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# Supplement

- TO TURNING TOOLS, ROTATING TOOLS AND SOLID ROUND TOOLS CATALOGUES





General turning	A
Parting and grooving	B
Turning tool adaptors	C
Milling	D
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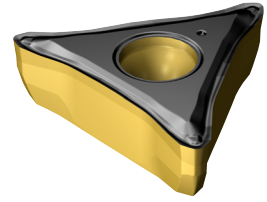
## General turning

CoroTurn® Prime

### Wiper insert

Wiper insert for improved surface finish at high feed rate.

See page A2



CoroTurn® Prime cutting unit for turning

### SL heads for internal machining

- A- and B-type insert for inside-out direction
- B-type insert for outside-in direction

See page A3

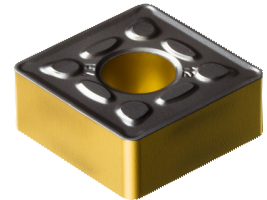


GC4305 and GC4315

### Inserts for heavy turning, railway turning and railway re-turning

Grade update for T-Max® P and CoroTurn® 107 inserts in sizes above 19.05 mm (.250 inch).

See chapter A

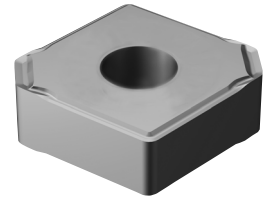


CC6160

### Ceramic inserts

Ceramic insert with chip breaker for good chip control at high cutting speeds in HRSA components.

See chapter A



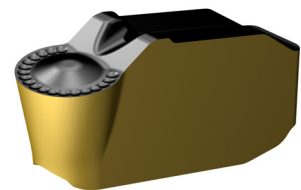
## Parting and grooving

CoroCut® QD

### Insert for profiling

RM geometry for profiling with long overhangs in narrow grooves, providing better tool life and chip control.

See page B2



## Turning tool adaptors

CoroTurn® SL

### New adaptors

The new assortment consists of CoroTurn® SL adaptors with Coromant Capto®, HSK-A/C/T, VDI and cylindrical shank. For internal turning within all segments.

See page C2



B

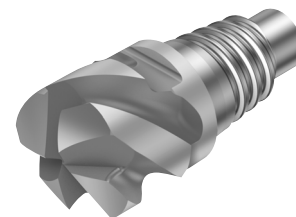
## Milling

GC1730

### CoroMill® 316

Grade GC1730 features a fine-grained substrate and a TiAlN multi-layer coating that provides enhanced tool life and excellent productivity gains. It is suitable for both dry and wet milling and is the first choice for ISO P and ISO M materials.

See chapter D



C

## Drilling

CoroDrill® DS20

### Indexable insert drill

A new indexable insert drill concept for your 4-7xDC drilling operations. The drill is reliable, predictable and boasts outstanding penetration rates.

With ISO 9766 shank as well as a new Modular Drilling Interface (MDI), available in Coromant Capto® and HSK. The MDI provides high precision and excellent centering capabilities.

See page E2



D

E

CoroDrill® 860

### Solid drill for ISO S applications

Optimized for short hole drilling in heat resistant super alloys, titanium alloys and Inconel. The new grade combined with robust cutting edges will give you high process stability, improved hole tolerance and excellent tool life.

See page E12



F

CoroDrill® 863

### Drill for composite materials

Features a high axial rake angle for reduced delamination and a new grade for improved wear resistance that offers high tool life and reliable performance. Designed for drilling composite materials commonly used in aerospace applications.

See page E13



G

H

## Rotating tool adaptors and accessories

MDI

### Drilling adaptors

MDI adaptors for the new CoroDrill® DS20. Available with Coromant Capto® and HSK.

See page F2



CoroChuck™ 930

### New chucks for small operations

Slender designed chucks with bore sizes 6, 8 and 10 mm. Higher performance and better run-out in smaller operations.

See chapter F



Torque wrenches

Torque wrench with bits that fit ER and MDI nuts.

See page G2



# General turning

## CoroTurn® Prime

Inserts  
CoroTurn® Prime insert for turning A2

Internal tools  
CoroTurn® Prime cutting unit for turning A3-A4

## CoroTurn® 107

Inserts  
CoroTurn® 107 insert for turning A5

## T-Max® P

Inserts  
T-Max® P insert for turning A6-A10

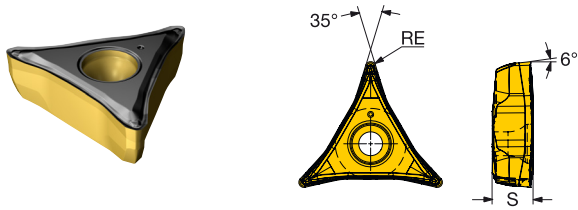
## T-Max®

Inserts  
T-Max® insert for turning A11

Cutting data A12-A13

# CoroTurn® Prime insert for turning

A-type insert



Metric version

					P
	SSC	S	RE	ISO CODE	4325
L3WX	CP-A	6.00	0.79	CP-A1108-L3WX	★

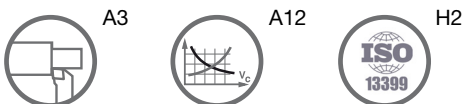
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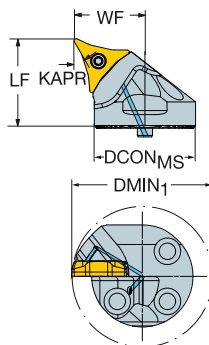


# CoroTurn® Prime cutting unit for turning

Screw clamp design

KAPR

30.0°



B

C

							Dimensions, mm, inch						
SSC	CZC <sub>MS</sub>	DMIN <sub>1</sub>	APMX	CNSC	Ordering code	DCON <sub>MS</sub>	LF	WF	BAR PSI	NM	KG	MIID	
	CP-A	32	40.0	3.0	1	SL-CP-30AR/L-32-11C40	32	32.0	22.0	70	3.0	0.10	CP-A1108
			1.575	.118			1.260	1.260	.866	1015			
		40	50.0	3.0	1	SL-CP-30AR/L-40-11C50	40	35.0	28.0	70	3.0	0.18	CP-A1108
			1.969	.118			1.575	1.378	1.102	1015			

D

For complete list of spare parts, see [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

E

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H7

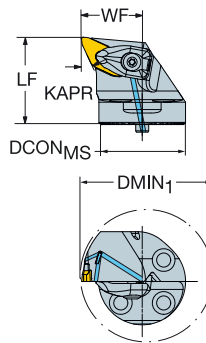


# CoroTurn® Prime cutting unit for turning

Rigid clamp design

KAPR

25.0°



CP-B

B

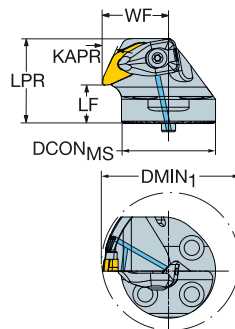
C

							Dimensions, mm, inch						
SSC	CZC <sub>MS</sub>	DMIN <sub>1</sub>	APMX	CNSC	Ordering code	DCON <sub>MS</sub>	LF	WF				MIID	
CP-B	40	50.0	4.0	1	SL-CP-25BR/L-40-11B50	40	40.0	28.0	70	3.0	0.19	CP-B1108	
		1.969	.157			1.575	1.575	1.102	1015				

D

KAPR

25.0°



CP-B

E

F

							Dimensions, mm, inch							
SSC	CZC <sub>MS</sub>	DMIN <sub>1</sub>	APMX	RMPX	CNSC	Ordering code	DCON <sub>MS</sub>	LPR	LF	WF				MIID
CP-B	40	50.0	4.0	23°	1	SL-CPX25BR/L-40-11B50	40	36.0	16.0	28.0	70	3.0	0.16	CP-B1108
		1.969	.157				1.575	1.417	.630	1.102	1015			

G

For complete list of spare parts, see [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

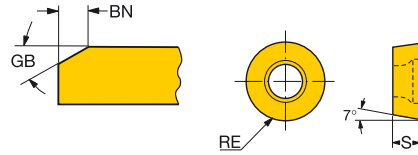
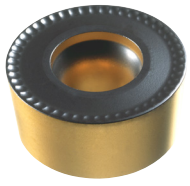
R = Right hand, L = Left hand

H



# CoroTurn® 107 insert for turning

R-style insert (Round)

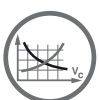


## Metric version

							ISO CODE		P	
		S	RE	GB	BN			4305	4315	
Medium	M0	20	6.35	10.00	15°	0.15	RCMT 20 06 M0	★	★	
		25	7.94	12.50	15°	0.20	RCMT 25 07 M0	★	★	

## Inch version

							ISO CODE		P	
		S	RE	GB	BN			4315	ANSI CODE	
Medium	3/4	.250	.375	15°	.006	RCMT 19 06 00	★	RCMT 64		



A12



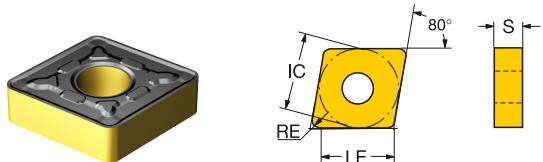
H2



H8

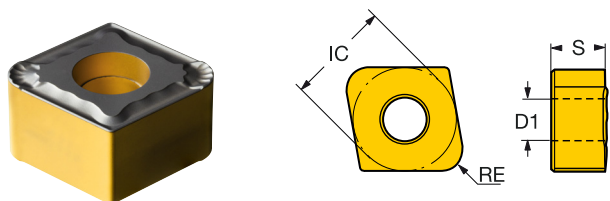
# T-Max® P insert for turning

C-style insert (Rhombic 80°)



							P		
		LE	S	RE	ISO CODE	4315	ANSI CODE		
Roughing	PR	25	1	23.4	9.53	2.38	CNMG 25 09 24-PR	★	CNMG 866-PR
				.921	.375	.094			
	HR	25	1	23.4	9.53	2.38	CNMM 25 09 24-HR	★	CNMM 866-PR
				.921	.375	.094			

## Finishing geometry



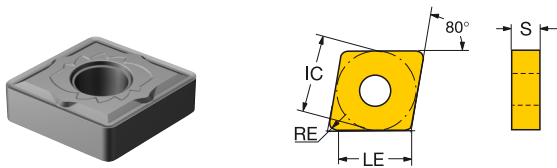
							P		
		LE	S	RE	ISO CODE	4315			
Finishing	PF	19	3/4	15.3	11.00	4.00	CNMX 19 11 40-PF	★	
				.604	.433	.157			



# T-Max® P insert for turning

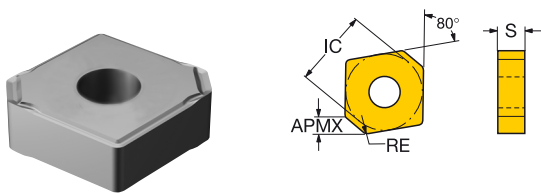
C-style insert (Rhombic 80°)

Advanced cutting materials



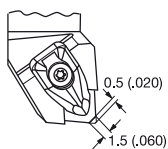
								S	
				RE	ISO CODE		6160	ANSI CODE	
Medium	SM	12	1/2	4.76	0.79	CNMG 12 04 08-SM		★ CNMG 432-SM	
			.188	.031					

## High feed geometry

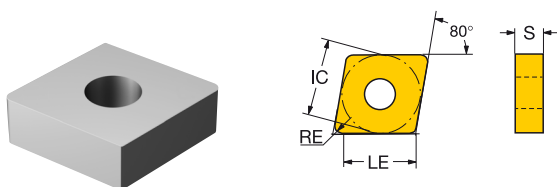


									S		
				RE	APMX	KCH	CHW	ISO CODE	6160	ANSI CODE	
Roughing	SM	12	1/2	2.8	4.76	0.80	2.5	50°	2.5	CNMX 12 04 A2-SM	★ CNMX 43A2-SM
			.110	.188	.031	.098	50°	.098			

The holders taking the CNMX inserts need to be modified.



Shims  
 5322 234-07 for T-Max P lever design holders  
 5322 234-08 for CoroTurn RC holders



									S
				RE	ISO CODE		6160	ANSI CODE	
E		12	1/2	12.1	4.76	0.79		CNMA 12 04 08E	★ CNMA 432A
			.476	.188	.031				



A12



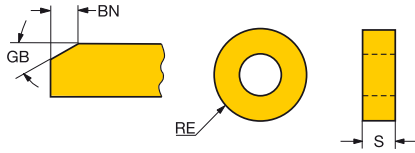
H2



H8

# T-Max® P insert for turning

R-style insert (Round)



B

C

			S	RE	GB	BN	ISO CODE	P		ANSI CODE
	4305	4315								
Medium	19	3/4	6.35	9.53			RNMG 19 06 00	★	★	RNMG 64
			.250	.375						
	20	.787	6.35	10.00	15°	0.30	RCMX 20 06 00	☆	★	
			.250	.394	15°	.012				
	25	.984	7.94	12.50	15°	0.40	RCMX 25 07 00	☆	★	RCMX 85
			.313	.492	15°	.016				
	32	1	9.53	16.00	15°	0.40	RCMX 32 09 00	☆	★	
			.375	.630	15°	.016				

D

E

F

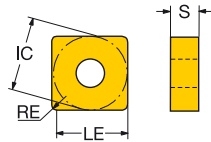
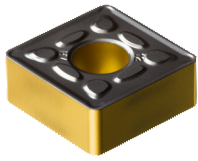
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H



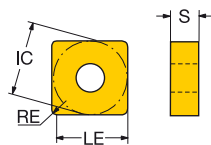
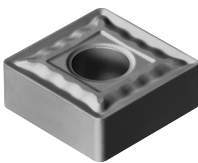
# T-Max® P insert for turning

S-style insert (Square)



					ISO CODE	P		ANSI CODE	
		LE	S	RE		4305	4315		
Medium	HM	25	1	23.0	9.53	2.38	SNMG 25 09 24-HM	★	SNMG 866-HM
				.906	.375	.094			
	MR	25	1	23.0	7.94	2.38	SNMM 25 07 24-MR	★	SNMM 856-MR
				.906	.313	.094			
	PR	25	1	23.0	7.94	2.38	SNMG 25 07 24-PR	★	SNMG 856-PR
							SNMG 25 09 24-PR	★	SNMG 866-PR
				.906	.375	.094			
	QR	25	1	23.0	7.94	2.38	SNMM 25 07 24-QR	★	SNMM 856-QR
				.906	.313	.094			
	HR	25	1	23.0	7.94	2.38	SNMM 25 07 24-HR	★	SNMM 856-HR
							SNMM 25 07 32-HR	★	SNMM 858-HR
				.874	.313	.125			
			23.0	9.53	2.38	SNMM 25 09 24-HR	★	SNMM 866-HR	
			.906	.375	.094				
		22.2	9.53	3.18	SNMM 25 09 32-HR	★	SNMM 868-HR		
		.874	.375	.125					

## Advanced cutting materials



					ISO CODE	S		ANSI CODE
		S	RE	6160		6170		
Medium	QM	15	5/8	6.35	1.19	SNMG 15 06 12-QM	★	SNMG 543-QM
				.250	.047			



A12



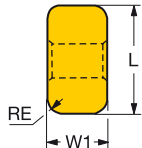
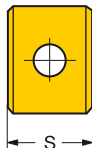
H2



H8

# T-Max® P insert for turning

Insert for railway wheel re-turning



B

C

		LE	S	RE	W1	ISO CODE	P
PF	19	15.1	19.05	4.00	10.0	LINUX 19 19 40-PF	★
		.593	.750	.157	.394		
PM	19	15.1	19.05	4.00	10.0	LNMX 19 19 40-PM	★
		.593	.750	.157	.394		
	30	26.0	19.05	4.00	12.0	LNMX 30 19 40-PM	★
		1.024	.750	.157	.472		
PR	19	15.1	19.05	4.00	10.0	LINUX 19 19 40-PM	★
		.593	.750	.157	.394		
	30	26.0	19.05	4.00	12.0	LNMX 30 19 40-PR	★
			1.024	.750	.157	.472	
	26.0	19.05	4.00	12.0	LINUX 30 19 40-PR	★	
		1.024	.750	.157	.472		
	32	12.70	4.75	19.1		LINUX 32 12 48-PR	★
		.500	.187	.750			

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A12



H2

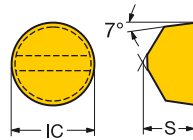


H8

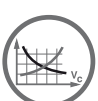


# T-Max® insert for turning

R-style insert (Round)



						S		
		IC	S	RE	ISO CODE	61	ANSI CODE	
SM	09	3/8	7.94	4.76	RCMX 09 07 00-SM	*	RCMX35-SM	
			.313	.187				



A12



H2



H8

# Cutting speed recommendations, metric values

The recommendations are valid for use with cutting fluid.

ISO P	CMC No.	Steel	Specific cutting force $k_{c1}$	Hardness Brinell	WEAR RESISTANCE		
					GC4325	GC4315	GC4305
					$h_{ex}$ , mm $\approx$ feed $f_n$ , mm/r		
					Cutting speed ( $v_c$ ), m/min		
MC No.	Material	N/mm <sup>2</sup>	HB	0.1-0.4-0.8	0.1-0.4-0.8	0.1-0.4-0.8	
P1.1.Z.AN	01.1	<b>Unalloyed steel</b> C = 0.1–0.25%	1500	125	510-345-245	570-405-300	620-450-330
P1.2.Z.AN	01.2	C = 0.25–0.55%	1600	150	455-305-215	510-365-265	560-405-295
P1.3.Z.AN	01.3	C = 0.55–0.80%	1700	170	425-290-205	460-330-240	530-385-275
P2.1.Z.AN	02.1	<b>Low-alloy steel</b> (alloying elements $\leq 5\%$ ) Non-hardened	1700	180	460-305-215	560-370-260	610-410-285
P2.1.Z.AN	02.12	Ball bearing steel	1800	210	395-265-190	460-305-215	530-350-250
P2.5.Z.HT	02.2	Hardened and tempered	1850	275	205-145-110	300-210-155	330-230-175
P2.5.Z.HT	02.2	Hardened and tempered	2050	350	205-145-110	240-170-125	265-185-140
P3.0.Z.AN	03.11	<b>High-alloy steel</b> (alloying elements $> 5\%$ ) Annealed	1950	200	300-205-150	405-270-200	445-295-215
P3.0.Z.HT	03.21	Hardened tool steel	3000	325	135-95-75	200-130-95	220-140-105
P1.5.C.UT	06.1	<b>Steel castings</b> Unalloyed	1550	180	240-180-130	300-215-170	335-235-185
P2.6.C.UT	06.2	Low-alloy (alloying elements $\leq 5\%$ )	1600	200	210-140-100	260-185-140	290-205-155
P3.0.C.UT	06.3	High-alloy (alloying elements $> 5\%$ )	2050	225	200-165-125	205-135-105	225-150-115
ISO S	CMC No.	Heat resistant material	Specific cutting force $k_{c1}$	Hardness Brinell	WEAR RESISTANCE		
					CC6160		
					$h_{ex}$ , mm $\approx$ feed $f_n$ , mm/r		
					Cutting speed ( $v_c$ ), m/min		
MC No.	Material	N/mm <sup>2</sup>	HB	0.1-0.2-0.3			
S1.0.U.AN	20.11	<b>Heat resistant super alloys</b> <b>Iron base</b> Annealed or solution treated	2400	200	-		
S1.0.U.AG	20.12	Aged or solution treated and aged	2500	280	-		
S2.0.Z.AN	20.21	<b>Nickel base</b> Annealed or solution treated	2650	250	400-325-270		
S2.0.Z.AG	20.22	Aged or solution treated and aged	2900	350	300-235-190		
S2.0.C.NS	20.24	Cast or cast and aged	3000	320	240-205-175		
S3.0.Z.AN	20.31	<b>Cobalt alloys</b> Annealed or solution treated	2700	200	-		
S3.0.Z.AG	20.32	Solution treated and aged	3000	300	-		
S3.0.C.NS	20.33	Cast or cast and aged	3100	320	-		
S4.1.Z.UT	23.1	<b>Titanium alloys<sup>2)</sup></b> Commercial pure (99,5% Ti)	1300	400	-		
S4.2.Z.AN	23.21	$\alpha$ , near $\alpha$ and $\alpha + \beta$ alloys, annealed	1400	950	-		
S4.3.Z.AG	23.22	$\alpha + \beta$ alloys in aged conditions. $\beta$ alloys. Annealed or aged	1400	1050	-		

1) The cutting speeds, shown in the table, are valid for all feeds within the feed range.

2) 45–60° entering angle, positive cutting geometry and coolant should be used.

3) Rm = ultimate tensile strength measured in MPa.

# Cutting speed recommendations, inch values

The recommendations are valid for use with cutting fluid.

ISO P	CMC No.	Steel	Specific cutting force $k_{c1}$	Hardness Brinell	WEAR RESISTANCE		
					GC4325	GC4315	GC4305
MC No.	CMC No.	Material	lbs/in <sup>2</sup>	HB	$h_{ex}$ , inch $\approx$ feed, $f_n$ , inch/rev. at 0° to -5° lead		
					Cutting speed $v_c$ , ft/min		
P1.1.Z.AN	01.1	<b>Unalloyed steel</b> C = 0.1–0.25%	216.500	125	1400-890-660	1850-1350-990	2050-1450-1100
P1.2.Z.AN	01.2	C = 0.25–0.55%	233.000	150	1250-800-590	1650-1200-880	1850-1300-970
P1.3.Z.AN	01.3	C = 0.55–0.80%	247.000	170	1200-760-560	1500-1100-790	1750-1250-920
P2.1.Z.AN	02.1	<b>Low-alloy steel</b> (alloying elements $\leq 5\%$ ) Non-hardened	249.500	180	980-600-445	1800-1200-860	2000-1350-940
P2.1.Z.AN	02.12	Ball bearing steel	259.500	210	820-500-365	1500-990-710	1750-1150-820
P2.5.Z.HT	02.2	Hardened and tempered	268.000	275	600-385-280	980-680-510	1050-750-570
P2.5.Z.HT	02.2	Hardened and tempered	298.000	350	485-310-225	790-550-415	870-610-460
P3.0.Z.AN	03.11	<b>High-alloy steel</b> (alloying elements $> 5\%$ ) Annealed	282.000	200	780-500-345	1350-880-650	1450-970-720
P3.0.Z.HT	03.21	Hardened tool steel	435.500	325	360-225-165	650-415-315	710-460-345
P1.5.C.UT	06.1	<b>Steel castings</b> Unalloyed	225.000	180	600-450-335	990-700-550	1100-770-610
P2.6.C.UT	06.2	Low-alloy (alloying elements $\leq 5\%$ )	230.500	200	540-320-235	860-610-470	950-670-510
P3.0.C.UT	06.3	High-alloy (alloying elements $> 5\%$ )	300.500	225	470-305-220	660-450-345	730-490-380
ISO S	CMC No.	Heat resistant material	Specific cutting force $k_{c1}$	Hardness Brinell	WEAR RESISTANCE		
MC No.					Material	lbs/in <sup>2</sup>	HB
S1.0.U.AN	20.11	<b>Heat resistant super alloys</b> <b>Iron base</b> Annealed or solution treated	348.000	200	-	-	-
S1.0.U.AG	20.12	Aged or solution treated and aged	359.000	280	-	-	-
S2.0.Z.AN	20.21	<b>Nickel base</b> Annealed or solution treated	383.000	250	1300-1050-880	-	-
S2.0.Z.AG	20.22	Aged or solution treated and aged	420.500	350	980-770-620	-	-
S2.0.C.NS	20.24	Cast or cast and aged	436.500	320	790-660-570	-	-
S3.0.Z.AN	20.31	<b>Cobalt alloys</b> Annealed or solution treated	391.500	200	-	-	-
S3.0.Z.AG	20.32	Solution treated and aged	432.000	300	-	-	-
S3.0.C.NS	20.33	Cast or cast and aged	450.500	320	-	-	-
S4.1.Z.UT	23.1	<b>Titanium alloys<sup>2)</sup></b> Commercial pure (99,5% Ti)	188.500	400	-	-	-
S4.2.Z.AN	23.21	$\alpha$ , near $\alpha$ and $\alpha + \beta$ alloys, annealed	203.000	950	-	-	-
S4.3.Z.AG	23.22	$\alpha + \beta$ alloys in aged conditions. $\beta$ alloys. Annealed or aged	203.000	1050	-	-	-

1) The cutting speeds, shown in the table, are valid for all feeds within the feed range.

2) 45–60° entering angle, positive cutting geometry and coolant should be used.

3) Rm = ultimate tensile strength measured in MPa.



# Parting and grooving

CoroCut® QD

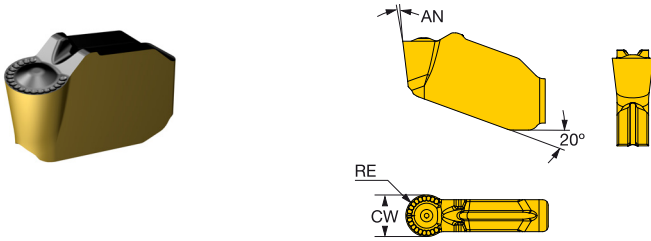
Inserts  
CoroCut® QD insert for profiling

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## CoroCut® QD insert for profiling

ENG

B



C

				P		M		K		N		S		Dimensions, mm, inch		
		SSC	CW	RE	APMX	Ordering code						AN	CWTOLL	CWTOLU		
Medium	G	3.00	1.50	1.3		QD-NG-0300-RM	☆	★	☆	☆	☆	☆	☆	7°	-0.050	0.050
		.118	.059	.049			☆	★	☆	☆	☆	☆	☆		-.0020	.0020
	H	4.00	2.00	1.8		QD-NH-0400-RM	☆	★	☆	☆	☆	☆	☆	7°	-0.050	0.050
		.157	.079	.071			☆	★	☆	☆	☆	☆	☆		-.0020	.0020
	K	6.00	3.00	2.5		QD-NK-0600-RM	☆	★	☆	☆	☆	☆	☆	7°	-0.050	0.050
	.236	.118	.098			☆	★	☆	☆	☆	☆	☆		-.0020	.0020	
	L	8.00	4.00	3.5		QD-NL-0800-RM	☆	★	☆	☆	☆	☆	☆	7°	-0.050	0.050
		.315	.157	.138			☆	★	☆	☆	☆	☆	☆		-.0020	.0020

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# Cutting speed recommendations, metric values

The recommendations are valid for use with cutting fluid.

ISO P	CMC No.	Steel	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE			
					GC4335	GC1125	GC1135	
MC No.	CMC No.	Material	N/mm <sup>2</sup>	HB	$h_{ex}, \text{mm} \approx \text{feed } f_n, \text{mm/r}$			
					Cutting speed ( $v_c$ ), m/min			
P1.1.Z.AN	01.1	Unalloyed C = 0.1–0.25%	1500	125	475-245	295-145	205-100	
P1.2.Z.AN	01.2		C = 0.25–0.55%	1600	150	435-225	265-115	180-75
P1.3.Z.AN	01.3		C = 0.55–0.80%	1700	170	410-210	235-105	175-70
P2.1.Z.AN	02.1	Low-alloy $\leq 5\%$ Non-hardened	1700	180	355-170	235-110	175-80	
P2.5.Z.HT	02.2		Hardened and tempered	1850	275	205-105	205-95	155-70
P2.5.Z.HT	02.2		Hardened and tempered	2050	350	165-85	165-75	125-55
P3.0.Z.AN	03.11	High-alloy $>5\%$ Annealed	1950	200	250-140	205-95	155-70	
P3.0.Z.HT	03.21		Hardened tool steel	3000	325	125-60	150-65	105-45
P1.5.C.UT	06.1	Castings Unalloyed	1550	180	180-125	135-65	105-50	
P2.6.C.UT	06.2		Low-alloy (alloying elements $\leq 5\%$ )	1600	200	200-90	160-85	120-60
P3.0.C.UT	06.3		High-alloy (alloying elements $>5\%$ )	2050	225	160-85	120-50	90-40
P3.2.C.AQ	06.33		Manganese steel, 12–14% Mn	2900	250	150-30	70-40	50-29
ISO M	CMC No.	Stainless steel	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE			
MC No.	CMC No.	Material	N/mm <sup>2</sup>	HB	GC1125	GC1135		
					$h_{ex}, \text{mm} \approx \text{feed } f_n, \text{mm/r}$			
					0.05-0.5			
					Cutting speed ( $v_c$ ), m/min			
P5.0.Z.AN	05.11	Ferritic/martensitic Bars/forged Non-hardened	1800	200	190-85	145-65		
P5.0.Z.PH	05.12		PH-hardened	2850	330	150-65	110-45	
P5.0.Z.HT	05.13		Hardened	2350	330	160-70	120-50	
M1.0.Z.AQ	05.21	Austenitic Bars/forged Austenitic	1800	180	215-100	165-70		
M1.0.Z.PH	05.22		PH-hardened	2850	330	150-70	105-50	
M2.0.Z.AQ	05.23		Super austenitic	2250	200	160-75	115-55	
M3.1.Z.AQ	05.51	Austenitic-ferritic (Duplex) Bars/forged Non-weldable $\geq 0.05\%C$	2000	230	180-85	135-60		
M3.2.Z.AQ	05.52		Weldable $< 0.05\%C$	2450	260	150-70	110-50	
P5.0.C.UT	15.11	Ferritic/martensitic Cast Non-hardened	1700	200	175-80	130-60		
P5.0.C.HT	15.13		Hardened	2150	330	145-65	110-45	
M1.0.C.UT	15.21	Austenitic Cast Austenitic	1700	180	185-90	135-60		
	15.22		PH-hardened	2450	330	120-65	90-45	
M3.1.C.AQ	15.51	Austenitic-ferritic (Duplex) Cast Non-weldable $\geq 0.05\%C$	1800	230	155-75	115-55		
M3.2.C.AQ	15.52		Weldable $< 0.05\%C$	2250	260	125-65	95-45	
ISO K	CMC No.	Cast iron	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE			
MC No.	CMC No.	Material	N/mm <sup>2</sup>	HB	GC4335	GC1135	GC1125	
					$h_{ex}, \text{mm} \approx \text{feed } f_n, \text{mm/r}$			
					0.05-0.5			
					Cutting speed ( $v_c$ ), m/min			
K1.1.C.NS	07.1	Malleable Ferritic (short chipping)	790	130	150-120	320-170	255-125	
	07.2		Pearlitic (long chipping)	900	230	110-90	235-110	170-95
K2.1.C.UT	08.1	Grey Low tensile strength	890	180	240-155	275-130	210-110	
K2.2.C.UT	08.2		High tensile strength	970	220	185-115	240-115	175-90
K3.1.C.UT	09.1	Nodular SG iron Ferritic	900	160	210-115	250-105	185-95	
K3.3.C.UT	09.2		Pearlitic	1350	250	120-90	195-90	150-75
K3.4.C.UT	09.3		Martensitic	2100	380	95-35	140-70	100-55

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## Cutting speed recommendations, metric values

The recommendations are valid for use with cutting fluid.

ISO N	CMC No.	Non-ferrous material	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE		
					GC1125		
MC No.	CMC No.	Material	N/mm <sup>2</sup>	HB	$h_{ex}$ , mm $\approx$ feed $f_n$ , mm/r		
					Cutting speed ( $v_c$ ), m/min		
N1.2.Z.UT N1.2.Z.AG	30.11 30.12	<b>Aluminium alloys</b> Wrought or wrought and coldworked, non-aging	400 650	60 100	1500 (1900 - 190)		
N1.3.C.UT N1.3.C.AG	30.21 30.22	<b>Aluminium alloys</b> Cast, non aging Cast or cast and aged	600 700	75 90	1500 (1900 - 190)		
N1.4.C.NS	30.41 30.42	<b>Aluminium alloys</b> Cast, 13–15% Si Cast, 16–22% Si	700 700	130 130	400 (500 - 50) 250 (315 - 31)		
N3.3.U.UT N3.2.C.UT N3.1.U.UT	33.1 33.2 33.3	<b>Copper and copper alloys</b> Free cutting alloys, $\geq 1\%$ Pb Brass, leaded bronzes, $\leq 1\%$ Pb Bronze and non-leaded copper incl. electrolytic copper	550 550 1350	110 90 100	350 (440 - 45) 400 (500 - 50) 250 (315 - 31)		
ISO S	CMC No.	Heat resistant super alloys	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE		
					GC1125	GC1135	
MC No.	CMC No.	Material	N/mm <sup>2</sup>	HB	$h_{ex}$ , mm $\approx$ feed $f_n$ , mm/r		
					Cutting speed ( $v_c$ ), m/min		
S1.0.U.AN S1.0.U.AG	20.11 20.12	<b>Iron base</b> Annealed or solution treated Aged or solution treated and aged	2400 2500	200 280	80-45 55-33	50-29 40-26	
S2.0.Z.AN S2.0.Z.AG	20.21 20.22	<b>Nickel base</b> Annealed or solution treated Aged or solution treated and aged	2650 2900	250 350	50-32 45-26	40-26 35-21	
S2.0.C.NS	20.24	Cast or cast and aged	3000	320	35-18	25-10	
S3.0.Z.AN S3.0.Z.AG S3.0.C.NS	20.31 20.32 20.33	<b>Cobalt alloys</b> Annealed or solution treated Solution treated and aged Cast or cast and aged	2700 3000 3100	200 300 320	55-38 45-26 35-18	45-28 35-17 25-14	
S4.1.Z.UT S4.2.Z.AN S4.3.Z.AG	23.1 23.21 23.22	<b>Titanium alloys</b> Commercial pure (99.5% Ti) $\alpha$ , near $\alpha$ and $\alpha + \beta$ alloys, annealed $\alpha + \beta$ alloys in aged conditions, $\beta$ alloys, annealed or aged	1300 1400 1400	<b>Rm</b> <sup>1)</sup> 400 950 1050	220-100 80-45 75-37	170-80 65-35 60-30	

1) Rm = ultimate tensile strength measured in MPa.



# Cutting speed recommendations, inch values

The recommendations are valid for use with cutting fluid.

ISO P	CMC No.	Steel	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE			
					GC4335	GC1125	GC1135	
MC No.	CMC No.	Material	lbs/in <sup>2</sup>	HB	$h_{ex}$ , inch $\approx$ feed, $f_n$ inch/r			
					Cutting speed ( $V_c$ ) ft/min			
P1.1.Z.AN	01.1	Unalloyed C = 0.1–0.25%	216,500	125	1560-800	960-475	670-330	
P1.2.Z.AN	01.2		C = 0.25–0.55%	233,000	150	1430-740	860-380	590-250
P1.3.Z.AN	01.3		C = 0.55–0.80%	247,000	170	1350-690	770-340	570-235
P2.1.Z.AN	02.1	Low-alloy $\leq 5\%$ Non-hardened	249,500	180	1160-560	770-365	570-260	
P2.5.Z.HT	02.2		Hardened and tempered	268,000	275	670-340	660-305	500-220
P2.5.Z.HT	02.2		Hardened and tempered	298,000	350	540-280	530-245	400-180
P3.5.Z.AN	03.11	High-alloy $>5\%$ Annealed	282,000	200	820-460	670-305	500-225	
P3.5.Z.HT	03.21		Hardened tool steel	435,000	325	410-200	490-205	335-140
P1.5.C.UT	06.1	Castings Unalloyed	225,000	180	590-410	440-210	335-160	
P2.6.C.UT	06.2		Low-alloy (alloying elements $\leq 5\%$ )	230,500	200	660-300	520-275	390-200
P3.0.C.UT	06.3		High-alloy (alloying elements $>5\%$ )	300,500	225	520-280	395-170	295-130
P3.2.C.AQ	06.33		Manganese steel, 12–14% Mn	420,500	250	490-100	225-130	160-95
ISO M	CMC No.	Stainless steel	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE			
MC No.	CMC No.	Material	lbs/in <sup>2</sup>	HB	GC1125	GC1135		
					$h_{ex}$ , inch $\approx$ feed, $f_n$ inch/r			
					.002-.020			
					Cutting speed ( $V_c$ ) ft/min			
P5.0.Z.AN	05.11	Ferritic/martensitic Bars/forged Non-hardened	262,000	200	620-285	470-210		
P5.0.Z.PH	05.12		PH-hardened	411,500	330	480-220	350-150	
P5.0.Z.HT	05.13		Hardened	340,000	330	520-235	385-165	
M1.0.Z.AQ	05.21	Austenitic Bars/forged Austenitic	259,000	180	700-335	530-230		
M1.0.Z.PH	05.22		PH-hardened	414,000	330	485-230	340-160	
M2.0.Z.AQ	05.23		Super austenitic	328,000	200	520-250	370-180	
M3.1.Z.AQ	05.51	Austenitic-ferritic (Duplex) Bars/forged Non-weldable $\geq 0.05\%C$	286,500	230	580-280	440-190		
M3.2.Z.AQ	05.52		Weldable $< 0.05\%C$	356,500	260	490-235	360-165	
P5.0.C.UT	15.11	Ferritic/martensitic Cast Non-hardened	246,500	200	560-260	425-190		
P5.0.C.HT	15.13		Hardened	311,000	330	470-215	360-150	
M1.0.C.UT	15.21	Austenitic Cast Austenitic	248,000	180	600-290	445-190		
	15.22		PH-hardened	356,000	330	395-205	295-145	
M3.1.C.AQ	15.51	Austenitic-ferritic (Duplex) Cast Non-weldable $\geq 0.05\%C$	258,000	230	510-245	375-170		
M3.2.C.AQ	15.52		Weldable $< 0.05\%C$	326,500	260	405-210	300-145	
ISO K	CMC No.	Cast iron	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE			
MC No.	CMC No.	Material	lbs/in <sup>2</sup>	HB	GC4335	GC1125	GC1135	
					$h_{ex}$ , inch $\approx$ feed, $f_n$ inch/r			
					.002-.020			
					Cutting speed ( $V_c$ ) ft/min			
K1.1.C.NS	07.1	Malleable Ferritic (short chipping)	115,000	130	490-390	830-415	1050-550	
	07.2		Pearlitic (long chipping)	131,000	230	360-300	560-310	760-350
K2.1.C.UT	08.1	Grey Low tensile strength	130,000	180	790-510	680-365	900-430	
K2.2.C.UT	08.2		High tensile strength	140,500	220	610-380	570-295	780-370
K3.1.C.UT	09.1	Nodular SG iron Ferritic	130,000	160	690-380	600-320	810-350	
K3.3.C.UT	09.2		Pearlitic	194,500	250	390-300	485-250	640-300
K3.4.C.UT	09.3		Martensitic	307,500	380	310-110	330-180	450-220

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## Cutting speed recommendations, inch values

The recommendations are valid for use with cutting fluid.

ISO N	CMC No.	Non-ferrous material	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE		
					GC1125		
MC No.	CMC No.	Material	lbs/in <sup>2</sup>	HB	$h_{ex}$ , inch $\approx$ feed, $f_n$ inch/r		
					.002-.031		
					Cutting speed ( $V_c$ ) ft/min		
N1.2.Z.UT N1.2.Z.AG	30.11	Aluminium alloys Wrought or wrought and coldworked, non-aging	58,000	60	4900 (6150-610)		
	30.12		94,500	100	4900 (6150-610)		
N1.3.C.UT N1.3.C.AG	30.21	Aluminium alloys Cast, non aging	87,000	75	4900 (6150-610)		
	30.22		101,500	90	4900 (6150-610)		
N1.4.C.NS	30.41	Cast, 13-15% Si	101,500	130	1300 (1650-165)		
	30.42		101,500	130	820 (1050-105)		
N3.3.U.UT N3.2.C.UT N3.1.U.UT	33.1	Copper and copper alloys Free cutting alloys, $\geq 1\%$ Pb	79,500	110	1150 (1450-145)		
	33.2		80,000	90	1300 (1650-165)		
	33.3		196,000	100	820 (1050-105)		
ISO S	CMC No.	Heat resistant super alloys	Specific cutting force $k_{c1}$	Hardness Brinell	<<<< WEAR RESISTANCE		
		Material			lbs/in <sup>2</sup>	HB	GC1125
MC No.	CMC No.	Material	lbs/in <sup>2</sup>	HB	$h_{ex}$ , inch $\approx$ feed, $f_n$ inch/r		
					.002-.012      .002-.012		
					Cutting speed ( $V_c$ ) ft/min		
S1.0.U.AN S1.0.U.AG	20.11	Iron base Annealed or solution treated	348,000	200	260-140      165-95		
	20.12		359,000	280	185-110      130-85		
S2.0.Z.AN S2.0.Z.AG	20.21	Nickel base Annealed or solution treated	383,000	250	170-105      130-85		
	20.22		420,500	350	150-85      115-70		
S2.0.C.NS	20.24	Cast or cast and aged	436,500	320	115-60      80-31		
S3.0.Z.AN S3.0.Z.AG S3.0.C.NS	20.31	Cobalt alloys Annealed or solution treated	391,500	200	185-125      145-90		
	20.32		432,000	300	150-85      115-55		
	20.33		450,500	320	115-60      80-45		
Titanium S4.1.Z.UT	23.1	Commercial pure (99.5% Ti)	188,500	Rm <sup>1)</sup> 400	720-325      550-265		
S4.2.Z.AN S4.3.Z.AG	23.21	Titanium alloys $\alpha$ , near $\alpha$ and $\alpha + \beta$ alloys, annealed	203,000	950	265-140      -		
	23.22		203,000	1050	245-120      -		

1) Rm = ultimate tensile strength measured in MPa.

# Turning tool adaptors

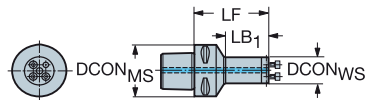
Machine side interface Coromant Capto® Coromant Capto® to CoroTurn® SL adaptor	C2-C3
Machine side interface HSK HSK to CoroTurn® SL adaptor	C4
Machine side interface VDI VDI to CoroTurn® SL adaptor	C5
Machine side interface Cylindrical shank Cylindrical shank to CoroTurn® SL adaptor	C6

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## Coromant Capto® to CoroTurn® SL adaptor

ENG

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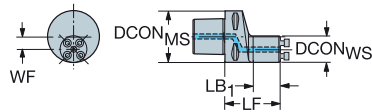


C

Dimensions, mm, inch

CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LB <sub>1</sub>	LF	BAR PSI	KG
C8	40	3	1	C8-570-2C 40 110	80.0	40	78	110	150	2.540
					3.150	1.575	3.071	4.331	2175	

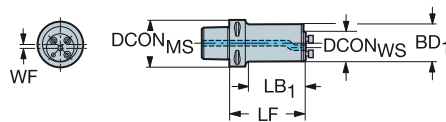
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Dimensions, mm, inch

CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LF	WF	BAR PSI	KG
C8	40	3	1	C8-570-2C 40 089R/L	80.0	40	89	20.0	150	2.380
					3.150	1.575	3.504	.787	2175	

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Dimensions, mm, inch

CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	BD <sub>1</sub>	LB <sub>1</sub>	LF	WF	BAR PSI	KG
C8	40	3	1	C8-570-2C 50 107-40R/L	80.0	40	50	73	107	5.0	150	2.890
					3.150	1.575	1.969	2.874	4.213	.787	2175	
		3	1	C8-570-2C 50 133-40R/L	80.0	40	50	104	133	5.0	150	3.290
					3.150	1.575	1.969	4.094	5.236	.197	2175	
		3	1	C8-570-2C 60 125-40R/L	80.0	40	60	94	125	10.0	150	3.750
					3.150	1.575	2.362	3.701	4.921	.787	2175	
		3	1	C8-570-2C 60 158-40R/L	80.0	40	60	131	158	10.0	150	4.450
					3.150	1.575	2.362	5.157	6.220	.394	2175	

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For spare parts, visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

R = Right hand, L = Left hand

H

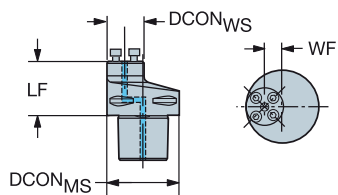


H2



H7

## Coromant Capto® to CoroTurn® SL adaptor



				Dimensions, mm, inch						
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LF	WF	BAR PSI	KG
C8	32	3	1	C8-570-32-R/LGM	80.0	32	66	24.0	150	2.070
					3.150	1.260	2.598	.945	2175	
	40	3	1	C8-570-40-R/LGM	80.0	40	67	20.0	150	2.170
					3.150	1.575	2.638	.787	2175	

For spare parts, visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

R = Right hand, L = Left hand



H2



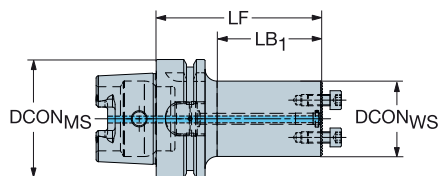
H7

A

# HSK to CoroTurn® SL adaptor

ENG

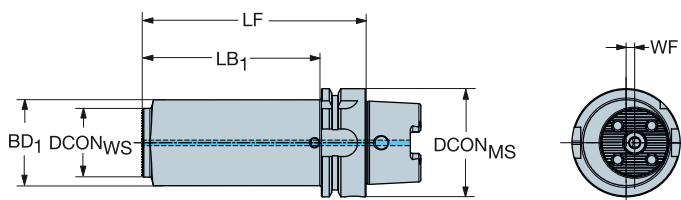
B



C

				Dimensions, mm, inch						
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LB <sub>1</sub>	LF	$\begin{matrix} \text{BAR} \\ \text{PSI} \end{matrix}$	$\begin{matrix} \text{KG} \end{matrix}$
63	32	1	1	HT06-32-SL32N 094	63.0	32	64	94	150	1.05
					2.480	1.260	2.520	3.701	2175	
	40	1	1	HT06-40-SL40N 110	63.0	40	80	110	150	1.45
					2.480	1.575	3.150	4.331	2175	

D



E

				Dimensions, mm, inch							
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	BD <sub>1</sub>	LB <sub>1</sub>	LF	$\begin{matrix} \text{BAR} \\ \text{PSI} \end{matrix}$	$\begin{matrix} \text{KG} \end{matrix}$
63	40	1	1	HT06-50-SL40R/L 130	63.0	40	50	100	130	150	2.20
					2.480	1.575	1.969	3.937	5.118	2175	

For spare parts, visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

R = Right hand, L = Left hand

F

G

H

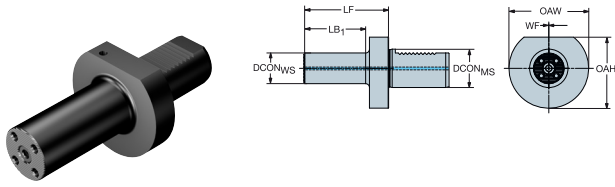


H2

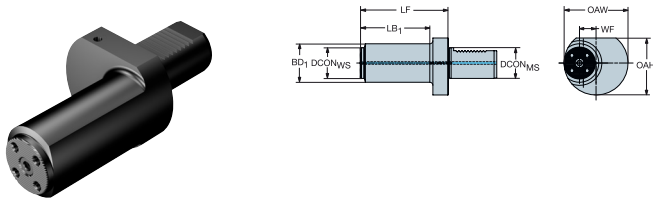


H7

## VDI to CoroTurn® SL adaptor



				Dimensions, mm, inch									
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LB <sub>1</sub>	LF	OAW	OAH	$\text{\textcircled{BAR}}$ PSI	$\text{\textcircled{NM}}$	$\text{\textcircled{KG}}$
30	32	7	1	VDI30-32-SL32N 088	30.0	32	64	88	68	62	150	35	1.25
					<i>1.181</i>	<i>1.260</i>	<i>2.520</i>	<i>3.465</i>	<i>2.677</i>	<i>2.441</i>	<i>2175</i>		
40	32	7	1	VDI40-32-SL32N 088	40.0	32	64	88	83	74	150	50	1.80
					<i>1.575</i>	<i>1.260</i>	<i>2.520</i>	<i>3.465</i>	<i>3.268</i>	<i>2.913</i>	<i>2175</i>		
	40	7	1	VDI40-40-SL40N 104	40.0	40	80	104	83	74	150	50	2.20
					<i>1.575</i>	<i>1.575</i>	<i>3.150</i>	<i>4.094</i>	<i>3.268</i>	<i>2.913</i>	<i>2175</i>		
50	40	7	1	VDI50-40-SL40N 109	50.0	40	80	109	98	84	150	50	3.30
					<i>1.969</i>	<i>1.575</i>	<i>3.150</i>	<i>4.291</i>	<i>3.858</i>	<i>3.307</i>	<i>2175</i>		



				Dimensions, mm, inch										
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	BD <sub>1</sub>	LB <sub>1</sub>	LF	OAW	OAH	$\text{\textcircled{BAR}}$ PSI	$\text{\textcircled{NM}}$	$\text{\textcircled{KG}}$
40	40	7	1	VDI40-50-SL40R/L 114	40.0	40	50	90	114	83	74	150	50	2.80
					<i>1.575</i>	<i>1.575</i>	<i>1.969</i>	<i>3.543</i>	<i>4.488</i>	<i>3.268</i>	<i>2.913</i>	<i>2175</i>		
50	40	7	1	VDI50-50-SL40R/L 119	50.0	40	50	90	119	98	84	150	50	3.85
					<i>1.969</i>	<i>1.575</i>	<i>1.969</i>	<i>3.543</i>	<i>4.685</i>	<i>3.858</i>	<i>3.307</i>	<i>2175</i>		
60	40	7	1	VDI50-60-SL40R/L 119	60.0	40	60	90	119	123	104	150	90	4.45
					<i>2.362</i>	<i>1.575</i>	<i>2.362</i>	<i>3.543</i>	<i>4.685</i>	<i>4.843</i>	<i>4.094</i>	<i>2175</i>		

For complete list of spare parts, see [www.sandvik.coromant.com](http://www.sandvik.coromant.com)



H2



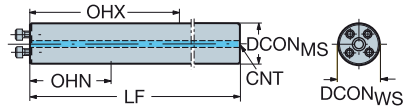
H7

A

## Cylindrical shank to CoroTurn® SL adaptor

ENG

B



C

## Metric version

							Dimensions, mm				
CZC <sub>MS</sub>	CZC <sub>WS</sub>	OHN	OHX	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LF	BAR	KG
16	16	16.0	41.0	1	1	SL-2C 16 105	16.0	16.0	105.0	150	0.16
20	20	20.0	60.0	1	1	SL-2C 20 140	20.0	20.0	140.0	150	0.33
25	25	25.0	100.0	1	1	SL-2C 25 200	25.0	25.0	200.0	150	0.74

D

## Inch version

							Dimensions, inch					
CZC <sub>MS</sub>	CZC <sub>WS</sub>	OHN	OHX	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	BD <sub>1</sub>	LF	PSI	LBS
5/8	16	.630	1.614	1	1	SL-2C A10 105-16	.625	.630	.630	4.134	2175	0.4
3/4	20	.787	2.362	1	1	SL-2C A12 140-20	.750	.787	.787	5.512	2175	0.7
1	25	.984	3.937	1	1	SL-2C A16 200-25	1.000	.984	1.000	7.874	2175	1.6

For spare parts, visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

E

F

G

H



H2



H7



# Milling

## Solid milling tools

CoroMill® 316 solid carbide head for high feed face milling  
CoroMill® 316 solid carbide head for stable multi-operations milling

D2-D3  
D4-D6

## Cutting data

D7

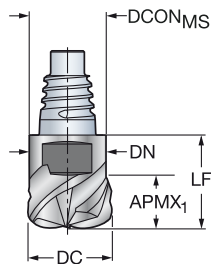
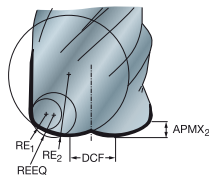
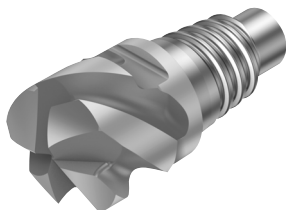
# CoroMill® 316 solid carbide head for high feed face milling

For multi-material with hardness ≤ 48 HRc

Optimized

FHA  
BSG  
TCDC

50°  
COROMANT  
h9

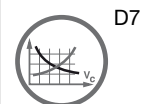


D Metric version

									P	M	K	S	Dimensions, mm		
DC	CZC <sub>MS</sub>	APMX <sub>1</sub>	APMX <sub>2</sub>	RE <sub>1</sub>	RE <sub>2</sub>	LU	ZEFP	Ordering code	1730	1730	1730	1730	DCON <sub>MS</sub>	LF	DN
10.0	E10	5.5	0.7	1.50	5.00	12.4	3	316-10HM350-10015P	★	★	☆	☆	9.7	12.4	9.7
	E10	5.5	0.7	1.50	5.00	12.4	4	316-10HM450-10015P	★	★	☆	☆	9.7	12.4	9.7
12.0	E12	6.5	0.8	1.50	6.00	14.5	3	316-12HM350-12015P	★	★	☆	☆	11.7	14.5	11.7
	E12	6.5	0.8	1.50	6.00	14.5	4	316-12HM450-12015P	★	★	☆	☆	11.7	14.5	11.7
16.0	E16	8.5	1.0	2.00	8.00	18.7	3	316-16HM350-16020P	★	★	☆	☆	15.5	18.7	15.5
	E16	8.5	1.0	2.00	8.00	18.7	4	316-16HM450-16020P	★	★	☆	☆	15.5	18.7	15.5
20.0	E20	11.0	1.3	2.00	10.00	21.3	4	316-20HM450-20020P	★	★	☆	☆	19.3	21.3	19.3
25.0	E25	13.5	1.6	3.00	12.00	25.6	4	316-25HM450-25030P	★	★	☆	☆	24.2	25.6	24.2

E Inch version

									P	M	K	S	Dimensions, inch		
DC	CZC <sub>MS</sub>	APMX <sub>1</sub>	APMX <sub>2</sub>	RE <sub>1</sub>	RE <sub>2</sub>	LU	ZEFP	Ordering code	1730	1730	1730	1730	DCON <sub>MS</sub>	LF	DN
.375	E10	.209	.024	.060	.181	.488	4	A316-10HM450-03715P	★	★	☆	☆	.364	.488	.364
.500	E12	.276	.033	.060	.236	.575	4	A316-12HM450-05015P	★	★	☆	☆	.484	.575	.484
.625	E16	.335	.039	.080	.315	.736	4	A316-16HM450-06220P	★	★	☆	☆	.610	.736	.610
.750	E20	.413	.047	.080	.354	.839	4	A316-20HM450-07520P	★	★	☆	☆	.728	.839	.728



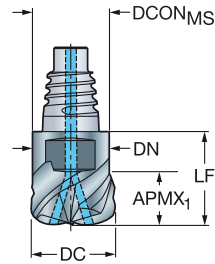
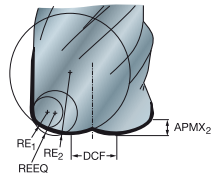
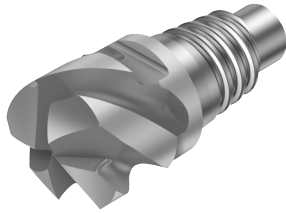
# CoroMill® 316 solid carbide head for high feed face milling

For multi-material with hardness  $\leq 48$  HRc

Optimized

FHA  
BSG  
TCDC

50°  
COROMANT  
h9

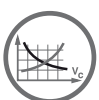


## Metric version

DC	CZC <sub>MS</sub>	APMX <sub>1</sub>	APMX <sub>2</sub>	RE <sub>1</sub>	RE <sub>2</sub>	LU	CNCS	CXSC	ZFP	Ordering code	P	M	K	S	Dimensions, mm		
											1730	1730	1730	1730	DCON <sub>MS</sub>	LF	DN
10.0	E10	6.0	0.7	1.50	5.00	12.4	1	2	4	316-10HM450C10015P	★	★	☆	☆	9.7	12.4	9.7
12.0	E12	7.5	0.8	1.50	6.00	14.5	1	2	4	316-12HM450C12015P	★	★	☆	☆	11.7	14.5	11.7
16.0	E16	10.0	1.0	2.00	8.00	18.7	1	2	4	316-16HM450C16020P	★	★	☆	☆	15.5	18.7	15.5
20.0	E20	12.0	1.3	2.00	10.00	21.3	1	2	4	316-20HM450C20020P	★	★	☆	☆	19.3	21.3	19.3
25.0	E25	13.0	1.6	3.00	12.00	25.6	1	3	5	316-25HM550C25030P	★	★	☆	☆	24.2	25.6	24.2

## Inch version

DC	CZC <sub>MS</sub>	APMX <sub>1</sub>	APMX <sub>2</sub>	RE <sub>1</sub>	RE <sub>2</sub>	LU	CNCS	CXSC	ZFP	Ordering code	P	M	K	S	Dimensions, inch		
											1730	1730	1730	1730	DCON <sub>MS</sub>	LF	DN
.375	E10	.236	.024	.060	.181	.488	1	3	4	A316-10HM450C03715P	★	★	☆	☆	.364	.488	.364
.500	E12	.315	.033	.060	.236	.571	1	3	4	A316-12HM450C05015P	★	★	☆	☆	.484	.571	.484
.625	E16	.394	.039	.080	.315	.736	1	3	4	A316-16HM450C06220P	★	★	☆	☆	.610	.736	.610
.750	E20	.453	.047	.080	.354	.839	1	3	4	A316-20HM450C07520P	★	★	☆	☆	.728	.839	.728



D7



H2

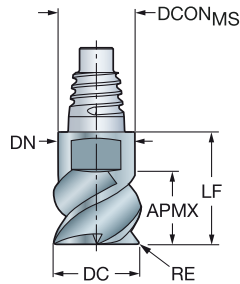
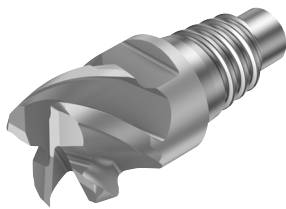
# CoroMill® 316 solid carbide head for stable multi-operations milling

For multi-material with hardness ≤ 48 HRC

Optimized

FHA  
BSG  
TCDC

50°  
COROMANT  
h9



Metric version

						P	M	K	S	Dimensions, mm		
						1730	1730	1730	1730	DCON <sub>MS</sub>	LF	DN
DC	CZC <sub>MS</sub>	APMX	RE	ZEFP	Ordering code	★	★	★	★			
10.0	E10	5.5	0.50	4	316-10SM450-10005P	★	★	★	★	9.7	12.4	9.7
	E10	5.5	0.50	3	316-10SM350-10005P	★	★	★	★	9.7	12.4	9.7
	E10	5.5	1.00	4	316-10SM450-10010P	★	★	★	★	9.7	12.4	9.7
	E10	5.5	1.00	3	316-10SM350-10010P	★	★	★	★	9.7	12.4	9.7
	E10	5.5	1.50	4	316-10SM450-10015P	★	★	★	★	9.7	12.4	9.7
	E10	5.5	2.00	4	316-10SM450-10020P	★	★	★	★	9.7	12.4	9.7
	E10	5.5	3.00	4	316-10SM450-10030P	★	★	★	★	9.7	12.4	9.7
12.0	E12	6.5	0.50	4	316-12SM450-12005P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	0.50	3	316-12SM350-12005P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	1.00	4	316-12SM450-12010P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	1.00	3	316-12SM350-12010P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	1.50	4	316-12SM450-12015P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	2.00	4	316-12SM450-12020P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	3.00	4	316-12SM450-12030P	★	★	★	★	11.7	14.5	11.7
	E12	6.5	4.00	4	316-12SM450-12040P	★	★	★	★	11.7	14.5	11.7
16.0	E16	8.5	0.50	4	316-16SM450-16005P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	0.50	3	316-16SM350-16005P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	1.00	4	316-16SM450-16010P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	1.00	3	316-16SM350-16010P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	1.50	4	316-16SM450-16015P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	2.00	4	316-16SM450-16020P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	3.00	4	316-16SM450-16030P	★	★	★	★	15.5	18.7	15.5
	E16	8.5	4.00	4	316-16SM450-16040P	★	★	★	★	15.5	18.7	15.5
20.0	E20	11.0	0.50	3	316-20SM350-20005P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	0.50	4	316-20SM450-20005P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	1.00	3	316-20SM350-20010P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	1.00	4	316-20SM450-20010P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	1.50	4	316-20SM450-20015P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	2.00	4	316-20SM450-20020P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	3.00	4	316-20SM450-20030P	★	★	★	★	19.3	21.3	19.3
	E20	11.0	4.00	4	316-20SM450-20040P	★	★	★	★	19.3	21.3	19.3
25.0	E25	13.5	1.00	5	316-25SM550-25010P	★	★	★	★	24.2	25.6	24.2
	E25	13.5	1.50	5	316-25SM550-25015P	★	★	★	★	24.2	25.6	24.2
	E25	13.5	2.00	5	316-25SM550-25020P	★	★	★	★	24.2	25.6	24.2

G

H



D7



H2

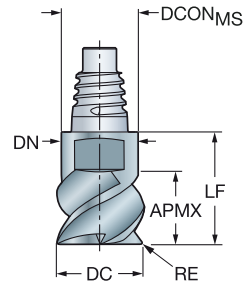
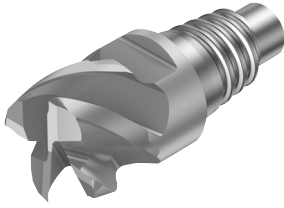
# CoroMill® 316 solid carbide head for stable multi-operations milling

For multi-material with hardness  $\leq 48$  HRc

Optimized

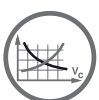
FHA  
BSG  
TCDC

50°  
COROMANT  
h9



Inch version

DC	CZC <sub>MS</sub>	APMX	RE	ZEFP	Ordering code	Dimensions, inch						
						P	M	K	S			
.375	E10	.209	.015	3	A316-10SM350-03704P	★	★	☆	☆	.364	.488	.364
	E10	.209	.015	4	A316-10SM450-03704P	★	★	☆	☆	.364	.488	.364
	E10	.209	.031	3	A316-10SM350-03708P	★	★	☆	☆	.364	.488	.364
	E10	.209	.031	4	A316-10SM450-03708P	★	★	☆	☆	.364	.488	.364
	E10	.209	.062	3	A316-10SM350-03715P	★	★	☆	☆	.364	.488	.364
	E10	.209	.062	4	A316-10SM450-03715P	★	★	☆	☆	.364	.488	.364
.500	E12	.276	.015	3	A316-12SM350-05004P	★	★	☆	☆	.484	.575	.484
	E12	.276	.015	4	A316-12SM450-05004P	★	★	☆	☆	.484	.575	.484
	E12	.276	.031	3	A316-12SM350-05008P	★	★	☆	☆	.484	.575	.484
	E12	.276	.031	4	A316-12SM450-05008P	★	★	☆	☆	.484	.575	.484
	E12	.276	.062	3	A316-12SM350-05015P	★	★	☆	☆	.484	.575	.484
.625	E16	.335	.015	3	A316-16SM350-06204P	★	★	☆	☆	.610	.736	.610
	E16	.335	.031	4	A316-16SM450-06208P	★	★	☆	☆	.610	.736	.610
.750	E20	.413	.031	3	A316-20SM350-07508P	★	★	☆	☆	.728	.839	.728
	E20	.413	.031	4	A316-20SM450-07508P	★	★	☆	☆	.728	.839	.728
	E20	.413	.125	4	A316-20SM450-07532P	★	★	☆	☆	.728	.839	.728
	E20	.413	.250	4	A316-20SM450-07563P	★	★	☆	☆	.728	.839	.728
1.000	E25	.551	.062	5	A316-25SM550-10015P	★	★	☆	☆	.965	1.008	.965
	E25	.551	.125	5	A316-25SM550-10032P	★	★	☆	☆	.965	1.008	.965
	E25	.551	.188	5	A316-25SM550-10047P	★	★	☆	☆	.965	1.008	.965
	E25	.551	.250	5	A316-25SM550-10063P	★	★	☆	☆	.965	1.008	.965



D7



H2

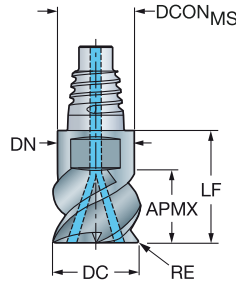
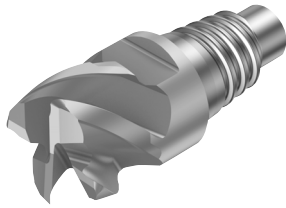
# CoroMill® 316 solid carbide head for stable multi-operations milling

For multi-material with hardness ≤ 48 HRc

Optimized

FHA  
BSG  
TCDC

50°  
COROMANT  
h9



## Metric version

DC	CZC <sub>MS</sub>	APMX	RE	CNSC	CXSC	ZEFP	Ordering code	P M K S			Dimensions, mm			
								1730	1730	1730	DCON <sub>MS</sub>	LF	DN	
10.0	E10	6.0	0.50	1	2	4	316-10SM450C10005P	★	★	☆	☆	9.7	12.4	9.7
	E10	6.0	1.00	1	2	4	316-10SM450C10010P	★	★	☆	☆	9.7	12.4	9.7
	E10	6.0	1.50	1	2	4	316-10SM450C10015P	★	★	☆	☆	9.7	12.4	9.7
	E10	6.0	2.00	1	2	4	316-10SM450C10020P	★	★	☆	☆	9.7	12.4	9.7
	E10	6.0	3.00	1	2	4	316-10SM450C10030P	★	★	☆	☆	9.7	12.4	9.7
12.0	E12	7.5	0.50	1	2	4	316-12SM450C12005P	★	★	☆	☆	11.7	14.5	11.7
	E12	7.5	1.00	1	2	4	316-12SM450C12010P	★	★	☆	☆	11.7	14.5	11.7
	E12	7.5	2.00	1	2	4	316-12SM450C12020P	★	★	☆	☆	11.7	14.5	11.7
	E12	7.5	3.00	1	2	4	316-12SM450C12030P	★	★	☆	☆	11.7	14.5	11.7
	E12	7.5	4.00	1	2	4	316-12SM450C12040P	★	★	☆	☆	11.7	14.5	11.7
16.0	E16	10.0	0.50	1	3	4	316-16SM450C16005P	★	★	☆	☆	15.5	18.7	15.5
	E16	10.0	1.00	1	2	4	316-16SM450C16010P	★	★	☆	☆	15.5	18.7	15.5
	E16	10.0	1.50	1	2	4	316-16SM450C16015P	★	★	☆	☆	15.5	18.7	15.5
	E16	10.0	2.00	1	2	4	316-16SM450C16020P	★	★	☆	☆	15.5	18.7	15.5
	E16	10.0	3.00	1	2	4	316-16SM450C16030P	★	★	☆	☆	15.5	18.7	15.5
20.0	E20	12.0	0.50	1	3	4	316-20SM450C20005P	★	★	☆	☆	19.3	21.3	19.3
	E20	12.0	1.00	1	2	4	316-20SM450C20010P	★	★	☆	☆	19.3	21.3	19.3
	E20	12.0	1.50	1	2	4	316-20SM450C20015P	★	★	☆	☆	19.3	21.3	19.3
	E20	12.0	2.00	1	2	4	316-20SM450C20020P	★	★	☆	☆	19.3	21.3	19.3
	E20	12.0	3.00	1	2	4	316-20SM450C20030P	★	★	☆	☆	19.3	21.3	19.3
25.0	E25	15.0	0.50	1	3	4	316-25SM450C25005P	★	★	☆	☆	19.3	21.3	19.3
	E25	15.0	1.00	1	2	5	316-25SM550C25010P	★	★	☆	☆	24.2	25.6	24.2
	E25	15.0	1.50	1	2	5	316-25SM550C25015P	★	★	☆	☆	24.2	25.6	24.2
	E25	15.0	2.00	1	2	5	316-25SM550C25020P	★	★	☆	☆	24.2	25.6	24.2
	E25	15.0	2.50	1	2	5	316-25SM550C25025P	★	★	☆	☆	24.2	25.6	24.2

## Inch version

DC	CZC <sub>MS</sub>	APMX	RE	CNSC	CXSC	ZEFP	Ordering code	P M K S			Dimensions, inch			
								1730	1730	1730	DCON <sub>MS</sub>	LF	DN	
.375	E10	.236	.015	1	3	4	A316-10SM450C03704P	★	★	☆	☆	.364	.488	.364
	E10	.236	.031	1	3	4	A316-10SM450C03708P	★	★	☆	☆	.364	.488	.364
.500	E12	.315	.015	1	3	4	A316-12SM450C05004P	★	★	☆	☆	.484	.571	.484
	E12	.315	.031	1	3	4	A316-12SM450C05008P	★	★	☆	☆	.484	.571	.484
	E12	.315	.062	1	3	4	A316-12SM450C05015P	★	★	☆	☆	.484	.571	.484
.625	E16	.394	.031	1	3	4	A316-16SM450C06208P	★	★	☆	☆	.610	.736	.610
	E16	.394	.062	1	3	4	A316-16SM450C06215P	★	★	☆	☆	.610	.736	.610
.750	E20	.453	.031	1	3	4	A316-20SM450C07508P	★	★	☆	☆	.728	.839	.728
	E20	.453	.062	1	3	4	A316-20SM450C07515P	★	★	☆	☆	.728	.839	.728
	E20	.453	.125	1	3	4	A316-20SM450C07532P	★	★	☆	☆	.728	.839	.728
	E20	.453	.250	1	3	4	A316-20SM450C07563P	★	★	☆	☆	.728	.839	.728
1.000	E25	.610	.125	1	3	5	A316-25SM550C10032P	★	★	☆	☆	.965	1.008	.965
	E25	.610	.188	1	3	5	A316-25SM550C10047P	★	★	☆	☆	.965	1.008	.965
	E25	.610	.250	1	3	5	A316-25SM550C10063P	★	★	☆	☆	.965	1.008	.965



D7



H2

## Optimized - CoroMill® 316 solid carbide head for high feed face milling

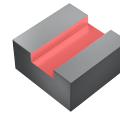


$$a_e = 0.5 \times DC$$

$$a_p = 0.1 \times DC$$

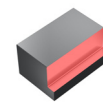
ISO	MC No.	CMC	Material	HB	$f_z$	$v_c$ m/min	$v_c$ feet/min
P	P1.2.Z.AN	01.2	Unalloyed steel	190	G	110	361
	P2.2.Z.AN	02.2	Low-alloyed steel	240	G	100	328
	P3.0.Z.HT	03.21	High alloyed steel	380	G	60	197
M	P5.0.Z.AN	05.11	Ferritic/martensitic stainless steel	200	G	50	164
	M1.0.Z.AQ	05.21	Austenitic stainless steel	200	G	60	197
	M3.2.Z.AQ	05.51	Duplex (austenitic/ferritic) stainless steel	260	G	50	164
K	K1.1.C.NS	07.2	Malleable cast iron	200	G	120	394
	K2.1.C.UT	08.2	Grey cast iron	180	G	120	394
	K3.2.C.UT	09.2	Nodular cast iron	215	G	110	361
S	S1.0.U.AG	20.12	Iron based superalloys	280	G	50	165
	S2.0.Z.AG	20.22	Nickel based super alloys	350	G	35	115
	S4.2.Z.AN	23.22	Titanium based alloys	320	G	75	246
H	H1.1.Z.HA	04.1	Steel - Hardness level 50	50HRC	H	110	361
	H1.2.Z.HA	04.1	Steel - Hardness level 55	55HRC	H	110	361
	H1.3.Z.HA	04.1	Steel - Hardness level 60	60HRC	H	60	197

## Optimized - CoroMill® 316 solid carbide head for stable multi-operations milling



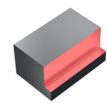
$$a_e = 1.0 \times DC$$

$$a_p = 0.5 \times DC$$



$$a_e = 0.5 \times DC$$

$$a_p = 1.0 \times DC$$



$$a_e = 0.1 \times DC$$

$$a_p = 1.5 \times DC$$

ISO	MC No.	CMC	Material	HB	$a_e = 1.0 \times DC$			$a_e = 0.5 \times DC$			$a_e = 0.1 \times DC$		
					$f_z$	$v_c$ m/min	$v_c$ feet/min	$f_z$	$v_c$ m/min	$v_c$ feet/min	$f_z$	$v_c$ m/min	$v_c$ feet/min
P	P1.2.Z.AN	01.2	Unalloyed steel	190	A	165	541	B	215	705	C	305	1001
	P2.2.Z.AN	02.2	Low-alloyed steel	240	A	125	410	B	160	525	C	220	722
	P3.0.Z.HT	03.21	High alloyed steel	380	A	75	246	B	95	312	C	130	427
M	P5.0.Z.AN	05.11	Ferritic/martensitic stainless steel	200	A	45	148	B	65	213	C	85	279
	M1.0.Z.AQ	05.21	Austenitic stainless steel	200	D	60	197	E	75	246	F	110	361
	M3.2.Z.AQ	05.51	Duplex (austenitic/ferritic) stainless steel	260	D	45	148	E	65	213	F	85	279
K	K1.1.C.NS	07.2	Malleable cast iron	200	A	135	443	B	170	558	C	240	787
	K2.1.C.UT	08.2	Grey cast iron	180	A	135	443	B	165	541	C	240	787
	K3.2.C.UT	09.2	Nodular cast iron	215	A	125	410	B	150	492	C	215	705
S	S1.0.U.AG	20.12	Iron based superalloys	280	D	25	82	E	35	115	F	60	197
	S2.0.Z.AG	20.22	Nickel based super alloys	350	I	15	49	I	25	82	I	30	98
	S4.2.Z.AN	23.22	Titanium based alloys	320	D	40	131	E	55	180	F	95	312
H	H1.1.Z.HA	04.1	Steel - Hardness level 50	50HRC	D	50	164	E	80	262	F	90	295
	H1.2.Z.HA	04.1	Steel - Hardness level 55	55HRC	D	50	164	E	80	262	F	90	295
	H1.3.Z.HA	04.1	Steel - Hardness level 60	60HRC	D	30	98	E	50	164	F	50	164

## Cutting feed recommendations

## CoroMill® 316

DC	mm inch	9.525 .375	10.000 .394	12.000 .472	12.700 .500	15.875 .625	16.000 .630	19.050 .750	20.000 .787	25.000 .984	25.400 1.000
A	mm/tooth	0.060	0.060	0.070	0.070	0.090	0.090	0.100	0.100	0.100	0.100
B	mm/tooth	0.100	0.100	0.100	0.100	0.120	0.120	0.120	0.140	0.160	0.160
C	mm/tooth	0.120	0.120	0.120	0.120	0.120	0.120	0.180	0.200	0.200	0.200
D	mm/tooth	0.050	0.050	0.060	0.060	0.070	0.070	0.080	0.080	0.080	0.080
E	mm/tooth	0.080	0.080	0.080	0.080	0.100	0.100	0.100	0.110	0.130	0.130
F	mm/tooth	0.100	0.100	0.100	0.100	0.100	0.120	0.140	0.160	0.160	0.160
G	mm/tooth	0.300	0.300	0.350	0.350	0.500	0.500	0.700	0.700	0.700	0.700
H	mm/tooth	0.240	0.240	0.280	0.280	0.400	0.400	0.560	0.560	0.560	0.560
I	mm/tooth	0.030	0.031	0.038	0.040	0.050	0.050	0.060	0.063	0.078	0.078





# Drilling

## Indexable drills

CoroDrill® DS20 indexable insert drill	E2-E6
CoroDrill® DS20 insert for drilling	E7-E8

## Solid drills

CoroDrill® 860 solid carbide drill	E9-E12
CoroDrill® 863 solid carbide drill	E13

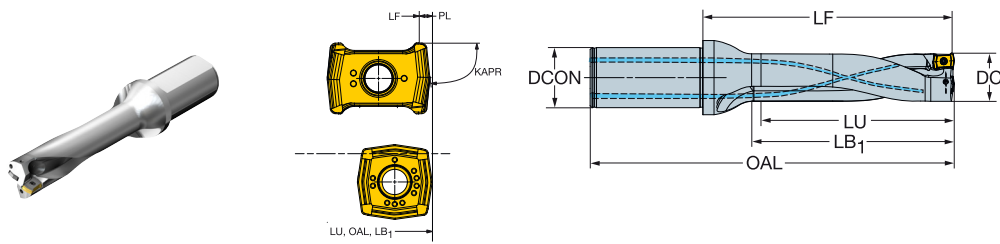
Cutting data	E14
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# CoroDrill® DS20 indexable insert drill

Cylindrical shank with flat according to ISO 9766

Internal coolant supply



## Metric design

										Dimensions, mm								
DC			LU	CZC <sub>MS</sub>	ADJLX	TCHAL	TCHAU	Ordering code		DCON <sub>MS</sub>	LF	OAL	LB <sub>1</sub>	PL	KAPR	(BAR)	(KG)	RPMX
34.00	05C	05P	136.00	40	2.16	0.00	0.35	DS20-D3400L40-04		40.00	169.28	240.00	140.00	1.00	81°	10	1.354	11000
			170.00	40	2.16	0.00	0.35	DS20-D3400L40-05		40.00	203.28	274.00	174.00	1.00	81°	10	1.471	7000
			204.00	40	2.16	-0.10	0.40	DS20-D3400L40-06		40.00	237.28	308.00	208.00	1.00	81°	10	1.588	4000
			238.00	40	2.16	-0.10	0.40	DS20-D3400L40-07		40.00	271.28	342.00	242.00	1.00	81°	10	1.705	3000
35.00	05C	05P	140.00	40	1.92	0.00	0.35	DS20-D3500L40-04		40.00	173.28	244.00	144.00	1.00	81°	10	1.398	10000
			175.00	40	1.92	0.00	0.35	DS20-D3500L40-05		40.00	208.28	279.00	179.00	1.00	81°	10	1.525	6000
			210.00	40	1.92	-0.10	0.40	DS20-D3500L40-06		40.00	243.28	314.00	214.00	1.00	81°	10	1.653	4000
			245.00	40	1.92	-0.10	0.40	DS20-D3500L40-07		40.00	278.28	349.00	249.00	1.00	81°	10	1.781	3000
36.00	05C	05P	144.00	40	1.68	0.00	0.35	DS20-D3600L40-04		40.00	177.28	248.00	148.00	1.00	81°	10	1.443	10000
			180.00	40	1.68	0.00	0.35	DS20-D3600L40-05		40.00	213.28	284.00	184.00	1.00	81°	10	1.582	6000
			216.00	40	1.68	-0.10	0.40	DS20-D3600L40-06		40.00	249.28	320.00	220.00	1.00	81°	10	1.721	4000
			252.00	40	1.68	-0.10	0.40	DS20-D3600L40-07		40.00	285.28	356.00	256.00	1.00	81°	10	1.860	3000
37.00	05C	05P	148.00	40	1.44	0.00	0.35	DS20-D3700L40-04		40.00	181.28	252.00	152.00	1.00	81°	10	1.492	10000
			185.00	40	1.44	0.00	0.35	DS20-D3700L40-05		40.00	218.28	289.00	189.00	1.00	81°	10	1.643	6000
			222.00	40	1.44	-0.10	0.40	DS20-D3700L40-06		40.00	255.28	326.00	226.00	1.00	81°	10	1.794	4000
			259.00	40	1.44	-0.10	0.40	DS20-D3700L40-07		40.00	292.28	363.00	263.00	1.00	81°	10	1.945	3000
38.00	05C	05P	152.00	40	1.20	0.00	0.35	DS20-D3800L40-04		40.00	185.28	256.00	156.00	1.00	81°	10	1.543	9000
			190.00	40	1.20	0.00	0.35	DS20-D3800L40-05		40.00	223.28	294.00	194.00	1.00	81°	10	1.707	6000
			228.00	40	1.20	-0.10	0.40	DS20-D3800L40-06		40.00	261.28	332.00	232.00	1.00	81°	10	1.870	4000
			266.00	40	1.20	-0.10	0.40	DS20-D3800L40-07		40.00	299.28	370.00	270.00	1.00	81°	10	2.034	3000
39.00	05C	05P	156.00	40	0.96	0.00	0.35	DS20-D3900L40-04		40.00	189.28	260.00	160.00	1.00	81°	10	1.597	9000
			195.00	40	0.96	0.00	0.35	DS20-D3900L40-05		40.00	228.28	299.00	199.00	1.00	81°	10	1.774	6000
			234.00	40	0.96	-0.10	0.40	DS20-D3900L40-06		40.00	267.28	338.00	238.00	1.00	81°	10	1.950	4000
			273.00	40	0.96	-0.10	0.40	DS20-D3900L40-07		40.00	306.28	377.00	277.00	1.00	81°	10	2.127	3000
40.00	05C	05P	160.00	40	0.72	0.00	0.35	DS20-D4000L40-04		40.00	193.28	264.00	164.00	1.00	81°	10	1.654	9000
			200.00	40	0.72	0.00	0.35	DS20-D4000L40-05		40.00	233.28	304.00	204.00	1.00	81°	10	1.844	6000
			240.00	40	0.72	-0.10	0.40	DS20-D4000L40-06		40.00	273.28	344.00	244.00	1.00	81°	10	2.035	4000
			280.00	40	0.72	-0.10	0.40	DS20-D4000L40-07		40.00	313.28	384.00	284.00	1.00	81°	10	2.226	3000



E12



C1



H2



H7



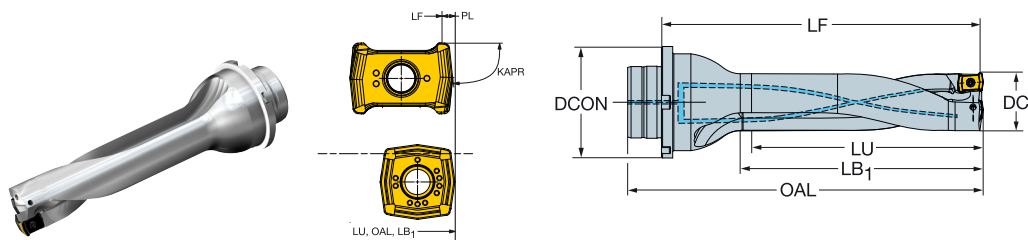


# CoroDrill® DS20 indexable insert drill

Modular drill interface

Internal coolant supply

B



C

## Metric design

								Dimensions, mm									
DC		LU	CZ <sub>MS</sub>	ADJLX	TCHAL	TCHAU	Ordering code	DCON <sub>MS</sub>	LF	OAL	LB <sub>1</sub>	PL	KAPR	BAR	KG	RPMX	
34.00	05C	05P	136.00	MDI-40	2.16	0.00	0.35	DS20-D3400DM40-04	40.00	183.28	199.00	140.00	1.00	81°	10	1.340	11000
			238.00	MDI-40	2.16	-0.10	0.40	DS20-D3400DM40-07	40.00	285.28	301.00	242.00	1.00	81°	10	1.691	3000
34.92	05C	05P	139.70	MDI-40	1.94	0.00	0.35	DS20-D3493DM40-04	40.00	186.22	201.94	143.61	1.00	81°	10	1.370	10000
			244.47	MDI-40	1.94	-0.10	0.40	DS20-D3493DM40-07	40.00	291.00	306.71	248.38	1.00	81°	10	1.750	3000
35.00	05C	05P	140.00	MDI-40	1.92	0.00	0.35	DS20-D3500DM40-04	40.00	187.28	203.00	144.00	1.00	81°	10	1.383	10000
			245.00	MDI-40	1.92	-0.10	0.40	DS20-D3500DM40-07	40.00	292.28	308.00	249.00	1.00	81°	10	1.766	3000
36.00	05C	05P	144.00	MDI-40	1.68	0.00	0.35	DS20-D3600DM40-04	40.00	191.28	207.00	148.00	1.00	81°	10	1.429	10000
			252.00	MDI-40	1.68	-0.10	0.40	DS20-D3600DM40-07	40.00	299.28	315.00	256.00	1.00	81°	10	1.846	3000
36.49	05C	05P	145.99	MDI-40	1.56	0.00	0.35	DS20-D3650DM40-04	40.00	192.42	208.14	149.91	1.00	81°	10	1.441	10000
			255.49	MDI-40	1.56	-0.10	0.40	DS20-D3650DM40-07	40.00	301.92	317.64	259.41	1.00	81°	10	1.876	3000
37.00	05C	05P	148.00	MDI-40	1.44	0.00	0.35	DS20-D3700DM40-04	40.00	195.28	211.00	152.00	1.00	81°	10	1.477	10000
			259.00	MDI-40	1.44	-0.10	0.40	DS20-D3700DM40-07	40.00	306.28	322.00	263.00	1.00	81°	10	1.930	3000
38.00	05C	05P	152.00	MDI-40	1.20	0.00	0.35	DS20-D3800DM40-04	40.00	199.28	215.00	156.00	1.00	81°	10	1.529	9000
			266.00	MDI-40	1.20	-0.10	0.40	DS20-D3800DM40-07	40.00	313.28	329.00	270.00	1.00	81°	10	2.019	3000
38.10	05C	05P	152.40	MDI-40	1.18	0.00	0.35	DS20-D3810DM40-04	40.00	198.69	214.41	156.31	1.00	81°	10	1.520	9000
			266.70	MDI-40	1.18	-0.10	0.40	DS20-D3810DM40-07	40.00	312.99	328.71	270.61	1.00	81°	10	2.015	3000
39.00	05C	05P	156.00	MDI-40	0.96	0.00	0.35	DS20-D3900DM40-04	40.00	203.28	219.00	160.00	1.00	81°	10	1.582	9000
			273.00	MDI-40	0.96	-0.10	0.40	DS20-D3900DM40-07	40.00	320.28	336.00	277.00	1.00	81°	10	2.113	3000
39.67	05C	05P	158.69	MDI-40	0.80	0.00	0.35	DS20-D3967DM40-04	40.00	204.87	220.58	162.61	1.00	81°	10	1.605	9000
			277.72	MDI-40	0.80	-0.10	0.40	DS20-D3967DM40-07	40.00	323.89	339.61	281.63	1.00	81°	10	2.163	3000
40.00	05C	05P	160.00	MDI-40	0.72	0.00	0.35	DS20-D4000DM40-04	40.00	206.28	222.00	164.00	1.00	81°	10	1.624	9000
			280.00	MDI-40	0.72	-0.10	0.40	DS20-D4000DM40-07	40.00	326.28	342.00	284.00	1.00	81°	10	2.196	3000

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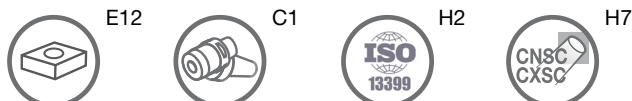
F

Spare parts		
DC	DC"	Insert screw
15.00-18.00	.590-.708	5513 020-27
19.00-22.00	.748-.866	5513 020-88
22.00-27.00	.875-1.062	5513 020-58
33.00-40.00	1.312-1.574	416.1-833

For complete list of spare parts, see [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

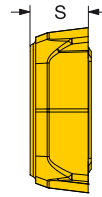
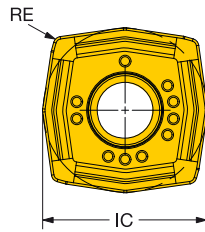
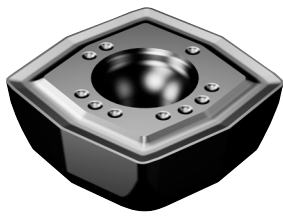
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# CoroDrill® DS20 insert for drilling

Central insert



INSUC	Ordering code	P	M	K	N	S	H	Dimensions, mm, inch						
		1344	1144	1344	HT3A	1344	1344	HT3A	1344	S	RE	IC		
01C	C	DS20-0104-C-L5	★	★	★	☆	★	★	2.30	0.35	6.0	.091	.014	.237
01C	C	DS20-0104-C-M7	★	★				☆	2.30	0.35	6.0	.091	.014	.237
02C	C	DS20-0205-C-L5	★	★	★	☆	★	★	2.60	0.35	7.3	.102	.014	.289
02C	C	DS20-0205-C-M7	★	★				☆	2.60	0.35	7.3	.102	.014	.289
03C	C	DS20-0306-C-L5	★	★	★	☆	★	★	3.00	0.35	8.9	.118	.014	.350
03C	C	DS20-0306-C-M7	★	★				☆	3.00	0.35	8.9	.118	.014	.350
05C	C	DS20-0508-C-L5	★	★	★	☆	★	★	3.50	0.35	13.4	.138	.014	.526
05C	C	DS20-0508-C-M7	★	★				☆	3.50	0.35	13.4	.138	.014	.526

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E2



E14

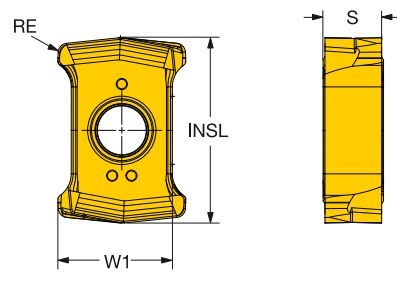
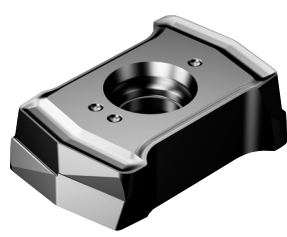


H2

# CoroDrill® DS20 insert for drilling

Peripheral insert

DS20..P-L5W

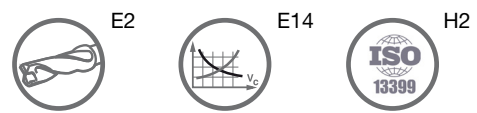


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INSUC	Ordering code	Dimensions, mm, inch															
		P		M		K		N		S		H					
		4324	4334	4344	2044	4334	4344	4344	HT3A	2044	4344	HT3A	4334	4344			
S	RE	W1	INSL														
01P	P DS20-0104-P-H5W	★	☆	☆	☆									2.73	0.40	5.0	8.5
														.107	.016	.197	.335
01P	P DS20-0104-P-L5W	☆	★	★	☆	☆			★	★	☆			2.73	0.40	5.0	8.5
														.107	.016	.197	.335
01P	P DS20-0104-P-L6W			★		★			★	★			★	2.73	0.40	5.0	8.5
														.107	.016	.197	.335
01P	P DS20-0104-P-M7W	☆	★	☆			☆	★	☆				☆	2.73	0.40	5.0	8.5
														.107	.016	.197	.335
01P	P DS20-0104-P-S5W					★			☆	★	★	☆		2.73	0.40	5.0	8.5
														.107	.016	.197	.335
02P	P DS20-0205-P-H5W		★	★	☆	☆								3.10	0.50	6.1	9.8
														.122	.020	.240	.386
02P	P DS20-0205-P-L5W	☆	★	★	☆	☆			★	★	☆			3.10	0.50	6.1	9.8
														.122	.020	.240	.386
02P	P DS20-0205-P-L6W			★		★			★	★			★	3.10	0.50	6.1	9.8
														.122	.020	.240	.386
02P	P DS20-0205-P-M7W	☆	★	☆			☆	★	☆				☆	3.10	0.50	6.1	9.8
														.122	.020	.240	.386
02P	P DS20-0205-P-S5W					★			☆	★	★	☆		3.10	0.50	6.1	9.8
														.122	.020	.240	.386
03P	P DS20-0306-P-H5W		★	★	☆	☆								3.53	0.60	7.3	11.3
														.139	.024	.289	.445
03P	P DS20-0306-P-L5W	☆	★	★	☆	☆			★	★	☆			3.53	0.60	7.3	11.3
														.139	.024	.289	.445
03P	P DS20-0306-P-L6W			★		★			★	★			★	3.53	0.60	7.3	11.3
														.139	.024	.289	.445
03P	P DS20-0306-P-M7W	☆	★	☆			☆	★	☆				☆	3.53	0.60	7.3	11.3
														.139	.024	.289	.445
03P	P DS20-0306-P-S5W					★			☆	★	★	☆		3.53	0.60	7.3	11.3
														.139	.024	.289	.445
05P	P DS20-0508-P-H5W		★	★	☆	☆								4.75	0.80	11.2	15.2
														.187	.031	.443	.598
05P	P DS20-0508-P-L5W	☆	★	★	☆	☆			★	★	☆			4.75	0.80	11.2	15.2
														.187	.031	.443	.598
05P	P DS20-0508-P-L6W			★		★			★	★			★	4.75	0.80	11.2	15.2
														.187	.031	.443	.598
05P	P DS20-0508-P-M7W	☆	★	☆			☆	★	☆				☆	4.75	0.80	11.2	15.2
														.187	.031	.443	.598
05P	P DS20-0508-P-S5W					★			☆	★	★	☆		4.75	0.80	11.2	15.2
														.187	.031	.443	.598

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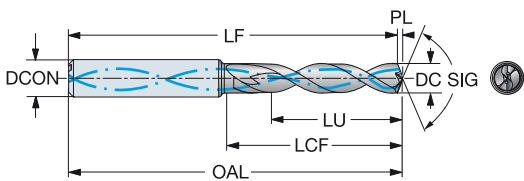


# CoroDrill® 860 solid carbide drill

For nickel-based alloys and titanium-based alloys

Internal coolant supply

TCHA H9  
SIG 140°



C

											s Dimensions, mm, inch										
DC	DC*	LU	LU*	ULDR	CZG <sub>MS</sub>	Ordering code	ISO	DCON <sub>MS</sub>	DCON <sub>MS</sub> *	OAL	OAL*	LF	LF*	LCF	LCF*	PL	PL*	BAR	PSI	BSG	
12.10	.476	38.5	1.516	3	14	860.1-1210-038A1-SM	★	14.0	.551	107	4.213	104.8	4.126	60	2.362	2.2	.087	20	290	DIN 6537 K	
12.20	.480	38.8	1.528	3	14	860.1-1220-038A1-SM	★	14.0	.551	107	4.213	104.8	4.125	55	2.165	2.2	.087	20	290	DIN 6537 K	
12.40	.488	39.5	1.555	3	14	860.1-1240-039A1-SM	★	14.0	.551	107	4.213	104.7	4.124	60	2.362	2.3	.089	20	290	DIN 6537 K	
12.50	.492	39.8	1.567	3	14	860.1-1250-039A1-SM	★	14.0	.551	107	4.213	104.7	4.123	60	2.362	2.3	.089	20	290	DIN 6537 K	
12.70	.500	40.4	1.591	3	14	860.1-1270-040A1-SM	★	14.0	.551	107	4.213	104.7	4.122	60	2.362	2.3	.091	20	290	DIN 6537 K	
12.70	.500	57.6	2.268	4	14	860.1-1270-057A1-SM	★	14.0	.551	124	4.882	121.8	4.795	71	2.795	2.3	.091	20	290	DIN 6537 L	
12.90	.508	40.6	1.598	3	14	860.1-1290-040A1-SM	★	14.0	.551	107	4.213	104.7	4.120	60	2.362	2.4	.093	20	290	DIN 6537 K	
13.00	.512	40.5	1.594	3	14	860.1-1300-040A1-SM	★	14.0	.551	107	4.213	104.6	4.119	60	2.362	2.4	.093	20	290	DIN 6537 K	
13.25	.522	40.5	1.594	3	14	860.1-1325-040A1-SM	★	14.0	.551	107	4.213	104.6	4.118	60	2.362	2.4	.095	20	290	DIN 6537 K	
13.50	.531	40.6	1.598	3	14	860.1-1350-040A1-SM	★	14.0	.551	107	4.213	104.5	4.116	60	2.362	2.5	.097	20	290	DIN 6537 K	
13.70	.539	40.6	1.598	2	14	860.1-1370-040A1-SM	★	14.0	.551	107	4.213	104.5	4.115	60	2.362	2.5	.098	20	290	DIN 6537 K	
13.70	.539	57.6	2.268	4	14	860.1-1370-057A1-SM	★	14.0	.551	124	4.882	121.7	4.791	77	3.032	2.5	.098	20	290	DIN 6537 L	
13.75	.541	40.6	1.598	2	14	860.1-1375-040A1-SM	★	14.0	.551	107	4.213	104.5	4.114	60	2.362	2.5	.098	20	290	DIN 6537 K	
14.00	.551	40.6	1.598	2	14	860.1-1400-040A1-SM	★	14.0	.551	107	4.213	104.5	4.112	60	2.362	2.6	.100	20	290	DIN 6537 K	
15.50	.610	43.6	1.717	2	16	860.1-1550-043A1-SM	★	16.0	.630	115	4.528	112.2	4.417	65	2.559	2.8	.111	20	290	DIN 6537 K	
15.87	.625	50.5	1.988	3	16	860.1-1587-061A1-SM	★	16.0	.630	133	5.236	130.4	5.134	83	3.268	2.9	.114	20	290	DIN 6537 L	

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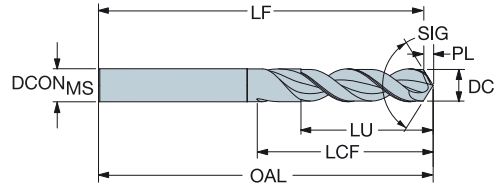
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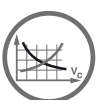
# CoroDrill® 863 solid carbide drill

For composite materials

SIG 90°



						Dimensions, mm, inch				
						DCON	OAL	LF	PL	BSG
DC	LU	ULDR	CZC <sub>MS</sub>	Ordering code	OTAD	DCON	OAL	LF	PL	BSG
3.30	17.9	5	6	863.1-0330-017A0-O	★	6.0	66	64.6	1.4	COROMANT
.130	.705	5	6			.236	2.598	2.543	.056	
4.85	26.3	5	6	863.1-0485-024A0-O	★	6.0	82	79.9	2.1	COROMANT
.191	1.035	5	6			.236	3.228	3.146	.082	
6.37	34.6	5	8	863.1-0637-032A0-O	★	8.0	91	88.3	2.7	COROMANT
.251	1.362	5	8			.315	3.583	3.475	.107	
7.96	43.2	5	8	863.1-0796-039A0-O	★	8.0	91	87.6	3.4	COROMANT
.313	1.701	5	8			.315	3.583	3.448	.135	
9.55	51.9	5	10	863.1-0955-048A0-O	★	10.0	103	98.9	4.1	COROMANT
.376	2.043	5	10			.394	4.055	3.894	.161	



E46



H2



H7



H6

# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm	
					4-5xD			6-7xD				
					Min.	Rec.	Max.	Min.	Rec.	Max.		
P	P1.0.Z.AN	Unalloyed steel C=0.05-0.10%	110	4324	230	340	400	230	305	360	15.00-18.00	
				4334	210	285	325	210	255	295	18.01-22.00	
				4344	190	225	245	190	205	220	22.01-27.00	
C	P1.1.Z.AN	Unalloyed steel C=0.05-0.25%	125	4324	230	320	370	230	290	335	15.00-18.00	
				4334	200	270	305	200	245	275	18.01-22.00	
				4344	170	210	235	170	190	210	22.01-27.00	
D	P1.2.Z.AN	Unalloyed steel C=0.25-0.55%	190	4324	190	265	305	190	240	275	15.00-18.00	
				4334	155	215	250	155	195	225	18.01-22.00	
				4344	120	165	190	120	150	170	22.01-27.00	
E	P1.3.Z.AN	Unalloyed steel C=0.55-0.80%	190	4324	170	250	290	170	225	260	15.00-18.00	
				4334	140	205	240	140	185	215	18.01-22.00	
				4344	105	155	185	105	140	165	22.01-27.00	
F	P1.5.C.UT	Unalloyed steel Cast - untreated	150	4324	140	260	325	140	235	295	15.00-18.00	
				4334	135	220	265	135	200	240	18.01-22.00	
				4344	125	175	200	125	160	180	22.01-27.00	
G	P2.1.Z.AN	Low alloy steel Annealed	175	4324	180	260	305	180	235	275	15.00-18.00	
				4334	150	215	250	150	195	225	18.01-22.00	
				4344	115	165	190	115	150	170	22.01-27.00	
H	P2.2.Z.AN	Low alloy steel Annealed	240	4324	180	250	290	180	225	260	15.00-18.00	
				4334	150	200	225	150	180	205	18.01-22.00	
				4344	115	175	205	115	160	185	22.01-27.00	
I	P2.5.Z.HT	Low alloy steel Hardened and tempered	330	4324	90	190	245	90	170	220	15.00-18.00	
				4334	85	155	195	85	140	175	18.01-22.00	
				4344	75	125	150	75	115	135	22.01-27.00	
J	P2.6.C.UT	Low alloy steel Cast - untreated	200	4324	110	210	265	110	190	240	15.00-18.00	
				4334	105	175	210	105	160	190	18.01-22.00	
				4344	100	140	160	100	125	145	22.01-27.00	
K	P3.0.Z.AN	High alloy steel Annealed	200	4324	160	245	290	160	220	260	15.00-18.00	
				4334	130	200	240	130	180	215	18.01-22.00	
				4344	100	150	180	100	135	160	22.01-27.00	
L											27.01-33.00	
												33.01-40.00
												40.01-52.00
M											52.01-65.00	

## CoroDrill® DS20

## Metric values

		Drill length 4xD			Drill length 5xD				
-S5W	-L5W	-L6W	-M7W	-H5W	-S5W	-L5W	-L6W	-M7W	-H5W
Recommended start value at middle of feed range									
$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev
0.04-0.08	0.04-0.08	0.04-0.08	-	0.04-0.1	0.04-0.07	0.04-0.07	0.04-0.07	-	0.04-0.09
0.04-0.09	0.04-0.09	0.04-0.09	-	0.04-0.11	0.04-0.08	0.04-0.08	0.04-0.08	-	0.04-0.1
0.04-0.1	0.04-0.1	0.04-0.1	-	0.04-0.12	0.04-0.09	0.04-0.09	0.04-0.09	-	0.04-0.11
0.05-0.11	0.05-0.11	0.05-0.11	-	0.05-0.13	0.05-0.1	0.05-0.1	0.05-0.1	-	0.05-0.12
0.05-0.12	0.05-0.12	0.05-0.12	-	0.05-0.16	0.05-0.11	0.05-0.11	0.05-0.11	-	0.05-0.14
0.06-0.12	0.06-0.12	0.06-0.12	-	0.06-0.16	0.06-0.11	0.06-0.11	0.06-0.11	-	0.06-0.14
0.06-0.12	0.06-0.12	0.06-0.12	-	0.06-0.16	0.06-0.11	0.06-0.11	0.06-0.11	-	0.06-0.14
0.04-0.1	0.04-0.1	0.04-0.1	-	0.04-0.1	0.04-0.09	0.04-0.09	0.04-0.09	-	0.04-0.09
0.04-0.11	0.04-0.11	0.04-0.11	-	0.04-0.11	0.04-0.1	0.04-0.1	0.04-0.1	-	0.04-0.1
0.04-0.12	0.04-0.12	0.04-0.12	-	0.04-0.12	0.04-0.11	0.04-0.11	0.04-0.11	-	0.04-0.11
0.05-0.13	0.05-0.13	0.05-0.13	-	0.05-0.13	0.05-0.12	0.05-0.12	0.05-0.12	-	0.05-0.12
0.05-0.14	0.05-0.14	0.05-0.14	-	0.05-0.16	0.05-0.13	0.05-0.13	0.05-0.13	-	0.05-0.14
0.06-0.14	0.06-0.14	0.06-0.14	-	0.06-0.16	0.06-0.13	0.06-0.13	0.06-0.13	-	0.06-0.14
0.06-0.14	0.06-0.14	0.06-0.14	-	0.06-0.16	0.06-0.13	0.06-0.13	0.06-0.13	-	0.06-0.14
-	0.05-0.12	0.06-0.14	0.06-0.16	-	-	0.05-0.1	0.06-0.12	0.06-0.14	-
-	0.05-0.14	0.06-0.16	0.06-0.18	-	-	0.05-0.12	0.06-0.14	0.06-0.15	-
-	0.05-0.18	0.06-0.2	0.06-0.22	-	-	0.05-0.15	0.06-0.17	0.06-0.19	-
-	0.07-0.22	0.08-0.24	0.08-0.26	-	-	0.07-0.19	0.08-0.2	0.08-0.22	-
-	0.07-0.24	0.08-0.26	0.08-0.28	-	-	0.07-0.2	0.08-0.22	0.08-0.24	-
-	0.09-0.24	0.1-0.26	0.1-0.28	-	-	0.09-0.2	0.1-0.22	0.1-0.24	-
-	0.09-0.24	0.1-0.26	0.1-0.28	-	-	0.09-0.2	0.1-0.22	0.1-0.24	-
-	0.05-0.12	0.06-0.14	0.06-0.16	-	-	0.05-0.1	0.06-0.12	0.06-0.14	-
-	0.05-0.14	0.06-0.16	0.06-0.18	-	-	0.05-0.12	0.06-0.14	0.06-0.15	-
-	0.05-0.18	0.06-0.2	0.06-0.22	-	-	0.05-0.15	0.06-0.17	0.06-0.19	-
-	0.07-0.22	0.08-0.24	0.08-0.26	-	-	0.07-0.19	0.08-0.2	0.08-0.22	-
-	0.07-0.24	0.08-0.26	0.08-0.28	-	-	0.07-0.2	0.08-0.22	0.08-0.24	-
-	0.09-0.24	0.1-0.26	0.1-0.28	-	-	0.09-0.2	0.1-0.22	0.1-0.24	-
-	0.09-0.24	0.1-0.26	0.1-0.28	-	-	0.09-0.2	0.1-0.22	0.1-0.24	-
-	0.04-0.12	0.04-0.12	0.04-0.12	-	-	0.04-0.1	0.04-0.1	0.04-0.1	-
-	0.04-0.13	0.04-0.13	0.04-0.13	-	-	0.04-0.11	0.04-0.11	0.04-0.11	-
-	0.04-0.14	0.04-0.14	0.04-0.14	-	-	0.04-0.12	0.04-0.12	0.04-0.12	-
-	0.05-0.15	0.05-0.15	0.05-0.15	-	-	0.05-0.13	0.05-0.13	0.05-0.13	-
-	0.05-0.16	0.05-0.16	0.05-0.16	-	-	0.05-0.14	0.05-0.14	0.05-0.14	-
-	0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-
-	0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-
-	-	0.06-0.14	0.06-0.16	-	-	-	0.06-0.12	0.06-0.14	-
-	-	0.06-0.16	0.06-0.18	-	-	-	0.06-0.14	0.06-0.15	-
-	-	0.06-0.2	0.06-0.22	-	-	-	0.06-0.17	0.06-0.19	-
-	-	0.08-0.24	0.08-0.26	-	-	-	0.08-0.2	0.08-0.22	-
-	-	0.08-0.26	0.08-0.28	-	-	-	0.08-0.22	0.08-0.24	-
-	-	0.1-0.26	0.1-0.28	-	-	-	0.1-0.22	0.1-0.24	-
-	-	0.1-0.26	0.1-0.28	-	-	-	0.1-0.22	0.1-0.24	-
-	-	0.06-0.14	0.06-0.16	-	-	-	0.06-0.12	0.06-0.14	-
-	-	0.06-0.16	0.06-0.18	-	-	-	0.06-0.14	0.06-0.15	-
-	-	0.06-0.2	0.06-0.22	-	-	-	0.06-0.17	0.06-0.19	-
-	-	0.08-0.24	0.08-0.26	-	-	-	0.08-0.2	0.08-0.22	-
-	-	0.08-0.26	0.08-0.28	-	-	-	0.08-0.22	0.08-0.24	-
-	-	0.1-0.26	0.1-0.28	-	-	-	0.1-0.22	0.1-0.24	-
-	-	0.1-0.26	0.1-0.28	-	-	-	0.1-0.22	0.1-0.24	-
-	-	0.06-0.16	0.06-0.18	-	-	-	0.06-0.14	0.06-0.15	-
-	-	0.06-0.18	0.06-0.2	-	-	-	0.06-0.15	0.06-0.17	-
-	-	0.06-0.22	0.06-0.24	-	-	-	0.06-0.19	0.06-0.2	-
-	-	0.08-0.26	0.08-0.28	-	-	-	0.08-0.22	0.08-0.24	-
-	-	0.08-0.28	0.08-0.3	-	-	-	0.08-0.24	0.08-0.26	-
-	-	0.1-0.28	0.1-0.3	-	-	-	0.1-0.24	0.1-0.26	-
-	-	0.1-0.28	0.1-0.3	-	-	-	0.1-0.24	0.1-0.26	-
-	-	0.06-0.14	0.06-0.16	-	-	-	0.06-0.12	0.06-0.14	-
-	-	0.06-0.16	0.06-0.18	-	-	-	0.06-0.14	0.06-0.15	-
-	-	0.06-0.2	0.06-0.22	-	-	-	0.06-0.17	0.06-0.19	-
-	-	0.08-0.24	0.08-0.26	-	-	-	0.08-0.2	0.08-0.22	-
-	-	0.08-0.26	0.08-0.28	-	-	-	0.08-0.22	0.08-0.24	-
-	-	0.1-0.26	0.1-0.28	-	-	-	0.1-0.22	0.1-0.24	-
-	-	0.1-0.26	0.1-0.28	-	-	-	0.1-0.22	0.1-0.24	-

# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
P	P3.0.Z.HT	High alloy steel	380	4324	80	165	210	80	150	190	15.00-18.00
		Hardened and tempered		4334	75	140	175	75	125	160	18.01-22.00
				4344	70	110	130	70	100	115	22.01-27.00
	P5.0.Z.AN	Ferritic/martensitic stainless steel	200	4334	115	185	225	115	165	205	15.00-18.00
		Annealed		4344	115	155	175	115	140	160	18.01-22.00
				2044	115	150	165	115	135	150	22.01-27.00
	P5.0.Z.HT	Ferritic/martensitic stainless steel	330	4334	75	135	170	75	120	155	15.00-18.00
		Hardened and tempered		4344	70	115	140	70	105	125	18.01-22.00
				2044	70	115	140	70	105	125	22.01-27.00
M	M1.0.Z.AQ	Austenitic stainless steel	200	4334	115	185	225	115	165	205	15.00-18.00
		Annealed/quenched		4344	115	165	190	115	150	170	18.01-22.00
				2044	115	155	180	115	140	160	22.01-27.00
	M1.1.Z.AQ	Austenitic stainless steel	200	4334	115	195	240	115	175	215	15.00-18.00
		Machinability improved		4344	115	175	210	115	160	190	18.01-22.00
				2044	115	170	200	115	155	180	22.01-27.00
	M2.0.Z.AQ	Super austenitic (Ni>20%) stainless steel	200	4334	80	125	150	80	115	135	15.00-18.00
		Annealed/quenched		4344	80	110	125	80	100	115	18.01-22.00
				2044	80	110	125	80	100	115	22.01-27.00
M3.1.Z.AQ	Duplex stainless steel >60% ferrite (N<0.10%)	230	4334	85	125	145	85	115	130	15.00-18.00	
			4344	85	115	130	85	105	115	18.01-22.00	
			2044	85	110	125	85	100	115	22.01-27.00	
M3.2.Z.AQ	Duplex stainless steel <60% ferrite (N≥0.10%)	260	4334	75	105	120	75	95	110	15.00-18.00	
			4344	75	100	115	75	90	105	18.01-22.00	
			2044	75	100	115	75	90	105	22.01-27.00	
S	S2.0.Z.AN S2.0.Z.AG S2.0.Z.NS	Heat resistant super alloys	350	4334	20	40	50	20	35	45	15.00-18.00
		Ni based		4344	20	40	50	20	35	45	18.01-22.00
				2044	20	40	50	20	35	45	22.01-27.00
	S4.2.Z.AN S4.3.Z.AG	Heat resistant super alloys	330	H13A	40	90	120	40	80	110	15.00-18.00
		Ti-based		4344	40	90	120	40	80	110	18.01-22.00
				2044	40	90	120	40	80	110	22.01-27.00
27.01-33.00											
33.01-40.00											
40.01-52.00											
52.01-65.00											





# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
K	K1.1.C.NS	Malleable cast iron Low tensile strength	200	4324	140	210	245	140	190	220	15.00-18.00
				4334	110	170	200	110	155	180	18.01-22.00
				4344	180	165	155	180	150	140	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	K2.1.C.UT	Grey cast iron Low tensile strength	180	4324	210	285	325	210	255	295	15.00-18.00
				4334	170	235	270	170	210	245	18.01-22.00
				4344	130	180	205	130	160	185	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	K2.2.C.UT	Grey cast iron High tensile strength	245	4324	125	205	245	125	185	220	15.00-18.00
				4334	100	160	195	100	145	175	18.01-22.00
				4344	75	125	150	75	115	135	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
K3.1.C.UT	Nodular cast iron Ferritic	155	4324	125	190	225	125	170	205	15.00-18.00	
			4334	100	155	185	100	140	165	18.01-22.00	
			4344	80	120	145	80	110	130	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
K3.3.C.UT	Nodular cast iron Pearlitic	265	4324	110	175	210	110	160	190	15.00-18.00	
			4334	90	145	175	90	130	160	18.01-22.00	
			4344	70	110	130	70	100	115	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
K4.2.C.UT	Compacted graphite iron High tensile strength	230	4324	130	210	250	130	190	225	15.00-18.00	
			4334	110	170	200	110	155	180	18.01-22.00	
			4344	85	125	150	85	115	135	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
H	H1.3.Z.HA	Extra hard steel Hardened and tempered	60 (HRC)	4324	30	65	85	30	60	75	15.00-18.00
				4334	30	65	85	30	60	75	18.01-22.00
				4344	30	65	85	30	60	75	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00

## CoroDrill® DS20

## Metric values

-S5W	-L5W	Drill length 4xD			-H5W	-S5W	-L5W	Drill length 5xD			-H5W
		-L6W	-M7W	-H5W				-L6W	-M7W	-H5W	
Recommended start value at middle of feed range											
-	0.08-0.15	0.08-0.15	0.08-0.2	-	-	0.08-0.13	0.08-0.13	0.08-0.17	-	-	
-	0.08-0.18	0.08-0.18	0.08-0.23	-	-	0.08-0.15	0.08-0.15	0.08-0.2	-	-	
-	0.08-0.21	0.08-0.21	0.08-0.26	-	-	0.08-0.18	0.08-0.18	0.08-0.22	-	-	
-	0.1-0.24	0.1-0.24	0.1-0.29	-	-	0.1-0.2	0.1-0.2	0.1-0.25	-	-	
-	0.1-0.27	0.1-0.27	0.1-0.32	-	-	0.1-0.23	0.1-0.23	0.1-0.27	-	-	
-	0.12-0.27	0.12-0.27	0.12-0.32	-	-	0.12-0.23	0.12-0.23	0.12-0.27	-	-	
-	0.12-0.27	0.12-0.27	0.12-0.32	-	-	0.12-0.23	0.12-0.23	0.12-0.27	-	-	
-	0.08-0.15	0.08-0.15	0.08-0.2	-	-	0.08-0.13	0.08-0.13	0.08-0.17	-	-	
-	0.08-0.18	0.08-0.18	0.08-0.23	-	-	0.08-0.15	0.08-0.15	0.08-0.2	-	-	
-	0.08-0.21	0.08-0.21	0.08-0.26	-	-	0.08-0.18	0.08-0.18	0.08-0.22	-	-	
-	0.1-0.24	0.1-0.24	0.1-0.29	-	-	0.1-0.2	0.1-0.2	0.1-0.25	-	-	
-	0.1-0.27	0.1-0.27	0.1-0.32	-	-	0.1-0.23	0.1-0.23	0.1-0.27	-	-	
-	0.12-0.27	0.12-0.27	0.12-0.32	-	-	0.12-0.23	0.12-0.23	0.12-0.27	-	-	
-	0.12-0.27	0.12-0.27	0.12-0.32	-	-	0.12-0.23	0.12-0.23	0.12-0.27	-	-	
-	0.08-0.13	0.08-0.13	0.08-0.18	-	-	0.08-0.11	0.08-0.11	0.08-0.15	-	-	
-	0.08-0.16	0.08-0.16	0.08-0.21	-	-	0.08-0.14	0.08-0.14	0.08-0.18	-	-	
-	0.08-0.19	0.08-0.19	0.08-0.24	-	-	0.08-0.16	0.08-0.16	0.08-0.2	-	-	
-	0.1-0.22	0.1-0.22	0.1-0.27	-	-	0.1-0.19	0.1-0.19	0.1-0.23	-	-	
-	0.1-0.25	0.1-0.25	0.1-0.3	-	-	0.1-0.21	0.1-0.21	0.1-0.26	-	-	
-	0.12-0.25	0.12-0.25	0.12-0.3	-	-	0.12-0.21	0.12-0.21	0.12-0.26	-	-	
-	0.12-0.25	0.12-0.25	0.12-0.3	-	-	0.12-0.21	0.12-0.21	0.12-0.26	-	-	
-	0.08-0.13	0.08-0.13	0.08-0.18	-	-	0.08-0.11	0.08-0.11	0.08-0.15	-	-	
-	0.08-0.16	0.08-0.16	0.08-0.21	-	-	0.08-0.14	0.08-0.14	0.08-0.18	-	-	
-	0.08-0.19	0.08-0.19	0.08-0.24	-	-	0.08-0.16	0.08-0.16	0.08-0.2	-	-	
-	0.1-0.22	0.1-0.22	0.1-0.27	-	-	0.1-0.19	0.1-0.19	0.1-0.23	-	-	
-	0.1-0.25	0.1-0.25	0.1-0.3	-	-	0.1-0.21	0.1-0.21	0.1-0.26	-	-	
-	0.12-0.25	0.12-0.25	0.12-0.3	-	-	0.12-0.21	0.12-0.21	0.12-0.26	-	-	
-	0.12-0.25	0.12-0.25	0.12-0.3	-	-	0.12-0.21	0.12-0.21	0.12-0.26	-	-	
-	0.08-0.13	0.08-0.13	0.08-0.18	-	-	0.08-0.11	0.08-0.11	0.08-0.15	-	-	
-	0.08-0.16	0.08-0.16	0.08-0.21	-	-	0.08-0.14	0.08-0.14	0.08-0.18	-	-	
-	0.08-0.19	0.08-0.19	0.08-0.24	-	-	0.08-0.16	0.08-0.16	0.08-0.2	-	-	
-	0.1-0.22	0.1-0.22	0.1-0.27	-	-	0.1-0.19	0.1-0.19	0.1-0.23	-	-	
-	0.1-0.25	0.1-0.25	0.1-0.3	-	-	0.1-0.21	0.1-0.21	0.1-0.26	-	-	
-	0.12-0.25	0.12-0.25	0.12-0.3	-	-	0.12-0.21	0.12-0.21	0.12-0.26	-	-	
-	0.12-0.25	0.12-0.25	0.12-0.3	-	-	0.12-0.21	0.12-0.21	0.12-0.26	-	-	
-	0.06-0.13	0.06-0.13	0.06-0.13	-	-	0.06-0.11	0.06-0.11	0.06-0.11	-	-	
-	0.06-0.14	0.06-0.14	0.06-0.14	-	-	0.06-0.12	0.06-0.12	0.06-0.12	-	-	
-	0.06-0.15	0.06-0.15	0.06-0.15	-	-	0.06-0.13	0.06-0.13	0.06-0.13	-	-	
-	0.08-0.16	0.08-0.16	0.08-0.16	-	-	0.08-0.14	0.08-0.14	0.08-0.14	-	-	
-	0.08-0.18	0.08-0.18	0.08-0.18	-	-	0.08-0.15	0.08-0.15	0.08-0.15	-	-	
-	0.1-0.18	0.1-0.18	0.1-0.18	-	-	0.1-0.15	0.1-0.15	0.1-0.15	-	-	
-	0.1-0.18	0.1-0.18	0.1-0.18	-	-	0.1-0.15	0.1-0.15	0.1-0.15	-	-	

# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
N	N1.2.Z.AG	Aluminium based alloys AlSi alloys, Si ≤ 1%	100	H13A 4344	300	365	400	300	330	360	15.00-18.00
					300	365	400	300	330	360	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	N1.3.C.UT	Aluminium based alloys AlSi cast alloys (1% < Si < 13%)	75	H13A 4344	250	350	400	250	315	360	15.00-18.00
					250	350	400	250	315	360	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	N1.3.C.AG	Aluminium based alloys AlSi cast and aged alloys (1% < Si < 13%)	90	H13A 4344	250	315	350	250	285	315	15.00-18.00
					250	315	350	250	285	315	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
N3.3.U.UT	Copper based alloys Free cutting copper based alloys	110	H13A 4344	250	350	400	250	315	360	15.00-18.00	
				250	350	400	250	315	360	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
N3.2.C.UT	Copper based alloys Leaded brass & bronzes (Pb ≤ 1%)	90	H13A 4344	180	220	240	180	200	215	15.00-18.00	
				180	220	240	180	200	215	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	

## CoroDrill® DS20

## Metric values

-S5W	-L5W	Drill length 4xD			Drill length 5xD				
		-L6W	-M7W	-H5W	-S5W	-L5W	-L6W	-M7W	-H5W
Recommended start value at middle of feed range									
0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-	-
0.06-0.18	0.06-0.18	0.06-0.18	-	-	0.06-0.15	0.06-0.15	0.06-0.15	-	-
0.06-0.2	0.06-0.2	0.06-0.2	-	-	0.06-0.17	0.06-0.17	0.06-0.17	-	-
0.08-0.22	0.08-0.22	0.08-0.22	-	-	0.08-0.19	0.08-0.19	0.08-0.19	-	-
0.08-0.25	0.08-0.25	0.08-0.25	-	-	0.08-0.21	0.08-0.21	0.08-0.21	-	-
0.1-0.25	0.1-0.25	0.1-0.25	-	-	0.1-0.21	0.1-0.21	0.1-0.21	-	-
0.1-0.25	0.1-0.25	0.1-0.25	-	-	0.1-0.21	0.1-0.21	0.1-0.21	-	-
0.06-0.14	0.06-0.14	0.06-0.14	-	-	0.06-0.12	0.06-0.12	0.06-0.12	-	-
0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-	-
0.06-0.18	0.06-0.18	0.06-0.18	-	-	0.06-0.15	0.06-0.15	0.06-0.15	-	-
0.08-0.2	0.08-0.2	0.08-0.2	-	-	0.08-0.17	0.08-0.17	0.08-0.17	-	-
0.08-0.22	0.08-0.22	0.08-0.22	-	-	0.08-0.19	0.08-0.19	0.08-0.19	-	-
0.1-0.22	0.1-0.22	0.1-0.22	-	-	0.1-0.19	0.1-0.19	0.1-0.19	-	-
0.1-0.22	0.1-0.22	0.1-0.22	-	-	0.1-0.19	0.1-0.19	0.1-0.19	-	-
0.06-0.14	0.06-0.14	0.06-0.14	-	-	0.06-0.12	0.06-0.12	0.06-0.12	-	-
0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-	-
0.06-0.18	0.06-0.18	0.06-0.18	-	-	0.06-0.15	0.06-0.15	0.06-0.15	-	-
0.08-0.2	0.08-0.2	0.08-0.2	-	-	0.08-0.17	0.08-0.17	0.08-0.17	-	-
0.08-0.22	0.08-0.22	0.08-0.22	-	-	0.08-0.19	0.08-0.19	0.08-0.19	-	-
0.1-0.22	0.1-0.22	0.1-0.22	-	-	0.1-0.19	0.1-0.19	0.1-0.19	-	-
0.1-0.22	0.1-0.22	0.1-0.22	-	-	0.1-0.19	0.1-0.19	0.1-0.19	-	-
0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-	-
0.06-0.18	0.06-0.18	0.06-0.18	-	-	0.06-0.15	0.06-0.15	0.06-0.15	-	-
0.06-0.2	0.06-0.2	0.06-0.2	-	-	0.06-0.17	0.06-0.17	0.06-0.17	-	-
0.08-0.22	0.08-0.22	0.08-0.22	-	-	0.08-0.19	0.08-0.19	0.08-0.19	-	-
0.08-0.25	0.08-0.25	0.08-0.25	-	-	0.08-0.21	0.08-0.21	0.08-0.21	-	-
0.1-0.25	0.1-0.25	0.1-0.25	-	-	0.1-0.21	0.1-0.21	0.1-0.21	-	-
0.1-0.25	0.1-0.25	0.1-0.25	-	-	0.1-0.21	0.1-0.21	0.1-0.21	-	-
0.06-0.16	0.06-0.16	0.06-0.16	-	-	0.06-0.14	0.06-0.14	0.06-0.14	-	-
0.06-0.18	0.06-0.18	0.06-0.18	-	-	0.06-0.15	0.06-0.15	0.06-0.15	-	-
0.06-0.2	0.06-0.2	0.06-0.2	-	-	0.06-0.17	0.06-0.17	0.06-0.17	-	-
0.08-0.22	0.08-0.22	0.08-0.22	-	-	0.08-0.19	0.08-0.19	0.08-0.19	-	-
0.08-0.25	0.08-0.25	0.08-0.25	-	-	0.08-0.21	0.08-0.21	0.08-0.21	-	-
0.1-0.25	0.1-0.25	0.1-0.25	-	-	0.1-0.21	0.1-0.21	0.1-0.21	-	-
0.1-0.25	0.1-0.25	0.1-0.25	-	-	0.1-0.21	0.1-0.21	0.1-0.21	-	-

# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
					Min.	Rec.	Max.	Min.	Rec.	Max.	
P	P1.0.Z.AN	Unalloyed steel C=0.05-0.10%	110	4324	230	340	400	230	305	360	15.00-18.00
				4334	210	285	325	210	255	295	18.01-22.00
				4344	190	225	245	190	205	220	22.01-27.00
	P1.1.Z.AN	Unalloyed steel C=0.05-0.25%	125	4324	230	320	370	230	290	335	15.00-18.00
				4334	200	270	305	200	245	275	18.01-22.00
				4344	170	210	235	170	190	210	22.01-27.00
	P1.2.Z.AN	Unalloyed steel C=0.25-0.55%	190	4324	190	265	305	190	240	275	15.00-18.00
				4334	155	215	250	155	195	225	18.01-22.00
				4344	120	165	190	120	150	170	22.01-27.00
	P1.3.Z.AN	Unalloyed steel C=0.55-0.80%	190	4324	170	250	290	170	225	260	15.00-18.00
4334				140	205	240	140	185	215	18.01-22.00	
4344				105	155	185	105	140	165	22.01-27.00	
P1.5.C.UT	Unalloyed steel Cast - untreated	150	4324	140	260	325	140	235	295	15.00-18.00	
			4334	135	220	265	135	200	240	18.01-22.00	
			4344	125	175	200	125	160	180	22.01-27.00	
P2.1.Z.AN	Low alloy steel Annealed	175	4324	180	260	305	180	235	275	15.00-18.00	
			4334	150	215	250	150	195	225	18.01-22.00	
			4344	115	165	190	115	150	170	22.01-27.00	
P2.2.Z.AN	Low alloy steel Annealed	240	4324	180	250	290	180	225	260	15.00-18.00	
			4334	150	200	225	150	180	205	18.01-22.00	
			4344	115	175	205	115	160	185	22.01-27.00	
P2.5.Z.HT	Low alloy steel Hardened and tempered	330	4324	90	190	245	90	170	220	15.00-18.00	
			4334	85	155	195	85	140	175	18.01-22.00	
			4344	75	125	150	75	115	135	22.01-27.00	
P2.6.C.UT	Low alloy steel Cast - untreated	200	4324	110	210	265	110	190	240	15.00-18.00	
			4334	105	175	210	105	160	190	18.01-22.00	
			4344	100	140	160	100	125	145	22.01-27.00	
P3.0.Z.AN	High alloy steel Annealed	200	4324	160	245	290	160	220	260	15.00-18.00	
			4334	130	200	240	130	180	215	18.01-22.00	
			4344	100	150	180	100	135	160	22.01-27.00	
										27.01-33.00	
										33.01-40.00	
										40.01-52.00	
										52.01-65.00	
										15.00-18.00	
										18.01-22.00	

## CoroDrill® DS20

## Metric values

		Drill length 6xD			Drill length 7xD				
-S5W	-L5W	-L6W	-M7W	-H5W	-S5W	-L5W	-L6W	-M7W	-H5W
Recommended start value at middle of feed range									
$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev	$f_n$ mm/rev
0.04-0.06	0.04-0.06	0.04-0.06	-	0.04-0.08	0.04-0.05	0.04-0.05	0.04-0.05	-	0.04-0.07
0.04-0.07	0.04-0.07	0.04-0.07	-	0.04-0.09	0.04-0.06	0.04-0.06	0.04-0.06	-	0.04-0.07
0.04-0.08	0.04-0.08	0.04-0.08	-	0.04-0.1	0.04-0.07	0.04-0.07	0.04-0.07	-	0.04-0.08
0.05-0.09	0.05-0.09	0.05-0.09	-	0.05-0.1	0.05-0.07	0.05-0.07	0.05-0.07	-	0.05-0.08
0.05-0.1	0.05-0.1	0.05-0.1	-	0.05-0.13	0.05-0.08	0.05-0.08	0.05-0.08	-	0.05-0.1
0.06-0.1	0.06-0.1	0.06-0.1	-	0.06-0.13	0.06-0.08	0.06-0.08	0.06-0.08	-	0.06-0.1
0.06-0.1	0.06-0.1	0.06-0.1	-	0.06-0.13	0.06-0.08	0.06-0.08	0.06-0.08	-	0.06-0.1
0.04-0.08	0.04-0.08	0.04-0.08	-	0.04-0.08	0.04-0.07	0.04-0.07	0.04-0.07	-	0.04-0.07
0.04-0.09	0.04-0.09	0.04-0.09	-	0.04-0.09	0.04-0.07	0.04-0.07	0.04-0.07	-	0.04-0.07
0.04-0.1	0.04-0.1	0.04-0.1	-	0.04-0.1	0.04-0.08	0.04-0.08	0.04-0.08	-	0.04-0.08
0.05-0.1	0.05-0.1	0.05-0.1	-	0.05-0.1	0.05-0.08	0.05-0.08	0.05-0.08	-	0.05-0.08
0.05-0.11	0.05-0.11	0.05-0.11	-	0.05-0.13	0.05-0.09	0.05-0.09	0.05-0.09	-	0.05-0.1
0.06-0.11	0.06-0.11	0.06-0.11	-	0.06-0.13	0.06-0.09	0.06-0.09	0.06-0.09	-	0.06-0.1
0.06-0.11	0.06-0.11	0.06-0.11	-	0.06-0.13	0.06-0.09	0.06-0.09	0.06-0.09	-	0.06-0.1
-	0.05-0.08	0.06-0.09	0.06-0.1	-	-	0.05-0.07	0.06-0.08	0.06-0.09	-
-	0.05-0.09	0.06-0.1	0.06-0.12	-	-	0.05-0.08	0.06-0.09	0.06-0.1	-
-	0.05-0.12	0.06-0.13	0.06-0.14	-	-	0.05-0.1	0.06-0.11	0.06-0.12	-
-	0.07-0.14	0.08-0.16	0.08-0.17	-	-	0.07-0.12	0.08-0.13	0.08-0.14	-
-	0.07-0.16	0.08-0.17	0.08-0.18	-	-	0.07-0.13	0.08-0.14	0.08-0.15	-
-	0.09-0.16	0.1-0.17	0.1-0.18	-	-	0.09-0.13	0.1-0.14	0.1-0.15	-
-	0.09-0.16	0.1-0.17	0.1-0.18	-	-	0.09-0.13	0.1-0.14	0.1-0.15	-
-	0.05-0.08	0.06-0.09	0.06-0.1	-	-	0.05-0.07	0.06-0.08	0.06-0.09	-
-	0.05-0.09	0.06-0.1	0.06-0.12	-	-	0.05-0.08	0.06-0.09	0.06-0.1	-
-	0.05-0.12	0.06-0.13	0.06-0.14	-	-	0.05-0.1	0.06-0.11	0.06-0.12	-
-	0.07-0.14	0.08-0.16	0.08-0.17	-	-	0.07-0.12	0.08-0.13	0.08-0.14	-
-	0.07-0.16	0.08-0.17	0.08-0.18	-	-	0.07-0.13	0.08-0.14	0.08-0.15	-
-	0.09-0.16	0.1-0.17	0.1-0.18	-	-	0.09-0.13	0.1-0.14	0.1-0.15	-
-	0.09-0.16	0.1-0.17	0.1-0.18	-	-	0.09-0.13	0.1-0.14	0.1-0.15	-
-	0.04-0.08	0.04-0.08	0.04-0.08	-	-	0.04-0.07	0.04-0.07	0.04-0.07	-
-	0.04-0.08	0.04-0.08	0.04-0.08	-	-	0.04-0.07	0.04-0.07	0.04-0.07	-
-	0.04-0.09	0.04-0.09	0.04-0.09	-	-	0.04-0.08	0.04-0.08	0.04-0.08	-
-	0.05-0.1	0.05-0.1	0.05-0.1	-	-	0.05-0.08	0.05-0.08	0.05-0.08	-
-	0.05-0.1	0.05-0.1	0.05-0.1	-	-	0.05-0.09	0.05-0.09	0.05-0.09	-
-	0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-
-	0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-
-	-	0.06-0.09	0.06-0.1	-	-	-	0.06-0.08	0.06-0.09	-
-	-	0.06-0.1	0.06-0.12	-	-	-	0.06-0.09	0.06-0.1	-
-	-	0.06-0.13	0.06-0.14	-	-	-	0.06-0.11	0.06-0.12	-
-	-	0.08-0.16	0.08-0.17	-	-	-	0.08-0.13	0.08-0.14	-
-	-	0.08-0.17	0.08-0.18	-	-	-	0.08-0.14	0.08-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.06-0.09	0.06-0.1	-	-	-	0.06-0.08	0.06-0.09	-
-	-	0.06-0.1	0.06-0.12	-	-	-	0.06-0.09	0.06-0.1	-
-	-	0.06-0.13	0.06-0.14	-	-	-	0.06-0.11	0.06-0.12	-
-	-	0.08-0.16	0.08-0.17	-	-	-	0.08-0.13	0.08-0.14	-
-	-	0.08-0.17	0.08-0.18	-	-	-	0.08-0.14	0.08-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.06-0.09	0.06-0.1	-	-	-	0.06-0.08	0.06-0.09	-
-	-	0.06-0.1	0.06-0.12	-	-	-	0.06-0.09	0.06-0.1	-
-	-	0.06-0.13	0.06-0.14	-	-	-	0.06-0.11	0.06-0.12	-
-	-	0.08-0.16	0.08-0.17	-	-	-	0.08-0.13	0.08-0.14	-
-	-	0.08-0.17	0.08-0.18	-	-	-	0.08-0.14	0.08-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.06-0.09	0.06-0.1	-	-	-	0.06-0.08	0.06-0.09	-
-	-	0.06-0.1	0.06-0.12	-	-	-	0.06-0.09	0.06-0.1	-
-	-	0.06-0.13	0.06-0.14	-	-	-	0.06-0.11	0.06-0.12	-
-	-	0.08-0.16	0.08-0.17	-	-	-	0.08-0.13	0.08-0.14	-
-	-	0.08-0.17	0.08-0.18	-	-	-	0.08-0.14	0.08-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-
-	-	0.1-0.17	0.1-0.18	-	-	-	0.1-0.14	0.1-0.15	-

# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
P	P3.0.Z.HT	High alloy steel	380	4324	80	165	210	80	150	190	15.00-18.00
		Hardened and tempered		4334	75	140	175	75	125	160	18.01-22.00
				4344	70	110	130	70	100	115	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	P5.0.Z.AN	Ferritic/martensitic stainless steel	200	4334	115	185	225	115	165	205	15.00-18.00
		Annealed		4344	115	155	175	115	140	160	18.01-22.00
				2044	115	150	165	115	135	150	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	P5.0.Z.HT	Ferritic/martensitic stainless steel	330	4334	75	135	170	75	120	155	15.00-18.00
		Hardened and tempered		4344	70	115	140	70	105	125	18.01-22.00
				2044	70	115	140	70	105	125	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
M	M1.0.Z.AQ	Austenitic stainless steel	200	4334	115	185	225	115	165	205	15.00-18.00
		Annealed/quenched		4344	115	165	190	115	150	170	18.01-22.00
				2044	115	155	180	115	140	160	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	M1.1.Z.AQ	Austenitic stainless steel	200	4334	115	195	240	115	175	215	15.00-18.00
		Machinability improved		4344	115	175	210	115	160	190	18.01-22.00
				2044	115	170	200	115	155	180	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	M2.0.Z.AQ	Super austenitic (Ni>20%) stainless steel	200	4334	80	125	150	80	115	135	15.00-18.00
		Annealed/quenched		4344	80	110	125	80	100	115	18.01-22.00
				2044	80	110	125	80	100	115	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
M3.1.Z.AQ	Duplex stainless steel >60% ferrite (N<0.10%)	230	4334	85	125	145	85	115	130	15.00-18.00	
			4344	85	115	130	85	105	115	18.01-22.00	
			2044	85	110	125	85	100	115	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
M3.2.Z.AQ	Duplex stainless steel <60% ferrite (N≥0.10%)	260	4334	75	105	120	75	95	110	15.00-18.00	
			4344	75	100	115	75	90	105	18.01-22.00	
			2044	75	100	115	75	90	105	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
S	S2.0.Z.AN	Heat resistant super alloys Ni based	350	4334	20	40	50	20	35	45	15.00-18.00
	S2.0.Z.AG		4344	20	40	50	20	35	45	18.01-22.00	
	S2.0.Z.NS		2044	20	40	50	20	35	45	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
	S4.2.Z.AN	Heat resistant super alloys Ti-based	330	H13A	40	90	120	40	80	110	15.00-18.00
	S4.3.Z.AG		4344	40	90	120	40	80	110	18.01-22.00	
				2044	40	90	120	40	80	110	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00





# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
K	K1.1.C.NS	Malleable cast iron Low tensile strength	200	4324	140	210	245	140	190	220	15.00-18.00
				4334	110	170	200	110	155	180	18.01-22.00
				4344	180	165	155	180	150	140	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	K2.1.C.UT	Grey cast iron Low tensile strength	180	4324	210	285	325	210	255	295	15.00-18.00
				4334	170	235	270	170	210	245	18.01-22.00
				4344	130	180	205	130	160	185	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	K2.2.C.UT	Grey cast iron High tensile strength	245	4324	125	205	245	125	185	220	15.00-18.00
				4334	100	160	195	100	145	175	18.01-22.00
				4344	75	125	150	75	115	135	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	K3.1.C.UT	Nodular cast iron Ferritic	155	4324	125	190	225	125	170	205	15.00-18.00
				4334	100	155	185	100	140	165	18.01-22.00
				4344	80	120	145	80	110	130	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
K3.3.C.UT	Nodular cast iron Pearlitic	265	4324	110	175	210	110	160	190	15.00-18.00	
			4334	90	145	175	90	130	160	18.01-22.00	
			4344	70	110	130	70	100	115	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
K4.2.C.UT	Compacted graphite iron High tensile strength	230	4324	130	210	250	130	190	225	15.00-18.00	
			4334	110	170	200	110	155	180	18.01-22.00	
			4344	85	125	150	85	115	135	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
H	H1.3.Z.HA	Extra hard steel Hardened and tempered	60 (HRC)	4324	30	65	85	30	60	75	15.00-18.00
				4334	30	65	85	30	60	75	18.01-22.00
				4344	30	65	85	30	60	75	22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00

## CoroDrill® DS20

## Metric values

-S5W	-L5W	Drill length 6xD			-H5W	-S5W	-L5W	Drill length 7xD			-H5W
		-L6W	-M7W	-H5W				-L6W	-M7W	-H5W	
Recommended start value at middle of feed range											
-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	0.08-0.08	0.08-0.08	0.08-0.11	-	-	
-	0.08-0.12	0.08-0.12	0.08-0.15	-	-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	
-	0.08-0.14	0.08-0.14	0.08-0.17	-	-	0.08-0.12	0.08-0.12	0.08-0.14	-	-	
-	0.1-0.16	0.1-0.16	0.1-0.19	-	-	0.1-0.13	0.1-0.13	0.1-0.16	-	-	
-	0.1-0.18	0.1-0.18	0.1-0.21	-	-	0.1-0.15	0.1-0.15	0.1-0.18	-	-	
-	0.12-0.18	0.12-0.18	0.12-0.21	-	-	0.12-0.15	0.12-0.15	0.12-0.18	-	-	
-	0.12-0.18	0.12-0.18	0.12-0.21	-	-	0.12-0.15	0.12-0.15	0.12-0.18	-	-	
-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	0.08-0.08	0.08-0.08	0.08-0.11	-	-	
-	0.08-0.12	0.08-0.12	0.08-0.15	-	-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	
-	0.08-0.14	0.08-0.14	0.08-0.17	-	-	0.08-0.12	0.08-0.12	0.08-0.14	-	-	
-	0.1-0.16	0.1-0.16	0.1-0.19	-	-	0.1-0.13	0.1-0.13	0.1-0.16	-	-	
-	0.1-0.18	0.1-0.18	0.1-0.21	-	-	0.1-0.15	0.1-0.15	0.1-0.18	-	-	
-	0.12-0.18	0.12-0.18	0.12-0.21	-	-	0.12-0.15	0.12-0.15	0.12-0.18	-	-	
-	0.12-0.18	0.12-0.18	0.12-0.21	-	-	0.12-0.15	0.12-0.15	0.12-0.18	-	-	
-	0.08-0.08	0.08-0.08	0.08-0.12	-	-	0.08-0.07	0.08-0.07	0.08-0.1	-	-	
-	0.08-0.1	0.08-0.1	0.08-0.14	-	-	0.08-0.09	0.08-0.09	0.08-0.12	-	-	
-	0.08-0.12	0.08-0.12	0.08-0.16	-	-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	
-	0.1-0.14	0.1-0.14	0.1-0.18	-	-	0.1-0.12	0.1-0.12	0.1-0.15	-	-	
-	0.1-0.16	0.1-0.16	0.1-0.2	-	-	0.1-0.14	0.1-0.14	0.1-0.17	-	-	
-	0.12-0.16	0.12-0.16	0.12-0.2	-	-	0.12-0.14	0.12-0.14	0.12-0.17	-	-	
-	0.12-0.16	0.12-0.16	0.12-0.2	-	-	0.12-0.14	0.12-0.14	0.12-0.17	-	-	
-	0.08-0.08	0.08-0.08	0.08-0.12	-	-	0.08-0.07	0.08-0.07	0.08-0.1	-	-	
-	0.08-0.1	0.08-0.1	0.08-0.14	-	-	0.08-0.09	0.08-0.09	0.08-0.12	-	-	
-	0.08-0.12	0.08-0.12	0.08-0.16	-	-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	
-	0.1-0.14	0.1-0.14	0.1-0.18	-	-	0.1-0.12	0.1-0.12	0.1-0.15	-	-	
-	0.1-0.16	0.1-0.16	0.1-0.2	-	-	0.1-0.14	0.1-0.14	0.1-0.17	-	-	
-	0.12-0.16	0.12-0.16	0.12-0.2	-	-	0.12-0.14	0.12-0.14	0.12-0.17	-	-	
-	0.12-0.16	0.12-0.16	0.12-0.2	-	-	0.12-0.14	0.12-0.14	0.12-0.17	-	-	
-	0.08-0.08	0.08-0.08	0.08-0.12	-	-	0.08-0.07	0.08-0.07	0.08-0.1	-	-	
-	0.08-0.1	0.08-0.1	0.08-0.14	-	-	0.08-0.09	0.08-0.09	0.08-0.12	-	-	
-	0.08-0.12	0.08-0.12	0.08-0.16	-	-	0.08-0.1	0.08-0.1	0.08-0.13	-	-	
-	0.1-0.14	0.1-0.14	0.1-0.18	-	-	0.1-0.12	0.1-0.12	0.1-0.15	-	-	
-	0.1-0.16	0.1-0.16	0.1-0.2	-	-	0.1-0.14	0.1-0.14	0.1-0.17	-	-	
-	0.12-0.16	0.12-0.16	0.12-0.2	-	-	0.12-0.14	0.12-0.14	0.12-0.17	-	-	
-	0.12-0.16	0.12-0.16	0.12-0.2	-	-	0.12-0.14	0.12-0.14	0.12-0.17	-	-	
-	0.06-0.08	0.06-0.08	0.06-0.08	-	-	0.06-0.07	0.06-0.07	0.06-0.07	-	-	
-	0.06-0.09	0.06-0.09	0.06-0.09	-	-	0.06-0.08	0.06-0.08	0.06-0.08	-	-	
-	0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.08	0.06-0.08	0.06-0.08	-	-	
-	0.08-0.1	0.08-0.1	0.08-0.1	-	-	0.08-0.09	0.08-0.09	0.08-0.09	-	-	
-	0.08-0.12	0.08-0.12	0.08-0.12	-	-	0.08-0.1	0.08-0.1	0.08-0.1	-	-	
-	0.1-0.12	0.1-0.12	0.1-0.12	-	-	0.1-0.1	0.1-0.1	0.1-0.1	-	-	
-	0.1-0.12	0.1-0.12	0.1-0.12	-	-	0.1-0.1	0.1-0.1	0.1-0.1	-	-	

# CoroDrill® DS20

## Metric values

ISO	MC No.	Material	HB	Grade	Cutting speed (V <sub>c</sub> ) m/min						Drill diameter mm
					4-5xD			6-7xD			
N	N1.2.Z.AG	Aluminium based alloys AlSi alloys, Si ≤ 1%	100	H13A 4344	300	365	400	300	330	360	15.00-18.00
					300	365	400	300	330	360	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	N1.3.C.UT	Aluminium based alloys AlSi cast alloys (1% < Si < 13%)	75	H13A 4344	250	350	400	250	315	360	15.00-18.00
					250	350	400	250	315	360	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
	N1.3.C.AG	Aluminium based alloys AlSi cast and aged alloys (1% < Si < 13%)	90	H13A 4344	250	315	350	250	285	315	15.00-18.00
					250	315	350	250	285	315	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00
N3.3.U.UT	Copper based alloys Free cutting copper based alloys	110	H13A 4344	250	350	400	250	315	360	15.00-18.00	
				250	350	400	250	315	360	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	
N3.2.C.UT	Copper based alloys Leaded brass & bronzes (Pb ≤ 1%)	90	H13A 4344	180	220	240	180	200	215	15.00-18.00	
				180	220	240	180	200	215	18.01-22.00 22.01-27.00 27.01-33.00 33.01-40.00 40.01-52.00 52.01-65.00	

## CoroDrill® DS20

## Metric values

-S5W	-L5W	Drill length 6xD			Drill length 7xD				
		-L6W	-M7W	-H5W	-S5W	-L5W	-L6W	-M7W	-H5W
Recommended start value at middle of feed range									
0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-	-
0.06-0.12	0.06-0.12	0.06-0.12	-	-	0.06-0.1	0.06-0.1	0.06-0.1	-	-
0.06-0.13	0.06-0.13	0.06-0.13	-	-	0.06-0.11	0.06-0.11	0.06-0.11	-	-
0.08-0.14	0.08-0.14	0.08-0.14	-	-	0.08-0.12	0.08-0.12	0.08-0.12	-	-
0.08-0.16	0.08-0.16	0.08-0.16	-	-	0.08-0.14	0.08-0.14	0.08-0.14	-	-
0.1-0.16	0.1-0.16	0.1-0.16	-	-	0.1-0.14	0.1-0.14	0.1-0.14	-	-
0.1-0.16	0.1-0.16	0.1-0.16	-	-	0.1-0.14	0.1-0.14	0.1-0.14	-	-
0.06-0.09	0.06-0.09	0.06-0.09	-	-	0.06-0.08	0.06-0.08	0.06-0.08	-	-
0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-	-
0.06-0.12	0.06-0.12	0.06-0.12	-	-	0.06-0.1	0.06-0.1	0.06-0.1	-	-
0.08-0.13	0.08-0.13	0.08-0.13	-	-	0.08-0.11	0.08-0.11	0.08-0.11	-	-
0.08-0.14	0.08-0.14	0.08-0.14	-	-	0.08-0.12	0.08-0.12	0.08-0.12	-	-
0.1-0.14	0.1-0.14	0.1-0.14	-	-	0.1-0.12	0.1-0.12	0.1-0.12	-	-
0.1-0.14	0.1-0.14	0.1-0.14	-	-	0.1-0.12	0.1-0.12	0.1-0.12	-	-
0.06-0.09	0.06-0.09	0.06-0.09	-	-	0.06-0.08	0.06-0.08	0.06-0.08	-	-
0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-	-
0.06-0.12	0.06-0.12	0.06-0.12	-	-	0.06-0.1	0.06-0.1	0.06-0.1	-	-
0.08-0.13	0.08-0.13	0.08-0.13	-	-	0.08-0.11	0.08-0.11	0.08-0.11	-	-
0.08-0.14	0.08-0.14	0.08-0.14	-	-	0.08-0.12	0.08-0.12	0.08-0.12	-	-
0.1-0.14	0.1-0.14	0.1-0.14	-	-	0.1-0.12	0.1-0.12	0.1-0.12	-	-
0.1-0.14	0.1-0.14	0.1-0.14	-	-	0.1-0.12	0.1-0.12	0.1-0.12	-	-
0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-	-
0.06-0.12	0.06-0.12	0.06-0.12	-	-	0.06-0.1	0.06-0.1	0.06-0.1	-	-
0.06-0.13	0.06-0.13	0.06-0.13	-	-	0.06-0.11	0.06-0.11	0.06-0.11	-	-
0.08-0.14	0.08-0.14	0.08-0.14	-	-	0.08-0.12	0.08-0.12	0.08-0.12	-	-
0.08-0.16	0.08-0.16	0.08-0.16	-	-	0.08-0.14	0.08-0.14	0.08-0.14	-	-
0.1-0.16	0.1-0.16	0.1-0.16	-	-	0.1-0.14	0.1-0.14	0.1-0.14	-	-
0.1-0.16	0.1-0.16	0.1-0.16	-	-	0.1-0.14	0.1-0.14	0.1-0.14	-	-
0.06-0.1	0.06-0.1	0.06-0.1	-	-	0.06-0.09	0.06-0.09	0.06-0.09	-	-
0.06-0.12	0.06-0.12	0.06-0.12	-	-	0.06-0.1	0.06-0.1	0.06-0.1	-	-
0.06-0.13	0.06-0.13	0.06-0.13	-	-	0.06-0.11	0.06-0.11	0.06-0.11	-	-
0.08-0.14	0.08-0.14	0.08-0.14	-	-	0.08-0.12	0.08-0.12	0.08-0.12	-	-
0.08-0.16	0.08-0.16	0.08-0.16	-	-	0.08-0.14	0.08-0.14	0.08-0.14	-	-
0.1-0.16	0.1-0.16	0.1-0.16	-	-	0.1-0.14	0.1-0.14	0.1-0.14	-	-
0.1-0.16	0.1-0.16	0.1-0.16	-	-	0.1-0.14	0.1-0.14	0.1-0.14	-	-

# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed $V_c$ , ft/min						Drill diameter inch
					4-5xD			6-7xD			
					Min.	Rec.	Max.	Min.	Rec.	Max.	
P	P1.0.Z.AN	Unalloyed steel C=0.05-0.10%	110	4324	755	1115	1310	755	1005	1180	0.591-0.709
				4334	690	935	1065	690	840	960	0.709-0.866
				4344	625	740	805	625	665	725	0.866-1.063
	P1.1.Z.AN	Unalloyed steel C=0.05-0.25%	125	4324	755	1055	1215	755	950	1095	0.591-0.709
				4334	655	880	1000	655	790	900	0.709-0.866
				4344	560	695	770	560	625	695	0.866-1.063
	P1.2.Z.AN	Unalloyed steel C=0.25-0.55%	190	4324	625	870	1000	625	785	900	0.591-0.709
				4334	510	710	820	510	640	740	0.709-0.866
				4344	395	545	625	395	490	565	0.866-1.063
	P1.3.Z.AN	Unalloyed steel C=0.55-0.80%	190	4324	560	815	950	560	735	855	0.591-0.709
				4334	460	670	785	460	605	705	0.709-0.866
				4344	345	515	605	345	465	545	0.866-1.063
P1.5.C.UT	Unalloyed steel Cast - untreated	150	4324	460	855	1065	460	770	960	0.591-0.709	
			4334	445	720	870	445	650	785	0.709-0.866	
			4344	410	570	655	410	515	590	0.866-1.063	
P2.1.Z.AN	Low alloy steel Annealed	175	4324	590	855	1000	590	770	900	0.591-0.709	
			4334	490	705	820	490	635	740	0.709-0.866	
			4344	375	540	625	375	485	565	0.866-1.063	
P2.2.Z.AN	Low alloy steel Annealed	240	4324	590	825	950	590	745	855	0.591-0.709	
			4334	490	655	740	490	590	665	0.709-0.866	
			4344	375	565	670	375	510	605	0.866-1.063	
P2.5.Z.HT	Low alloy steel Hardened and tempered	330	4324	295	625	805	295	565	725	0.591-0.709	
			4334	280	515	640	280	465	575	0.709-0.866	
			4344	245	405	490	245	365	440	0.866-1.063	
P2.6.C.UT	Low alloy steel Cast - untreated	200	4324	360	690	870	360	620	785	0.591-0.709	
			4334	345	570	690	345	515	620	0.709-0.866	
			4344	330	455	525	330	410	475	0.866-1.063	
P3.0.Z.AN	High alloy steel Annealed	200	4324	525	800	950	525	720	855	0.591-0.709	
			4334	425	660	785	425	595	705	0.709-0.866	
			4344	330	500	590	330	450	530	0.866-1.063	



# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed V <sub>c</sub> , ft/min						Drill diameter inch
					4-5xD			6-7xD			
P	P3.0.Z.HT	High alloy steel	380	4324	260	540	690	260	485	620	0.591-0.709
		Hardened and tempered	4334	245	460	575	245	415	520	0.709-0.866	
			4344	230	355	425	230	320	385	0.866-1.063	
	P5.0.Z.AN	Ferritic/martensitic stainless steel	200	4334	375	610	740	375	550	665	0.591-0.709
		Annealed	4344	375	505	575	375	455	520	0.709-0.866	
			2044	375	480	540	375	430	485	0.866-1.063	
	P5.0.Z.HT	Ferritic/martensitic stainless steel	330	4334	245	450	560	245	405	505	0.591-0.709
		Hardened and tempered	4344	230	380	460	230	340	415	0.709-0.866	
			2044	230	380	460	230	340	415	0.866-1.063	
M	M1.0.Z.AQ	Austenitic stainless steel	200	4334	375	610	740	375	550	665	0.591-0.709
		Annealed/quenched	4344	375	540	625	375	485	565	0.709-0.866	
			2044	375	515	590	375	465	530	0.866-1.063	
	M1.1.Z.AQ	Austenitic Stainless steel	200	4334	375	640	785	375	575	705	0.591-0.709
		Machinability improved	4344	375	580	690	375	520	620	0.709-0.866	
			2044	375	555	655	375	500	590	0.866-1.063	
	M2.0.Z.AQ	Super austenitic (Ni>20%) stainless steel	200	4334	260	410	490	260	370	440	0.591-0.709
		Annealed/quenched	4344	260	360	410	260	325	370	0.709-0.866	
			2044	260	360	410	260	325	370	0.866-1.063	
M3.1.Z.AQ	Duplex stainless steel >60% ferrite (N<0.10%)	230	4334	280	405	475	280	365	430	0.591-0.709	
		4344	280	375	425	280	340	385	0.709-0.866		
		2044	280	365	410	280	330	370	0.866-1.063		
M3.2.Z.AQ	Duplex stainless steel <60% ferrite (N≥0.10%)	260	4334	245	345	395	245	310	355	0.591-0.709	
		4344	245	330	375	245	295	340	0.709-0.866		
		2044	245	330	375	245	295	340	0.866-1.063		
S	S2.0.Z.AN	Heat resistant super alloys	350	4334	65	130	165	65	115	150	0.591-0.709
	S2.0.Z.AG	Ni based	4344	65	130	165	65	115	150	0.709-0.866	
	S2.0.Z.NS		2044	65	130	165	65	115	150	0.866-1.063	
	S4.2.Z.AN	Heat resistant super alloys	330	H13A	130	300	395	130	270	355	0.591-0.709
	S4.3.Z.AG	Ti-based	4344	130	300	395	130	270	355	0.709-0.866	
			2044	130	300	395	130	270	355	0.866-1.063	





# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed V <sub>c</sub> , ft/min						Drill diameter inch
					4-5xD			6-7xD			
K	K1.1.C.NS	Malleable cast iron Low tensile strength	200	4324	460	685	805	460	615	725	0.591-0.709
				4334	360	550	655	360	495	590	0.709-0.866
				4344	590	540	510	590	485	460	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
	K2.1.C.UT	Grey cast iron Low tensile strength	180	4324	690	935	1065	690	840	960	0.591-0.709
				4334	560	770	885	560	695	795	0.709-0.866
				4344	425	585	670	425	525	605	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
	K2.2.C.UT	Grey cast iron High tensile strength	245	4324	410	665	805	410	600	725	0.591-0.709
				4334	330	530	640	330	475	575	0.709-0.866
				4344	245	405	490	245	365	440	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
	K3.1.C.UT	Nodular cast iron Ferritic	155	4324	410	625	740	410	565	665	0.591-0.709
				4334	330	510	605	330	460	545	0.709-0.866
				4344	260	400	475	260	360	430	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
K3.3.C.UT	Nodular cast iron Ferritic	265	4324	360	575	690	360	520	620	0.591-0.709	
			4334	295	475	575	295	430	520	0.709-0.866	
			4344	230	355	425	230	320	385	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559	
K4.2.C.UT	Compacted graphite iron High tensile strength	230	4324	425	680	820	425	610	740	0.591-0.709	
			4334	360	550	655	360	495	590	0.709-0.866	
			4344	280	415	490	280	375	440	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559	
H	H1.3.Z.HA	Extra hard steel Hardened and tempered	60 (HRC)	4324	100	215	280	100	195	250	0.591-0.709
				4334	100	215	280	100	195	250	0.709-0.866
				4344	100	215	280	100	195	250	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559



# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed $V_c$ , ft/min						Drill diameter inch	
					4-5xD			6-7xD				
N	N1.2.Z.AG	Aluminium based alloys AISI alloys, Si ≤ 1%	100	H13A	985	1195	1310	985	1075	1180	0.591-0.709	
				4344	985	1195	1310	985	1075	1180	0.709-0.866	
											0.866-1.063	
											1.063-1.299	
											1.299-1.575	
											1.575-2.047	
											2.047-2.559	
		N1.3.C.UT	Aluminium based alloys AISI alloys, Si ≤ 1%	75	H13A	820	1140	1310	820	1025	1180	0.591-0.709
	4344				820	1140	1310	820	1025	1180	0.709-0.866	
										0.866-1.063		
										1.063-1.299		
										1.299-1.575		
										1.575-2.047		
										2.047-2.559		
	N1.3.C.AG	Aluminium based alloys AISI cast and aged alloys (1% < Si < 13%)	90	H13A	820	1035	1150	820	930	1035	0.591-0.709	
4344				820	1035	1150	820	930	1035	0.709-0.866		
										0.866-1.063		
										1.063-1.299		
										1.299-1.575		
										1.575-2.047		
										2.047-2.559		
	N3.3.U.UT	Copper based alloys Free cutting copper based alloys	110	H13A	820	1140	1310	820	1025	1180	0.591-0.709	
4344				820	1140	1310	820	1025	1180	0.709-0.866		
										0.866-1.063		
										1.063-1.299		
										1.299-1.575		
										1.575-2.047		
										2.047-2.559		
	N3.2.C.UT	Copper based alloys Leaded brass & bronzes (Pb ≤ 1%)	90	H13A	590	715	785	590	645	705	0.591-0.709	
4344				590	715	785	590	645	705	0.709-0.866		
										0.866-1.063		
										1.063-1.299		
										1.299-1.575		
										1.575-2.047		
										2.047-2.559		

## CoroDrill® DS20

## Inch values

Drill length 4xD					Drill length 5xD				
-S5W	-L5W	-L6W	-M7W	-H5W	-S5W	-L5W	-L6W	-M7W	-H5W
Recommended start value at middle of feed range					Recommended start value at middle of feed range				
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.007	0.002-0.007	0.002-0.007	-	-	0.002-0.006	0.002-0.006	0.002-0.006	-	-
0.002-0.008	0.002-0.008	0.002-0.008	-	-	0.002-0.007	0.002-0.007	0.002-0.007	-	-
0.003-0.009	0.003-0.009	0.003-0.009	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.003-0.01	0.003-0.01	0.003-0.01	-	-	0.003-0.008	0.003-0.008	0.003-0.008	-	-
0.004-0.01	0.004-0.01	0.004-0.01	-	-	0.004-0.008	0.004-0.008	0.004-0.008	-	-
0.004-0.01	0.004-0.01	0.004-0.01	-	-	0.004-0.008	0.004-0.008	0.004-0.008	-	-
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.007	0.002-0.007	0.002-0.007	-	-	0.002-0.006	0.002-0.006	0.002-0.006	-	-
0.003-0.008	0.003-0.008	0.003-0.008	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.003-0.009	0.003-0.009	0.003-0.009	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.004-0.009	0.004-0.009	0.004-0.009	-	-	0.004-0.007	0.004-0.007	0.004-0.007	-	-
0.004-0.009	0.004-0.009	0.004-0.009	-	-	0.004-0.007	0.004-0.007	0.004-0.007	-	-
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.007	0.002-0.007	0.002-0.007	-	-	0.002-0.006	0.002-0.006	0.002-0.006	-	-
0.003-0.008	0.003-0.008	0.003-0.008	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.003-0.009	0.003-0.009	0.003-0.009	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.004-0.009	0.004-0.009	0.004-0.009	-	-	0.004-0.007	0.004-0.007	0.004-0.007	-	-
0.004-0.009	0.004-0.009	0.004-0.009	-	-	0.004-0.007	0.004-0.007	0.004-0.007	-	-
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.007	0.002-0.007	0.002-0.007	-	-	0.002-0.006	0.002-0.006	0.002-0.006	-	-
0.002-0.008	0.002-0.008	0.002-0.008	-	-	0.002-0.007	0.002-0.007	0.002-0.007	-	-
0.003-0.009	0.003-0.009	0.003-0.009	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.003-0.01	0.003-0.01	0.003-0.01	-	-	0.003-0.008	0.003-0.008	0.003-0.008	-	-
0.004-0.01	0.004-0.01	0.004-0.01	-	-	0.004-0.008	0.004-0.008	0.004-0.008	-	-
0.004-0.01	0.004-0.01	0.004-0.01	-	-	0.004-0.008	0.004-0.008	0.004-0.008	-	-
0.002-0.006	0.002-0.006	0.002-0.006	-	-	0.002-0.005	0.002-0.005	0.002-0.005	-	-
0.002-0.007	0.002-0.007	0.002-0.007	-	-	0.002-0.006	0.002-0.006	0.002-0.006	-	-
0.002-0.008	0.002-0.008	0.002-0.008	-	-	0.002-0.007	0.002-0.007	0.002-0.007	-	-
0.003-0.009	0.003-0.009	0.003-0.009	-	-	0.003-0.007	0.003-0.007	0.003-0.007	-	-
0.003-0.01	0.003-0.01	0.003-0.01	-	-	0.003-0.008	0.003-0.008	0.003-0.008	-	-
0.004-0.01	0.004-0.01	0.004-0.01	-	-	0.004-0.008	0.004-0.008	0.004-0.008	-	-
0.004-0.01	0.004-0.01	0.004-0.01	-	-	0.004-0.008	0.004-0.008	0.004-0.008	-	-

# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed $V_c$ , ft/min						Drill diameter inch
					4-5xD			6-7xD			
					Min.	Rec.	Max.	Min.	Rec.	Max.	
P	P1.0.Z.AN	Unalloyed steel C=0.05-0.10%	110	4324	755	1115	1310	755	1005	1180	0.591-0.709
				4334	690	935	1065	690	840	960	0.709-0.866
				4344	625	740	805	625	665	725	0.866-1.063
	P1.1.Z.AN	Unalloyed steel C=0.05-0.25%	125	4324	755	1055	1215	755	950	1095	0.591-0.709
				4334	655	880	1000	655	790	900	0.709-0.866
				4344	560	695	770	560	625	695	0.866-1.063
	P1.2.Z.AN	Unalloyed steel C=0.25-0.55%	190	4324	625	870	1000	625	785	900	0.591-0.709
				4334	510	710	820	510	640	740	0.709-0.866
				4344	395	545	625	395	490	565	0.866-1.063
	P1.3.Z.AN	Unalloyed steel C=0.55-0.80%	190	4324	560	815	950	560	735	855	0.591-0.709
				4334	460	670	785	460	605	705	0.709-0.866
				4344	345	515	605	345	465	545	0.866-1.063
P1.5.C.UT	Unalloyed steel Cast - untreated	150	4324	460	855	1065	460	770	960	0.591-0.709	
			4334	445	720	870	445	650	785	0.709-0.866	
			4344	410	570	655	410	515	590	0.866-1.063	
P2.1.Z.AN	Low alloy steel Annealed	175	4324	590	855	1000	590	770	900	0.591-0.709	
			4334	490	705	820	490	635	740	0.709-0.866	
			4344	375	540	625	375	485	565	0.866-1.063	
P2.2.Z.AN	Low alloy steel Annealed	240	4324	590	825	950	590	745	855	0.591-0.709	
			4334	490	655	740	490	590	665	0.709-0.866	
			4344	375	565	670	375	510	605	0.866-1.063	
P2.5.Z.HT	Low alloy steel Hardened and tempered	330	4324	295	625	805	295	565	725	0.591-0.709	
			4334	280	515	640	280	465	575	0.709-0.866	
			4344	245	405	490	245	365	440	0.866-1.063	
P2.6.C.UT	Low alloy steel Cast - untreated	200	4324	360	690	870	360	620	785	0.591-0.709	
			4334	345	570	690	345	515	620	0.709-0.866	
			4344	330	455	525	330	410	475	0.866-1.063	
P3.0.Z.AN	High alloy steel Annealed	200	4324	525	800	950	525	720	855	0.591-0.709	
			4334	425	660	785	425	595	705	0.709-0.866	
			4344	330	500	590	330	450	530	0.866-1.063	



# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed V <sub>c</sub> , ft/min						Drill diameter inch
					4-5xD			6-7xD			
P	P3.0.Z.HT	High alloy steel	380	4324	260	540	690	260	485	620	0.591-0.709
		Hardened and tempered	4334	245	460	575	245	415	520	0.709-0.866	
			4344	230	355	425	230	320	385	0.866-1.063	
	P5.0.Z.AN	Ferritic/martensitic stainless steel	200	4334	375	610	740	375	550	665	0.591-0.709
		Annealed	4344	375	505	575	375	455	520	0.709-0.866	
			2044	375	480	540	375	430	485	0.866-1.063	
	P5.0.Z.HT	Ferritic/martensitic stainless steel	330	4334	245	450	560	245	405	505	0.591-0.709
		Hardened and tempered	4344	230	380	460	230	340	415	0.709-0.866	
			2044	230	380	460	230	340	415	0.866-1.063	
M	M1.0.Z.AQ	Austenitic stainless steel	200	4334	375	610	740	375	550	665	0.591-0.709
		Annealed/quenched	4344	375	540	625	375	485	565	0.709-0.866	
			2044	375	515	590	375	465	530	0.866-1.063	
	M1.1.Z.AQ	Austenitic Stainless steel	200	4334	375	640	785	375	575	705	0.591-0.709
		Machinability improved	4344	375	580	690	375	520	620	0.709-0.866	
			2044	375	555	655	375	500	590	0.866-1.063	
	M2.0.Z.AQ	Super austenitic (Ni>20%) stainless steel	200	4334	260	410	490	260	370	440	0.591-0.709
		Annealed/quenched	4344	260	360	410	260	325	370	0.709-0.866	
			2044	260	360	410	260	325	370	0.866-1.063	
M3.1.Z.AQ	Duplex stainless steel >60% ferrite (N<0.10%)	230	4334	280	405	475	280	365	430	0.591-0.709	
		4344	280	375	425	280	340	385	0.709-0.866		
		2044	280	365	410	280	330	370	0.866-1.063		
M3.2.Z.AQ	Duplex stainless steel <60% ferrite (N≥0.10%)	260	4334	245	345	395	245	310	355	0.591-0.709	
		4344	245	330	375	245	295	340	0.709-0.866		
		2044	245	330	375	245	295	340	0.866-1.063		
S	S2.0.Z.AN S2.0.Z.AG S2.0.Z.NS	Heat resistant super alloys Ni based	350	4334	65	130	165	65	115	150	0.591-0.709
			4344	65	130	165	65	115	150	0.709-0.866	
			2044	65	130	165	65	115	150	0.866-1.063	
	S4.2.Z.AN S4.3.Z.AG	Heat resistant super alloys Ti-based	330	H13A	130	300	395	130	270	355	0.591-0.709
			4344	130	300	395	130	270	355	0.709-0.866	
			2044	130	300	395	130	270	355	0.866-1.063	





# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed V <sub>c</sub> , ft/min						Drill diameter inch
					4-5xD			6-7xD			
K	K1.1.C.NS	Malleable cast iron Low tensile strength	200	4324	460	685	805	460	615	725	0.591-0.709
				4334	360	550	655	360	495	590	0.709-0.866
				4344	590	540	510	590	485	460	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
	K2.1.C.UT	Grey cast iron Low tensile strength	180	4324	690	935	1065	690	840	960	0.591-0.709
				4334	560	770	885	560	695	795	0.709-0.866
				4344	425	585	670	425	525	605	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
	K2.2.C.UT	Grey cast iron High tensile strength	245	4324	410	665	805	410	600	725	0.591-0.709
				4334	330	530	640	330	475	575	0.709-0.866
				4344	245	405	490	245	365	440	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
	K3.1.C.UT	Nodular cast iron Ferritic	155	4324	410	625	740	410	565	665	0.591-0.709
				4334	330	510	605	330	460	545	0.709-0.866
				4344	260	400	475	260	360	430	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559
K3.3.C.UT	Nodular cast iron Ferritic	265	4324	360	575	690	360	520	620	0.591-0.709	
			4334	295	475	575	295	430	520	0.709-0.866	
			4344	230	355	425	230	320	385	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559	
K4.2.C.UT	Compacted graphite iron High tensile strength	230	4324	425	680	820	425	610	740	0.591-0.709	
			4334	360	550	655	360	495	590	0.709-0.866	
			4344	280	415	490	280	375	440	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559	
H	H1.3.Z.HA	Extra hard steel Hardened and tempered	60 (HRC)	4324	100	215	280	100	195	250	0.591-0.709
				4334	100	215	280	100	195	250	0.709-0.866
				4344	100	215	280	100	195	250	0.866-1.063 1.063-1.299 1.299-1.575 1.575-2.047 2.047-2.559



# CoroDrill® DS20

## Inch values

ISO	MC No.	Material	HB	Grade	Cutting speed $V_c$ , ft/min						Drill diameter inch
					4-5xD			6-7xD			
N	N1.2.Z.AG	Aluminium based alloys AlSi alloys, Si ≤ 1%	100	H13A	985	1195	1310	985	1075	1180	0.591-0.709
				4344	985	1195	1310	985	1075	1180	0.709-0.866
											0.866-1.063
											1.063-1.299
											1.299-1.575
C	N1.3.C.UT	Aluminium based alloys AlSi alloys, Si ≤ 1%	75	H13A	820	1140	1310	820	1025	1180	0.591-0.709
				4344	820	1140	1310	820	1025	1180	0.709-0.866
											0.866-1.063
											1.063-1.299
											1.299-1.575
D	N1.3.C.AG	Aluminium based alloys AlSi cast and aged alloys (1% < Si < 13%)	90	H13A	820	1035	1150	820	930	1035	0.591-0.709
				4344	820	1035	1150	820	930	1035	0.709-0.866
											0.866-1.063
											1.063-1.299
											1.299-1.575
E	N3.3.U.UT	Copper based alloys Free cutting copper based alloys	110	H13A	820	1140	1310	820	1025	1180	0.591-0.709
				4344	820	1140	1310	820	1025	1180	0.709-0.866
											0.866-1.063
											1.063-1.299
											1.299-1.575
F	N3.2.C.UT	Copper based alloys Leaded brass & bronzes (Pb ≤ 1%)	90	H13A	590	715	785	590	645	705	0.591-0.709
				4344	590	715	785	590	645	705	0.709-0.866
											0.866-1.063
											1.063-1.299
											1.299-1.575
G											1.575-2.047
											2.047-2.559
H											0.591-0.709
											0.709-0.866
											0.866-1.063
											1.063-1.299
											1.299-1.575
1.575-2.047											



**CoroDrill® 860 solid carbide drill**

**Metric values**

ISO	CMC No.	Material	Hardness Brinell HB	Cutting speed (v <sub>c</sub> ), m/min	Drill diameter, mm			
					3.00-6.00	6.01-10.00	10.01-14.00	14.01-20.00
					Feed f <sub>n</sub> mm/r <sup>3)</sup>			
S	S1.0.U.AN	Heat resistans super alloys	200	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S1.0.U.AG		280	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S2.0.Z.AN	Nickel based alloys	250	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S2.0.Z.AG		350	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S2.0.Z.UT		275	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S2.0.Z.NS	320	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16	
	S3.0.Z.AN	Cobalt based alloys	200	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S3.0.Z.AG		300	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S3.0.C.NS		320	15≥25	0.06-0.12	0.08-0.14	0.10-0.14	0.12-0.16
	S4.1.Z.UT	Titanium alloys	200	40≥60	0.06-0.12	0.08-0.20	0.14-0.28	0.16-0.30
	S4.2.Z.AN		320	40≥60	0.06-0.12	0.08-0.20	0.14-0.28	0.16-0.30
	S4.3.Z.AN		330	40≥60	0.06-0.12	0.08-0.20	0.14-0.28	0.16-0.30
	S4.3.Z.AG		375	40≥60	0.06-0.12	0.08-0.20	0.14-0.28	0.16-0.30
	S4.4.Z.AN		330	40≥60	0.06-0.12	0.08-0.20	0.14-0.28	0.16-0.30
	S4.4.Z.AG		410	40≥60	0.06-0.12	0.08-0.20	0.14-0.28	0.16-0.30

**CoroDrill® 863 solid carbide drill**

**Metric values**

ISO	Material	Cutting speed (v <sub>c</sub> ), m/min	Drill diameter, mm			
			3	6	8	10
			Feed f <sub>n</sub> mm/r <sup>3)</sup>			
O	Thermoset Resin	Min. 65	0.05	0.05	0.05	0.05
		Rec. 125	0.07	0.07	0.075	0.075
		Max. 200	0.12	0.12	0.15	0.15
	Thermoplastic Resin	Min. 50	0.05	0.05	0.10	0.10
		Rec. 75	0.10	0.10	0.15	0.15
		Max. 125	0.15	0.20	0.25	0.25
	BMI/Cyanate/Phenolic Resin	Min. 50	0.05	0.08	0.08	0.10
		Rec. 100	0.10	0.10	0.10	0.15
		Max. 150	0.12	0.20	0.20	0.25

# Rotating tool adaptors

## Machine side interface Coromant Capto®

Coromant Capto® to MDI adaptor F2  
Coromant Capto® to CoroChuck™ 930 F3

## Machine side interface HSK

HSK to MDI adaptor F4  
HSK to CoroChuck™ 930 F5

## Machine side interface ISO 7388-1

ISO 7388-1 to CoroChuck™ 930 F6

## Machine side interface MAS-BT

BIG-PLUS MAS-BT to CoroChuck™ 930 F7

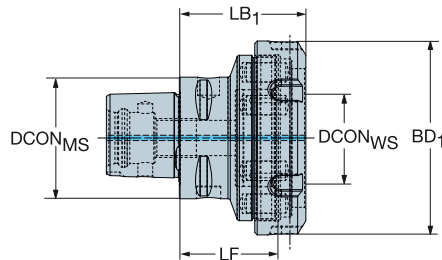
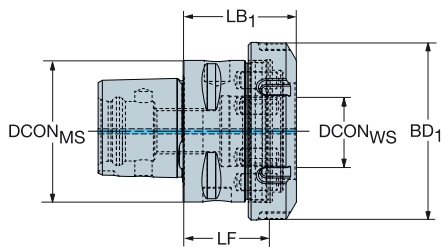
## Machine side interface CAT-V

CAT-V to CoroChuck™ 930 F8

# Coromant Capto® to MDI adaptor

ENG

B



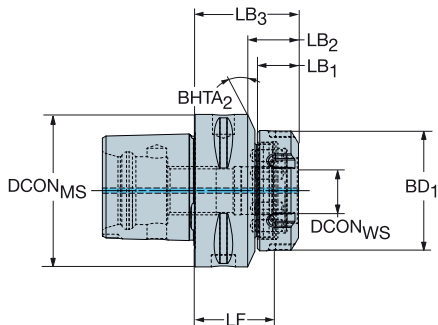
**Metric bore**

C

				Dimensions, mm, inch									
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LF	LB <sub>1</sub>	BD <sub>1</sub>				RPMX
C3	MDI-20	3	1	C3-DM20-N-032	32.0	20.0	32.0	42.0	49.7	80	135.0	0.31	28000
					1.260	.787	1.260	1.654	1.957	1160			
C4	MDI-20	3	1	C4-DM20-N-028	40.0	20.0	28.0	38.0	49.7	80	135.0	0.40	39000
					1.575	.787	1.102	1.496	1.957	1160			
	MDI-25	3	1	C4-DM25-N-035	40.0	25.0	35.0	45.0	62.7	80	170.0	0.58	39000
					1.575	.984	1.378	1.772	2.469	1160			
	MDI-32	3	1	C4-DM32-N-042	40.0	32.0	42.0	52.0	67.7	80	200.0	0.71	39000
					1.575	1.260	1.654	2.047	2.665	1160			
C5	MDI-25	3	1	C5-DM25-N-030	50.0	25.0	30.0	40.0	62.7	80	170.0	0.67	55000
					1.969	.984	1.181	1.575	2.469	1160			
	MDI-32	3	1	C5-DM32-N-035	50.0	32.0	35.0	45.0	67.7	80	200.0	0.77	28000
					1.969	1.260	1.378	1.772	2.665	1160			
	MDI-40	3	1	C5-DM40-N-040	50.0	40.0	40.0	52.0	79.7	80	230.0	1.00	55000
					1.969	1.575	1.575	2.047	3.138	1160			
C6	MDI-32	3	1	C6-DM32-N-030	63.0	32.0	30.0	40.0	67.7	80	200.0	0.99	20000
					2.480	1.260	1.181	1.575	2.665	1160			
	MDI-40	3	1	C6-DM40-N-040	63.0	40.0	40.0	52.0	79.7	80	230.0	1.34	20000
					2.480	1.575	1.575	2.047	3.138	1160			

D

E



F

**Metric bore**

				Dimensions, mm, inch										
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LF	LB <sub>1</sub>	LB <sub>2</sub>	BD <sub>1</sub>				RPMX
C5	MDI-20	3	1	C5-DM20-N-028	50.0	20.0	28.0	18.0	38.0	49.7	80	135.0	0.57	28000
					1.969	.787	1.102	.709	1.496	1.957	1160			
C6	MDI-20	3	1	C6-DM20-N-033	63.0	20.0	33.0	18.0	43.0	49.7	80	135.0	0.96	20000
					2.480	.787	1.299	.709	1.693	1.957	1160			
	MDI-25	3	1	C6-DM25-N-030	63.0	25.0	30.0	18.0	40.0	62.7	80	170.0	1.00	20000
					2.480	.984	1.181	.709	1.575	2.469	1160			
C8	MDI-32	3	1	C8-DM32-N-040	80.0	32.0	40.0	18.0	50.0	67.7	80	200.0	2.01	14000
					3.150	1.260	1.575	.709	1.969	2.665	1160			
	MDI-40	3	1	C8-DM40-N-040	80.0	40.0	40.0	22.0	52.0	79.7	80	230.0	2.09	14000
					3.150	1.575	1.575	.866	2.047	3.138	1160			

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H



G1



H2



H7



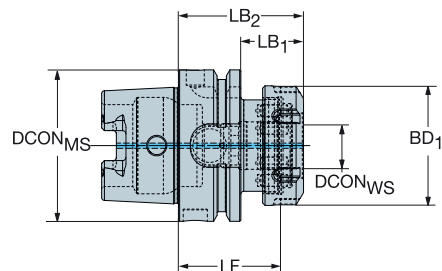
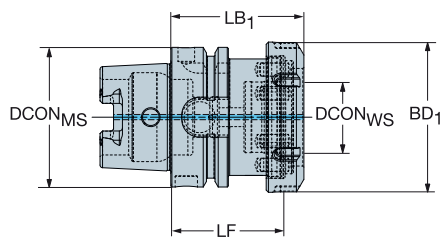
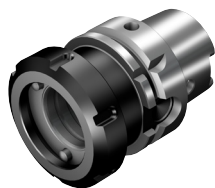


A

# HSK to MDI adaptor

Machine side interface HSK A/C/T

B



C

## Metric bore

		Dimensions, mm, inch													
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LF	LB <sub>1</sub>	LB <sub>2</sub>	BD <sub>1</sub>	BD <sub>2</sub>	$\frac{\text{BAR}}{\text{PSI}}$	NM	KG	RPMX
63.0	MDI-20	1	1	HT06-DM20-N-042	63.0	20.0	42.0	26.0	52.0	49.7	63.0	80	135.0	0.86	20000
					2.480	.787	1.654	1.026	2.047	1.957	2.480	1160			
	MDI-25	1	1	HT06-DM25-N-050	63.0	25.0	50.0	34.0	60.0	62.7	63.0	80	170.0	1.10	20000
					2.480	.984	1.969	1.341	2.362	2.469	2.480	1160			
	MDI-32	1	1	HT06-DM32-N-050	63.0	32.0	50.0	60.0		67.7		80	200.0	1.18	20000
					2.480	1.260	1.969	2.362		2.665		1160			

D

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E

F

G

H



G1



H2

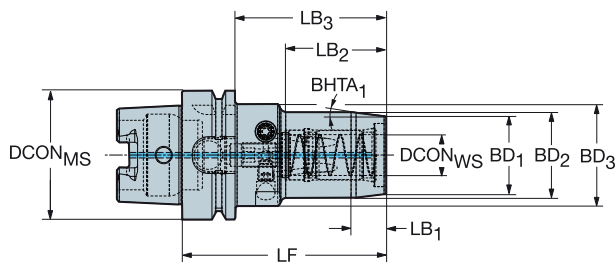


H7

# HSK to CoroChuck™ 930

Slender design

Machine side interface HSK A/C



## Metric bore

				Dimensions, mm, inch																
CZC <sub>MS</sub>	CZC <sub>HS</sub>	CNSC	CXSC	Ordering code	DCON <sub>MS</sub>	DCON <sub>WS</sub>	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	BAR PSI	KG	RPMX	
63.0	6	1	1	930-HA06-S-06-074	63.0	6.0	37	74.0	11.3	30.2	48.0	22.0	26.0	40.0	63.0	10°	80	0.90	20000	
					2.480	.236	1.457	2.913	.445	1.189	1.890	.866	1.024	1.575	2.480		1160			
	8	1	1	930-HA06-S-08-074	63.0	8.0	37	74.0	11.3	30.2	48.0	24.0	28.0	40.0	63.0	10°	80	0.91	20000	
					2.480	.315	1.457	2.913	.445	1.189	1.890	.945	1.102	1.575	2.480		1160			
	10	1	1	930-HA06-S-10-080	63.0	10.0	41	80.0	11.3	34.2	54.0	26.0	30.0	40.0	63.0	10°	80	0.99	20000	
					2.480	.394	1.614	3.150	.445	1.346	2.126	1.024	1.181	1.575	2.480		1160			

For spare parts, visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

G1



H2



H7

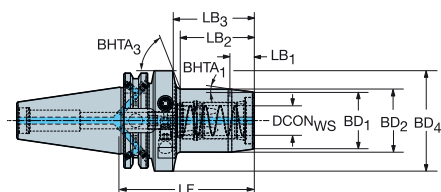
A

# ISO 7388-1 to CoroChuck™ 930

Machine side interface compatible with DIN 69871-ADB

Metric bore

B



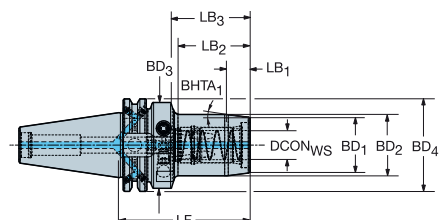
C

## Slender design

					Dimensions, mm, inch																
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	DSGN	Ordering code	DCON <sub>WS</sub>	CRKS	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	BAR PSI	NM	KG	RPMX
40.0	6	7	1	10	930-I40-S-06-068	6.0	M16	37	68.0	11.3	30.2	48.9	22.0	26.0	40.0	63	10°	80	8.0	1.06	18000
								.236	1.457	2.677	.445	1.189	1.925	.866	1.024	1.575	2.500	1160			
	8	7	1	10	930-I40-S-08-068	8.0	M16	37	68.0	11.3	30.2	48.9	24.0	28.0	40.0	63	10°	80	8.0	1.07	18000
								.315	1.457	2.677	.445	1.189	1.925	.945	1.102	1.575	2.500	1160			
	10	7	1	10	930-I40-S-10-072	10.0	M16	41	72.0	11.3	34.2	52.9	26.0	30.0	40.0	63	10°	80	8.0	1.11	18000
								.394	1.614	2.835	.445	1.346	2.083	1.024	1.181	1.575	2.500	1160			

D

## Metric bore



E

## BIG-PLUS

					Dimensions, mm, inch																
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	DSGN	Ordering code	DCON <sub>WS</sub>	CRKS	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	BAR PSI	NM	KG	RPMX
40.0	6	7	1	10	930-IB40-S-06-068	6.0	M16	37	68.0	11.3	30.2	48.9	22.0	26.0	40.0	63	10°	80	8.0	1.08	18000
								.236	1.457	2.677	.445	1.189	1.925	.866	1.024	1.575	2.500	1160			
	8	7	1	10	930-IB40-S-08-068	8.0	M16	37	68.0	11.3	30.2	48.9	24.0	28.0	40.0	63	10°	80	8.0	1.10	18000
								.315	1.457	2.677	.445	1.189	1.925	.945	1.102	1.575	2.500	1160			
	10	7	1	10	930-IB40-S-10-072	10.0	M16	41	72.0	11.3	34.2	52.9	26.0	30.0	40.0	63	10°	80	8.0	1.13	18000
								.394	1.614	2.835	.445	1.346	2.083	1.024	1.181	1.575	2.500	1160			

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G

H



G1



H2

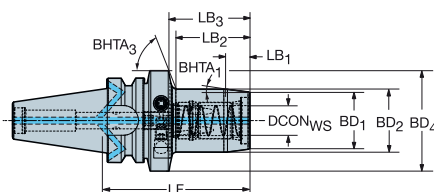


H7

# MAS-BT 403 to CoroChuck™ 930

Machine side interface compatible with MAS-BT 403 and JIS B 6339

Metric bore



## Slender design

				Dimensions, mm, inch															
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>WS</sub>	CRKS	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	$\begin{matrix} \text{BAR} \\ \text{PSI} \end{matrix}$	$\begin{matrix} \text{KG} \end{matrix}$	RPMX
40.0	6	7	1	930-B40-S-06-075	6.0	M16	37	75.0	11.3	30.2	48.0	22.0	26.0	40.0	63.0	10°	80	1.21	18000
					.236		1.457	2.953	.445	1.189	1.890	.866	1.024	1.575	2.480		1160		
	8	7	1	930-B40-S-08-075	8.0	M16	37	75.0	11.3	30.2	48.0	24.0	28.0	40.0	63.0	10°	80	1.23	18000
					.315		1.457	2.953	.445	1.189	1.890	.945	1.102	1.575	2.480		1160		
	10	7	1	930-B40-S-10-080	10.0	M16	41	80.0	11.3	34.2	53.0	26.0	30.0	40.0	63.0	10°	80	1.27	18000
					.394		1.614	3.150	.445	1.346	2.087	1.024	1.181	1.575	2.480		1160		

## BIG-PLUS

				Dimensions, mm, inch															
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>WS</sub>	CRKS	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	$\begin{matrix} \text{BAR} \\ \text{PSI} \end{matrix}$	$\begin{matrix} \text{KG} \end{matrix}$	RPMX
40.0	6	7	1	930-BB40-S-06-075	6.0	M16	37	75.0	11.3	30.2	48.0	22.0	26.0	40.0	63.0	10°	80	1.23	18000
					.236		1.457	2.953	.445	1.189	1.890	.866	1.024	1.575	2.480		1160		
	8	7	1	930-BB40-S-08-075	8.0	M16	37	75.0	11.3	30.2	48.0	24.0	28.0	40.0	63.0	10°	80	1.25	18000
					.315		1.457	2.953	.445	1.189	1.890	.945	1.102	1.575	2.480		1160		
	10	7	1	930-BB40-S-10-080	10.0	M16	41	80.0	11.3	34.2	53.0	26.0	30.0	40.0	63.0	10°	80	1.29	18000
					.394		1.614	3.150	.445	1.346	2.087	1.024	1.181	1.575	2.480		1160		

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G1



H2



H7

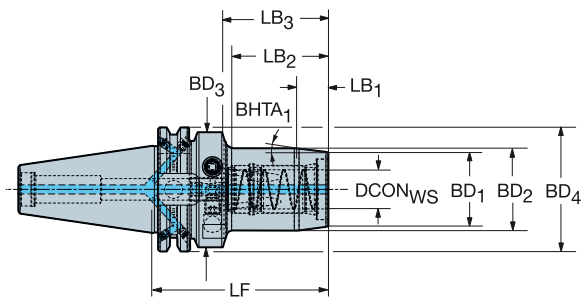
A

# CAT-V to CoroChuck™ 930

Slender design

Machine side interface ASME B5.50-2009

B



C

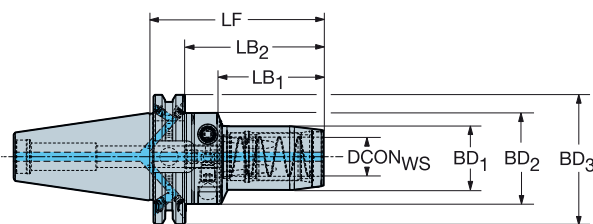
Metric bore

				Dimensions, mm, inch															
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>WS</sub>	CRKS	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">BAR PSI</span>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">KG</span>	RPMX
40.0	6	7	1	930-V40-S-06-068	6.0	5/8"-11	37	68.0	11.3	30.2	48.9	22.0	26.0	40.0	63.5	10°	80	1.06	18000
					.236		1.457	2.677	.445	1.189	1.925	.866	1.024	1.575	2.500		1160		
	8	7	1	930-V40-S-08-068	8.0	5/8"-11	37	68.0	11.3	30.2	48.9	24.0	28.0	40.0	63.5	10°	80	1.08	18000
					.315		1.457	2.677	.445	1.189	1.925	.945	1.102	1.575	2.500		1160		
	10	7	1	930-V40-S-10-072	10.0	5/8"-11	41	72.0	11.3	34.2	52.9	26.0	30.0	40.0	63.5	10°	80	1.11	18000
					.394		1.614	2.835	.445	1.346	2.083	1.024	1.181	1.575	2.500		1160		

For spare parts, visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com)

Machine side interface ASME B5.50-2009

D



E

BIG-PLUS

				Dimensions, mm, inch															
CZC <sub>MS</sub>	CZC <sub>WS</sub>	CNSC	CXSC	Ordering code	DCON <sub>WS</sub>	CRKS	LSC	LF	LB <sub>1</sub>	LB <sub>2</sub>	LB <sub>3</sub>	BD <sub>1</sub>	BD <sub>2</sub>	BD <sub>3</sub>	BD <sub>4</sub>	BHTA <sub>1</sub>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">BAR PSI</span>	<span style="border: 1px solid black; border-radius: 50%; padding: 2px;">KG</span>	RPMX
40.0	6	7	1	930-VB40-S-06-068	6.0	5/8"-11	37	68.0	11.3	30.2	48.9	22.0	26.0	40.0	63.5	10°	80	1.09	18000
					.236		1.457	2.677	.445	1.189	1.925	.866	1.024	1.575	2.500		1160		
	8	7	1	930-VB40-S-08-068	8.0	5/8"-11	37	68.0	11.3	30.2	48.9	24.0	28.0	40.0	63.5	10°	80	1.11	18000
					.315		1.457	2.677	.445	1.189	1.925	.945	1.102	1.575	2.500		1160		
	10	7	1	930-VB40-S-10-072	10.0	5/8"-11	41	72.0	11.3	34.2	52.9	26.0	30.0	40.0	63.5	10°	80	1.14	18000
					.394		1.614	2.835	.445	1.346	2.083	1.024	1.181	1.575	2.500		1160		

F

G

H



G1



H2



H7

# Accessories

Torque wrenches G2

Cylindrical sleeves G3

## Torque wrenches



Torque wrench

ER-TK-01M	10-50 Nm
ER-TK-02M	60-300 Nm



	ER size	MDI
5680 103-05	ER 32	20
5680 103-06	ER 40	25
5680 103-07		32
5680 103-08		40

### CoroChuck™ 970



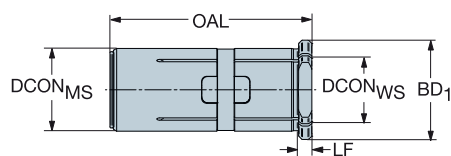
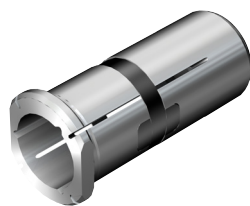
	ER size
391.530-970-11	ER 11
391.530-970-20	ER 20
391.530-970-25	ER 25
391.530-970-32	ER 32
391.530-970-40	ER 40



# Cylindrical sleeves

## Collet with mechanical locking interface

393.CLF  
A393.CLF



### Metric bore

Application	Ordering code	Dimensions, mm					Accessories	
		DCON <sub>WS</sub>	DCON <sub>MS</sub>	BD <sub>1</sub>	LF	OAL	Anchor screw	Assembly tool
CoroChuck® 930 HD32	393.CLF-321660	16	32	37	4	65	5519 140-02	5680 140-02
	393.CLF-322060	20	32	37	4	65		
	393.CLF-322560	25	32	37	4	65		
CoroChuck® 930 HD/S25	393.CLF-251256	12	25	30	4	61	5519 140-02	5680 140-02
	393.CLF-251656	16	25	30	4	61		
	393.CLF-252056	20	25	30	4	61		
CoroChuck® 930 HD/S20	393.CLF-201052	10	20	25	4	55	5519 140-01	5680 140-01
	393.CLF-201252	12	20	25	4	55		
	393.CLF-201652	16	20	25	4	55		

### Inch bore

Application	Ordering code	Dimensions, inch					Accessories	
		DCON <sub>WS</sub>	DCON <sub>MS</sub>	BD <sub>1</sub>	LF	OAL	Anchor screw	Assembly tool
CoroChuck® 930 HD32	A393.CLF-321060	5/8	1.260	1.417	.157	2.559	5519 140-02	5680 140-02
	A393.CLF-321260	3/4	1.260	1.417	.157	2.559		
	A393.CLF-321660	1	1.260	1.417	.157	2.559		
CoroChuck® 930 HD/S25	A393.CLF-250856	1/2	.984	1.181	.157	2.401	5519 140-02	5680 140-02
	A393.CLF-251056	5/8	.984	1.181	.157	2.401		
	A393.CLF-251256	3/4	.984	1.181	.157	2.401		
CoroChuck® 930 HD/S20	A393.CLF-200652	3/8	.787	.984	.157	2.165	5519 140-01	5680 140-01
	A393.CLF-200852	1/2	.787	.984	.157	2.165		
	A393.CLF-201052	5/8	.787	.984	.157	2.165		

Anchor screw and assembly tool to be ordered separately.



H2



# General information

ISO 13399	H2
Safety information	H5
Coromant Recycling Concept (CRC)	H6
Coolant supply information	H7
Code keys	H8
Alphanumeric index	H10

## To make life easier, a new standard has been developed

B

**ISO 13399 is an international standard that strives to simplify the exchange of data for cutting tools. You will notice a slight difference through the new parameters and descriptions of each tool.**

For the first time ever, there is a standardized way of describing product data regarding cutting tools. When all tools in the industry share the same parameters and definitions, communicating tool information becomes very straightforward.

### What does this mean to you?

C

Basically, it means that your systems can talk to ours, as they all speak the same language. Download product data from our web site and use it directly in your CAD/CAM software to assemble tools that you use in production. No need to look for information in catalogues and interpret data from one system to another. Imagine how much time this will save you!

D

Short name	Preferred Name
ADJLN	Minimum adjustment limit
ADJLX	Maximum adjustment limit
ADJRG	Adjustment range
ALP	Clearance angle axial
AN	Clearance angle major
ANN	Clearance angle minor
APMX	Depth of cut maximum
APMX_EFW	Depth of cut maximum - end feed
APMX_FFW	Depth of cut maximum - side feed
AZ	Maximum plunge depth
B	Shank width
BAWS	Body angle workpiece side
BAMS	Body angle machine side
BBD	Balanced by design
BBR	Balanced by rotational test
BCH	Corner chamfer length
BD	Body diameter
BHTA	Body half taper angle
BN	Face land width
BS	Wiper edge length
BSG	Basic standard group
BSR	Wiper edge radius
CDX	Cutting depth maximum
CEMR	Cutting edge major radius
CF	Spot chamfer
CHBA	Chamfer body angle
CHBL	Chamfer body length
CHW	Corner chamfer width
CICT	Cutting item count
CICT <sub>E</sub>	Cutting item count - end position
CICT <sub>P</sub>	Cutting item count - peripheral position
CICT <sub>S</sub>	Cutting item count - side position
CICT <sub>T</sub>	Cutting item count - total
CND	Coolant entry diameter
CNSC	Coolant entry style code
CNT	Coolant entry thread size
COATING	Coating
CP	Max coolant pressure
CRKS	Connection retention knob thread size
CRNT	Coolant radial entry thread size
CTPT	Operation type
CUTDIA	Work piece parting diameter maximum
CW	Cutting width
CWN	Minimum cutting width
CWTOLL	Cutting width lower tolerance
CWTOLU	Cutting width upper tolerance
CWX	Cutting width maximum
CXSC	Coolant exit style code
CZC	Connection size code
CZC <sub>MS</sub>	Connection size code machine side
CZC <sub>WS</sub>	Connection size code workpiece side
D1	Fixing hole diameter
DAH	Diameter access hole
DAXIN	Axial groove inside diameter minimum

H

DAXN	Minimum axial groove outside diameter
DAXX	Axial groove outside diameter maximum
DBC	Diameter bolt circle
DC	Cutting diameter
DCB	Connection bore diameter
DCBN	Connection bore diameter minimum
DCBX	Connection bore diameter maximum
DCF	Cutting diameter face contact
DCIN	Cutting diameter internal
DCN	Cutting diameter minimum
DCON	Connection diameter
DCON <sub>MS</sub>	Connection diameter machine side
DCON <sub>WS</sub>	Connection diameter workpiece side
DCPS	Data chip provision size
DCSF <sub>MS</sub>	Contact surface diameter machine side
DCSF <sub>WS</sub>	Contact surface diameter workpiece side
DCX	Cutting diameter maximum
DHUB	Hub diameter
DIX	Tool changer interference diameter maximum
DMIN	Minimum bore diameter
DMM	Shank diameter
DN	Neck diameter
DRVCT	Drive count
DSGN	Design
EPSR	Insert included angle
FHA	Flute helix angle
FLGT	Flange thickness
FTDZ	For thread diameter size
H	Shank height
HA	Thread height theoretical
HB	Thread height difference
HBH	Head bottom offset height
HC	Thread height actual
HF	Functional height
HRY	Lowest point from reference plain
HTB	Body height
HTH	Height
IC	Inscribed circle diameter
INSL	Insert length
INSUC	Insert usage code
IZC	Insert size code
KAPR	Tool cutting edge angle
KAPR_EFW	Tool cutting edge angle - end feed
KCH	Corner chamfer
KRINS	Major cutting edge angle
KWW	Keyway width
L	Cutting edge length
LAMS	Inclination angle
LB	Body length
LCF	Length chip flute
LCOX	Cut off length maximum
LE	Cutting edge effective length
LF	Functional length
LFN	Minimum functional length
LH	Head length
LPR	Protruding length
LS	Shank length
LSC	Clamping length
LSCN	Clamping length minimum
LSCS	Distance to clamping start
LSCX	Clamping length maximum
LSD	Dead shank length
LU	Usable length (max. recommended)
LU_BFW	Usable length - back facing
LUX	Usable length maximum
MHD	Mounting hole distance
MIID	Master insert identification
MIID <sub>E</sub>	Master insert identification - end position
MIID <sub>S</sub>	Master insert identification - side position
MIID <sub>C</sub>	Master insert identification - central position
MIID <sub>P</sub>	Master insert identification - peripheral position
MIID <sub>I</sub>	Master insert identification - intermediate position
MMCC	Code for preset torque
MMCX	Max. cutting torque
NOF	Flute count
NT	Tooth count
OAH	Overall height
OAL	Overall length
OAW	Overall width
OH	Overhang recommended

OHN	Overhang minimum
OHX	Overhang maximum
ORDCODE	Ordercode
PCL	Peripheral cylindrical length
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Premachined hole diameter
PHDX	Maximum premachined hole diameter
PL	Point length
PNA	Profile included angle
PRFRAD	Profile radius
PRSPC	Profile specification
PSIR	Tool lead angle
PSIRL	Cutting edge angle major left hand
PSIRR	Cutting edge angle major right hand
PSW	Premachined slot width
RADH	Radial body height
RADW	Radial body width
RAR	Right hand relief angle
RE	Corner radius
REEQ	Theoretical radius value required for programming purpose
REL	Corner radius left
RER	Corner radius right
RETOLL	Corner radius lower tolerance
RETOLU	Corner radius upper tolerance
RGL	Regrind length
RMPX	Maximum ramping angle
RPMX	Rotational speed maximum
S	Insert thickness
SDL	Step diameter length
SIG	Point angle
SPTL	Splitline
SSC	Insert seat size code
SSC <sub>E</sub>	Insert seat size code - end position
SSC <sub>P</sub>	Insert seat size code - peripheral position
SSC <sub>S</sub>	Insert seat size code - side position
STA	Step included angle
SUBSTRATE	Substrate
TCDC	Tolerance class cutting diameter
TCDCON	Connection diameter tolerance
TCDMM	Shank diameter tolerance
TCHA	Achievable hole tolerance
TCHAL	Achievable hole tolerance lower
TCHAU	Achievable hole tolerance upper
TCT	Tolerance class tool
TCTR	Thread tolerance class
TD	Thread diameter
TDZ	Thread diameter size
TFLA	Tap floating length ahead
TFLB	Tap floating length behind
TG	Taper gradient
THBTP	Thread back taper property
THCA	Thread helix correction angle
THCHT	Threading chamfer type
THFT	Form type
THFTS	Thread form standard series
THL	Thread length
THUB	Hub thickness
TP	Thread pitch
TPI	Threads per inch
TPIN	Threads per inch minimum
TPIX	Threads per inch maximum
TPN	Thread pitch minimum
TPT	Thread profile type
TPX	Maximum thread pitch
TRMAX	Tap range max
TQ	Torque
TSYC	Tool style code
TTP	Thread type
ULDR	Usable length diameter ratio
VCX	Maximum cutting speed
W1	Insert width
WB	Body width
WF	Functional width
WFCIRP	Width to cutting item reference point
WSC	Clamping width
WT	Weight of item
ZEFF	Face effective cutting edge count
ZEFP	Peripheral effective cutting edge count (ZEFP)
ZWX	Maximum number of Wiper inserts

# Safety information

## Safety information in connection with grinding of cemented carbide

### Material composition

#### Tool holders

Tool holders mainly contain iron (FE), and low alloy elements such as chromium, nickel, manganese, molybdenum and silicon.

#### Indexable inserts/cutting tools/round tools

Substances in cemented carbide products contain mostly wolfram carbide and cobalt. They may also contain carbides and carbonitrides of the following elements: titanium, tantalum, niobium, chromium, molybdenum and vanadium.

### Routes of exposure

Grinding or heating of hard metal blanks or hard metal products will produce products that give off dangerous dust and fumes. Avoiding ingestion and contact with skin or eyes is very important.

### Acute toxicity

Intake of the aforementioned substances is toxic. Inhalation may cause irritation and inflammation of the airways. Significantly higher acute inhalation toxicity has been reported during simultaneous inhalation of cobalt and tungsten carbide compared to inhalation of cobalt alone.

Skin contact can cause irritation and rash. Sensitive individuals may even experience an allergic reaction.

### Chronic toxicity

Repeated inhalation of aerosols containing cobalt may cause obstruction of the airways. Prolonged exposure to increased concentrations may cause lung fibrosis or lung cancer. Epidemiological studies indicate that workers previously exposed to high concentrations of tungsten carbide/cobalt carried an increased risk of developing lung cancer.

Cobalt and nickel are potent skin sensitizers. Repeated or prolonged contact can cause irritation and sensitization.

### Risk phrases

Toxic: danger of serious damage to health by prolonged exposure through inhalation

Toxic when inhaled

Limited evidence of a carcinogenic effect.

May cause sensitization by inhalation and skin contact

### Preventive measures

Avoid formation and inhalation of dust. Use adequate local exhaust ventilation to keep personal exposure well below nationally authorised limits.

If ventilation is not available or adequate, use respirators appropriately approved for the purpose.

Use safety goggles or glasses with side shields when necessary.

Avoid repeated skin contact. Wear suitable gloves. Wash skin thoroughly after handling.

Use suitable protective clothing. Launder clothing if needed.

Do not eat, drink or smoke in the working area. Wash skin thoroughly before eating, drinking or smoking.



# For the sake of the environment

## Get into the Sandvik Coromant Recycling Concept (CRC) now!

The Sandvik Coromant Recycling Concept (CRC) is a comprehensive service for used carbide inserts and solid carbide tools offered by Sandvik Coromant to all its customers.

In the light of increasing consumption of non-renewable raw materials, the economic management of dwindling resources is a duty owed by all manufacturers.

Sandvik Coromant is playing its part by offering to collect used carbide inserts and solid carbide tools and recycle them in the most environmentally friendly way.

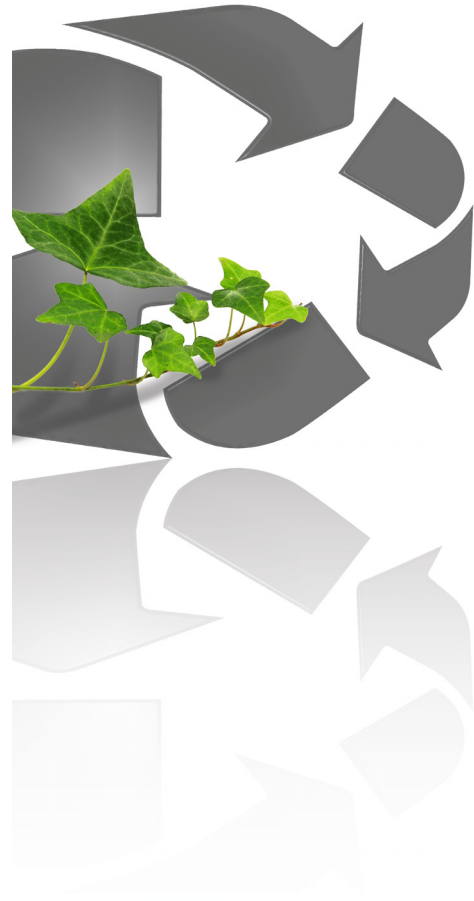
All used carbide inserts are collected in the collection box at the workplace.

When the collection box is sufficiently full, its contents are transferred to the transport box.

The full transport box is then sent to the nearest Sandvik Coromant office or to your Sandvik Coromant dealer who can also give you more information.

### The benefits of the CRC speak for themselves

- A worldwide ISO and OHAS certified recycling system.
- Open to all Sandvik Coromant customers.
- Simple procedure with collection and transport boxes.
- Less waste, easing the burden on the environment.
- Better utilisation of resources.
- Other manufacturers' carbide inserts are also accepted.



E

F

Order collection boxes for each lathe, milling machine, drill or for your machining centre. We recommend one collection box for inserts and one separate box for solid carbide tools for each cutting workplace.

For detailed instructions on how to sell your used cemented carbide, please visit [www.sandvik.coromant.com](http://www.sandvik.coromant.com) and select your market.

G

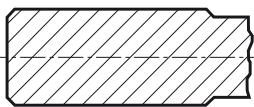
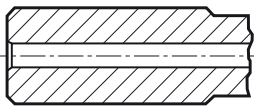
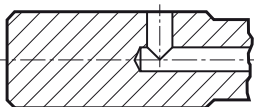
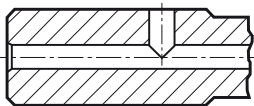
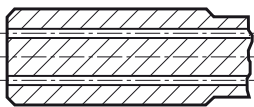
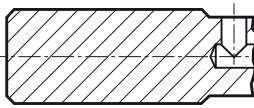
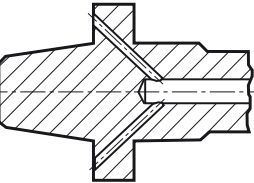
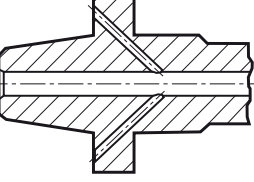

Collection box:	Order numbers
Transport box for solid carbide tools (plywood):	91617
Transport box inserts (plywood):	92994
	92995

H



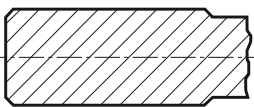
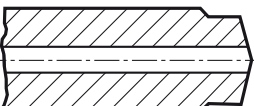
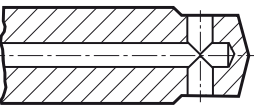
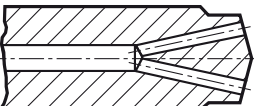
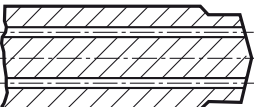
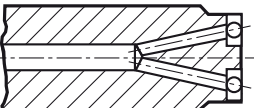
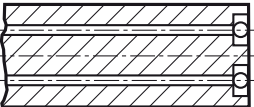

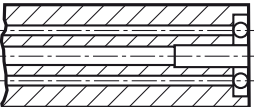
**CNSC**

## Coolant entry style code

Code	Description	Image
0	Without coolant	
1	Axial concentric entry	
2	Radial entry	
3	Axial concentric and radial entry	
4	Axial concentric entry on circle	
5	Radial entry before adaptor	
6	Decentral over flange	
7	Decentral over flange and axial	
8	Decentral over slots on the shank	

**CXSC**

## Coolant exit style code

Code	Description	Image
0	No coolant exit	
1	Axial concentric exit	
2	Radial exit	
3	Axial inclined exit	
4	Axial concentric on circle	
5	Axial inclined exit with nozzle, adjustable	
6	Decentral exit with nozzle, adjustable	
7	Decentral over slots on the shank	
8	Axial or decentral with nozzle, adjustable	

# General turning inserts

Inserts, metric

<b>C</b>	<b>N</b>	<b>M</b>	<b>G</b>	<b>12</b>	<b>04</b>	<b>08</b>	-			-	<b>PF</b>
1	2	3	4	5	6	7		8	9		12

Inserts, inch

<b>C</b>	<b>N</b>	<b>M</b>	<b>G</b>	<b>4</b>	<b>3</b>	<b>2</b>	-			-	<b>PF</b>
1	2	3	4	5	6	7		8	9		12

Inserts, advanced cutting materials, metric

<b>C</b>	<b>N</b>	<b>M</b>	<b>G</b>	<b>12</b>	<b>04</b>	<b>08</b>	-	<b>T</b>	<b>010</b>	<b>20</b>
1	2	3	4	5	6	7		8	10	11

Inserts, advanced cutting materials, inch

<b>C</b>	<b>N</b>	<b>G</b>	<b>A</b>	<b>4</b>	<b>3</b>	<b>2</b>	-	<b>T</b>	<b>03</b>	<b>20</b>
1	2	3	4	5	6	7		8	10	11

**1 Insert shape**

C	D
K	R
S	T
V	W

**2 Insert clearance angle**

B	C
E	N
P	O Specific description

**3 Tolerances, metric**

Class	S	IC / W1
G	±0.13	±0.025
M	±0.13	±0.05 - ±0.15 <sup>1)</sup>
U	±0.13	±0.08 - ±0.25 <sup>1)</sup>
E	±0.025	±0.025

<sup>1)</sup>Varies depending on the size of IC. See below.

Inscribed circle IC mm	Tolerance class	
	M	U
3.97		
5.0		
5.56		
6.0	±0.05	±0.08
6.35		
8.0		
9.525		
10.0		
12.0	±0.08	±0.13
12.7		
15.875		
16.0	±0.10	±0.18
19.05		
20.0		
25.0	±0.13	±0.25
25.4		
31.75	±0.15	±0.25
32.0		

For positive inserts iC is valid for a sharp corner. See cutting edge condition F. (Picture 8).

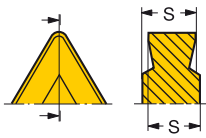
**3 Tolerances, inch**

A: Theoretical diameter of the insert inscribed circle.  
T: Thickness of the insert.  
B: See figures.

Class	B:	A:	T:
A	±.0002	±.001	±.001
B	.0002	.001	.005
C	.0005	.001	.001
D	.0005	.001	.005
E	.001	.001	.001
F	.0002	.0005	.001
G	.001	.001	.005
H	.0005	.0005	.001
J	.0002	.002-.005	.001
K	.0005	.002-.005	.001
L	.001	.002-.005	.001
M	.002-.005	.002-.005	.005
U	.005-.012	.005-.010	.005
N	.002-.010	.002-.004	.001

## General turning inserts

### 6 Insert thickness, S mm



01	S = 1.59
T1	S = 1.98
02	S = 2.38
03	S = 3.18
T3	S = 3.97
04	S = 4.76
05	S = 5.56
06	S = 6.35
07	S = 7.94
09	S = 9.52
10	S = 10.00
12	S = 12.00

### 7 Nose radius, RE mm

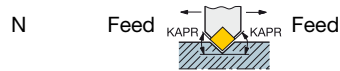


00* = 0
01 = 0.1
02 = 0.2
04 = 0.4
05 = 0.5
08 = 0.8
10 = 1.0
12 = 1.2
15 = 1.5
16 = 1.6
24 = 2.4
32 = 3.2

### 8 Cutting edge condition

F	Sharp cutting edge
A	ER treated cutting edge (ANSI)
E	ER treated cutting edge
T	Negative land
K	Double negative lands
S	Negative land and ER treated cutting edge

### 9 Hand of tool



### 12 Manufacturer's option

The ISO code consists of nine symbols including 8 and 9 which are used only when required. In addition the manufacturer may add further three symbols e. g.

- WF = Wiper – finishing
- WMX = Wiper, medium machining
- PF = ISO P – finishing
- PR = ISO P – roughing
- HGR = Chip breaker for removal of hardened layer

### 7 \* Code on round inserts

Code 00 or M0 in position 7 is used on round inserts in the metric code. M0 shows that the diameter of the insert has a metric even dimension. In the inch code for round inserts, position 7 isn't used at all. It's blank.

## A

## GENERAL INFORMATION

Alphanumeric index

	<u>Code</u>	<u>Page</u>	<u>Code</u>	<u>Page</u>	<u>Code</u>	<u>Page</u>
	316..HM	D2-D3				
	316..SM	D4, D6				
	860.1..A1-SM	E9-E12				
	863.1..A0-O	E13				
	930-BBxx-S	F7				
<b>B</b>	930-Bxx-S	F7				
	930-Cx-S	F3				
	930-HAxx-S	F5				
	930-IBxx-S	F6				
	930-lxx-S	F6				
	930-VBxx-S	F8				
	930-Vxx-S	F8				
	<b>A</b>					
	A316..HM	D2-D3				
	A316..SM	D5-D6				
	<b>C</b>					
<b>C</b>	CNGX	A7				
	CNMA	A7				
	CNMG	A6-A7				
	CNMM	A6				
	CNMX	A6				
	CP-A-L3WX	A2				
	Cx-570..R/LGM	C3				
	Cx-570-2C	C2				
	Cx-DMxx-N	F2				
	<b>D</b>					
	DS20..C-L5	E7				
<b>D</b>	DS20..C-M7	E7				
	DS20..Lxx	E2-E3				
	DS20..LXxx	E4				
	DS20..P	E8				
	DS20-D..DMxx	E5-E6				
	<b>H</b>					
	HTxx..SLxxN/R/L	C4				
	HTxx-DMxx-N	F4				
	<b>L</b>					
	LNMX	A10				
	LNUX	A10				
	<b>Q</b>					
<b>E</b>	QD-N..-RM	B2				
	<b>R</b>					
	R200..Qxx	G3				
	RC..X-SM	A11				
	RCMT	A5				
	RCMX	A8				
	RNMG	A8				
	<b>S</b>					
	SL-2C	C6				
	SL-CP	A3-A4				
<b>F</b>	SNMG	A9				
	SNMM	A9				
	<b>V</b>					
	VDlxx	C5				

ENG

## G

## H