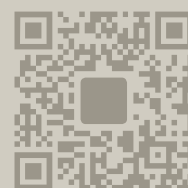


Solid carbide drills

2026



**Certainty
at every turnTM**



dormerpramet.com



Solid carbide drills

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Material code (BMC)		HM		HM		HM		HM		HM		HM		HM	
Basic standard group (BSG)		DIN 6539		DIN 338		DIN 6537		DIN 6537		DIN 6537		DIN 6537		DIN 6535	
Usable length (ULDR)		2.5×D		4×D		3×D		3×D		5×D		5×D		8×D	
Application angle															
Coating															
Shank															
Spiral form															
Hand (Cutting direction)															
Cooling (CSP)															
Product Family Code		R023		R003		RS403		RC403		RS405		RC405		RC408	
PSF cutting diameters range		1.00 – 12.00		1.00 – 14.00		3.00 – 20.00		3.00 – 20.00		3.00 – 20.00		3.00 – 20.00		3.00 – 16.00	
P	P1														
	P2														
	P3														
	P4														
M	M1														
	M2														
	M3														
	M4														
K	K1														
	K2														
	K3														
	K4														
	K5														
N	N1														
	N2														
	N3														
	N4														
	N5														
S	S1														
	S2														
	S3														
	S4														
H	H1														
	H2														
	H3														
	H4														

■ Primary use Possible use



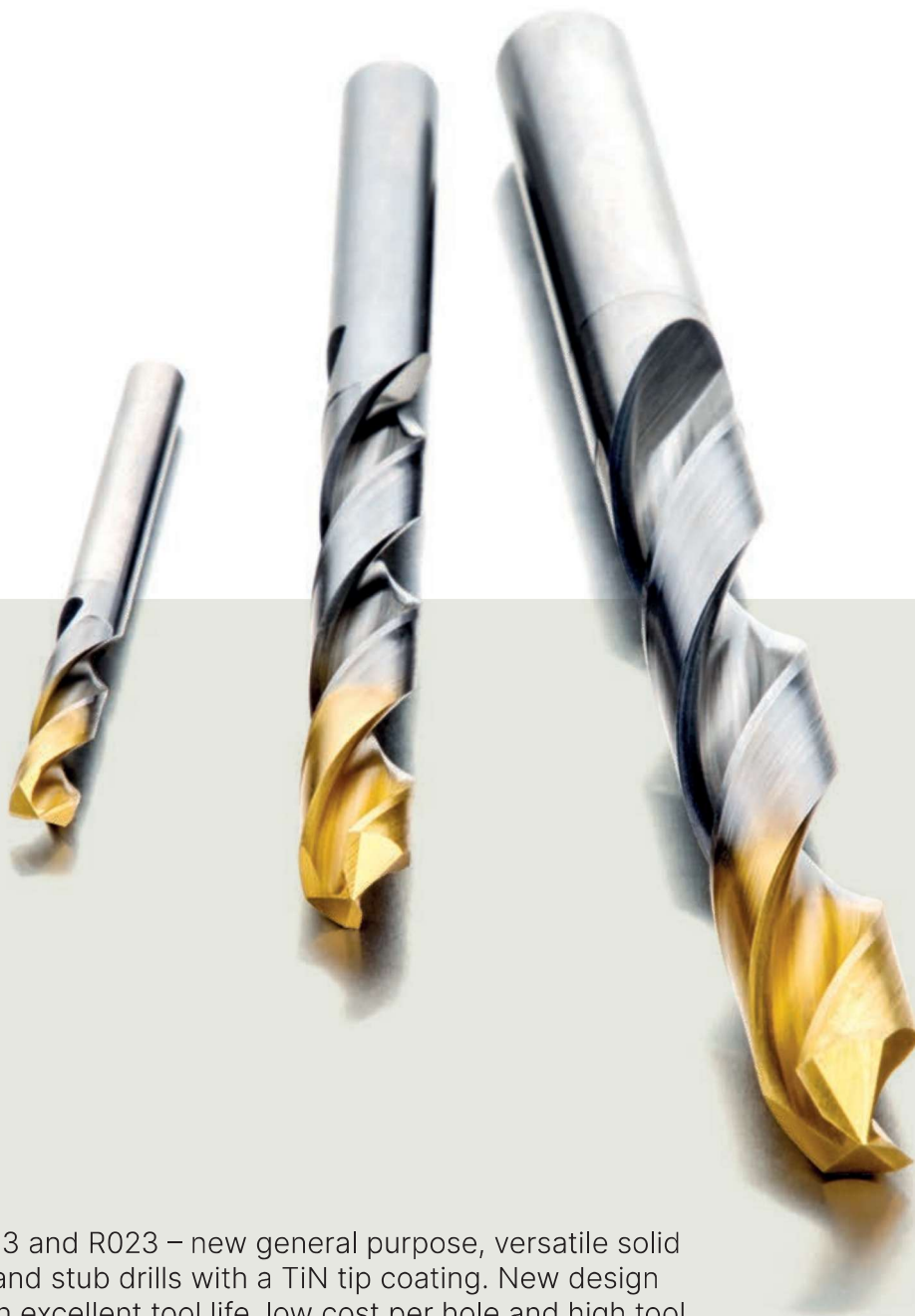
	HM DIN 6535 16×D	HM DIN 6535 20×D	HM DIN 6535 2×D		HM WORK NORM 1×D	HM WORK NORM 1×D	HM WORK NORM 1×D	HM WORK NORM 1×D	HM DIN 333A 1×D	HM WORK NORM 3×D						
	RC416	RC420	RC4P		R122	R123	R125	R6011	R200	R7131						
	3.00 – 16.00	3.00 – 16.00	3.00 – 16.00		5.00 – 20.00	5.00 – 20.00	5.00 – 16.00	6.00 – 16.00	1.00 – 5.00	3.30 – 10.40						
	54	56	58		60	61	62	63	64	65						
P1	■	■	■		■	■	■	■	■	■						
P2	■	■	■		■	■	■	■	■	■						
P3	■	■	■		■	■	■	■	■	■						
P4	■	■	■		■	■	■	■	■	■						
M1	■	■	■		■	■	■	■	■	■						
M2	▣	▣	▣		■	■	■	■	■	■						
M3	▣	▣	▣		■	■	■	■	■	■						
M4	▣	▣	▣		■	■	■	■	■	■						
K1	■	■	■		■	■	■	■	■	■						
K2	■	■	■		■	■	■	■	■	■						
K3	■	■	■		■	■	■	■	■	■						
K4	■	■	■		■	■	■	■	■	■						
K5	■	■	■		■	■	■	■	■	■						
N1	■	■	■		■	■	■	■	■	■						
N2	■	■	■		■	■	■	■	■	■						
N3	■	■	■		■	■	■	■	■	■						
N4					■	■	■	■	■	■						
N5																
S1	■	■	■		■	■	■	■	■	■						
S2	▣	▣	▣		■	■	■	■	■	■						
S3	▣	▣	▣		■	■	■	■	■	■						
S4	▣	▣	▣		■	■	■	■	■	■						
H1					■	■	■	■	■	■						
H2					▣	▣	▣	▣	▣	▣						
H3					▣	▣	▣	▣	▣	▣						
H4																



R003 & R023

Versatile solid carbide drills with TiN tip

General-purpose versatile solid carbide drills



Introducing R003 and R023 – new general purpose, versatile solid carbide jobber and stub drills with a TiN tip coating. New design features result in excellent tool life, low cost per hole and high tool life consistency. The R003 and R023 also offer low thrust force making them versatile for both CNC and conventional machines operations.



Features & benefits

Specifically designed four facet split point provides excellent self-centering.



Reduced thrust force

eases the operation whilst maintaining precision.

Titanium Nitride (TiN) tip coating on only the cutting action part of the drill.



Extended and consistent tool life

provides cost-effective reliability.

CTW grinding technology provides Continuously Thinned Web along the entire flute length.



Multiple regrinding possible

without loss of chip evacuation performance.

Balanced combination of flute geometry and 120° point angle for broader application range.



Versatile usage

on both CNC and conventional machines.

Related products

R023



Versatile, cost-effective

Metric range: 1 – 12 mm

R003



Versatile, cost-effective

Metric range: 1 – 14 mm

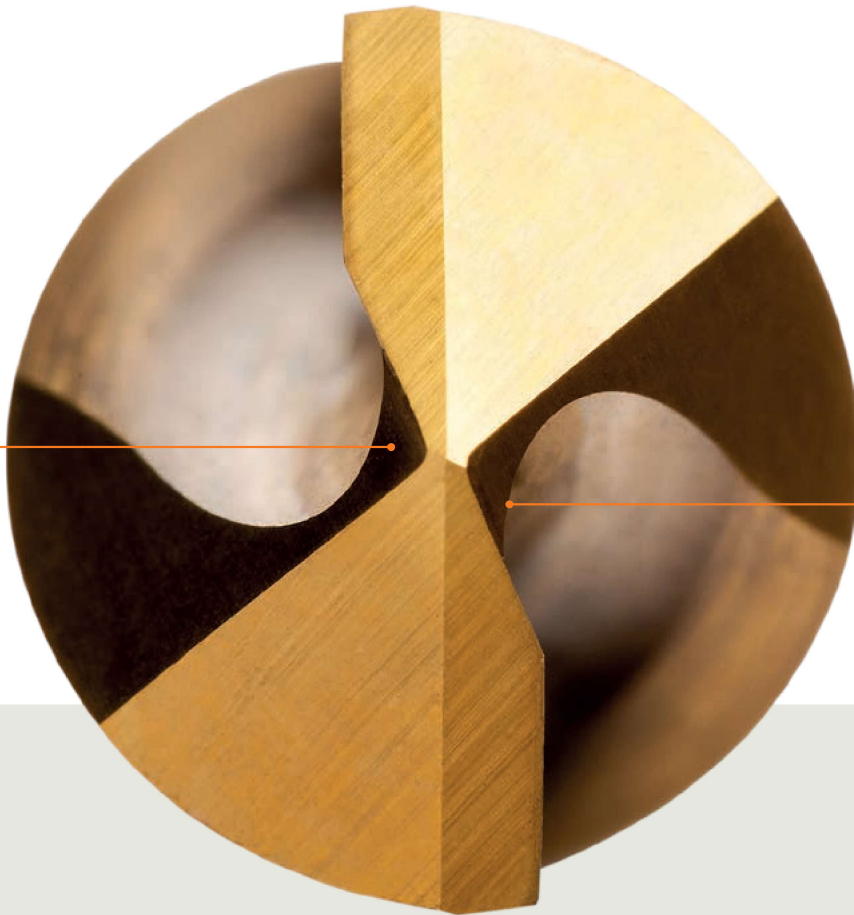
Imperial range: N60 – 1/2"



R003 & R023

Features & benefits

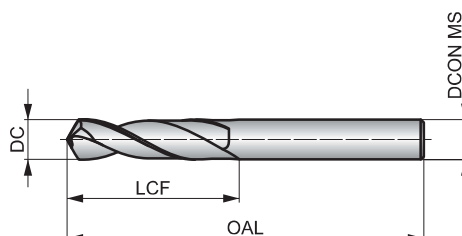
Optimized point
geometry
with four facet
split point



CTW
(Continuously
Thinned Web)

**R023****Solid Carbide Stub Drill, TiN tip Coated**

Versatile entry-level drill with 120° point angle with four facet split point geometry for reduced thrust force and CTW flute construction for enhanced penetration rates. TiN tip coating improves performance and extends tool life. Suitable for both CNC machines and conventional machines across a wide range of workpiece materials.



HM	DIN 6539	2.5xD
120°	TiN-Tip	
λ 20-35°	R	DC h7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 99 T	P1.2 ■ 111 T	P1.3 ■ 115 T	P2.1 ■ 85 T	P2.2 ■ 75 T	P2.3 ■ 66 T	P3.1 ■ 66 T	P3.2 ■ 53 T	P3.3 ■ 45 T	P4.1 ■ 40 S	P4.2 ■ 34 S	P4.3 ■ 27 S	K1.1 ■ 75 U	K1.2 ■ 56 U
K1.3 ■ 42 U	K2.1 ■ 68 U	K2.2 ■ 55 U	K2.3 ■ 44 U	K3.1 ■ 60 U	K3.2 ■ 46 U	K3.3 ■ 37 U	K4.1 ■ 55 T	K4.2 ■ 42 T	K4.3 ■ 31 T	K4.4 ■ 26 T	K4.5 ■ 22 T	K5.1 ■ 63 U	K5.2 ■ 47 U
K5.3 ■ 37 U	N1.1 ■ 150 W	N1.2 ■ 113 W	N1.3 ■ 75 W	N2.1 ■ 129 W	N2.2 ■ 116 W	N2.3 ■ 84 W	N3.1 ■ 317 W	N3.2 ■ 190 W	N4.1 ■ 60 V	N4.2 ■ 100 V	H1.1 ■ 34 S	H2.1 ■ 20 S	H3.1 ■ 22 S

Product	DC	DC	LCF	OAL	DCON MS
	(mm)	(inch)	(mm)	(mm)	(mm)
R0231.0	1.00	0.0394	6.0	26.0	1.00
R0231.1	1.10	0.0433	7.0	28.0	1.10
R0231.2	1.20	0.0472	8.0	30.0	1.20
R0231.3	1.30	0.0512	8.0	30.0	1.30
R0231.4	1.40	0.0551	9.0	32.0	1.40
R0231.5	1.50	0.0591	9.0	32.0	1.50
R0231.6	1.60	0.0630	10.0	34.0	1.60
R0231.7	1.70	0.0669	10.0	34.0	1.70
R0231.8	1.80	0.0709	11.0	36.0	1.80
R0231.9	1.90	0.0748	11.0	36.0	1.90
R0232.0	2.00	0.0787	12.0	38.0	2.00
R0232.1	2.10	0.0827	12.0	38.0	2.10
R0232.2	2.20	0.0866	13.0	40.0	2.20
R0232.3	2.30	0.0906	13.0	40.0	2.30
R0232.4	2.40	0.0945	14.0	43.0	2.40
R0232.5	2.50	0.0984	14.0	43.0	2.50
R0232.6	2.60	0.1024	14.0	43.0	2.60
R0232.7	2.70	0.1063	16.0	46.0	2.70
R0232.8	2.80	0.1102	16.0	46.0	2.80
R0232.9	2.90	0.1142	16.0	46.0	2.90
R0233.0	3.00	0.1181	16.0	46.0	3.00
R0233.1	3.10	0.1220	18.0	49.0	3.10
R0233.2	3.20	0.1260	18.0	49.0	3.20
R0233.3	3.30	0.1299	18.0	49.0	3.30
R0233.4	3.40	0.1339	20.0	52.0	3.40
R0233.5	3.50	0.1378	20.0	52.0	3.50
R0233.6	3.60	0.1417	20.0	52.0	3.60
R0233.7	3.70	0.1457	20.0	52.0	3.70



Product	DC	DC	LCF	OAL	DCON MS
	(mm)	(inch)	(mm)	(mm)	(mm)
R0233.8	3.80	0.1496	22.0	55.0	3.80
R0233.9	3.90	0.1535	22.0	55.0	3.90
R0234.0	4.00	0.1575	22.0	55.0	4.00
R0234.1	4.10	0.1614	22.0	55.0	4.10
R0234.2	4.20	0.1654	22.0	55.0	4.20
R0234.3	4.30	0.1693	24.0	58.0	4.30
R0234.4	4.40	0.1732	24.0	58.0	4.40
R0234.5	4.50	0.1772	24.0	58.0	4.50
R0234.6	4.60	0.1811	24.0	58.0	4.60
R0234.7	4.70	0.1850	24.0	58.0	4.70
R0234.8	4.80	0.1890	26.0	62.0	4.80
R0234.9	4.90	0.1929	26.0	62.0	4.90
R0235.0	5.00	0.1969	26.0	62.0	5.00
R0235.1	5.10	0.2008	26.0	62.0	5.10
R0235.2	5.20	0.2047	26.0	62.0	5.20
R0235.3	5.30	0.2087	26.0	62.0	5.30
R0235.4	5.40	0.2126	28.0	66.0	5.40
R0235.5	5.50	0.2165	28.0	66.0	5.50
R0235.6	5.60	0.2205	28.0	66.0	5.60
R0235.7	5.70	0.2244	28.0	66.0	5.70
R0235.8	5.80	0.2283	28.0	66.0	5.80
R0235.9	5.90	0.2323	28.0	66.0	5.90
R0236.0	6.00	0.2362	28.0	66.0	6.00
R0236.1	6.10	0.2402	31.0	70.0	6.10
R0236.2	6.20	0.2441	31.0	70.0	6.20
R0236.3	6.30	0.2480	31.0	70.0	6.30
R0236.4	6.40	0.2520	31.0	70.0	6.40
R0236.5	6.50	0.2559	31.0	70.0	6.50
R0236.6	6.60	0.2598	31.0	70.0	6.60
R0236.7	6.70	0.2638	31.0	70.0	6.70
R0236.8	6.80	0.2677	34.0	74.0	6.80
R0236.9	6.90	0.2717	34.0	74.0	6.90
R0237.0	7.00	0.2756	34.0	74.0	7.00
R0237.1	7.10	0.2795	34.0	74.0	7.10
R0237.2	7.20	0.2835	34.0	74.0	7.20
R0237.3	7.30	0.2874	34.0	74.0	7.30
R0237.4	7.40	0.2913	34.0	74.0	7.40
R0237.5	7.50	0.2953	34.0	74.0	7.50
R0237.6	7.60	0.2992	37.0	79.0	7.60
R0237.7	7.70	0.3031	37.0	79.0	7.70
R0237.8	7.80	0.3071	37.0	79.0	7.80
R0237.9	7.90	0.3110	37.0	79.0	7.90
R0238.0	8.00	0.3150	37.0	79.0	8.00
R0238.1	8.10	0.3189	37.0	79.0	8.10
R0238.2	8.20	0.3228	37.0	79.0	8.20
R0238.3	8.30	0.3268	37.0	79.0	8.30
R0238.4	8.40	0.3307	37.0	79.0	8.40
R0238.5	8.50	0.3346	37.0	79.0	8.50
R0238.6	8.60	0.3386	40.0	84.0	8.60
R0238.7	8.70	0.3425	40.0	84.0	8.70
R0238.8	8.80	0.3465	40.0	84.0	8.80
R0238.9	8.90	0.3504	40.0	84.0	8.90
R0239.0	9.00	0.3543	40.0	84.0	9.00
R0239.1	9.10	0.3583	40.0	84.0	9.10
R0239.2	9.20	0.3622	40.0	84.0	9.20
R0239.3	9.30	0.3661	40.0	84.0	9.30
R0239.4	9.40	0.3701	40.0	84.0	9.40
R0239.5	9.50	0.3740	40.0	84.0	9.50
R0239.6	9.60	0.3780	43.0	89.0	9.60
R0239.7	9.70	0.3819	43.0	89.0	9.70
R0239.8	9.80	0.3858	43.0	89.0	9.80
R0239.9	9.90	0.3898	43.0	89.0	9.90



Product	DC	DC	LCF	OAL	DCON MS
	(mm)	(inch)	(mm)	(mm)	(mm)
R02310.0	10.00	0.3937	43.0	89.0	10.00
R02310.2	10.20	0.4016	43.0	89.0	10.20
R02310.5	10.50	0.4134	43.0	89.0	10.50
R02311.0	11.00	0.4331	47.0	95.0	11.00
R02311.5	11.50	0.4528	47.0	95.0	11.50
R02312.0	12.00	0.4724	51.0	102.0	12.00

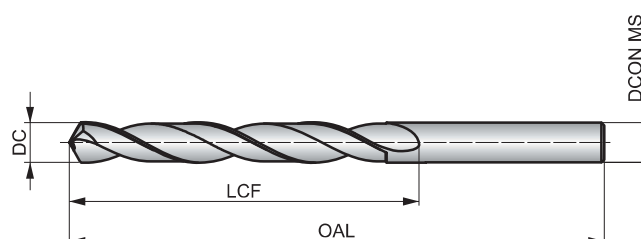


R003



Solid Carbide Jobber Drill, TiN tip Coated

Versatile entry-level drill with 120° point angle with four facet split point geometry for reduced thrust force and CTW flute construction for enhanced penetration rates. TiN tip coating improves performance and extends tool life. Suitable for both CNC machines and conventional machines across a wide range of workpiece materials.



HM	DIN 338	4×D
120°		
λ 20-35°		DC h7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 99 S	P1.2 ■ 111 S	P1.3 ■ 115 S	P2.1 ■ 85 S	P2.2 ■ 75 S	P2.3 ■ 66 S	P3.1 ■ 66 S	P3.2 ■ 53 S	P3.3 ■ 45 S	P4.1 ■ 40 S	P4.2 ■ 34 S	P4.3 ■ 27 S	K1.1 ■ 75 T	K1.2 ■ 56 T
K1.3 ■ 42 T	K2.1 ■ 68 T	K2.2 ■ 55 T	K2.3 ■ 44 T	K3.1 ■ 60 T	K3.2 ■ 46 T	K3.3 ■ 37 T	K4.1 ■ 55 T	K4.2 ■ 42 T	K4.3 ■ 31 T	K4.4 ■ 26 T	K4.5 ■ 22 T	K5.1 ■ 63 T	K5.2 ■ 47 T
K5.3 ■ 37 T	N1.1 ■ 150 V	N1.2 ■ 113 V	N1.3 ■ 75 V	N2.1 ■ 129 V	N2.2 ■ 116 V	N2.3 ■ 84 V	N3.1 ■ 317 V	N3.2 ■ 190 V	N4.1 ■ 60 U	N4.2 ■ 100 U	H1.1 ■ 34 S	H2.1 ■ 20 S	H3.1 ■ 22 S

Product	DC	DC	DC	LCF	OAL	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)
R0031.0	—	1.00	0.0394	12.0	34.0	1.00
R003N60	N60	1.02	0.0400	12.0	34.0	1.02
R0031.1	—	1.10	0.0433	14.0	36.0	1.10
R003N56	N56	1.18	0.0465	16.0	38.0	1.18
R0033/64	3/64	1.19	0.0469	16.0	38.0	1.19
R0031.2	—	1.20	0.0472	16.0	38.0	1.20
R0031.3	—	1.30	0.0512	16.0	38.0	1.30
R003N54	N54	1.40	0.0550	18.0	40.0	1.40
R0031.4	—	1.40	0.0551	18.0	40.0	1.40
R0031.5	—	1.50	0.0591	18.0	40.0	1.50
R003N53	N53	1.51	0.0595	20.0	43.0	1.51
R0031/16	1/16	1.59	0.0625	20.0	43.0	1.59
R0031.6	—	1.60	0.0630	20.0	43.0	1.60
R003N52	N52	1.61	0.0635	20.0	43.0	1.61
R0031.7	—	1.70	0.0669	20.0	43.0	1.70
R003N51	N51	1.70	0.0670	22.0	46.0	1.70
R003N50	N50	1.78	0.0700	22.0	46.0	1.78
R0031.8	—	1.80	0.0709	22.0	46.0	1.80
R0031.9	—	1.90	0.0748	22.0	46.0	1.90
R003N48	N48	1.93	0.0760	24.0	49.0	1.93
R0035/64	5/64	1.98	0.0781	24.0	49.0	1.98
R003N47	N47	1.99	0.0785	24.0	49.0	1.99
R0032.0	—	2.00	0.0787	24.0	49.0	2.00
R003N46	N46	2.06	0.0810	24.0	49.0	2.06
R0032.1	—	2.10	0.0827	24.0	49.0	2.10
R003N44	N44	2.18	0.0860	27.0	53.0	2.18
R0032.2	—	2.20	0.0866	27.0	53.0	2.20
R003N43	N43	2.26	0.0890	27.0	53.0	2.26



Product	DC	DC	DC	LCF	OAL	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)
R0032.3	—	2.30	0.0906	27.0	53.0	2.30
R0033/32	3/32	2.38	0.0937	30.0	57.0	2.38
R0032.4	—	2.40	0.0945	30.0	57.0	2.40
R003N41	N41	2.44	0.0960	30.0	57.0	2.44
R0032.5	—	2.50	0.0984	30.0	57.0	2.50
R003N39	N39	2.53	0.0995	30.0	57.0	2.53
R003N38	N38	2.58	0.1015	30.0	57.0	2.58
R0032.6	—	2.60	0.1024	30.0	57.0	2.60
R003N37	N37	2.64	0.1040	30.0	57.0	2.64
R0032.7	—	2.70	0.1063	33.0	61.0	2.70
R003N36	N36	2.71	0.1065	33.0	61.0	2.71
R0037/64	7/64	2.78	0.1094	33.0	61.0	2.78
R0032.8	—	2.80	0.1102	33.0	61.0	2.80
R003N33	N33	2.87	0.1130	33.0	61.0	2.87
R0032.9	—	2.90	0.1142	33.0	61.0	2.90
R003N32	N32	2.95	0.1160	33.0	61.0	2.95
R0033.0	—	3.00	0.1181	33.0	61.0	3.00
R003N31	N31	3.05	0.1200	36.0	65.0	3.05
R0033.1	—	3.10	0.1220	36.0	65.0	3.10
R0031/8	1/8	3.17	0.1250	36.0	65.0	3.17
R0033.2	—	3.20	0.1260	36.0	65.0	3.20
R0033.3	—	3.30	0.1299	36.0	65.0	3.30
R0033.4	—	3.40	0.1339	39.0	70.0	3.40
R003N29	N29	3.45	0.1360	39.0	70.0	3.45
R0033.5	—	3.50	0.1378	39.0	70.0	3.50
R003N28	N28	3.57	0.1405	39.0	70.0	3.57
R0039/64	9/64	3.57	0.1406	39.0	70.0	3.57
R0033.6	—	3.60	0.1417	39.0	70.0	3.60
R0033.7	—	3.70	0.1457	39.0	70.0	3.70
R003N26	N26	3.73	0.1470	39.0	70.0	3.73
R003N25	N25	3.80	0.1495	43.0	75.0	3.80
R0033.8	—	3.80	0.1496	43.0	75.0	3.80
R0033.9	—	3.90	0.1535	43.0	75.0	3.90
R0035/32	5/32	3.97	0.1563	43.0	75.0	3.97
R0034.0	—	4.00	0.1575	43.0	75.0	4.00
R003N21	N21	4.04	0.1590	43.0	75.0	4.04
R003N20	N20	4.09	0.1610	43.0	75.0	4.09
R0034.1	—	4.10	0.1614	43.0	75.0	4.10
R0034.2	—	4.20	0.1654	43.0	75.0	4.20
R003N19	N19	4.22	0.1660	43.0	75.0	4.22
R0034.3	—	4.30	0.1693	47.0	80.0	4.30
R00311/64	11/64	4.37	0.1719	47.0	80.0	4.37
R003N17	N17	4.39	0.1730	47.0	80.0	4.39
R0034.4	—	4.40	0.1732	47.0	80.0	4.40
R0034.5	—	4.50	0.1772	47.0	80.0	4.50
R003N15	N15	4.57	0.1800	47.0	80.0	4.57
R0034.6	—	4.60	0.1811	47.0	80.0	4.60
R0034.7	—	4.70	0.1850	47.0	80.0	4.70
R0033/16	3/16	4.76	0.1875	52.0	86.0	4.76
R003N12	N12	4.80	0.1890	52.0	86.0	4.80
R0034.8	—	4.80	0.1890	52.0	86.0	4.80
R003N11	N11	4.85	0.1910	52.0	86.0	4.85
R0034.9	—	4.90	0.1929	52.0	86.0	4.90
R003N10	N10	4.92	0.1935	52.0	86.0	4.92
R0035.0	—	5.00	0.1969	52.0	86.0	5.00
R0035.1	—	5.10	0.2008	52.0	86.0	5.10
R003N7	N7	5.11	0.2010	52.0	86.0	5.11
R00313/64	13/64	5.16	0.2031	52.0	86.0	5.16
R0035.2	—	5.20	0.2047	52.0	86.0	5.20
R0035.3	—	5.30	0.2087	52.0	86.0	5.30
R0035.4	—	5.40	0.2126	57.0	93.0	5.40
R003N3	N3	5.41	0.2130	57.0	93.0	5.41



Product	DC	DC	DC	LCF	OAL	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)
R0035.5	—	5.50	0.2165	57.0	93.0	5.50
R0037/32	7/32	5.56	0.2187	57.0	93.0	5.56
R0035.6	—	5.60	0.2205	57.0	93.0	5.60
R003N2	N2	5.61	0.2210	57.0	93.0	5.61
R0035.7	—	5.70	0.2244	57.0	93.0	5.70
R0035.8	—	5.80	0.2283	57.0	93.0	5.80
R0035.9	—	5.90	0.2323	57.0	93.0	5.90
R00315/64	15/64	5.95	0.2344	57.0	93.0	5.95
R0036.0	—	6.00	0.2362	57.0	93.0	6.00
R0036.1	—	6.10	0.2402	63.0	101.0	6.10
R003C	C	6.15	0.2420	63.0	101.0	6.15
R0036.2	—	6.20	0.2441	63.0	101.0	6.20
R0036.3	—	6.30	0.2480	63.0	101.0	6.30
R0031/4	1/4	6.35	0.2500	63.0	101.0	6.35
R0036.4	—	6.40	0.2520	63.0	101.0	6.40
R0036.5	—	6.50	0.2559	63.0	101.0	6.50
R003F	F	6.53	0.2570	63.0	101.0	6.53
R0036.6	—	6.60	0.2598	63.0	101.0	6.60
R0036.7	—	6.70	0.2638	63.0	101.0	6.70
R00317/64	17/64	6.75	0.2656	69.0	109.0	6.75
R0036.8	—	6.80	0.2677	69.0	109.0	6.80
R0036.9	—	6.90	0.2717	69.0	109.0	6.90
R003I	I	6.91	0.2720	69.0	109.0	6.91
R0037.0	—	7.00	0.2756	69.0	109.0	7.00
R0037.1	—	7.10	0.2795	69.0	109.0	7.10
R0039/32	9/32	7.14	0.2813	69.0	109.0	7.14
R0037.2	—	7.20	0.2835	69.0	109.0	7.20
R0037.3	—	7.30	0.2874	69.0	109.0	7.30
R0037.4	—	7.40	0.2913	69.0	109.0	7.40
R0037.5	—	7.50	0.2953	69.0	109.0	7.50
R00319/64	19/64	7.54	0.2969	75.0	117.0	7.54
R0037.6	—	7.60	0.2992	75.0	117.0	7.60
R0037.7	—	7.70	0.3031	75.0	117.0	7.70
R0037.8	—	7.80	0.3071	75.0	117.0	7.80
R0037.9	—	7.90	0.3110	75.0	117.0	7.90
R0035/16	5/16	7.94	0.3125	75.0	117.0	7.94
R0038.0	—	8.00	0.3150	75.0	117.0	8.00
R0038.1	—	8.10	0.3189	75.0	117.0	8.10
R0038.2	—	8.20	0.3228	75.0	117.0	8.20
R0038.3	—	8.30	0.3268	75.0	117.0	8.30
R00321/64	21/64	8.33	0.3281	75.0	117.0	8.33
R0038.4	—	8.40	0.3307	75.0	117.0	8.40
R003Q	Q	8.43	0.3320	75.0	117.0	8.43
R0038.5	—	8.50	0.3346	75.0	117.0	8.50
R0038.6	—	8.60	0.3386	81.0	125.0	8.60
R003R	R	8.61	0.3390	81.0	125.0	8.61
R0038.7	—	8.70	0.3425	81.0	125.0	8.70
R00311/32	11/32	8.73	0.3437	81.0	125.0	8.73
R0038.8	—	8.80	0.3465	81.0	125.0	8.80
R0038.9	—	8.90	0.3504	81.0	125.0	8.90
R0039.0	—	9.00	0.3543	81.0	125.0	9.00
R0039.1	—	9.10	0.3583	81.0	125.0	9.10
R00323/64	23/64	9.13	0.3594	81.0	125.0	9.13
R0039.2	—	9.20	0.3622	81.0	125.0	9.20
R0039.3	—	9.30	0.3661	81.0	125.0	9.30
R003U	U	9.35	0.3680	81.0	125.0	9.35
R0039.4	—	9.40	0.3701	81.0	125.0	9.40
R0039.5	—	9.50	0.3740	81.0	125.0	9.50
R0033/8	3/8	9.53	0.3750	87.0	133.0	9.53
R0039.6	—	9.60	0.3780	87.0	133.0	9.60
R0039.7	—	9.70	0.3819	87.0	133.0	9.70
R0039.8	—	9.80	0.3858	87.0	133.0	9.80



Product	DC	DC	DC	LCF	OAL	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)
R003W	W	9.80	0.3860	87.0	133.0	9.80
R0039.9	—	9.90	0.3898	87.0	133.0	9.90
R00310.0	—	10.00	0.3937	87.0	133.0	10.00
R00310.2	—	10.20	0.4016	87.0	133.0	10.20
R00313/32	13/32	10.32	0.4063	87.0	133.0	10.32
R00310.5	—	10.50	0.4134	87.0	133.0	10.50
R00327/64	27/64	10.72	0.4219	94.0	142.0	10.72
R00311.0	—	11.00	0.4331	94.0	142.0	11.00
R0037/16	7/16	11.11	0.4375	94.0	142.0	11.11
R00311.5	—	11.50	0.4528	94.0	142.0	11.50
R00329/64	29/64	11.51	0.4531	94.0	142.0	11.51
R00315/32	15/32	11.91	0.4687	101.0	151.0	11.91
R00312.0	—	12.00	0.4724	101.0	151.0	12.00
R0031/2	1/2	12.70	0.5000	101.0	151.0	12.70
R00313.0	—	13.00	0.5118	101.0	151.0	13.00
R00314.0	—	14.00	0.5512	108.0	160.0	14.00



Solid carbide multi-material drills

Boost productivity with versatility and durability



Introducing Force X Generation 2 – the perfect solution for demanding drilling applications. Available in both through-coolant and solid versions, this series includes 3xD, 5xD and 8xD for different drilling depths.

These solid carbide drills feature a 140° self-centering 4-facet split point and advanced CTW flute design, delivering superior hole quality in diverse materials (H9 hole tolerance).

With a TiAlN-top coating that enhances hardness and extends tool life, Force X Generation 2 ensures reliable performance even in challenging applications in ISO P, M and K material groups.



Related products

RS403



3xD

3 – 20 mm

TiAlN-Top coating

RC403



3xD

3 – 20 mm

TiAlN-Top coating, **Coolant feed**

RS405



5xD

3 – 20 mm

TiAlN-Top coating

RC405



5xD

3 – 20 mm

TiAlN-Top coating, **Coolant feed**

RC408



8xD

3 – 16 mm

TiAlN-Top coating, **Coolant feed**



Features & benefits

Unique flute design with continuously thinned web and rolled heel.



Reliable chip control

ensures smooth evacuation across P, M and K materials.

Sub-micron grade carbide substrate.



Extended edge toughness and balance of hardness

delivers stable performance and long life in varied material conditions.

TiAlN-Top coating for wear protection.



Improved tool life

lower coefficient of friction maintains performance at high speeds over longer runs.

S-shape 4-facet split point with fine honing.



Accurate hole positioning

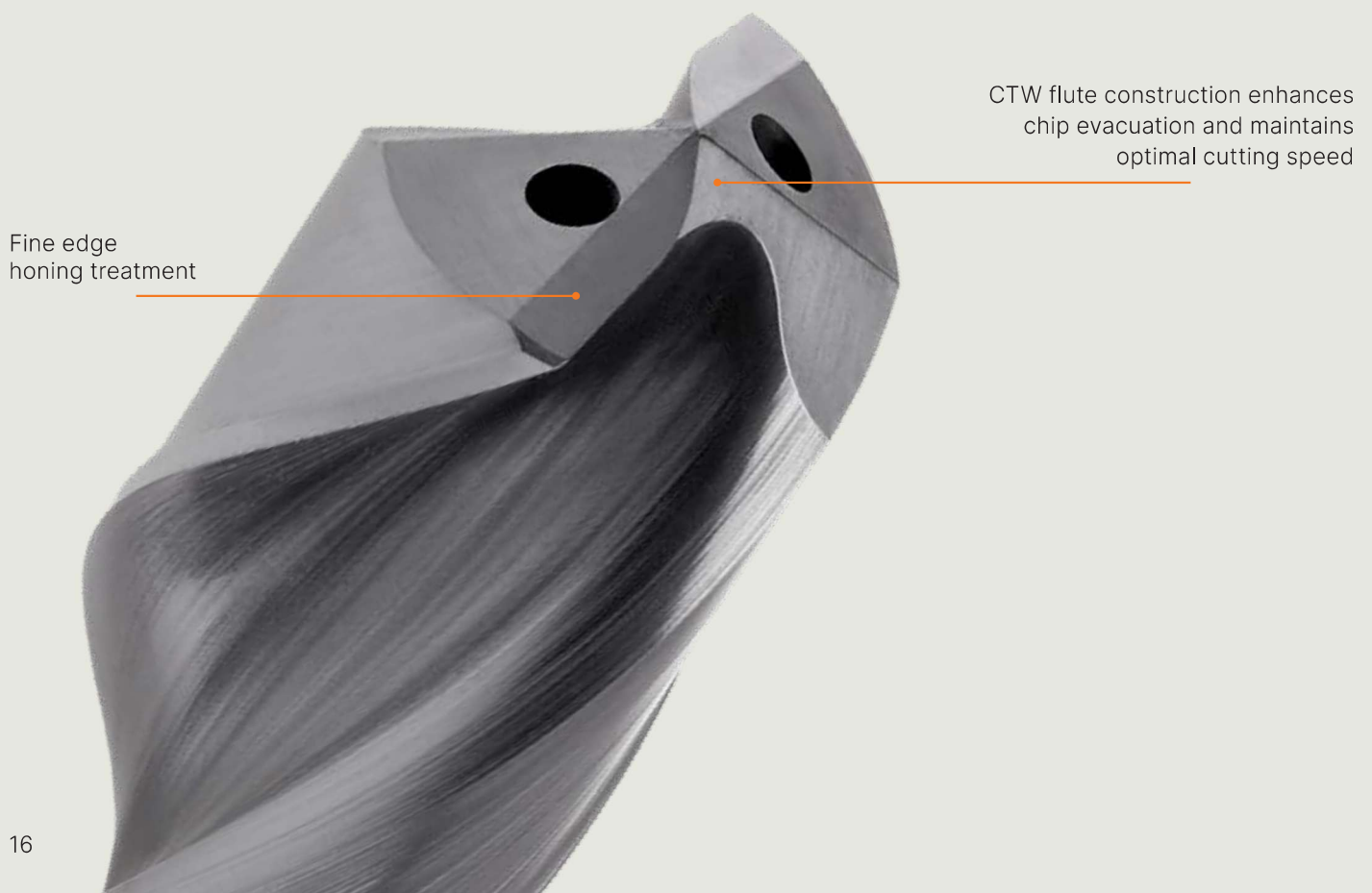
supports clean entry, exit and high-quality surface finish.

Optimized chisel with strong corner geometry.



Higher feed rates

reduce cycle times and boost productivity per part.



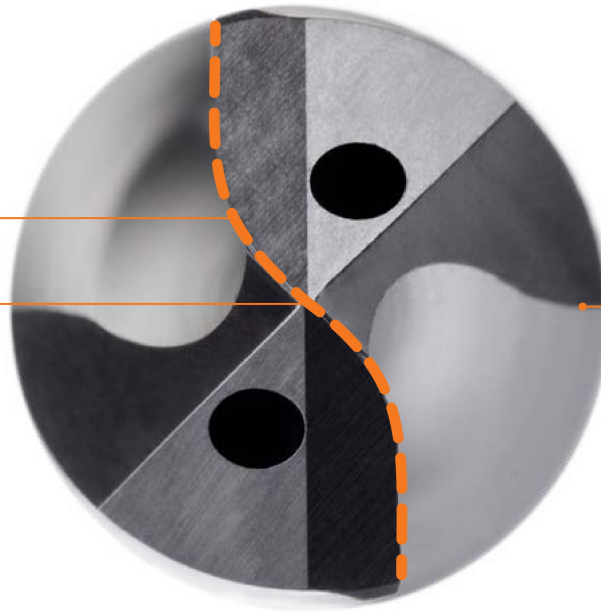


Features & benefits

S-shape chisel with reinforced corner geometry

4-facet split point delivers self-centering precision for accurate drilling and rapid penetration

Rolled heel drill design

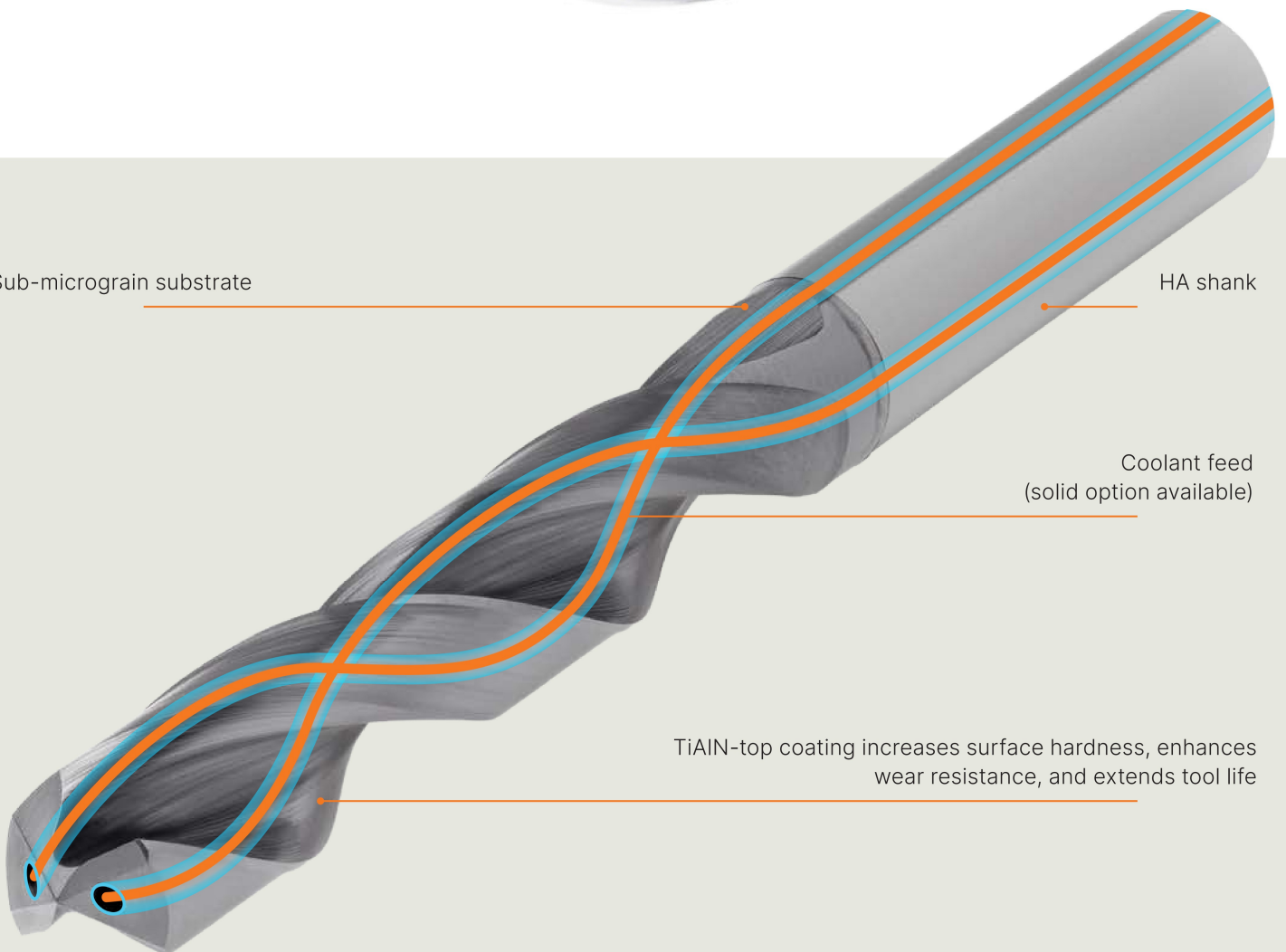


Sub-micrograin substrate

HA shank

Coolant feed
(solid option available)

TiAlN-top coating increases surface hardness, enhances wear resistance, and extends tool life



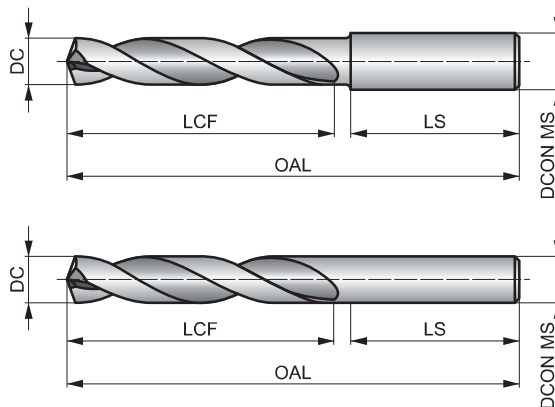


RS403



FORCE X Solid Carbide 3XD Drill, TiAlN-Top Coated

High-performance drill is specifically designed to deliver superior hole quality at high speeds and feeds (H9 hole tolerance for multi-materials). A 140° self-centering, 4-facet split point and CTW flute construction. TiAlN-top coating increases surface hardness, enhances wear resistance, and extends tool life.



HM	DIN 6537	3xD
140°	TiAlN Top	DIN 6535HA
CTW	R	DC m7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 112 V	■ 114 V	■ 114 V	■ 98 V	■ 96 V	■ 84 V	■ 88 V	■ 82 V	■ 80 V	■ 79 V	■ 76 V	■ 40 U	■ 79 V	■ 76 V
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 74 U	■ 60 U	■ 52 U	■ 64 U	■ 52 U	■ 49 U	■ 45 U	■ 38 U	■ 89 W	■ 86 W	■ 84 W	■ 89 W	■ 88 W	■ 79 W
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.2	N1.3	N2.1
■ 84 W	■ 79 W	■ 76 W	■ 80 W	■ 64 W	■ 62 W	■ 58 W	■ 56 W	■ 84 V	■ 80 V	■ 64 V	■ 279 W	■ 270 W	■ 199 W
N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3						
■ 198 W	■ 180 W	■ 166 W	■ 162 W	■ 158 W	■ 40 U	■ 32 U	■ 28 U						

DCON MS tolerance h6.

Product	DC (inch)	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	LS (mm)	DCON MS (mm)
RS4033.0	—	3.00	0.1181	20.0	62.0	36.0	6.00
RS4033.1	—	3.10	0.1220	20.0	62.0	36.0	6.00
RS4031/8	1/8	3.18	0.1250	20.0	62.0	36.0	6.00
RS4033.2	—	3.20	0.1260	20.0	62.0	36.0	6.00
RS403N30	N30	3.26	0.1283	20.0	62.0	36.0	6.00
RS4033.3	—	3.30	0.1299	20.0	62.0	36.0	6.00
RS4033.4	—	3.40	0.1339	20.0	62.0	36.0	6.00
RS403N29	N29	3.45	0.1360	20.0	62.0	36.0	6.00
RS4033.5	—	3.50	0.1378	20.0	62.0	36.0	6.00
RS403N28	N28	3.57	0.1406	20.0	62.0	36.0	6.00
RS4039/64	9/64	3.57	0.1406	20.0	62.0	36.0	6.00
RS4033.6	—	3.60	0.1417	20.0	62.0	36.0	6.00
RS403N27	N27	3.66	0.1441	20.0	62.0	36.0	6.00
RS4033.7	—	3.70	0.1457	20.0	62.0	36.0	6.00
RS4033.73	—	3.73	0.1469	24.0	66.0	36.0	6.00
RS403N26	N26	3.73	0.1469	24.0	66.0	36.0	6.00
RS403N25	N25	3.80	0.1496	24.0	66.0	36.0	6.00
RS4033.8	—	3.80	0.1496	24.0	66.0	36.0	6.00
RS403N24	N24	3.86	0.1520	24.0	66.0	36.0	6.00
RS4033.9	—	3.90	0.1535	24.0	66.0	36.0	6.00
RS403N23	N23	3.91	0.1539	24.0	66.0	36.0	6.00
RS4035/32	5/32	3.97	0.1563	24.0	66.0	36.0	6.00
RS403N22	N22	3.99	0.1571	24.0	66.0	36.0	6.00
RS4034.0	—	4.00	0.1575	24.0	66.0	36.0	6.00
RS403N21	N21	4.04	0.1591	24.0	66.0	36.0	6.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS403N20	N20	4.09	0.1610	24.0	66.0	36.0	6.00
RS4034.1	—	4.10	0.1614	24.0	66.0	36.0	6.00
RS4034.2	—	4.20	0.1654	24.0	66.0	36.0	6.00
RS403N19	N19	4.22	0.1661	24.0	66.0	36.0	6.00
RS4034.3	—	4.30	0.1693	24.0	66.0	36.0	6.00
RS403N18	N18	4.31	0.1697	24.0	66.0	36.0	6.00
RS40311/64	11/64	4.37	0.1719	24.0	66.0	36.0	6.00
RS403N17	N17	4.39	0.1728	24.0	66.0	36.0	6.00
RS4034.4	—	4.40	0.1732	24.0	66.0	36.0	6.00
RS403N16	N16	4.50	0.1772	24.0	66.0	36.0	6.00
RS4034.5	—	4.50	0.1772	24.0	66.0	36.0	6.00
RS403N15	N15	4.57	0.1799	24.0	66.0	36.0	6.00
RS4034.6	—	4.60	0.1811	24.0	66.0	36.0	6.00
RS403N14	N14	4.62	0.1819	24.0	66.0	36.0	6.00
RS403N13	N13	4.70	0.1850	24.0	66.0	36.0	6.00
RS4034.7	—	4.70	0.1850	24.0	66.0	36.0	6.00
RS4033/16	3/16	4.76	0.1875	28.0	66.0	36.0	6.00
RS403N12	N12	4.80	0.1890	28.0	66.0	36.0	6.00
RS4034.8	—	4.80	0.1890	28.0	66.0	36.0	6.00
RS403N11	N11	4.85	0.1909	28.0	66.0	36.0	6.00
RS4034.9	—	4.90	0.1929	28.0	66.0	36.0	6.00
RS403N10	N10	4.92	0.1937	28.0	66.0	36.0	6.00
RS403N9	N9	4.98	0.1961	28.0	66.0	36.0	6.00
RS4035.0	—	5.00	0.1969	28.0	66.0	36.0	6.00
RS403N8	N8	5.06	0.1992	28.0	66.0	36.0	6.00
RS4035.1	—	5.10	0.2008	28.0	66.0	36.0	6.00
RS403N7	N7	5.11	0.2010	28.0	66.0	36.0	6.00
RS40313/64	13/64	5.16	0.2031	28.0	66.0	36.0	6.00
RS403N6	N6	5.18	0.2039	28.0	66.0	36.0	6.00
RS4035.2	—	5.20	0.2047	28.0	66.0	36.0	6.00
RS403N5	N5	5.22	0.2055	28.0	66.0	36.0	6.00
RS4035.3	—	5.30	0.2087	28.0	66.0	36.0	6.00
RS403N4	N4	5.31	0.2091	28.0	66.0	36.0	6.00
RS4035.4	—	5.40	0.2126	28.0	66.0	36.0	6.00
RS403N3	N3	5.41	0.2130	28.0	66.0	36.0	6.00
RS4035.5	—	5.50	0.2165	28.0	66.0	36.0	6.00
RS4037/32	7/32	5.56	0.2188	28.0	66.0	36.0	6.00
RS4035.6	—	5.60	0.2205	28.0	66.0	36.0	6.00
RS403N2	N2	5.61	0.2209	28.0	66.0	36.0	6.00
RS4035.7	—	5.70	0.2244	28.0	66.0	36.0	6.00
RS403N1	N1	5.79	0.2280	28.0	66.0	36.0	6.00
RS4035.8	—	5.80	0.2283	28.0	66.0	36.0	6.00
RS4035.9	—	5.90	0.2323	28.0	66.0	36.0	6.00
RS403A	A	5.94	0.2339	28.0	66.0	36.0	6.00
RS40315/64	15/64	5.95	0.2344	28.0	66.0	36.0	6.00
RS4036.0	—	6.00	0.2362	28.0	66.0	36.0	6.00
RS403B	B	6.05	0.2380	34.0	79.0	36.0	8.00
RS4036.1	—	6.10	0.2402	34.0	79.0	36.0	8.00
RS403C	C	6.15	0.2421	34.0	79.0	36.0	8.00
RS4036.2	—	6.20	0.2441	34.0	79.0	36.0	8.00
RS403D	D	6.25	0.2461	34.0	79.0	36.0	8.00
RS4036.3	—	6.30	0.2480	34.0	79.0	36.0	8.00
RS403E	E	6.35	0.2500	34.0	79.0	36.0	8.00
RS4031/4	1/4	6.35	0.2500	34.0	79.0	36.0	8.00
RS4036.4	—	6.40	0.2520	34.0	79.0	36.0	8.00
RS4036.5	—	6.50	0.2559	34.0	79.0	36.0	8.00
RS403F	F	6.53	0.2571	34.0	79.0	36.0	8.00
RS4036.6	—	6.60	0.2598	34.0	79.0	36.0	8.00
RS403G	G	6.63	0.2610	34.0	79.0	36.0	8.00
RS4036.7	—	6.70	0.2638	34.0	79.0	36.0	8.00
RS40317/64	17/64	6.75	0.2656	34.0	79.0	36.0	8.00
RS403H	H	6.76	0.2661	34.0	79.0	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS4036.8	—	6.80	0.2677	34.0	79.0	36.0	8.00
RS4036.9	—	6.90	0.2717	34.0	79.0	36.0	8.00
RS403I	I	6.91	0.2720	34.0	79.0	36.0	8.00
RS4037.0	—	7.00	0.2756	34.0	79.0	36.0	8.00
RS403J	J	7.04	0.2772	34.0	79.0	36.0	8.00
RS4037.1	—	7.10	0.2795	41.0	79.0	36.0	8.00
RS403K	K	7.14	0.2811	41.0	79.0	36.0	8.00
RS4039/32	9/32	7.14	0.2813	41.0	79.0	36.0	8.00
RS4037.2	—	7.20	0.2835	41.0	79.0	36.0	8.00
RS4037.3	—	7.30	0.2874	41.0	79.0	36.0	8.00
RS403L	L	7.37	0.2902	41.0	79.0	36.0	8.00
RS4037.4	—	7.40	0.2913	41.0	79.0	36.0	8.00
RS403M	M	7.49	0.2949	41.0	79.0	36.0	8.00
RS4037.5	—	7.50	0.2953	41.0	79.0	36.0	8.00
RS40319/64	19/64	7.54	0.2969	41.0	79.0	36.0	8.00
RS4037.6	—	7.60	0.2992	41.0	79.0	36.0	8.00
RS403N	N	7.67	0.3020	41.0	79.0	36.0	8.00
RS4037.7	—	7.70	0.3031	41.0	79.0	36.0	8.00
RS4037.8	—	7.80	0.3071	41.0	79.0	36.0	8.00
RS4037.9	—	7.90	0.3110	41.0	79.0	36.0	8.00
RS4035/16	5/16	7.94	0.3125	41.0	79.0	36.0	8.00
RS4038.0	—	8.00	0.3150	41.0	79.0	36.0	8.00
RS403O	O	8.03	0.3161	47.0	89.0	40.0	10.00
RS4038.1	—	8.10	0.3189	47.0	89.0	40.0	10.00
RS4038.2	—	8.20	0.3228	47.0	89.0	40.0	10.00
RS403P	P	8.20	0.3228	47.0	89.0	40.0	10.00
RS4038.3	—	8.30	0.3268	47.0	89.0	40.0	10.00
RS40321/64	21/64	8.33	0.3281	47.0	89.0	40.0	10.00
RS4038.4	—	8.40	0.3307	47.0	89.0	40.0	10.00
RS403Q	Q	8.43	0.3319	47.0	89.0	40.0	10.00
RS4038.5	—	8.50	0.3346	47.0	89.0	40.0	10.00
RS4038.6	—	8.60	0.3386	47.0	89.0	40.0	10.00
RS403R	R	8.61	0.3390	47.0	89.0	40.0	10.00
RS4038.7	—	8.70	0.3425	47.0	89.0	40.0	10.00
RS40311/32	11/32	8.73	0.3438	47.0	89.0	40.0	10.00
RS4038.8	—	8.80	0.3465	47.0	89.0	40.0	10.00
RS403S	S	8.84	0.3480	47.0	89.0	40.0	10.00
RS4038.9	—	8.90	0.3504	47.0	89.0	40.0	10.00
RS4039.0	—	9.00	0.3543	47.0	89.0	40.0	10.00
RS403T	T	9.09	0.3579	47.0	89.0	40.0	10.00
RS4039.1	—	9.10	0.3583	47.0	89.0	40.0	10.00
RS40323/64	23/64	9.13	0.3594	47.0	89.0	40.0	10.00
RS4039.2	—	9.20	0.3622	47.0	89.0	40.0	10.00
RS4039.3	—	9.30	0.3661	47.0	89.0	40.0	10.00
RS403U	U	9.35	0.3681	47.0	89.0	40.0	10.00
RS4039.4	—	9.40	0.3701	47.0	89.0	40.0	10.00
RS4039.5	—	9.50	0.3740	47.0	89.0	40.0	10.00
RS4033/8	3/8	9.53	0.3750	47.0	89.0	40.0	10.00
RS403V	V	9.58	0.3772	47.0	89.0	40.0	10.00
RS4039.6	—	9.60	0.3780	47.0	89.0	40.0	10.00
RS4039.7	—	9.70	0.3819	47.0	89.0	40.0	10.00
RS4039.8	—	9.80	0.3858	47.0	89.0	40.0	10.00
RS403W	W	9.80	0.3858	47.0	89.0	40.0	10.00
RS4039.9	—	9.90	0.3898	47.0	89.0	40.0	10.00
RS40325/64	25/64	9.92	0.3906	47.0	89.0	40.0	10.00
RS40310.0	—	10.00	0.3937	47.0	89.0	40.0	10.00
RS403X	X	10.08	0.3969	55.0	102.0	45.0	12.00
RS40310.1	—	10.10	0.3976	55.0	102.0	45.0	12.00
RS40310.2	—	10.20	0.4016	55.0	102.0	45.0	12.00
RS403Y	Y	10.26	0.4039	55.0	102.0	45.0	12.00
RS40310.3	—	10.30	0.4055	55.0	102.0	45.0	12.00
RS40313/32	13/32	10.32	0.4063	55.0	102.0	45.0	12.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS40310.4	—	10.40	0.4094	55.0	102.0	45.0	12.00
RS403Z	Z	10.49	0.4130	55.0	102.0	45.0	12.00
RS40310.5	—	10.50	0.4134	55.0	102.0	45.0	12.00
RS40310.6	—	10.60	0.4173	55.0	102.0	45.0	12.00
RS40310.7	—	10.70	0.4213	55.0	102.0	45.0	12.00
RS40327/64	27/64	10.72	0.4219	55.0	102.0	45.0	12.00
RS40310.8	—	10.80	0.4252	55.0	102.0	45.0	12.00
RS40310.9	—	10.90	0.4291	55.0	102.0	45.0	12.00
RS40311.0	—	11.00	0.4331	55.0	102.0	45.0	12.00
RS40311.1	—	11.10	0.4370	55.0	102.0	45.0	12.00
RS4037/16	7/16	11.11	0.4375	55.0	102.0	45.0	12.00
RS40311.2	—	11.20	0.4409	55.0	102.0	45.0	12.00
RS40311.3	—	11.30	0.4449	55.0	102.0	45.0	12.00
RS40311.4	—	11.40	0.4488	55.0	102.0	45.0	12.00
RS40311.5	—	11.50	0.4528	55.0	102.0	45.0	12.00
RS40329/64	29/64	11.51	0.4531	55.0	102.0	45.0	12.00
RS40311.6	—	11.60	0.4567	55.0	102.0	45.0	12.00
RS40311.7	—	11.70	0.4606	55.0	102.0	45.0	12.00
RS40311.8	—	11.80	0.4646	55.0	102.0	45.0	12.00
RS40311.9	—	11.90	0.4685	55.0	102.0	45.0	12.00
RS40315/32	15/32	11.91	0.4688	55.0	102.0	45.0	12.00
RS40312.0	—	12.00	0.4724	55.0	102.0	45.0	12.00
RS40312.1	—	12.10	0.4764	60.0	107.0	45.0	14.00
RS40312.2	—	12.20	0.4803	60.0	107.0	45.0	14.00
RS40331/64	31/64	12.30	0.4844	60.0	107.0	45.0	14.00
RS40312.5	—	12.50	0.4921	60.0	107.0	45.0	14.00
RS4031/2	1/2	12.70	0.5000	60.0	107.0	45.0	14.00
RS40312.7	—	12.70	0.5000	60.0	107.0	45.0	14.00
RS40312.8	—	12.80	0.5039	60.0	107.0	45.0	14.00
RS40313.0	—	13.00	0.5118	60.0	107.0	45.0	14.00
RS40333/64	33/64	13.10	0.5156	60.0	107.0	45.0	14.00
RS40313.3	—	13.30	0.5236	60.0	107.0	45.0	14.00
RS40317/32	17/32	13.49	0.5313	60.0	107.0	45.0	14.00
RS40313.5	—	13.50	0.5315	60.0	107.0	45.0	14.00
RS40313.8	—	13.80	0.5433	60.0	107.0	45.0	14.00
RS40335/64	35/64	13.89	0.5469	60.0	107.0	45.0	14.00
RS40314.0	—	14.00	0.5512	60.0	107.0	45.0	14.00
RS40314.25	—	14.25	0.5610	65.0	115.0	48.0	16.00
RS4039/16	9/16	14.29	0.5625	65.0	115.0	48.0	16.00
RS40314.5	—	14.50	0.5709	65.0	115.0	48.0	16.00
RS40337/64	37/64	14.68	0.5781	65.0	115.0	48.0	16.00
RS40314.8	—	14.80	0.5827	65.0	115.0	48.0	16.00
RS40315.0	—	15.00	0.5906	65.0	115.0	48.0	16.00
RS40319/32	19/32	15.08	0.5938	65.0	115.0	48.0	16.00
RS40315.1	—	15.10	0.5945	65.0	115.0	48.0	16.00
RS40315.3	—	15.30	0.6024	65.0	115.0	48.0	16.00
RS40339/64	39/64	15.48	0.6094	65.0	115.0	48.0	16.00
RS40315.5	—	15.50	0.6102	65.0	115.0	48.0	16.00
RS40315.8	—	15.80	0.6220	65.0	115.0	48.0	16.00
RS4035/8	5/8	15.88	0.6250	65.0	115.0	48.0	16.00
RS40316.0	—	16.00	0.6299	65.0	115.0	48.0	16.00
RS40341/64	41/64	16.27	0.6406	73.0	123.0	48.0	18.00
RS40316.5	—	16.50	0.6496	73.0	123.0	48.0	18.00
RS40321/32	21/32	16.67	0.6563	73.0	123.0	48.0	18.00
RS40317.0	—	17.00	0.6693	73.0	123.0	48.0	18.00
RS40343/64	43/64	17.07	0.6720	73.0	123.0	48.0	18.00
RS40311/16	11/16	17.46	0.6874	73.0	123.0	48.0	18.00
RS40317.5	—	17.50	0.6890	73.0	123.0	48.0	18.00
RS40317.8	—	17.80	0.7008	73.0	123.0	48.0	18.00
RS40345/64	45/64	17.86	0.7031	73.0	123.0	48.0	18.00
RS40318.0	—	18.00	0.7087	73.0	123.0	48.0	18.00
RS40323/32	23/32	18.26	0.7189	79.0	131.0	50.0	20.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS40318.5	—	18.50	0.7283	79.0	131.0	50.0	20.00
RS40347/64	47/64	18.65	0.7343	79.0	131.0	50.0	20.00
RS40319.0	—	19.00	0.7480	79.0	131.0	50.0	20.00
RS4033/4	3/4	19.05	0.7500	79.0	131.0	50.0	20.00
RS40319.5	—	19.50	0.7677	79.0	131.0	50.0	20.00
RS40319.8	—	19.80	0.7795	79.0	131.0	50.0	20.00
RS40320.0	—	20.00	0.7874	79.0	131.0	50.0	20.00

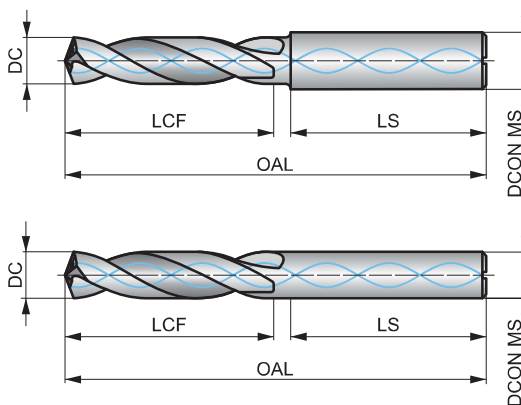


RC403



FORCE X Solid Carbide 3XD Drill with Coolant Feed, TiAlN-Top Coated

High-performance drill is specifically designed to deliver superior hole quality at high speeds and feeds (H9 hole tolerance for multi-materials). A 140° self-centering, 4-facet split point and CTW flute construction. Coolant holes enhance chip evacuation. TiAlN-top coating increases surface hardness, enhances wear resistance, and extends tool life.



HM	DIN 6537	3xD
140°	TiAlN Top	DIN 6535HA
CTW	R	DC m7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 140 W	P1.2 ■ 142 W	P1.3 ■ 142 W	P2.1 ■ 122 W	P2.2 ■ 120 W	P2.3 ■ 105 V	P3.1 ■ 110 V	P3.2 ■ 102 V	P3.3 ■ 100 V	P4.1 ■ 99 V	P4.2 ■ 95 V	P4.3 ■ 50 U	M1.1 ■ 105 G	M1.2 ■ 101 G
M2.1 ■ 99 G	M2.2 ■ 80 G	M2.3 ■ 70 E	M3.1 ■ 85 G	M3.2 ■ 70 G	M3.3 ■ 65 F	M4.1 ■ 60 F	M4.2 ■ 50 E	K1.1 ■ 111 W	K1.2 ■ 108 W	K1.3 ■ 105 W	K2.1 ■ 111 W	K2.2 ■ 110 W	K2.3 ■ 99 W
K3.1 ■ 105 W	K3.2 ■ 99 W	K3.3 ■ 95 W	K4.1 ■ 100 W	K4.2 ■ 80 W	K4.3 ■ 77 W	K4.4 ■ 72 W	K4.5 ■ 70 W	K5.1 ■ 105 W	K5.2 ■ 100 W	K5.3 ■ 80 W	N1.1 ■ 305 W	N1.2 ■ 310 W	N1.3 ■ 300 W
N2.1 ■ 221 W	N2.2 ■ 220 W	N2.3 ■ 200 W	N3.1 ■ 185 W	N3.2 ■ 180 W	N3.3 ■ 175 W	S1.1 ■ 50 V	S1.2 ■ 40 V	S1.3 ■ 35 U	S2.1 ■ 40 U	S2.2 ■ 28 U	S3.1 ■ 32 U	S3.2 ■ 32 U	S4.1 ■ 30 U
S4.2 ■ 25 U													

DCON MS tolerance h6.

Product	DC (inch)	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	LS (mm)	DCON MS (mm)
RC4033.0	—	3.00	0.1181	20.0	62.0	36.0	6.00
RC4033.1	—	3.10	0.1220	20.0	62.0	36.0	6.00
RC4031/8	1/8	3.18	0.1250	20.0	62.0	36.0	6.00
RC4033.2	—	3.20	0.1260	20.0	62.0	36.0	6.00
RC403N30	N30	3.26	0.1283	20.0	62.0	36.0	6.00
RC4033.3	—	3.30	0.1299	20.0	62.0	36.0	6.00
RC4033.4	—	3.40	0.1339	20.0	62.0	36.0	6.00
RC403N29	N29	3.45	0.1360	20.0	62.0	36.0	6.00
RC4033.5	—	3.50	0.1378	20.0	62.0	36.0	6.00
RC403N28	N28	3.57	0.1406	20.0	62.0	36.0	6.00
RC4039/64	9/64	3.57	0.1406	20.0	62.0	36.0	6.00
RC4033.6	—	3.60	0.1417	20.0	62.0	36.0	6.00
RC403N27	N27	3.66	0.1441	20.0	62.0	36.0	6.00
RC4033.7	—	3.70	0.1457	20.0	62.0	36.0	6.00
RC403N26	N26	3.73	0.1469	24.0	66.0	36.0	6.00
RC403N25	N25	3.80	0.1496	24.0	66.0	36.0	6.00
RC4033.8	—	3.80	0.1496	24.0	66.0	36.0	6.00
RC403N24	N24	3.86	0.1520	24.0	66.0	36.0	6.00
RC4033.9	—	3.90	0.1535	24.0	66.0	36.0	6.00
RC403N23	N23	3.91	0.1539	24.0	66.0	36.0	6.00
RC4035/32	5/32	3.97	0.1563	24.0	66.0	36.0	6.00
RC403N22	N22	3.99	0.1571	24.0	66.0	36.0	6.00
RC4034.0	—	4.00	0.1575	24.0	66.0	36.0	6.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC403N21	N21	4.04	0.1591	24.0	66.0	36.0	6.00
RC4034.05	—	4.05	0.1594	24.0	66.0	36.0	6.00
RC403N20	N20	4.09	0.1610	24.0	66.0	36.0	6.00
RC4034.1	—	4.10	0.1614	24.0	66.0	36.0	6.00
RC4034.2	—	4.20	0.1654	24.0	66.0	36.0	6.00
RC403N19	N19	4.22	0.1661	24.0	66.0	36.0	6.00
RC4034.3	—	4.30	0.1693	24.0	66.0	36.0	6.00
RC403N18	N18	4.31	0.1697	24.0	66.0	36.0	6.00
RC40311/64	11/64	4.37	0.1719	24.0	66.0	36.0	6.00
RC403N17	N17	4.39	0.1728	24.0	66.0	36.0	6.00
RC4034.4	—	4.40	0.1732	24.0	66.0	36.0	6.00
RC403N16	N16	4.50	0.1772	24.0	66.0	36.0	6.00
RC4034.5	—	4.50	0.1772	24.0	66.0	36.0	6.00
RC403N15	N15	4.57	0.1799	24.0	66.0	36.0	6.00
RC4034.6	—	4.60	0.1811	24.0	66.0	36.0	6.00
RC403N14	N14	4.62	0.1819	24.0	66.0	36.0	6.00
RC403N13	N13	4.70	0.1850	24.0	66.0	36.0	6.00
RC4034.7	—	4.70	0.1850	24.0	66.0	36.0	6.00
RC4033/16	3/16	4.76	0.1875	28.0	66.0	36.0	6.00
RC403N12	N12	4.80	0.1890	28.0	66.0	36.0	6.00
RC4034.8	—	4.80	0.1890	28.0	66.0	36.0	6.00
RC403N11	N11	4.85	0.1909	28.0	66.0	36.0	6.00
RC4034.9	—	4.90	0.1929	28.0	66.0	36.0	6.00
RC403N10	N10	4.92	0.1937	28.0	66.0	36.0	6.00
RC403N9	N9	4.98	0.1961	28.0	66.0	36.0	6.00
RC4035.0	—	5.00	0.1969	28.0	66.0	36.0	6.00
RC4035.05	—	5.05	0.1988	28.0	66.0	36.0	6.00
RC403N8	N8	5.06	0.1992	28.0	66.0	36.0	6.00
RC4035.1	—	5.10	0.2008	28.0	66.0	36.0	6.00
RC403N7	N7	5.11	0.2010	28.0	66.0	36.0	6.00
RC40313/64	13/64	5.16	0.2031	28.0	66.0	36.0	6.00
RC403N6	N6	5.18	0.2039	28.0	66.0	36.0	6.00
RC4035.2	—	5.20	0.2047	28.0	66.0	36.0	6.00
RC403N5	N5	5.22	0.2055	28.0	66.0	36.0	6.00
RC4035.3	—	5.30	0.2087	28.0	66.0	36.0	6.00
RC403N4	N4	5.31	0.2091	28.0	66.0	36.0	6.00
RC4035.4	—	5.40	0.2126	28.0	66.0	36.0	6.00
RC403N3	N3	5.41	0.2130	28.0	66.0	36.0	6.00
RC4035.5	—	5.50	0.2165	28.0	66.0	36.0	6.00
RC4037/32	7/32	5.56	0.2188	28.0	66.0	36.0	6.00
RC4035.6	—	5.60	0.2205	28.0	66.0	36.0	6.00
RC403N2	N2	5.61	0.2209	28.0	66.0	36.0	6.00
RC4035.7	—	5.70	0.2244	28.0	66.0	36.0	6.00
RC403N1	N1	5.79	0.2280	28.0	66.0	36.0	6.00
RC4035.8	—	5.80	0.2283	28.0	66.0	36.0	6.00
RC4035.9	—	5.90	0.2323	28.0	66.0	36.0	6.00
RC403A	A	5.94	0.2339	28.0	66.0	36.0	6.00
RC40315/64	15/64	5.95	0.2344	28.0	66.0	36.0	6.00
RC4036.0	—	6.00	0.2362	28.0	66.0	36.0	6.00
RC403B	B	6.05	0.2380	34.0	79.0	36.0	8.00
RC4036.05	—	6.05	0.2382	34.0	79.0	36.0	8.00
RC4036.1	—	6.10	0.2402	34.0	79.0	36.0	8.00
RC403C	C	6.15	0.2421	34.0	79.0	36.0	8.00
RC4036.2	—	6.20	0.2441	34.0	79.0	36.0	8.00
RC403D	D	6.25	0.2461	34.0	79.0	36.0	8.00
RC4036.3	—	6.30	0.2480	34.0	79.0	36.0	8.00
RC403E	E	6.35	0.2500	34.0	79.0	36.0	8.00
RC4031/4	1/4	6.35	0.2500	34.0	79.0	36.0	8.00
RC4036.4	—	6.40	0.2520	34.0	79.0	36.0	8.00
RC4036.5	—	6.50	0.2559	34.0	79.0	36.0	8.00
RC403F	F	6.53	0.2571	34.0	79.0	36.0	8.00
RC4036.6	—	6.60	0.2598	34.0	79.0	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC403G	G	6.63	0.2610	34.0	79.0	36.0	8.00
RC4036.7	—	6.70	0.2638	34.0	79.0	36.0	8.00
RC40317/64	17/64	6.75	0.2656	34.0	79.0	36.0	8.00
RC403H	H	6.76	0.2661	34.0	79.0	36.0	8.00
RC4036.8	—	6.80	0.2677	34.0	79.0	36.0	8.00
RC4036.9	—	6.90	0.2717	34.0	79.0	36.0	8.00
RC403I	I	6.91	0.2720	34.0	79.0	36.0	8.00
RC4037.0	—	7.00	0.2756	34.0	79.0	36.0	8.00
RC403J	J	7.04	0.2772	41.0	79.0	36.0	8.00
RC4037.1	—	7.10	0.2795	41.0	79.0	36.0	8.00
RC403K	K	7.14	0.2811	41.0	79.0	36.0	8.00
RC4039/32	9/32	7.14	0.2813	41.0	79.0	36.0	8.00
RC4037.2	—	7.20	0.2835	41.0	79.0	36.0	8.00
RC4037.3	—	7.30	0.2874	41.0	79.0	36.0	8.00
RC403L	L	7.37	0.2902	41.0	79.0	36.0	8.00
RC4037.4	—	7.40	0.2913	41.0	79.0	36.0	8.00
RC403M	M	7.49	0.2949	41.0	79.0	36.0	8.00
RC4037.5	—	7.50	0.2953	41.0	79.0	36.0	8.00
RC40319/64	19/64	7.54	0.2969	41.0	79.0	36.0	8.00
RC4037.6	—	7.60	0.2992	41.0	79.0	36.0	8.00
RC403N	N	7.67	0.3020	41.0	79.0	36.0	8.00
RC4037.7	—	7.70	0.3031	41.0	79.0	36.0	8.00
RC4037.8	—	7.80	0.3071	41.0	79.0	36.0	8.00
RC4037.9	—	7.90	0.3110	41.0	79.0	36.0	8.00
RC4035/16	5/16	7.94	0.3125	41.0	79.0	36.0	8.00
RC4038.0	—	8.00	0.3150	41.0	79.0	36.0	8.00
RC403O	O	8.03	0.3161	47.0	89.0	40.0	10.00
RC4038.05	—	8.05	0.3169	47.0	89.0	40.0	10.00
RC4038.1	—	8.10	0.3189	47.0	89.0	40.0	10.00
RC4038.2	—	8.20	0.3228	47.0	89.0	40.0	10.00
RC403P	P	8.20	0.3228	47.0	89.0	40.0	10.00
RC4038.3	—	8.30	0.3268	47.0	89.0	40.0	10.00
RC40321/64	21/64	8.33	0.3281	47.0	89.0	40.0	10.00
RC4038.4	—	8.40	0.3307	47.0	89.0	40.0	10.00
RC403Q	Q	8.43	0.3319	47.0	89.0	40.0	10.00
RC4038.5	—	8.50	0.3346	47.0	89.0	40.0	10.00
RC4038.6	—	8.60	0.3386	47.0	89.0	40.0	10.00
RC403R	R	8.61	0.3390	47.0	89.0	40.0	10.00
RC4038.7	—	8.70	0.3425	47.0	89.0	40.0	10.00
RC40311/32	11/32	8.73	0.3438	47.0	89.0	40.0	10.00
RC4038.8	—	8.80	0.3465	47.0	89.0	40.0	10.00
RC403S	S	8.84	0.3480	47.0	89.0	40.0	10.00
RC4038.9	—	8.90	0.3504	47.0	89.0	40.0	10.00
RC4039.0	—	9.00	0.3543	47.0	89.0	40.0	10.00
RC403T	T	9.09	0.3579	47.0	89.0	40.0	10.00
RC4039.1	—	9.10	0.3583	47.0	89.0	40.0	10.00
RC40323/64	23/64	9.13	0.3594	47.0	89.0	40.0	10.00
RC4039.2	—	9.20	0.3622	47.0	89.0	40.0	10.00
RC4039.3	—	9.30	0.3661	47.0	89.0	40.0	10.00
RC403U	U	9.35	0.3681	47.0	89.0	40.0	10.00
RC4039.4	—	9.40	0.3701	47.0	89.0	40.0	10.00
RC4039.5	—	9.50	0.3740	47.0	89.0	40.0	10.00
RC4033/8	3/8	9.53	0.3750	47.0	89.0	40.0	10.00
RC403V	V	9.58	0.3772	47.0	89.0	40.0	10.00
RC4039.6	—	9.60	0.3780	47.0	89.0	40.0	10.00
RC4039.7	—	9.70	0.3819	47.0	89.0	40.0	10.00
RC4039.8	—	9.80	0.3858	47.0	89.0	40.0	10.00
RC403W	W	9.80	0.3858	47.0	89.0	40.0	10.00
RC4039.9	—	9.90	0.3898	47.0	89.0	40.0	10.00
RC40325/64	25/64	9.92	0.3906	47.0	89.0	40.0	10.00
RC40310.0	—	10.00	0.3937	47.0	89.0	40.0	10.00
RC40310.05	—	10.05	0.3957	55.0	102.0	45.0	12.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC403X	X	10.08	0.3969	55.0	102.0	45.0	12.00
RC40310.1	—	10.10	0.3976	55.0	102.0	45.0	12.00
RC40310.2	—	10.20	0.4016	55.0	102.0	45.0	12.00
RC403Y	Y	10.26	0.4039	55.0	102.0	45.0	12.00
RC40310.3	—	10.30	0.4055	55.0	102.0	45.0	12.00
RC40313/32	13/32	10.32	0.4063	55.0	102.0	45.0	12.00
RC40310.4	—	10.40	0.4094	55.0	102.0	45.0	12.00
RC403Z	Z	10.49	0.4130	55.0	102.0	45.0	12.00
RC40310.5	—	10.50	0.4134	55.0	102.0	45.0	12.00
RC40310.6	—	10.60	0.4173	55.0	102.0	45.0	12.00
RC40327/64	27/64	10.72	0.4219	55.0	102.0	45.0	12.00
RC40310.8	—	10.80	0.4252	55.0	102.0	45.0	12.00
RC40310.9	—	10.90	0.4291	55.0	102.0	45.0	12.00
RC40311.0	—	11.00	0.4331	55.0	102.0	45.0	12.00
RC4037/16	7/16	11.11	0.4375	55.0	102.0	45.0	12.00
RC40311.2	—	11.20	0.4409	55.0	102.0	45.0	12.00
RC40311.3	—	11.30	0.4449	55.0	102.0	45.0	12.00
RC40311.4	—	11.40	0.4488	55.0	102.0	45.0	12.00
RC40311.5	—	11.50	0.4528	55.0	102.0	45.0	12.00
RC40329/64	29/64	11.51	0.4531	55.0	102.0	45.0	12.00
RC40311.6	—	11.60	0.4567	55.0	102.0	45.0	12.00
RC40311.8	—	11.80	0.4646	55.0	102.0	45.0	12.00
RC40315/32	15/32	11.91	0.4688	55.0	102.0	45.0	12.00
RC40312.0	—	12.00	0.4724	55.0	102.0	45.0	12.00
RC40312.05	—	12.05	0.4744	60.0	107.0	45.0	14.00
RC40312.1	—	12.10	0.4764	60.0	107.0	45.0	14.00
RC40312.2	—	12.20	0.4803	60.0	107.0	45.0	14.00
RC40331/64	31/64	12.30	0.4844	60.0	107.0	45.0	14.00
RC40312.5	—	12.50	0.4921	60.0	107.0	45.0	14.00
RC4031/2	1/2	12.70	0.5000	60.0	107.0	45.0	14.00
RC40312.7	—	12.70	0.5000	60.0	107.0	45.0	14.00
RC40312.8	—	12.80	0.5039	60.0	107.0	45.0	14.00
RC40313.0	—	13.00	0.5118	60.0	107.0	45.0	14.00
RC40333/64	33/64	13.10	0.5156	60.0	107.0	45.0	14.00
RC40313.3	—	13.30	0.5236	60.0	107.0	45.0	14.00
RC40317/32	17/32	13.49	0.5313	60.0	107.0	45.0	14.00
RC40313.5	—	13.50	0.5315	60.0	107.0	45.0	14.00
RC40313.8	—	13.80	0.5433	60.0	107.0	45.0	14.00
RC40335/64	35/64	13.89	0.5469	60.0	107.0	45.0	14.00
RC40314.0	—	14.00	0.5512	60.0	107.0	45.0	14.00
RC40314.25	—	14.25	0.5610	65.0	115.0	48.0	16.00
RC4039/16	9/16	14.29	0.5625	65.0	115.0	48.0	16.00
RC40314.5	—	14.50	0.5709	65.0	115.0	48.0	16.00
RC40337/64	37/64	14.68	0.5781	65.0	115.0	48.0	16.00
RC40314.8	—	14.80	0.5827	65.0	115.0	48.0	16.00
RC40315.0	—	15.00	0.5906	65.0	115.0	48.0	16.00
RC40319/32	19/32	15.08	0.5938	65.0	115.0	48.0	16.00
RC40315.1	—	15.10	0.5945	65.0	115.0	48.0	16.00
RC40315.3	—	15.30	0.6024	65.0	115.0	48.0	16.00
RC40339/64	39/64	15.48	0.6094	65.0	115.0	48.0	16.00
RC40315.5	—	15.50	0.6102	65.0	115.0	48.0	16.00
RC40315.8	—	15.80	0.6220	65.0	115.0	48.0	16.00
RC4035/8	5/8	15.88	0.6250	65.0	115.0	48.0	16.00
RC40316.0	—	16.00	0.6299	65.0	115.0	48.0	16.00
RC40341/64	41/64	16.27	0.6406	73.0	123.0	48.0	18.00
RC40316.5	—	16.50	0.6496	73.0	123.0	48.0	18.00
RC40321/32	21/32	16.67	0.6563	73.0	123.0	48.0	18.00
RC40317.0	—	17.00	0.6693	73.0	123.0	48.0	18.00
RC40343/64	43/64	17.07	0.6720	73.0	123.0	48.0	18.00
RC40311/16	11/16	17.46	0.6874	73.0	123.0	48.0	18.00
RC40317.5	—	17.50	0.6890	73.0	123.0	48.0	18.00
RC40345/64	45/64	17.86	0.7031	73.0	123.0	48.0	18.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC40318.0	—	18.00	0.7087	73.0	123.0	48.0	18.00
RC40323/32	23/32	18.26	0.7189	79.0	131.0	50.0	20.00
RC40318.5	—	18.50	0.7283	79.0	131.0	50.0	20.00
RC40347/64	47/64	18.65	0.7343	79.0	131.0	50.0	20.00
RC40318.8	—	18.80	0.7402	79.0	131.0	50.0	20.00
RC40319.0	—	19.00	0.7480	79.0	131.0	50.0	20.00
RC4033/4	3/4	19.05	0.7500	79.0	131.0	50.0	20.00
RC40319.5	—	19.50	0.7677	79.0	131.0	50.0	20.00
RC40319.8	—	19.80	0.7795	79.0	131.0	50.0	20.00
RC40320.0	—	20.00	0.7874	79.0	131.0	50.0	20.00

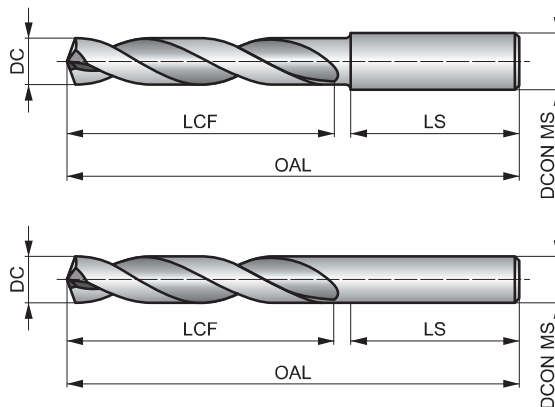


RS405



FORCE X Solid Carbide 5XD Drill, TiAlN-Top Coated

High-performance drill is specifically designed to deliver superior hole quality at high speeds and feeds (H9 hole tolerance for multi-materials). A 140° self-centering, 4-facet split point and CTW flute construction. TiAlN-top coating increases surface hardness, enhances wear resistance, and extends tool life.



HM	DIN 6537	5xD
140°	TiAlN Top	DIN 6535HA
CTW	R	DC m7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 112 V	■ 114 V	■ 114 V	■ 98 V	■ 96 V	■ 84 V	■ 88 V	■ 82 V	■ 80 V	■ 79 V	■ 76 V	■ 40 U	■ 79 V	■ 76 V
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 74 U	■ 60 U	■ 52 U	■ 64 U	■ 52 U	■ 49 U	■ 45 U	■ 38 U	■ 89 W	■ 86 W	■ 84 W	■ 89 W	■ 88 W	■ 79 W
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.2	N1.3	N2.1
■ 84 W	■ 79 W	■ 76 W	■ 80 W	■ 64 W	■ 62 W	■ 58 W	■ 56 W	■ 84 V	■ 80 V	■ 64 V	■ 279 W	■ 270 W	■ 199 W
N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3						
■ 198 W	■ 180 W	■ 166 W	■ 162 W	■ 158 W	■ 40 U	■ 32 U	■ 28 U						

DCON MS tolerance h6.

Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS4053.0	—	3.00	0.1181	28.0	66.0	36.0	6.00
RS4053.1	—	3.10	0.1220	28.0	66.0	36.0	6.00
RS4051/8	1/8	3.18	0.1250	28.0	66.0	36.0	6.00
RS4053.2	—	3.20	0.1260	28.0	66.0	36.0	6.00
RS405N30	N30	3.26	0.1283	28.0	66.0	36.0	6.00
RS4053.3	—	3.30	0.1299	28.0	66.0	36.0	6.00
RS4053.4	—	3.40	0.1339	28.0	66.0	36.0	6.00
RS405N29	N29	3.45	0.1360	28.0	66.0	36.0	6.00
RS4053.5	—	3.50	0.1378	28.0	66.0	36.0	6.00
RS405N28	N28	3.57	0.1406	28.0	66.0	36.0	6.00
RS4059/64	9/64	3.57	0.1406	28.0	66.0	36.0	6.00
RS4053.6	—	3.60	0.1417	28.0	66.0	36.0	6.00
RS405N27	N27	3.66	0.1441	28.0	66.0	36.0	6.00
RS4053.7	—	3.70	0.1457	28.0	66.0	36.0	6.00
RS405N26	N26	3.73	0.1469	36.0	74.0	36.0	6.00
RS405N25	N25	3.80	0.1496	36.0	74.0	36.0	6.00
RS4053.8	—	3.80	0.1496	36.0	74.0	36.0	6.00
RS405N24	N24	3.86	0.1520	36.0	74.0	36.0	6.00
RS4053.9	—	3.90	0.1535	36.0	74.0	36.0	6.00
RS405N23	N23	3.91	0.1539	36.0	74.0	36.0	6.00
RS4055/32	5/32	3.97	0.1563	36.0	74.0	36.0	6.00
RS405N22	N22	3.99	0.1571	36.0	74.0	36.0	6.00
RS4054.0	—	4.00	0.1575	36.0	74.0	36.0	6.00
RS405N21	N21	4.04	0.1591	36.0	74.0	36.0	6.00
RS405N20	N20	4.09	0.1610	36.0	74.0	36.0	6.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS4054.1	—	4.10	0.1614	36.0	74.0	36.0	6.00
RS4054.2	—	4.20	0.1654	36.0	74.0	36.0	6.00
RS405N19	N19	4.22	0.1661	36.0	74.0	36.0	6.00
RS4054.3	—	4.30	0.1693	36.0	74.0	36.0	6.00
RS405N18	N18	4.31	0.1697	36.0	74.0	36.0	6.00
RS40511/64	11/64	4.37	0.1719	36.0	74.0	36.0	6.00
RS405N17	N17	4.39	0.1728	36.0	74.0	36.0	6.00
RS4054.4	—	4.40	0.1732	36.0	74.0	36.0	6.00
RS405N16	N16	4.50	0.1772	36.0	74.0	36.0	6.00
RS4054.5	—	4.50	0.1772	36.0	74.0	36.0	6.00
RS405N15	N15	4.57	0.1799	36.0	74.0	36.0	6.00
RS4054.6	—	4.60	0.1811	36.0	74.0	36.0	6.00
RS405N14	N14	4.62	0.1819	36.0	74.0	36.0	6.00
RS405N13	N13	4.70	0.1850	36.0	74.0	36.0	6.00
RS4054.7	—	4.70	0.1850	36.0	74.0	36.0	6.00
RS4053/16	3/16	4.76	0.1875	44.0	82.0	36.0	6.00
RS405N12	N12	4.80	0.1890	44.0	82.0	36.0	6.00
RS4054.8	—	4.80	0.1890	44.0	82.0	36.0	6.00
RS405N11	N11	4.85	0.1909	44.0	82.0	36.0	6.00
RS4054.9	—	4.90	0.1929	44.0	82.0	36.0	6.00
RS405N10	N10	4.92	0.1937	44.0	82.0	36.0	6.00
RS405N9	N9	4.98	0.1961	44.0	82.0	36.0	6.00
RS4055.0	—	5.00	0.1969	44.0	82.0	36.0	6.00
RS405N8	N8	5.06	0.1992	44.0	82.0	36.0	6.00
RS4055.1	—	5.10	0.2008	44.0	82.0	36.0	6.00
RS405N7	N7	5.11	0.2010	44.0	82.0	36.0	6.00
RS40513/64	13/64	5.16	0.2031	44.0	82.0	36.0	6.00
RS405N6	N6	5.18	0.2039	44.0	82.0	36.0	6.00
RS4055.2	—	5.20	0.2047	44.0	82.0	36.0	6.00
RS405N5	N5	5.22	0.2055	44.0	82.0	36.0	6.00
RS405N4	N4	5.31	0.2091	44.0	82.0	36.0	6.00
RS405N3	N3	5.41	0.2130	44.0	82.0	36.0	6.00
RS4055.5	—	5.50	0.2165	44.0	82.0	36.0	6.00
RS4057/32	7/32	5.56	0.2188	44.0	82.0	36.0	6.00
RS4055.6	—	5.60	0.2205	44.0	82.0	36.0	6.00
RS405N2	N2	5.61	0.2209	44.0	82.0	36.0	6.00
RS4055.7	—	5.70	0.2244	44.0	82.0	36.0	6.00
RS405N1	N1	5.79	0.2280	44.0	82.0	36.0	6.00
RS4055.8	—	5.80	0.2283	44.0	82.0	36.0	6.00
RS405A	A	5.94	0.2339	44.0	82.0	36.0	6.00
RS40515/64	15/64	5.95	0.2344	44.0	82.0	36.0	6.00
RS4056.0	—	6.00	0.2362	44.0	82.0	36.0	6.00
RS405B	B	6.05	0.2380	53.0	91.0	36.0	8.00
RS4056.1	—	6.10	0.2402	53.0	91.0	36.0	8.00
RS405C	C	6.15	0.2421	53.0	91.0	36.0	8.00
RS4056.2	—	6.20	0.2441	53.0	91.0	36.0	8.00
RS405D	D	6.25	0.2461	53.0	91.0	36.0	8.00
RS4056.3	—	6.30	0.2480	53.0	91.0	36.0	8.00
RS405E	E	6.35	0.2500	53.0	91.0	36.0	8.00
RS4051/4	1/4	6.35	0.2500	53.0	91.0	36.0	8.00
RS4056.4	—	6.40	0.2520	53.0	91.0	36.0	8.00
RS4056.5	—	6.50	0.2559	53.0	91.0	36.0	8.00
RS405F	F	6.53	0.2571	53.0	91.0	36.0	8.00
RS4056.6	—	6.60	0.2598	53.0	91.0	36.0	8.00
RS405G	G	6.63	0.2610	53.0	91.0	36.0	8.00
RS4056.7	—	6.70	0.2638	53.0	91.0	36.0	8.00
RS40517/64	17/64	6.75	0.2656	53.0	91.0	36.0	8.00
RS405H	H	6.76	0.2661	53.0	91.0	36.0	8.00
RS4056.8	—	6.80	0.2677	53.0	91.0	36.0	8.00
RS4056.9	—	6.90	0.2717	53.0	91.0	36.0	8.00
RS405I	I	6.91	0.2720	53.0	91.0	36.0	8.00
RS4057.0	—	7.00	0.2756	53.0	91.0	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS405J	J	7.04	0.2772	53.0	91.0	36.0	8.00
RS4057.1	—	7.10	0.2795	53.0	91.0	36.0	8.00
RS405K	K	7.14	0.2811	53.0	91.0	36.0	8.00
RS4059/32	9/32	7.14	0.2813	53.0	91.0	36.0	8.00
RS4057.3	—	7.30	0.2874	53.0	91.0	36.0	8.00
RS405L	L	7.37	0.2902	53.0	91.0	36.0	8.00
RS4057.4	—	7.40	0.2913	53.0	91.0	36.0	8.00
RS405M	M	7.49	0.2949	53.0	91.0	36.0	8.00
RS4057.5	—	7.50	0.2953	53.0	91.0	36.0	8.00
RS40519/64	19/64	7.54	0.2969	53.0	91.0	36.0	8.00
RS4057.6	—	7.60	0.2992	53.0	91.0	36.0	8.00
RS405N	N	7.67	0.3020	53.0	91.0	36.0	8.00
RS4057.7	—	7.70	0.3031	53.0	91.0	36.0	8.00
RS4057.8	—	7.80	0.3071	53.0	91.0	36.0	8.00
RS4057.9	—	7.90	0.3110	53.0	91.0	36.0	8.00
RS4055/16	5/16	7.94	0.3125	53.0	91.0	36.0	8.00
RS4058.0	—	8.00	0.3150	53.0	91.0	36.0	8.00
RS405O	O	8.03	0.3161	61.0	103.0	40.0	10.00
RS4058.1	—	8.10	0.3189	61.0	103.0	40.0	10.00
RS4058.2	—	8.20	0.3228	61.0	103.0	40.0	10.00
RS405P	P	8.20	0.3228	61.0	103.0	40.0	10.00
RS40521/64	21/64	8.33	0.3281	61.0	103.0	40.0	10.00
RS4058.4	—	8.40	0.3307	61.0	103.0	40.0	10.00
RS405Q	Q	8.43	0.3319	61.0	103.0	40.0	10.00
RS4058.5	—	8.50	0.3346	61.0	103.0	40.0	10.00
RS4058.6	—	8.60	0.3386	61.0	103.0	40.0	10.00
RS405R	R	8.61	0.3390	61.0	103.0	40.0	10.00
RS4058.7	—	8.70	0.3425	61.0	103.0	40.0	10.00
RS40511/32	11/32	8.73	0.3438	61.0	103.0	40.0	10.00
RS4058.8	—	8.80	0.3465	61.0	103.0	40.0	10.00
RS405S	S	8.84	0.3480	61.0	103.0	40.0	10.00
RS4058.9	—	8.90	0.3504	61.0	103.0	40.0	10.00
RS4059.0	—	9.00	0.3543	61.0	103.0	40.0	10.00
RS405T	T	9.09	0.3579	61.0	103.0	40.0	10.00
RS4059.1	—	9.10	0.3583	61.0	103.0	40.0	10.00
RS40523/64	23/64	9.13	0.3594	61.0	103.0	40.0	10.00
RS4059.3	—	9.30	0.3661	61.0	103.0	40.0	10.00
RS405U	U	9.35	0.3681	61.0	103.0	40.0	10.00
RS4059.4	—	9.40	0.3701	61.0	103.0	40.0	10.00
RS4059.5	—	9.50	0.3740	61.0	103.0	40.0	10.00
RS4053/8	3/8	9.53	0.3750	61.0	103.0	40.0	10.00
RS405V	V	9.58	0.3772	61.0	103.0	40.0	10.00
RS4059.6	—	9.60	0.3780	61.0	103.0	40.0	10.00
RS4059.7	—	9.70	0.3819	61.0	103.0	40.0	10.00
RS4059.8	—	9.80	0.3858	61.0	103.0	40.0	10.00
RS405W	W	9.80	0.3858	61.0	103.0	40.0	10.00
RS4059.9	—	9.90	0.3898	61.0	103.0	40.0	10.00
RS40525/64	25/64	9.92	0.3906	61.0	103.0	40.0	10.00
RS40510.0	—	10.00	0.3937	61.0	103.0	40.0	10.00
RS405X	X	10.08	0.3969	70.0	118.0	45.0	12.00
RS40510.1	—	10.10	0.3976	70.0	118.0	45.0	12.00
RS40510.2	—	10.20	0.4016	70.0	118.0	45.0	12.00
RS405Y	Y	10.26	0.4039	70.0	118.0	45.0	12.00
RS40510.3	—	10.30	0.4055	70.0	118.0	45.0	12.00
RS40513/32	13/32	10.32	0.4063	70.0	118.0	45.0	12.00
RS40510.4	—	10.40	0.4094	70.0	118.0	45.0	12.00
RS405Z	Z	10.49	0.4130	70.0	118.0	45.0	12.00
RS40510.5	—	10.50	0.4134	70.0	118.0	45.0	12.00
RS40510.6	—	10.60	0.4173	70.0	118.0	45.0	12.00
RS40527/64	27/64	10.72	0.4219	70.0	118.0	45.0	12.00
RS40511.0	—	11.00	0.4331	70.0	118.0	45.0	12.00
RS4057/16	7/16	11.11	0.4375	70.0	118.0	45.0	12.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RS40511.2	—	11.20	0.4409	70.0	118.0	45.0	12.00
RS40511.4	—	11.40	0.4488	70.0	118.0	45.0	12.00
RS40511.5	—	11.50	0.4528	70.0	118.0	45.0	12.00
RS40529/64	29/64	11.51	0.4531	70.0	118.0	45.0	12.00
RS40511.6	—	11.60	0.4567	70.0	118.0	45.0	12.00
RS40511.8	—	11.80	0.4646	70.0	118.0	45.0	12.00
RS40515/32	15/32	11.91	0.4688	70.0	118.0	45.0	12.00
RS40512.0	—	12.00	0.4724	70.0	118.0	45.0	12.00
RS40512.1	—	12.10	0.4764	76.0	124.0	45.0	14.00
RS40512.2	—	12.20	0.4803	76.0	124.0	45.0	14.00
RS40531/64	31/64	12.30	0.4844	76.0	124.0	45.0	14.00
RS40512.5	—	12.50	0.4921	76.0	124.0	45.0	14.00
RS4051/2	1/2	12.70	0.5000	76.0	124.0	45.0	14.00
RS40512.7	—	12.70	0.5000	76.0	124.0	45.0	14.00
RS40512.8	—	12.80	0.5039	76.0	124.0	45.0	14.00
RS40513.0	—	13.00	0.5118	76.0	124.0	45.0	14.00
RS40533/64	33/64	13.10	0.5156	76.0	124.0	45.0	14.00
RS40517/32	17/32	13.49	0.5313	76.0	124.0	45.0	14.00
RS40513.5	—	13.50	0.5315	76.0	124.0	45.0	14.00
RS40513.8	—	13.80	0.5433	76.0	124.0	45.0	14.00
RS40535/64	35/64	13.89	0.5469	76.0	124.0	45.0	14.00
RS40514.0	—	14.00	0.5512	76.0	124.0	45.0	14.00
RS40514.25	—	14.25	0.5610	82.0	133.0	48.0	16.00
RS4059/16	9/16	14.29	0.5625	82.0	133.0	48.0	16.00
RS40514.5	—	14.50	0.5709	82.0	133.0	48.0	16.00
RS40537/64	37/64	14.68	0.5781	82.0	133.0	48.0	16.00
RS40514.8	—	14.80	0.5827	82.0	133.0	48.0	16.00
RS40515.0	—	15.00	0.5906	82.0	133.0	48.0	16.00
RS40519/32	19/32	15.08	0.5938	82.0	133.0	48.0	16.00
RS40515.1	—	15.10	0.5945	82.0	133.0	48.0	16.00
RS40539/64	39/64	15.48	0.6094	82.0	133.0	48.0	16.00
RS40515.5	—	15.50	0.6102	82.0	133.0	48.0	16.00
RS40515.8	—	15.80	0.6220	82.0	133.0	48.0	16.00
RS4055/8	5/8	15.88	0.6250	82.0	133.0	48.0	16.00
RS40516.0	—	16.00	0.6299	82.0	133.0	48.0	16.00
RS40541/64	41/64	16.27	0.6406	91.0	143.0	48.0	18.00
RS40516.5	—	16.50	0.6496	91.0	143.0	48.0	18.00
RS40521/32	21/32	16.67	0.6563	91.0	143.0	48.0	18.00
RS40517.0	—	17.00	0.6693	91.0	143.0	48.0	18.00
RS40543/64	43/64	17.07	0.6720	91.0	143.0	48.0	18.00
RS40511/16	11/16	17.46	0.6874	91.0	143.0	48.0	18.00
RS40517.5	—	17.50	0.6890	91.0	143.0	48.0	18.00
RS40517.8	—	17.80	0.7008	91.0	143.0	48.0	18.00
RS40545/64	45/64	17.86	0.7031	91.0	143.0	48.0	18.00
RS40518.0	—	18.00	0.7087	91.0	143.0	48.0	18.00
RS40523/32	23/32	18.26	0.7189	99.0	153.0	50.0	20.00
RS40518.5	—	18.50	0.7283	99.0	153.0	50.0	20.00
RS40547/64	47/64	18.65	0.7343	99.0	153.0	50.0	20.00
RS40519.0	—	19.00	0.7480	99.0	153.0	50.0	20.00
RS4053/4	3/4	19.05	0.7500	99.0	153.0	50.0	20.00
RS40519.5	—	19.50	0.7677	99.0	153.0	50.0	20.00
RS40519.8	—	19.80	0.7795	99.0	153.0	50.0	20.00
RS40520.0	—	20.00	0.7874	99.0	153.0	50.0	20.00

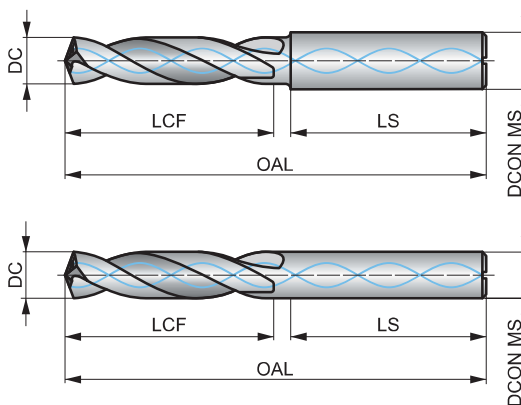


RC405



FORCE X Solid Carbide 5XD Drill with Coolant Feed, TiAlN-Top Coated

High-performance drill is specifically designed to deliver superior hole quality at high speeds and feeds (H9 hole tolerance for multi-materials). A 140° self-centering, 4-facet split point and CTW flute construction. Coolant holes enhance chip evacuation. TiAlN-top coating increases surface hardness, enhances wear resistance, and extends tool life.



HM	DIN 6537	5xD
140°	TiAlN Top	DIN 6535HA
CTW	R	DC m7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 140 W	P1.2 ■ 142 W	P1.3 ■ 142 W	P2.1 ■ 122 W	P2.2 ■ 120 W	P2.3 ■ 105 V	P3.1 ■ 110 V	P3.2 ■ 102 V	P3.3 ■ 100 V	P4.1 ■ 99 V	P4.2 ■ 95 V	P4.3 ■ 50 U	M1.1 ■ 105 G	M1.2 ■ 101 G
M2.1 ■ 99 G	M2.2 ■ 80 G	M2.3 ■ 70 E	M3.1 ■ 85 G	M3.2 ■ 70 G	M3.3 ■ 65 F	M4.1 ■ 60 F	M4.2 ■ 50 E	K1.1 ■ 111 W	K1.2 ■ 108 W	K1.3 ■ 105 W	K2.1 ■ 111 W	K2.2 ■ 110 W	K2.3 ■ 99 W
K3.1 ■ 105 W	K3.2 ■ 99 W	K3.3 ■ 95 W	K4.1 ■ 100 W	K4.2 ■ 80 W	K4.3 ■ 77 W	K4.4 ■ 72 W	K4.5 ■ 70 W	K5.1 ■ 105 W	K5.2 ■ 100 W	K5.3 ■ 80 W	N1.1 ■ 305 W	N1.2 ■ 310 W	N1.3 ■ 300 W
N2.1 ■ 221 W	N2.2 ■ 220 W	N2.3 ■ 200 W	N3.1 ■ 185 W	N3.2 ■ 180 W	N3.3 ■ 175 W	S1.1 ■ 50 V	S1.2 ■ 40 V	S1.3 ■ 35 U	S2.1 ■ 40 U	S2.2 ■ 28 U	S3.1 ■ 32 U	S3.2 ■ 32 U	S4.1 ■ 30 U
S4.2 ■ 25 U													

DCON MS tolerance h6.

Product	DC (inch)	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	LS (mm)	DCON MS (mm)
RC4053.0	—	3.00	0.1181	28.0	66.0	36.0	6.00
RC4053.1	—	3.10	0.1220	28.0	66.0	36.0	6.00
RC4051/8	1/8	3.18	0.1250	28.0	66.0	36.0	6.00
RC4053.2	—	3.20	0.1260	28.0	66.0	36.0	6.00
RC405N30	N30	3.26	0.1283	28.0	66.0	36.0	6.00
RC4053.3	—	3.30	0.1299	28.0	66.0	36.0	6.00
RC4053.4	—	3.40	0.1339	28.0	66.0	36.0	6.00
RC405N29	N29	3.45	0.1360	28.0	66.0	36.0	6.00
RC4053.5	—	3.50	0.1378	28.0	66.0	36.0	6.00
RC405N28	N28	3.57	0.1406	28.0	66.0	36.0	6.00
RC4059/64	9/64	3.57	0.1406	28.0	66.0	36.0	6.00
RC4053.6	—	3.60	0.1417	28.0	66.0	36.0	6.00
RC405N27	N27	3.66	0.1441	28.0	66.0	36.0	6.00
RC4053.7	—	3.70	0.1457	28.0	66.0	36.0	6.00
RC405N26	N26	3.73	0.1469	36.0	74.0	36.0	6.00
RC405N25	N25	3.80	0.1496	36.0	74.0	36.0	6.00
RC4053.8	—	3.80	0.1496	36.0	74.0	36.0	6.00
RC405N24	N24	3.86	0.1520	36.0	74.0	36.0	6.00
RC4053.9	—	3.90	0.1535	36.0	74.0	36.0	6.00
RC405N23	N23	3.91	0.1539	36.0	74.0	36.0	6.00
RC4055/32	5/32	3.97	0.1563	36.0	74.0	36.0	6.00
RC405N22	N22	3.99	0.1571	36.0	74.0	36.0	6.00
RC4054.0	—	4.00	0.1575	36.0	74.0	36.0	6.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC405N21	N21	4.04	0.1591	36.0	74.0	36.0	6.00
RC4054.05	—	4.05	0.1594	36.0	74.0	36.0	6.00
RC405N20	N20	4.09	0.1610	36.0	74.0	36.0	6.00
RC4054.1	—	4.10	0.1614	36.0	74.0	36.0	6.00
RC4054.2	—	4.20	0.1654	36.0	74.0	36.0	6.00
RC405N19	N19	4.22	0.1661	36.0	74.0	36.0	6.00
RC4054.3	—	4.30	0.1693	36.0	74.0	36.0	6.00
RC405N18	N18	4.31	0.1697	36.0	74.0	36.0	6.00
RC40511/64	11/64	4.37	0.1719	36.0	74.0	36.0	6.00
RC405N17	N17	4.39	0.1728	36.0	74.0	36.0	6.00
RC4054.4	—	4.40	0.1732	36.0	74.0	36.0	6.00
RC405N16	N16	4.50	0.1772	36.0	74.0	36.0	6.00
RC4054.5	—	4.50	0.1772	36.0	74.0	36.0	6.00
RC405N15	N15	4.57	0.1799	36.0	74.0	36.0	6.00
RC4054.6	—	4.60	0.1811	36.0	74.0	36.0	6.00
RC405N14	N14	4.62	0.1819	36.0	74.0	36.0	6.00
RC405N13	N13	4.70	0.1850	36.0	74.0	36.0	6.00
RC4054.7	—	4.70	0.1850	36.0	74.0	36.0	6.00
RC4053/16	3/16	4.76	0.1875	44.0	82.0	36.0	6.00
RC405N12	N12	4.80	0.1890	44.0	82.0	36.0	6.00
RC4054.8	—	4.80	0.1890	44.0	82.0	36.0	6.00
RC405N11	N11	4.85	0.1909	44.0	82.0	36.0	6.00
RC4054.9	—	4.90	0.1929	44.0	82.0	36.0	6.00
RC405N10	N10	4.92	0.1937	44.0	82.0	36.0	6.00
RC405N9	N9	4.98	0.1961	44.0	82.0	36.0	6.00
RC4055.0	—	5.00	0.1969	44.0	82.0	36.0	6.00
RC4055.05	—	5.05	0.1988	44.0	82.0	36.0	6.00
RC405N8	N8	5.06	0.1992	44.0	82.0	36.0	6.00
RC4055.1	—	5.10	0.2008	44.0	82.0	36.0	6.00
RC405N7	N7	5.11	0.2010	44.0	82.0	36.0	6.00
RC40513/64	13/64	5.16	0.2031	44.0	82.0	36.0	6.00
RC405N6	N6	5.18	0.2039	44.0	82.0	36.0	6.00
RC4055.2	—	5.20	0.2047	44.0	82.0	36.0	6.00
RC405N5	N5	5.22	0.2055	44.0	82.0	36.0	6.00
RC4055.3	—	5.30	0.2087	44.0	82.0	36.0	6.00
RC405N4	N4	5.31	0.2091	44.0	82.0	36.0	6.00
RC4055.4	—	5.40	0.2126	44.0	82.0	36.0	6.00
RC405N3	N3	5.41	0.2130	44.0	82.0	36.0	6.00
RC4055.5	—	5.50	0.2165	44.0	82.0	36.0	6.00
RC4057/32	7/32	5.56	0.2188	44.0	82.0	36.0	6.00
RC4055.6	—	5.60	0.2205	44.0	82.0	36.0	6.00
RC405N2	N2	5.61	0.2209	44.0	82.0	36.0	6.00
RC4055.7	—	5.70	0.2244	44.0	82.0	36.0	6.00
RC405N1	N1	5.79	0.2280	44.0	82.0	36.0	6.00
RC4055.8	—	5.80	0.2283	44.0	82.0	36.0	6.00
RC4055.9	—	5.90	0.2323	44.0	82.0	36.0	6.00
RC405A	A	5.94	0.2339	44.0	82.0	36.0	6.00
RC40515/64	15/64	5.95	0.2344	44.0	82.0	36.0	6.00
RC4056.0	—	6.00	0.2362	44.0	82.0	36.0	6.00
RC405B	B	6.05	0.2380	53.0	91.0	36.0	8.00
RC4056.05	—	6.05	0.2382	53.0	91.0	36.0	8.00
RC4056.1	—	6.10	0.2402	53.0	91.0	36.0	8.00
RC405C	C	6.15	0.2421	53.0	91.0	36.0	8.00
RC4056.2	—	6.20	0.2441	53.0	91.0	36.0	8.00
RC405D	D	6.25	0.2461	53.0	91.0	36.0	8.00
RC4056.3	—	6.30	0.2480	53.0	91.0	36.0	8.00
RC405E	E	6.35	0.2500	53.0	91.0	36.0	8.00
RC4051/4	1/4	6.35	0.2500	53.0	91.0	36.0	8.00
RC4056.4	—	6.40	0.2520	53.0	91.0	36.0	8.00
RC4056.5	—	6.50	0.2559	53.0	91.0	36.0	8.00
RC405F	F	6.53	0.2571	53.0	91.0	36.0	8.00
RC4056.6	—	6.60	0.2598	53.0	91.0	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC405G	G	6.63	0.2610	53.0	91.0	36.0	8.00
RC4056.7	—	6.70	0.2638	53.0	91.0	36.0	8.00
RC40517/64	17/64	6.75	0.2656	53.0	91.0	36.0	8.00
RC405H	H	6.76	0.2661	53.0	91.0	36.0	8.00
RC4056.8	—	6.80	0.2677	53.0	91.0	36.0	8.00
RC4056.9	—	6.90	0.2717	53.0	91.0	36.0	8.00
RC405I	I	6.91	0.2720	53.0	91.0	36.0	8.00
RC4057.0	—	7.00	0.2756	53.0	91.0	36.0	8.00
RC405J	J	7.04	0.2772	53.0	91.0	36.0	8.00
RC4057.1	—	7.10	0.2795	53.0	91.0	36.0	8.00
RC405K	K	7.14	0.2811	53.0	91.0	36.0	8.00
RC4059/32	9/32	7.14	0.2813	53.0	91.0	36.0	8.00
RC4057.2	—	7.20	0.2835	53.0	91.0	36.0	8.00
RC4057.3	—	7.30	0.2874	53.0	91.0	36.0	8.00
RC405L	L	7.37	0.2902	53.0	91.0	36.0	8.00
RC4057.4	—	7.40	0.2913	53.0	91.0	36.0	8.00
RC405M	M	7.49	0.2949	53.0	91.0	36.0	8.00
RC4057.5	—	7.50	0.2953	53.0	91.0	36.0	8.00
RC40519/64	19/64	7.54	0.2969	53.0	91.0	36.0	8.00
RC4057.6	—	7.60	0.2992	53.0	91.0	36.0	8.00
RC405N	N	7.67	0.3020	53.0	91.0	36.0	8.00
RC4057.7	—	7.70	0.3031	53.0	91.0	36.0	8.00
RC4057.8	—	7.80	0.3071	53.0	91.0	36.0	8.00
RC4057.9	—	7.90	0.3110	53.0	91.0	36.0	8.00
RC4055/16	5/16	7.94	0.3125	53.0	91.0	36.0	8.00
RC4058.0	—	8.00	0.3150	53.0	91.0	36.0	8.00
RC4050	O	8.03	0.3161	61.0	103.0	40.0	10.00
RC4058.05	—	8.05	0.3169	61.0	103.0	40.0	10.00
RC4058.1	—	8.10	0.3189	61.0	103.0	40.0	10.00
RC4058.2	—	8.20	0.3228	61.0	103.0	40.0	10.00
RC405P	P	8.20	0.3228	61.0	103.0	40.0	10.00
RC4058.3	—	8.30	0.3268	61.0	103.0	40.0	10.00
RC40521/64	21/64	8.33	0.3281	61.0	103.0	40.0	10.00
RC4058.4	—	8.40	0.3307	61.0	103.0	40.0	10.00
RC405Q	Q	8.43	0.3319	61.0	103.0	40.0	10.00
RC4058.5	—	8.50	0.3346	61.0	103.0	40.0	10.00
RC4058.6	—	8.60	0.3386	61.0	103.0	40.0	10.00
RC405R	R	8.61	0.3390	61.0	103.0	40.0	10.00
RC4058.7	—	8.70	0.3425	61.0	103.0	40.0	10.00
RC40511/32	11/32	8.73	0.3438	61.0	103.0	40.0	10.00
RC4058.8	—	8.80	0.3465	61.0	103.0	40.0	10.00
RC405S	S	8.84	0.3480	61.0	103.0	40.0	10.00
RC4058.9	—	8.90	0.3504	61.0	103.0	40.0	10.00
RC4059.0	—	9.00	0.3543	61.0	103.0	40.0	10.00
RC405T	T	9.09	0.3579	61.0	103.0	40.0	10.00
RC4059.1	—	9.10	0.3583	61.0	103.0	40.0	10.00
RC40523/64	23/64	9.13	0.3594	61.0	103.0	40.0	10.00
RC4059.2	—	9.20	0.3622	61.0	103.0	40.0	10.00
RC4059.3	—	9.30	0.3661	61.0	103.0	40.0	10.00
RC405U	U	9.35	0.3681	61.0	103.0	40.0	10.00
RC4059.4	—	9.40	0.3701	61.0	103.0	40.0	10.00
RC4059.5	—	9.50	0.3740	61.0	103.0	40.0	10.00
RC4053/8	3/8	9.53	0.3750	61.0	103.0	40.0	10.00
RC405V	V	9.58	0.3772	61.0	103.0	40.0	10.00
RC4059.6	—	9.60	0.3780	61.0	103.0	40.0	10.00
RC4059.7	—	9.70	0.3819	61.0	103.0	40.0	10.00
RC4059.8	—	9.80	0.3858	61.0	103.0	40.0	10.00
RC405W	W	9.80	0.3858	61.0	103.0	40.0	10.00
RC4059.9	—	9.90	0.3898	61.0	103.0	40.0	10.00
RC40525/64	25/64	9.92	0.3906	61.0	103.0	40.0	10.00
RC40510.0	—	10.00	0.3937	61.0	103.0	40.0	10.00
RC40510.05	—	10.05	0.3957	70.0	118.0	45.0	12.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC405X	X	10.08	0.3969	70.0	118.0	45.0	12.00
RC40510.1	—	10.10	0.3976	70.0	118.0	45.0	12.00
RC40510.2	—	10.20	0.4016	70.0	118.0	45.0	12.00
RC405Y	Y	10.26	0.4039	70.0	118.0	45.0	12.00
RC40510.3	—	10.30	0.4055	70.0	118.0	45.0	12.00
RC40513/32	13/32	10.32	0.4063	70.0	118.0	45.0	12.00
RC40510.4	—	10.40	0.4094	70.0	118.0	45.0	12.00
RC405Z	Z	10.49	0.4130	70.0	118.0	45.0	12.00
RC40510.5	—	10.50	0.4134	70.0	118.0	45.0	12.00
RC40510.6	—	10.60	0.4173	70.0	118.0	45.0	12.00
RC40527/64	27/64	10.72	0.4219	70.0	118.0	45.0	12.00
RC40510.8	—	10.80	0.4252	70.0	118.0	45.0	12.00
RC40510.9	—	10.90	0.4291	70.0	118.0	45.0	12.00
RC40511.0	—	11.00	0.4331	70.0	118.0	45.0	12.00
RC4057/16	7/16	11.11	0.4375	70.0	118.0	45.0	12.00
RC40511.2	—	11.20	0.4409	70.0	118.0	45.0	12.00
RC40511.3	—	11.30	0.4449	70.0	118.0	45.0	12.00
RC40511.4	—	11.40	0.4488	70.0	118.0	45.0	12.00
RC40511.5	—	11.50	0.4528	70.0	118.0	45.0	12.00
RC40529/64	29/64	11.51	0.4531	70.0	118.0	45.0	12.00
RC40511.6	—	11.60	0.4567	70.0	118.0	45.0	12.00
RC40511.8	—	11.80	0.4646	70.0	118.0	45.0	12.00
RC40515/32	15/32	11.91	0.4688	70.0	118.0	45.0	12.00
RC40512.0	—	12.00	0.4724	70.0	118.0	45.0	12.00
RC40512.05	—	12.05	0.4744	76.0	124.0	45.0	14.00
RC40512.2	—	12.20	0.4803	76.0	124.0	45.0	14.00
RC40531/64	31/64	12.30	0.4844	76.0	124.0	45.0	14.00
RC40512.5	—	12.50	0.4921	76.0	124.0	45.0	14.00
RC4051/2	1/2	12.70	0.5000	76.0	124.0	45.0	14.00
RC40512.7	—	12.70	0.5000	76.0	124.0	45.0	14.00
RC40512.8	—	12.80	0.5039	76.0	124.0	45.0	14.00
RC40513.0	—	13.00	0.5118	76.0	124.0	45.0	14.00
RC40533/64	33/64	13.10	0.5156	76.0	124.0	45.0	14.00
RC40513.3	—	13.30	0.5236	76.0	124.0	45.0	14.00
RC40517/32	17/32	13.49	0.5313	76.0	124.0	45.0	14.00
RC40513.5	—	13.50	0.5315	76.0	124.0	45.0	14.00
RC40513.8	—	13.80	0.5433	76.0	124.0	45.0	14.00
RC40535/64	35/64	13.89	0.5469	76.0	124.0	45.0	14.00
RC40514.0	—	14.00	0.5512	76.0	124.0	45.0	14.00
RC40514.25	—	14.25	0.5610	82.0	133.0	48.0	16.00
RC4059/16	9/16	14.29	0.5625	82.0	133.0	48.0	16.00
RC40514.5	—	14.50	0.5709	82.0	133.0	48.0	16.00
RC40537/64	37/64	14.68	0.5781	82.0	133.0	48.0	16.00
RC40514.8	—	14.80	0.5827	82.0	133.0	48.0	16.00
RC40515.0	—	15.00	0.5906	82.0	133.0	48.0	16.00
RC40519/32	19/32	15.08	0.5938	82.0	133.0	48.0	16.00
RC40515.1	—	15.10	0.5945	82.0	133.0	48.0	16.00
RC40515.3	—	15.30	0.6024	82.0	133.0	48.0	16.00
RC40539/64	39/64	15.48	0.6094	82.0	133.0	48.0	16.00
RC40515.5	—	15.50	0.6102	82.0	133.0	48.0	16.00
RC40515.8	—	15.80	0.6220	82.0	133.0	48.0	16.00
RC4055/8	5/8	15.88	0.6250	82.0	133.0	48.0	16.00
RC40516.0	—	16.00	0.6299	82.0	133.0	48.0	16.00
RC40541/64	41/64	16.27	0.6406	91.0	143.0	48.0	18.00
RC40516.5	—	16.50	0.6496	91.0	143.0	48.0	18.00
RC40521/32	21/32	16.67	0.6563	91.0	143.0	48.0	18.00
RC40517.0	—	17.00	0.6693	91.0	143.0	48.0	18.00
RC40543/64	43/64	17.07	0.6720	91.0	143.0	48.0	18.00
RC40511/16	11/16	17.46	0.6874	91.0	143.0	48.0	18.00
RC40517.5	—	17.50	0.6890	91.0	143.0	48.0	18.00
RC40517.8	—	17.80	0.7008	91.0	143.0	48.0	18.00
RC40545/64	45/64	17.86	0.7031	91.0	143.0	48.0	18.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC40518.0	—	18.00	0.7087	91.0	143.0	48.0	18.00
RC40523/32	23/32	18.26	0.7189	99.0	153.0	50.0	20.00
RC40518.5	—	18.50	0.7283	99.0	153.0	50.0	20.00
RC40547/64	47/64	18.65	0.7343	99.0	153.0	50.0	20.00
RC40519.0	—	19.00	0.7480	99.0	153.0	50.0	20.00
RC4053/4	3/4	19.05	0.7500	99.0	153.0	50.0	20.00
RC40519.5	—	19.50	0.7677	99.0	153.0	50.0	20.00
RC40519.8	—	19.80	0.7795	99.0	153.0	50.0	20.00
RC40520.0	—	20.00	0.7874	99.0	153.0	50.0	20.00

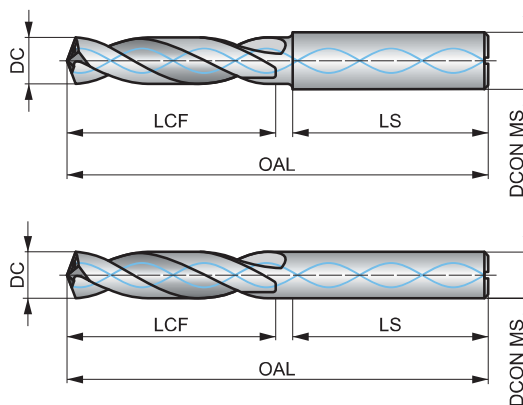


RC408



FORCE X Solid Carbide 8XD Drill with Coolant Feed, TiAlN-Top Coated

High-performance drill is specifically designed to deliver superior hole quality at high speeds and feeds (H9 hole tolerance for multi-materials). A 140° self-centering, 4-facet split point and CTW flute construction. Coolant holes enhance chip evacuation. TiAlN-top coating increases surface hardness, enhances wear resistance, and extends tool life.



HM	WORK NORM	8xD
140°	TiAlN Top	DIN 6535HA
CTW	R	DC m7

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 140 W	■ 142 W	■ 142 W	■ 122 W	■ 120 W	■ 105 V	■ 110 V	■ 102 V	■ 100 V	■ 99 V	■ 95 V	■ 50 T	■ 105 G	■ 101 G
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 99 G	■ 80 G	■ 70 E	■ 85 G	■ 70 G	■ 65 F	■ 60 F	■ 50 E	■ 111 W	■ 108 W	■ 105 W	■ 111 W	■ 110 W	■ 99 W
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3
■ 105 W	■ 99 W	■ 95 W	■ 100 W	■ 80 W	■ 77 W	■ 72 W	■ 70 W	■ 105 W	■ 100 W	■ 80 W	■ 305 W	■ 310 W	■ 300 W
N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1
■ 221 W	■ 220 W	■ 200 W	■ 185 W	■ 180 W	■ 175 W	■ 50 V	■ 40 V	■ 35 U	■ 40 U	■ 28 U	■ 32 U	■ 32 U	■ 30 U
S4.2													
■ 25 U													

DCON MS tolerance h6.

Product	DC (inch)	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	LS (mm)	DCON MS (mm)
RC4083.0	—	3.00	0.1181	37.0	79.0	36.0	6.00
RC4083.1	—	3.10	0.1220	37.0	79.0	36.0	6.00
RC4081/8	1/8	3.18	0.1250	37.0	79.0	36.0	6.00
RC4083.2	—	3.20	0.1260	37.0	79.0	36.0	6.00
RC4083.3	—	3.30	0.1299	37.0	79.0	36.0	6.00
RC4083.4	—	3.40	0.1339	37.0	79.0	36.0	6.00
RC4083.5	—	3.50	0.1378	37.0	79.0	36.0	6.00
RC4089/64	9/64	3.57	0.1406	37.0	79.0	36.0	6.00
RC4083.6	—	3.60	0.1417	37.0	79.0	36.0	6.00
RC4083.7	—	3.70	0.1457	37.0	79.0	36.0	6.00
RC4083.8	—	3.80	0.1496	48.0	90.0	36.0	6.00
RC4083.9	—	3.90	0.1535	48.0	90.0	36.0	6.00
RC4085/32	5/32	3.97	0.1563	48.0	90.0	36.0	6.00
RC4084.0	—	4.00	0.1575	48.0	90.0	36.0	6.00
RC4084.1	—	4.10	0.1614	48.0	90.0	36.0	6.00
RC4084.2	—	4.20	0.1654	48.0	90.0	36.0	6.00
RC4084.3	—	4.30	0.1693	48.0	90.0	36.0	6.00
RC40811/64	11/64	4.37	0.1719	48.0	90.0	36.0	6.00
RC4084.4	—	4.40	0.1732	48.0	90.0	36.0	6.00
RC4084.5	—	4.50	0.1772	48.0	90.0	36.0	6.00
RC4084.6	—	4.60	0.1811	48.0	90.0	36.0	6.00
RC4084.7	—	4.70	0.1850	62.0	104.0	36.0	6.00
RC4083/16	3/16	4.76	0.1875	62.0	104.0	36.0	6.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC4084.8	—	4.80	0.1890	62.0	104.0	36.0	6.00
RC4084.9	—	4.90	0.1929	62.0	104.0	36.0	6.00
RC4085.0	—	5.00	0.1969	62.0	104.0	36.0	6.00
RC4085.1	—	5.10	0.2008	62.0	104.0	36.0	6.00
RC40813/64	13/64	5.16	0.2031	62.0	104.0	36.0	6.00
RC4085.2	—	5.20	0.2047	62.0	104.0	36.0	6.00
RC4085.3	—	5.30	0.2087	62.0	104.0	36.0	6.00
RC4085.4	—	5.40	0.2126	62.0	104.0	36.0	6.00
RC4085.5	—	5.50	0.2165	62.0	104.0	36.0	6.00
RC4087/32	7/32	5.56	0.2188	62.0	104.0	36.0	6.00
RC4085.6	—	5.60	0.2205	62.0	104.0	36.0	6.00
RC4085.7	—	5.70	0.2244	62.0	104.0	36.0	6.00
RC4085.8	—	5.80	0.2283	62.0	104.0	36.0	6.00
RC4085.9	—	5.90	0.2323	62.0	104.0	36.0	6.00
RC40815/64	15/64	5.95	0.2344	62.0	104.0	36.0	6.00
RC4086.0	—	6.00	0.2362	62.0	104.0	36.0	6.00
RC4086.1	—	6.10	0.2402	84.0	126.0	36.0	8.00
RC4086.2	—	6.20	0.2441	84.0	126.0	36.0	8.00
RC4086.3	—	6.30	0.2480	84.0	126.0	36.0	8.00
RC4081/4	1/4	6.35	0.2500	84.0	126.0	36.0	8.00
RC4086.4	—	6.40	0.2520	84.0	126.0	36.0	8.00
RC4086.5	—	6.50	0.2559	84.0	126.0	36.0	8.00
RC4086.6	—	6.60	0.2598	84.0	126.0	36.0	8.00
RC4086.7	—	6.70	0.2638	84.0	126.0	36.0	8.00
RC40817/64	17/64	6.75	0.2656	84.0	126.0	36.0	8.00
RC4086.8	—	6.80	0.2677	84.0	126.0	36.0	8.00
RC4086.9	—	6.90	0.2717	84.0	126.0	36.0	8.00
RC4087.0	—	7.00	0.2756	84.0	126.0	36.0	8.00
RC4087.1	—	7.10	0.2795	84.0	126.0	36.0	8.00
RC4089/32	9/32	7.14	0.2813	84.0	126.0	36.0	8.00
RC4087.2	—	7.20	0.2835	84.0	126.0	36.0	8.00
RC4087.3	—	7.30	0.2874	84.0	126.0	36.0	8.00
RC4087.4	—	7.40	0.2913	84.0	126.0	36.0	8.00
RC4087.5	—	7.50	0.2953	84.0	126.0	36.0	8.00
RC40819/64	19/64	7.54	0.2969	84.0	126.0	36.0	8.00
RC4087.6	—	7.60	0.2992	84.0	126.0	36.0	8.00
RC4087.7	—	7.70	0.3031	84.0	126.0	36.0	8.00
RC4087.8	—	7.80	0.3071	84.0	126.0	36.0	8.00
RC4087.9	—	7.90	0.3110	84.0	126.0	36.0	8.00
RC4085/16	5/16	7.94	0.3125	84.0	126.0	36.0	8.00
RC4088.0	—	8.00	0.3150	84.0	126.0	36.0	8.00
RC4088.1	—	8.10	0.3189	106.0	152.0	40.0	10.00
RC4088.2	—	8.20	0.3228	106.0	152.0	40.0	10.00
RC4088.3	—	8.30	0.3268	106.0	152.0	40.0	10.00
RC40821/64	21/64	8.33	0.3281	106.0	152.0	40.0	10.00
RC4088.4	—	8.40	0.3307	106.0	152.0	40.0	10.00
RC4088.5	—	8.50	0.3346	106.0	152.0	40.0	10.00
RC4088.6	—	8.60	0.3386	106.0	152.0	40.0	10.00
RC4088.7	—	8.70	0.3425	106.0	152.0	40.0	10.00
RC40811/32	11/32	8.73	0.3438	106.0	152.0	40.0	10.00
RC4088.8	—	8.80	0.3465	106.0	152.0	40.0	10.00
RC4088.9	—	8.90	0.3504	106.0	152.0	40.0	10.00
RC4089.0	—	9.00	0.3543	106.0	152.0	40.0	10.00
RC4089.1	—	9.10	0.3583	106.0	152.0	40.0	10.00
RC40823/64	23/64	9.13	0.3594	106.0	152.0	40.0	10.00
RC4089.2	—	9.20	0.3622	106.0	152.0	40.0	10.00
RC4089.3	—	9.30	0.3661	106.0	152.0	40.0	10.00
RC4089.4	—	9.40	0.3701	106.0	152.0	40.0	10.00
RC4089.5	—	9.50	0.3740	106.0	152.0	40.0	10.00
RC4083/8	3/8	9.53	0.3750	106.0	152.0	40.0	10.00
RC4089.6	—	9.60	0.3780	106.0	152.0	40.0	10.00
RC4089.7	—	9.70	0.3819	106.0	152.0	40.0	10.00



Product	DC	DC	DC	LCF	OAL	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)
RC4089.8	—	9.80	0.3858	106.0	152.0	40.0	10.00
RC4089.9	—	9.90	0.3898	106.0	152.0	40.0	10.00
RC40825/64	25/64	9.92	0.3906	106.0	152.0	40.0	10.00
RC40810.0	—	10.00	0.3937	106.0	152.0	40.0	10.00
RC40810.2	—	10.20	0.4016	128.0	180.0	45.0	12.00
RC40810.3	—	10.30	0.4055	128.0	180.0	45.0	12.00
RC40813/32	13/32	10.32	0.4063	128.0	180.0	45.0	12.00
RC40810.4	—	10.40	0.4094	128.0	180.0	45.0	12.00
RC40810.5	—	10.50	0.4134	128.0	180.0	45.0	12.00
RC40827/64	27/64	10.72	0.4219	128.0	180.0	45.0	12.00
RC40810.8	—	10.80	0.4252	128.0	180.0	45.0	12.00
RC40811.0	—	11.00	0.4331	128.0	180.0	45.0	12.00
RC4087/16	7/16	11.11	0.4375	128.0	180.0	45.0	12.00
RC40811.2	—	11.20	0.4409	128.0	180.0	45.0	12.00
RC40811.3	—	11.30	0.4449	128.0	180.0	45.0	12.00
RC40811.5	—	11.50	0.4528	128.0	180.0	45.0	12.00
RC40829/64	29/64	11.51	0.4531	128.0	180.0	45.0	12.00
RC40811.8	—	11.80	0.4646	128.0	180.0	45.0	12.00
RC40815/32	15/32	11.91	0.4688	128.0	180.0	45.0	12.00
RC40812.0	—	12.00	0.4724	128.0	180.0	45.0	12.00
RC40812.2	—	12.20	0.4803	151.0	202.0	48.0	14.00
RC40831/64	31/64	12.30	0.4844	151.0	202.0	48.0	14.00
RC40812.5	—	12.50	0.4921	151.0	202.0	48.0	14.00
RC4081/2	1/2	12.70	0.5000	151.0	202.0	48.0	14.00
RC40812.8	—	12.80	0.5039	151.0	202.0	48.0	14.00
RC40813.0	—	13.00	0.5118	151.0	202.0	48.0	14.00
RC40833/64	33/64	13.10	0.5156	151.0	202.0	48.0	14.00
RC40817/32	17/32	13.49	0.5313	151.0	202.0	48.0	14.00
RC40813.5	—	13.50	0.5315	151.0	202.0	48.0	14.00
RC40835/64	35/64	13.89	0.5469	151.0	202.0	48.0	14.00
RC40814.0	—	14.00	0.5512	151.0	202.0	48.0	14.00
RC40814.25	—	14.25	0.5610	172.0	227.0	48.0	16.00
RC4089/16	9/16	14.29	0.5625	172.0	227.0	48.0	16.00
RC40814.5	—	14.50	0.5709	172.0	227.0	48.0	16.00
RC40837/64	37/64	14.68	0.5781	172.0	227.0	48.0	16.00
RC40815.0	—	15.00	0.5906	172.0	227.0	48.0	16.00
RC40819/32	19/32	15.08	0.5938	172.0	227.0	48.0	16.00
RC40815.1	—	15.10	0.5945	172.0	227.0	48.0	16.00
RC40839/64	39/64	15.48	0.6094	172.0	227.0	48.0	16.00
RC40815.5	—	15.50	0.6102	172.0	227.0	48.0	16.00
RC4085/8	5/8	15.88	0.6250	172.0	227.0	48.0	16.00
RC40816.0	—	16.00	0.6299	172.0	227.0	48.0	16.00



Solid carbide multi-material micro drills

Enhanced process reliability in small-diameter applications



The new Force Micro drills deliver exceptional performance for micro applications with diameters ranging from 0.7 to 2.95 mm.

Engineered for utmost accuracy and long tool life, they operate smoothly at speeds above 15 000 RPM, featuring a 140°-point angle, advanced coating, and optimized flute design for reliable chip evacuation across multiple materials.



High-performance solid carbide drills

Related products



RC305



5xD

0.7 – 2.95 mm

AlCrN Coated, **Coolant feed**



Features and benefits

Micro diameters from 0.7 to 2.95 mm with through-coolant capabilities.



Exceptional precision

in micro applications with superior tool performance.

140°-point angle and fine cutting edges.



Excellent hole quality

and smooth surface finish.

Internal coolant and optimized flute geometry.



High process reliability

for effective chip evacuation and consistent results.

Advanced AlCrN coating.



Extended tool life

with excellent wear resistance and thermal stability.

Suitable for angular exits up to 20°.



Versatile drills

for complex drilling applications.

Boost productivity with significantly longer tool life in ISO-P and ISO-M drilling.

Extensive testing against multiple competitors has demonstrated superior durability.





Features and benefits

Ultrafine carbide substrate

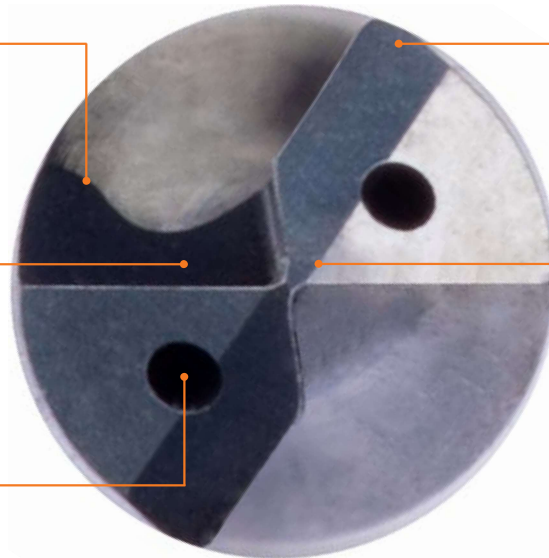
- Assist curling the chips
- Prevents the chips from breaking the wall

Web design

- Strong web design
- Optimized flute space

Coolant through

- Ensure cooling at the cutting zone
- Enhance chip evacuation



Outer corner design

- Increases stability
- Improve hole quality

4-facet split point

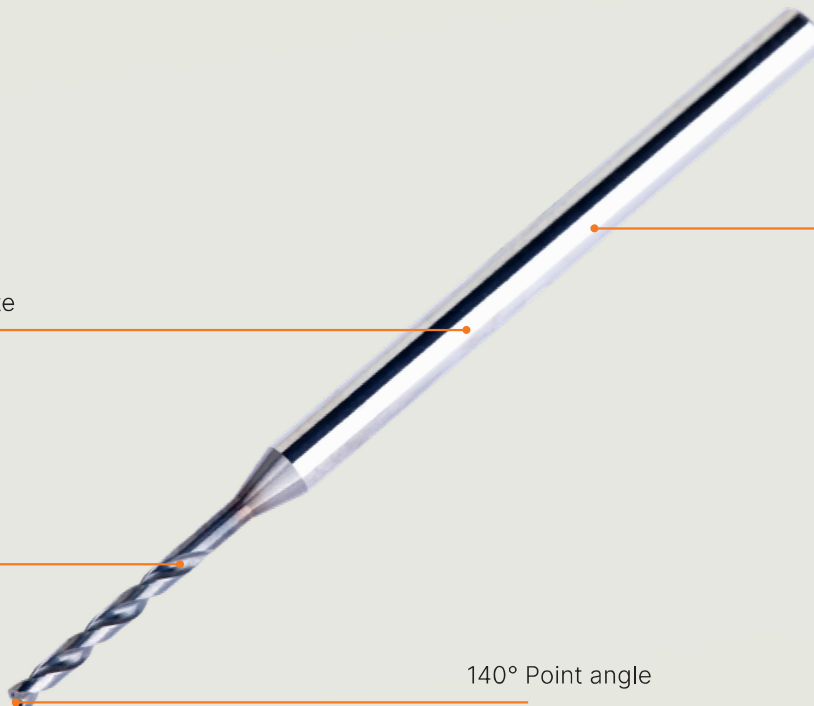
- Good positional accuracy and tolerance
- Stronger edges
- Improved chip-formation
- Better force distribution

Ultrafine carbide substrate

AlCrN coating

140° Point angle

HA-shank



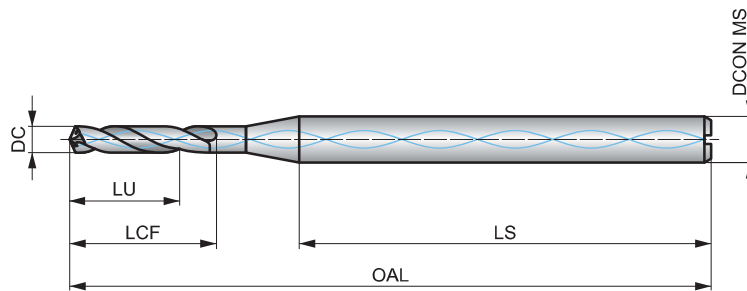


RC305



FORCE Micro Solid Carbide 5XD Drill with Coolant Feed, AlCrN Coated

High-performance micro drill designed for precision applications, featuring a 140° point angle and capable of drilling up to 5xD. Engineered with finely prepared cutting edges to ensure excellent surface quality. Internal coolant enhances chip evacuation, while the advanced AlCrN coating provides outstanding wear resistance, thermal stability, and process reliability.



HM	DIN 6535	5xD
140°	AlCrN	DIN 6535HA
R	DC m7	

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 67.

P1.1 ■ 100 J	P1.2 ■ 105 J	P1.3 ■ 108 J	P2.1 ■ 102 J	P2.2 ■ 82 J	P2.3 ■ 80 J	P3.1 ■ 80 J	P3.2 ■ 63 H	P3.3 ■ 40 E	P4.1 ■ 70 G	P4.2 ■ 63 H	P4.3 ■ 40 E	M1.1 ■ 65 J	M1.2 ■ 63 J
M2.1 ■ 60 G	M2.2 ■ 63 G	M2.3 ■ 63 G	M3.1 ■ 40 F	M3.2 ■ 37 F	M3.3 ■ 35 F	M4.1 ■ 25 E	M4.2 ■ 25 E	K1.1 ■ 105 L	K1.2 ■ 100 L	K1.3 ■ 95 L	K2.1 ■ 105 J	K2.2 ■ 65 J	K2.3 ■ 63 J
K3.1 ■ 65 J	K3.2 ■ 63 J	K3.3 ■ 60 J	K4.1 ■ 80 J	K4.2 ■ 75 J	K4.3 ■ 60 U	K4.4 ■ 58 U	K4.5 ■ 55 U	K5.1 ■ 80 J	K5.2 ■ 70 J	K5.3 ■ 65 J	N1.1 ■ 125 Y	N1.2 ■ 120 Y	N1.3 ■ 119 Y
N2.1 ■ 125 Y	N2.2 ■ 120 L	N2.3 ■ 119 L	N3.1 ■ 80 G	N3.2 ■ 75 J	N3.3 ■ 74 E	S1.1 ■ 40 E	S1.2 ■ 25 C	S1.3 ■ 25 C	S2.1 ■ 32 E	S2.2 ■ 20 C	S3.1 ■ 25 D	S3.2 ■ 16 D	S4.1 ■ 25 D
S4.2 ■ 16 D													

DCON MS tolerance h6.

Product	DC (inch)	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	LU (mm)	LS (mm)	DCON MS (mm)
RC3050.7	—	0.70	0.0280	6.0	48.0	4.90	30.0	3.00
RC3050.75	—	0.75	0.0300	7.0	48.0	5.80	30.0	3.00
RC3051/32	1/32	0.79	0.0310	7.0	48.0	5.80	30.0	3.00
RC3050.8	—	0.80	0.0310	7.0	48.0	5.80	30.0	3.00
RC3050.85	—	0.85	0.0330	8.0	50.0	6.60	30.0	3.00
RC3050.9	—	0.90	0.0350	8.0	50.0	6.60	30.0	3.00
RC3050.95	—	0.95	0.0370	9.0	50.0	7.50	30.0	3.00
RC3051.0	—	1.00	0.0390	9.0	50.0	7.50	30.0	3.00
RC3051.05	—	1.05	0.0410	9.0	51.0	7.00	30.0	3.00
RC3051.1	—	1.10	0.0430	9.0	51.0	7.00	30.0	3.00
RC3051.15	—	1.15	0.0450	10.0	51.0	8.00	30.0	3.00
RC3053/64	3/64	1.19	0.0470	10.0	51.0	8.00	30.0	3.00
RC3051.2	—	1.20	0.0470	10.0	51.0	8.00	30.0	3.00
RC3051.25	—	1.25	0.0490	11.0	51.0	9.00	30.0	3.00
RC3051.3	—	1.30	0.0510	11.0	53.0	9.00	30.0	3.00
RC3051.35	—	1.35	0.0530	12.0	53.0	9.00	30.0	3.00
RC3051.4	—	1.40	0.0550	12.0	53.0	9.00	30.0	3.00
RC3051.45	—	1.45	0.0570	13.0	53.0	10.00	30.0	3.00
RC3051.5	—	1.50	0.0590	13.0	53.0	10.00	30.0	3.00
RC3051.55	—	1.55	0.0610	14.0	54.0	11.00	30.0	3.00
RC3051/16	1/16	1.59	0.0630	14.0	54.0	11.00	30.0	3.00
RC3051.6	—	1.60	0.0630	14.0	54.0	11.00	30.0	3.00
RC3051.65	—	1.65	0.0650	14.0	54.0	11.00	30.0	3.00



Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC3051.7	—	1.70	0.0670	14.0	54.0	11.00	30.0	3.00
RC3051.75	—	1.75	0.0690	15.0	54.0	12.00	30.0	3.00
RC3051.8	—	1.80	0.0710	15.0	54.0	12.00	30.0	3.00
RC3051.85	—	1.85	0.0730	16.0	57.0	13.00	30.0	3.00
RC3051.9	—	1.90	0.0750	16.0	57.0	13.00	30.0	3.00
RC3051.95	—	1.95	0.0770	17.0	57.0	14.00	30.0	3.00
RC3055/64	5/64	1.98	0.0780	17.0	57.0	14.00	30.0	3.00
RC3052.0	—	2.00	0.0790	17.0	57.0	14.00	30.0	3.00
RC3052.05	—	2.05	0.0810	18.0	57.0	14.00	30.0	3.00
RC3052.1	—	2.10	0.0830	18.0	57.0	14.00	30.0	3.00
RC3052.15	—	2.15	0.0850	19.0	57.0	15.00	30.0	3.00
RC3052.2	—	2.20	0.0870	19.0	57.0	15.00	30.0	3.00
RC3052.25	—	2.25	0.0890	20.0	59.0	16.00	30.0	3.00
RC3052.3	—	2.30	0.0910	20.0	59.0	16.00	30.0	3.00
RC3052.35	—	2.35	0.0930	20.0	59.0	16.00	30.0	3.00
RC3053/32	3/32	2.38	0.0940	20.0	59.0	16.00	30.0	3.00
RC3052.4	—	2.40	0.0940	20.0	59.0	16.00	30.0	3.00
RC3052.45	—	2.45	0.0960	21.0	59.0	17.00	30.0	3.00
RC3052.5	—	2.50	0.0980	21.0	59.0	17.00	30.0	3.00
RC3052.55	—	2.55	0.1000	22.0	62.0	18.00	30.0	3.00
RC3052.6	—	2.60	0.1020	22.0	62.0	18.00	30.0	3.00
RC3052.65	—	2.65	0.1040	23.0	62.0	18.00	30.0	3.00
RC3052.7	—	2.70	0.1060	23.0	62.0	18.00	30.0	3.00
RC3052.75	—	2.75	0.1080	24.0	62.0	19.00	30.0	3.00
RC3057/64	7/64	2.78	0.1090	24.0	62.0	19.00	30.0	3.00
RC3052.8	—	2.80	0.1100	24.0	62.0	19.00	30.0	3.00
RC3052.85	—	2.85	0.1120	25.0	62.0	20.00	30.0	3.00
RC3052.9	—	2.90	0.1140	25.0	62.0	20.00	30.0	3.00
RC3052.95	—	2.95	0.1160	25.0	62.0	20.00	30.0	3.00



Solid carbide multi-material deep hole drills

Redefine deep hole drilling for maximum efficiency



Introducing the Force Deep Hole Drills (DHD) series from Dormer Pramet, designed for high-performance deep hole drilling up to 12xD, 16xD, and 20xD. These solid carbide drills feature a 140° point angle and optimized web design for rapid penetration and superior positional accuracy without pecking. Internal coolant channels enhance chip evacuation, minimizing bottlenecks, while the Nano-Tip multilayer coating provides exceptional thermal stability and longer tool life.

This series also includes 2xD pilot drills with a multilayer TiAlN coating used to create an accurate pilot hole prior to using the deep hole drills (16xD and deeper).



Related products



RC412



12xD

3 – 20 mm

Nano-Tip coating, **Coolant feed**

RC416



16xD

3 – 16 mm

Nano-Tip coating, **Coolant feed**

RC420



20xD

3 – 16 mm

Nano-Tip coating, **Coolant feed**

RC4P



2xD Pilot drill

3 – 16 mm

Multi TiAlN coating, **Coolant feed**



Force Deep Hole Drills

Features and benefits

Advanced thinner web design minimizes cutting forces.



Increased stability

ensures more precise hole positioning and straight drilling paths.

Internal coolant channels improve chip evacuation.



High process reliability

maintains consistent drilling flow without interruptions.

Eliminates the need for pecking cycles thanks to optimized flute geometrie.



Faster drilling

reduces cycle times and improves productivity in demanding applications.

High-performance depth capabilities (12xD, 16xD and 20xD).



Versatile options

allow precise drilling in a wide range of applications and depths. Pilot drills are recommended for use prior to drilling with 16xD and 20xD drills.

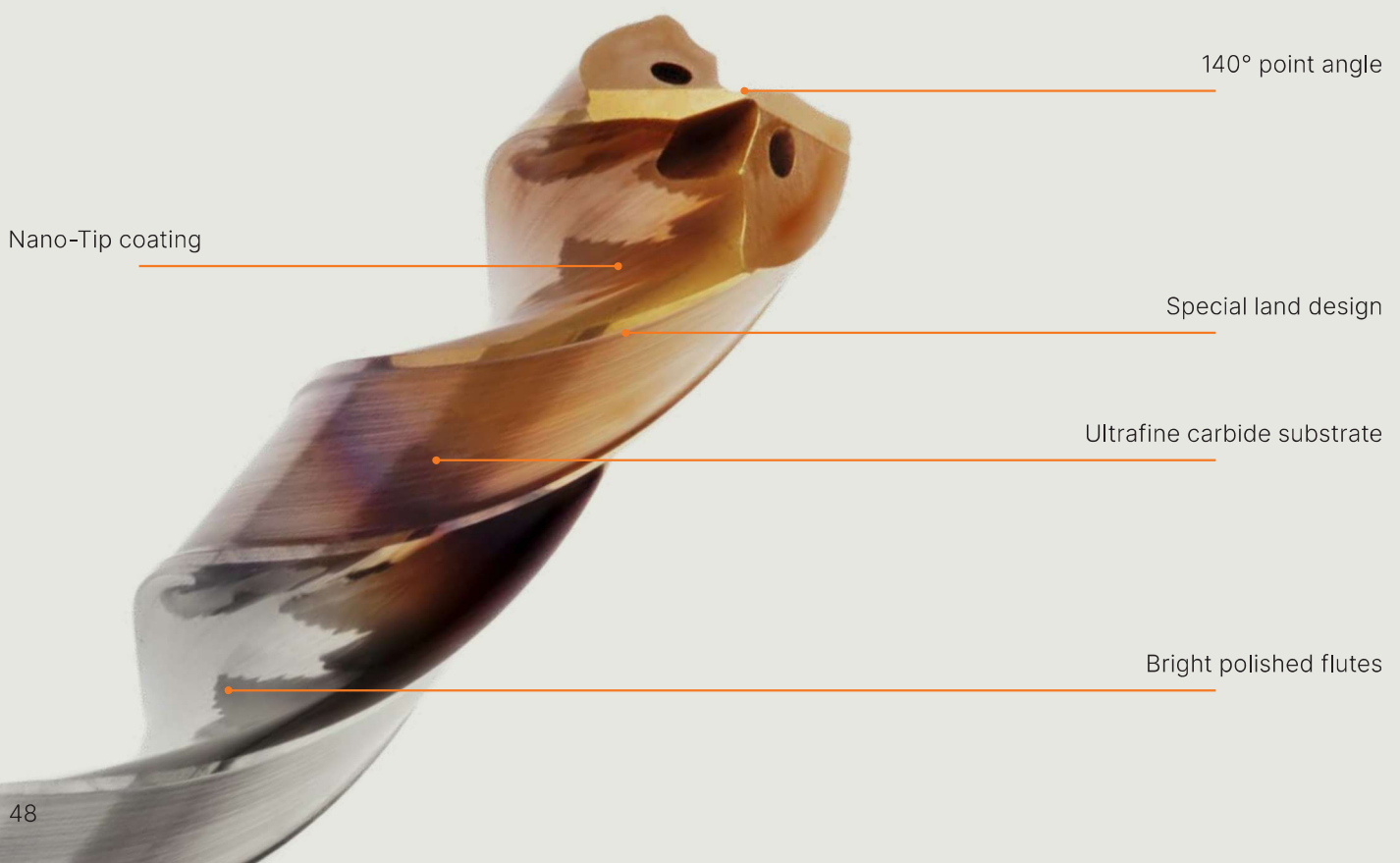
Nano-Tip coating enhances wear resistance and thermal stability.



Extended tool life

reduces cost per hole and increases overall efficiency.

Deep hole drills (RC412, RC416, RC420)



140° point angle

Nano-Tip coating

Special land design

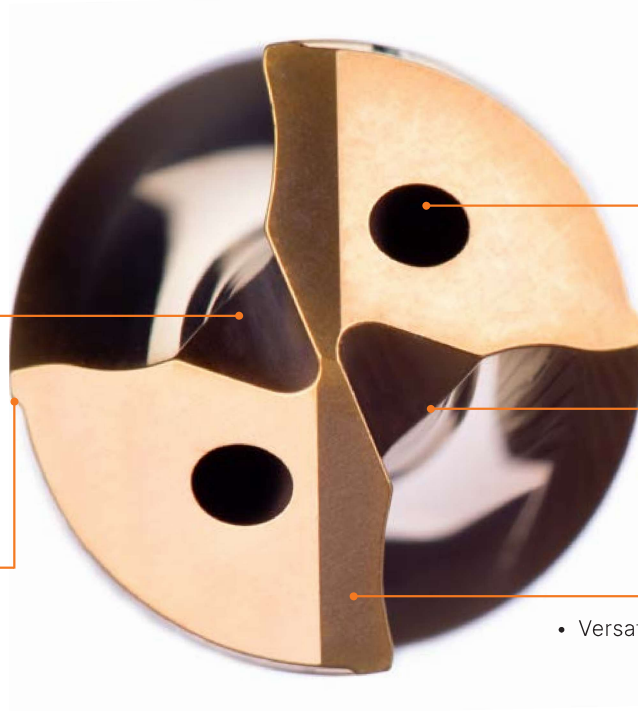
Ultrafine carbide substrate

Bright polished flutes



Features and benefits

Geometry (RC412, RC416, RC420)



Optimized web design

- For high drill stiffness
- No restriction of flute size
- Allowing secure and efficient swarf evacuation

Special land design

- Allows rapid guidance in hole

Internal coolant holes

- Suitable for a variety of coolants
 - Oil or emulsion
 - MQL

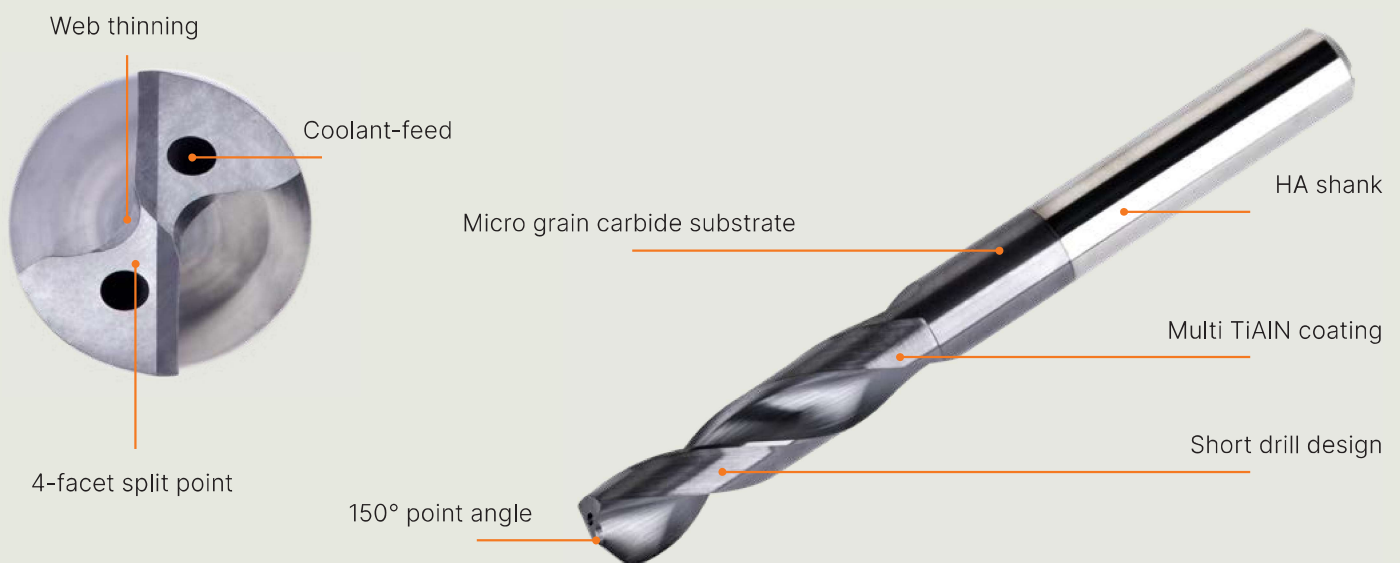
Web thinning

- Enhances hole position accuracy

Unique geometry

- Versatile drilling in a wide range of WMG's
 - High productivity
- Hole accuracy without pecking

Pilot drills (RC4P)



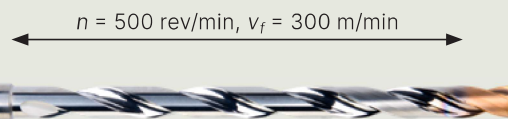


Deep hole drilling application

Machining recommendations

General precaution:

Don't move the deep hole drill outside of the pilot hole with over 500 rev/min and 300 mm/min.



1. Drill a pilot hole (min $1.5 \times D$)



20 – 50 bar
270 – 725 psi

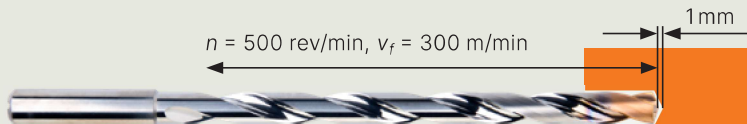
RC4P $1.5 \times D$



2. Infeed the deep hole drill with low feed (500 rev/min and 300 mm/min) until 1 mm to the depth of drilled pilot hole.



$n = 500 \text{ rev/min}, v_f = 300 \text{ m/min}$

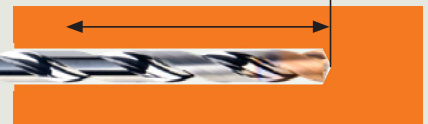


3. Turn on coolant (min 20 bar), start to drill with recommended speed and feed to the final drilling depth – no pecking needed. Return the drill to the pilot drill depth. Coolant off!



20 – 50 bar
270 – 725 psi

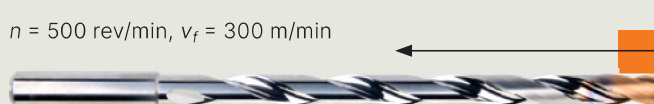
$n = 100\% \text{ rev/min}, v_f = 100\% \text{ m/min}$



4. Feed out the drill from the pilot hole with low speed and feed (500 rev/min and 300 mm/min).



$n = 500 \text{ rev/min}, v_f = 300 \text{ m/min}$





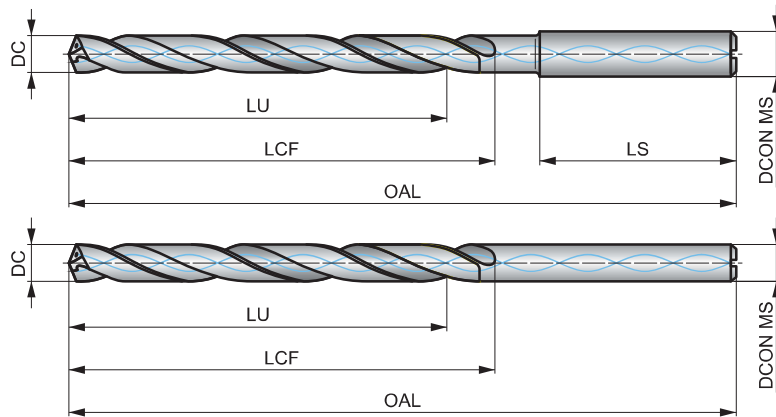
RC412



FORCE Deep Hole Solid Carbide 12XD Drill with Coolant Feed, Nano-Tip Coated

High-performance deep hole drill with a 140° point angle and thinner web design for drilling up to 12xD without pecking. Designed for rapid penetration and precise guidance, ensuring excellent positional accuracy. Internal coolant enhances chip evacuation, and Nano-Tip multilayer coating delivers superior thermal stability and wear resistance for extended tool life.

HM	DIN 6535	12xD
140°	Nano-Tip	DIN 6535HA
R	DC m7	



Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 116 H	■ 118 H	■ 121 H	■ 113 G	■ 105 H	■ 100 G	■ 113 G	■ 84 G	■ 47 E	■ 76 F	■ 84 G	■ 32 E	■ 100 H	■ 95 H
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 47 F	■ 44 F	■ 42 F	■ 41 D	■ 40 D	■ 37 D	■ 32 C	■ 37 D	■ 110 J	■ 105 J	■ 95 J	■ 112 J	■ 106 J	■ 100 J
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3
■ 113 J	■ 103 J	■ 84 J	■ 95 L	■ 76 L	■ 65 V	■ 63 V	■ 58 V	■ 95 J	■ 84 J	■ 79 J	■ 221 J	■ 208 J	■ 200 J
N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1
■ 200 J	■ 194 L	■ 147 J	■ 126 G	■ 147 H	■ 137 F	■ 37 D	■ 32 B	■ 26 B	■ 32 B	■ 23 B	■ 26 C	■ 11 B	■ 26 C
S4.2													
■ 11 B													

DCON MS tolerance h6.

Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4123.0	—	3.00	0.1180	54.0	92.0	48.00	36.0	6.00
RC4123.1	—	3.10	0.1220	54.0	92.0	48.00	36.0	6.00
RC4121/8	1/8	3.17	0.1250	54.0	92.0	48.00	36.0	6.00
RC4123.2	—	3.20	0.1260	54.0	92.0	48.00	36.0	6.00
RC4123.3	—	3.30	0.1300	54.0	92.0	48.00	36.0	6.00
RC4123.4	—	3.40	0.1340	54.0	92.0	48.00	36.0	6.00
RC4123.5	—	3.50	0.1380	54.0	92.0	48.00	36.0	6.00
RC4129/64	9/64	3.57	0.1410	54.0	92.0	48.00	36.0	6.00
RC4123.6	—	3.60	0.1420	54.0	92.0	48.00	36.0	6.00
RC4123.7	—	3.70	0.1460	54.0	92.0	48.00	36.0	6.00
RC4123.8	—	3.80	0.1500	64.0	102.0	56.00	36.0	6.00
RC4123.9	—	3.90	0.1540	64.0	102.0	56.00	36.0	6.00
RC4125/32	5/32	3.97	0.1560	64.0	102.0	56.00	36.0	6.00
RC4124.0	—	4.00	0.1570	64.0	102.0	56.00	36.0	6.00
RC4124.1	—	4.10	0.1610	64.0	102.0	56.00	36.0	6.00
RC4124.2	—	4.20	0.1650	64.0	102.0	56.00	36.0	6.00
RC4124.3	—	4.30	0.1690	64.0	102.0	56.00	36.0	6.00
RC41211/64	11/64	4.37	0.1720	64.0	102.0	56.00	36.0	6.00
RC4124.4	—	4.40	0.1730	64.0	102.0	56.00	36.0	6.00
RC4124.5	—	4.50	0.1770	64.0	102.0	56.00	36.0	6.00
RC4124.6	—	4.60	0.1810	64.0	102.0	56.00	36.0	6.00
RC4124.7	—	4.70	0.1850	64.0	102.0	56.00	36.0	6.00
RC4123/16	3/16	4.76	0.1880	83.0	121.0	74.00	36.0	6.00



Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4124.8	—	4.80	0.1890	83.0	121.0	74.00	36.0	6.00
RC4124.9	—	4.90	0.1930	83.0	121.0	74.00	36.0	6.00
RC4125.0	—	5.00	0.1970	83.0	121.0	74.00	36.0	6.00
RC4125.1	—	5.10	0.2010	83.0	121.0	74.00	36.0	6.00
RC41213/64	13/64	5.16	0.2030	83.0	121.0	74.00	36.0	6.00
RC4125.2	—	5.20	0.2050	83.0	121.0	74.00	36.0	6.00
RC4125.3	—	5.30	0.2090	83.0	121.0	74.00	36.0	6.00
RC4125.4	—	5.40	0.2130	83.0	121.0	74.00	36.0	6.00
RC4125.5	—	5.50	0.2170	83.0	121.0	74.00	36.0	6.00
RC4125.55	—	5.55	0.2190	83.0	121.0	74.00	36.0	6.00
RC4127/32	7/32	5.56	0.2190	83.0	121.0	74.00	36.0	6.00
RC4125.6	—	5.60	0.2200	83.0	121.0	74.00	36.0	6.00
RC4125.7	—	5.70	0.2240	83.0	121.0	74.00	36.0	6.00
RC4125.8	—	5.80	0.2280	83.0	121.0	74.00	36.0	6.00
RC4125.9	—	5.90	0.2320	83.0	121.0	74.00	36.0	6.00
RC4126.0	—	6.00	0.2360	83.0	121.0	74.00	36.0	6.00
RC4126.1	—	6.10	0.2400	110.0	148.0	98.00	36.0	8.00
RC4126.2	—	6.20	0.2440	110.0	148.0	98.00	36.0	8.00
RC4126.3	—	6.30	0.2480	110.0	148.0	98.00	36.0	8.00
RC4121/4	1/4	6.35	0.2500	110.0	148.0	98.00	36.0	8.00
RC4126.4	—	6.40	0.2520	110.0	148.0	98.00	36.0	8.00
RC4126.5	—	6.50	0.2560	110.0	148.0	98.00	36.0	8.00
RC4126.6	—	6.60	0.2600	110.0	148.0	98.00	36.0	8.00
RC4126.7	—	6.70	0.2640	110.0	148.0	98.00	36.0	8.00
RC41217/64	17/64	6.75	0.2660	110.0	148.0	98.00	36.0	8.00
RC4126.8	—	6.80	0.2680	110.0	148.0	98.00	36.0	8.00
RC4126.9	—	6.90	0.2720	110.0	148.0	98.00	36.0	8.00
RC4127.0	—	7.00	0.2760	110.0	148.0	98.00	36.0	8.00
RC4127.1	—	7.10	0.2800	110.0	148.0	98.00	36.0	8.00
RC4129/32	9/32	7.14	0.2810	110.0	148.0	98.00	36.0	8.00
RC4127.2	—	7.20	0.2830	110.0	148.0	98.00	36.0	8.00
RC4127.3	—	7.30	0.2870	110.0	148.0	98.00	36.0	8.00
RC4127.4	—	7.40	0.2910	110.0	148.0	98.00	36.0	8.00
RC4127.5	—	7.50	0.2950	110.0	148.0	98.00	36.0	8.00
RC41219/64	19/64	7.54	0.2970	110.0	148.0	98.00	36.0	8.00
RC4127.8	—	7.80	0.3070	110.0	148.0	98.00	36.0	8.00
RC4127.9	—	7.90	0.3110	110.0	148.0	98.00	36.0	8.00
RC4125/16	5/16	7.94	0.3130	110.0	148.0	98.00	36.0	8.00
RC4128.0	—	8.00	0.3150	110.0	148.0	98.00	36.0	8.00
RC4128.1	—	8.10	0.3190	138.0	180.0	123.00	40.0	10.00
RC4128.2	—	8.20	0.3230	138.0	180.0	123.00	40.0	10.00
RC4128.3	—	8.30	0.3270	138.0	180.0	123.00	40.0	10.00
RC4128.4	—	8.40	0.3310	138.0	180.0	123.00	40.0	10.00
RC4128.5	—	8.50	0.3350	138.0	180.0	123.00	40.0	10.00
RC4128.6	—	8.60	0.3390	138.0	180.0	123.00	40.0	10.00
RC4128.7	—	8.70	0.3430	138.0	180.0	123.00	40.0	10.00
RC41211/32	11/32	8.73	0.3440	138.0	180.0	123.00	40.0	10.00
RC4128.8	—	8.80	0.3460	138.0	180.0	123.00	40.0	10.00
RC4129.0	—	9.00	0.3540	138.0	180.0	123.00	40.0	10.00
RC41223/64	23/64	9.13	0.3590	138.0	180.0	123.00	40.0	10.00
RC4129.2	—	9.20	0.3620	138.0	180.0	123.00	40.0	10.00
RC4129.3	—	9.30	0.3660	138.0	180.0	123.00	40.0	10.00
RC4129.5	—	9.50	0.3740	138.0	180.0	123.00	40.0	10.00
RC4123/8	3/8	9.53	0.3750	138.0	180.0	123.00	40.0	10.00
RC4129.6	—	9.60	0.3780	138.0	180.0	123.00	40.0	10.00
RC4129.7	—	9.70	0.3820	138.0	180.0	123.00	40.0	10.00
RC4129.8	—	9.80	0.3860	138.0	180.0	123.00	40.0	10.00
RC41225/64	25/64	9.92	0.3910	138.0	180.0	123.00	40.0	10.00
RC41210.0	—	10.00	0.3940	138.0	180.0	123.00	40.0	10.00
RC41210.1	—	10.10	0.3980	158.0	206.0	140.00	45.0	12.00
RC41210.2	—	10.20	0.4020	158.0	206.0	140.00	45.0	12.00
RC41210.3	—	10.30	0.4060	158.0	206.0	140.00	45.0	12.00



Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC41213/32	13/32	10.32	0.4060	158.0	206.0	140.00	45.0	12.00
RC41210.4	—	10.40	0.4090	158.0	206.0	140.00	45.0	12.00
RC41210.5	—	10.50	0.4130	158.0	206.0	140.00	45.0	12.00
RC41227/64	27/64	10.72	0.4220	158.0	206.0	140.00	45.0	12.00
RC41210.8	—	10.80	0.4250	158.0	206.0	140.00	45.0	12.00
RC41211.0	—	11.00	0.4330	158.0	206.0	140.00	45.0	12.00
RC41211.1	—	11.10	0.4370	158.0	206.0	140.00	45.0	12.00
RC4127/16	7/16	11.11	0.4380	158.0	206.0	140.00	45.0	12.00
RC41211.2	—	11.20	0.4410	158.0	206.0	140.00	45.0	12.00
RC41211.5	—	11.50	0.4530	158.0	206.0	140.00	45.0	12.00
RC41229/64	29/64	11.51	0.4530	158.0	206.0	140.00	45.0	12.00
RC41211.7	—	11.70	0.4610	158.0	206.0	140.00	45.0	12.00
RC41211.8	—	11.80	0.4650	158.0	206.0	140.00	45.0	12.00
RC41215/32	15/32	11.91	0.4690	158.0	206.0	140.00	45.0	12.00
RC41212.0	—	12.00	0.4720	158.0	206.0	140.00	45.0	12.00
RC41212.1	—	12.10	0.4760	182.0	230.0	168.00	45.0	14.00
RC41212.2	—	12.20	0.4800	182.0	230.0	168.00	45.0	14.00
RC41212.3	—	12.30	0.4840	182.0	230.0	168.00	45.0	14.00
RC41231/64	31/64	12.30	0.4840	182.0	230.0	168.00	45.0	14.00
RC41212.5	—	12.50	0.4920	182.0	230.0	168.00	45.0	14.00
RC41212.6	—	12.60	0.4960	182.0	230.0	168.00	45.0	14.00
RC41212.7	—	12.70	0.5000	182.0	230.0	168.00	45.0	14.00
RC41213.0	—	13.00	0.5120	182.0	230.0	168.00	45.0	14.00
RC41217/32	17/32	13.49	0.5310	182.0	230.0	168.00	45.0	14.00
RC41213.5	—	13.50	0.5310	182.0	230.0	168.00	45.0	14.00
RC41214.0	—	14.00	0.5510	182.0	230.0	168.00	45.0	14.00
RC4129/16	9/16	14.29	0.5630	208.0	260.0	192.00	48.0	16.00
RC41214.5	—	14.50	0.5710	208.0	260.0	192.00	48.0	16.00
RC41215.0	—	15.00	0.5910	208.0	260.0	192.00	48.0	16.00
RC41215.5	—	15.50	0.6100	208.0	260.0	192.00	48.0	16.00
RC4125/8	5/8	15.88	0.6250	208.0	260.0	192.00	48.0	16.00
RC41216.0	—	16.00	0.6300	208.0	260.0	192.00	48.0	16.00
RC41216.5	—	16.50	0.6500	234.0	285.0	216.00	48.0	18.00
RC41217.0	—	17.00	0.6690	234.0	285.0	216.00	48.0	18.00
RC41217.5	—	17.50	0.6890	234.0	285.0	216.00	48.0	18.00
RC41218.0	—	18.00	0.7090	234.0	285.0	216.00	48.0	18.00
RC41218.5	—	18.50	0.7280	258.0	310.0	238.00	50.0	20.00
RC41219.0	—	19.00	0.7480	258.0	310.0	238.00	50.0	20.00
RC41219.5	—	19.50	0.7680	258.0	310.0	238.00	50.0	20.00
RC41220.0	—	20.00	0.7870	258.0	310.0	238.00	50.0	20.00

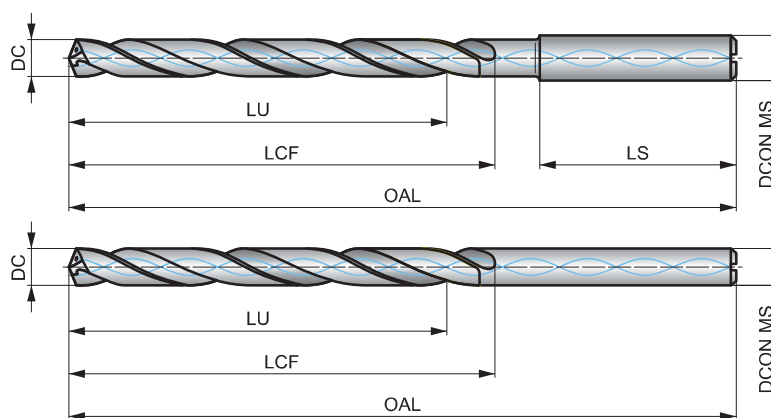


RC416



FORCE Deep Hole Solid Carbide 16XD Drill with Coolant Feed, Nano-Tip Coated

High-performance deep hole drill with a 140° point angle and thinner web design for drilling up to 16xD without pecking. Designed for rapid penetration and precise guidance, ensuring excellent positional accuracy. Internal coolant enhances chip evacuation, and Nano-Tip multilayer coating delivers superior thermal stability and wear resistance for extended tool life.



HM	DIN 6535	16xD
140°	Nano-Tip	DIN 6535HA
R	DC h7	

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 110 H	■ 112 H	■ 115 H	■ 108 H	■ 100 H	■ 95 G	■ 108 H	■ 80 G	■ 45 E	■ 72 G	■ 80 G	■ 30 E	■ 95 H	■ 90 H
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 45 F	■ 42 F	■ 40 F	■ 39 D	■ 38 D	■ 35 D	■ 30 C	■ 35 D	■ 105 J	■ 100 J	■ 90 J	■ 107 J	■ 101 J	■ 95 J
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3
■ 108 J	■ 98 J	■ 80 J	■ 90 J	■ 72 L	■ 62 V	■ 60 V	■ 55 V	■ 90 J	■ 80 J	■ 75 J	■ 210 L	■ 198 L	■ 190 L
N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1
■ 190 L	■ 185 L	■ 140 L	■ 120 G	■ 140 H	■ 130 F	■ 35 D	■ 30 B	■ 25 B	■ 30 C	■ 22 A	■ 25 B	■ 10 B	■ 25 B
S4.2													
■ 10 B													

DCON MS tolerance h6.

Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4163.0	—	3.00	0.1180	57.0	89.0	52.00	28.0	4.00
RC4161/8	1/8	3.17	0.1250	66.0	98.0	60.00	28.0	4.00
RC4163.5	—	3.50	0.1380	78.0	110.0	72.00	28.0	4.00
RC4169/64	9/64	3.57	0.1410	78.0	110.0	72.00	28.0	4.00
RC4165/32	5/32	3.97	0.1560	78.0	110.0	72.00	28.0	4.00
RC4164.0	—	4.00	0.1570	78.0	110.0	72.00	28.0	4.00
RC4164.5	—	4.50	0.1770	100.0	132.0	93.00	28.0	5.00
RC4163/16	3/16	4.76	0.1880	100.0	132.0	92.00	28.0	5.00
RC4164.8	—	4.80	0.1890	100.0	132.0	92.00	28.0	5.00
RC4165.0	—	5.00	0.1970	100.0	132.0	92.00	28.0	5.00
RC4165.5	—	5.50	0.2170	110.0	150.0	101.00	36.0	6.00
RC4167/32	7/32	5.56	0.2190	120.0	160.0	111.00	36.0	6.00
RC4165.8	—	5.80	0.2280	120.0	160.0	111.00	36.0	6.00
RC4166.0	—	6.00	0.2360	120.0	160.0	111.00	36.0	6.00
RC4166.1	—	6.10	0.2400	135.0	175.0	124.00	36.0	8.00
RC4161/4	1/4	6.35	0.2500	135.0	175.0	124.00	36.0	8.00
RC4166.5	—	6.50	0.2560	135.0	175.0	124.00	36.0	8.00
RC41617/64	17/64	6.75	0.2660	135.0	175.0	124.00	36.0	8.00
RC4166.8	—	6.80	0.2680	135.0	175.0	124.00	36.0	8.00
RC4167.0	—	7.00	0.2760	135.0	175.0	124.00	36.0	8.00
RC4169/32	9/32	7.14	0.2810	152.0	192.0	140.00	36.0	8.00
RC4167.4	—	7.40	0.2910	152.0	192.0	140.00	36.0	8.00
RC4167.5	—	7.50	0.2950	152.0	192.0	140.00	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4165/16	5/16	7.94	0.3130	152.0	192.0	140.00	36.0	8.00
RC4168.0	—	8.00	0.3150	152.0	192.0	140.00	36.0	8.00
RC4168.3	—	8.30	0.3270	162.0	206.0	148.00	40.0	10.00
RC4168.5	—	8.50	0.3350	162.0	206.0	148.00	40.0	10.00
RC41611/32	11/32	8.73	0.3440	162.0	206.0	148.00	40.0	10.00
RC4169.0	—	9.00	0.3540	162.0	206.0	148.00	40.0	10.00
RC4163/8	3/8	9.53	0.3750	180.0	224.0	165.00	40.0	10.00
RC4169.8	—	9.80	0.3860	180.0	224.0	165.00	40.0	10.00
RC41610.0	—	10.00	0.3940	180.0	224.0	165.00	40.0	10.00
RC41610.2	—	10.20	0.4020	198.0	247.0	181.00	45.0	12.00
RC41613/32	13/32	10.32	0.4060	198.0	247.0	181.00	45.0	12.00
RC41611.0	—	11.00	0.4330	198.0	247.0	181.00	45.0	12.00
RC4167/16	7/16	11.11	0.4380	216.0	265.0	198.00	45.0	12.00
RC41611.5	—	11.50	0.4530	216.0	265.0	198.00	45.0	12.00
RC41611.8	—	11.80	0.4650	216.0	265.0	198.00	45.0	12.00
RC41615/32	15/32	11.91	0.4690	216.0	265.0	198.00	45.0	12.00
RC41612.0	—	12.00	0.4720	216.0	265.0	198.00	45.0	12.00
RC41612.7	—	12.70	0.5000	252.0	301.0	238.00	45.0	14.00
RC41613.0	—	13.00	0.5120	252.0	301.0	238.00	45.0	14.00
RC41614.0	—	14.00	0.5510	252.0	301.0	238.00	45.0	14.00
RC4169/16	9/16	14.29	0.5630	288.0	340.0	272.00	48.0	16.00
RC41615.0	—	15.00	0.5910	288.0	340.0	272.00	48.0	16.00
RC41616.0	—	16.00	0.6300	288.0	340.0	272.00	48.0	16.00

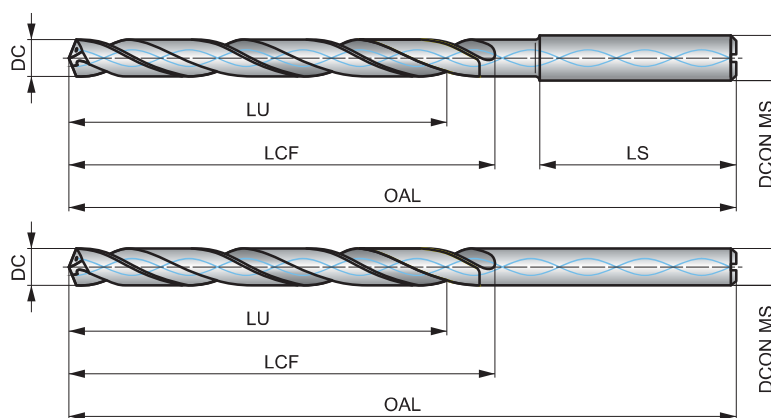


RC420



FORCE Deep Hole Solid Carbide 20XD Drill with Coolant Feed, Nano-Tip Coated

High-performance deep hole drill with a 140° point angle and thinner web design for drilling up to 20xD without pecking. Designed for rapid penetration and precise guidance, ensuring excellent positional accuracy. Internal coolant enhances chip evacuation, and Nano-Tip multilayer coating delivers superior thermal stability and wear resistance for extended tool life.



HM	DIN 6535	20xD
140°	Nano-Tip	DIN 6535HA
R	DC h7	

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 105 H	■ 106 H	■ 109 H	■ 103 G	■ 95 G	■ 90 F	■ 103 G	■ 76 F	■ 43 E	■ 68 F	■ 76 F	■ 29 E	■ 90 G	■ 86 G
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 43 E	■ 40 E	■ 38 E	■ 37 C	■ 36 C	■ 33 C	■ 29 B	■ 33 D	■ 100 J	■ 95 J	■ 86 J	■ 102 J	■ 96 H	■ 90 H
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3
■ 103 H	■ 93 H	■ 76 H	■ 86 J	■ 68 J	■ 59 V	■ 57 V	■ 52 V	■ 86 J	■ 76 J	■ 71 J	■ 200 L	■ 188 L	■ 181 L
N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1
■ 181 L	■ 176 L	■ 133 J	■ 114 G	■ 133 G	■ 124 E	■ 33 D	■ 29 B	■ 24 B	■ 29 B	■ 21 A	■ 24 B	■ 10 A	■ 24 B
S4.2													
■ 10 A													

DCON MS tolerance h6.

Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4203.0	—	3.00	0.1180	65.0	97.0	60.00	28.0	4.00
RC4201/8	1/8	3.17	0.1250	80.0	112.0	74.00	28.0	4.00
RC4203.5	—	3.50	0.1380	92.0	124.0	86.00	28.0	4.00
RC4209/64	9/64	3.57	0.1410	92.0	124.0	86.00	28.0	4.00
RC4205/32	5/32	3.97	0.1560	92.0	124.0	86.00	28.0	4.00
RC4204.0	—	4.00	0.1570	92.0	124.0	86.00	28.0	4.00
RC4204.5	—	4.50	0.1770	118.0	150.0	111.00	28.0	5.00
RC4203/16	3/16	4.76	0.1880	118.0	150.0	110.00	28.0	5.00
RC4204.8	—	4.80	0.1890	118.0	150.0	110.00	28.0	5.00
RC4205.0	—	5.00	0.1970	118.0	150.0	110.00	28.0	5.00
RC4205.5	—	5.50	0.2170	132.0	170.0	123.00	36.0	6.00
RC4207/32	7/32	5.56	0.2190	144.0	182.0	135.00	36.0	6.00
RC4205.8	—	5.80	0.2280	144.0	182.0	135.00	36.0	6.00
RC4206.0	—	6.00	0.2360	144.0	182.0	135.00	36.0	6.00
RC4206.1	—	6.10	0.2400	162.0	200.0	151.00	36.0	8.00
RC4201/4	1/4	6.35	0.2500	162.0	200.0	151.00	36.0	8.00
RC4206.5	—	6.50	0.2560	162.0	200.0	151.00	36.0	8.00
RC42017/64	17/64	6.75	0.2660	162.0	200.0	151.00	36.0	8.00
RC4206.8	—	6.80	0.2680	162.0	200.0	151.00	36.0	8.00
RC4207.0	—	7.00	0.2760	162.0	200.0	151.00	36.0	8.00
RC4209/32	9/32	7.14	0.2810	184.0	222.0	172.00	36.0	8.00
RC4207.4	—	7.40	0.2910	184.0	222.0	172.00	36.0	8.00
RC4207.5	—	7.50	0.2950	184.0	222.0	172.00	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4205/16	5/16	7.94	0.3130	184.0	222.0	172.00	36.0	8.00
RC4208.0	—	8.00	0.3150	184.0	222.0	172.00	36.0	8.00
RC4208.3	—	8.30	0.3270	198.0	240.0	184.00	40.0	10.00
RC4208.5	—	8.50	0.3350	198.0	240.0	184.00	40.0	10.00
RC42011/32	11/32	8.73	0.3440	198.0	240.0	184.00	40.0	10.00
RC4209.0	—	9.00	0.3540	198.0	240.0	184.00	40.0	10.00
RC4203/8	3/8	9.53	0.3750	220.0	262.0	205.00	40.0	10.00
RC4209.8	—	9.80	0.3860	220.0	262.0	205.00	40.0	10.00
RC42010.0	—	10.00	0.3940	220.0	262.0	205.00	40.0	10.00
RC42010.2	—	10.20	0.4020	242.0	289.0	225.00	45.0	12.00
RC42013/32	13/32	10.32	0.4060	242.0	289.0	225.00	45.0	12.00
RC42011.0	—	11.00	0.4330	242.0	289.0	225.00	45.0	12.00
RC4207/16	7/16	11.11	0.4380	264.0	311.0	246.00	45.0	12.00
RC42011.5	—	11.50	0.4530	264.0	311.0	246.00	45.0	12.00
RC42011.8	—	11.80	0.4650	264.0	311.0	246.00	45.0	12.00
RC42015/32	15/32	11.91	0.4690	264.0	311.0	246.00	45.0	12.00
RC42012.0	—	12.00	0.4720	264.0	311.0	246.00	45.0	12.00
RC42012.7	—	12.70	0.5000	308.0	357.0	294.00	45.0	14.00
RC42013.0	—	13.00	0.5120	308.0	357.0	294.00	45.0	14.00
RC42014.0	—	14.00	0.5510	308.0	357.0	294.00	45.0	14.00
RC4209/16	9/16	14.29	0.5630	352.0	404.0	336.00	48.0	16.00
RC42015.0	—	15.00	0.5910	352.0	404.0	336.00	48.0	16.00
RC42016.0	—	16.00	0.6300	352.0	404.0	336.00	48.0	16.00



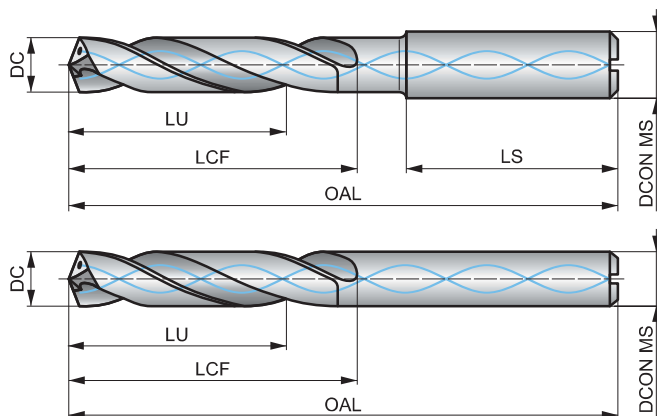
RC4P



FORCE Pilot Solid Carbide Drill 2xD with Coolant Feed, Multi TiAlN Coated

Specially designed pilot drill for precise hole positioning when using Force deep hole drills 16xD and 20xD. Features a 150° point angle and slightly larger drill tolerance p7 for accurate drilling of pilot holes up to 2xD. High quality solid carbide substrate and internal coolant channels provide enhanced cooling efficiency. TiAlN multilayer coating minimizes friction.

HM	DIN 6535	2xD
150°	Multi TiAlN	DIN 6535HA
R	DC p7	



Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 110 I	■ 112 I	■ 108 I	■ 115 G	■ 100 H	■ 90 H	■ 85 H	■ 80 H	■ 70 F	■ 80 G	■ 63 G	■ 50 E	■ 79 H	■ 75 H
M2.1	M2.2	M2.3	M3.1	M3.2	M3.3	M4.1	M4.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3
■ 65 F	■ 60 F	■ 58 F	■ 42 D	■ 40 D	■ 38 D	■ 40 C	■ 35 D	■ 121 L	■ 120 L	■ 110 J	■ 120 L	■ 110 J	■ 100 J
K3.1	K3.2	K3.3	K4.1	K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3
■ 80 L	■ 70 J	■ 68 J	■ 100 L	■ 80 L	■ 70 V	■ 60 V	■ 50 V	■ 80 J	■ 75 J	■ 70 J	■ 302 J	■ 300 J	■ 290 J
N2.1	N2.2	N2.3	N3.1	N3.2	N3.3	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1
■ 250 J	■ 220 L	■ 200 J	■ 160 G	■ 120 H	■ 110 F	■ 45 D	■ 32 B	■ 28 B	■ 32 B	■ 30 B	■ 30 C	■ 11 B	■ 30 C
S4.2													
■ 11 B													

DCON MS tolerance h6.

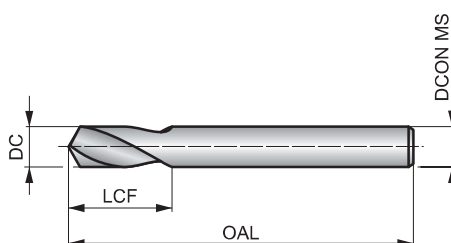
Product	DC (inch)	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	LU (mm)	LS (mm)	DCON MS (mm)
RC4P3.0	—	3.00	0.1180	20.0	66.0	14.00	36.0	6.00
RC4P1/8	1/8	3.17	0.1250	20.0	66.0	14.00	36.0	6.00
RC4P3.5	—	3.50	0.1380	20.0	66.0	14.00	36.0	6.00
RC4P9/64	9/64	3.57	0.1410	20.0	66.0	14.00	36.0	6.00
RC4P5/32	5/32	3.97	0.1560	24.0	74.0	16.00	36.0	6.00
RC4P4.0	—	4.00	0.1570	24.0	74.0	16.00	36.0	6.00
RC4P4.5	—	4.50	0.1770	24.0	74.0	16.00	36.0	6.00
RC4P3/16	3/16	4.76	0.1880	28.0	82.0	19.00	36.0	6.00
RC4P4.8	—	4.80	0.1890	28.0	82.0	19.00	36.0	6.00
RC4P5.0	—	5.00	0.1970	28.0	82.0	19.00	36.0	6.00
RC4P5.5	—	5.50	0.2170	28.0	82.0	19.00	36.0	6.00
RC4P7/32	7/32	5.56	0.2190	28.0	82.0	19.00	36.0	6.00
RC4P5.8	—	5.80	0.2280	28.0	82.0	19.00	36.0	6.00
RC4P6.0	—	6.00	0.2360	28.0	82.0	19.00	36.0	6.00
RC4P6.1	—	6.10	0.2400	34.0	91.0	23.00	36.0	8.00
RC4P1/4	1/4	6.35	0.2500	34.0	91.0	23.00	36.0	8.00
RC4P6.5	—	6.50	0.2560	34.0	91.0	23.00	36.0	8.00
RC4P6.8	—	6.80	0.2680	34.0	91.0	23.00	36.0	8.00
RC4P7.0	—	7.00	0.2760	34.0	91.0	23.00	36.0	8.00
RC4P9/32	9/32	7.14	0.2810	41.0	91.0	29.00	36.0	8.00
RC4P7.4	—	7.40	0.2910	41.0	91.0	29.00	36.0	8.00
RC4P7.5	—	7.50	0.2950	41.0	91.0	29.00	36.0	8.00
RC4P5/16	5/16	7.94	0.3130	41.0	91.0	29.00	36.0	8.00



Product	DC	DC	DC	LCF	OAL	LU	LS	DCON MS
	(inch)	(mm)	(inch)	(mm)	(mm)	(mm)	(mm)	(mm)
RC4P8.0	—	8.00	0.3150	41.0	91.0	29.00	36.0	8.00
RC4P8.3	—	8.30	0.3270	47.0	103.0	32.00	40.0	10.00
RC4P8.5	—	8.50	0.3350	47.0	103.0	32.00	40.0	10.00
RC4P11/32	11/32	8.73	0.3440	47.0	103.0	32.00	40.0	10.00
RC4P9.0	—	9.00	0.3540	47.0	103.0	32.00	40.0	10.00
RC4P3/8	3/8	9.53	0.3750	47.0	103.0	32.00	40.0	10.00
RC4P9.8	—	9.80	0.3860	47.0	103.0	32.00	40.0	10.00
RC4P10.0	—	10.00	0.3940	47.0	103.0	32.00	40.0	10.00
RC4P10.2	—	10.20	0.4020	55.0	118.0	37.00	45.0	12.00
RC4P13/32	13/32	10.32	0.4060	55.0	118.0	37.00	45.0	12.00
RC4P11.0	—	11.00	0.4330	55.0	118.0	37.00	45.0	12.00
RC4P7/16	7/16	11.11	0.4380	55.0	118.0	37.00	45.0	12.00
RC4P11.5	—	11.50	0.4530	55.0	118.0	37.00	45.0	12.00
RC4P11.8	—	11.80	0.4650	55.0	118.0	37.00	45.0	12.00
RC4P15/32	15/32	11.91	0.4690	55.0	118.0	37.00	45.0	12.00
RC4P12.0	—	12.00	0.4720	55.0	118.0	37.00	45.0	12.00
RC4P1/2	1/2	12.70	0.5000	60.0	124.0	46.00	45.0	14.00
RC4P13.0	—	13.00	0.5120	60.0	124.0	46.00	45.0	14.00
RC4P14.0	—	14.00	0.5510	60.0	124.0	46.00	45.0	14.00
RC4P9/16	9/16	14.29	0.5630	65.0	133.0	49.00	48.0	16.00
RC4P15.0	—	15.00	0.5910	65.0	133.0	49.00	48.0	16.00
RC4P16.0	—	16.00	0.6300	65.0	133.0	49.00	48.0	16.00

**R122****Solid Carbide Spotting Drill, 120° Point**

The precision engineered point angle provides an accurate guide to help with centering of follow-up drilling of the hole. A 120° point angle helps with self-centering and reduces cutting forces when drilling a variety of materials.



HM		1xD
120°	Bright	
20-35°		DC h6

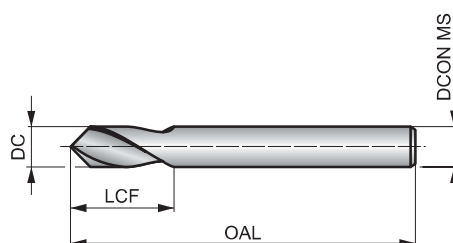
Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 99 S	P1.2 ■ 111 S	P1.3 ■ 115 S	P2.1 ■ 85 S	P2.2 ■ 75 S	P2.3 ■ 66 S	P3.1 ■ 66 S	P3.2 ■ 53 S	P3.3 ■ 45 S	P4.1 ■ 40 S	P4.2 ■ 34 S	P4.3 ■ 27 S	M1.1 ■ 73 S	M1.2 ■ 61 S
M2.1 ■ 65 S	M2.2 ■ 53 S	M3.1 ■ 52 S	M3.2 ■ 45 S	K1.1 ■ 75 T	K1.2 ■ 56 T	K1.3 ■ 42 T	K2.1 ■ 68 T	K2.2 ■ 55 T	K2.3 ■ 44 T	K3.1 ■ 60 T	K3.2 ■ 46 T	K3.3 ■ 37 T	K4.1 ■ 55 T
K4.2 ■ 42 T	K4.3 ■ 31 T	K4.4 ■ 26 T	K4.5 ■ 22 T	K5.1 ■ 63 T	K5.2 ■ 47 T	K5.3 ■ 37 T	N1.1 ■ 200 V	N1.2 ■ 150 V	N1.3 ■ 100 V	N2.1 ■ 172 V	N2.2 ■ 155 V	N2.3 ■ 112 V	N3.1 ■ 423 V
N3.2 ■ 250 V	N3.3 ■ 125 V	N4.1 ■ 60 X	N4.2 ■ 100 V	S1.1 ■ 45 T	S1.2 ■ 35 T	S1.3 ■ 25 S	S2.1 ■ 40 S	S2.2 ■ 28 S	S3.1 ■ 30 S	S3.2 ■ 20 S	S4.1 ■ 23 S	S4.2 ■ 16 S	H1.1 ■ 56 S
H2.1 ■ 33 S	H2.2 ■ 36 S	H3.1 ■ 37 S	H3.2 ■ 30 S										

Product	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	DCON MS (mm)
R1225.0	5.00	0.1969	16.0	62.0	5.00
R1226.0	6.00	0.2362	17.0	66.0	6.00
R1228.0	8.00	0.3150	22.0	79.0	8.00
R12210.0	10.00	0.3937	26.0	89.0	10.00
R12212.0	12.00	0.4724	30.0	102.0	12.00
R12216.0	16.00	0.6299	34.0	115.0	16.00
R12220.0	20.00	0.7874	40.0	131.0	20.00

**R123****Solid Carbide Spotting Drill, 90° Point**

The precision engineered point angle provides an accurate guide to help with centering of follow-up drilling of the hole. A 90° point helps with self-centering and reduces cutting forces when drilling into a variety of materials.



HM		1xD
90°	Bright	
20-35°		DC h6

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 99 S	P1.2 ■ 111 S	P1.3 ■ 115 S	P2.1 ■ 85 S	P2.2 ■ 75 S	P2.3 ■ 66 S	P3.1 ■ 66 S	P3.2 ■ 53 S	P3.3 ■ 45 S	P4.1 ■ 40 S	P4.2 ■ 34 S	P4.3 ■ 27 S	M1.1 ■ 73 S	M1.2 ■ 61 S
M2.1 ■ 65 S	M2.2 ■ 53 S	M3.1 ■ 52 S	M3.2 ■ 45 S	K1.1 ■ 75 T	K1.2 ■ 56 T	K1.3 ■ 42 T	K2.1 ■ 68 T	K2.2 ■ 55 T	K2.3 ■ 44 T	K3.1 ■ 60 T	K3.2 ■ 46 T	K3.3 ■ 37 T	K4.1 ■ 55 T
K4.2 ■ 42 T	K4.3 ■ 31 T	K4.4 ■ 26 T	K4.5 ■ 22 T	K5.1 ■ 63 T	K5.2 ■ 47 T	K5.3 ■ 37 T	N1.1 ■ 200 V	N1.2 ■ 150 V	N1.3 ■ 100 V	N2.1 ■ 172 V	N2.2 ■ 155 V	N2.3 ■ 112 V	N3.1 ■ 423 V
N3.2 ■ 250 V	N3.3 ■ 125 V	N4.1 ■ 60 X	N4.2 ■ 100 V	S1.1 ■ 45 T	S1.2 ■ 35 T	S1.3 ■ 25 S	S2.1 ■ 40 S	S2.2 ■ 28 S	S3.1 ■ 30 S	S3.2 ■ 20 S	S4.1 ■ 23 S	S4.2 ■ 16 S	H1.1 ■ 56 S
H2.1 ■ 33 S	H2.2 ■ 36 S	H3.1 ■ 37 S	H3.2 ■ 30 S										

Product	DC	DC	LCF	OAL	DCON MS
	(mm)	(inch)	(mm)	(mm)	(mm)
R1235.0	5.00	0.1969	16.0	62.0	5.00
R1236.0	6.00	0.2362	17.0	66.0	6.00
R1238.0	8.00	0.3150	22.0	79.0	8.00
R12310.0	10.00	0.3937	26.0	89.0	10.00
R12312.0	12.00	0.4724	30.0	102.0	12.00
R12316.0	16.00	0.6299	34.0	115.0	16.00
R12320.0	20.00	0.7874	40.0	131.0	20.00

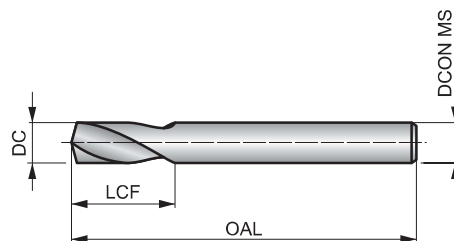


R125



Solid Carbide Spotting Drill, 150° Point, TiAlN Coated

The precision engineered point angle provides an accurate guide to help with centering of follow-up drilling of the hole. A 150° point helps with self-centering and reduces cutting forces when drilling into the material. TiAlN coating improves performance and extends the tool life. Suitable for drilling many materials.



HM	WORK NORM	1xD
150°	TiAlN	
λ 20-35°	R	DC h6

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 119 S	■ 134 S	■ 138 S	■ 102 S	■ 90 S	■ 80 S	■ 81 S	■ 65 S	■ 55 S	■ 48 S	■ 41 S	■ 34 S	■ 82 S	■ 70 S
M2.1	M2.2	M3.1	M3.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3	K3.1	K3.2	K3.3	K4.1
■ 73 S	■ 60 S	■ 58 S	■ 50 S	■ 80 T	■ 59 T	■ 44 T	■ 86 T	■ 70 T	■ 56 T	■ 76 T	■ 58 T	■ 47 T	■ 71 T
K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1
■ 53 T	■ 39 T	■ 33 T	■ 28 T	■ 80 T	■ 60 T	■ 46 T	■ 200 V	■ 150 V	■ 100 V	■ 172 V	■ 155 V	■ 112 V	■ 423 V
N3.2	N3.3	N4.1	N4.2	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1	S4.2	H1.1
■ 250 V	■ 125 V	■ 60 X	■ 100 V	■ 55 T	■ 45 T	■ 35 S	■ 53 S	■ 42 S	■ 40 S	■ 30 S	■ 31 S	■ 24 S	■ 56 S
H2.1	H2.2	H3.1	H3.2										
■ 33 S	■ 36 S	■ 37 S	■ 30 S										

DCON MS tolerance h6.

Product	DC	LCF	OAL	DCON MS
	(mm)	(mm)	(mm)	(mm)
R1255.0	5.00	16.0	62.0	5.00
R1256.0	6.00	17.0	66.0	6.00
R1258.0	8.00	22.0	79.0	8.00
R12510.0	10.00	26.0	89.0	10.00
R12512.0	12.00	30.0	102.0	12.00
R12516.0	16.00	34.0	115.0	16.00

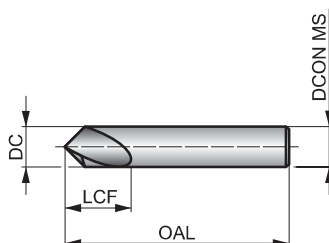


R6011



Solid Carbide Spotting Drill, 90° Point, TiAlN Coated

The precision engineered point angle provides an accurate guide to help with centering of follow-up drilling of the hole. A 90° point helps with self-centering and reduces cutting forces when drilling into the material. TiAlN coating improves performance and extends the tool life. Suitable for drilling many materials.



HM	WORK NORM	1xD
90°	TiAlN	DIN 6535HA
λ 20-35°	R	DC h6

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

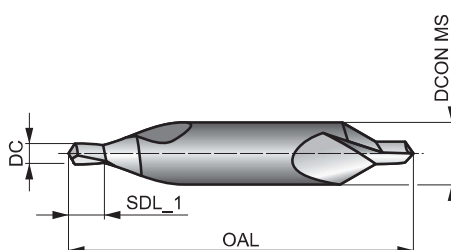
P1.1	P1.2	P1.3	P2.1	P2.2	P2.3	P3.1	P3.2	P3.3	P4.1	P4.2	P4.3	M1.1	M1.2
■ 119 S	■ 134 S	■ 138 S	■ 102 S	■ 90 S	■ 80 S	■ 81 S	■ 65 S	■ 55 S	■ 48 S	■ 41 S	■ 34 S	■ 82 S	■ 70 S
M2.1	M2.2	M3.1	M3.2	K1.1	K1.2	K1.3	K2.1	K2.2	K2.3	K3.1	K3.2	K3.3	K4.1
■ 73 S	■ 60 S	■ 58 S	■ 50 S	■ 80 T	■ 59 T	■ 44 T	■ 86 T	■ 70 T	■ 56 T	■ 76 T	■ 58 T	■ 47 T	■ 71 T
K4.2	K4.3	K4.4	K4.5	K5.1	K5.2	K5.3	N1.1	N1.2	N1.3	N2.1	N2.2	N2.3	N3.1
■ 53 T	■ 39 T	■ 33 T	■ 28 T	■ 80 T	■ 60 T	■ 46 T	■ 200 V	■ 150 V	■ 100 V	■ 172 V	■ 155 V	■ 112 V	■ 423 V
N3.2	N3.3	N4.1	N4.2	S1.1	S1.2	S1.3	S2.1	S2.2	S3.1	S3.2	S4.1	S4.2	H1.1
■ 250 V	■ 125 V	■ 60 X	■ 100 V	■ 55 T	■ 45 T	■ 35 S	■ 53 S	■ 42 S	■ 40 S	■ 30 S	■ 31 S	■ 24 S	■ 56 S
H2.1	H2.2	H3.1	H3.2										
■ 33 S	■ 36 S	■ 37 S	■ 30 S										

DCON MS tolerance h6.

Product	DC (mm)	DC (inch)	LCF (mm)	OAL (mm)	DCON MS (mm)
R60116.0	6.00	0.2362	16.0	50.0	6.00
R601110.0	10.00	0.3937	25.0	70.0	10.00
R601116.0	16.00	0.6299	26.0	90.0	16.00

**R200****Solid Carbide Center Drill with 118° Point and 60° Countersink, Bright Finish**

Recommended for starting a precise hole in the end of a shaft so it can be securely held prior to machining. Suitable to machine a number of materials and has two drilling ends to give increased productivity per tool. Includes a 118° point angle and 60° countersink. Suitable for all CNC machines.



HM	DIN 333A	1xD
60°	Bright	
R		

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

P1.1 ■ 60 H	P1.2 ■ 67 H	P1.3 ■ 69 H	P2.1 ■ 51 H	P2.2 ■ 45 F	P2.3 ■ 40 D	P3.1 ■ 44 E	P3.2 ■ 36 E	P3.3 ■ 30 D	P4.1 ■ 26 E	P4.2 ■ 22 D	P4.3 ■ 18 C	K1.1 ■ 40 H	K1.2 ■ 30 E
K1.3 ■ 22 E	K2.1 ■ 37 D	K2.2 ■ 30 D	K2.3 ■ 24 D	K3.1 ■ 33 D	K3.2 ■ 25 D	K3.3 ■ 20 D	K4.1 ■ 30 D	K4.2 ■ 23 D	K4.3 ■ 17 D	K4.4 ■ 14 D	K4.5 ■ 12 D	K5.1 ■ 34 D	K5.2 ■ 26 D
K5.3 ■ 20 D	N1.1 ■ 120 I	N1.2 ■ 90 I	N1.3 ■ 60 H	N2.1 ■ 154 G	N2.2 ■ 138 G	N2.3 ■ 100 G	N3.1 ■ 169 G	N3.2 ■ 100 H	N3.3 ■ 50 F				

Product	DC	DC	SDL_1	OAL	DCON MS
	(mm)	(inch)	(mm)	(mm)	(mm)
R2001.0X3.15	1.00	0.0394	1.7 - 1.3	31.0	3.15
R2001.25X3.15	1.25	0.0492	2.0 - 1.6	31.0	3.15
R2001.6X4.0	1.60	0.0630	2.6 - 2.0	35.0	4.00
R2002.0X5.0	2.00	0.0787	3.1 - 2.5	40.0	5.00
R2002.5X6.3	2.50	0.0984	3.8 - 3.1	45.0	6.30
R2003.15X8.0	3.15	0.1240	4.6 - 3.9	50.0	8.00
R2004.0X10.0	4.00	0.1575	5.9 - 5.0	55.0	10.00
R2005.0X12.5	5.00	0.1969	7.2 - 6.3	63.0	12.50

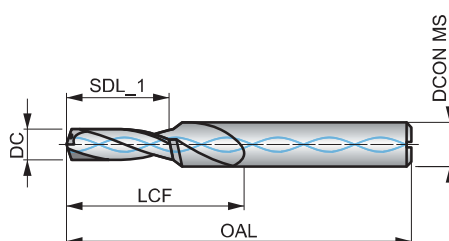


R7131



Solid Carbide Step Drill, TiAlN Coated with Coolant Feed

Versatile, with specific Pilot diameters and lengths for achieving hole size and depth for metric threads. Drill and chamfer in one operation reduces cycle time and tooling inventory. A 140° point angle and 90° countersink. TiAlN coating improves performance and extends the tool life. Suitable for drilling many materials.



HM	WORK NORM	3×D
90°	TIAlN	DIN 6535HA
λ 20-35°	R	
DC m7		

Workpiece material group suitability, starting values for cutting speed (m/min) and feed Alpha Code. Tables with feed per revolution can be found starting from page 66.

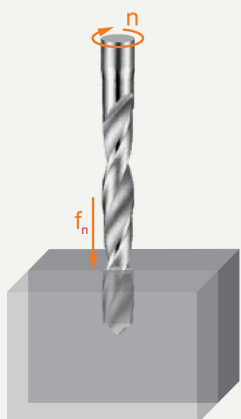
P1.1 ■ 139 W	P1.2 ■ 156 W	P1.3 ■ 161 W	P2.1 ■ 119 W	P2.2 ■ 105 W	P2.3 ■ 93 V	P3.1 ■ 96 V	P3.2 ■ 77 V	P3.3 ■ 65 V	P4.1 ■ 57 V	P4.2 ■ 48 V	M1.1 ■ 62 V	M1.2 ■ 52 V	M2.1 ■ 55 V
M2.2 ■ 45 V	M3.1 ■ 47 V	M3.2 ■ 40 V	M3.3 ■ 36 U	M4.1 ■ 35 U	K1.1 ■ 90 W	K1.2 ■ 67 W	K1.3 ■ 50 W	K2.1 ■ 92 V	K2.2 ■ 75 V	K2.3 ■ 60 V	K3.1 ■ 82 V	K3.2 ■ 62 V	K3.3 ■ 50 V
K4.1 ■ 76 V	K4.2 ■ 57 V	K4.3 ■ 42 V	K4.4 ■ 36 V	K4.5 ■ 30 V	K5.1 ■ 86 V	K5.2 ■ 64 V	K5.3 ■ 50 V	N1.1 ■ 250 W	N1.2 ■ 188 W	N1.3 ■ 125 W	N2.1 ■ 308 V	N2.2 ■ 277 V	N2.3 ■ 200 V
N3.1 ■ 373 W	N3.2 ■ 220 W	N3.3 ■ 110 W											

DCON MS tolerance h6.

Product	DC (mm)	DC (inch)	SDL_1 (mm)	LCF (mm)	OAL (mm)	DCON MS (mm)	TDZ
R71313.3	3.30	0.1299	11.40	20.0	66.0	6.00	M4
R71314.2	4.20	0.1654	13.60	24.0	66.0	6.00	M5
R71315.0	5.00	0.1969	16.50	28.0	79.0	8.00	M6
R71316.8	6.80	0.2677	21.00	34.0	89.0	10.00	M8
R71318.5	8.50	0.3346	25.50	47.0	102.0	12.00	M10
R713110.2	10.20	0.4016	30.00	55.0	107.0	14.00	M12
R713110.4	10.40	0.4094	30.00	55.0	107.0	14.00	M12



Solid carbide drills – Feed rate chart (Metric)



Feed per revolution f_n (mm/rev)
Depending on the working conditions it might be necessary to adjust these values $\pm 25\%$.

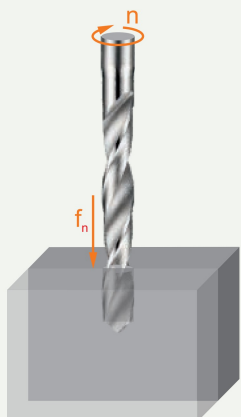
How to use this table to find the feed per revolution f_n :

1. Find your Alpha Code on the product page (example: 46J, "J" is the Alpha Code).
2. Find the closest diameter for your cutting application in the top row of the table.
3. Find your Alpha Code in the left column of the table.
4. The intersection (cell) of the Diameter and Alpha Code is the feed per revolution f_n .

	$\varnothing$ DC (mm)																		
	0.15	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	10.0	12.0	15.0	16.0	20.0	25.0	30.0	40.0	50.0	100
A	0.003	0.006	0.012	0.023	0.029	0.032	0.036	0.042	0.054	0.062	0.069	0.082	0.086	0.110	0.125	0.135	0.155	0.175	0.263
B	0.004	0.007	0.014	0.028	0.037	0.041	0.046	0.053	0.067	0.080	0.090	0.103	0.108	0.135	0.153	0.165	0.188	0.208	0.312
C	0.004	0.008	0.015	0.032	0.044	0.050	0.056	0.064	0.080	0.098	0.110	0.125	0.130	0.160	0.180	0.195	0.220	0.240	0.360
D	0.004	0.008	0.016	0.038	0.053	0.060	0.068	0.078	0.098	0.119	0.130	0.149	0.155	0.188	0.210	0.228	0.253	0.275	0.413
E	0.004	0.009	0.017	0.043	0.062	0.071	0.080	0.092	0.115	0.140	0.150	0.173	0.180	0.215	0.240	0.260	0.285	0.310	0.465
F	0.005	0.009	0.018	0.050	0.073	0.084	0.095	0.109	0.138	0.165	0.178	0.202	0.210	0.248	0.275	0.295	0.320	0.343	0.515
G	0.005	0.010	0.019	0.056	0.084	0.096	0.109	0.126	0.160	0.190	0.205	0.231	0.240	0.280	0.310	0.330	0.355	0.375	0.563
H	0.005	0.010	0.020	0.066	0.102	0.116	0.130	0.150	0.190	0.228	0.243	0.271	0.280	0.320	0.355	0.375	0.398	0.418	0.627
I	0.005	0.011	0.021	0.076	0.119	0.134	0.150	0.173	0.220	0.265	0.280	0.310	0.320	0.360	0.400	0.420	0.440	0.460	0.690
J	0.006	0.012	0.024	0.084	0.135	0.152	0.170	0.197	0.250	0.298	0.315	0.349	0.360	0.405	0.445	0.465	0.485	0.503	0.755
K	0.007	0.013	0.026	0.092	0.150	0.170	0.190	0.220	0.280	0.330	0.350	0.388	0.400	0.450	0.490	0.510	0.530	0.545	0.818
L	0.007	0.014	0.028	0.101	0.165	0.186	0.208	0.240	0.305	0.360	0.385	0.419	0.430	0.485	0.525	0.545	0.568	0.588	0.882
M	0.008	0.015	0.030	0.110	0.180	0.202	0.225	0.260	0.330	0.390	0.420	0.450	0.460	0.520	0.560	0.580	0.605	0.630	0.945
N	0.008	0.016	0.032	0.119	0.195	0.218	0.242	0.280	0.355	0.420	0.455	0.481	0.490	0.555	0.595	0.615	0.642	0.672	1.008
S	0.002	0.004	0.008	0.014	0.020	0.025	0.030	0.037	0.050	0.080	0.100	0.123	0.130	0.150	0.170	0.190	0.220	0.240	–
T	0.004	0.008	0.015	0.028	0.040	0.050	0.060	0.070	0.090	0.110	0.130	0.160	0.170	0.190	0.210	0.230	0.260	0.275	–
U	0.007	0.013	0.026	0.048	0.070	0.080	0.090	0.107	0.140	0.170	0.200	0.223	0.230	0.240	0.270	0.300	0.360	0.375	–
V	0.010	0.019	0.038	0.069	0.100	0.115	0.130	0.153	0.200	0.250	0.280	0.310	0.320	0.340	0.400	0.440	0.510	0.530	–
W	0.012	0.025	0.049	0.089	0.130	0.150	0.170	0.200	0.260	0.330	0.380	0.418	0.430	0.450	0.470	0.490	0.520	0.540	–
X	0.014	0.028	0.056	0.103	0.150	0.180	0.210	0.250	0.330	0.420	0.480	0.533	0.550	0.580	–	–	–	–	–
Y	0.017	0.034	0.068	0.124	0.180	0.220	0.260	0.317	0.430	0.550	0.700	0.700	0.700	0.740	–	–	–	–	–
Z	0.024	0.047	0.094	0.172	0.250	0.325	0.400	0.533	0.800	1.000	1.100	1.175	1.200	1.200	–	–	–	–	–



Solid carbide Force Micro drills – Feed rate chart (Metric)



Feed per revolution f_n (mm/rev)
Depending on the working conditions it might be necessary to adjust these values $\pm 25\%$.

How to use this table to find the feed per revolution f_n :

1. Find your Alpha Code on the product page (example: 46J, "J" is the Alpha Code).
2. Find the closest diameter for your cutting application in the top row of the table.
3. Find your Alpha Code in the left column of the table.
4. The intersection (cell) of the Diameter and Alpha Code is the feed per revolution f_n .

		$\varnothing$ DC (mm)											
		0.70	0.80	0.90	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80
Feed rates (mm/rev)	C	0.011	0.012	0.014	0.015	0.017	0.018	0.020	0.022	0.024	0.025	0.027	0.029
	D	0.011	0.013	0.014	0.016	0.018	0.020	0.023	0.025	0.027	0.029	0.031	0.034
	E	0.012	0.014	0.015	0.017	0.020	0.022	0.025	0.027	0.030	0.033	0.035	0.038
	F	0.013	0.014	0.016	0.018	0.021	0.024	0.028	0.031	0.034	0.037	0.040	0.044
	G	0.013	0.015	0.017	0.019	0.023	0.026	0.030	0.034	0.038	0.041	0.045	0.049
	H	0.014	0.016	0.018	0.020	0.025	0.029	0.034	0.038	0.043	0.048	0.052	0.057
	J	0.017	0.019	0.022	0.024	0.030	0.036	0.042	0.048	0.054	0.060	0.066	0.072
	L	0.020	0.022	0.025	0.028	0.035	0.043	0.050	0.057	0.065	0.072	0.079	0.086
	U	0.018	0.021	0.023	0.026	0.028	0.030	0.033	0.035	0.037	0.039	0.041	0.044
	Y	0.048	0.054	0.061	0.068	0.074	0.079	0.085	0.090	0.096	0.102	0.107	0.113
		$\varnothing$ DC (mm)											
		1.90	2.00	2.10	2.20	2.30	2.40	2.50	2.60	2.70	2.80	2.90	2.95
	C	0.030	0.032	0.033	0.034	0.036	0.037	0.038	0.039	0.040	0.042	0.043	0.043
	D	0.036	0.038	0.040	0.041	0.042	0.044	0.045	0.047	0.048	0.050	0.051	0.052
	E	0.040	0.043	0.045	0.047	0.049	0.051	0.053	0.054	0.056	0.058	0.060	0.061
	F	0.047	0.050	0.052	0.055	0.057	0.059	0.062	0.064	0.066	0.068	0.071	0.072
	G	0.052	0.056	0.059	0.062	0.064	0.067	0.070	0.073	0.076	0.078	0.081	0.083
	H	0.061	0.066	0.070	0.073	0.077	0.080	0.084	0.088	0.091	0.095	0.098	0.100
	J	0.078	0.084	0.089	0.094	0.099	0.104	0.110	0.115	0.120	0.125	0.130	0.132
	L	0.094	0.101	0.107	0.114	0.120	0.127	0.133	0.139	0.146	0.152	0.159	0.162
	U	0.046	0.048	0.050	0.052	0.055	0.057	0.059	0.061	0.063	0.066	0.068	0.069
	Y	0.118	0.124	0.130	0.135	0.141	0.146	0.152	0.158	0.163	0.169	0.174	0.177



WMG (Work Material Group)

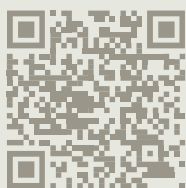
ISO group		WMG (Work Material Group)			Hardness (HB or HRC)	Ultimate Tensile Strength (MPa)	
P	P1	P1.1	Free machining steel (carbon steels with increased machinability)	Sulfurized	< 240 HB	≤ 830	
		P1.2		Sulfurized and phosphorized	< 180 HB	≤ 620	
		P1.3		Sulfurized/phosphorized and leaded	< 180 HB	≤ 620	
	P2	P2.1	Plain carbon steel (steels comprised of mainly iron and carbon)	Containing <0.25 % C	< 180 HB	≤ 620	
		P2.2		Containing <0.55 % C	< 240 HB	≤ 830	
		P2.3		Containing >0.55 % C	< 300 HB	≤ 1030	
	P3	P3.1	Alloy steel (carbon steels with an alloying content ≤ 10%)	Annealed	< 180 HB	≤ 620	
		P3.2		Hardened and tempered	180 – 260 HB	> 620 ≤ 900	
		P3.3			260 – 360 HB	> 900 ≤ 1240	
	P4	P4.1	Tool steel (special alloy steel for tools, dies and molds)	Annealed	< 26 HRC	≤ 900	
P4.2		Hardened and tempered		26 – 39 HRC	> 900 ≤ 1240		
P4.3				39 – 45 HRC	> 1240 ≤ 1450		
M	M1	M1.1	Ferritic stainless steel (straight chromium non-hardenable alloys)		< 160 HB	≤ 520	
		M1.2			160 – 220 HB	> 520 ≤ 700	
	M2	M2.1	Martensitic stainless steel (straight chromium hardenable alloys)	Annealed	< 200 HB	≤ 670	
		M2.2		Quenched and tempered	200 – 280 HB	> 670 ≤ 950	
		M2.3		Precipitation-hardened	280 – 380 HB	> 950 ≤ 1300	
	M3	M3.1	Austenitic stainless steel (chromium-nickel and chromium-nickel-manganese alloys)		< 200 HB	≤ 750	
		M3.2			200 – 260 HB	> 750 ≤ 870	
		M3.3			260 – 300 HB	> 870 ≤ 1040	
	M4	M4.1	Austenitic-ferritic (DUPLEX) or super-austenitic stainless steel		< 300 HB	≤ 990	
		M4.2			300 – 380 HB	≤ 1320	
K	K1	K1.1	Gray iron or Automotive Gray iron (GG) (iron-carbon castings with a lamellar graphite microstructure)	Ferritic or ferritic-pearlitic	< 180 HB	≤ 190	
		K1.2		Ferritic-pearlitic or pearlitic	180 – 240 HB	> 190 ≤ 310	
		K1.3		Pearlitic	240 – 280 HB	> 310 ≤ 390	
	K2	K2.1	Malleable iron (GTS/GTW) (iron-carbon castings with a graphite-free microstructure)	Ferritic	< 160 HB	≤ 400	
		K2.2		Ferritic or pearlitic	160 – 200 HB	> 400 ≤ 550	
		K2.3		Pearlitic	200 – 240 HB	> 550 ≤ 660	
	K3	K3.1	Ductile iron (GGG) (iron-carbon castings with a nodular graphite microstructure)	Ferritic	< 180 HB	≤ 560	
		K3.2		Ferritic or pearlitic	180 – 220 HB	> 560 ≤ 680	
		K3.3		Pearlitic	220 – 260 HB	> 680 ≤ 800	
	K4	K4.1	Austenitic gray iron (ASTM A436) (iron-carbon alloy castings with an austenitic lamellar graphite microstructure)		< 180 HB	≤ 190	
K4.2				< 240 HB	≤ 740		
K4.3		Austempered ductile iron (ASTM A897) (iron-carbon alloy castings with an ausferrite microstructure)		< 280 HB	> 840 ≤ 980		
K4.4				280 – 320 HB	> 980 ≤ 1130		
K4.5				320 – 360 HB	> 1130 ≤ 1280		
K5	K5.1	Compacted graphite iron CGI (ASTM A842) (iron-carbon castings with a vermicular graphite structure)	Ferritic	< 180 HB	≤ 400		
	K5.2		Ferritic-pearlitic	180 – 220 HB	> 400 ≤ 450		
	K5.3		Pearlitic	220 – 260 HB	> 450 ≤ 500		
N	N1	N1.1	Commercially pure wrought aluminium		< 60 HB	≤ 240	
		N1.2		Wrought aluminium alloys	60 – 100 HB	> 240 ≤ 400	
		N1.3			100 – 150 HB	> 400 ≤ 590	
	N2	N2.1	Cast aluminium alloys	< 75 HB	≤ 240		
		N2.2		75 – 90 HB	> 240 ≤ 270		
		N2.3		90 – 140 HB	> 270 ≤ 440		
	N3	N3.1	Free-cutting copper-alloys materials with excellent machining properties		–	–	
		N3.2		Short-chip copper-alloys with good to moderate machining properties		–	–
		N3.3		Electrolytic copper and long-chip copper-alloys with moderate to poor machining properties		–	–
	N4	N4.1	Thermoplastic polymers		–	–	
N4.2		Thermosetting polymers			–	–	
N4.3		Reinforced polymers or composites			–	–	
N5	N5.1	Graphite		–	–		
S	S1	S1.1	Titanium or titanium alloys		< 200 HB	≤ 660	
		S1.2		200 – 280 HB	> 660 ≤ 950		
		S1.3		280 – 360 HB	> 950 ≤ 1200		
	S2	S2.1	Fe-based high-temperature alloys	< 200 HB	≤ 690		
		S2.2		200 – 280 HB	> 690 ≤ 970		
	S3	S3.1	Ni-based high-temperature alloys	< 280 HB	≤ 940		
		S3.2		280 – 360 HB	> 940 ≤ 1200		
	S4	S4.1	Co-based high-temperature alloys	< 240 HB	≤ 800		
S4.2		240 – 320 HB		> 800 ≤ 1070			
H	H1	H1.1	Chilled cast iron		< 440 HB	–	
	H2	H2.1	Hardened cast iron		< 55 HRC	–	
		H2.2		> 55 HRC	–		
	H3	H3.1	Hardened steel < 55 HRC		< 51 HRC	–	
		H3.2		51 – 55 HRC	–		
H4	H4.1	Hardened steel > 55 HRC		55 – 59 HRC	–		
	H4.2		> 59 HRC	–			



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Together we will keep our world turning, now and into the future. We want to help our community feel confident they can get the job done with simplified access to the right advice, tools and training whenever and wherever they need it. Delivering certainty to help our customers achieve their goals today – and be ready for tomorrow.

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