / D_c	f_z		v_c
			10	12	
GR1	D	0.50	0.080	0.095	670 (560 — 780)

Cutting data – JD620 VSL (4) Side milling $a_e/D_c = 0,5$

SMG		a_p / D_c	f_z		v_c
			10	12	
GR1	D	0.50	0.090	0.10	860 (720 — 1000)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

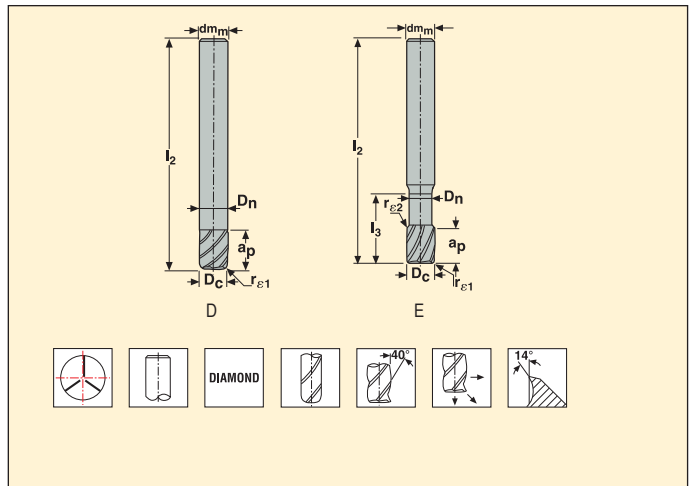
All cutting data are target values

JD630 – Solid carbide end mill – corner radius



Tolerances:

Runout<0.01 mm

$$dm_m = h5$$
 $D_c = -0.02/-0.04 \text{ mm}$ $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ [illegible]

Cutting data – JD630 Slotting

SMG		a_p / D_c	f_z					v_c
			3	4	5	6	8	
GR1	D	0.60	0.024	0.032	0.040	0.048	0.065	630 (530 — 740)

Cutting data – JD630 Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z					v_c
			3	4	5	6	8	
GR1	D	0.60	0.024	0.032	0.040	0.048	0.065	750 (620 — 870)

Cutting data – JD630 V (3) Slotting

SMG		a_p / D_c	f_z			v_c
			3	4	5	
GR1	D	0.30	0.024	0.032	0.040	860 (710 — 1000)

Cutting data – JD630 V (3) Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z			v_c
			3	4	5	
GR1	D	0.30	0.024	0.032	0.040	860 (710 — 1000)

Cutting data – JD630 VL (4) Slotting

SMG		a_p / D_c	f_z					v_c
			3	4	5	6	8	
GR1	D	0.40	0.024	0.032	0.040	0.048	0.065	780 (650 — 910)

Cutting data – JD630 VL (4) Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z					v_c
			3	4	5	6	8	
GR1	D	0.40	0.024	0.032	0.040	0.048	0.065	920 (770 — 1075)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

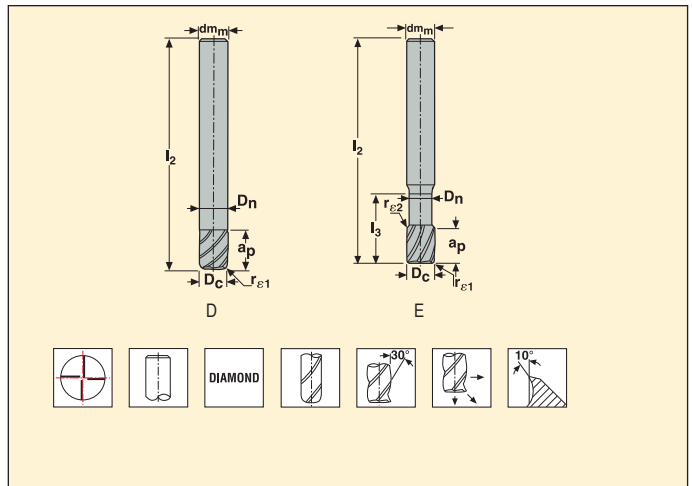
All cutting data are target values

JD640 – Solid carbide end mill – corner radius



Tolerances:

Runout<0.01 mm

$$dm_m = h5$$
$$D_c = -0.02/-0.04 \text{ mm}$$
 $r_{\varepsilon 1} = \pm 0.05 \text{ mm}$ [illegible]

Cutting data – JD640 (2) Slotting

SMG		a_p / D_c	f_z		v_c
			10	12	
GR1	D	0.50	0.080	0.095	630 (520 — 730)

Cutting data – JD640 (2) Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z		v_c
			10	12	
GR1	D	0.50	0.080	0.095	740 (620 — 870)

Cutting data – JD640 V Slotting

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
GR1	D	0.34	0.050	0.065	0.080	0.095	740 (620 — 870)

Cutting data – JD640 V Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
GR1	D	0.34	0.050	0.065	0.080	0.095	880 (730 — 1025)

Cutting data – JD640 VL (4) Slotting

SMG		a_p / D_c	f_z			v_c
			8	10	12	
GR1	D	0.24	0.070	0.090	0.11	750 (630 — 880)

Cutting data – JD640 VL (4) Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z			v_c
			8	10	12	
GR1	D	0.24	0.070	0.090	0.11	880 (730 — 1025)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JD660 – Solid carbide end mill – ball nose

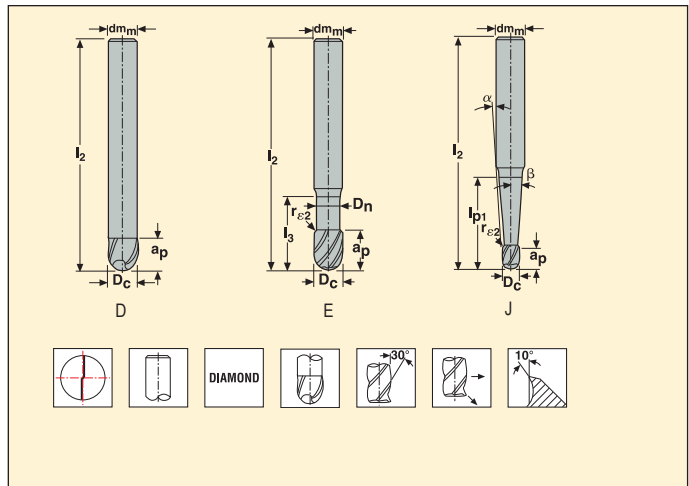


Tolerances:

Run-out<0.01 mm

$$dm_m = h5$$
 $D_G = -0.02/-0.04 \text{ mm}$

Radius= ± 0.01 mm

 $B=0.9^\circ$ 

EDP No.	Part No.	Length index	Tool shape	Dimensions in mm								α_1°	z_n	Max. cut depth rel. to $\alpha\eta$ ($ \alpha\eta $, ref)*					
				D _c	dm _m	a _p	l ₂	l _{p1}	D _n	r _{c2}	0°			0.5°	1°	1.5°	2°	3°	
08419	660030-DIAMOND	1	D	3	3	8	40	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08422	660040-DIAMOND	1	D	4	4	14	50	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08423	660050-DIAMOND	1	D	5	5	20	50	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08424	660060-DIAMOND	1	D	6	6	20	65	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08427	660080-DIAMOND	1	D	8	8	20	65	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08428	660100-DIAMOND	1	D	10	10	25	75	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08435	660V030-DIAMOND	2	E	3	3	6	40	–	2.9	2	–	2	∞	∞	∞	∞	∞	∞	
08436	660V040-DIAMOND	2	E	4	4	6	40	–	3.9	2	–	2	∞	∞	∞	∞	∞	∞	
08438	660V050-DIAMOND	2	E	5	5	8	40	–	4.9	2	–	2	∞	∞	∞	∞	∞	∞	
08441	660V060-DIAMOND	2	E	6	6	10	65	–	5.9	2	–	2	∞	∞	∞	∞	∞	∞	
08443	660V080-DIAMOND	2	E	8	8	10	65	–	7.8	2	–	2	∞	∞	∞	∞	∞	∞	
08444	660V100-DIAMOND	2	E	10	10	10	75	–	9.8	2	–	2	∞	∞	∞	∞	∞	∞	
08447	660V120-DIAMOND	2	E	12	12	10	75	–	11.8	3	–	2	∞	∞	∞	∞	∞	∞	
08429	660L030-DIAMOND	3	D	3	3	20	60	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08430	660L040-DIAMOND	3	D	4	4	30	60	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08431	660L050-DIAMOND	3	D	5	5	35	70	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08432	660L060-DIAMOND	3	D	6	6	40	100	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08433	660L080-DIAMOND	3	D	8	8	40	100	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08434	660L100-DIAMOND	3	D	10	10	40	100	–	–	–	–	2	∞	∞	∞	∞	∞	∞	
08449	660VL030-DIAMOND	4	E	3	3	6	60	–	2.9	2	–	2	∞	∞	∞	∞	∞	∞	
08451	660VL040-DIAMOND	4	E	4	4	6	60	–	3.9	2	–	2	∞	∞	∞	∞	∞	∞	
08452	660VL050-DIAMOND	4	E	5	5	8	70	–	4.9	2	–	2	∞	∞	∞	∞	∞	∞	
08453	660VL060-DIAMOND	4	E	6	6	10	100	–	5.8	2	–	2	∞	∞	∞	∞	∞	∞	
08454	660VL080-DIAMOND	4	E	8	8	10	100	–	7.8	2	–	2	∞	∞	∞	∞	∞	∞	
08455	660VL100-DIAMOND	4	E	10	10	10	100	–	9.8	2	–	2	∞	∞	∞	∞	∞	∞	
09614	660VL120-DIAMOND	4	E	12	12	10	100	–	11.7	3	–	2	∞	∞	∞	∞	∞	∞	
08461	660KL030-DIAMOND	5	J	3	5	6	100	70	2.85	2	1	2	11.7	27	∞	∞	∞	∞	
08462	660KL040-DIAMOND	5	J	4	6	8	100	70	3.85	2	1	2	13.7	31.2	∞	∞	∞	∞	

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Cutting data – JD660 V (2) Side rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.10	0.036	0.048	0.060	0.070	0.095	0.12	0.14	1575 (1325 — 1850)

Cutting data – JD660 V (2) Copy rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.080	0.036	0.048	0.060	0.070	0.095	0.12	0.14	1600 (1325 — 1850)

Cutting data – JD660 L (3) Copy rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z						v_c
			3	4	5	6	8	10	
GR1	D	0.16	0.050	0.070	0.085	0.10	0.14	0.17	1500 (1250 — 1750)

Cutting data – JD660 L (3) Side milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z						v_c
			3	4	5	6	8	10	
GR1	D	0.10	0.050	0.070	0.085	0.10	0.14	0.17	1525 (1275 — 1775)

Cutting data – JD660 VL (4) Copy rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.080	0.050	0.070	0.085	0.10	0.14	0.17	0.20	1600 (1325 — 1875)

Cutting data – JD660 VL (4) Side rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z							v_c
			3	4	5	6	8	10	12	
GR1	D	0.10	0.050	0.070	0.085	0.10	0.14	0.17	0.20	1525 (1275 — 1775)

Cutting data – JD660 KL (4) Copy rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z		v_c
			3	4	
GR1	D	0.10	0.050	0.070	1525 (1275 — 1775)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm) = factor

a_e (mm)/ D_c (mm) = factor

All cutting data are target values

JD665 – Solid carbide end mill – Ball nose

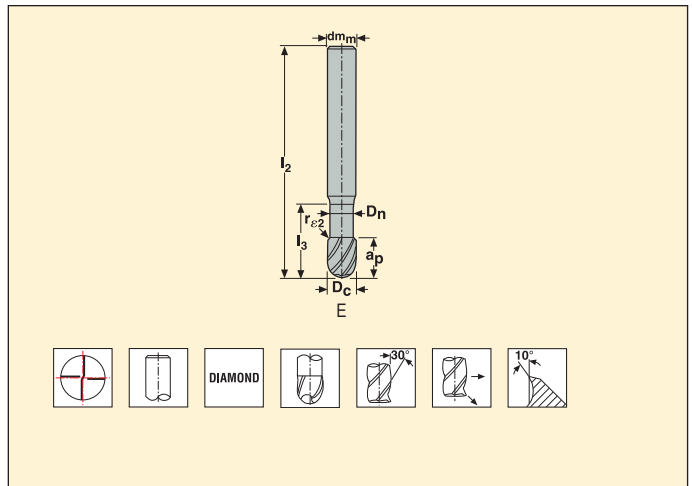


Tolerances:

Runout<0.01 mm

$$dm_m = h5$$
$$D_c = -0.02/-0.04 \text{ mm}$$

Radius= ± 0.01 mm

[illegible]

Cutting data – JD665 VL Copy rough milling $a_e/D_c = 0.1$

SMG		a_p / D_c	f_z				v_c
			6	8	10	12	
GR1	D	0.10	0.070	0.095	0.12	0.14	1500 (1250 — 1750)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

JD670 – Solid carbide end mill – Ball nose

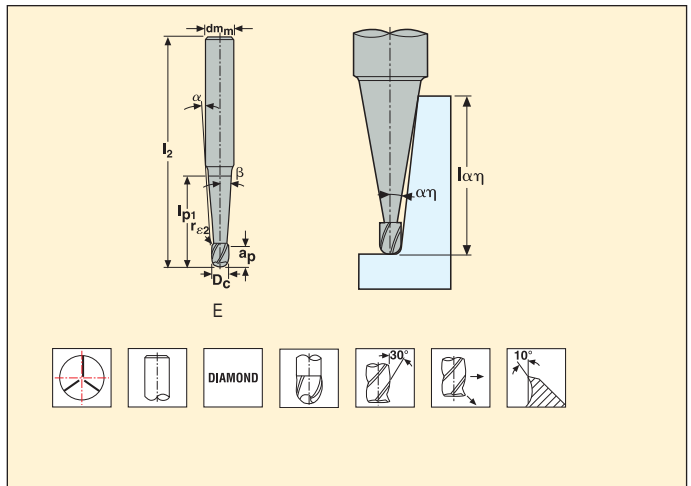


Tolerances:

Runout<0.01 mm

$$dm_m = h5$$
$$D_c = -0.02/-0.04 \text{ mm}$$

Radius= ± 0.01 mm

[illegible]

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Cutting data – JD670 KL (5) Copy finishing milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z		v_c
			5	6	
GR1	D	0.30	0.090	0.12	1625 (1350 — 1875)

Cutting data – JD670 KL (5) Copy rough milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z		v_c
			5	6	
GR1	D	0.30	0.050	0.065	1000 (840 — 1175)

Cutting data – JD670 KSL (6) Copy finishing milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z			v_c
			6	8	10	
GR1	D	0.30	0.12	0.16	0.20	1625 (1350 — 1875)

Cutting data – JD670 KSL (6) Copy rough milling $a_e/D_c = 0.3$

SMG		a_p / D_c	f_z			v_c
			6	8	10	
GR1	D	0.30	0.065	0.085	0.11	1000 (840 — 1175)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

[illegible]

328

Cutting data – JM600 Slotting

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
GR1	D	0.50	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080	0.010	0.012	0.014	0.017	305 (255 — 355)

Cutting data – JM600 Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
GR1	D	0.50	0.0020	0.0030	0.0040	0.0050	0.0060	0.0080	0.010	0.012	0.014	0.017	375 (310 — 435)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group
Coolant = A=air D=dry E=emulsion M=mist spray
 v_c = m/min
 f_z = mm
 a_p (mm)/ D_c (mm)= factor
 a_e (mm)/ D_c (mm)= factor
All cutting data are target values

[illegible]

330

Cutting data – JM610 KXL (4) Slotting

SMG		a_p / D_c	f_z			v_c
			1	1.5	2	
GR1	D	0.10	0.010	0.014	0.017	350 (295 — 410)

Cutting data – JM610 KXL (4) Side milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z			v_c
			1	1.5	2	
GR1	D	0.10	0.012	0.018	0.022	475 (395 — 560)

Cutting data – JM610 KSL (5) Slotting

SMG		a_p / D_c	f_z			v_c
			1	1.5	2	
GR1	D	0.10	0.010	0.014	0.017	350 (295 — 410)

Cutting data – JM610 KSL (5) Side milling $a_e/D_c = 0.2$

SMG		a_p / D_c	f_z			v_c
			1	1.5	2	
GR1	D	0.10	0.012	0.018	0.022	475 (395 — 560)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

* The effective under -neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Cutting data – JM650 Side milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
GR1	D	0.50	0.0017	0.0026	0.0036	0.0048	0.0060	0.0085	0.012	0.014	0.017	0.020	490 (410 — 570)

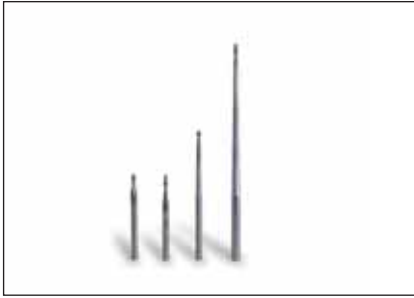
Cutting data – JM650 Copy milling $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z										v_c
			0.2	0.3	0.4	0.5	0.6	0.8	1	1.2	1.5	2	
GR1	D	0.50	0.0017	0.0026	0.0036	0.0048	0.0060	0.0085	0.012	0.014	0.017	0.020	490 (410 — 570)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group
Coolant = A=air D=dry E=emulsion M=mist spray
 v_c = m/min
 f_z = mm
 a_p (mm)/ D_c (mm)= factor
 a_e (mm)/ D_c (mm)= factor
All cutting data are target values

JM655 – Solid carbide end mill – ball nose

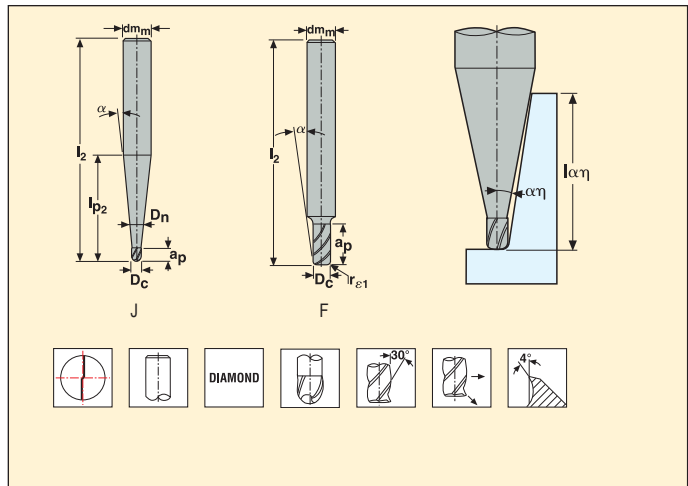


Tolerances:

Runout<0.005 mm

$$dm_m = h5$$
$$D_c = -0.01/-0.02 \text{ mm}$$

Radius= ± 0.001 mm

[illegible]

* The effective under-neck length for the various draft angles. Remark ∞ = infinity, no collision in projection length area.

Cutting data – JM655 Side milling roughing $a_e/D_c = 0.5$

SMG		a_p / D_c	f_z			v_c
			1	1.5	2	
GR1	D	0.50	0.0095	0.015	0.020	485 (405 — 570)

For cutting data recalculations, see pages 336-344.

SMG = Seco material group

Coolant = A=air D=dry E=emulsion M=mist spray

v_c = m/min

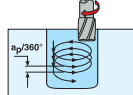
f_z = mm

a_p (mm)/ D_c (mm)= factor

a_e (mm)/ D_c (mm)= factor

All cutting data are target values

Recalculation (all values are percentages of original (100%) cutting data)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters						
	Slotting		Side Rough			Side Finish				Ramping		Helical			Drilling	
																
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\geq$ % of D_c)	f_z	a_p (% of D_c)
$\leq 30^\circ *$																
JS512 Standard (2) L (3) XL (4)	100 30 X	100 100 X	100 25 X	100 50 X	100 170 X	110 110 70	3 3 3	65 65 65	125 210 290	40 X X	40 X X	100 X X	3 X X	130 X X	40 X X	40 X X
$\leq 5^\circ *$																
JS513 Standard (2) L (3) XL (4)	100 30 X	100 100 X	100 30 X	100 50 X	100 200 X	110 110 70	3 3 3	85 85 85	150 250 350	100 X X	100 X X	100 X X	3 X X	130 X X	50 X X	40 X X
$\leq 5^\circ *$																
JS514 Standard (2) L (3) XL (4)	100 X X	100 X X	100 25 X	100 50 X	100 200 X	110 110 70	3 3 3	60 60 60	150 250 350	100 X X	100 X X	100 X X	3 X X	130 X X	X X X	X X X
$\leq 45^\circ *$																
JS553 Standard (2) L (3)	100 40	100 60	100 40	100 105	100 200	110 110	3 3	55 55	150 250	50 50	55 15	35 35	3 3	130 130	35 35	50 50
$\leq 5^\circ *$																
JS554 Standard (2) L (3)	100 40	100 60	100 38	100 105	100 200	110 110	3 3	53 53	150 100	100 50	100 50	100 60	2 1.5	130 130	X X	X X
$\leq 30^\circ *$																
JS412 (2)	100	100	100	100	100	140	3	40	120	80	100	50	10	130	50	100
$\leq 10^\circ *$																
JS413 (2) L (3)	100 X	100 X	100 25	100 60	100 240	150 120	3 3	40 40	120 230	70 70	50 50	50 50	10 10	130 130	X X	X X
$\leq 30^\circ *$																
JS452 (2) L (3)	100 50	100 60	100 75	100 60	100 50	140 120	3 3	35 40	120 100	70 70	100 70	50 50	10 10	130 130	50 20	100 10
$\leq 10^\circ *$																
JS453 (2) L (3)	100 X	100 X	100 25	100 60	100 240	140 120	3 3	35 40	120 230	70 70	50 70	50 50	10 10	130 130	20 20	10 10

* Max ramping angle

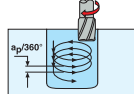
Recalculation (all values are percentages of original (100%) cutting data)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters								
	Slotting		Side Rough			Side Finish			
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p
JS520 Standard (2) L (3)	X	X	100	100	100	133	2	65	100
	X	X	X	X	X	133	2	65	175
JS522 (4)	X	X	100	100	100	129	2	140	100
J93-F / J99-F Standard (2)	100	100	100	100	100	133	3	40	100
J28 Standard (2)	100	100	100	100	100	140	3	100	135
J94 Standard (2) L (3)	100 60	100 60	100 60	100 70	100 100	135 135	3 3	70 70	100 100
J36 Standard (2)	X	X	100	100	100	120	3	85	150
JH910 Standard (2) L (3)	100 80	100 80	100 100	100 80	100 80	125 125	4 4	100 80	80 65
JH 930 Standard (2)	X	X	100	100	100	125	2	30	100
JH 130 Standard (2)	X	X	100	100	100	120	3	120	80

Use original standard version slotting cutting data then recalculate parameters						
Ramping	Helical			Drilling		
a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\geq$ % of D_c)	f_z	a_p (% of D_c)
$\leq X^\circ *$						
X	X	X	X	X	X	X
X	X	X	X	X	X	X
$\leq X^\circ *$						
X	X	X	X	X	X	X
$\leq 20^\circ *$						
100	100	100	3	130	25	30
$\leq 45^\circ *$						
40	25	100	10	130	25	60
$\leq 5^\circ *$						
100 60	100 60	100 60	3 3	130 130	40 40	30 30
$\leq X^\circ *$						
X	X	X	X	X	X	X
$\leq 20^\circ *$						
15 10	140 110	140 110	3 3	130 130	X X	X X
$\leq X^\circ *$						
X	X	X	X	X	X	X
$\leq X^\circ *$						
X	X	X	X	X	X	X

* Max ramping angle

Recalculation (all values are percentages of original (100%) cutting data)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters						
	Slotting		Side Rough			Side Finish				Ramping		Helical		Drilling		
																
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\geq\%$ of D_c)	f_z	a_p (% of D_c)
$\leq 45^\circ *$																
JH410 Standard (2)	100	100	100	100	100	125	2	25	100	100	67	67	40	130	67	80
TL (2)	125	100	100	100	100	100	2	100	100	100	50	100	40	130	150	80
RS (2)	125	100	100	100	100	100	2	100	100	100	50	100	40	130	150	80
ML (2)	75	60	80	60	100	125	2	25	100	60	40	40	40	130	40	50
L (3)	50	35	50	40	100	125	2	10	100	40	30	30	40	130	30	30
L-RS (3)	95	95	80	100	100	100	2	100	100	50	50	50	40	130	75	40
$\leq 5^\circ *$																
JH40 Standard (2)	100	100	100	100	100	100	3	35	100	83	55	55	25	130	55	80
K (1)	100	100	100	100	100	100	3	35	100	83	55	55	25	130	55	80
$\leq 45^\circ *$																
JH421 Standard (2)	100	100	100	100	100	100	4	35	100	100	100	100	25	130	45	80
L (3)	60	60	100	60	60	100	4	20	60	60	60	60	15	130	45	80
$\leq 30^\circ *$																
JH440 Standard (2)	100	100	100	100	100	125	3	40	100	100	100	100	5	130	X	X
$\leq 45^\circ *$																
JH820 Standard (2)	100	100	100	100	100	110	3	110	80	9	135	135	3	130	X	X
$\leq 45^\circ *$																
JH830 Standard (2)	100	100	100	100	100	110	3	110	80	9	135	135	3	130	X	X
$\leq 1^\circ *$																
JH120 Standard (2)	100	100	100	100	100	120	3	120	80	17	100	100	2	130	X	X

* Max ramping angle

Recalculation (all values are percentages of original (100%) cutting data)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters						
	Slotting		Side Rough			Side Finish				Ramping		Helical			Drilling	
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\approx$ % of D_c)	f_z	a_p (% of D_c)
										$\leq X^\circ *$						
JM905-920																
Standard (1)										X	X	X	X	X	X	X
ML (2)										X	X	X	X	X	X	X
L (3)										X	X	X	X	X	X	X
TL (3)										X	X	X	X	X	X	X
XL (4)										X	X	X	X	X	X	X
SL (4)										X	X	X	X	X	X	X
XXL (5)										X	X	X	X	X	X	X
XSL (6)										X	X	X	X	X	X	X
										$\leq X^\circ *$						
JM103-104-106																
Standard (1)										X	X	X	X	X	X	X
ML (2)										X	X	X	X	X	X	X
L (3)										X	X	X	X	X	X	X
TL (3)										X	X	X	X	X	X	X
XL (4)										X	X	X	X	X	X	X
XXL (5)										X	X	X	X	X	X	X
										$\leq X^\circ *$						
JM403-404-406																
Standard (1)										X	X	X	X	X	X	X
ML (2)										X	X	X	X	X	X	X
L (3)										X	X	X	X	X	X	X
TL (3)										X	X	X	X	X	X	X
XL (4)										X	X	X	X	X	X	X
SL (4)										X	X	X	X	X	X	X
XXL (5)										X	X	X	X	X	X	X
										$\leq 10^\circ *$						
JHP993																
Standard (2)										30	100	100	3	130	4	40
L (3)										20	80	80	3	130	3	30
										$\leq 5^\circ *$						
JHP951																
Standard (2)										20	100	125	3	130	6	20
										$\leq 5^\circ *$						
JHP750																
Standard (2)										100	100	100	3	130	10	60
K (1)										115	120	120	3	130	10	70

* Max ramping angle

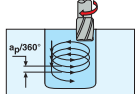
Recalculation (all values are percentages of original (100%) cutting data)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters								
	Slotting		Side Rough			Side Finish			
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p
JHP760 Standard (2) L (3)	100 50	100 50	100 100	100 50	100 50	140 140	2 2	125 125	15 15
JHP770 Standard (2)	100	100	100	100	100	170	3	125	100
JHP780 Standard (2)	100	100	100	100	100	160	2	135	140
JHP170 Standard (2)	100	100	100	100	100	130	3	175	80
JHP490 Standard (2) V (2) VL (3) VXL (4)	100 100 100 150	100 75 75 75	100 100 80 80	100 100 100 100	100 100 100 100	X X X X	X X X X	X X X X	X X X X
JD620 Standard (2) VL (3) VSL (4)	100 100 20	100 100 100	100 100 60	100 100 100	100 100 60	100 100 100	2 2 2	110 110 110	4 4 4
JD630 Standard (2) V (3) VL (4)	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	2 2 2	110 110 110	4 4 4
JD640 Standard (2) V (3) VL (4)	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	2 2 2	110 110 110	4 4 4
JM600 Standard (2) L (3) XL (5) SL (6)	100 100 30 30	100 100 100 100	100 100 60 60	100 100 100 100	100 100 100 100	100 100 100 100	2 2 2 2	85 85 85 85	200 200 200 200
JM610 KXL (4) KSL (5)	100 100	100 100	100 100	100 100	100 100	100 100	2 2	85 85	1000 1000

Use original standard version slotting cutting data then recalculate parameters						
Ramping		Helical			Drilling	
a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\geq$ % of D_c)	f_z	a_p (% of D_c)
$\leq 5^\circ *$						
30 15	100 50	100 50	3 3	130 130	10 5	50 25
$\leq 15^\circ *$						
100	40	40	3	130	X	X
$\leq 5^\circ *$						
100	100	35	3	130	35	50
$\leq 1^\circ *$						
100	100	100	2	130	X	X
$\leq 30^\circ *$						
50 50 50 50	50 50 50 50	35 35 35 35	5 5 5 5	130 130 130 130	30 30 30 30	50 50 50 50
$\leq X^\circ *$						
X X X	X X X	X X X	X X X	X X X	X X X	X X X
$\leq X^\circ *$						
X X X	X X X	X X X	X X X	X X X	X X X	X X X
$\leq X^\circ *$						
X X X	X X X	X X X	X X X	X X X	X X X	X X X

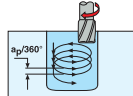
* Max ramping angle

Recalculation (all values are percentages of original (100%) cutting data)

STRAIGHT	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters																														
	Slotting		Side Rough			Side Finish				Ramping		Helical			Plunging																									
																																								
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\geq$ % of D_c)	v_c	a_p (% of D_c)	f_z	a_{p-sd} (% of D_{c2})																						
																			$\leq 1.5^\circ$ *																					
JHF980 K+ Standard (1,2)																			100	100	100	100	100	X	X	X	X					100	100	100	3.0	130	70	30	33	200
ML (3)																			80	85	100	85	80	X	X	X	X					80	85	85	3.0	130	70	30	33	200
TL (4)																			60	70	100	70	60	X	X	X	X					60	70	70	3.0	130	70	30	33	200
																			$\leq 1.5^\circ$ *																					
JHF180 Standard (1)																			100	100	100	100	100	X	X	X	X					100	100	100	3.4	130	X	X	X	X
ML (2)																			80	85	100	85	80	X	X	X	X					80	85	85	2.8	130	X	X	X	X
L (3)																			60	70	100	70	60	X	X	X	X					60	70	70	2.1	125	X	X	X	X
TL (3)																			40	50	100	50	40	X	X	X	X					40	50	50	1.4	120	X	X	X	X

* Max ramping angle

Recalculation (all values are percentages of original (100%) cutting data)

BALL	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters						
	Slotting		Side Rough			Side Finish				Ramping		Helical			Drilling	
																
	a_p	f_z	a_e	f_z	a_p	v_c	a_a (% of D_c)	f_z	a_p	a_p	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\approx$ % of D_c)	f_z	a_p (% of D_c)	
$\leq X^\circ *$																
JS532 Standard (1) L (2) XL (3)	X	X	100	100	100	125	3	125	10	X	X	75	5	130	X	X
	X	X	70	100	70	125	3	125	10	X	X	75	5	130	X	X
	X	X	X	X	X	125	3	125	10	X	X	X	X	X	X	X
$\leq X^\circ *$																
JS533 Standard (1) L (2)	X	X	100	100	100	125	3	125	15	X	X	75	5	130	X	X
	X	X	75	75	75	125	3	125	15	X	X	75	5	130	X	X
$\leq X^\circ *$																
JS534 Standard (1) L (2) XL (3)	X	X	100	100	100	125	3	170	20	X	X	100	3	130	X	X
	X	X	70	100	70	125	3	170	20	X	X	100	3	130	X	X
	X	X	70	100	70	125	3	170	20	X	X	100	3	130	X	X
$\leq X^\circ *$																
TDM Standard (2)	X	X	100	100	100	125	3	100	25	X	X	40	3	130	X	X
$\leq X^\circ *$																
JH970 Standard (2)	X	X	100	100	100	155	2	30	15	X	X	40	3	130	X	X
$\leq X^\circ *$																
JH720 Standard (2)	X	X	100	100	100	125	2	90	75	X	X	40	3	130	X	X
$\leq X^\circ *$																
JH111 Standard (3) K (1) L (4) VL (4) VXL (5)	X	X	100	100	100	165	1	70	20	X	X	20	2	130	X	X
	X	X	100	100	100	165	1	70	20	X	X	20	2	130	X	X
	X	X	80	80	100	165	1	55	20	X	X	X	X	X	X	X
	X	X	70	70	100	165	1	50	20	X	X	X	X	X	X	X
	X	X	50	50	100	165	0.5	35	20	X	X	X	X	X	X	X
$\leq X^\circ *$																
JH150 Standard	X	X	100	100	100	165	1	90	35	X	X	30	2	130	X	X

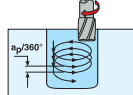
* Max ramping angle

Recalculation (all values are percentages of original (100%) cutting data)

BALL	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters						
	Slotting		Side Rough			Side Finish				Ramping		Helical			Drilling	
	a_p	f_z	a_e	f_z	a_p	v_c	a_e (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_p/360^\circ$ (% of D_c)	hole $\varnothing$ ($\approx$ % of D_0)	f_z	a_p (% of D_c)
JH160 Standard (2)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
JH450 Standard (2)	X	X	100	100	100	120	5	90	25	$\leq 30^\circ$ *						
JH460 Standard (2)	X	X	100	100	100	120	5	90	25	250	45	45	5	130	X	X
JM915-925 Standard (1)	100	100	100	100	100	125	2	150	5	$\leq X^\circ$ *						
ML (2)	65	100	100	100	60	125	2	150	3	X	X	X	X	X	X	X
L (3)	25	100	100	100	25	125	2	150	1	X	X	X	X	X	X	X
TL (3)	20	100	100	100	20	125	2	150	1	X	X	X	X	X	X	X
XL (4)	12	100	100	100	12	125	2	150	1	X	X	X	X	X	X	X
SL (4)	10	100	100	100	10	125	2	150	0.5	X	X	X	X	X	X	X
XXL (5)	4	100	100	100	1	125	2	150	0.2	X	X	X	X	X	X	X
XSL (6)	3	100	100	100	2	125	2	150	0.2	X	X	X	X	X	X	X
JM113-114-116 Standard (1)	X	X	100	100	100	118	2	100	35	$\leq X^\circ$ *						
ML(2)	X	X	65	85	85	118	2	100	35	X	X	X	X	X	X	X
L (3)	X	X	55	75	75	118	2	90	35	X	X	X	X	X	X	X
XL (5)	X	X	35	50	50	118	2	100	35	X	X	X	X	X	X	X
JM413-414-416 Standard (1)	X	X	100	100	100	100	5	40	35	$\leq X^\circ$ *						
ML(2)	X	X	100	60	100	100	5	40	15	X	X	X	X	X	X	X
L (3)	X	X	100	80	100	100	5	40	15	X	X	X	X	X	X	X
XL (5)	X	X	100	60	75	100	5	40	10	X	X	X	X	X	X	X
JD660 Standard (1)	X	X	100	100	100	100	2	100	100	$\leq X^\circ$ *						
L (3)	X	X	100	100	100	100	2	100	100	X	X	X	X	X	X	X
V (2)	X	X	100	100	100	100	2	100	100	X	X	X	X	X	X	X
VL (4)	X	X	100	100	100	100	2	100	100	X	X	X	X	X	X	X
KL (5)	X	X	100	100	100	100	2	100	100	X	X	X	X	X	X	X

* Max ramping angle

Recalculation (all values are percentages of original (100%) cutting data)

BALL	Use original standard version side rough cutting data then recalculate parameters									Use original standard version slotting cutting data then recalculate parameters						
	Slotting		Side Rough			Side Finish				Ramping		Helical			Drilling	
																
	a_p	f_z	a_e	f_z	a_p	v_c	a_{ap} (% of D_c)	f_z	a_p	a_p	f_z	f_z	$a_{p/360^\circ}$ (% of D_c)	hole $\varnothing$ ($\approx$ % of D_c)	f_z	a_p (% of D_c)
$\leq X^\circ *$																
JD665 (4)	X	X	100	100	100	100	2	50	20	X	X	X	X	X	X	X
$\leq X^\circ *$																
JD670 KL (5)	X	X	100	100	100	100	2	110	7	X	X	X	X	X	X	X
KSL (6)	X	X	100	100	100	100	2	110	7	X	X	X	X	X	X	X
$\leq X^\circ *$																
JM650 Standard (1)	100	100	100	100	100	100	2	125	4	X	X	X	X	X	X	X
L (3)	100	100	100	100	100	100	2	125	4	X	X	X	X	X	X	X
KXL (4)	30	100	60	100	100	100	2	125	4	X	X	X	X	X	X	X
KSL (5)	30	100	60	100	100	100	2	125	4	X	X	X	X	X	X	X
$\leq X^\circ *$																
JM655 Standard (1)	100	100	100	100	100	100	2	125	4	X	X	X	X	X	X	X
L (3)	100	100	100	100	100	100	2	125	4	X	X	X	X	X	X	X
KXL (4)	20	100	40	100	20	100	2	125	4	X	X	X	X	X	X	X
KSL (5)	20	100	40	100	20	100	2	125	4	X	X	X	X	X	X	X

* Max ramping angle

Nomenclature and formulae

RPM

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_c} \quad (\text{rev/min})$$

Cutting speed

$$v_c = \frac{n \cdot \pi \cdot D_c}{1000} \quad (\text{m/min})$$

Feed speed

$$v_f = n \cdot Z_n \cdot f_z \quad (\text{mm/min})$$

Feed per revolution

$$f = Z_n \cdot f_z \quad (\text{mm/rev})$$

Metal removal rate

$$Q = \frac{a_e \cdot a_p \cdot v_f}{1000} \quad (\text{cm}^3/\text{min})$$

Cutting speed and RPM for copying

$$v_c = \frac{n \cdot \pi \cdot D_w}{1000} \quad (\text{m/min})$$

$$n = \frac{v_c \cdot 1000}{\pi \cdot D_w} \quad (\text{RPM})$$

$$D_w = 2 \cdot \sqrt{a_p (D_c - a_p)} \quad (\text{mm})$$

Calculation of a_p vs. overhang length :

If the overhang length (XS) is longer than $4 \times D_c$ and Cylindrical shanks are used it is important to adopt another depth of cut (a_p) value than that indicated in the table.

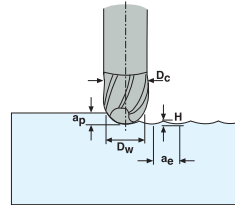
Use the following formula to calculate the new a_p value

$$a_p = a_p \cdot (4 \cdot D_c / x_s)^2$$

Profile height

$$H = \frac{D_c}{2} - \frac{\sqrt{D_c^2 - a_p^2}}{2}$$

$$D_w = 2 \cdot \sqrt{a_p (D_c - a_p)} \quad (\text{mm})$$



Profile height H (μm)

D _c	Pitch a _e (μm)						
	0.06	0.08	0.11	0.15	0.20	0.30	0.45
1	0.90	1.60	3.00	5.70	10.00	23.00	53.00
2	0.45	0.80	1.50	2.80	5.00	11.00	26.00
4	0.23	0.40	0.76	1.40	2.50	5.60	13.00
6	0.15	0.27	0.50	0.94	1.70	3.80	8.40
8	0.11	0.20	0.38	0.70	1.30	2.80	6.30
10	0.09	0.16	0.30	0.56	1.00	2.30	5.10
12	0.08	0.13	0.25	0.47	0.83	1.90	4.20

a_p = Depth of cut mm/axial depth of cut (mm)

a_e = Width of cut mm/radial depth of cut (mm)

D_c = Cutter diameter

f = Feed per revolution (mm/rev)

f_z = Feed per tooth (mm/tooth)

Z_n = No. of teeth

n = RPM (rev/min)

Q = Material removal rate (cm³/min)

v_c = Cutting speed (m/min)

v_f = Feed speed (mm/min)

D_w = Working diameter

Measurement drawing should be read as follows:

dm_m

=

Shank diameter

D_c

=

Milling cutting diameter

m

=

Minimum clamping length

l_2

=

Total length

l_3

=

Maximum milling cutter depth

a_p

=

Effective cutting length

$r_{\epsilon 1}$

=

Corner radius

$r_{\epsilon 2}$

=

Radius behind the cutting edge

ϵ

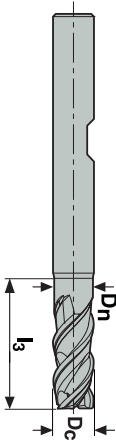
=

OD reduction per side

D_n

=

Neck reduction

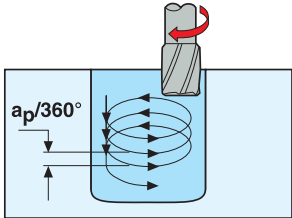


Ramping

The table below shows the feed rate percentage to use at certain ramping angles

Recommended diameter of hole for helical interpolation ramping

Diameter of end mill D_c	Diameter of hole
1-2.5	$1.4 \times D_c$
3-6	$1.3 \times D_c$
8-12	$1.2 \times D_c$
16-32	$1.15 \times D_c$

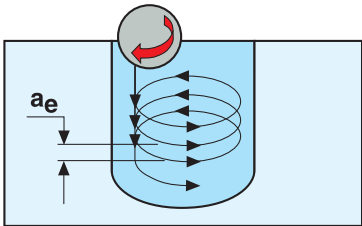


Trochoidal method

The The figure below shows a method often called the trochoidal method for milling slots

Recommendation of width of slot

Diameter of end mill D_c	Slot width
1-2.5	$1.8 \times D_c$
3-6	$1.6 \times D_c$
8-12	$1.4 \times D_c$
16-32	$1.2 \times D_c$



SMG version 2 – Introduction

Seco Material Groups version 2 (SMG v2) is the foundation for a new and accurate way of organizing work materials and choosing the correct speed, feed rate and depth of cut for any work material and any Seco tool. In addition to using a greater number of work material groups compared to our previous system, SMG v2 also incorporates a reference material – or standard - for each group. The machinability of all other materials within that group can be compared to the standard, allowing for adjustments to the cutting data, accounting for the unique characteristics of each material (See pages 348-351).

The use of SMG v2 is illustrated below.

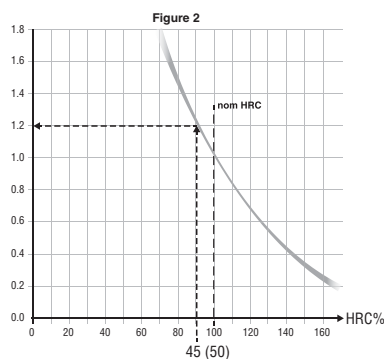
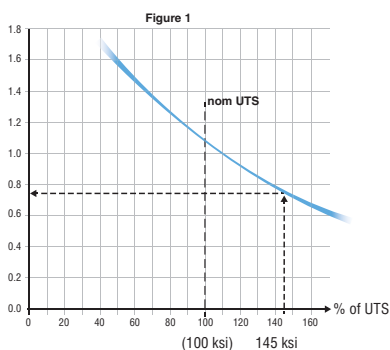
As shown in Table I, the reference material for work material group P4 is 1045, for P5 it is 4140 steel and for H5 it is 4140 hardened to 50 HRC. 4140 steel is available in a wide variety of hardness and tensile strengths. It will be expected that the machinability will vary with these properties.

SMG	Description	Properties	Reference	SMG	Description	Properties	Reference
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt Low alloy Quench & Temper steels	75 < UTS < 175	1045 UTS = 95 ksi	H5	Quenched & Tempered steels	38 < HRC < 56	4140 50 HRC
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	80 < UTS < 175	4140 UTS = 100ksi				

Table II gives some examples of 4140 in different conditions.

SMG	EN	W-Nr	AFNOR	BS	UNI	JIS	AISI / ASTM	GOST	Condition	UTS (ksi)	HRC _{nom}
P5	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Annealed	100	
	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Quenched & Tempered	145	
H5	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Quenched & Tempered		45
	42 CrMo 4	1.1201	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	4142, 4140	38HM	Quenched & Tempered		50

The graphs indicate how the speed recommendation for a specific material can be adjusted to account for the different properties of the steel. As an example, consider 4140 with a tensile strength (UTS) of 145 ksi. The standard material for SMG P5 is 4140 steel with a tensile strength of 100 ksi. Since the material of interest is 45% stronger, the cutting speed will have to be reduced. Following the black arrows in Figure 1, it can be seen that a speed 75% of that recommended for 4140 at 100 ksi should be used. So if a cutting speed of 900 sf/min is suggested for a tool of interest when machining 4140 at 100 ksi, a speed of 675 sf/min (900 X 0.75) should be used if the 4140 has a tensile strength of 145 ksi.



If the 4140 is quenched and tempered to a hardness of 45 HRC, an accurate cutting speed can be obtained by using Figure 2. The standard material for SMG H5 is 4140 heat treated to a hardness of 50 HRC. Logically, a softer material, in this case 45 HRC, can be machined at a higher speed. Since the hardness, 45 HRC, is 90% that of the standard material, the graph shows a speed 120% that of the standard could be used. If a speed of 200 sfpm is recommended when machining 4140 at 50 HRC, a speed of 240 sf/min (200 X 1.2) could be used if the 4140 is only 45 HRC.

For further workpiece material details please see page(s) 348 and suggested cutting data at applicable pages.

For more convenient cutting data handling we recommend applicable tools in My Pages – Suggest on www.secotools.com

Steels, ferritic and martensitic stainless steels

SMG	Description	Properties	Reference
P1	Free-cutting steels	50 < UTS < 125	1213 UTS = 55 ksi
P2	Low alloy ferritic steels, C < 0.25%wt Low alloy weldable general structural steels	45 < UTS < 85	A284 GRC UTS = 60 ksi
P3	Ferritic & ferritic/pearlitic steels, C < 0.25%wt Weldable general structural steels Case hardening steels	60 < UTS < 90	5115 UTS = 80 ksi
P4	Low alloy general structural steels, 0.25% < C < 0.67%wt Low alloy Quench & Temper steels	75 < UTS < 175	1045 UTS = 95 ksi
P5	Structural steels, 0.25% < C < 0.67%wt Quench & Temper steels	80 < UTS < 175	4140 UTS = 100ksi
P6	Low alloy through hardening steels, C > 0.67%wt Low alloy spring and bearing steels	75 < UTS < 175	1095 UTS = 85 ksi
P7	Through hardening steels, C > 0.67%wt Spring and bearing steels	85 < UTS < 175	52100 UTS = 95 ksi
P8	Tool steels High Speed Steels (HSS)	85 < UTS < 175	H13 UTS = 100 ksi
P11	Ferritic & martensitic stainless steels	60 < UTS < 175	420 UTS = 95 ksi

Free-cutting, austenitic and duplex stainless steels

SMG	Description	Properties	Reference
M1	Free-cutting austenitic stainless steels		303
M2	Low alloy austenitic stainless steels		304
M3	Medium alloy austenitic stainless steels		316 L
M4	High alloy austenitic and duplex stainless steels		2205 Duplex
M5	Difficult high alloy austenitic and duplex stainless steels		2507 Super duplex

Cast irons

SMG	Description	Properties	Reference
K1	Grey cast irons (GCI)		A48 35 B
K2	Compacted graphite irons (CGI)		Grade 400-15
K3	Malleable cast irons (MCI)		A220 60004
K4	Nodular cast irons (SGI)		80-55-06
K5	Austempered ductile irons (ADI)		1050/700/7
K6	Austenitic lamellar cast irons		A436 Type 1 (Ni-Resist 1)
K7	Austenitic nodular cast irons		A439 Type D-2M (Ni-Resist D-2M)

Non-ferrous metals

SMG	Description	Properties	Reference
N1	Aluminum alloys, Si < 9%		7075-T6
N2	Aluminum alloys, 9% < Si < 16%		413.2 Si = 12%
N3	Aluminum alloys, Si > 16%		AlSi17Cu5
N11	Copper alloys		UNS C38500

Superalloys and titanium

SMG	Description	Properties	Reference
S1	Iron based superalloys		Discalloy
S2	Cobalt based superalloys		Stellite 21
S3	Nickel based superalloys		Inconel 718
S11	Titanium, low alloyed, (α)		Ti
S12	Titanium, medium alloyed, (α + β)		TiAl6V4
S13	Titanium, high alloyed, (near β and β)		Ti10V2Fe3Al

Hard materials

SMG	Description	Properties	Reference
H3	Case hardened steels	58 < HRC < 62	5115 60 HRC
H5	Quenched & Tempered steels	38 < HRC < 56	4140 50 HRC
H7	Quenched & Tempered steels Bearing steels	56 < HRC < 64	52100 60 HRC
H8	Tool steels High Speed Steels	38 < HRC < 64	H13 50 HRC
H11	Martensitic stainless steels	38 < HRC < 50	420 45 HRC
H12	Precipitation hardened stainless steels	33 < HRC < 50	17-4PH 35 HRC
H21	Manganese steels	23 < HRC < 64	Hadfield, High manganese steel 50 HRC
H31	White cast irons	50 < HRC < 64	A532 ID, White cast iron 55 HRC

Other difficult materials

SMG	Description	Properties	Reference
PM1	Low alloy PM materials		F-0008 Fe-0.7C
PM2	Medium alloy PM materials		FLC-4608 Fe2Cu1.8Ni0.5Mo0.2Mn0.8C
PM3	High alloy PM materials Exhaust valve seat materials		
HF1	Hard facing alloys Welded or plasma deposited iron based alloys		
HF2	Hard facing alloys Welded or plasma deposited cobalt and nickel based alloys		
CC1	Sintered tungsten carbide		G50

Plastics and Composites

SMG	Description	Properties	Reference
TS1	Thermosetting polymers		Urea formaldehyde (UF)
TS2	Thermosetting Carbon fiber composites		T300 T700 T800 HTA-S IMA - Epoxy (M21)...
TS3	Thermosetting Glass fiber composites		Epoxy - HX..(42..)/E glass (7781...)...
TS4	Thermosetting Aramide fiber composites		Kevlar 49
TP1	Thermoplastic polymers		Polycarbonate (PC)
TP2	Thermoplastic Carbon fiber composites		PPS/PEEK - T300..
TP3	Thermoplastic Glass fiber composites		PPS/PEEK - E glass or A glass...
TP4	Thermoplastic Aramide fiber composites		

Graphite

SMG	Description	Properties	Reference
GR1	Graphite		R 8500

SMG

SMG	AISI / ASTM	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS
P1	1213	11 SMn30	1.0715	1.0715	9 SMn 28	S 250	230 M 07	CF 9 SMn 28	SUM 22	1912
	12 L 13	11 SMnPb30	1.0718	1.0718	9 SMnPb 28	S 250 Pb		CF 9 SMnPb 28	SUM 22 L	1914
	1108	10 S 20	1.0721	1.0721	10 S 20	10 F 1	210 M 15	CF 10 S 20		
	11 L 08			1.0722	10 SPb 20	10 PbF 2		CF 10 SPb 20		
		15 SMn13	1.0725	1.0723	15 S 20		210 A 15		SUM 32	1922
	1140	35 S20	1.0726	1.0726	35 S 20	35 MF 4	212 M 36			1957
	1146	46 S20	1.0727	1.0727	46 S 20	45 MF 4	212 M 44			1973
	1215	11 SMn37	1.0736	1.0736	9 SMn 36	S 300	240 M 07	CF 9 SMn 36		
P2	12 L 14	11 SMnPb 37	1.0737	1.0737	9 SMnPb 36	S 300 Pb		CF 9 SMnPb 36		1926
		S235JR	1.0037	1.0037	St 37-2	E 24-2		Fe 360 B	STKM 12 C	1311
	A 573 Gr. 58	S235JRG2	1.0038	1.0116	St 37-3	E 24-3, E 24-4	4360-40 C	Fe 360 D FF		1312, 1313
	A 573 Gr. 70	S275J2G3	1.0144	1.0144	St 44-3 N	E 28-3, E 28-4	4360-43 C	Fe 430 D FF	SM 41 C	1412, 1414
	1010	C 10	1.0301	1.0301	C 10	AF 34 C 10, XC 10	045 M 10	C 10	S 10 C	
	1015			1.0401	C 15	AF3 7 C 12, XC 18	080 M 15	C 15, C 16		1350
	1023	C22+N	1.0402	1.0402	C 22	C 20	050 A 20	C 20, C 21		1450
		S355JR	1.0570	1.0570	St 52-3	E 36-3, E 36-4	4360-50 C	Fe 510 B	SM 50 YA	2172, 2132
P3	1015	C 15R	1.1141	1.1141	Ck 15	XC 15, XC 18	080 M 15	C 15, C 16	S 15 C, S 15 CK	1370
	1025			1.1158	Ck 25	XC 25	060 A 25	C 25	S 25 C	
				1.2162	21 MnCr 5	20 NC 5			SCR 420 H	
	A 204 Gr. A	16 Mo 3	1.5415	1.5415	15 Mo 3	15 D 3	1501-240	16 Mo 3		2912
	4520			1.5423	16 Mo 5		1503-245-420	16 Mo 5	SB 450 M	
	3310, 9314	14 NiCr 14	1.5752	1.5752	14 NiCr 14	12 NC 15	655 M 13		SNC 815 (H)	
	4320			1.5919	15 CrNi 6	16 NC 6	S 107	16 CrNi 4		
		18 NiCrMo 7 6	1.6587	1.6587	18 CrNiMo 7 6	18 NCD 6	820 A 16	18 NiCrMo 7		
P4	5115	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511
		16 MnCrS 5	1.7139	1.7139	16 MnCrS 5					
	5120	20 MnCr 5	1.7147	1.7147	20 MnCr 5	20 MC 5		20 MnCr 5	SMnC 420 (H)	
	5120 H	20 MnCrS 5	1.7149	1.7149	20 MnCrS 5	20 MnCrS 5			SMnC 21 H	
	A 182-F11, F12	13 CrMo 4 5	1.7335	1.7335	13 CrMo 4 4	15 CD 3.5	1501-620 Gr. 27	14 CrMo 4 5		2216
	A 387 Gr. 12 Cl. 2			1.7337	16 CrMo 4 4	15 CD 4.5	1501-620 Gr. 27	14 CrMo 4 5		2216
	A 182-F22	10 CrMo 9 10	1.7380	1.7380	10 CrMo 9 10	10 CD 9.10	1501-622 Gr. 31	12 CrMo 9 10		2218
				1.0501	C 35	AF 55 C 35	060 A 35	C 35		1550
P5	1045	E 335	1.0503	1.0503	C 45	AF 65 C 45	80 M 46	C 45	S 45 C	1650
	1040	C40+N		1.0511	C 40	AF 60 C 40	080 M 40	C 40	S 40 C	
	1055	E 360	1.0070	1.0535	St 70-2	A 70-2		Fe 690		1655
	1060	C60+N	1.0601	1.0601	C 60	CC 55	080 A 62	C 60		
	1039			1.1157	40 Mn 4	35 M 5	150 M 36			
	1330	G 28 Mn6	1.1165	1.1165	30 Mn 5		120 M 36		SMn 1 H, SCMn 2	
	1335	G 28 Mn6+QT	1.1165	1.1167	36 Mn 5	40 M 5	150 M 36		SMn 438 (H), SCMn 3	2120
	1035	C 35E	1.1181	1.1181	Ck 35	XC 38 H1	080 M 36	C 35	S 35 C	1572
P6	1045	C 45E	1.1191	1.1191	Ck 45	XC 42	080 M 46	C 45	S 45 C	1672
	1064	C 60E	1.1221	1.1221	Ck 60	XC 60	080 A 62	C 60	S 58 C	1665, 1678
	1060			1.1740	C 60 W	Y3 55			SK 7	
	9255	55 SiCr7	1.7100	1.0904	55 Si 7	55 S 7	250 A 53	55 Si 8		2085, 2090
	4142, 4140	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244
	4142, 4140	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M 40	42 CrMo 4	SCM 440 (H)	2244
	4135			1.2330	35 CrMo 4	34 CD 4	708 A 37	35 CrMo 4		2234
	S1			1.2542	45 WCrV 7		BS 1	45 WCrV 8 KU		2710
P5	L6		1.2714	1.2714	56 NiCrMoV 7		BH 224-5	56 NiCrMoV7-KU	SKT 4	
	5045			1.5121	46 MnSi 4					
	3135			1.5710	36 NiCr 6	35 NC 6	640 A 35		SNC 236	
	3435			1.5736	36 NiCr 10	35 NC 11		35 NiCr 9	SNC 631 (H)	
	9840	36CrNiMo4+TA		1.6511	36 CrNiMo 4	40 NCD 3	816 M 40	38 NiCrMo 4 (KB)		
	4340	34 CrNiMo 6	1.6582	1.6582	34 CrNiMo 6	35 NCD 6	817 M 40	35 NiCrMo 6 (KW)	SNCM 447	2541
	5132	34 Cr 4	1.7033	1.7033	34 Cr 4	32 C 4	530 A 32	34 Cr 4 (KB)	SCR 430 (H)	
	5140	41 Cr 4	1.7035	1.7035	41 Cr 4	42 C 4	530 M 40	41 Cr 4	SCR 440 (H)	
P6	4130	25 CrMo 4	1.7218	1.7218	25 CrMo 4	25 CD 4 S	708 M 25	25 CrMo 4 (KB)	SCM 425	2225
				1.7361	32 CrMo 12	30 CD 12	722 M 24	32 CrMo 12		2240
	6150	50 CrV 4	1.8159	1.8159	50 CrV 4	50 CV 4	735 A 50	51 CrV 4	SUP 10	2230
	A 355 Cl. A	41 CrAlMo 7 10	1.8509	1.8509	41 CrAlMo 7	40 CAD 6.12	905 M 39	41 CrAlMo 7	SACM 645	2940
	1070	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770
	1095	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870
	W1	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU	SK 3	1880
	W1			1.1645	C 105 W2	Y1 105		C 100 KU	SK 2	
P6				1.1663	C 125 W	Y2 120		C 120 KU		

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
G12130				Annealed	
G12134				Annealed	
				Annealed	
				Annealed	
				Annealed	
G11400		40		Annealed	
G11460				Annealed	
G12150				Annealed	
G12144				Annealed	
		16D		Annealed	
		18kp		Annealed	
		St14kP		Annealed	
G10100		10		Annealed	
G10170	F.1110	15		Annealed	
G10200		20		Annealed	
		17G1S		Annealed	
G10170	F.1511	15		Annealed	
G10250	F.1120	25		Annealed	
				Annealed	
				Annealed	
				Annealed	
G45200				Annealed	
G33106		20X2H4A		Annealed	
				Annealed	
				Annealed	
G51170	F.1516	12KHN2		Annealed	
		18HG		Annealed	
G51200		20KH		Annealed	
		20KH		Annealed	
		12KHM		Annealed	
				Annealed	
J21890	F.155	12KH8		Annealed	
G10350	F.1130	35		Annealed	
G10430	F.5110	45		Annealed	
		40		Annealed	
	F.1150	55		Annealed	
G10600		60		Annealed	
G10390		40G		Annealed	
G13300		30G2		Annealed	
G13350	F.411	35G2		Annealed	
G10340	F.1135	35		Annealed	
G10420	F.1140	45		Annealed	
G10640	F.1150	60		Annealed	
		60		Annealed	
	F.144	55S2		Annealed	
G41400	F.1252	38HM		Annealed	
G41400	F.1252	38HM		Quenched & Tempered	
T51620	F.1250	35KHM		Annealed	
T41901	F.5241	5KHV2S		Annealed	
T61206		5KHNV		Annealed	
				Annealed	
				Quenched & Tempered	
				Annealed	
G98400				Quenched & Tempered	
	F.1280	38H2N2MA		Annealed	
G51320		35KH		Quenched & Tempered	
G51400		40H		Quenched & Tempered	
G41300	F.1251	20KHM		Quenched & Tempered	
				Quenched & Tempered	
H61500	F.143	50KHFA		Quenched & Tempered	
K24065	F.1740			Annealed	
G10700	F.5103	70		Annealed	
G10950	F.5117			Annealed	
	F.5118	U10A		Annealed	
		U10		Annealed	
		U13		Annealed	

SMG

SMG	AISI / ASTM	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS	UNS
P7	L2	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU			T61202
	O1			1.2510	100 MnCrV 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140	T31501
	O2	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU			T31502
P8	52100	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258	G51986
	D3	X 210 Cr 12	1.2080	1.2080	X 210 Cr 12	Z 200 C 12	BD 3	X 210 Cr 13 KU	SKD 1		T30403
	H11			1.2343	X 38 CrMoV 5 1	Z 38 CDV 5	BH 11	X 37 CrMoV 5 1 KU	SKD 6		T20811
	H13	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242	T20813
	A2	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260	T30102
	H10			1.2365	X 32 CrMoV 3 3	32 DCV 28	BH 10	30 CrMoV 12 27 KU	SKD 7		T20810
				1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312	
				1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310	
	L6			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4		T61206
	M35	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723	
	M42	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51		T11342
	T4	HS 18-1-2-5	1.3255	1.3255	S 18-1-2-5	Z 80 WKCV 18-05-04-01	BT 4	HS 18-1-1-5	SKH 3		T12004
	M2	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-02	BM 2	HS 6-5-2	SKH 9, SKH 51	2722	T11302
	M7	HS 2-9-2	1.3348	1.3348	S 2-9-2	Z 100 DCWV 09-04-02-02		HS 2-9-2	SKH 58	2782	T11307
	T1	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2		T12001
P11	403	X 6 Cr 13	1.4000	1.4000	X 6 Cr 13	Z 6 C 12	403 S 17	X 6 Cr 13	SUS 403	2301	S41008
	410, CA-15	X 12 Cr 13	1.4006	1.4006	X 10 Cr 13	Z 10 C 13	410 S 21	X 12 Cr 13	SUS 410	2302	S41000
	430	X 6 Cr 17	1.4016	1.4016	X 6 Cr 17	Z 8 C 17	430 S 15	X 8 Cr 17	SUS 430	2320	S43000
	420	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303	S42000
	420	X 39 Cr 13	1.4031	1.4031	X 40 Cr 13	Z 40 C 14	420 S 45	X 40 Cr 14	SUS 420	2304	S40280
	440 A	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A		S44002
	440 B	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327	S44003
	440 C	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C		S44004
		X 3 CrNiMo 13 3	1.4313	1.4313	X 5 CrNi 13 4	Z 5 CN 13.4	425 C 11	X 6 CrNi 13 04	SCS 5	2385	J91540
	446	X 18 CrN 28	1.4749	1.4749	X 18 CrN 28	Z 18 C 25				2322	S44600
M1	303	X 10 CrNiS 18 9	1.4305	1.4305	X 10 CrNiS 18 9	Z 10 CNF 18.09	303 S 31	X 10 CrNi 18 09	SUS 303	2346	S30300
M2	302	X 12 CrNi 18 8	1.4300	1.4300	X 12 CrNi 18 8	Z 12 CN 18	302 S 25		SUS 302	2331	S30200
	304, 304 H	X 5 CrNi 18 9	1.4301	1.4301	X 6 CrNi 18 10	Z 6 CN 18.09	304 S 31	X 5 CrNi 18 11	SUS 304	2333	S30400
	304 L	X 2 CrNi 19 11	1.4306	1.4306	X 2 CrNi 19 11	Z 2 CN 18.10	304 S 12	X 3 Cr Ni 18 11	SUS 304 L	2352	S30403
	301	X 9 CrNi 18 8	1.4310	1.4310	X 12 CrNi 17 7	Z 12 CN 17.07	301 S 21	X 12 CrNi 17 07	SUS 301	(2331)	S30100
	316	X 5 CrNiMo 17 12 2	1.4401	1.4401	X 5 CrNiMo 17 12 2	Z 3 CND 17.11.1	316 S 31	X 5 CrNiMo 17 12	SUS 316	2347	S31600
	347	X 6 CrNiNb 18 10	1.4550	1.4550	X 6 CrNiNb 18 10	Z 6 CND 18.10	347 S 31	X 6 CrNiNb 18 11	SUS 347	2338	S34700
M3	304 LN	X 2 CrNiN 18 10	1.4311	1.4311	X 2 CrNiN 19 11	Z 2 CN 18 .10 Az	304 S 62	X 2 CrNiN 18 11	SUS 304 LN	2371	S30453
	310 S	X 12 CrNi 25 21	1.4335	1.4335	X 12 CrNi 25 21	Z 12 CN 25.20	310 S 24	X 6 CrNi 26 20	SUH 310, SUS 310 S	2361	S31008
	316 LN	X 2 CrNiMoN 17 13 3	1.4429	1.4429	X 2 CrNiMoN 17 13 3	Z 2 CND 17.13 Az	316 S 62	X 2 CrNiMoN 17 13 3	SUS 316 LN	2375	S31653
	316 L	X 2 CrNiMo 18 14 3	1.4435	1.4435	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	316 S 12	X 2 CrNiMo 17 13 2	SCS 16, SUS 316 L	2353	S31603
	317	X 3 CrNiMo 18 12 3	1.4466	1.4466	X 5 CrNi 18 15		317 S 16	X 5 CrNi 18 15	SUS 317	2366	S31700
		X 9 CrNiSiN 21 11 2	1.4835	1.4893	X 9 CrNiSiN 21 11 2		310 S 31			2368	S30815
M4		X 2 CrNiMoSi 19 5	1.4424	1.4417	X 2 CrNiMoSi 19 5	Z 2 CND 18.05.03				2376	S31500
	329	X 3 CrNiMo 27 5 2	1.4460	1.4460	X 4 CrNiMo 27 5 2	Z 3 CND 25.7 Az		X 3 CrNiMo 27 5 2	SUS 329 J 1	2324	S32900
	329 LN	X 2 CrNiMoN 22 5 3	1.4462	1.4462	X 2 CrNiMoN 22 5	Z 2 CND 22.05 Az	332 S 15	X 2 CrNiMoN 22 5		2377	S31803
	904L	X 2 NiCrMoCu 25 20 5	1.4539	1.4539	X 2 NiCrMoCu 25 20 5	Z 2 NCDU 25 20	904 S 13			2562	N08904
M5	F 53	X 2 CrNiMoN 25 7 4	1.4410	1.4410	X 2 CrNiMoN 25 7 4	Z 3 CND 25.07 Az		X 2 CrNiMoN 25 7 4		2328	S32750
		X 1 CrNiMoN 20 18 7	1.4547	1.4529	X 1 CrNiMoN 20 18 7	Z 1 CNDU 20.18.05 Az		X 1 CrNiMoN 20 18 7		2778	S31254
	XM-13	X 6 NiCrTiMoV 25 15	1.4534	1.4534	X 3 CrNiMoAl 13 8 2						S13800
	XM-12		1.4540	1.4540	X 4 CrNiCuNb 16 4	Z 4 CUNUN 16.4 M					S15500
	AMS 5528	X 3 CrNiMoAl 13 8 2	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388	S17700
		X 1 CrNiMoN 25 22 8	1.4652	1.4652	X 2 CrNiMoN 25 22 7						S32654
		X 10 NiCrAlTi 32 20	1.4876	1.4876	X 10 NiCrAlTi 32 20	Z 10 NC 32.21			NCF 800		N08800
	660	X 5 CrNiCuNb 16 4	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDU 25.15	HR 51		SUH 660	2570	S66286

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
T61202	F.520L	11KHF		Annealed	
T31501	F.5220	9KHVG		Annealed	
T31502		9G2F		Annealed	
G51986	F.5230	SHKH15		Annealed	
T30403	F.5212	KH12		Annealed	
T20811		4KH5MFS		Annealed	
T20813	F.5318	4KH5MF1S		Annealed	
T30102	F.5227	9KH5VF		Annealed	
T20810		3KH3M3F		Annealed	
	F.5213	KH12		Annealed	
		KH12MF		Annealed	
T61206	F.520. S	5KHNM		Annealed	
	F.5613	R6M5K5		Annealed	
T11342		R2AM9K5		Annealed	
T12004		R18K5F2		Annealed	
T11302	F.5603	R6M5		Annealed	
T11307				Annealed	
T12001		R18		Annealed	
S41008		08KH13		Annealed	Ferrite
S41000	F.3401	12KH13, 08KH13		Annealed	Martensite
S43000	F.3113	12KH17		Annealed	Ferrite
S42000	F.5261	20KH13		Annealed	Martensite
S40280	F.3404	40KH13		Annealed	Martensite
S44002				Annealed	Martensite
S44003		95KH18		Annealed	Martensite
S44004		95KH18		Annealed	Martensite
J91540			F6NM	Annealed	Martensite
S44600		15KH28		Annealed	Ferrite
S30300	F.3508	12KH19N9		Annealed	Austenite
S30200		12KH18N9		Annealed	Austenite
S30400	F.3504	08KH18N10		Annealed	Austenite
S30403	F.3504	03KH18N11		Annealed	Austenite
S30100	F.3517	07KH16N6		Annealed	Austenite
S31600	F.3534	08KH17H13M2T		Annealed	Austenite
S34700	F.3524	08KH18N12B		Annealed	Austenite
S30453	F.3541	03KH18N11		Annealed	Austenite
S31008		12KH25N20		Annealed	Austenite
S31653		03KH16N15M3		Annealed	Austenite
S31603	F.3533	03KH17N14M3		Annealed	Austenite
S31700		08KH17H15M3T		Annealed	Austenite
S30815			253 MA	Annealed	Austenite
S31500			3RE60	Annealed	Duplex
S32900				Annealed	Duplex
S31803			SAF 2205	Annealed	Duplex
N08904				Annealed	Super austenite
S32750			SAF 2507	Annealed	Super duplex
S31254			254 SMO	Annealed	Super austenite
S13800			PH13-8Mo	Solution treated	Austenite
S15500			15-5-PH	Solution treated	Martensite
S17700		09KH17N7YU1	17-7-PH	Solution treated	Austenite/ferrite
S32654			654 SMO	Annealed	Super austenite
N08800			Alloy 800	Annealed	Austenite
S66286			A286	Solution treated	Austenite

SMG

SMG	AISI / ASTM	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS
K1	A48 25 B	EN-GJL-150	0.6150	0.6150	GG-15	Ft 15 D	Grade 150	G15	FC 150	01 15-00
	A48 30 B	EN-GJL-200	0.6200	0.6200	GG-20	Ft 20 D	Grade 220	G20	FC 200	01 20-00
	G 3500	EN-GJL-215			GG-220 HB					02 19
	A48 35 B	EN-GJL-250	0.6250	0.6250	GG-25	Ft 25 D	Grade 260	G25	FC 250	01 25-00
	A48 45 B	EN-GJL-300	0.6300	0.6300	GG-30	Ft 30 D	Grade 300	G30	FC 300	01 30-00
K2	A48 50 B	EN-GJL-350	0.6350	0.6350	GG-35	Ft 35 D	Grade 350	G35	FC 350	01 35-00
	Grade 350	EN-GJV-300			GJV-300					
	Grade 400	EN-GJV-350			GJV-350					
	Grade 400-15	EN-GJV-400			GJV-400					
	Grade 450	EN-GJV-450			GJV-450					
K3	Grade 500	EN-GJV-500			GJV-500					
K4	A220 60004	EN-GJMB-550-4	0.8155		GTS-55-04	P 540/5	P 540/5	P 55-04	PCMP55-04	08 54-00
		EN-GJS-350-22	0.7033	0.7033	GGG-35.3	FGS 370-17	Grade 350/22		FCD 350-22L	07 17-15
	60-40-18	EN-GJS-400-15	0.7040	0.7040	GGG-40	FGS 400-12	Grade 420/12	GS 400-12	FCD 400-18L	07 17-02
	60-40-18	EN-GJS-400-18	0.7043	0.7043	GGG-40.3	FGS-370-17	Grade 370/17	GSO 42/17		07 17-12
	A536 80-55-6	EN-GJS-500-7	0.7050	0.7050	GGG-50	FGS 500-7	Grade 500/7	GS 500-7	FCD 500-7	07 27-02
K5	A476 80-60-03	EN-GJS-600-3	0.7060	0.7060	GGG-60	FGS 600-3	Grade 600/3	GS 600-3	FCD 600-3	07 32-03
	A536 100-70-03	EN-GJS-700-2	0.7070	0.7070	GGG-70	FGS 700-2	Grade 700/2	GS 700-2	FCD 700-2	07 37-01
	1600/1300/-	-								
	1050/700/7	EN-GJS-1000-5			GJS-1000-5					
	1200/850/4	EN-GJS-1200-2			GJS-1200-2					
K6	1400/1100/1	EN-GJS-1400-1			GJS-1400-1					
	850/550/10	EN-GJS-800-8			GJS-800-8					
	A436 Type 2	EN-GJLA-XNiCr 20-2	0.6660	0.6660	GGL-NiCr 20 2	FGL Ni20 Cr2	Grade F2			05 23-00
	A436 Type 3	EN-GJLA-XNiCr 30-3	0.6676	0.6676	GGL-NiCr 30 3	FGL Ni30 Cr3	Grade F3			
	A436 Type 1	EN-GJLA-XNiCuCr15-6-2	0.6655	0.6655	GGL-NiCuCr 15 6 2	FGL Ni15 Cu6 Cr2	Grade F1			
K7	A439 Type D-5	EN-GJSA-XNi35	0.7683	0.7683	GGG-Ni 35	FGS Ni35				
	A436 Type D-2	EN-GJSA-XNiCr20-2	0.7660	0.7660	GGG-NiCr 20 2	FGS Ni20 Cr2	Grade S2			
	A436 Type D-3	EN-GJSA-XNiCr30-3	0.7676	0.7676	GGG-NiCr 30 3	FGS Ni30 Cr3	Grade S3			
	-	EN-GJSA-XNiMn13-7	0.7652	0.7652	GGG-NiMn 13 7	FGS Ni13 Mn7	Grade S6			07 72-00
	A439 Type D-2M	EN-GJSA-XNiMn23-4	0.7673	0.7673	GGG-NiMn 23 4	FGS Ni23 Mn4	Grade S2M			
N1		AW-1050A	Al99.5	3.0255	Al99.5	A-5/1050A	1B		(A1050)	4007
		AW-3103	AlMn1	3.0515	AlMn1		N3			4054
		AW-3003	AlMn1Cu	3.0517	AlMn1Cu	A-M1/3003			A3003	
		AW-2014	AlCuSiMn	3.1255	AlCuSiMn	A-U4SG/2014	H15			4338
		AW-2011	AlCuBiPb	3.1655	AlCuBiPb	A-U5PbBi/2011	FC1		A2011	4355
	A380	AC-46200	AlSi8Cu3(Si)	3.2161	G-AlSi8Cu3					4251
	B26	AC-42000		3.2341	G-AlSi5Mg	A-S7G	LM25	3599	AC 4C	4244
		AW-6060	AlMgSi0.5	3.3206	AlMgSi0.5	A-GS/6060	(H9)			4103
		AW-6063	AlMgSi0.7	3.3210	AlMgSi0.7	A-GSUC/6061	(H10)		(A6063)	4104,4107
		AW-5005	AlMg1	3.3315	AlMg1	A-G0.6	N41			4106
		AW-7020	AlZn4.5Mg1	3.4335	AlZn4.5Mg1	A-Z5G/7020	H17			4425
		AW-7075		3.4365	AlZnMgCu1.5	A-Z5GU/7075	2L95/2L96		A7075	
	AMS 4442	MN65120	MgSe3Zn2Zr1	3.5103	G-MgSe3Zn2Zr1	ZRE1	MAG6-TE			
	AZ61A	MG-P-63	MgAl6Zn	3.5612	G-MgAl6Zn	G-A6-Z1	MAG-E-121			
	AZ80A	MG-P-61	MgAl8Zn	3.5812	G-MgAl8Zn	(G-A7-Z1)				
N2		AW-6082	AlMgSi1	3.2315	AlMgSi1	A-SGM0.7/6082	H30			4212
	B85	AC-43400	AlSi10Mg(Fe)	3.2381	G-AlSi10Mg	A-S10G	LM9			4253
	A413.2	AC-44200	AlSi12	3.2382	GD-AlSi12					
N3	B390.0		AlSi17Cu5						ADC14	
N11	CA952	CC331G		2.0940.01	CuAl10Fe	CuAl10Fe	AB1			5710
	CA955	CC333G		2.0975.01	CuAl10Ni	CuAl10Ni5Fe5	AB2			5716
			CuNi10Fe1Mn	2.0872	CuNi10Fe1Mn	CuNi10Fe1Mn	CN102			5667
					CuNi10Zn45					
			CW408J	2.0790	CuNi18Zn19Pb	CuNi18Zn19Pb1				
	CA937	CW352H		2.1176	CuPb10Sn	CuSn10Pb10	LB2			5640
		CC480K		2.1050.01	CuSn10	CuSn10	CT1			5443
				2.1087	CuSn10Zn					5458
		CW452K	CuSn6	2.1020	CuSn6	CuSn6	PB103		C5191	5428
		CW502L	CuZn15	2.0240	CuZn15	CuZn15	CZ102		C2300	5112
		CW706R	CuZn28Sn1	2.0470	CuZn28Sn1	CuZn29Sn1				5220
		CW508L	CuZn37	2.0321	CuZn37	CuZn37	CZ108			5150
		CW717R	CuZn38Sn1	2.0530	CuZn38Sn1					
		CW614N	CuZn39Pb3	2.0401	CuZn39Pb3	CuZn39Pb3	CZ121			5170
		CW612N	CuZn40Pb2	2.0402	CuZn40Pb2	CuZn39Pb2	CZ120			5168
		CW622N	CuZn44Pb2	2.0410	CuZn44Pb2		CZ104			5272

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
F11601		Sc 15			Grey cast iron (GCI)
F12101		Sc 20			Grey cast iron (GCI)
					Grey cast iron (GCI)
F12401		Sc 25			Grey cast iron (GCI)
F13101		Sc 30			Grey cast iron (GCI)
F13502		Sc 35			Grey cast iron (GCI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
					Compacted graphite irons (CGI)
F24130				Tempered	Malleable cast irons (MCI)
					Nodular cast irons (SGI)
F32800	FGE 38-17	Vc 42-12			Nodular cast irons (SGI)
F32800		Vc 42-12			Nodular cast irons (SGI)
F33800	FGE 50-7	Vc 50-2			Nodular cast irons (SGI)
F34100	FGE 60-2	Vc 60-2			Nodular cast irons (SGI)
F34800	FGE 70-2	Vc 70-2			Nodular cast irons (SGI)
ADI grade 5					Austempered cast irons (ADI)
ADI grade 2					Austempered cast irons (ADI)
ADI grade 3					Austempered cast irons (ADI)
ADI grade 4					Austempered cast irons (ADI)
ADI grade 1					Austempered cast irons (ADI)
F41002			Ni-Resist 2		Austenitic lamellar cast irons
F41004			Ni-Resist 3		Austenitic lamellar cast irons
F41000			Ni-Resist 1		Austenitic lamellar cast irons
F43006			Ni-Resist D-5		Austenitic nodular cast irons
F43000			Ni-Resist D-2		Austenitic nodular cast irons
F43003			Ni-Resist D-3		Austenitic nodular cast irons
-			Nodumag		Austenitic nodular cast irons
F43010			Ni-Resist D-2M		Austenitic nodular cast irons
AA1050A					
AA3103					
AA3003					
AA2014					
AA2011					
A13800					
AA6060					
AA6005					
AA5005					
AA7020					
AA7075					
M12330					
M11600					
AA6082					
A13600					
C95200		BrA9ZH3L			
C95500		BrA10ZH4N4L			
C70600					
C76300					
C93700					
C90700					
C90500					
C51900		BrOF6.5-0.15			
C23000		L90			
C44300		LOMsh70-1-0.05			
C27200					
C46400		LO60-1			
C38500					
C37800					
C68700		LAMsh77-2-0.05			

SMG

SMG	AISI / ASTM	EN	EN-Nr	W-Nr	DIN	AFNOR	BS	UNI	JIS	SS
S1										
S2										
S3		NiMo30		2.4810						
		NiMo16Cr15W		2.4819						
		NiCr19Fe19Nb5Mo3		2.4668						
				2.4669						
		NiCr20TiAl		2.4631						
		NiCr19Co18Mo4Ti3Al3								
		NiCr20Co13Mo4Ti3Al		2.4654						
S11				3.7024						
	AMS 4919									
S12	AMS 4943									
	AMS 4920, Grd 5	TiAl6V4		3.7164						
S13	AMS 4986				TiV10Fe2Al3					
H3	5115	16 MnCr 5	1.7131	1.7131	16 MnCr 5	16 MC 5	527 M 17	16 MnCr 5	SCR 415	2511
H5	4142, 4140	42 CrMo 4	1.7225	1.1201	42 CrMo 4	42 CD 4	708 M40	42 CrMo 4	SCM 440 (H)	2244
	1070	C 67S	1.1231	1.1231	Ck 67	XC 68	060 A 67	C 70		1770
	1078, 1080	C 75S	1.1248	1.1248	Ck 75	XC 75	060 A 78	C 75		1774, 1778
	1095	C 100S	1.1274	1.1274	Ck 101		060 A 96		SUP 4	1870
	W 1	C 105U	1.1545	1.1545	C 105 W1	Y1 105		C 100 KU		1880
	S1			1.2550	60 WCrV 7	55 WC 20		55 WCrV 8 KU		
	5155	55 Cr 3	1.7176	1.7176	55 Cr 3	55 C 3	527 A 60	55 Cr 3	SUP 9 (A)	2253
H7	L2	107 CrV 3	1.2210	1.2210	115 CrV 3	100 C 3		107 CrV 3 KU		
	O1			1.2510	100 MnCrW 4	90 MWCV 5	BO 1	95 MnWCr 5 KU	SKS 3	2140
	O2	90 MnCrV 8	1.2842	1.2842	90 MnCrV 8	90 MV 8	BO 2	90 MnVCr 8 KU		
	52100	100 Cr 6	1.3505	1.3505	100 Cr 6	100 C 6	534 A 99	100 Cr 6	SUJ 2	2258
H8	H13	X 40 CrMoV 5 1	1.2344	1.2344	X 40 CrMoV 5 1	Z 40 CDV 5	BH 13	X 40 CrMo 5 1 1 KU	SKD 61	2242
	A2	X 100 CrMoV 5	1.2363	1.2363	X 100 CrMoV 5 1	Z 100 CDV 5	BA 2	X 100 CrMoV 5 1 KU	SKD 12	2260
	D2	X 155 CrVMo 12 1		1.2379	X 155 CrVMo 12 1	Z 160 CDV 12	BD 2	X 155 CrVMo 12 1 KU	SKD 11	
				1.2436	X 210 CrW 12			X 215 CrW 12 1 KU	SKD 2	2312
				1.2601	X 165 CrMoV 12			X 165 CrMoW 12 KU		2310
	L6			1.2713	55 NiCrMoV 6	55 NCDV 7			SKT 4	
	M35	HS 6-5-2-5	1.3243	1.3243	S 6-5-2-5	Z 85 WDKCV 06-05-05-04-02		HS 6-5-2-5	SKH 55	2723
	M42	HS 2-10-1-8	1.3247	1.3247	S 2-10-1-8	Z 110 DKCWV 09-08-04	BM 42	HS 2-9-1-8	SKH 51	
	M2	HS 6-5-2	1.3343	1.3343	S 6-5-2	Z 85 WDCV 06-05-04-0	BM 2	HS 6-5-2	SKH 9, SKH 51	2722
	T1	HS 18-0-1	1.3355	1.3355	S 18-0-1	Z 80 WCV 18-04-01	BT 1	HS 18-0-1	SKH 2	
H11	420	X 20 Cr 13	1.4021	1.4021	X 20 Cr 13	Z 20 C 13	420 S 37	X 20 Cr 13	SUS 420 J 1	2303
	440 A	X 70 CrMo 15	1.4109	1.4109	X 65 CrMo 14	Z 70 D 14			SUS 440 A	
	440 B	X 90 CrMoV 18	1.4112	1.4112	X 90 CrMoV 18	Z 2 CND 18 05	409 S 19	X CrTi 12	SUS 440 B	2327
	440 C	X 105 CrMo 17	1.4125	1.4125	X 105 CrMo 17	Z 100 CD 17		X 105 CrMo 17	SUS 440 C	
H12	XM-13	X 3 CrNiMoAl 13 B 2	1.4534	1.4534	X 3 CrNiMoAl 13 B 2					
	630	X 5 CrNiCuNb 16 4	1.4548	1.4542	X 5 CrNiCuNb 17 4	Z 6 CNU 17.4			SCS 24, SUS 630	
	AMS 5528	X 7 CrNiAl 17 7	1.4568	1.4568	X 7 CrNiAl 17 7	Z 9 CAN 17.7	301 S 81	X 7 CrNiAl 17 7	SUS 631	2388
	660	X 6 NiCrTiMoV 25 15	1.4980	1.4943	X 4 NiCrTi 25 15	Z 6 NCTDV 25.15	HR 51		SUH 660	2570
H21	A128 Grade A	X 120 Mn 12	1.3401	1.3401	X 120 Mn 12	Z 120 M 12	BW 10		SC MnH 1	2183
H31	A532 IB (NiCr-LC)	EN-GJN-HV520	0.9620	G-X330 NiCr 4 2	FB Ni4 Cr2 BC	Grade 2 A	Grade 2 A			05 12-00
	A532 IA (NiCr-HC)	EN-GJN-HV550	0.9625	G-X260 NiCr 4 2	FB Ni4 Cr2 HC	Grade 2 B	Grade 2 B			05 13-00
	A532 ID (Ni-HiCr)	EN-GJN-HV600(XCr11)	0.9630	G-X300 CrNiSi 9 5 2	FB Cr9 Ni5	Grade 2 C, D, E	Grade 2 C, D, E			04 57-00

SMG

UNS	U.N.E./ I.H.A.	GOST	Misc. Brands	Condition	Structure
			Disalloy	Precipitation hardened	
			Haynes 25		
			Stellite 21		
			Stellite 31		
N10002			Hastelloy C		
N10276		KHN65MV	Hastelloy C-276		
			IN 100		
N07718			Inconel 718		
N07750			Inconel X-750	Solution treated	
N07080			Nimonic 80A		
			René 41		
N07500			Udimet 500		
N07001			Waspalloy		
			Ti	Commercially pure	Ti (α)
R54620			Ti 6-2-4-2	Annealed	Ti (α)
R56320			Ti 3Al-2.5V (grd 9)	Annealed	Ti ($\alpha+\beta$)
R56400		VT6	Ti 6Al-4V	Annealed	Ti ($\alpha+\beta$)
			Ti 10V-2Fe-3Al	Annealed	Ti (β)
G51170	F.1516	12KHN2		Case hardened	
G41400	F.1252	38HM		Quenched & Tempered	
G10700	F.5103	70		Quenched & Tempered	
G10780	F.5107	75		Quenched & Tempered	
G10950	F.5117			Quenched & Tempered	
	F.5118	U10A		Quenched & Tempered	
		5KHV2SF		Quenched & Tempered	
G51550				Quenched & Tempered	
T61202	F.520L	11KHF		Quenched & Tempered	
T31501	F.5220	9KHVG		Quenched & Tempered	
T31502		9G2F		Quenched & Tempered	
G51986	F.5230	SHKH15		Quenched & Tempered	
T20813	F.5318	4KH5MF1S		Quenched & Tempered	
T30102	F.5227	9KH5VF		Quenched & Tempered	
T30402	F.5211	KH12MF		Quenched & Tempered	
	F.5213	KH12		Quenched & Tempered	
		KH12MF		Quenched & Tempered	
T61206	F.520.S	5KHNM		Quenched & Tempered	
	F.5613	R6M5K5		Quenched & Tempered	
T11342		R2AM9K5		Quenched & Tempered	
T11302	F.5603	R6M5		Quenched & Tempered	
T12001		R18		Quenched & Tempered	
S42000	F.5261	20KH13		Quenched & Tempered	Martensite
S44002				Quenched & Tempered	Martensite
S44003		95KH18		Quenched & Tempered	Martensite
S44004		95KH18		Quenched & Tempered	Martensite
S13800			PH13-8Mo	Precipitation hardened	Martensite
S17400			17-4-PH	Precipitation hardened	Martensite
S17700		09KH17N7YU1	17-7-PH	Precipitation hardened	Austenite/ferrite
S66286			A286	Precipitation hardened	Austenite
F45001			Ni-Hard 2		White cast iron
F45000			Ni-Hard 1		White cast iron
F45003			Ni-Hard 4		White cast iron

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