SPHINX TOOLS

AHB
TOOLING & MACHINERY

Complete Metalworking Solutions

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ISO Certified
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SPHINX HIGH PRECISION CUTTING TOOLS
VOL. 3

SPHINX TOOLS

SPHINX TOOLS the Partner for Maximum Success

SPHINX is not just a leading company in the production and sale of precision cutting tools, but also a trusted partner. Our strong international position today is the result of continuous growth, consistent reinvestment in our production plants, and the personal dedication of our employees. We don't just view customer needs as the motivation for all our innovations, we prioritize them. This is why renowned industrial and medical companies rely on our quality and experience. What sets us apart is our ability to provide unique solutions to complex tasks, contributing significantly to the market success of well-known companies. As the market becomes increasingly demanding, we rise to the challenge, ensuring our customers' needs are always met.

The Highest Quality for the Highest Precision

Our quality management system is multi-certified to ISO 9001:2015, EN ISO 13485:2016, and FDA registration: 3010871687. Therefore, SPHINX stands for the highest quality and worldwide service. Thanks to repeatable quality, clear specifications, distinct procedures, and total traceability, we fully meet customers' requirements.

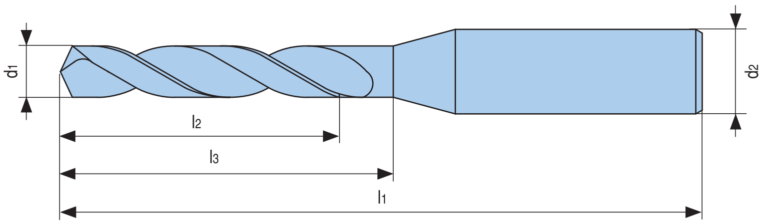
Our procedures are secured through various process stages, including:

- Initial Sample Test Report (ISTR)
- Potential Failure Mode and Effects Analysis (P-FMEA)
- Customer-specific tests and specifications

For medical technology, we perform cleaning and packaging in accordance with Good Manufacturing Practices (GMP) in an approved clean room of category 8, ISO 14644-1.

SPHINX TOOLS

Drill Dimensions



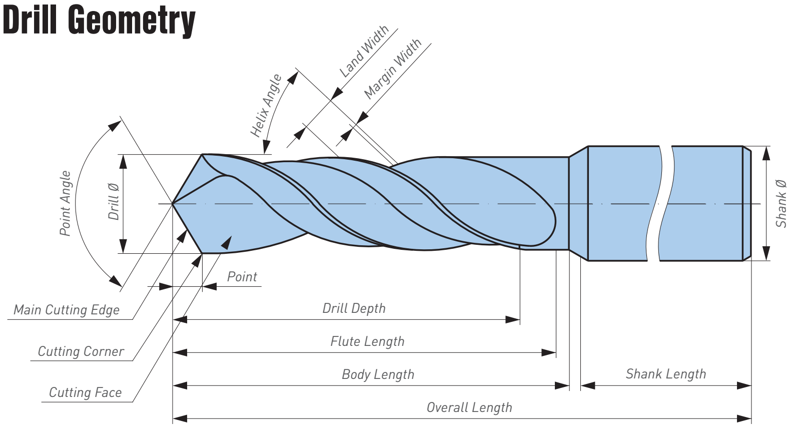
d_1 = Drill Diameter
d_2 = Shank Diameter

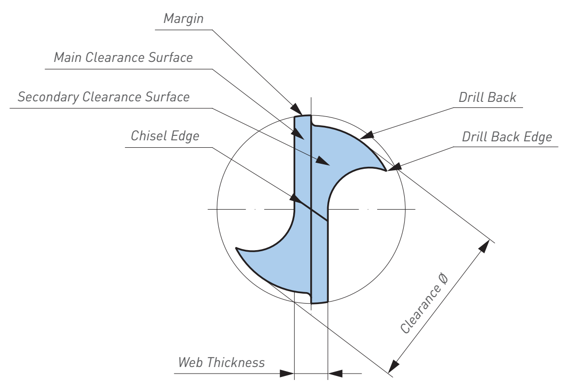
l_1 = Overall Length
l_2 = Drill Depth
l_3 = Body Length

Drill Material

HSS	Carbide
High Speed Steel w/ 8% Cobalt	Solid Carbide

Drill Geometry

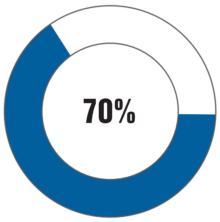




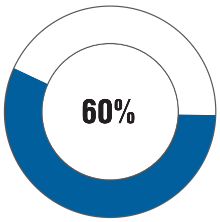
130°	20°	2xd	H7-H9
Drill Point Angle	Helix Angle	Length-to-Dia. Ratio	Achievable Hole Tolerance

RECOMMENDATION FOR COATING

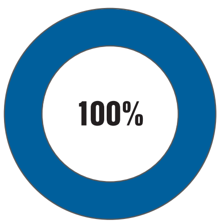
All the non-coated tools can also be offered with coating.
Consult BIG DAISHOWA engineering to recommend the optimum coat for your application.



... representing the choice of the coat in relation to your application!



... cost saving as a result of a longer tool-life!



Up to 100 % higher performance!

Material Grade		Strength/Hardness (N/mm2)	Material
P	P1	≤700	**Mild, Low-Carbon Steel, Steel Casting** 1018, 1020, 1551, A36
	P2	≤1000	**Low- to Medium-Carbon Alloy Steel** 4140, 4340, 8620
	P3	≤1400	**High-Carbon Alloy Steel, Tool Steel** 1060, 52100, M2, A2, H13, O1
M	M1	—	**Ferritic / Martensitic Stainless Steel** 403, 410, 416, 430, 440C
	M2	—	**Austenitic Stainless Steel** 201, 202, 304, 316, 17-4 PH
K	K1	—	**Grey Cast Iron** Class 20, 30
	K2	—	**Ductile Cast Iron** Ductile/Nodular/Chilled
N	N1	≤350	**Malleable / Wrought Aluminum Alloy** 2024, 6061, 7075
	N2	≤300	**Cast Aluminum Alloy (< 10% Silicon)** 2024, 6061, 7075
	N3	≤450	**Cast Aluminum Alloy (≥ 10% Silicon)** A356.2, A390, A4032
	N4	—	**Magnesium, Magnesium Alloy** AE44, AJ62A, WE43, AZ31B, AZ91, Magnox
	N5	—	**Copper Nickel Alloy, Brass, Bronze** C26000, C36000, C70600, C95400
	N6	—	**Copper Forging Alloy** C18150, C18200, C15000, C17200
	N7	—	**Silver**
	N8	—	**Gold**
S	S1	>450	**Titanium, Titanium Alloy**
	S2	—	**Nickel / Copper-Based Super Alloy** Inconel, Monel
H	H1	1700–2000	**Hardened Steels (50 – 55 HRC)** Pre-Hardened / Heat-Treated Steel, Tool Steel
	H2	2000–2250	**Hardened Steels (55 – 60 HRC)** Pre-Hardened / Heat-Treated Steel, Tool Steel
	H3	>2250	**Hardened Steels (> 60 HRC)** Pre-Hardened / Heat-Treated Steel, Tool Steel
O	O1	—	**Thermoplastic, Thermosetting Plastic** Acrylic, ABS, Nylon, Polycarbonate
	O2	—	**Fiber-Reinforced Plastic** Fiberglass, Carbon Fiber
	O3	—	**Graphite**

SPHINX TOOLS

Drilling and Reaming

	Article	Diameter Range	Increments	Cutting Length	Point Angle	Helix Angle	
NC Spotting Drill							
	50806	.50–6.00	.10		60°	20°	
	50809	.50–3.00	.10		90°	20°	
	50808	.50–3.00	.10		90°	20°	
	50810	2.00–2.00	1.00		90°	20°	
	50811	2.00–12.00	1.00		90°	20°	
	50812	2.00–2.00	1.00		123°	20°	
	50813	2.00–1.00	1.00		123°	20°	
	50814	2.00–2.00	1.00		142°	20°	
	50815	2.00–1.00	1.00		142°	20°	
	50818	1.60–12.00	.20		142°/90°	20°	
Pilot Drill							
	56005	.10–1.50	.01	2–4 × Ø	130°	20°	
	56033	.03–2.99	.01	2 × Ø	130°	30°	
	56036	.30–6.00	.05	2 × Ø	140°/90°	30°	
	16004	.10–1.50	.05	2–3 × Ø	130°	20°	
Micro Drill							
	50695	.20–1.50	.01	6 × Ø	118°	30°	
	50699	.05–2.00	.01	6 × Ø	118°	30°	

	Material	Workpiece Material *							Application *	Page
		P	M	K	N	S	H	O		
	Carbide	✓	✓	✓	✓	•		✓		14
	Carbide	✓	✓	✓	✓	•		✓		16
	Carbide, TiAlSiN	✓	✓	✓	✓	✓	✓	✓		15
	Carbide	✓	✓	✓	✓	•		✓		17
	Carbide; TiAlSiN	✓	✓	✓	✓	•	✓	✓		18
	Carbide	✓	✓	✓	✓	•		✓		19
	Carbide; TiAlSiN	✓	✓	✓	✓	•	✓	✓		20
	Carbide	✓	✓	✓	✓	•		✓		21
	Carbide; TiAlSiN	✓	✓	✓	✓	•	✓	✓		22
	Carbide	✓	✓	✓	✓	•		✓		23
	Carbide	✓	•	✓	✓	✓		✓		24
	Carbide	✓	✓	✓	✓	✓		✓		26
	Carbide; AlCrN	✓	✓	✓	✓	✓	•	•		30
	HSS	✓	•	✓	•			•		32
	Carbide	✓	•	✓	✓			•		34
	Carbide	✓	•	✓	✓			•		36

* S. 142+143
p. 142+143

✓ outstanding

• suitable

Drilling and Reaming

	Article	Diameter Range	Increments	Cutting Length	Point Angle	Helix Angle
Micro Drill						
	51200	.03–3.00	.01	6 × Ø	130°	35°
	51201	.20–3.00	.01	6 × Ø	130°	35°
	50621	.15–3.00	.01	12 × Ø	130°	25°
	50622	.20–3.00	.01	12 × Ø	130°	25°
	12604	.05–3.175	.01	DIN 1899-A	118°	25°
Micro Deep Hole Drill						
	50720	.20–2.00	.05	20 × Ø	129°	30°
	50740	.40–1.50	.05	40 × Ø	126°	30°
	50760	.40–1.50	.05	60 × Ø	126°	30°
	50780	.40–1.50	.05	80 × Ø	126°	30°
High-Performance Drill Nirox						
	51609	.30–3.00	.05	9 × Ø	140°	28°
High-Performance Drill Phoenix TC2						
	52903	1.00–1.00	.05	3 × Ø	140°	30°
	52906	1.00–1.00	.05	6 × Ø	140°	30°
	52909	1.00–1.00	.10	9 × Ø	140°	30°
	52912	1.00–1.00	.10	12 × Ø	137°	30°
	52916	1.00–1.00	.10	16 × Ø	137°	30°
	52920	3.00–1.00	1.00	20 × Ø	137°	30°
	52930	3.00–1.00	1.00	30 × Ø	137°	30°

	Material	Workpiece Material * P	M	K	N	S	H	O	Application *	Page
	Carbide	✓	✓	✓	✓	✓		•		40
	Carbide; TiAlN	✓	✓	✓	✓	✓	•	•		40
	Carbide	✓	•	✓	✓			•		48
	Carbide; TiAlN	✓	•	✓	✓	•	•	•		48
	HSS	✓	•	✓	•			•		56
	Carbide; Mi-Nova	✓	•	✓	✓	•	•	✓		58
	Carbide; Mi-Nova	✓	•	✓	✓	•	•	✓		60
	Carbide; Mi-Nova	✓	•	✓	✓	•	•	✓		61
	Carbide; Mi-Nova	✓	•	✓	✓	•	•	✓		61
	Carbide; TiAlSiN	✓	✓	•	•	✓	•	✓		62
	Carbide; AlTiCrN+S	✓	✓	✓	✓	✓	•	•		64
	Carbide; AlTiCrN+S	✓	✓	✓	✓	✓	•	•		64
	Carbide; AlTiCrN+S	✓	✓	✓	✓	✓	•	•		64
	Carbide; AlCrTiN	✓	✓	✓	✓	✓	•	•		68
	Carbide; AlCrTiN	✓	✓	•	✓	✓	•	•		68
	Carbide; AlCrTiN	•	✓	•	✓	✓	•	•		71
	Carbide; AlCrTiN	•	✓	•	✓	✓	•	•		71

* S. 142+143
p. 142+143
✓ outstanding • suitable

Drilling and Reaming

	Article	Diameter Range	Increments	Cutting Length	Point Angle	Helix Angle
High-Performance Drill Phoenix						
	50938	1.00–12.70	.10	3 × Ø	140°	30°
	50940	1.00–12.70	.05	6 × Ø	140°	30°
	50941	.50–3.00	.10	6 × Ø	140°	30°
High-Performance Drill Quadro						
	52100	3.00–19.50	.50	6 × Ø	140°	0°
	52200	3.00–2.00	.50	12 × Ø	140°	0°
	52150	4.00–2.00	.50	6 × Ø	140°	15°
Twist Drill						
	50950	3.00–2.00	.10	DIN 6537	140°	30°
	50830	.30–2.00	.10	DIN 6539	118°	35°
	50838	.30–6.00	.05	3–8 × Ø	118°	30°
	50820	.70–14.00	.10	DIN 338	130°	35°– 15°
Drill Reamer						
	50840	2.00–14.00	.10	DIN 6539	118°	35°
	55654	1.00–14.00	.10	DIN 6539	140°	35°
	55338	1.00–14.00	.10	DIN 338	140°	35°
	55652	.20–2.99	.01	5 × Ø	140°	35°
Reamer						
	58000	.987–6.018	.01	– 8 × Ø		10°
	58500	.987–6.018	.01	– 8 × Ø		10°

	Material	Workpiece Material *							Application *	Page
		P	M	K	N	S	H	O		
	Carbide; AlCrN	✓	✓	✓	•	•	•			72
	Carbide; TiAlN	✓	✓	✓	•	•	•			76
	Carbide; TiAlN	✓	✓	✓	•	•	•			79
	Carbide			✓	✓			•		80
	Carbide			✓	✓			•		80
	Carbide; TiAlN	✓		✓	✓		•			82
	Carbide; TiAlN	✓	•	✓	•	•	•	•		84
	Carbide	✓	✓	•	✓	•		✓		86
	Carbide	✓	✓	•	✓	•		✓		88
	Carbide	✓		✓	•					90
	Carbide	•	•	•	✓	•				92
	Carbide	✓	•	✓	•	•				94
	Carbide	✓	•	✓	•	•				94
	Carbide	✓	•	✓	•	•		•		98
	Carbide	✓	✓	✓	✓	•				102
	Carbide	✓	✓	✓	✓	•				103

* S. 142+143
p. 142+143 ✓ outstanding • suitable

NC Spotting

Art. 50806

Carbide

Z 2

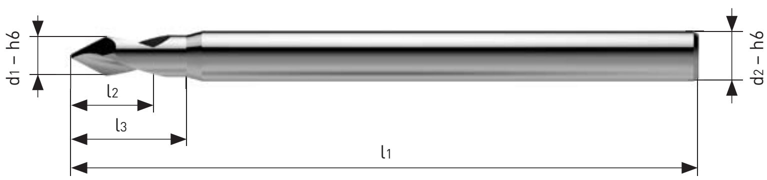
60°

20°

Chamfer 90°

Countersink 60°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50806.0005	.50	.0197	1.50	2.00	38	3.00
40.50806.0006	.60	.0236	1.50	2.00	38	3.00
40.50806.0007	.70	.0276	1.50	2.00	38	3.00
40.50806.0008	.80	.0315	2.00	2.50	38	3.00
40.50806.0009	.90	.0354	2.00	2.50	38	3.00
40.50806.0010	1.00	.0394	2.00	2.50	38	3.00
40.50806.0011	1.10	.0433	2.50	3.50	38	3.00
40.50806.0012	1.20	.0472	2.50	3.50	38	3.00
40.50806.0013	1.30	.0512	2.50	3.50	38	3.00
40.50806.0014	1.40	.0551	3.00	4.00	38	3.00
40.50806.0015	1.50	.0591	3.00	4.00	38	3.00
40.50806.0016	1.60	.0630	3.00	4.00	38	3.00
40.50806.0017	1.70	.0670	4.00	5.00	38	3.00
40.50806.0018	1.80	.0709	4.00	5.00	38	3.00
40.50806.0019	1.90	.0748	4.00	5.00	38	3.00
40.50806.0020	2.00	.0787	5.00	6.00	38	3.00
40.50806.0021	2.10	.0827	5.00	6.00	38	3.00
40.50806.0022	2.20	.0866	5.00	6.00	38	3.00
40.50806.0023	2.30	.0906	6.00	7.00	38	3.00
40.50806.0024	2.40	.0945	6.00	7.00	38	3.00
40.50806.0025	2.50	.0984	6.00	7.00	38	3.00
40.50806.0026	2.60	.1024	7.00	8.00	38	3.00
40.50806.0027	2.70	.1063	7.00	8.00	38	3.00
40.50806.0028	2.80	.1102	7.00	8.00	38	3.00
40.50806.0029	2.90	.1142	7.00	8.00	38	3.00
40.50806.0030	3.00	.1181	9.50	9.50	38	3.00
40.50806.0040	4.00	.1575	10.50	10.50	40	4.00
40.50806.0050	5.00	.1969	16.00	16.00	50	5.00
40.50806.0060	6.00	.2362	16.00	16.00	50	6.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 140

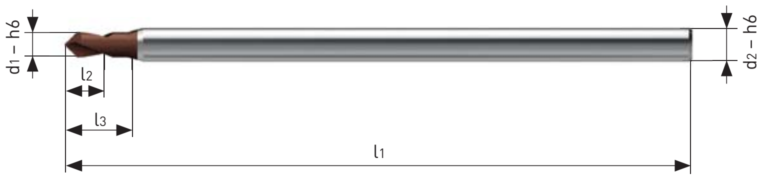
NC Spotting

Art. 50808

Carbide | Z 2 | 90° | 20° | TiAlSiN

Chamfer 90° | Countersink 90°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
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40.50808.0006	.60	.0236	1.20	1.80	38	2.00
40.50808.0007	.70	.0276	1.40	2.00	38	2.00
40.50808.0008	.80	.0315	1.60	2.20	38	2.00
40.50808.0009	.90	.0354	1.80	2.40	38	2.00
40.50808.0010	1.00	.0394	2.00	2.60	38	2.00
40.50808.0011	1.10	.0433	2.20	2.80	38	2.00
40.50808.0012	1.20	.0472	2.40	3.00	38	2.00
40.50808.0013	1.30	.0512	2.60	3.20	38	2.00
40.50808.0014	1.40	.0551	2.80	3.40	38	2.00
40.50808.0015	1.50	.0591	3.00	3.80	38	2.00
40.50808.0016	1.60	.0630	3.20	4.20	38	2.00
40.50808.0017	1.70	.0670	3.40	4.40	38	2.00
40.50808.0018	1.80	.0709	3.60	4.60	38	2.00
40.50808.0019	1.90	.0748	3.80	4.80	38	2.00
40.50808.0020	2.00	.0787	5.00	6.00	38	3.00
40.50808.0025	2.50	.0984	6.50	8.00	38	3.00
40.50808.0030	3.00	.1181	7.50	7.50	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 140

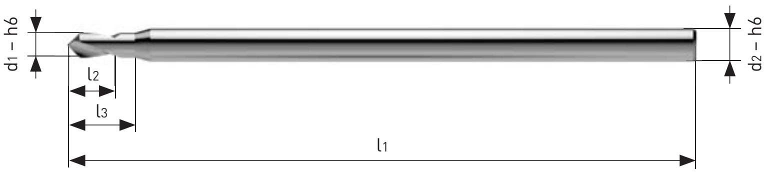
NC Spotting

Art. 50809

Carbide | Z 2 | 90° | 20°

Chamfer 90° | Countersink 90°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | Plastic



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50809.0005	.50	.0197	1.00	1.60	38	2.00
40.50809.0006	.60	.0236	1.20	1.80	38	2.00
40.50809.0007	.70	.0276	1.40	2.00	38	2.00
40.50809.0008	.80	.0315	1.60	2.20	38	2.00
40.50809.0009	.90	.0354	1.80	2.40	38	2.00
40.50809.0010	1.00	.0394	2.00	2.60	38	2.00
40.50809.0011	1.10	.0433	2.20	2.80	38	2.00
40.50809.0012	1.20	.0472	2.40	3.00	38	2.00
40.50809.0013	1.30	.0512	2.60	3.20	38	2.00
40.50809.0014	1.40	.0551	2.80	3.40	38	2.00
40.50809.0015	1.50	.0591	3.00	3.80	38	2.00
40.50809.0016	1.60	.0630	3.20	4.20	38	2.00
40.50809.0017	1.70	.0670	3.40	4.40	38	2.00
40.50809.0018	1.80	.0709	3.60	4.60	38	2.00
40.50809.0019	1.90	.0748	3.80	4.80	38	2.00
40.50809.0020	2.00	.0787	5.00	6.00	38	3.00
40.50809.0025	2.50	.0984	6.50	8.00	38	3.00
40.50809.0030	3.00	.1181	7.50	7.50	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 140

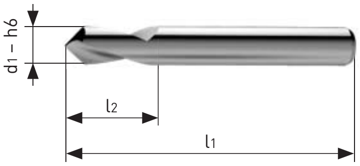
NC Spotting

Art. 50810

Carbide | Z 2 | 90° | 20°

Chamfer 90° | Countersink 90°

ST | SST | C.I. | Al | Cu | Brass | Mg | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50810.0020	2.00	.0787	8.50	25
40.50810.0030	3.00	.1181	9.50	32
40.50810.0040	4.00	.1575	10.50	40
40.50810.0050	5.00	.1969	16.00	50
40.50810.0060	6.00	.2362	16.00	50
40.50810.0080	8.00	.3150	20.00	60
40.50810.0100	10.00	.3937	22.00	70
40.50810.0120	12.00	.4724	22.00	70
40.50810.0140	14.00	.5512	25.00	75
40.50810.0160	16.00	.6299	25.00	75
40.50810.0200	20.00	.7874	35.00	75

- All dimensions are millimeters unless otherwise noted
- TiAlSiN coated equivalent, Art. 50811; see pg. 18
- For cutting data see pg. 141

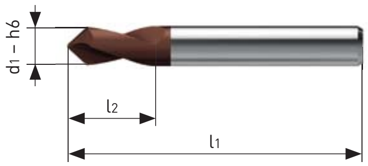
NC Spotting

Art. 50811

Carbide | Z 2 | 90° | 20° | TiAlSiN

Chamfer 90° | Countersink 90°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50811.0020	2.00	.0787	8.50	25
40.50811.0030	3.00	.1181	9.50	32
40.50811.0040	4.00	.1575	10.50	40
40.50811.0050	5.00	.1969	16.00	50
40.50811.0060	6.00	.2362	16.00	50
40.50811.0080	8.00	.3150	20.00	60
40.50811.0100	10.00	.3937	22.00	70
40.50811.0200	12.00	.4724	22.00	70

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 141

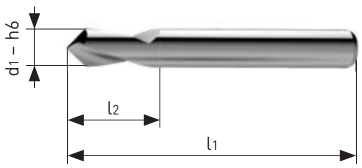
NC Spotting

Art. 50812

Carbide | Z 2 | 123° | 20°

Chamfer 90° | Countersink 123°

ST | SST | C.I. | Al | Cu | Brass | Mg | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50812.0020	2.00	.0787	8.50	25
40.50812.0030	3.00	.1181	9.50	32
40.50812.0040	4.00	.1575	10.50	40
40.50812.0050	5.00	.1969	16.00	50
40.50812.0060	6.00	.2362	16.00	50
40.50812.0080	8.00	.3150	20.00	60
40.50812.0100	10.00	.3937	22.00	70
40.50812.0120	12.00	.4724	22.00	70
40.50812.0140	14.00	.5512	25.00	75
40.50812.0160	16.00	.6299	25.00	75
40.50812.0200	20.00	.7874	35.00	75

- All dimensions are millimeters unless otherwise noted
- TiAlSiN coated equivalent, Art. 50813; see pg. 20
- For cutting data see pg. 141

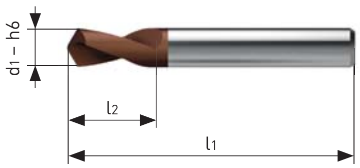
NC Spotting

Art. 50813

Carbide | Z 2 | 123° | 20° | TiAlSiN

Chamfer 90° | Countersink 123°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50813.0020	2.00	.0787	8.50	25
40.50813.0030	3.00	.1181	9.50	32
40.50813.0040	4.00	.1575	10.50	40
40.50813.0050	5.00	.1969	16.00	50
40.50813.0060	6.00	.2362	16.00	50
40.50813.0080	8.00	.3150	20.00	60
40.50813.0100	10.00	.3937	22.00	70

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 141

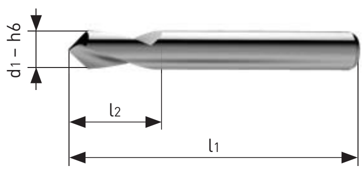
NC Spotting

Art. 50814

Carbide | Z 2 | 142° | 20°

Chamfer 90° | Countersink 142°

ST | SST | C.I. | Al | Cu | Brass | Mg | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50814.0020	2.00	.0787	8.50	25
40.50814.0030	3.00	.1181	9.50	32
40.50814.0040	4.00	.1575	10.50	40
40.50814.0050	5.00	.1969	16.00	50
40.50814.0060	6.00	.2362	16.00	50
40.50814.0080	8.00	.3150	20.00	60
40.50814.0100	10.00	.3937	22.00	70
40.50814.0120	12.00	.4724	22.00	70
40.50814.0140	14.00	.5512	25.00	75
40.50814.0160	16.00	.6299	25.00	75
40.50814.0200	20.00	.7874	35.00	75

- All dimensions are millimeters unless otherwise noted
- TiAlSiN coated equivalent, Art. 50815; see pg. 22
- For cutting data see pg. 141

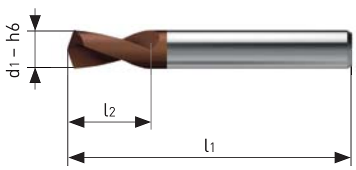
NC Spotting

Art. 50815

Carbide | Z 2 | 142° | 20° | TiAlSiN

Chamfer 90° | Countersink 142°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	l_1
40.50815.0020	2.00	.0787	25
40.50815.0030	3.00	.1181	32
40.50815.0040	4.00	.1575	40
40.50815.0050	5.00	.1969	50
40.50815.0060	6.00	.2362	50
40.50815.0080	8.00	.3150	60
40.50815.0100	10.00	.3937	70

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 141

SPHINX TOOLS

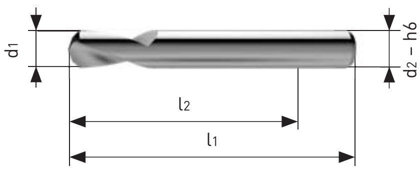
Spotting & Chamfering

Art. 50818

Carbide | Z 2 | 90° 142° | 20°

Double Countersink

ST | SST | C.I. | Al | Cu | Brass | Mg | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.50818.0016	1.60	.0630	9.50	32	3.00
40.50818.0020	2.00	.0787	9.50	32	3.00
40.50818.0025	2.50	.0984	10.50	40	4.00
40.50818.0030	3.00	.1181	10.50	40	4.00
40.50818.0033	3.30	.1299	16.00	50	5.00
40.50818.0040	4.00	.1575	16.00	50	5.00
40.50818.0042	4.20	.1654	16.00	50	6.00
40.50818.0050	5.00	.1969	20.00	60	8.00
40.50818.0060	6.00	.2362	20.00	60	8.00
40.50818.0068	6.80	.2677	22.00	70	10.00
40.50818.0070	7.00	.2756	22.00	70	10.00
40.50818.0080	8.00	.3150	22.00	70	10.00
40.50818.0085	8.50	.3346	22.00	70	12.00
40.50818.0090	9.00	.3543	22.00	70	12.00
40.50818.0100	10.00	.3937	22.00	70	12.00
40.50818.0102	10.20	.4016	25.00	75	14.00
40.50818.0110	11.00	.4331	25.00	75	14.00
40.50818.0120	12.00	.4724	25.00	75	16.00

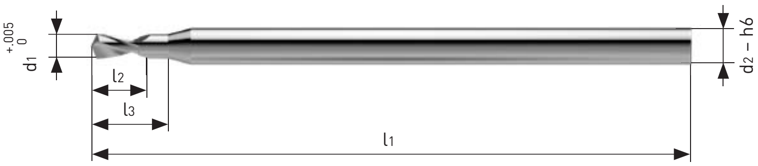
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 141

Art. 56005

Carbide | +.005 d1 0 | Z 2 | 130° | 20° | 2-4xd

Blind Hole | Through Hole | Countersink 130°

ST | SST | C.I. | Al | Mg | Ti | Plastic



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.56005.0010	.10	.0039	.40	.60	25	1.50
40.56005.0015	.15	.0059	.40	.60	25	1.50
40.56005.0020	.20	.0079	.60	.90	25	1.50
40.56005.0025	.25	.0098	.60	.90	25	1.50
40.56005.0030	.30	.0118	.90	1.20	25	1.50
40.56005.0035	.35	.0138	.90	1.20	25	1.50
40.56005.0040	.40	.0157	.90	1.60	25	1.50
40.56005.0045	.45	.0177	.90	1.60	25	1.50
40.56005.0050	.50	.0197	1.00	1.80	25	1.50
40.56005.0055	.55	.0217	1.00	1.80	25	1.50
40.56005.0060	.60	.0236	1.20	2.00	25	1.50
40.56005.0065	.65	.0256	1.20	2.00	25	1.50
40.56005.0070	.70	.0276	1.50	2.50	25	1.50
40.56005.0075	.75	.0295	1.50	2.50	25	1.50
40.56005.0080	.80	.0315	1.50	2.50	25	1.50
40.56005.0085	.85	.0335	1.50	2.50	25	1.50
40.56005.0090	.90	.0354	1.60	2.60	25	1.50
40.56005.0095	.95	.0374	1.60	2.60	25	1.50
40.56005.0100	1.00	.0394	2.00	3.20	25	1.50
40.56005.0105	1.05	.0413	2.00	3.20	25	1.50
40.56005.0110	1.10	.0433	2.30	3.50	25	1.50
40.56005.0115	1.15	.0453	2.30	3.50	25	1.50
40.56005.0120	1.20	.0472	2.30	3.50	25	1.50
40.56005.0125	1.25	.0492	2.30	3.50	25	1.50
40.56005.0130	1.30	.0512	2.70	4.20	25	1.50
40.56005.0135	1.35	.0531	2.70	4.20	25	1.50
40.56005.0140	1.40	.0551	2.70	4.20	25	1.50
40.56005.0145	1.45	.0571	2.70	4.20	25	1.50
40.56005.0150	1.50	.0591	3.00	4.20	25	1.50

- All dimensions are millimeters unless otherwise noted
- Packaged in quantities of 10 pieces
- For cutting data see pg. 142

SPHINX TOOLS

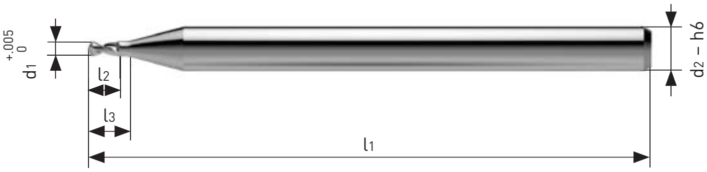
SPHINX TOOLS

Art. 56033

Carbide | d1 +.005 0 | Z 2 | 130° | 30° | 2xd

Blind Hole | Through Hole | Countersink 130°

ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.56033.0003	.03	.0012	.15	.30	38	3.00
40.56033.0004	.04	.0016	.15	.30	38	3.00
40.56033.0005	.05	.0020	.20	.40	38	3.00
40.56033.0006	.06	.0024	.20	.40	38	3.00
40.56033.0007	.07	.0028	.25	.45	38	3.00
40.56033.0008	.08	.0031	.25	.45	38	3.00
40.56033.0009	.09	.0035	.30	.50	38	3.00
40.56033.0010	.10	.0039	.35	.55	38	3.00
40.56033.0011	.11	.0043	.35	.55	38	3.00
40.56033.0012	.12	.0047	.35	.55	38	3.00
40.56033.0013	.13	.0051	.40	.60	38	3.00
40.56033.0014	.14	.0055	.40	.60	38	3.00
40.56033.0015	.15	.0059	.40	.60	38	3.00
40.56033.0016	.16	.0063	.40	.60	38	3.00
40.56033.0017	.17	.0067	.50	.70	38	3.00
40.56033.0018	.18	.0071	.50	.70	38	3.00
40.56033.0019	.19	.0075	.50	.70	38	3.00
40.56033.0020	.20	.0079	.55	.75	38	3.00
40.56033.0021	.21	.0083	.55	.75	38	3.00
40.56033.0022	.22	.0087	.60	.80	38	3.00
40.56033.0023	.23	.0091	.60	.80	38	3.00
40.56033.0024	.24	.0094	.60	.80	38	3.00
40.56033.0025	.25	.0098	.70	.90	38	3.00
40.56033.0026	.26	.0102	.70	.90	38	3.00
40.56033.0027	.27	.0106	.70	.90	38	3.00
40.56033.0028	.28	.0110	.80	1.00	38	3.00
40.56033.0029	.29	.0114	.80	1.00	38	3.00
40.56033.0030	.30	.0118	.90	1.20	38	3.00
40.56033.0031	.31	.0122	.90	1.20	38	3.00
40.56033.0032	.32	.0126	.90	1.20	38	3.00

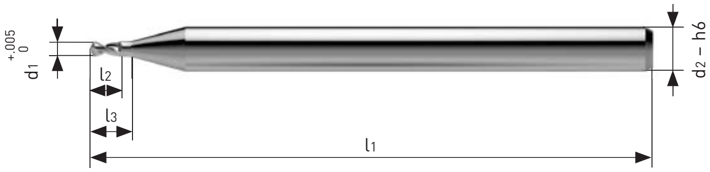
Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.56033.0033	.33	.0130	.90	1.20	38	3.00
40.56033.0034	.34	.0134	.90	1.35	38	3.00
40.56033.0035	.35	.0138	.90	1.35	38	3.00
40.56033.0036	.36	.0142	.95	1.35	38	3.00
40.56033.0037	.37	.0146	.95	1.35	38	3.00
40.56033.0038	.38	.0150	.95	1.50	38	3.00
40.56033.0039	.39	.0154	.95	1.50	38	3.00
40.56033.0040	.40	.0157	.80	1.60	38	3.00
40.56033.0041	.41	.0161	.82	1.60	38	3.00
40.56033.0042	.42	.0165	.84	1.60	38	3.00
40.56033.0043	.43	.0169	.86	1.60	38	3.00
40.56033.0044	.44	.0173	.88	1.60	38	3.00
40.56033.0045	.45	.0177	.90	1.60	38	3.00
40.56033.0046	.46	.0181	.92	1.70	38	3.00
40.56033.0047	.47	.0185	.94	1.70	38	3.00
40.56033.0048	.48	.0189	.96	1.70	38	3.00
40.56033.0049	.49	.0193	.98	1.70	38	3.00
40.56033.0050	.50	.0197	1.00	1.70	38	3.00
40.56033.0051	.51	.0201	1.02	1.80	38	3.00
40.56033.0052	.52	.0205	1.04	1.80	38	3.00
40.56033.0053	.53	.0209	1.06	1.80	38	3.00
40.56033.0054	.54	.0213	1.08	1.80	38	3.00
40.56033.0055	.55	.0217	1.10	1.80	38	3.00
40.56033.0056	.56	.0220	1.12	1.90	38	3.00
40.56033.0057	.57	.0224	1.14	1.90	38	3.00
40.56033.0058	.58	.0228	1.16	1.90	38	3.00
40.56033.0059	.59	.0232	1.18	1.90	38	3.00
40.56033.0060	.60	.0236	1.20	1.90	38	3.00
40.56033.0061	.61	.0240	1.22	2.00	38	3.00
40.56033.0062	.62	.0244	1.24	2.00	38	3.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.56033.0063	.63	.0248	1.26	2.00	38	3.00
40.56033.0064	.64	.0252	1.28	2.00	38	3.00
40.56033.0065	.65	.0256	1.30	2.00	38	3.00
40.56033.0066	.66	.0260	1.32	2.10	38	3.00
40.56033.0067	.67	.0264	1.34	2.10	38	3.00
40.56033.0068	.68	.0268	1.36	2.10	38	3.00
40.56033.0069	.69	.0272	1.38	2.10	38	3.00
40.56033.0070	.70	.0276	1.40	2.10	38	3.00
40.56033.0071	.71	.0280	1.42	2.20	38	3.00
40.56033.0072	.72	.0283	1.44	2.20	38	3.00
40.56033.0073	.73	.0287	1.46	2.20	38	3.00
40.56033.0074	.74	.0291	1.48	2.20	38	3.00
40.56033.0075	.75	.0295	1.50	2.20	38	3.00
40.56033.0076	.76	.0299	1.52	2.30	38	3.00
40.56033.0077	.77	.0303	1.54	2.30	38	3.00
40.56033.0078	.78	.0307	1.56	2.30	38	3.00
40.56033.0079	.79	.0311	1.58	2.30	38	3.00
40.56033.0080	.80	.0315	1.60	2.30	38	3.00
40.56033.0081	.81	.0319	1.62	2.40	38	3.00
40.56033.0082	.82	.0323	1.64	2.40	38	3.00
40.56033.0083	.83	.0327	1.66	2.40	38	3.00
40.56033.0084	.84	.0331	1.68	2.40	38	3.00
40.56033.0085	.85	.0335	1.70	2.40	38	3.00
40.56033.0086	.86	.0339	1.72	2.50	38	3.00
40.56033.0087	.87	.0343	1.74	2.50	38	3.00
40.56033.0088	.88	.0346	1.76	2.50	38	3.00
40.56033.0089	.89	.0350	1.78	2.50	38	3.00
40.56033.0090	.90	.0354	1.80	2.50	38	3.00
40.56033.0091	.91	.0358	1.82	2.60	38	3.00
40.56033.0092	.92	.0362	1.84	2.60	38	3.00
40.56033.0093	.93	.0366	1.86	2.60	38	3.00
40.56033.0094	.94	.0370	1.88	2.60	38	3.00
40.56033.0095	.95	.0374	1.90	2.60	38	3.00
40.56033.0096	.96	.0378	1.92	2.70	38	3.00
40.56033.0097	.97	.0382	1.94	2.70	38	3.00
40.56033.0098	.98	.0386	1.96	2.70	38	3.00
40.56033.0099	.99	.0390	1.98	2.70	38	3.00
40.56033.0100	1.00	.0394	2.00	2.70	38	3.00
40.56033.0101	1.01	.0398	2.02	3.50	38	3.00
40.56033.0102	1.02	.0402	2.04	3.50	38	3.00
40.56033.0103	1.03	.0406	2.06	3.50	38	3.00
40.56033.0104	1.04	.0409	2.08	3.50	38	3.00
40.56033.0105	1.05	.0413	2.10	3.50	38	3.00
40.56033.0106	1.06	.0417	2.12	3.60	38	3.00
40.56033.0107	1.07	.0421	2.14	3.60	38	3.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.56033.0108	1.08	.0425	2.16	3.60	38	3.00
40.56033.0109	1.09	.0429	2.18	3.60	38	3.00
40.56033.0110	1.10	.0433	2.20	3.60	38	3.00
40.56033.0111	1.11	.0437	2.22	3.70	38	3.00
40.56033.0112	1.12	.0441	2.24	3.70	38	3.00
40.56033.0113	1.13	.0445	2.26	3.70	38	3.00
40.56033.0114	1.14	.0449	2.28	3.70	38	3.00
40.56033.0115	1.15	.0453	2.30	3.70	38	3.00
40.56033.0116	1.16	.0457	2.32	3.80	38	3.00
40.56033.0117	1.17	.0461	2.34	3.80	38	3.00
40.56033.0118	1.18	.0465	2.36	3.80	38	3.00
40.56033.0119	1.19	.0469	2.38	3.80	38	3.00
40.56033.0120	1.20	.0472	2.40	3.80	38	3.00
40.56033.0121	1.21	.0476	2.42	4.20	38	3.00
40.56033.0122	1.22	.0480	2.44	4.20	38	3.00
40.56033.0123	1.23	.0484	2.46	4.20	38	3.00
40.56033.0124	1.24	.0488	2.48	4.20	38	3.00
40.56033.0125	1.25	.0492	2.50	4.20	38	3.00
40.56033.0126	1.26	.0496	2.52	4.30	38	3.00
40.56033.0127	1.27	.0500	2.54	4.30	38	3.00
40.56033.0128	1.28	.0504	2.56	4.30	38	3.00
40.56033.0129	1.29	.0508	2.58	4.30	38	3.00
40.56033.0130	1.30	.0512	2.60	4.30	38	3.00
40.56033.0131	1.31	.0516	2.62	4.40	38	3.00
40.56033.0132	1.32	.0520	2.64	4.40	38	3.00
40.56033.0133	1.33	.0524	2.66	4.40	38	3.00
40.56033.0134	1.34	.0528	2.68	4.40	38	3.00
40.56033.0135	1.35	.0531	2.70	4.40	38	3.00
40.56033.0136	1.36	.0535	2.72	4.50	38	3.00
40.56033.0137	1.37	.0539	2.74	4.50	38	3.00
40.56033.0138	1.38	.0543	2.76	4.50	38	3.00
40.56033.0139	1.39	.0547	2.78	4.50	38	3.00
40.56033.0140	1.40	.0551	2.80	4.50	38	3.00
40.56033.0141	1.41	.0555	2.82	4.60	38	3.00
40.56033.0142	1.42	.0559	2.84	4.60	38	3.00
40.56033.0143	1.43	.0563	2.86	4.60	38	3.00
40.56033.0144	1.44	.0567	2.88	4.60	38	3.00
40.56033.0145	1.45	.0571	2.90	4.60	38	3.00
40.56033.0146	1.46	.0575	2.92	4.70	38	3.00
40.56033.0147	1.47	.0579	2.94	4.70	38	3.00
40.56033.0148	1.48	.0583	2.96	4.70	38	3.00
40.56033.0149	1.49	.0587	2.98	4.70	38	3.00
40.56033.0150	1.50	.0591	3.00	4.70	38	3.00
40.56033.0151	1.51	.0594	3.02	5.10	38	3.00
40.56033.0152	1.52	.0598	3.04	5.10	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 142

Art. 56033 Cont.



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.56033.0153	1.53	.0602	3.06	5.10	38	3.00
40.56033.0154	1.54	.0606	3.08	5.10	38	3.00
40.56033.0155	1.55	.0610	3.10	5.10	38	3.00
40.56033.0156	1.56	.0614	3.12	5.20	38	3.00
40.56033.0157	1.57	.0618	3.14	5.20	38	3.00
40.56033.0158	1.58	.0622	3.16	5.20	38	3.00
40.56033.0159	1.59	.0626	3.18	5.20	38	3.00
40.56033.0160	1.60	.0630	3.20	5.20	38	3.00
40.56033.0161	1.61	.0634	3.22	5.30	38	3.00
40.56033.0162	1.62	.0638	3.24	5.30	38	3.00
40.56033.0163	1.63	.0642	3.26	5.30	38	3.00
40.56033.0164	1.64	.0646	3.28	5.30	38	3.00
40.56033.0165	1.65	.0650	3.30	5.30	38	3.00
40.56033.0166	1.66	.0654	3.32	5.40	38	3.00
40.56033.0167	1.67	.0657	3.34	5.40	38	3.00
40.56033.0168	1.68	.0661	3.36	5.40	38	3.00
40.56033.0169	1.69	.0665	3.38	5.40	38	3.00
40.56033.0170	1.70	.0669	3.40	5.40	38	3.00
40.56033.0171	1.71	.0673	3.42	5.50	38	3.00
40.56033.0172	1.72	.0677	3.44	5.50	38	3.00
40.56033.0173	1.73	.0681	3.46	5.50	38	3.00
40.56033.0174	1.74	.0685	3.48	5.50	38	3.00
40.56033.0175	1.75	.0689	3.50	5.50	38	3.00
40.56033.0176	1.76	.0693	3.52	5.60	38	3.00
40.56033.0177	1.77	.0697	3.54	5.60	38	3.00
40.56033.0178	1.78	.0701	3.56	5.60	38	3.00
40.56033.0179	1.79	.0705	3.58	5.60	38	3.00
40.56033.0180	1.80	.0709	3.60	5.60	38	3.00
40.56033.0181	1.81	.0713	3.62	5.70	38	3.00
40.56033.0182	1.82	.0717	3.64	5.70	38	3.00
40.56033.0183	1.83	.0720	3.66	5.70	38	3.00
40.56033.0184	1.84	.0724	3.68	5.70	38	3.00
40.56033.0185	1.85	.0728	3.70	5.70	38	3.00
40.56033.0186	1.86	.0732	3.72	5.80	38	3.00
40.56033.0187	1.87	.0736	3.74	5.80	38	3.00
40.56033.0188	1.88	.0740	3.76	5.80	38	3.00
40.56033.0189	1.89	.0744	3.78	5.80	38	3.00
40.56033.0190	1.90	.0748	3.80	5.80	38	3.00
40.56033.0191	1.91	.0752	3.82	5.90	38	3.00
40.56033.0192	1.92	.0756	3.84	5.90	38	3.00
40.56033.0193	1.93	.0760	3.86	5.90	38	3.00
40.56033.0194	1.94	.0764	3.88	5.90	38	3.00
40.56033.0195	1.95	.0768	3.90	5.90	38	3.00
40.56033.0196	1.96	.0772	3.92	6.00	38	3.00
40.56033.0197	1.97	.0776	3.94	6.00	38	3.00
40.56033.0198	1.98	.0780	3.96	6.00	38	3.00
40.56033.0199	1.99	.0783	3.98	6.00	38	3.00
40.56033.0200	2.00	.0787	4.00	6.00	38	3.00
40.56033.0201	2.01	.0791	4.02	6.10	38	3.00
40.56033.0202	2.02	.0795	4.04	6.10	38	3.00
40.56033.0203	2.03	.0799	4.06	6.10	38	3.00
40.56033.0204	2.04	.0803	4.08	6.10	38	3.00
40.56033.0205	2.05	.0807	4.10	6.10	38	3.00
40.56033.0206	2.06	.0811	4.12	6.20	38	3.00
40.56033.0207	2.07	.0815	4.14	6.20	38	3.00
40.56033.0208	2.08	.0819	4.16	6.20	38	3.00
40.56033.0209	2.09	.0823	4.18	6.20	38	3.00
40.56033.0210	2.10	.0827	4.20	6.20	38	3.00
40.56033.0211	2.11	.0831	4.22	6.30	38	3.00
40.56033.0212	2.12	.0835	4.24	6.30	38	3.00
40.56033.0213	2.13	.0839	4.26	6.30	38	3.00
40.56033.0214	2.14	.0843	4.28	6.30	38	3.00
40.56033.0215	2.15	.0846	4.30	6.30	38	3.00
40.56033.0216	2.16	.0850	4.32	6.40	38	3.00
40.56033.0217	2.17	.0854	4.34	6.40	38	3.00
40.56033.0218	2.18	.0858	4.36	6.40	38	3.00
40.56033.0219	2.19	.0862	4.38	6.40	38	3.00
40.56033.0220	2.20	.0866	4.40	6.40	38	3.00
40.56033.0221	2.21	.0870	4.42	6.50	38	3.00
40.56033.0222	2.22	.0874	4.44	6.50	38	3.00
40.56033.0223	2.23	.0878	4.46	6.50	38	3.00
40.56033.0224	2.24	.0882	4.48	6.50	38	3.00
40.56033.0225	2.25	.0886	4.50	6.50	38	3.00
40.56033.0226	2.26	.0890	4.52	6.60	38	3.00
40.56033.0227	2.27	.0894	4.54	6.60	38	3.00
40.56033.0228	2.28	.0898	4.56	6.60	38	3.00
40.56033.0229	2.29	.0902	4.58	6.60	38	3.00
40.56033.0230	2.30	.0906	4.60	6.60	38	3.00
40.56033.0231	2.31	.0909	4.62	6.70	38	3.00
40.56033.0232	2.32	.0913	4.64	6.70	38	3.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.56033.0233	2.33	.0917	4.66	6.70	38	3.00
40.56033.0234	2.34	.0921	4.68	6.70	38	3.00
40.56033.0235	2.35	.0925	4.70	6.70	38	3.00
40.56033.0236	2.36	.0929	4.72	6.80	38	3.00
40.56033.0237	2.37	.0933	4.74	6.80	38	3.00
40.56033.0238	2.38	.0937	4.76	6.80	38	3.00
40.56033.0239	2.39	.0941	4.78	6.80	38	3.00
40.56033.0240	2.40	.0945	4.80	6.80	38	3.00
40.56033.0241	2.41	.0949	4.82	6.90	38	3.00
40.56033.0242	2.42	.0953	4.84	6.90	38	3.00
40.56033.0243	2.43	.0957	4.86	6.90	38	3.00
40.56033.0244	2.44	.0961	4.88	6.90	38	3.00
40.56033.0245	2.45	.0965	4.90	6.90	38	3.00
40.56033.0246	2.46	.0969	4.92	7.00	38	3.00
40.56033.0247	2.47	.0972	4.94	7.00	38	3.00
40.56033.0248	2.48	.0976	4.96	7.00	38	3.00
40.56033.0249	2.49	.0980	4.98	7.00	38	3.00
40.56033.0250	2.50	.0984	5.00	7.00	38	3.00
40.56033.0251	2.51	.0988	5.02	7.10	38	3.00
40.56033.0252	2.52	.0992	5.04	7.10	38	3.00
40.56033.0253	2.53	.0996	5.06	7.10	38	3.00
40.56033.0254	2.54	.1000	5.08	7.10	38	3.00
40.56033.0255	2.55	.1004	5.10	7.10	38	3.00
40.56033.0256	2.56	.1008	5.12	7.20	38	3.00
40.56033.0257	2.57	.1012	5.14	7.20	38	3.00
40.56033.0258	2.58	.1016	5.16	7.20	38	3.00
40.56033.0259	2.59	.1020	5.18	7.20	38	3.00
40.56033.0260	2.60	.1024	5.20	7.20	38	3.00
40.56033.0261	2.61	.1028	5.22	7.30	38	3.00
40.56033.0262	2.62	.1031	5.24	7.30	38	3.00
40.56033.0263	2.63	.1035	5.26	7.30	38	3.00
40.56033.0264	2.64	.1039	5.28	7.30	38	3.00
40.56033.0265	2.65	.1043	5.30	7.30	38	3.00
40.56033.0266	2.66	.1047	5.32	7.40	38	3.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.56033.0267	2.67	.1051	5.34	7.40	38	3.00
40.56033.0268	2.68	.1055	5.36	7.40	38	3.00
40.56033.0269	2.69	.1059	5.38	7.40	38	3.00
40.56033.0270	2.70	.1063	5.40	7.40	38	3.00
40.56033.0271	2.71	.1067	5.42	7.50	38	3.00
40.56033.0272	2.72	.1071	5.44	7.50	38	3.00
40.56033.0273	2.73	.1075	5.46	7.50	38	3.00
40.56033.0274	2.74	.1079	5.48	7.50	38	3.00
40.56033.0275	2.75	.1083	5.50	7.50	38	3.00
40.56033.0276	2.76	.1087	5.52	7.60	38	3.00
40.56033.0277	2.77	.1091	5.54	7.60	38	3.00
40.56033.0278	2.78	.1094	5.56	7.60	38	3.00
40.56033.0279	2.79	.1098	5.58	7.60	38	3.00
40.56033.0280	2.80	.1102	5.60	7.60	38	3.00
40.56033.0281	2.81	.1106	5.62	7.70	38	3.00
40.56033.0282	2.82	.1110	5.64	7.70	38	3.00
40.56033.0283	2.83	.1114	5.66	7.70	38	3.00
40.56033.0284	2.84	.1118	5.68	7.70	38	3.00
40.56033.0285	2.85	.1122	5.70	7.70	38	3.00
40.56033.0286	2.86	.1126	5.72	7.80	38	3.00
40.56033.0287	2.87	.1130	5.74	7.80	38	3.00
40.56033.0288	2.88	.1134	5.76	7.80	38	3.00
40.56033.0289	2.89	.1138	5.78	7.80	38	3.00
40.56033.0290	2.90	.1142	5.80	7.80	38	3.00
40.56033.0291	2.91	.1146	5.82	7.90	38	3.00
40.56033.0292	2.92	.1150	5.84	7.90	38	3.00
40.56033.0293	2.93	.1154	5.86	7.90	38	3.00
40.56033.0294	2.94	.1157	5.88	7.90	38	3.00
40.56033.0295	2.95	.1161	5.90	7.90	38	3.00
40.56033.0296	2.96	.1165	5.92	8.00	38	3.00
40.56033.0297	2.97	.1169	5.94	8.00	38	3.00
40.56033.0298	2.98	.1173	5.96	8.00	38	3.00
40.56033.0299	2.99	.1177	5.98	8.00	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 142

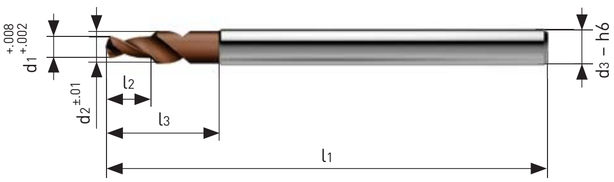
Step

Art. 56036

Carbide | d1 +.008 +.002 | Z 2 | 90° 140° | 30° | AlCrN

Blind Hole | Through Hole Countersink

ST | SST | C.I. | Al | Brass | Mg | Ti | HST



Catalog Number	d1	d1 (in.)	d2	l2	l3	l1	d3
40.56036.0030	.30	.0118	.70	.60	2.50	50	4.00
40.56036.0035	.35	.0138	.70	.70	2.50	50	4.00
40.56036.0040	.40	.0157	1.00	.80	3.00	50	4.00
40.56036.0050	.50	.0197	1.20	1.00	3.50	50	4.00
40.56036.0055	.55	.0217	1.30	1.10	3.50	50	4.00
40.56036.0060	.60	.0236	1.40	1.20	4.30	50	4.00
40.56036.0065	.65	.0256	1.50	1.30	4.30	50	4.00
40.56036.0070	.70	.0276	1.80	1.40	5.30	50	4.00
40.56036.0075	.75	.0295	1.80	1.50	5.30	50	4.00
40.56036.0080	.80	.0315	2.00	1.60	6.00	50	4.00
40.56036.0085	.85	.0335	2.00	1.70	6.00	50	4.00
40.56036.0090	.90	.0354	2.00	1.80	6.00	50	4.00
40.56036.0095	.95	.0374	2.00	1.90	6.00	50	4.00
40.56036.0100	1.00	.0394	2.20	2.00	7.00	50	4.00
40.56036.0105	1.05	.0413	2.20	2.10	7.00	50	4.00
40.56036.0110	1.10	.0433	2.20	2.20	7.00	50	4.00
40.56036.0115	1.15	.0453	2.20	2.30	7.00	50	4.00
40.56036.0120	1.20	.0472	2.20	2.40	7.00	50	4.00
40.56036.0125	1.25	.0492	2.50	2.50	8.00	50	4.00
40.56036.0130	1.30	.0512	2.50	2.60	8.00	50	4.00
40.56036.0135	1.35	.0531	2.50	2.70	8.00	50	4.00
40.56036.0140	1.40	.0551	2.50	2.80	8.00	50	4.00
40.56036.0145	1.45	.0571	2.70	2.90	9.00	50	4.00
40.56036.0150	1.50	.0591	2.70	3.00	9.00	50	4.00
40.56036.0155	1.55	.061	2.70	3.10	9.00	50	4.00
40.56036.0160	1.60	.063	2.70	3.20	9.00	50	4.00
40.56036.0165	1.65	.065	2.80	3.30	9.50	50	4.00
40.56036.0170	1.70	.0669	2.80	3.40	9.50	50	4.00
40.56036.0175	1.75	.0689	2.80	3.50	9.50	50	4.00
40.56036.0180	1.80	.0709	2.80	3.60	9.50	50	4.00

Catalog Number	d1	d1 (in.)	d2	l2	l3	l1	d3
40.56036.0185	1.85	.0728	3.00	3.70	10.20	50	4.00
40.56036.0190	1.90	.0748	3.00	3.80	10.20	50	4.00
40.56036.0195	1.95	.0768	3.00	3.90	10.20	50	4.00
40.56036.0200	2.00	.0787	3.00	4.00	10.20	50	4.00
40.56036.0205	2.05	.0807	3.20	4.10	11.00	50	4.00
40.56036.0210	2.10	.0827	3.20	4.20	11.00	50	4.00
40.56036.0215	2.15	.0846	3.20	4.30	11.00	50	4.00
40.56036.0220	2.20	.0866	3.20	4.40	11.00	50	4.00
40.56036.0225	2.25	.0886	3.40	4.50	12.00	50	4.00
40.56036.0230	2.30	.0906	3.40	4.60	12.00	50	4.00
40.56036.0235	2.35	.0925	3.40	4.70	12.00	50	4.00
40.56036.0240	2.40	.0945	3.40	4.80	12.00	50	4.00
40.56036.0245	2.45	.0965	3.60	4.90	12.70	50	4.00
40.56036.0250	2.50	.0984	3.60	5.00	12.70	50	4.00
40.56036.0255	2.55	.1004	3.60	5.10	12.70	50	4.00
40.56036.0260	2.60	.1024	3.60	5.20	12.70	50	4.00
40.56036.0265	2.65	.1043	3.80	5.30	13.50	50	4.00
40.56036.0270	2.70	.1063	3.80	5.40	13.50	50	4.00
40.56036.0275	2.75	.1083	3.80	5.50	13.50	50	4.00
40.56036.0280	2.80	.1102	3.80	5.60	13.50	50	4.00
40.56036.0285	2.85	.1122	4.00	5.70	14.10	50	4.00
40.56036.0290	2.90	.1142	4.00	5.80	14.10	50	4.00
40.56036.0295	2.95	.1161	4.00	5.90	14.10	50	4.00
40.56036.0300	3.00	.1181	4.00	6.00	14.10	50	4.00
40.56036.0305	3.05	.1201	4.60	6.10	14.00	55	6.00
40.56036.0310	3.10	.122	4.60	6.20	14.50	55	6.00
40.56036.0315	3.15	.124	4.60	6.30	14.50	55	6.00
40.56036.0320	3.20	.126	4.60	6.40	14.50	55	6.00
40.56036.0325	3.25	.128	4.80	6.50	14.50	55	6.00
40.56036.0330	3.30	.1299	4.80	6.60	14.50	55	6.00

SPHINX TOOLS

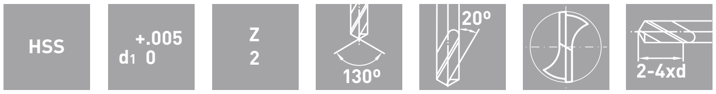
Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_3	l_1	d_3
40.56036.0335	3.35	.1319	4.80	6.70	15.00	55	6.00
40.56036.0340	3.40	.1339	4.80	6.80	15.00	55	6.00
40.56036.0345	3.45	.1358	5.00	6.90	15.00	55	6.00
40.56036.0350	3.50	.1378	5.00	7.00	15.00	55	6.00
40.56036.0355	3.55	.1398	5.00	7.10	15.50	55	6.00
40.56036.0360	3.60	.1417	5.00	7.20	15.50	55	6.00
40.56036.0365	3.65	.1437	5.20	7.30	15.50	55	6.00
40.56036.0370	3.70	.1457	5.20	7.40	15.50	55	6.00
40.56036.0375	3.75	.1476	5.20	7.50	16.00	55	6.00
40.56036.0380	3.80	.1496	5.20	7.60	16.00	55	6.00
40.56036.0385	3.85	.1516	5.40	7.70	16.00	55	6.00
40.56036.0390	3.90	.1535	5.40	7.80	16.00	55	6.00
40.56036.0395	3.95	.1555	5.40	7.90	16.50	55	6.00
40.56036.0400	4.00	.1575	5.40	8.00	16.50	55	6.00
40.56036.0405	4.05	.1594	5.60	8.10	16.50	55	6.00
40.56036.0410	4.10	.1614	5.60	8.20	16.50	55	6.00
40.56036.0415	4.15	.1634	5.60	8.30	17.00	55	6.00
40.56036.0420	4.20	.1654	5.60	8.40	17.00	55	6.00
40.56036.0425	4.25	.1673	5.80	8.50	17.00	64	8.00
40.56036.0430	4.30	.1693	5.80	8.60	17.00	64	8.00
40.56036.0435	4.35	.1713	5.80	8.70	17.50	64	8.00
40.56036.0440	4.40	.1732	5.80	8.80	17.50	64	8.00
40.56036.0445	4.45	.1752	6.00	8.90	17.50	64	8.00
40.56036.0450	4.50	.1772	6.00	9.00	18.00	64	8.00
40.56036.0455	4.55	.1791	6.00	9.10	18.00	64	8.00
40.56036.0460	4.60	.1811	6.00	9.20	18.00	64	8.00
40.56036.0465	4.65	.1831	6.20	9.30	18.50	64	8.00

Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_3	l_1	d_3
40.56036.0470	4.70	.185	6.20	9.40	18.50	64	8.00
40.56036.0475	4.75	.187	6.20	9.50	18.50	64	8.00
40.56036.0480	4.80	.189	6.20	9.60	19.00	64	8.00
40.56036.0485	4.85	.1909	6.40	9.70	19.00	64	8.00
40.56036.0490	4.90	.1929	6.40	9.80	19.00	64	8.00
40.56036.0495	4.95	.1949	6.40	9.90	19.50	64	8.00
40.56036.0500	5.00	.1969	6.40	10.00	19.50	64	8.00
40.56036.0505	5.05	.1988	6.60	10.10	19.50	64	8.00
40.56036.0510	5.10	.2008	6.60	10.20	20.00	64	8.00
40.56036.0515	5.15	.2028	6.60	10.30	20.00	64	8.00
40.56036.0520	5.20	.2047	6.60	10.40	20.00	64	8.00
40.56036.0525	5.25	.2067	6.80	10.50	20.50	64	8.00
40.56036.0530	5.30	.2087	6.80	10.60	20.50	64	8.00
40.56036.0535	5.35	.2106	6.80	10.70	20.50	64	8.00
40.56036.0540	5.40	.2126	6.80	10.80	21.00	64	8.00
40.56036.0545	5.45	.2146	7.00	10.90	21.00	64	8.00
40.56036.0550	5.50	.2165	7.00	11.00	21.00	64	8.00
40.56036.0555	5.55	.2185	7.00	11.10	21.50	64	8.00
40.56036.0560	5.60	.2205	7.00	11.20	21.50	64	8.00
40.56036.0565	5.65	.2224	7.20	11.30	21.50	64	8.00
40.56036.0570	5.70	.2244	7.20	11.40	22.00	64	8.00
40.56036.0575	5.75	.2264	7.20	11.50	22.00	64	8.00
40.56036.0580	5.80	.2283	7.20	11.60	22.00	64	8.00
40.56036.0585	5.85	.2303	7.40	11.70	22.50	64	8.00
40.56036.0590	5.90	.2323	7.40	11.80	22.50	64	8.00
40.56036.0595	5.95	.2343	7.40	11.90	22.50	64	8.00
40.56036.0600	6.00	.2362	7.40	12.00	23.00	64	8.00

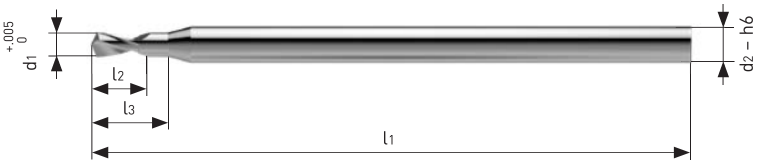
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 143

Spirec

Art. 16004



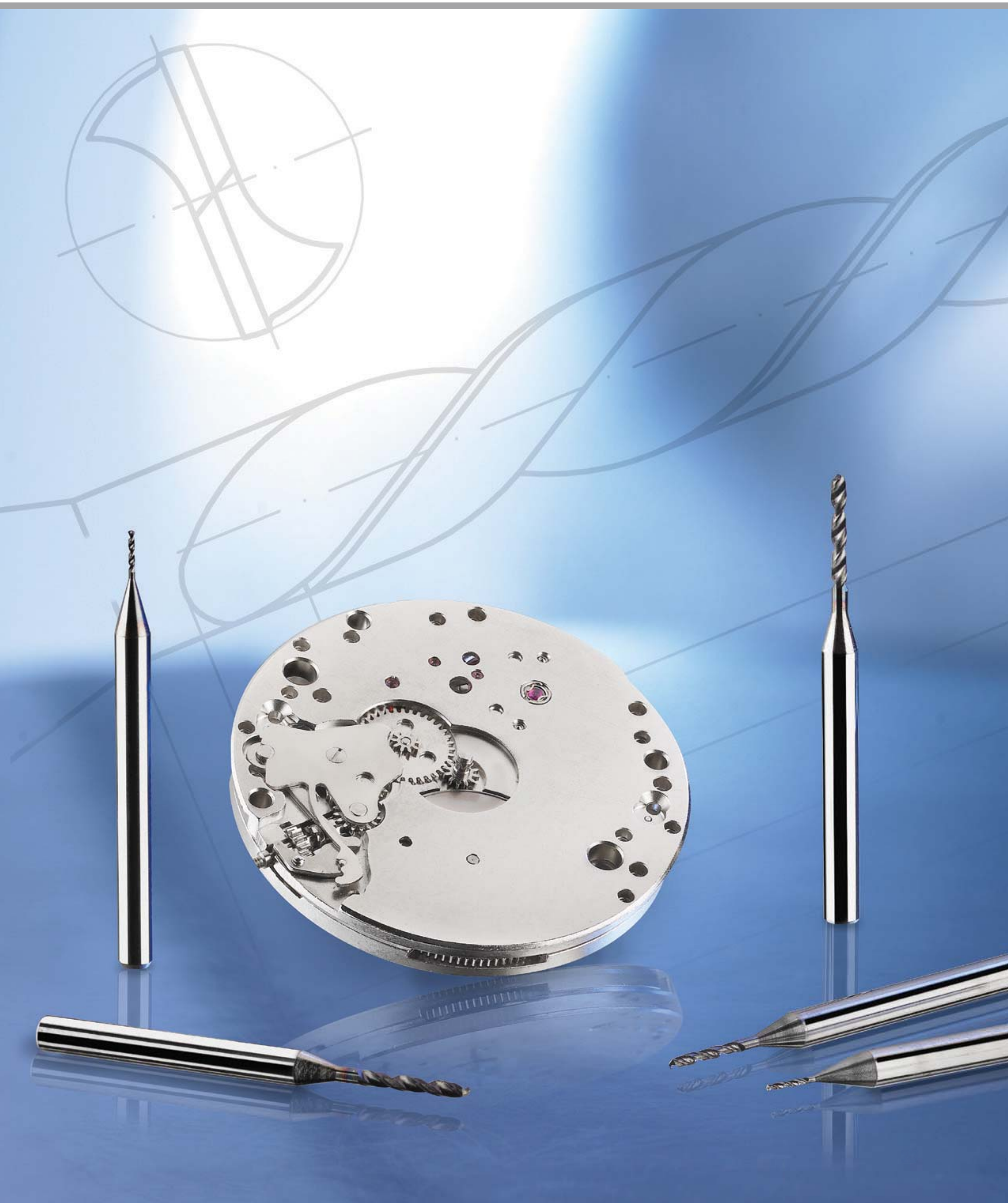
ST | SST | C.I. | Al | Brass



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.16004.0010	.10	.0039	.40	.60	25	1.50
40.16004.0015	.15	.0059	.40	.60	25	1.50
40.16004.0020	.20	.0079	.60	.90	25	1.50
40.16004.0025	.25	.0098	.60	.90	25	1.50
40.16004.0030	.30	.0118	.90	1.20	25	1.50
40.16004.0035	.35	.0138	.90	1.20	25	1.50
40.16004.0040	.40	.0157	.90	1.60	25	1.50
40.16004.0045	.45	.0177	.90	1.60	25	1.50
40.16004.0050	.50	.0197	1.00	1.80	25	1.50
40.16004.0055	.55	.0217	1.00	1.80	25	1.50
40.16004.0060	.60	.0236	1.20	2.00	25	1.50
40.16004.0065	.65	.0256	1.20	2.00	25	1.50
40.16004.0070	.70	.0276	1.50	2.50	25	1.50
40.16004.0075	.75	.0295	1.50	2.50	25	1.50
40.16004.0080	.80	.0315	1.50	2.50	25	1.50
40.16004.0085	.85	.0335	1.50	2.50	25	1.50
40.16004.0090	.90	.0354	1.60	2.60	25	1.50
40.16004.0095	.95	.0374	1.60	2.60	25	1.50
40.16004.0100	1.00	.0394	2.00	3.20	25	1.50
40.16004.0105	1.05	.0413	2.00	3.20	25	1.50
40.16004.0110	1.10	.0433	2.30	3.50	25	1.50
40.16004.0115	1.15	.0453	2.30	3.50	25	1.50
40.16004.0120	1.20	.0472	2.30	3.50	25	1.50
40.16004.0125	1.25	.0492	2.30	3.50	25	1.50
40.16004.0130	1.30	.0512	2.70	4.20	25	1.50
40.16004.0135	1.35	.0531	2.70	4.20	25	1.50
40.16004.0140	1.40	.0551	2.70	4.20	25	1.50
40.16004.0145	1.45	.0571	2.70	4.20	25	1.50
40.16004.0150	1.50	.0591	3.00	4.20	25	1.50

- All dimensions are millimeters unless otherwise noted
- Packaged in quantities of 10 pieces
- For cutting data see pg. 143

SPHINX TOOLS



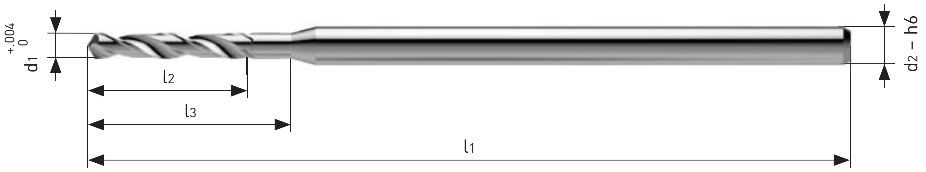
Spirec-Plus

Art. 50695

Carbide | d1 +.004 0 | Z 2 | 118° | 30° | 6-8xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Brass | Mg



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50695.0020	.20	.0079	1.50	1.80	30	1.00
40.50695.0021	.21	.0083	1.50	1.80	30	1.00
40.50695.0022	.22	.0087	1.50	1.80	30	1.00
40.50695.0023	.23	.0091	1.50	1.80	30	1.00
40.50695.0024	.24	.0094	1.50	1.80	30	1.00
40.50695.0025	.25	.0098	1.90	2.20	30	1.00
40.50695.0026	.26	.0102	1.90	2.20	30	1.00
40.50695.0027	.27	.0106	1.90	2.20	30	1.00
40.50695.0028	.28	.0110	1.90	2.20	30	1.00
40.50695.0029	.29	.0114	1.90	2.20	30	1.00
40.50695.0030	.30	.0118	1.90	2.20	30	1.00
40.50695.0031	.31	.0122	2.40	2.80	30	1.00
40.50695.0032	.32	.0126	2.40	2.80	30	1.00
40.50695.0033	.33	.0130	2.40	2.80	30	1.00
40.50695.0034	.34	.0134	2.40	2.80	30	1.00
40.50695.0035	.35	.0138	2.40	2.80	30	1.00
40.50695.0036	.36	.0142	2.40	2.80	30	1.00
40.50695.0037	.37	.0146	2.40	2.80	30	1.00
40.50695.0038	.38	.0150	2.40	2.80	30	1.00
40.50695.0039	.39	.0154	2.70	3.60	30	1.00
40.50695.0040	.40	.0157	2.70	3.60	30	1.00
40.50695.0041	.41	.0161	2.70	3.60	30	1.00
40.50695.0042	.42	.0165	2.70	3.60	30	1.00
40.50695.0043	.43	.0169	2.70	3.60	30	1.00
40.50695.0044	.44	.0173	2.70	3.60	30	1.00
40.50695.0045	.45	.0177	2.70	3.60	30	1.00
40.50695.0046	.46	.0181	2.70	3.60	30	1.00
40.50695.0047	.47	.0185	2.70	3.60	30	1.00
40.50695.0048	.48	.0189	2.70	3.60	30	1.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50695.0049	.49	.0193	3.20	4.00	30	1.00
40.50695.0050	.50	.0197	3.20	4.00	30	1.00
40.50695.0051	.51	.0201	3.20	4.00	30	1.00
40.50695.0052	.52	.0205	3.20	4.00	30	1.00
40.50695.0053	.53	.0209	3.20	4.00	30	1.00
40.50695.0054	.54	.0213	3.60	4.50	30	1.00
40.50695.0055	.55	.0217	3.60	4.50	30	1.00
40.50695.0056	.56	.0220	3.60	4.50	30	1.00
40.50695.0057	.57	.0224	3.60	4.50	30	1.00
40.50695.0058	.58	.0228	3.60	4.50	30	1.00
40.50695.0059	.59	.0232	3.60	4.50	30	1.00
40.50695.0060	.60	.0236	3.60	4.50	30	1.00
40.50695.0061	.61	.0240	3.90	5.00	30	1.00
40.50695.0062	.62	.0244	3.90	5.00	30	1.00
40.50695.0063	.63	.0248	3.90	5.00	30	1.00
40.50695.0064	.64	.0252	3.90	5.00	30	1.00
40.50695.0065	.65	.0256	3.90	5.00	30	1.00
40.50695.0066	.66	.0260	3.90	5.00	30	1.00
40.50695.0067	.67	.0264	3.90	5.00	30	1.00
40.50695.0068	.68	.0268	4.50	5.60	30	1.00
40.50695.0069	.69	.0272	4.50	5.60	30	1.00
40.50695.0070	.70	.0276	4.50	5.60	30	1.00
40.50695.0071	.71	.0280	4.50	5.60	30	1.00
40.50695.0072	.72	.0283	4.50	5.60	30	1.00
40.50695.0073	.73	.0287	4.50	5.60	30	1.00
40.50695.0074	.74	.0291	4.50	5.60	30	1.00
40.50695.0075	.75	.0295	4.50	5.60	30	1.00
40.50695.0076	.76	.0299	5.00	6.30	30	1.00
40.50695.0077	.77	.0303	5.00	6.30	30	1.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50695.0078	.78	.0307	5.00	6.30	30	1.00
40.50695.0079	.79	.0311	5.00	6.30	30	1.00
40.50695.0080	.80	.0315	5.00	6.30	30	1.50
40.50695.0081	.81	.0319	5.00	6.30	30	1.50
40.50695.0082	.82	.0323	5.00	6.30	30	1.50
40.50695.0083	.83	.0327	5.00	6.30	30	1.50
40.50695.0084	.84	.0331	5.00	6.30	30	1.50
40.50695.0085	.85	.0335	5.00	6.30	30	1.50
40.50695.0086	.86	.0339	5.70	7.10	30	1.50
40.50695.0087	.87	.0343	5.70	7.10	30	1.50
40.50695.0088	.88	.0346	5.70	7.10	30	1.50
40.50695.0089	.89	.0350	5.70	7.10	30	1.50
40.50695.0090	.90	.0354	5.70	7.10	30	1.50
40.50695.0091	.91	.0358	5.70	7.10	30	1.50
40.50695.0092	.92	.0362	5.70	7.10	30	1.50
40.50695.0093	.93	.0366	5.70	7.10	30	1.50
40.50695.0094	.94	.0370	5.70	7.10	30	1.50
40.50695.0095	.95	.0374	5.70	7.10	30	1.50
40.50695.0096	.96	.0378	6.50	8.00	30	1.50
40.50695.0097	.97	.0382	6.50	8.00	30	1.50
40.50695.0098	.98	.0386	6.50	8.00	30	1.50
40.50695.0099	.99	.0390	6.50	8.00	30	1.50
40.50695.0100	1.00	.0394	6.50	8.00	30	1.50
40.50695.0101	1.01	.0398	6.50	8.00	30	1.50
40.50695.0102	1.02	.0402	6.50	8.00	30	1.50
40.50695.0103	1.03	.0406	6.50	8.00	30	1.50
40.50695.0104	1.04	.0409	6.50	8.00	30	1.50
40.50695.0105	1.05	.0413	6.50	8.00	30	1.50
40.50695.0106	1.06	.0417	7.30	9.00	30	1.50
40.50695.0107	1.07	.0421	7.30	9.00	30	1.50
40.50695.0108	1.08	.0425	7.30	9.00	30	1.50
40.50695.0109	1.09	.0429	7.30	9.00	30	1.50
40.50695.0110	1.10	.0433	7.30	9.00	30	1.50
40.50695.0111	1.11	.0437	7.30	9.00	30	1.50
40.50695.0112	1.12	.0441	7.30	9.00	30	1.50
40.50695.0113	1.13	.0445	7.30	9.00	30	1.50
40.50695.0114	1.14	.0449	7.30	9.00	30	1.50

- All dimensions are millimeters unless otherwise noted
- Packaged in quantities of 10 pieces
- For cutting data see pg. 144

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50695.0115	1.15	.0453	7.30	9.00	30	1.50
40.50695.0116	1.16	.0457	8.20	10.00	30	1.50
40.50695.0117	1.17	.0461	8.20	10.00	30	1.50
40.50695.0118	1.18	.0465	8.20	10.00	30	1.50
40.50695.0119	1.19	.0469	8.20	10.00	30	1.50
40.50695.0120	1.20	.0472	8.20	10.00	30	1.50
40.50695.0121	1.21	.0476	8.20	10.00	30	1.50
40.50695.0122	1.22	.0480	8.20	10.00	30	1.50
40.50695.0123	1.23	.0484	8.20	10.00	30	1.50
40.50695.0124	1.24	.0488	8.20	10.00	30	1.50
40.50695.0125	1.25	.0492	8.20	10.00	30	1.50
40.50695.0126	1.26	.0496	8.20	10.00	30	1.50
40.50695.0127	1.27	.0500	8.20	10.00	30	1.50
40.50695.0128	1.28	.0504	8.20	10.00	30	1.50
40.50695.0129	1.29	.0508	8.20	10.00	30	1.50
40.50695.0130	1.30	.0512	8.20	10.00	30	1.50
40.50695.0131	1.31	.0516	9.20	11.20	30	1.50
40.50695.0132	1.32	.0520	9.20	11.20	30	1.50
40.50695.0133	1.33	.0524	9.20	11.20	30	1.50
40.50695.0134	1.34	.0528	9.20	11.20	30	1.50
40.50695.0135	1.35	.0531	9.20	11.20	30	1.50
40.50695.0136	1.36	.0535	9.20	11.20	30	1.50
40.50695.0137	1.37	.0539	9.20	11.20	30	1.50
40.50695.0138	1.38	.0543	9.20	11.20	30	1.50
40.50695.0139	1.39	.0547	9.20	11.20	30	1.50
40.50695.0140	1.40	.0551	9.20	11.20	30	1.50
40.50695.0141	1.41	.0555	9.20	11.20	30	1.50
40.50695.0142	1.42	.0559	9.20	11.20	30	1.50
40.50695.0143	1.43	.0563	9.20	11.20	30	1.50
40.50695.0144	1.44	.0567	9.20	11.20	30	1.50
40.50695.0145	1.45	.0571	9.20	11.20	30	1.50
40.50695.0146	1.46	.0575	9.20	11.20	30	1.50
40.50695.0147	1.47	.0579	9.20	11.20	30	1.50
40.50695.0148	1.48	.0583	9.20	11.20	30	1.50
40.50695.0149	1.49	.0587	9.20	11.20	30	1.50
40.50695.0150	1.50	.0591	9.20	—	30	1.50

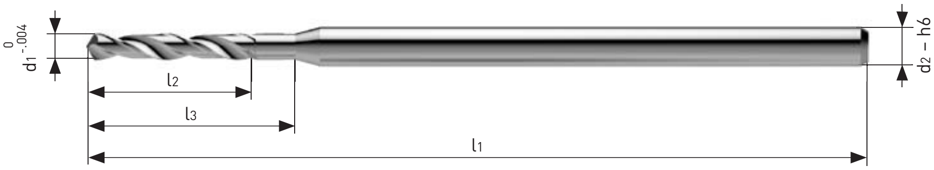
Spirec

Art. 50699

Carbide | DIN 1899-A | Z 2 | 118° | 30° | 6-8xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Brass | Mg



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50699.0005	.05	.0020	.40	.60	25	1.00
40.50699.0006	.06	.0024	.40	.60	25	1.00
40.50699.0007	.07	.0028	.50	.70	25	1.00
40.50699.0008	.08	.0031	.50	.70	25	1.00
40.50699.0009	.09	.0035	.50	.70	25	1.00
40.50699.0010	.10	.0039	.50	.70	25	1.00
40.50699.0011	.11	.0043	.50	.70	25	1.00
40.50699.0012	.12	.0047	.50	.70	25	1.00
40.50699.0013	.13	.0051	.80	1.00	25	1.00
40.50699.0014	.14	.0055	.80	1.00	25	1.00
40.50699.0015	.15	.0059	.80	1.00	25	1.00
40.50699.0016	.16	.0063	1.10	1.40	25	1.00
40.50699.0017	.17	.0067	1.10	1.40	25	1.00
40.50699.0018	.18	.0071	1.10	1.40	25	1.00
40.50699.0019	.19	.0075	1.10	1.40	25	1.00
40.50699.0020	.20	.0079	1.50	1.80	25	1.00
40.50699.0021	.21	.0083	1.50	1.80	25	1.00
40.50699.0022	.22	.0087	1.50	1.80	25	1.00
40.50699.0023	.23	.0091	1.50	1.80	25	1.00
40.50699.0024	.24	.0094	1.50	1.80	25	1.00
40.50699.0025	.25	.0098	1.90	2.20	25	1.00
40.50699.0026	.26	.0102	1.90	2.20	25	1.00
40.50699.0027	.27	.0106	1.90	2.20	25	1.00
40.50699.0028	.28	.0110	1.90	2.20	25	1.00
40.50699.0029	.29	.0114	1.90	2.20	25	1.00
40.50699.0030	.30	.0118	1.90	2.20	25	1.00
40.50699.0031	.31	.0122	2.40	2.80	25	1.00
40.50699.0032	.32	.0126	2.40	2.80	25	1.00
40.50699.0033	.33	.0130	2.40	2.80	25	1.00
40.50699.0034	.34	.0134	2.40	2.80	25	1.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50699.0035	.35	.0138	2.40	2.80	25	1.00
40.50699.0036	.36	.0142	2.40	2.80	25	1.00
40.50699.0037	.37	.0146	2.40	2.80	25	1.00
40.50699.0038	.38	.0150	2.40	2.80	25	1.00
40.50699.0039	.39	.0154	2.70	3.60	25	1.00
40.50699.0040	.40	.0157	2.70	3.60	25	1.00
40.50699.0041	.41	.0161	2.70	3.60	25	1.00
40.50699.0042	.42	.0165	2.70	3.60	25	1.00
40.50699.0043	.43	.0169	2.70	3.60	25	1.00
40.50699.0044	.44	.0173	2.70	3.60	25	1.00
40.50699.0045	.45	.0177	2.70	3.60	25	1.00
40.50699.0046	.46	.0181	2.70	3.60	25	1.00
40.50699.0047	.47	.0185	2.70	3.60	25	1.00
40.50699.0048	.48	.0189	2.70	3.60	25	1.00
40.50699.0049	.49	.0193	3.20	4.00	25	1.00
40.50699.0050	.50	.0197	3.20	4.00	25	1.00
40.50699.0051	.51	.0201	3.20	4.00	25	1.00
40.50699.0052	.52	.0205	3.20	4.00	25	1.00
40.50699.0053	.53	.0209	3.20	4.00	25	1.00
40.50699.0054	.54	.0213	3.60	4.50	25	1.00
40.50699.0055	.55	.0217	3.60	4.50	25	1.00
40.50699.0056	.56	.0220	3.60	4.50	25	1.00
40.50699.0057	.57	.0224	3.60	4.50	25	1.00
40.50699.0058	.58	.0228	3.60	4.50	25	1.00
40.50699.0059	.59	.0232	3.60	4.50	25	1.00
40.50699.0060	.60	.0236	3.60	4.50	25	1.00
40.50699.0061	.61	.0240	3.90	5.00	25	1.00
40.50699.0062	.62	.0244	3.90	5.00	25	1.00
40.50699.0063	.63	.0248	3.90	5.00	25	1.00
40.50699.0064	.64	.0252	3.90	5.00	25	1.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50699.0065	.65	.0256	3.90	5.00	25	1.00
40.50699.0066	.66	.0260	3.90	5.00	25	1.00
40.50699.0067	.67	.0264	3.90	5.00	25	1.00
40.50699.0068	.68	.0268	4.50	5.60	25	1.00
40.50699.0069	.69	.0272	4.50	5.60	25	1.00
40.50699.0070	.70	.0276	4.50	5.60	25	1.00
40.50699.0071	.71	.0280	4.50	5.60	25	1.00
40.50699.0072	.72	.0283	4.50	5.60	25	1.00
40.50699.0073	.73	.0287	4.50	5.60	25	1.00
40.50699.0074	.74	.0291	4.50	5.60	25	1.00
40.50699.0075	.75	.0295	4.50	5.60	25	1.00
40.50699.0076	.76	.0299	5.00	6.30	25	1.00
40.50699.0077	.77	.0303	5.00	6.30	25	1.00
40.50699.0078	.78	.0307	5.00	6.30	25	1.00
40.50699.0079	.79	.0311	5.00	6.30	25	1.00
40.50699.0080	.80	.0315	5.00	6.30	25	1.50
40.50699.0081	.81	.0319	5.00	6.30	25	1.50
40.50699.0082	.82	.0323	5.00	6.30	25	1.50
40.50699.0083	.83	.0327	5.00	6.30	25	1.50
40.50699.0084	.84	.0331	5.00	6.30	25	1.50
40.50699.0085	.85	.0335	5.00	6.30	25	1.50
40.50699.0086	.86	.0339	5.70	7.10	25	1.50
40.50699.0087	.87	.0343	5.70	7.10	25	1.50
40.50699.0088	.88	.0346	5.70	7.10	25	1.50
40.50699.0089	.89	.0350	5.70	7.10	25	1.50
40.50699.0090	.90	.0354	5.70	7.10	25	1.50
40.50699.0091	.91	.0358	5.70	7.10	25	1.50
40.50699.0092	.92	.0362	5.70	7.10	25	1.50
40.50699.0093	.93	.0366	5.70	7.10	25	1.50
40.50699.0094	.94	.0370	5.70	7.10	25	1.50
40.50699.0095	.95	.0374	5.70	7.10	25	1.50
40.50699.0096	.96	.0378	6.50	8.00	25	1.50
40.50699.0097	.97	.0382	6.50	8.00	25	1.50
40.50699.0098	.98	.0386	6.50	8.00	25	1.50
40.50699.0099	.99	.0390	6.50	8.00	25	1.50
40.50699.0100	1.00	.0394	6.50	8.00	25	1.50
40.50699.0101	1.01	.0398	6.50	8.00	25	1.50
40.50699.0102	1.02	.0402	6.50	8.00	25	1.50
40.50699.0103	1.03	.0406	6.50	8.00	25	1.50
40.50699.0104	1.04	.0409	6.50	8.00	25	1.50
40.50699.0105	1.05	.0413	6.50	8.00	25	1.50
40.50699.0106	1.06	.0417	7.30	9.00	25	1.50
40.50699.0107	1.07	.0421	7.30	9.00	25	1.50
40.50699.0108	1.08	.0425	7.30	9.00	25	1.50
40.50699.0109	1.09	.0429	7.30	9.00	25	1.50

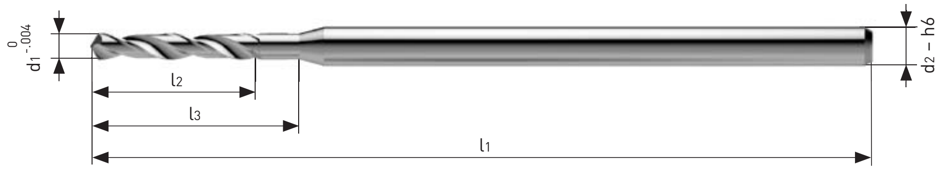
Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50699.0110	1.10	.0433	7.30	9.00	25	1.50
40.50699.0111	1.11	.0437	7.30	9.00	25	1.50
40.50699.0112	1.12	.0441	7.30	9.00	25	1.50
40.50699.0113	1.13	.0445	7.30	9.00	25	1.50
40.50699.0114	1.14	.0449	7.30	9.00	25	1.50
40.50699.0115	1.15	.0453	7.30	9.00	25	1.50
40.50699.0116	1.16	.0457	8.20	10.00	25	1.50
40.50699.0117	1.17	.0461	8.20	10.00	25	1.50
40.50699.0118	1.18	.0465	8.20	10.00	25	1.50
40.50699.0119	1.19	.0469	8.20	10.00	25	1.50
40.50699.0120	1.20	.0472	8.20	10.00	25	1.50
40.50699.0121	1.21	.0476	8.20	10.00	25	1.50
40.50699.0122	1.22	.0480	8.20	10.00	25	1.50
40.50699.0123	1.23	.0484	8.20	10.00	25	1.50
40.50699.0124	1.24	.0488	8.20	10.00	25	1.50
40.50699.0125	1.25	.0492	8.20	10.00	25	1.50
40.50699.0126	1.26	.0496	8.20	10.00	25	1.50
40.50699.0127	1.27	.0500	8.20	10.00	25	1.50
40.50699.0128	1.28	.0504	8.20	10.00	25	1.50
40.50699.0129	1.29	.0508	8.20	10.00	25	1.50
40.50699.0130	1.30	.0512	8.20	10.00	25	1.50
40.50699.0131	1.31	.0516	9.20	11.20	25	1.50
40.50699.0132	1.32	.0520	9.20	11.20	25	1.50
40.50699.0133	1.33	.0524	9.20	11.20	25	1.50
40.50699.0134	1.34	.0528	9.20	11.20	25	1.50
40.50699.0135	1.35	.0531	9.20	11.20	25	1.50
40.50699.0136	1.36	.0535	9.20	11.20	25	1.50
40.50699.0137	1.37	.0539	9.20	11.20	25	1.50
40.50699.0138	1.38	.0543	9.20	11.20	25	1.50
40.50699.0139	1.39	.0547	9.20	11.20	25	1.50
40.50699.0140	1.40	.0551	9.20	11.20	25	1.50
40.50699.0141	1.41	.0555	9.20	11.20	25	1.50
40.50699.0142	1.42	.0559	9.20	11.20	25	1.50
40.50699.0143	1.43	.0563	9.20	11.20	25	1.50
40.50699.0144	1.44	.0567	9.20	11.20	25	1.50
40.50699.0145	1.45	.0571	9.20	11.20	25	1.50
40.50699.0146	1.46	.0575	9.20	11.20	25	1.50
40.50699.0147	1.47	.0579	9.20	11.20	25	1.50
40.50699.0148	1.48	.0583	9.20	11.20	25	1.50
40.50699.0149	1.49	.0587	9.20	11.20	25	1.50
40.50699.0150	1.50	.0591	9.20	—	25	1.50
40.50699.0151	1.51	.0594	11.20	13.40	38	2.00
40.50699.0152	1.52	.0598	11.20	13.40	38	2.00
40.50699.0153	1.53	.0602	11.20	13.40	38	2.00
40.50699.0154	1.54	.0606	11.20	13.40	38	2.00

- All dimensions are millimeters unless otherwise noted
- Packaged in quantities of 10 pieces
- For cutting data see pg. 144

SPHINX TOOLS

Spirec

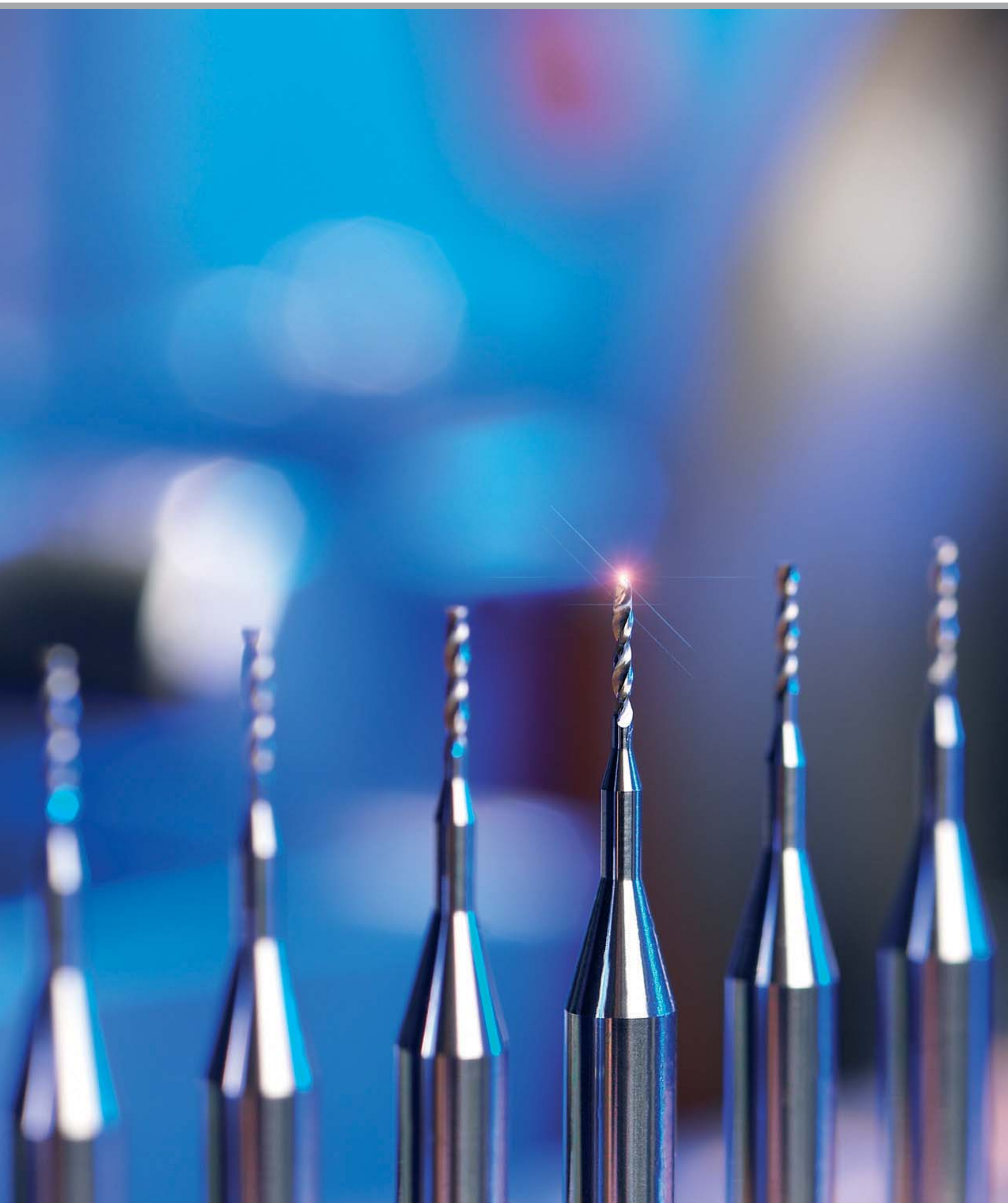
Art. 50699 Cont.



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50699.0155	1.55	.0610	11.20	13.40	38	2.00
40.50699.0156	1.56	.0614	11.20	13.40	38	2.00
40.50699.0157	1.57	.0618	11.20	13.40	38	2.00
40.50699.0158	1.58	.0622	11.20	13.40	38	2.00
40.50699.0159	1.59	.0626	11.20	13.40	38	2.00
40.50699.0160	1.60	.0630	11.20	13.40	38	2.00
40.50699.0161	1.61	.0634	11.20	13.40	38	2.00
40.50699.0162	1.62	.0638	11.20	13.40	38	2.00
40.50699.0163	1.63	.0642	11.20	13.40	38	2.00
40.50699.0164	1.64	.0646	11.20	13.40	38	2.00
40.50699.0165	1.65	.0650	11.20	13.40	38	2.00
40.50699.0166	1.66	.0654	11.20	13.40	38	2.00
40.50699.0167	1.67	.0657	11.20	13.40	38	2.00
40.50699.0168	1.68	.0661	11.20	13.40	38	2.00
40.50699.0169	1.69	.0665	11.20	13.40	38	2.00
40.50699.0170	1.70	.0669	11.20	13.40	38	2.00
40.50699.0171	1.71	.0673	11.20	13.40	38	2.00
40.50699.0172	1.72	.0677	11.20	13.40	38	2.00
40.50699.0173	1.73	.0681	11.20	13.40	38	2.00
40.50699.0174	1.74	.0685	11.20	13.40	38	2.00
40.50699.0175	1.75	.0689	11.20	13.40	38	2.00
40.50699.0176	1.76	.0693	11.20	13.40	38	2.00
40.50699.0177	1.77	.0697	11.20	13.40	38	2.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50699.0178	1.78	.0701	11.20	13.40	38	2.00
40.50699.0179	1.79	.0705	11.20	13.40	38	2.00
40.50699.0180	1.80	.0709	11.20	13.40	38	2.00
40.50699.0181	1.81	.0713	11.20	13.40	38	2.00
40.50699.0182	1.82	.0717	11.20	13.40	38	2.00
40.50699.0183	1.83	.0720	11.20	13.40	38	2.00
40.50699.0184	1.84	.0724	11.20	13.40	38	2.00
40.50699.0185	1.85	.0728	11.20	13.40	38	2.00
40.50699.0186	1.86	.0732	11.20	13.40	38	2.00
40.50699.0187	1.87	.0736	11.20	13.40	38	2.00
40.50699.0188	1.88	.0740	11.20	13.40	38	2.00
40.50699.0189	1.89	.0744	11.20	13.40	38	2.00
40.50699.0190	1.90	.0748	11.20	13.40	38	2.00
40.50699.0191	1.91	.0752	11.20	13.40	38	2.00
40.50699.0192	1.92	.0756	11.20	13.40	38	2.00
40.50699.0193	1.93	.0760	11.20	13.40	38	2.00
40.50699.0194	1.94	.0764	11.20	13.40	38	2.00
40.50699.0195	1.95	.0768	11.20	13.40	38	2.00
40.50699.0196	1.96	.0772	11.20	13.40	38	2.00
40.50699.0197	1.97	.0776	11.20	13.40	38	2.00
40.50699.0198	1.98	.0780	11.20	13.40	38	2.00
40.50699.0199	1.99	.0783	11.20	13.40	38	2.00
40.50699.0200	2.00	.0787	11.20	—	38	2.00

- All dimensions are millimeters unless otherwise noted
- Packaged in quantities of 10 pieces
- For cutting data see pg. 144

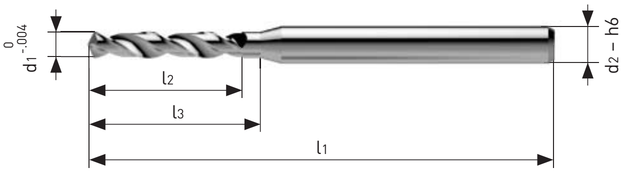


Art. 51200

Carbide | Z 2 | 130° | 35° | ≈6xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic



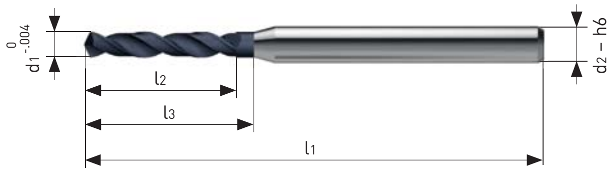
Art. 51201

Carbide | Z 2 | 130° | 35° | ≈6xd

TiAlN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Cu | Brass | Ti | HST | Plastic

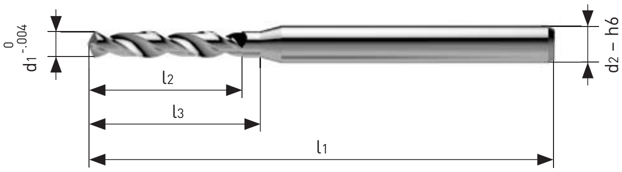


Art. 51200 Catalog Number	Art. 51201 Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.51200.0003	—	.03	.0012	.25	.35	38	3.00
40.51200.0004	—	.04	.0016	.30	.40	38	3.00
40.51200.0005	—	.05	.0020	.35	.45	38	3.00
40.51200.0006	—	.06	.0024	.40	.50	38	3.00
40.51200.0007	—	.07	.0028	.45	.60	38	3.00
40.51200.0008	—	.08	.0031	.50	.70	38	3.00
40.51200.0009	—	.09	.0035	.50	.70	38	3.00
40.51200.0010	—	.10	.0039	.50	.70	38	3.00
40.51200.0011	—	.11	.0043	.50	.70	38	3.00
40.51200.0012	—	.12	.0047	.50	.70	38	3.00
40.51200.0013	—	.13	.0051	.80	1.00	38	3.00
40.51200.0014	—	.14	.0055	.80	1.00	38	3.00
40.51200.0015	—	.15	.0059	.80	1.00	38	3.00
40.51200.0016	—	.16	.0063	1.10	1.40	38	3.00
40.51200.0017	—	.17	.0067	1.10	1.40	38	3.00
40.51200.0018	—	.18	.0071	1.10	1.40	38	3.00
40.51200.0019	—	.19	.0075	1.10	1.40	38	3.00
40.51200.0020	40.51201.0020	.20	.0079	1.50	1.80	38	3.00
40.51200.0021	40.51201.0021	.21	.0083	1.50	1.80	38	3.00
40.51200.0022	40.51201.0022	.22	.0087	1.50	1.80	38	3.00
40.51200.0023	40.51201.0023	.23	.0091	1.50	1.80	38	3.00
40.51200.0024	40.51201.0024	.24	.0094	1.50	1.80	38	3.00
40.51200.0025	40.51201.0025	.25	.0098	1.90	2.20	38	3.00
40.51200.0026	40.51201.0026	.26	.0102	1.90	2.20	38	3.00

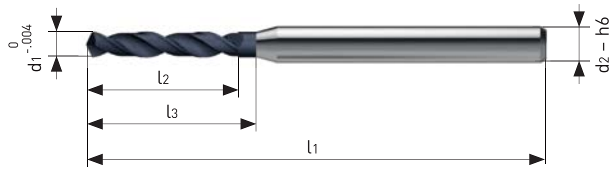
Art. 51200 Catalog Number	Art. 51201 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.51200.0027	40.51201.0027	.27	.0106	1.90	2.20	38	3.00
40.51200.0028	40.51201.0028	.28	.0110	1.90	2.20	38	3.00
40.51200.0029	40.51201.0029	.29	.0114	1.90	2.20	38	3.00
40.51200.0030	40.51201.0030	.30	.0118	1.80	2.40	38	3.00
40.51200.0031	40.51201.0031	.31	.0122	1.80	2.40	38	3.00
40.51200.0032	40.51201.0032	.32	.0126	1.80	2.40	38	3.00
40.51200.0033	40.51201.0033	.33	.0130	1.80	2.40	38	3.00
40.51200.0034	40.51201.0034	.34	.0134	1.80	2.40	38	3.00
40.51200.0035	40.51201.0035	.35	.0138	2.20	2.80	38	3.00
40.51200.0036	40.51201.0036	.36	.0142	2.20	2.80	38	3.00
40.51200.0037	40.51201.0037	.37	.0146	2.20	2.80	38	3.00
40.51200.0038	40.51201.0038	.38	.0150	2.20	2.80	38	3.00
40.51200.0039	40.51201.0039	.39	.0154	2.70	3.60	38	3.00
40.51200.0040	40.51201.0040	.40	.0157	2.70	3.60	38	3.00
40.51200.0041	40.51201.0041	.41	.0161	2.70	3.60	38	3.00
40.51200.0042	40.51201.0042	.42	.0165	2.70	3.60	38	3.00
40.51200.0043	40.51201.0043	.43	.0169	2.70	3.60	38	3.00
40.51200.0044	40.51201.0044	.44	.0173	2.70	3.60	38	3.00
40.51200.0045	40.51201.0045	.45	.0177	2.70	3.60	38	3.00
40.51200.0046	40.51201.0046	.46	.0181	2.70	3.60	38	3.00
40.51200.0047	40.51201.0047	.47	.0185	2.70	3.60	38	3.00
40.51200.0048	40.51201.0048	.48	.0189	2.70	3.60	38	3.00
40.51200.0049	40.51201.0049	.49	.0193	3.20	4.00	38	3.00
40.51200.0050	40.51201.0050	.50	.0197	3.20	4.00	38	3.00
40.51200.0051	40.51201.0051	.51	.0201	3.20	4.00	38	3.00
40.51200.0052	40.51201.0052	.52	.0205	3.20	4.00	38	3.00
40.51200.0053	40.51201.0053	.53	.0209	3.20	4.00	38	3.00
40.51200.0054	40.51201.0054	.54	.0213	3.60	4.50	38	3.00
40.51200.0055	40.51201.0055	.55	.0217	3.60	4.50	38	3.00
40.51200.0056	40.51201.0056	.56	.0220	3.60	4.50	38	3.00
40.51200.0057	40.51201.0057	.57	.0224	3.60	4.50	38	3.00
40.51200.0058	40.51201.0058	.58	.0228	3.60	4.50	38	3.00
40.51200.0059	40.51201.0059	.59	.0232	3.60	4.50	38	3.00
40.51200.0060	40.51201.0060	.60	.0236	3.60	4.50	38	3.00
40.51200.0061	40.51201.0061	.61	.0240	3.90	5.00	38	3.00
40.51200.0062	40.51201.0062	.62	.0244	3.90	5.00	38	3.00
40.51200.0063	40.51201.0063	.63	.0248	3.90	5.00	38	3.00
40.51200.0064	40.51201.0064	.64	.0252	3.90	5.00	38	3.00
40.51200.0065	40.51201.0065	.65	.0256	3.90	5.00	38	3.00
40.51200.0066	40.51201.0066	.66	.0260	3.90	5.00	38	3.00
40.51200.0067	40.51201.0067	.67	.0264	3.90	5.00	38	3.00
40.51200.0068	40.51201.0068	.68	.0268	4.50	5.60	38	3.00
40.51200.0069	40.51201.0069	.69	.0272	4.50	5.60	38	3.00
40.51200.0070	40.51201.0070	.70	.0276	4.50	5.60	38	3.00
40.51200.0071	40.51201.0071	.71	.0280	4.50	5.60	38	3.00
40.51200.0072	40.51201.0072	.72	.0283	4.50	5.60	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 144-145

Art. 51200 Cont.



Art. 51201 Cont.

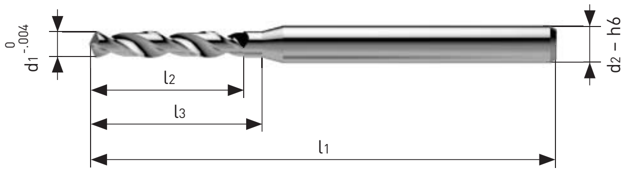


Art. 51200 Catalog Number	Art. 51201 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.51200.0073	**40.51201.0073**	.73	.0287	4.50	5.60	38	3.00
40.51200.0074	**40.51201.0074**	.74	.0291	4.50	5.60	38	3.00
40.51200.0075	**40.51201.0075**	.75	.0295	4.50	5.60	38	3.00
40.51200.0076	**40.51201.0076**	.76	.0299	5.00	6.30	38	3.00
40.51200.0077	**40.51201.0077**	.77	.0303	5.00	6.30	38	3.00
40.51200.0078	**40.51201.0078**	.78	.0307	5.00	6.30	38	3.00
40.51200.0079	**40.51201.0079**	.79	.0311	5.00	6.30	38	3.00
40.51200.0080	**40.51201.0080**	.80	.0315	5.00	6.30	38	3.00
40.51200.0081	**40.51201.0081**	.81	.0319	5.00	6.30	38	3.00
40.51200.0082	**40.51201.0082**	.82	.0323	5.00	6.30	38	3.00
40.51200.0083	**40.51201.0083**	.83	.0327	5.00	6.30	38	3.00
40.51200.0084	**40.51201.0084**	.84	.0331	5.00	6.30	38	3.00
40.51200.0085	**40.51201.0085**	.85	.0335	5.00	6.30	38	3.00
40.51200.0086	**40.51201.0086**	.86	.0339	5.70	7.10	38	3.00
40.51200.0087	**40.51201.0087**	.87	.0343	5.70	7.10	38	3.00
40.51200.0088	**40.51201.0088**	.88	.0346	5.70	7.10	38	3.00
40.51200.0089	**40.51201.0089**	.89	.0350	5.70	7.10	38	3.00
40.51200.0090	**40.51201.0090**	.90	.0354	5.70	7.10	38	3.00
40.51200.0091	**40.51201.0091**	.91	.0358	5.70	7.10	38	3.00
40.51200.0092	**40.51201.0092**	.92	.0362	5.70	7.10	38	3.00
40.51200.0093	**40.51201.0093**	.93	.0366	5.70	7.10	38	3.00
40.51200.0094	**40.51201.0094**	.94	.0370	5.70	7.10	38	3.00
40.51200.0095	**40.51201.0095**	.95	.0374	5.70	7.10	38	3.00
40.51200.0096	**40.51201.0096**	.96	.0378	6.50	8.00	38	3.00
40.51200.0097	**40.51201.0097**	.97	.0382	6.50	8.00	38	3.00
40.51200.0098	**40.51201.0098**	.98	.0386	6.50	8.00	38	3.00
40.51200.0099	**40.51201.0099**	.99	.0390	6.50	8.00	38	3.00
40.51200.0100	**40.51201.0100**	1.00	.0394	6.50	8.00	38	3.00
40.51200.0101	**40.51201.0101**	1.01	.0398	6.50	8.00	38	3.00
40.51200.0102	**40.51201.0102**	1.02	.0402	6.50	8.00	38	3.00
40.51200.0103	**40.51201.0103**	1.03	.0406	6.50	8.00	38	3.00
40.51200.0104	**40.51201.0104**	1.04	.0409	6.50	8.00	38	3.00
40.51200.0105	**40.51201.0105**	1.05	.0413	6.50	8.00	38	3.00
40.51200.0106	**40.51201.0106**	1.06	.0417	7.30	9.00	38	3.00
40.51200.0107	**40.51201.0107**	1.07	.0421	7.30	9.00	38	3.00
40.51200.0108	**40.51201.0108**	1.08	.0425	7.30	9.00	38	3.00
40.51200.0109	**40.51201.0109**	1.09	.0429	7.30	9.00	38	3.00
40.51200.0110	**40.51201.0110**	1.10	.0433	7.30	9.00	38	3.00
40.51200.0111	**40.51201.0111**	1.11	.0437	7.30	9.00	38	3.00
40.51200.0112	**40.51201.0112**	1.12	.0441	7.30	9.00	38	3.00

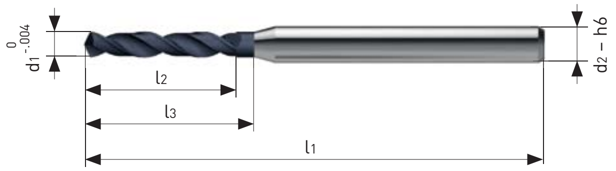
Art. 51200 Catalog Number	Art. 51201 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.51200.0113	40.51201.0113	1.13	.0445	7.30	9.00	38	3.00
40.51200.0114	40.51201.0114	1.14	.0449	7.30	9.00	38	3.00
40.51200.0115	40.51201.0115	1.15	.0453	7.30	9.00	38	3.00
40.51200.0116	40.51201.0116	1.16	.0457	8.20	10.00	38	3.00
40.51200.0117	40.51201.0117	1.17	.0461	8.20	10.00	38	3.00
40.51200.0118	40.51201.0118	1.18	.0465	8.20	10.00	38	3.00
40.51200.0119	40.51201.0119	1.19	.0469	8.20	10.00	38	3.00
40.51200.0120	40.51201.0120	1.20	.0472	8.20	10.00	38	3.00
40.51200.0121	40.51201.0121	1.21	.0476	8.20	10.00	38	3.00
40.51200.0122	40.51201.0122	1.22	.0480	8.20	10.00	38	3.00
40.51200.0123	40.51201.0123	1.23	.0484	8.20	10.00	38	3.00
40.51200.0124	40.51201.0124	1.24	.0488	8.20	10.00	38	3.00
40.51200.0125	40.51201.0125	1.25	.0492	8.20	10.00	38	3.00
40.51200.0126	40.51201.0126	1.26	.0496	8.20	10.00	38	3.00
40.51200.0127	40.51201.0127	1.27	.0500	8.20	10.00	38	3.00
40.51200.0128	40.51201.0128	1.28	.0504	8.20	10.00	38	3.00
40.51200.0129	40.51201.0129	1.29	.0508	8.20	10.00	38	3.00
40.51200.0130	40.51201.0130	1.30	.0512	8.20	10.00	38	3.00
40.51200.0131	40.51201.0131	1.31	.0516	9.20	11.20	38	3.00
40.51200.0132	40.51201.0132	1.32	.0520	9.20	11.20	38	3.00
40.51200.0133	40.51201.0133	1.33	.0524	9.20	11.20	38	3.00
40.51200.0134	40.51201.0134	1.34	.0528	9.20	11.20	38	3.00
40.51200.0135	40.51201.0135	1.35	.0531	9.20	11.20	38	3.00
40.51200.0136	40.51201.0136	1.36	.0535	9.20	11.20	38	3.00
40.51200.0137	40.51201.0137	1.37	.0539	9.20	11.20	38	3.00
40.51200.0138	40.51201.0138	1.38	.0543	9.20	11.20	38	3.00
40.51200.0139	40.51201.0139	1.39	.0547	9.20	11.20	38	3.00
40.51200.0140	40.51201.0140	1.40	.0551	9.20	11.20	38	3.00
40.51200.0141	40.51201.0141	1.41	.0555	9.20	11.20	38	3.00
40.51200.0142	40.51201.0142	1.42	.0559	9.20	11.20	38	3.00
40.51200.0143	40.51201.0143	1.43	.0563	9.20	11.20	38	3.00
40.51200.0144	40.51201.0144	1.44	.0567	9.20	11.20	38	3.00
40.51200.0145	40.51201.0145	1.45	.0571	9.20	11.20	38	3.00
40.51200.0146	40.51201.0146	1.46	.0575	9.20	11.20	38	3.00
40.51200.0147	40.51201.0147	1.47	.0579	9.20	11.20	38	3.00
40.51200.0148	40.51201.0148	1.48	.0583	9.20	11.20	38	3.00
40.51200.0149	40.51201.0149	1.49	.0587	9.20	11.20	38	3.00
40.51200.0150	40.51201.0150	1.50	.0591	9.20	11.20	38	3.00
40.51200.0151	40.51201.0151	1.51	.0594	11.20	13.40	38	3.00
40.51200.0152	40.51201.0152	1.52	.0598	11.20	13.40	38	3.00
40.51200.0153	40.51201.0153	1.53	.0602	11.20	13.40	38	3.00
40.51200.0154	40.51201.0154	1.54	.0606	11.20	13.40	38	3.00
40.51200.0155	40.51201.0155	1.55	.0610	11.20	13.40	38	3.00
40.51200.0156	40.51201.0156	1.56	.0614	11.20	13.40	38	3.00
40.51200.0157	40.51201.0157	1.57	.0618	11.20	13.40	38	3.00
40.51200.0158	40.51201.0158	1.58	.0622	11.20	13.40	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 144-145

Art. 51200 Cont.



Art. 51201 Cont.

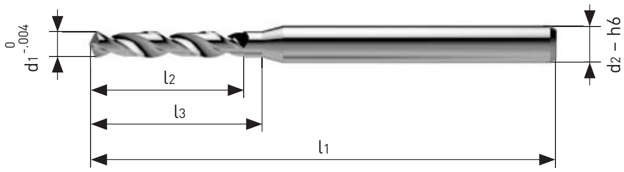


Art. 51200 Catalog Number	Art. 51201 Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.51200.0159	**40.51201.0159**	1.59	.0626	11.20	13.40	38	3.00
40.51200.0160	**40.51201.0160**	1.60	.0630	11.20	13.40	38	3.00
40.51200.0161	**40.51201.0161**	1.61	.0634	11.20	13.40	38	3.00
40.51200.0162	**40.51201.0162**	1.62	.0638	11.20	13.40	38	3.00
40.51200.0163	**40.51201.0163**	1.63	.0642	11.20	13.40	38	3.00
40.51200.0164	**40.51201.0164**	1.64	.0646	11.20	13.40	38	3.00
40.51200.0165	**40.51201.0165**	1.65	.0650	11.20	13.40	38	3.00
40.51200.0166	**40.51201.0166**	1.66	.0654	11.20	13.40	38	3.00
40.51200.0167	**40.51201.0167**	1.67	.0657	11.20	13.40	38	3.00
40.51200.0168	**40.51201.0168**	1.68	.0661	11.20	13.40	38	3.00
40.51200.0169	**40.51201.0169**	1.69	.0665	11.20	13.40	38	3.00
40.51200.0170	**40.51201.0170**	1.70	.0669	11.20	13.40	38	3.00
40.51200.0171	**40.51201.0171**	1.71	.0673	11.20	13.40	38	3.00
40.51200.0172	**40.51201.0172**	1.72	.0677	11.20	13.40	38	3.00
40.51200.0173	**40.51201.0173**	1.73	.0681	11.20	13.40	38	3.00
40.51200.0174	**40.51201.0174**	1.74	.0685	11.20	13.40	38	3.00
40.51200.0175	**40.51201.0175**	1.75	.0689	11.20	13.40	38	3.00
40.51200.0176	**40.51201.0176**	1.76	.0693	11.20	13.40	38	3.00
40.51200.0177	**40.51201.0177**	1.77	.0697	11.20	13.40	38	3.00
40.51200.0178	**40.51201.0178**	1.78	.0701	11.20	13.40	38	3.00
40.51200.0179	**40.51201.0179**	1.79	.0705	11.20	13.40	38	3.00
40.51200.0180	**40.51201.0180**	1.80	.0709	11.20	13.40	38	3.00
40.51200.0181	**40.51201.0181**	1.81	.0713	11.20	13.40	38	3.00
40.51200.0182	**40.51201.0182**	1.82	.0717	11.20	13.40	38	3.00
40.51200.0183	**40.51201.0183**	1.83	.0720	11.20	13.40	38	3.00
40.51200.0184	**40.51201.0184**	1.84	.0724	11.20	13.40	38	3.00
40.51200.0185	**40.51201.0185**	1.85	.0728	11.20	13.40	38	3.00
40.51200.0186	**40.51201.0186**	1.86	.0732	11.20	13.40	38	3.00
40.51200.0187	**40.51201.0187**	1.87	.0736	11.20	13.40	38	3.00
40.51200.0188	**40.51201.0188**	1.88	.0740	11.20	13.40	38	3.00
40.51200.0189	**40.51201.0189**	1.89	.0744	11.20	13.40	38	3.00
40.51200.0190	**40.51201.0190**	1.90	.0748	11.20	13.40	38	3.00
40.51200.0191	**40.51201.0191**	1.91	.0752	11.20	13.40	38	3.00
40.51200.0192	**40.51201.0192**	1.92	.0756	11.20	13.40	38	3.00
40.51200.0193	**40.51201.0193**	1.93	.0760	11.20	13.40	38	3.00
40.51200.0194	**40.51201.0194**	1.94	.0764	11.20	13.40	38	3.00
40.51200.0195	**40.51201.0195**	1.95	.0768	11.20	13.40	38	3.00
40.51200.0196	**40.51201.0196**	1.96	.0772	11.20	13.40	38	3.00
40.51200.0197	**40.51201.0197**	1.97	.0776	11.20	13.40	38	3.00
40.51200.0198	**40.51201.0198**	1.98	.0780	11.20	13.40	38	3.00

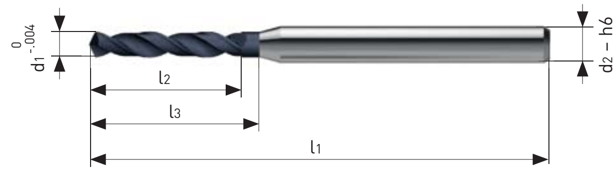
Art. 51200	Art. 51201	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
Catalog Number	Catalog Number						
40.51200.0199	**40.51201.0199**	1.99	.0783	11.20	13.40	38	3.00
40.51200.0200	**40.51201.0200**	2.00	.0787	11.20	13.40	38	3.00
40.51200.0201	**40.51201.0201**	2.01	.0791	12.50	14.00	38	3.00
40.51200.0202	**40.51201.0202**	2.02	.0795	12.50	14.00	38	3.00
40.51200.0203	**40.51201.0203**	2.03	.0799	12.50	14.00	38	3.00
40.51200.0204	**40.51201.0204**	2.04	.0803	12.50	14.00	38	3.00
40.51200.0205	**40.51201.0205**	2.05	.0807	12.50	14.00	38	3.00
40.51200.0206	**40.51201.0206**	2.06	.0811	12.50	14.00	38	3.00
40.51200.0207	**40.51201.0207**	2.07	.0815	12.50	14.00	38	3.00
40.51200.0208	**40.51201.0208**	2.08	.0819	12.50	14.00	38	3.00
40.51200.0209	**40.51201.0209**	2.09	.0823	12.50	14.00	38	3.00
40.51200.0210	**40.51201.0210**	2.10	.0827	12.50	14.00	38	3.00
40.51200.0211	**40.51201.0211**	2.11	.0831	12.50	14.00	38	3.00
40.51200.0212	**40.51201.0212**	2.12	.0835	12.50	14.00	38	3.00
40.51200.0213	**40.51201.0213**	2.13	.0839	12.50	14.00	38	3.00
40.51200.0214	**40.51201.0214**	2.14	.0843	12.50	14.00	38	3.00
40.51200.0215	**40.51201.0215**	2.15	.0846	12.50	14.00	38	3.00
40.51200.0216	**40.51201.0216**	2.16	.0850	12.50	14.00	38	3.00
40.51200.0217	**40.51201.0217**	2.17	.0854	12.50	14.00	38	3.00
40.51200.0218	**40.51201.0218**	2.18	.0858	12.50	14.00	38	3.00
40.51200.0219	**40.51201.0219**	2.19	.0862	12.50	14.00	38	3.00
40.51200.0220	**40.51201.0220**	2.20	.0866	12.50	14.00	38	3.00
40.51200.0221	**40.51201.0221**	2.21	.0870	12.50	14.00	38	3.00
40.51200.0222	**40.51201.0222**	2.22	.0874	12.50	14.00	38	3.00
40.51200.0223	**40.51201.0223**	2.23	.0878	12.50	14.00	38	3.00
40.51200.0224	**40.51201.0224**	2.24	.0882	12.50	14.00	38	3.00
40.51200.0225	**40.51201.0225**	2.25	.0886	12.50	14.00	38	3.00
40.51200.0226	**40.51201.0226**	2.26	.0890	12.50	14.00	38	3.00
40.51200.0227	**40.51201.0227**	2.27	.0894	12.50	14.00	38	3.00
40.51200.0228	**40.51201.0228**	2.28	.0898	12.50	14.00	38	3.00
40.51200.0229	**40.51201.0229**	2.29	.0902	12.50	14.00	38	3.00
40.51200.0230	**40.51201.0230**	2.30	.0906	12.50	14.00	38	3.00
40.51200.0231	**40.51201.0231**	2.31	.0909	12.50	14.00	38	3.00
40.51200.0232	**40.51201.0232**	2.32	.0913	12.50	14.00	38	3.00
40.51200.0233	**40.51201.0233**	2.33	.0917	12.50	14.00	38	3.00
40.51200.0234	**40.51201.0234**	2.34	.0921	12.50	14.00	38	3.00
40.51200.0235	**40.51201.0235**	2.35	.0925	12.50	14.00	38	3.00
40.51200.0236	**40.51201.0236**	2.36	.0929	12.50	14.00	38	3.00
40.51200.0237	**40.51201.0237**	2.37	.0933	12.50	14.00	38	3.00
40.51200.0238	**40.51201.0238**	2.38	.0937	12.50	14.00	38	3.00
40.51200.0239	**40.51201.0239**	2.39	.0941	12.50	14.00	38	3.00
40.51200.0240	**40.51201.0240**	2.40	.0945	12.50	14.00	38	3.00
40.51200.0241	**40.51201.0241**	2.41	.0949	12.50	14.00	38	3.00
40.51200.0242	**40.51201.0242**	2.42	.0953	12.50	14.00	38	3.00
40.51200.0243	**40.51201.0243**	2.43	.0957	12.50	14.00	38	3.00
40.51200.0244	**40.51201.0244**	2.44	.0961	12.50	14.00	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 144-145

Art. 51200 Cont.



Art. 51201 Cont.



Art. 51200 Catalog Number	Art. 51201 Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.51200.0245	**40.51201.0245**	2.45	.0965	12.50	14.00	38	3.00
40.51200.0246	**40.51201.0246**	2.46	.0969	12.50	14.00	38	3.00
40.51200.0247	**40.51201.0247**	2.47	.0972	12.50	14.00	38	3.00
40.51200.0248	**40.51201.0248**	2.48	.0976	12.50	14.00	38	3.00
40.51200.0249	**40.51201.0249**	2.49	.0980	12.50	14.00	38	3.00
40.51200.0250	**40.51201.0250**	2.50	.0984	14.00	17.00	38	3.00
40.51200.0251	**40.51201.0251**	2.51	.0988	14.00	17.00	38	3.00
40.51200.0252	**40.51201.0252**	2.52	.0992	14.00	17.00	38	3.00
40.51200.0253	**40.51201.0253**	2.53	.0996	14.00	17.00	38	3.00
40.51200.0254	**40.51201.0254**	2.54	.1000	14.00	17.00	38	3.00
40.51200.0255	**40.51201.0255**	2.55	.1004	14.00	17.00	38	3.00
40.51200.0256	**40.51201.0256**	2.56	.1008	14.00	17.00	38	3.00
40.51200.0257	**40.51201.0257**	2.57	.1012	14.00	17.00	38	3.00
40.51200.0258	**40.51201.0258**	2.58	.1016	14.00	17.00	38	3.00
40.51200.0259	**40.51201.0259**	2.59	.1020	14.00	17.00	38	3.00
40.51200.0260	**40.51201.0260**	2.60	.1024	14.00	17.00	38	3.00
40.51200.0261	**40.51201.0261**	2.61	.1028	14.00	17.00	38	3.00
40.51200.0262	**40.51201.0262**	2.62	.1031	14.00	17.00	38	3.00
40.51200.0263	**40.51201.0263**	2.63	.1035	14.00	17.00	38	3.00
40.51200.0264	**40.51201.0264**	2.64	.1039	14.00	17.00	38	3.00
40.51200.0265	**40.51201.0265**	2.65	.1043	14.00	17.00	38	3.00
40.51200.0266	**40.51201.0266**	2.66	.1047	14.00	17.00	38	3.00
40.51200.0267	**40.51201.0267**	2.67	.1051	14.00	17.00	38	3.00
40.51200.0268	**40.51201.0268**	2.68	.1055	14.00	17.00	38	3.00
40.5120.0269	**40.51201.0269**	2.69	.1059	14.00	17.00	38	3.00
40.51200.0270	**40.51201.0270**	2.70	.1063	14.00	17.00	38	3.00
40.5120.0271	**40.51201.0271**	2.71	.1067	14.00	17.00	38	3.00
40.51200.0272	**40.51201.0272**	2.72	.1071	14.00	17.00	38	3.00
40.51200.0273	**40.51201.0273**	2.73	.1075	14.00	17.00	38	3.00
40.51200.0274	**40.51201.0274**	2.74	.1079	14.00	17.00	38	3.00
40.51200.0275	**40.51201.0275**	2.75	.1083	14.00	17.00	38	3.00
40.51200.0276	**40.51201.0276**	2.76	.1087	14.00	17.00	38	3.00
40.51200.0277	**40.51201.0277**	2.77	.1091	14.00	17.00	38	3.00
40.51200.0278	**40.51201.0278**	2.78	.1094	14.00	17.00	38	3.00
40.51200.0279	**40.51201.0279**	2.79	.1098	14.00	17.00	38	3.00
40.51200.0280	**40.51201.0280**	2.80	.1102	14.00	17.00	38	3.00
40.51200.0281	**40.51201.0281**	2.81	.1106	14.00	17.00	38	3.00
40.51200.0282	**40.51201.0282**	2.82	.1110	14.00	17.00	38	3.00
40.51200.0283	**40.51201.0283**	2.83	.1114	14.00	17.00	38	3.00
40.51200.0284	**40.51201.0284**	2.84	.1118	14.00	17.00	38	3.00

SPHINX TOOLS

Art. 51200 Catalog Number	Art. 51201 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.51200.0285	**40.51201.0285**	2.85	.1122	14.00	17.00	38	3.00
40.51200.0286	**40.51201.0286**	2.86	.1126	14.00	17.00	38	3.00
40.51200.0287	**40.51201.0287**	2.87	.1130	14.00	17.00	38	3.00
40.51200.0288	**40.51201.0288**	2.88	.1134	14.00	17.00	38	3.00
40.51200.0289	**40.51201.0289**	2.89	.1138	14.00	17.00	38	3.00
40.51200.0290	**40.51201.0290**	2.90	.1142	14.00	17.00	38	3.00
40.51200.0291	**40.51201.0291**	2.91	.1146	14.00	17.00	38	3.00
40.51200.0292	**40.51201.0292**	2.92	.1150	14.00	17.00	38	3.00
40.51200.0293	**40.51201.0293**	2.93	.1154	14.00	17.00	38	3.00
40.51200.0294	**40.51201.0294**	2.94	.1157	14.00	17.00	38	3.00
40.51200.0295	**40.51201.0295**	2.95	.1161	14.00	17.00	38	3.00
40.51200.0296	**40.51201.0296**	2.96	.1165	14.00	17.00	38	3.00
40.51200.0297	**40.51201.0297**	2.97	.1169	14.00	17.00	38	3.00
40.5120.0298	**40.51201.0298**	2.98	.1173	14.00	17.00	38	3.00
40.51200.0299	**40.51201.0299**	2.99	.1177	14.00	17.00	38	3.00
40.51200.0300	**40.51201.0300**	3.00	.1181	14.00	17.00	38	3.00

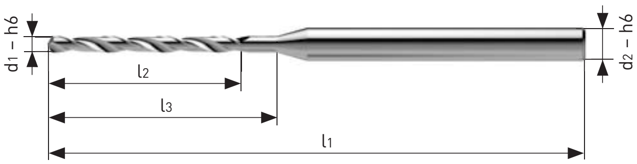
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 144-145

Art. 50621

Carbide | Z 2 | 130° | 25° | 12xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Brass



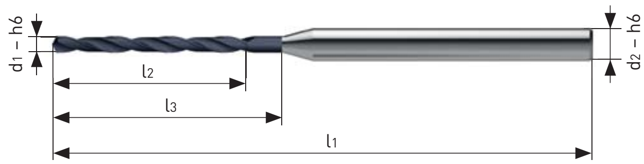
Art. 50622

Carbide | Z 2 | 130° | 25° | 12xd

TiAlN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Brass | HST



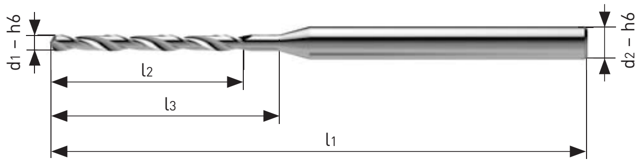
Art. 50621	Art. 50622	d1	d1 (in.)	l2	l3	l1	d2
Catalog Number	Catalog Number						
40.50621.0015	—	.15	.0059	2.50	3.50	38	3.00
40.50621.0016	—	.16	.0063	2.50	3.50	38	3.00
40.50621.0017	—	.17	.0067	2.60	3.50	38	3.00
40.50621.0018	—	.18	.0071	2.60	3.50	38	3.00
40.50621.0019	—	.19	.0075	2.60	3.50	38	3.00
40.50621.0020	**40.50622.0020**	.20	.0079	2.40	3.50	38	3.00
40.50621.0021	**40.50622.0021**	.21	.0083	2.50	3.50	38	3.00
40.50621.0022	**40.50622.0022**	.22	.0087	2.70	3.50	38	3.00
40.50621.0023	**40.50622.0023**	.23	.0091	2.80	3.50	38	3.00
40.50621.0024	**40.50622.0024**	.24	.0094	2.90	4.00	38	3.00
40.50621.0025	**40.50622.0025**	.25	.0098	3.00	4.00	38	3.00
40.50621.0026	**40.50622.0026**	.26	.0102	3.10	4.00	38	3.00
40.50621.0027	**40.50622.0027**	.27	.0106	3.30	4.00	38	3.00
40.50621.0028	**40.50622.0028**	.28	.0110	3.40	4.50	38	3.00
40.50621.0029	**40.50622.0029**	.29	.0114	3.50	4.50	38	3.00
40.50621.0030	**40.50622.0030**	.30	.0118	3.60	4.50	38	3.00
40.50621.0031	**40.50622.0031**	.31	.0122	3.70	4.50	38	3.00
40.50621.0032	**40.50622.0032**	.32	.0126	3.90	5.00	38	3.00
40.50621.0033	**40.50622.0033**	.33	.0130	4.00	5.00	38	3.00
40.50621.0034	**40.50622.0034**	.34	.0134	4.10	5.00	38	3.00
40.50621.0035	**40.50622.0035**	.35	.0138	4.20	5.00	38	3.00
40.50621.0036	**40.50622.0036**	.36	.0142	4.30	5.50	38	3.00
40.50621.0037	**40.50622.0037**	.37	.0146	4.50	5.50	38	3.00
40.50621.0038	**40.50622.0038**	.38	.0150	4.60	5.50	38	3.00
40.50621.0039	**40.50622.0039**	.39	.0154	4.70	5.50	38	3.00
40.50621.0040	**40.50622.0040**	.40	.0157	4.80	6.00	38	3.00

Art. 50621 Catalog Number	Art. 50622 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50621.0041	40.50622.0041	.41	.0161	4.90	6.00	38	3.00
40.50621.0042	40.50622.0042	.42	.0165	5.10	6.00	38	3.00
40.50621.0043	40.50622.0043	.43	.0169	5.20	6.00	38	3.00
40.50621.0044	40.50622.0044	.44	.0173	5.30	6.50	38	3.00
40.50621.0045	40.50622.0045	.45	.0177	5.40	6.50	38	3.00
40.50621.0046	40.50622.0046	.46	.0181	5.50	6.50	38	3.00
40.50621.0047	40.50622.0047	.47	.0185	5.70	6.50	38	3.00
40.50621.0048	40.50622.0048	.48	.0189	5.80	7.00	38	3.00
40.50621.0049	40.50622.0049	.49	.0193	5.90	7.00	38	3.00
40.50621.0050	40.50622.0050	.50	.0197	6.00	7.00	38	3.00
40.50621.0051	40.50622.0051	.51	.0201	6.10	7.00	38	3.00
40.50621.0052	40.50622.0052	.52	.0205	6.30	7.50	38	3.00
40.50621.0053	40.50622.0053	.53	.0209	6.40	7.50	38	3.00
40.50621.0054	40.50622.0054	.54	.0213	6.50	7.50	38	3.00
40.50621.0055	40.50622.0055	.55	.0217	6.60	7.50	38	3.00
40.50621.0056	40.50622.0056	.56	.0220	6.70	8.00	38	3.00
40.50621.0057	40.50622.0057	.57	.0224	6.90	8.00	38	3.00
40.50621.0058	40.50622.0058	.58	.0228	7.00	8.00	38	3.00
40.50621.0059	40.50622.0059	.59	.0232	7.10	8.00	38	3.00
40.50621.0060	40.50622.0060	.60	.0236	7.20	9.00	38	3.00
40.50621.0061	40.50622.0061	.61	.0240	7.30	9.00	38	3.00
40.50621.0062	40.50622.0062	.62	.0244	7.50	9.00	38	3.00
40.50621.0063	40.50622.0063	.63	.0248	7.60	9.00	38	3.00
40.50621.0064	40.50622.0064	.64	.0252	7.70	9.50	38	3.00
40.50621.0065	40.50622.0065	.65	.0256	7.80	9.50	38	3.00
40.50621.0066	40.50622.0066	.66	.0260	7.90	9.50	38	3.00
40.50621.0067	40.50622.0067	.67	.0264	8.10	9.50	38	3.00
40.50621.0068	40.50622.0068	.68	.0268	8.20	10.00	38	3.00
40.50621.0069	40.50622.0069	.69	.0272	8.30	10.00	38	3.00
40.50621.0070	40.50622.0070	.70	.0276	8.40	10.00	38	3.00
40.50621.0071	40.50622.0071	.71	.0280	8.50	10.00	38	3.00
40.50621.0072	40.50622.0072	.72	.0283	8.70	10.50	38	3.00
40.50621.0073	40.50622.0073	.73	.0287	8.80	10.50	38	3.00
40.50621.0074	40.50622.0074	.74	.0291	8.90	10.50	38	3.00
40.50621.0075	40.50622.0075	.75	.0295	9.00	10.50	38	3.00
40.50621.0076	40.50622.0076	.76	.0299	9.10	11.00	38	3.00
40.50621.0077	40.50622.0077	.77	.0303	9.30	11.00	38	3.00
40.50621.0078	40.50622.0078	.78	.0307	9.40	11.00	38	3.00
40.50621.0079	40.50622.0079	.79	.0311	9.50	11.00	38	3.00
40.50621.0080	40.50622.0080	.80	.0315	9.60	11.50	38	3.00
40.50621.0081	40.50622.0081	.81	.0319	9.70	11.50	38	3.00
40.50621.0082	40.50622.0082	.82	.0323	9.90	11.50	38	3.00
40.50621.0083	40.50622.0083	.83	.0327	10.00	11.50	38	3.00
40.50621.0084	40.50622.0084	.84	.0331	10.10	12.00	38	3.00
40.50621.0085	40.50622.0085	.85	.0335	10.20	12.00	38	3.00

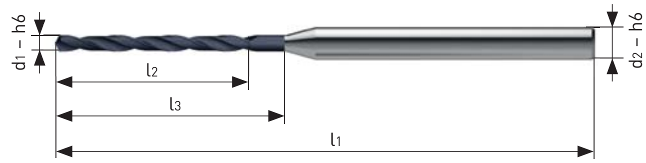
- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 145-146

SPHINX TOOLS

Art. 50621 Cont.



Art. 50622 Cont.

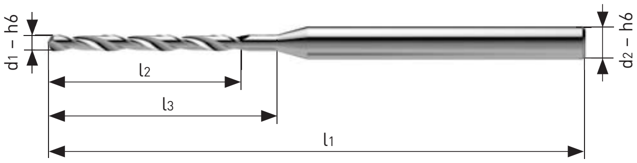


Art. 50621	Art. 50622	d1	d1 (in.)	l_2	l_3	l_1	d2
Catalog Number	Catalog Number						
40.50621.0086	**40.50622.0086**	.86	.0339	10.30	12.00	38	3.00
40.50621.0087	**40.50622.0087**	.87	.0343	10.50	12.00	38	3.00
40.50621.0088	**40.50622.0088**	.88	.0346	10.60	12.50	38	3.00
40.50621.0089	**40.50622.0089**	.89	.0350	10.70	12.50	38	3.00
40.50621.0090	**40.50622.0090**	.90	.0354	10.80	12.50	38	3.00
40.50621.0091	**40.50622.0091**	.91	.0358	10.90	12.50	38	3.00
40.50621.0092	**40.50622.0092**	.92	.0362	11.10	13.00	38	3.00
40.50621.0093	**40.50622.0093**	.93	.0366	11.20	13.00	38	3.00
40.50621.0094	**40.50622.0094**	.94	.0370	11.30	13.00	38	3.00
40.50621.0095	**40.50622.0095**	.95	.0374	11.40	13.00	38	3.00
40.50621.0096	**40.50622.0096**	.96	.0378	11.50	13.50	38	3.00
40.50621.0097	**40.50622.0097**	.97	.0382	11.70	13.50	38	3.00
40.50621.0098	**40.50622.0098**	.98	.0386	11.80	13.50	38	3.00
40.50621.0099	**40.50622.0099**	.99	.0390	11.90	13.50	38	3.00
40.50621.0100	**40.50622.0100**	1.00	.0394	12.00	14.50	38	3.00
40.50621.0101	**40.50622.0101**	1.01	.0398	12.10	14.50	38	3.00
40.50621.0102	**40.50622.0102**	1.02	.0402	12.30	14.50	38	3.00
40.50621.0103	**40.50622.0103**	1.03	.0406	12.40	14.50	38	3.00
40.50621.0104	**40.50622.0104**	1.04	.0409	12.50	15.00	38	3.00
40.50621.0105	**40.50622.0105**	1.05	.0413	12.60	15.00	38	3.00
40.50621.0106	**40.50622.0106**	1.06	.0417	12.70	15.00	38	3.00
40.50621.0107	**40.50622.0107**	1.07	.0421	12.90	15.00	38	3.00
40.50621.0108	**40.50622.0108**	1.08	.0425	13.00	15.50	38	3.00
40.50621.0109	**40.50622.0109**	1.09	.0429	13.10	15.50	38	3.00
40.50621.0110	**40.50622.0110**	1.10	.0433	13.20	15.50	38	3.00
40.50621.0111	**40.50622.0111**	1.11	.0437	13.30	15.50	38	3.00
40.50621.0112	**40.50622.0112**	1.12	.0441	13.50	16.00	38	3.00
40.50621.0113	**40.50622.0113**	1.13	.0445	13.60	16.00	38	3.00
40.50621.0114	**40.50622.0114**	1.14	.0449	13.70	16.00	38	3.00
40.50621.0115	**40.50622.0115**	1.15	.0453	13.80	16.00	38	3.00
40.50621.0116	**40.50622.0116**	1.16	.0457	13.90	16.50	38	3.00
40.50621.0117	**40.50622.0117**	1.17	.0461	14.10	16.50	38	3.00
40.50621.0118	**40.50622.0118**	1.18	.0465	14.20	16.50	38	3.00
40.50621.0119	**40.50622.0119**	1.19	.0469	14.30	16.50	38	3.00
40.50621.0120	**40.50622.0120**	1.20	.0472	14.40	17.00	38	3.00
40.50621.0121	**40.50622.0121**	1.21	.0476	14.50	17.00	38	3.00
40.50621.0122	**40.50622.0122**	1.22	.0480	14.70	17.00	38	3.00
40.50621.0123	**40.50622.0123**	1.23	.0484	14.80	17.00	38	3.00
40.50621.0124	**40.50622.0124**	1.24	.0488	14.90	17.50	38	3.00

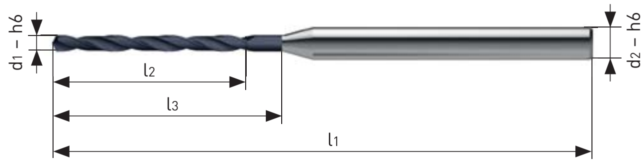
Art. 50621 Catalog Number	Art. 50622 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50621.0125	40.50622.0125	1.25	.0492	15.00	17.50	38	3.00
40.50621.0126	40.50622.0126	1.26	.0496	15.10	17.50	50	3.00
40.50621.0127	40.50622.0127	1.27	.0500	15.30	17.50	50	3.00
40.50621.0128	40.50622.0128	1.28	.0504	15.40	18.00	50	3.00
40.50621.0129	40.50622.0129	1.29	.0508	15.50	18.00	50	3.00
40.50621.0130	40.50622.0130	1.30	.0512	15.60	18.00	50	3.00
40.50621.0131	40.50622.0131	1.31	.0516	15.70	18.00	50	3.00
40.50621.0132	40.50622.0132	1.32	.0520	15.90	18.50	50	3.00
40.50621.0133	40.50622.0133	1.33	.0524	16.00	18.50	50	3.00
40.50621.0134	40.50622.0134	1.34	.0528	16.10	18.50	50	3.00
40.50621.0135	40.50622.0135	1.35	.0531	16.20	18.50	50	3.00
40.50621.0136	40.50622.0136	1.36	.0535	16.30	19.00	50	3.00
40.50621.0137	40.50622.0137	1.37	.0539	16.50	19.00	50	3.00
40.50621.0138	40.50622.0138	1.38	.0543	16.60	19.00	50	3.00
40.50621.0139	40.50622.0139	1.39	.0547	16.70	19.00	50	3.00
40.50621.0140	40.50622.0140	1.40	.0551	16.80	19.50	50	3.00
40.50621.0141	40.50622.0141	1.41	.0555	16.90	19.50	50	3.00
40.50621.0142	40.50622.0142	1.42	.0559	17.10	19.50	50	3.00
40.50621.0143	40.50622.0143	1.43	.0563	17.20	19.50	50	3.00
40.50621.0144	40.50622.0144	1.44	.0567	17.30	20.00	50	3.00
40.50621.0145	40.50622.0145	1.45	.0571	17.40	20.00	50	3.00
40.50621.0146	40.50622.0146	1.46	.0575	17.50	20.00	50	3.00
40.50621.0147	40.50622.0147	1.47	.0579	17.70	20.00	50	3.00
40.50621.0148	40.50622.0148	1.48	.0583	17.80	20.50	50	3.00
40.50621.0149	40.50622.0149	1.49	.0587	17.90	20.50	50	3.00
40.50621.0150	40.50622.0150	1.50	.0591	18.00	21.00	50	3.00
40.50621.0151	40.50622.0151	1.51	.0594	18.10	21.00	50	3.00
40.50621.0152	40.50622.0152	1.52	.0598	18.30	21.00	50	3.00
40.50621.0153	40.50622.0153	1.53	.0602	18.40	21.00	50	3.00
40.50621.0154	40.50622.0154	1.54	.0606	18.50	21.50	50	3.00
40.50621.0155	40.50622.0155	1.55	.0610	18.60	21.50	50	3.00
40.50621.0156	40.50622.0156	1.56	.0614	18.70	21.50	50	3.00
40.50621.0157	40.50622.0157	1.57	.0618	18.90	21.50	50	3.00
40.50621.0158	40.50622.0158	1.58	.0622	19.00	22.00	50	3.00
40.50621.0159	40.50622.0159	1.59	.0626	19.10	22.00	50	3.00
40.50621.0160	40.50622.0160	1.60	.0630	19.20	22.00	50	3.00
40.50621.0161	40.50622.0161	1.61	.0634	19.30	22.00	50	3.00
40.50621.0162	40.50622.0162	1.62	.0638	19.40	22.50	50	3.00
40.50621.0163	40.50622.0163	1.63	.0642	19.60	22.50	50	3.00
40.50621.0164	40.50622.0164	1.64	.0646	19.70	22.50	50	3.00
40.50621.0165	40.50622.0165	1.65	.0650	19.80	22.50	50	3.00
40.50621.0166	40.50622.0166	1.66	.0654	19.90	23.00	50	3.00
40.50621.0167	40.50622.0167	1.67	.0657	20.10	23.00	50	3.00
40.50621.0168	40.50622.0168	1.68	.0661	20.20	23.00	50	3.00
40.50621.0169	40.50622.0169	1.69	.0665	20.30	23.00	50	3.00

- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 145-146

Art. 50621 Cont.



Art. 50622 Cont.

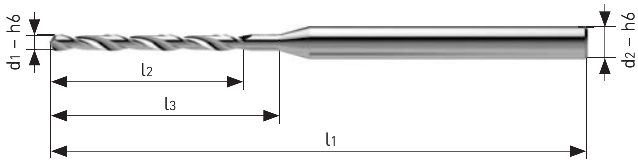


Art. 50621 Catalog Number	Art. 50622 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50621.0170	**40.50622.0170**	1.70	.0669	20.40	23.50	50	3.00
40.50621.0171	**40.50622.0171**	1.71	.0673	20.50	23.50	50	3.00
40.50621.0172	**40.50622.0172**	1.72	.0677	20.70	23.50	50	3.00
40.50621.0173	**40.50622.0173**	1.73	.0681	20.80	23.50	50	3.00
40.50621.0174	**40.50622.0174**	1.74	.0685	20.90	24.00	50	3.00
40.50621.0175	**40.50622.0175**	1.75	.0689	21.00	24.00	50	3.00
40.50621.0176	**40.50622.0176**	1.76	.0693	21.10	24.00	50	3.00
40.50621.0177	**40.50622.0177**	1.77	.0697	21.30	24.00	50	3.00
40.50621.0178	**40.50622.0178**	1.78	.0701	21.40	24.50	50	3.00
40.50621.0179	**40.50622.0179**	1.79	.0705	21.50	24.50	50	3.00
40.50621.0180	**40.50622.0180**	1.80	.0709	21.60	25.00	50	3.00
40.50621.0181	**40.50622.0181**	1.81	.0713	21.70	25.00	50	3.00
40.50621.0182	**40.50622.0182**	1.82	.0717	21.90	25.00	50	3.00
40.50621.0183	**40.50622.0183**	1.83	.0720	22.00	25.00	50	3.00
40.50621.0184	**40.50622.0184**	1.84	.0724	22.10	25.50	50	3.00
40.50621.0185	**40.50622.0185**	1.85	.0728	22.20	25.50	50	3.00
40.50621.0186	**40.50622.0186**	1.86	.0732	22.30	25.50	50	3.00
40.50621.0187	**40.50622.0187**	1.87	.0736	22.50	25.50	50	3.00
40.50621.0188	**40.50622.0188**	1.88	.0740	22.60	26.00	50	3.00
40.50621.0189	**40.50622.0189**	1.89	.0744	22.70	26.00	50	3.00
40.50621.0190	**40.50622.0190**	1.90	.0748	22.80	26.00	50	3.00
40.50621.0191	**40.50622.0191**	1.91	.0752	22.90	26.00	50	3.00
40.50621.0192	**40.50622.0192**	1.92	.0756	23.10	26.50	50	3.00
40.50621.0193	**40.50622.0193**	1.93	.0760	23.20	26.50	50	3.00
40.50621.0194	**40.50622.0194**	1.94	.0764	23.30	26.50	50	3.00
40.50621.0195	**40.50622.0195**	1.95	.0768	23.40	26.50	50	3.00
40.50621.0196	**40.50622.0196**	1.96	.0772	23.50	27.00	50	3.00
40.50621.0197	**40.50622.0197**	1.97	.0776	23.70	27.00	50	3.00
40.50621.0198	**40.50622.0198**	1.98	.0780	23.80	27.00	50	3.00
40.50621.0199	**40.50622.0199**	1.99	.0783	23.90	27.00	50	3.00
40.50621.0200	**40.50622.0200**	2.00	.0787	24.00	27.00	50	3.00
40.50621.0201	**40.50622.0201**	2.01	.0791	24.10	27.50	60	3.00
40.50621.0202	**40.50622.0202**	2.02	.0795	24.20	27.50	60	3.00
40.50621.0203	**40.50622.0203**	2.03	.0799	24.40	27.50	60	3.00
40.50621.0204	**40.50622.0204**	2.04	.0803	24.50	27.50	60	3.00
40.50621.0205	**40.50622.0205**	2.05	.0807	24.60	28.00	60	3.00
40.50621.0206	**40.50622.0206**	2.06	.0811	24.70	28.00	60	3.00
40.50621.0207	**40.50622.0207**	2.07	.0815	24.80	28.00	60	3.00
40.50621.0208	**40.50622.0208**	2.08	.0819	25.00	28.00	60	3.00

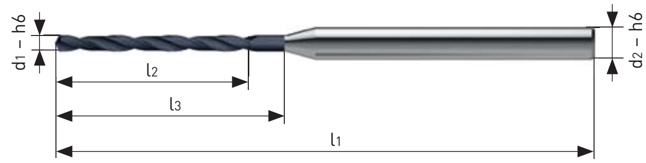
Art. 50621 Catalog Number	Art. 50622 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50621.0209	**40.50622.0209**	2.09	.0823	25.10	28.50	60	3.00
40.50621.0210	**40.50622.0210**	2.10	.0827	25.20	28.50	60	3.00
40.50621.0211	**40.50622.0211**	2.11	.0831	25.40	28.50	60	3.00
40.50621.0212	**40.50622.0212**	2.12	.0835	25.50	28.50	60	3.00
40.50621.0213	**40.50622.0213**	2.13	.0839	25.60	29.00	60	3.00
40.50621.0214	**40.50622.0214**	2.14	.0843	25.70	29.00	60	3.00
40.50621.0215	**40.50622.0215**	2.15	.0846	25.80	29.00	60	3.00
40.50621.0216	**40.50622.0216**	2.16	.0850	25.90	29.00	60	3.00
40.50621.0217	**40.50622.0217**	2.17	.0854	26.10	29.50	60	3.00
40.50621.0218	**40.50622.0218**	2.18	.0858	26.20	29.50	60	3.00
40.50621.0219	**40.50622.0219**	2.19	.0862	26.30	29.50	60	3.00
40.50621.0220	**40.50622.0220**	2.20	.0866	26.40	29.50	60	3.00
40.50621.0221	**40.50622.0221**	2.21	.0870	26.50	30.00	60	3.00
40.50621.0222	**40.50622.0222**	2.22	.0874	26.70	30.00	60	3.00
40.50621.0223	**40.50622.0223**	2.23	.0878	26.80	30.00	60	3.00
40.50621.0224	**40.50622.0224**	2.24	.0882	26.90	30.00	60	3.00
40.50621.0225	**40.50622.0225**	2.25	.0886	27.00	30.50	60	3.00
40.50621.0226	**40.50622.0226**	2.26	.0890	27.10	30.50	60	3.00
40.50621.0227	**40.50622.0227**	2.27	.0894	27.20	30.50	60	3.00
40.50621.0228	**40.50622.0228**	2.28	.0898	27.40	30.50	60	3.00
40.50621.0229	**40.50622.0229**	2.29	.0902	27.50	31.00	60	3.00
40.50621.0230	**40.50622.0230**	2.30	.0906	27.60	31.00	60	3.00
40.50621.0231	**40.50622.0231**	2.31	.0909	27.70	31.00	65	3.00
40.50621.0232	**40.50622.0232**	2.32	.0913	27.80	31.00	65	3.00
40.50621.0233	**40.50622.0233**	2.33	.0917	28.00	31.50	65	3.00
40.50621.0234	**40.50622.0234**	2.34	.0921	28.10	31.50	65	3.00
40.50621.0235	**40.50622.0235**	2.35	.0925	28.20	31.50	65	3.00
40.50621.0236	**40.50622.0236**	2.36	.0929	28.30	31.50	65	3.00
40.50621.0237	**40.50622.0237**	2.37	.0933	28.40	32.00	65	3.00
40.50621.0238	**40.50622.0238**	2.38	.0937	28.60	32.00	65	3.00
40.50621.0239	**40.50622.0239**	2.39	.0941	28.70	32.00	65	3.00
40.50621.0240	**40.50622.0240**	2.40	.0945	28.80	32.00	65	3.00
40.50621.0241	**40.50622.0241**	2.41	.0949	28.90	33.00	65	3.00
40.50621.0242	**40.50622.0242**	2.42	.0953	29.00	33.00	65	3.00
40.50621.0243	**40.50622.0243**	2.43	.0957	29.20	33.00	65	3.00
40.50621.0244	**40.50622.0244**	2.44	.0961	29.30	33.00	65	3.00
40.50621.0245	**40.50622.0245**	2.45	.0965	29.40	33.00	65	3.00
40.50621.0246	**40.50622.0246**	2.46	.0969	29.50	33.50	65	3.00
40.50621.0247	**40.50622.0247**	2.47	.0972	29.60	33.50	65	3.00
40.50621.0248	**40.50622.0248**	2.48	.0976	29.80	33.50	65	3.00
40.50621.0249	**40.50622.0249**	2.49	.0980	29.90	33.50	65	3.00
40.50621.0250	**40.50622.0250**	2.50	.0984	30.00	34.00	65	3.00
40.50621.0251	**40.50622.0251**	2.51	.0988	30.10	34.00	65	3.00
40.50621.0252	**40.50622.0252**	2.52	.0992	30.20	34.00	65	3.00
40.50621.0253	**40.50622.0253**	2.53	.0996	30.40	34.00	65	3.00

- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 145-146

Art. 50621 Cont.



Art. 50622 Cont.



Art. 50621	Art. 50622	d1	d1 (in.)	l_2	l_3	l_1	d2
Catalog Number	Catalog Number						
40.50621.0254	**40.50622.0254**	2.54	.1000	30.50	34.50	65	3.00
40.50621.0255	**40.50622.0255**	2.55	.1004	30.60	34.50	65	3.00
40.50621.0256	**40.50622.0256**	2.56	.1008	30.70	34.50	65	3.00
40.50621.0257	**40.50622.0257**	2.57	.1012	30.80	34.50	65	3.00
40.50621.0258	**40.50622.0258**	2.58	.1016	31.00	35.00	65	3.00
40.50621.0259	**40.50622.0259**	2.59	.1020	31.10	35.00	65	3.00
40.50621.0260	**40.50622.0260**	2.60	.1024	31.20	35.00	65	3.00
40.50621.0261	**40.50622.0261**	2.61	.1028	31.30	35.00	65	3.00
40.50621.0262	**40.50622.0262**	2.62	.1031	31.40	35.50	65	3.00
40.50621.0263	**40.50622.0263**	2.63	.1035	31.60	35.50	65	3.00
40.50621.0264	**40.50622.0264**	2.64	.1039	31.70	35.50	65	3.00
40.50621.0265	**40.50622.0265**	2.65	.1043	31.80	35.50	65	3.00
40.50621.0266	**40.50622.0266**	2.66	.1047	31.90	36.00	65	3.00
40.50621.0267	**40.50622.0267**	2.67	.1051	32.00	36.00	65	3.00
40.50621.0268	**40.50622.0268**	2.68	.1055	32.20	36.00	65	3.00
40.50621.0269	**40.50622.0269**	2.69	.1059	32.30	36.00	65	3.00
40.50621.0270	**40.50622.0270**	2.70	.1063	32.40	36.50	65	3.00
40.50621.0271	**40.50622.0271**	2.71	.1067	32.50	36.50	65	3.00
40.50621.0272	**40.50622.0272**	2.72	.1071	32.60	36.50	65	3.00
40.50621.0273	**40.50622.0273**	2.73	.1075	32.80	36.50	65	3.00
40.50621.0274	**40.50622.0274**	2.74	.1079	32.90	37.00	65	3.00
40.50621.0275	**40.50622.0275**	2.75	.1083	33.00	37.00	65	3.00
40.50621.0276	**40.50622.0276**	2.76	.1087	33.10	37.00	65	3.00
40.50621.0277	**40.50622.0277**	2.77	.1091	33.20	37.00	65	3.00
40.50621.0278	**40.50622.0278**	2.78	.1094	33.40	37.50	65	3.00
40.50621.0279	**40.50622.0279**	2.79	.1098	33.50	37.50	65	3.00
40.50621.0280	**40.50622.0280**	2.80	.1102	33.60	37.50	65	3.00
40.50621.0281	**40.50622.0281**	2.81	.1106	33.70	37.50	65	3.00
40.50621.0282	**40.50622.0282**	2.82	.1110	33.80	38.00	65	3.00
40.50621.0283	**40.50622.0283**	2.83	.1114	34.00	38.00	65	3.00
40.50621.0284	**40.50622.0284**	2.84	.1118	34.10	38.00	65	3.00
40.50621.0285	**40.50622.0285**	2.85	.1122	34.20	38.00	65	3.00
40.50621.0286	**40.50622.0286**	2.86	.1126	34.30	38.50	65	3.00
40.50621.0287	**40.50622.0287**	2.87	.1130	34.40	38.50	65	3.00
40.50621.0288	**40.50622.0288**	2.88	.1134	34.60	38.50	65	3.00
40.50621.0289	**40.50622.0289**	2.89	.1138	34.70	38.50	65	3.00
40.50621.0290	**40.50622.0290**	2.90	.1142	34.80	39.00	65	3.00
40.50621.0291	**40.50622.0291**	2.91	.1146	34.90	39.00	65	3.00
40.50621.0292	**40.50622.0292**	2.92	.1150	35.00	39.00	65	3.00

SPHINX TOOLS

Art. 50621 Catalog Number	Art. 50622 Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50621.0293	40.50622.0293	2.93	.1154	35.20	39.00	65	3.00
40.50621.0294	40.50622.0294	2.94	.1157	35.30	39.50	65	3.00
40.50621.0295	40.50622.0295	2.95	.1161	35.40	39.50	65	3.00
40.50621.0296	40.50622.0296	2.96	.1165	35.50	39.50	65	3.00
40.50621.0297	40.50622.0297	2.97	.1169	35.60	39.50	65	3.00
40.50621.0298	40.50622.0298	2.98	.1173	35.80	40.00	65	3.00
40.50621.0299	40.50622.0299	2.99	.1177	35.90	40.00	65	3.00
40.50621.0300	40.50622.0300	3.00	.1181	36.00	40.00	65	3.00

- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 145-146

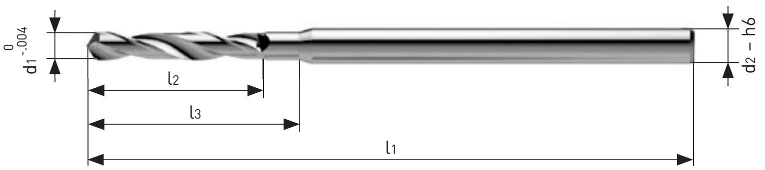
Spirec

Art. 12604

HSS | DIN 1899-A | Z 2 | 118° | 25° | 5-8xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Brass



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.12604.0005	.05	.0020	.40	.60	25	1.00
40.12604.0006	.06	.0024	.40	.60	25	1.00
40.12604.0007	.07	.0028	.50	.70	25	1.00
40.12604.0008	.08	.0031	.50	.70	25	1.00
40.12604.0009	.09	.0035	.50	.70	25	1.00
40.12604.0010	.10	.0039	.50	.70	25	1.00
40.12604.0011	.11	.0043	.50	.70	25	1.00
40.12604.0012	.12	.0047	.50	.70	25	1.00
40.12604.0013	.13	.0051	.80	1.00	25	1.00
40.12604.0014	.14	.0055	.80	1.00	25	1.00
40.12604.0015	.15	.0059	.80	1.00	25	1.00
40.12604.0016	.16	.0063	1.10	1.40	25	1.00
40.12604.0017	.17	.0067	1.10	1.40	25	1.00
40.12604.0018	.18	.0071	1.10	1.40	25	1.00
40.12604.0019	.19	.0075	1.10	1.40	25	1.00
40.12604.0020	.20	.0079	1.50	1.80	25	1.00
40.12604.0021	.21	.0083	1.50	1.80	25	1.00
40.12604.0022	.22	.0087	1.50	1.80	25	1.00
40.12604.0023	.23	.0091	1.50	1.80	25	1.00
40.12604.0024	.24	.0094	1.50	1.80	25	1.00
40.12604.0025	.25	.0098	1.90	2.20	25	1.00
40.12604.0026	.26	.0102	1.90	2.20	25	1.00
40.12604.0027	.27	.0106	1.90	2.20	25	1.00
40.12604.0028	.28	.0110	1.90	2.20	25	1.00
40.12604.0029	.29	.0114	1.90	2.20	25	1.00
40.12604.0030	.30	.0118	1.90	2.20	25	1.00
40.12604.0031	.31	.0122	2.40	2.80	25	1.00
40.12604.0032	.32	.0126	2.40	2.80	25	1.00
40.12604.0033	.33	.0130	2.40	2.80	25	1.00
40.12604.0034	.34	.0134	2.40	2.80	25	1.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.12604.0035	.35	.0138	2.40	2.80	25	1.00
40.12604.0036	.36	.0142	2.40	2.80	25	1.00
40.12604.0037	.37	.0146	2.40	2.80	25	1.00
40.12604.0038	.38	.0150	2.40	2.80	25	1.00
40.12604.0039	.39	.0154	2.70	3.60	25	1.00
40.12604.0040	.40	.0157	2.70	3.60	25	1.00
40.12604.0041	.41	.0161	2.70	3.60	25	1.00
40.12604.0042	.42	.0165	2.70	3.60	25	1.00
40.12604.0043	.43	.0169	2.70	3.60	25	1.00
40.12604.0044	.44	.0173	2.70	3.60	25	1.00
40.12604.0045	.45	.0177	2.70	3.60	25	1.00
40.12604.0046	.46	.0181	2.70	3.60	25	1.00
40.12604.0047	.47	.0185	2.70	3.60	25	1.00
40.12604.0048	.48	.0189	2.70	3.60	25	1.00
40.12604.0049	.49	.0193	3.20	4.00	25	1.00
40.12604.0050	.50	.0197	3.20	4.00	25	1.00
40.12604.0051	.51	.0201	3.20	4.00	25	1.00
40.12604.0052	.52	.0205	3.20	4.00	25	1.00
40.12604.0053	.53	.0209	3.20	4.00	25	1.00
40.12604.0054	.54	.0213	3.60	4.50	25	1.00
40.12604.0055	.55	.0217	3.60	4.50	25	1.00
40.12604.0056	.56	.0220	3.60	4.50	25	1.00
40.12604.0057	.57	.0224	3.60	4.50	25	1.00
40.12604.0058	.58	.0228	3.60	4.50	25	1.00
40.12604.0059	.59	.0232	3.60	4.50	25	1.00
40.12604.0060	.60	.0236	3.60	4.50	25	1.00
40.12604.0061	.61	.0240	3.90	5.00	25	1.00
40.12604.0062	.62	.0244	3.90	5.00	25	1.00
40.12604.0063	.63	.0248	3.90	5.00	25	1.00
40.12604.0064	.64	.0252	3.90	5.00	25	1.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.12604.0065	.65	.0256	3.90	5.00	25	1.00
40.12604.0066	.66	.0260	3.90	5.00	25	1.00
40.12604.0067	.67	.0264	3.90	5.00	25	1.00
40.12604.0068	.68	.0268	4.50	5.60	25	1.00
40.12604.0069	.69	.0272	4.50	5.60	25	1.00
40.12604.0070	.70	.0276	4.50	5.60	25	1.00
40.12604.0071	.71	.0280	4.50	5.60	25	1.00
40.12604.0072	.72	.0283	4.50	5.60	25	1.00
40.12604.0073	.73	.0287	4.50	5.60	25	1.00
40.12604.0074	.74	.0291	4.50	5.60	25	1.00
40.12604.0075	.75	.0295	4.50	5.60	25	1.00
40.12604.0076	.76	.0299	5.00	6.30	25	1.00
40.12604.0077	.77	.0303	5.00	6.30	25	1.00
40.12604.0078	.78	.0307	5.00	6.30	25	1.00
40.12604.0079	.79	.0311	5.00	6.30	25	1.00
40.12604.0080	.80	.0315	5.00	6.30	25	1.50
40.12604.0081	.81	.0319	5.00	6.30	25	1.50
40.12604.0082	.82	.0323	5.00	6.30	25	1.50
40.12604.0083	.83	.0327	5.00	6.30	25	1.50
40.12604.0084	.84	.0331	5.00	6.30	25	1.50
40.12604.0085	.85	.0335	5.00	6.30	25	1.50
40.12604.0086	.86	.0339	5.70	7.10	25	1.50
40.12604.0087	.87	.0343	5.70	7.10	25	1.50
40.12604.0088	.88	.0346	5.70	7.10	25	1.50
40.12604.0089	.89	.0350	5.70	7.10	25	1.50
40.12604.0090	.90	.0354	5.70	7.10	25	1.50
40.12604.0091	.91	.0358	5.70	7.10	25	1.50
40.12604.0092	.92	.0362	5.70	7.10	25	1.50
40.12604.0093	.93	.0366	5.70	7.10	25	1.50
40.12604.0094	.94	.0370	5.70	7.10	25	1.50
40.12604.0095	.95	.0374	5.70	7.10	25	1.50
40.12604.0096	.96	.0378	6.50	8.00	25	1.50
40.12604.0097	.97	.0382	6.50	8.00	25	1.50
40.12604.0098	.98	.0386	6.50	8.00	25	1.50
40.12604.0099	.99	.0390	6.50	8.00	25	1.50
40.12604.0100	1.00	.0394	6.50	8.00	25	1.50
40.12604.0105	1.05	.0413	6.50	8.00	25	1.50
40.12604.0110	1.10	.0433	7.30	9.00	25	1.50
40.12604.0115	1.15	.0453	7.30	9.00	25	1.50
40.12604.0120	1.20	.0472	8.20	10.00	25	1.50
40.12604.0125	1.25	.0492	8.20	10.00	25	1.50

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.12604.0130	1.30	.0512	8.20	10.00	25	1.50
40.12604.0135	1.35	.0531	9.20	11.20	25	1.50
40.12604.0140	1.40	.0551	9.20	11.20	25	1.50
40.12604.0145	1.45	.0571	9.20	11.20	25	1.50
40.12604.0150	1.50	.0591	10.90	12.90	38	2.00
40.12604.0155	1.55	.0610	11.20	13.40	38	2.00
40.12604.0158	1.587	.0625 (1/16)	11.20	13.40	38	2.00
40.12604.0160	1.60	.0630	11.20	13.40	38	2.00
40.12604.0165	1.65	.0650	11.20	13.40	38	2.00
40.12604.0170	1.70	.0669	11.20	13.40	38	2.00
40.12604.0175	1.75	.0689	11.20	13.40	38	2.00
40.12604.0180	1.80	.0709	11.20	13.40	38	2.00
40.12604.0185	1.85	.0728	11.20	13.40	38	2.00
40.12604.0190	1.90	.0748	11.70	14.00	38	2.00
40.12604.0195	1.95	.0768	11.70	14.00	38	2.00
40.12604.0198	1.984	.0781 (5/64)	11.70	14.00	38	2.00
40.12604.0200	2.00	.0787	12.70	15.00	43	2.50
40.12604.0205	2.05	.0807	12.70	15.00	43	2.50
40.12604.0210	2.10	.0827	12.70	15.00	43	2.50
40.12604.0215	2.15	.0846	12.70	15.00	43	2.50
40.12604.0220	2.20	.0866	13.70	17.00	43	2.50
40.12604.0225	2.25	.0886	13.70	17.00	43	2.50
40.12604.0230	2.30	.0906	13.70	17.00	43	2.50
40.12604.0235	2.35	.0925	13.70	17.00	43	2.50
40.12604.0238	2.381	.0938 (3/32)	13.70	17.00	43	2.50
40.12604.0240	2.40	.0945	14.70	18.00	43	2.50
40.12604.0245	2.45	.0965	14.70	18.00	43	2.50
40.12604.0250	2.50	.0984	14.70	18.00	46	3.00
40.12604.0255	2.55	.1004	15.70	19.00	46	3.00
40.12604.0260	2.60	.1024	15.70	19.00	46	3.00
40.12604.0265	2.65	.1043	16.70	20.00	46	3.00
40.12604.0270	2.70	.1063	16.70	20.00	46	3.00
40.12604.0275	2.75	.1083	17.70	21.00	46	3.00
40.12604.0278	2.778	.1094 (7/64)	17.70	21.00	46	3.00
40.12604.0280	2.80	.1102	17.70	21.00	46	3.00
40.12604.0285	2.85	.1122	18.70	22.00	46	3.00
40.12604.0290	2.90	.1142	18.70	22.00	46	3.00
40.12604.0295	2.95	.1161	19.70	23.00	46	3.00
40.12604.0300	3.00	.1181	19.70	—	46	3.00
40.12604.0318	3.175	.1250 (1/8)	19.70	—	46	3.175

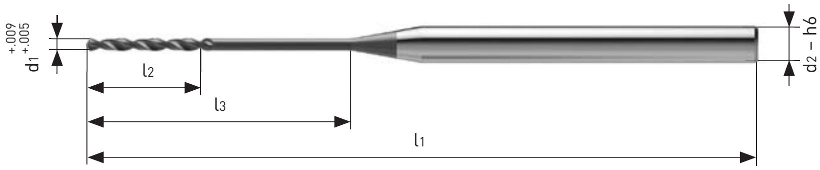
- All dimensions are millimeters unless otherwise noted
- Packaged in quantities of 10 pieces
- For cutting data see pg. 146

Art. 50720

Carbide | +.009 d1 +.005 | Z 2 | 129° | 30° | 10xd | 20xd | AlCrN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | Plastic

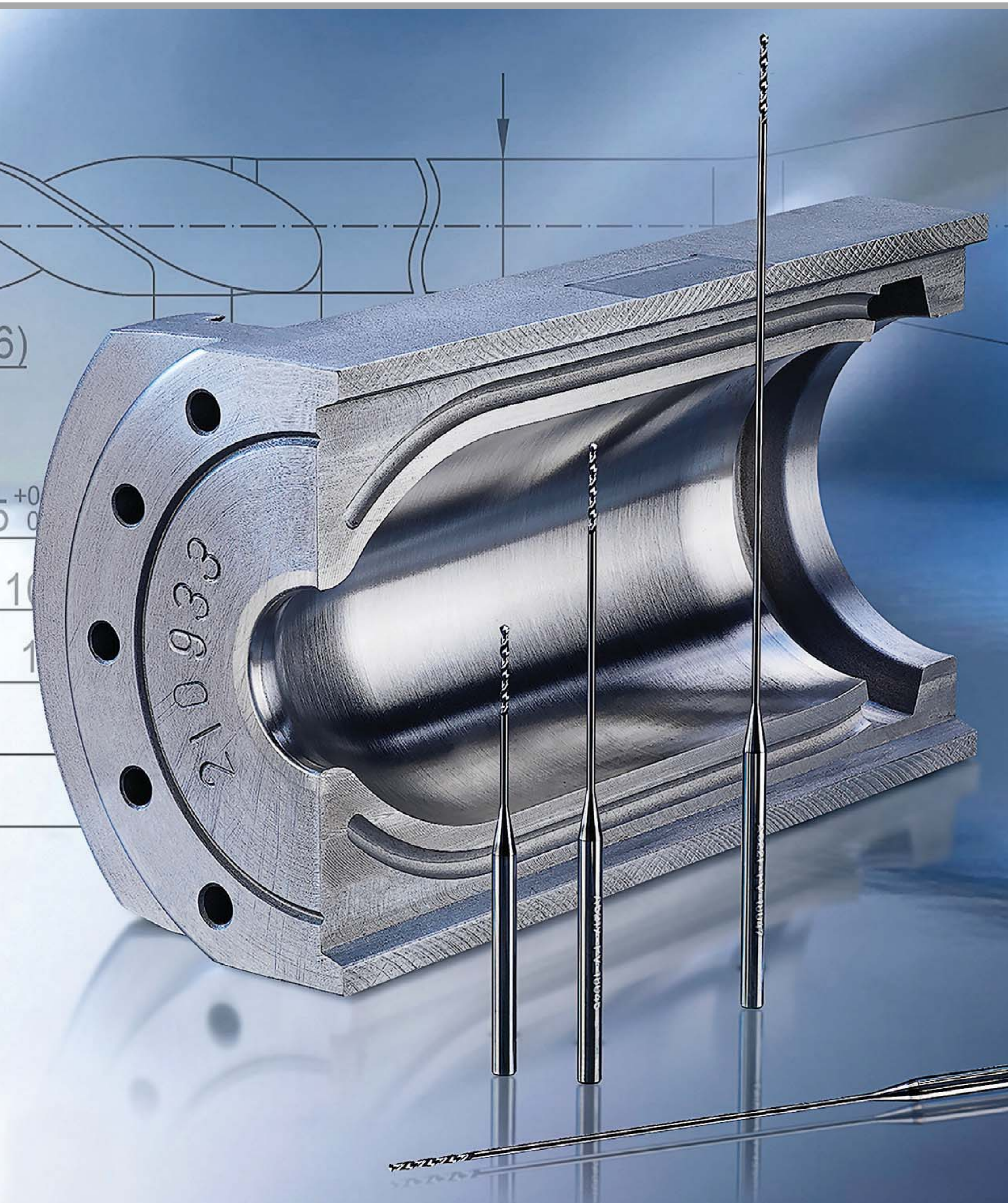


Catalog Number	d_1	d_1 (in)	d_2	l_2	l_3	l_1
40.50720.0020	.20	.0079	3.00	2.50	4.00	38
40.50720.0025	.25	.0098	3.00	3.00	5.00	38
40.50720.0030	.30	.0118	3.00	3.50	6.00	38
40.50720.0035	.35	.0138	3.00	4.00	7.00	38
40.50720.0040	.40	.0157	3.00	4.50	8.00	38
40.50720.0045	.45	.0177	3.00	5.00	9.00	38
40.50720.0050	.50	.0197	3.00	5.50	10.00	50
40.50720.0055	.55	.0217	3.00	6.00	11.00	50
40.50720.0060	.60	.0236	3.00	6.50	12.00	50
40.50720.0065	.65	.0256	3.00	7.00	13.00	50
40.50720.0070	.70	.0276	3.00	7.50	14.00	50
40.50720.0075	.75	.0295	3.00	8.00	15.00	50
40.50720.0080	.80	.0315	3.00	8.50	16.00	55
40.50720.0085	.85	.0335	3.00	9.00	17.00	55

Catalog Number	d_1	d_1 (in)	d_2	l_2	l_3	l_1
40.50720.0090	.90	.0354	3.00	9.50	18.00	55
40.50720.0095	.95	.0374	3.00	10.00	19.00	55
40.50720.0100	1.00	.0394	3.00	10.50	20.00	55
40.50720.0105	1.05	.0413	3.00	11.00	21.00	60
40.50720.0110	1.10	.0433	3.00	11.50	22.00	60
40.50720.0115	1.15	.0453	3.00	12.00	23.00	60
40.50720.0120	1.20	.0472	3.00	12.50	24.00	60
40.50720.0125	1.25	.0492	3.00	13.00	25.00	60
40.50720.0130	1.30	.0512	3.00	13.50	26.00	65
40.50720.0135	1.35	.0531	3.00	14.00	27.00	65
40.50720.0140	1.40	.0551	3.00	14.50	28.00	65
40.50720.0145	1.45	.0571	3.00	15.00	29.00	65
40.50720.0150	1.50	.0591	3.00	15.50	30.00	65

- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 147

SPHINX TOOLS

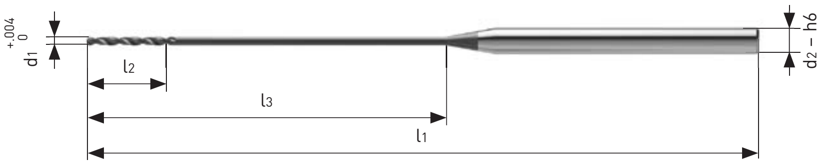


Art. 50740

Carbide | d1 +.004 0 | Z 2 | 126° | 30° | 10xd | 40xd | AlCrN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | Plastic



Catalog Number	d_1	d_1 (in)	d_2	l_2	l_3	l_1
40.50740.0040	.40	.0157	3.00	4.50	16.00	50
40.50740.0045	.45	.0177	3.00	5.00	18.00	50
40.50740.0050	.50	.0197	3.00	5.50	20.00	70
40.50740.0055	.55	.0217	3.00	6.00	22.00	70
40.50740.0060	.60	.0236	3.00	6.50	24.00	70
40.50740.0065	.65	.0256	3.00	7.00	26.00	70
40.50740.0070	.70	.0276	3.00	7.50	28.00	70
40.50740.0075	.75	.0295	3.00	8.00	30.00	70
40.50740.0080	.80	.0315	3.00	8.50	32.00	78
40.50740.0085	.85	.0335	3.00	9.00	34.00	78
40.50740.0090	.90	.0354	3.00	9.50	36.00	78
40.50740.0095	.95	.0374	3.00	10.00	38.00	78
40.50740.0100	1.00	.0394	3.00	10.50	40.00	78
40.50740.0105	1.05	.0413	3.00	11.00	42.00	88
40.50740.0110	1.10	.0433	3.00	11.50	44.00	88
40.50740.0115	1.15	.0453	3.00	12.00	46.00	88
40.50740.0120	1.20	.0472	3.00	12.50	48.00	88
40.50740.0125	1.25	.0492	3.00	13.00	50.00	88
40.50740.0130	1.30	.0512	3.00	13.50	52.00	98
40.50740.0135	1.35	.0531	3.00	14.00	54.00	98
40.50740.0140	1.40	.0551	3.00	14.50	56.00	98
40.50740.0145	1.45	.0571	3.00	15.00	58.00	98
40.50740.0150	1.50	.0591	3.00	15.50	60.00	98

- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 147

Art. 50760

Carbide | Z 2 | 126° | 30°

10xd | 60xd | AlCrN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Cu | Brass

Mg | Ti | Plastic

Art. 50780

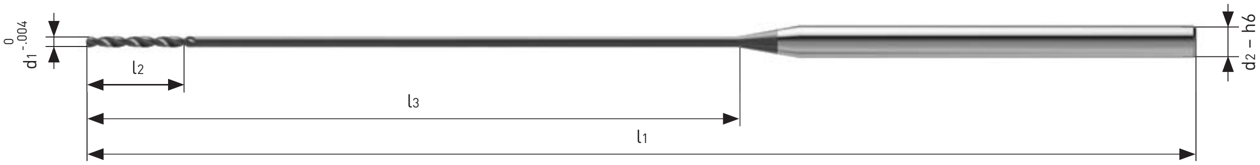
Carbide | Z 2 | 126° | 30°

10xd | 80xd | AlCrN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Cu | Brass

Mg | Ti | Plastic



d1	d1 (in)	d2	Art. 50760				Art. 50780			
			Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1
.40	.0157	3.00	**40.50760.0040**	4.50	24.00	60	**40.50780.0040**	4.50	32.00	70
.45	.0177	3.00	**40.50760.0045**	5.00	27.00	60	**40.50780.0045**	5.00	36.00	70
.50	.0197	3.00	**40.50760.0050**	5.50	30.00	85	**40.50780.0050**	5.50	40.00	100
.55	.0217	3.00	**40.50760.0055**	6.00	33.00	85	**40.50780.0055**	6.00	44.00	100
.60	.0236	3.00	**40.50760.0060**	6.50	36.00	85	**40.50780.0060**	6.50	48.00	100
.65	.0256	3.00	**40.50760.0065**	7.00	39.00	85	**40.50780.0065**	7.00	52.00	100
.70	.0276	3.00	**40.50760.0070**	7.50	42.00	85	**40.50780.0070**	7.50	56.00	100
.75	.0295	3.00	**40.50760.0075**	8.00	45.00	85	**40.50780.0075**	8.00	60.00	100
.80	.0315	3.00	**40.50760.0080**	8.50	48.00	100	**40.50780.0080**	8.50	64.00	120
.85	.0335	3.00	**40.50760.0085**	9.00	51.00	100	**40.50780.0085**	9.00	68.00	120
.90	.0354	3.00	**40.50760.0090**	9.50	54.00	100	**40.50780.0090**	9.50	72.00	120
.95	.0374	3.00	**40.50760.0095**	10.00	57.00	100	**40.50780.0095**	10.00	76.00	120
1.00	.0394	3.00	**40.50760.0100**	10.50	60.00	100	**40.50780.0100**	10.50	80.00	120
1.05	.0413	3.00	**40.50760.0105**	11.00	63.00	115	**40.50780.0105**	11.00	84.00	140
1.10	.0433	3.00	**40.50760.0110**	11.50	66.00	115	**40.50780.0110**	11.50	88.00	140
1.15	.0453	3.00	**40.50760.0115**	12.00	69.00	115	**40.50780.0115**	12.00	92.00	140
1.20	.0472	3.00	**40.50760.0120**	12.50	72.00	115	**40.50780.0120**	12.50	96.00	140
1.25	.0492	3.00	**40.50760.0125**	13.00	75.00	115	**40.50780.0125**	13.00	100.00	140
1.30	.0512	3.00	**40.50760.0130**	13.50	78.00	130	**40.50780.0130**	13.50	104.00	160
1.35	.0531	3.00	**40.50760.0135**	14.00	81.00	130	**40.50780.0135**	14.00	108.00	160
1.40	.0551	3.00	**40.50760.0140**	14.50	84.00	130	**40.50780.0140**	14.50	112.00	160
1.45	.0571	3.00	**40.50760.0145**	15.00	87.00	130	**40.50780.0145**	15.00	116.00	160
1.50	.0591	3.00	**40.50760.0150**	15.50	90.00	130	**40.50780.0150**	15.50	120.00	160

- All dimensions are millimeters unless otherwise noted
- Pilot drill recommended
- For cutting data see pg. 147

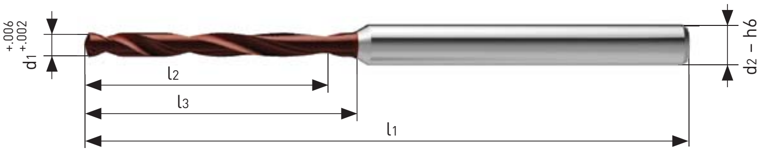
Nirox

Art. 51609

Carbide | Z 2 | 140° | 28° | 9xd | TiAlSiN

Blind Hole | Through Hole | Multi-Composite | Cross Hole

ST | SST | C.I. | Al | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.51609.0030	.30	.0118	2.70	3.30	38	3.00
40.51609.0035	.35	.0138	3.20	3.90	38	3.00
40.51609.0040	.40	.0157	3.60	4.40	38	3.00
40.51609.0045	.45	.0177	4.10	5.00	38	3.00
40.51609.0050	.50	.0197	4.50	5.50	38	3.00
40.51609.0055	.55	.0217	5.00	6.10	38	3.00
40.51609.0060	.60	.0236	5.40	6.60	38	3.00
40.51609.0065	.65	.0256	5.90	7.20	38	3.00
40.51609.0070	.70	.0276	6.30	7.70	38	3.00
40.51609.0075	.75	.0295	6.80	8.30	38	3.00
40.51609.0080	.80	.0315	7.20	8.80	38	3.00
40.51609.0085	.85	.0335	7.70	9.40	38	3.00
40.51609.0090	.90	.0354	8.10	9.90	38	3.00
40.51609.0095	.95	.0374	8.60	10.50	38	3.00
40.51609.0100	1.00	.0394	9.00	11.00	38	3.00
40.51609.0105	1.05	.0413	9.50	11.60	38	3.00
40.51609.0110	1.10	.0433	9.90	12.10	38	3.00
40.51609.0115	1.15	.0453	10.40	12.70	38	3.00
40.51609.0120	1.20	.0472	10.80	13.20	38	3.00
40.51609.0125	1.25	.0492	11.30	13.80	38	3.00
40.51609.0130	1.30	.0512	11.70	14.30	38	3.00
40.51609.0135	1.35	.0531	12.20	14.90	38	3.00
40.51609.0140	1.40	.0551	12.60	15.40	38	3.00
40.51609.0145	1.45	.0571	13.10	16.00	38	3.00
40.51609.0150	1.50	.0591	13.50	16.50	38	3.00
40.51609.0155	1.55	.0610	14.00	17.10	50	3.00
40.51609.0160	1.60	.0630	14.40	17.60	50	3.00
40.51609.0165	1.65	.0650	14.90	18.20	50	3.00
40.51609.0170	1.70	.0669	15.30	18.70	50	3.00
40.51609.0175	1.75	.0689	15.80	19.30	50	3.00
40.51609.0180	1.80	.0709	16.20	19.80	50	3.00
40.51609.0185	1.85	.0728	16.70	20.40	50	3.00
40.51609.0190	1.90	.0748	17.10	20.90	50	3.00
40.51609.0195	1.95	.0768	17.60	21.50	50	3.00
40.51609.0200	2.00	.0787	18.00	22.00	50	3.00
40.51609.0205	2.05	.0807	18.50	22.60	50	3.00
40.51609.0210	2.10	.0827	18.90	23.10	50	3.00
40.51609.0215	2.15	.0846	19.40	23.70	50	3.00
40.51609.0220	2.20	.0866	19.80	24.20	50	3.00
40.51609.0225	2.25	.0886	20.30	24.80	50	3.00
40.51609.0230	2.30	.0906	20.70	25.30	50	3.00
40.51609.0235	2.35	.0925	21.20	25.90	50	3.00
40.51609.0240	2.40	.0945	21.60	26.40	50	3.00
40.51609.0245	2.45	.0965	22.10	27.00	50	3.00
40.51609.0250	2.50	.0984	22.50	27.50	50	3.00
40.51609.0255	2.55	.1004	23.00	28.10	50	3.00
40.51609.0260	2.60	.1024	23.40	28.60	50	3.00
40.51609.0265	2.65	.1043	23.90	29.20	50	3.00
40.51609.0270	2.70	.1063	24.30	29.70	50	3.00
40.51609.0275	2.75	.1083	24.80	3.30	50	3.00
40.51609.0280	2.80	.1102	25.20	30.80	50	3.00
40.51609.0285	2.85	.1122	25.70	31.40	50	3.00
40.51609.0290	2.90	.1142	26.10	31.90	50	3.00
40.51609.0295	2.95	.1161	26.60	32.50	50	3.00
40.51609.0300	3.00	.1181	27.00	33.00	50	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 148

SPHINX TOOLS

Phoenix TC2 Art. 52903

Carbide | Z 2 | 140° | 30° | 3xd

AlTiCrN+S

Blind Hole | Through Hole | Multi-Composite | Cross Hole | Round Surface

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic

Phoenix TC2 Art. 52906

Carbide | Z 2 | 140° | 30° | 6xd

AlTiCrN+S

Blind Hole | Through Hole | Multi-Composite | Cross Hole | Round Surface

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic

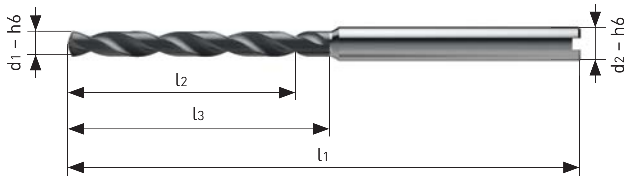
Phoenix TC2 Art. 52909

Carbide | Z 2 | 140° | 30° | 9xd

AlTiCrN+S

Blind Hole | Through Hole | Multi-Composite | Cross Hole

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic

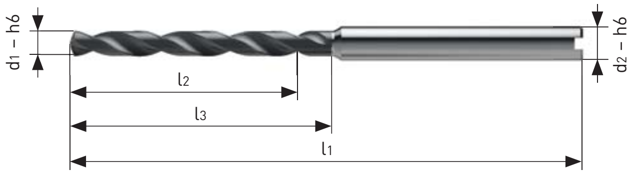


d1	d1 (in.)	d2	Art. 52903				Art. 52906				Art. 52909			
			Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1
1.00	.0394	3.00	**40.52903.0100**	3.00	5.00	38	**40.52906.0100**	6.00	8.00	38	**40.52909.0100**	9.00	11.00	51
1.05	.0413	3.00	**40.52903.0105**	3.15	5.25	38	**40.52906.0105**	6.30	8.30	38	—	—	—	—
1.10	.0433	3.00	**40.52903.0110**	3.30	5.50	38	**40.52906.0110**	6.60	8.60	38	**40.52909.0110**	9.90	12.00	51
1.15	.0453	3.00	**40.52903.0115**	3.45	5.50	38	**40.52906.0115**	6.90	8.90	38	—	—	—	—
1.20	.0472	3.00	**40.52903.0120**	3.60	5.50	38	**40.52906.0120**	7.20	9.20	38	**40.52909.0120**	1.80	13.00	51
1.25	.0492	3.00	**40.52903.0125**	3.75	6.00	38	**40.52906.0125**	7.50	9.50	38	—	—	—	—
1.30	.0512	3.00	**40.52903.0130**	3.90	6.00	38	**40.52906.0130**	7.80	9.80	38	**40.52909.0130**	11.70	14.00	51
1.35	.0531	3.00	**40.52903.0135**	4.05	6.00	38	**40.52906.0135**	8.10	10.10	38	—	—	—	—
1.40	.0551	3.00	**40.52903.0140**	4.20	6.50	38	**40.52906.0140**	8.40	10.40	38	**40.52909.0140**	12.60	15.00	51
1.45	.0571	3.00	**40.52903.0145**	4.35	6.50	38	**40.52906.0145**	8.70	10.70	38	—	—	—	—
1.50	.0591	3.00	**40.52903.0150**	4.50	6.50	38	**40.52906.0150**	9.00	11.00	38	**40.52909.0150**	13.50	16.50	51
1.55	.0610	3.00	**40.52903.0155**	4.65	7.50	38	**40.52906.0155**	9.30	11.30	38	—	—	—	—
1.60	.0630	3.00	**40.52903.0160**	4.80	7.50	38	**40.52906.0160**	9.60	12.60	38	**40.52909.0160**	14.40	17.50	51
1.65	.0650	3.00	**40.52903.0165**	4.95	8.00	38	**40.52906.0165**	9.90	12.90	38	—	—	—	—
1.70	.0669	3.00	**40.52903.0170**	5.10	8.00	38	**40.52906.0170**	10.20	13.20	38	**40.52909.0170**	15.30	18.50	51
1.75	.0689	3.00	**40.52903.0175**	5.25	8.00	38	**40.52906.0175**	10.50	13.50	38	—	—	—	—
1.80	.0709	3.00	**40.52903.0180**	5.40	8.50	38	**40.52906.0180**	10.80	13.80	38	**40.52909.0180**	16.20	19.00	51
1.85	.0728	3.00	**40.52903.0185**	5.55	8.50	38	**40.52906.0185**	11.10	14.10	38	—	—	—	—
1.90	.0748	3.00	**40.52903.0190**	5.70	8.50	38	**40.52906.0190**	11.40	14.40	38	**40.52909.0190**	17.10	20.00	51
1.95	.0768	3.00	**40.52903.0195**	5.85	9.00	38	**40.52906.0195**	11.70	14.70	38	—	—	—	—
2.00	.0787	3.00	**40.52903.0200**	6.00	9.00	38	**40.52906.0200**	12.00	15.00	50	**40.52909.0200**	18.00	21.00	51
2.05	.0807	3.00	**40.52903.0205**	6.15	9.00	38	**40.52906.0205**	12.30	15.30	50	—	—	—	—
2.10	.0827	3.00	**40.52903.0210**	6.30	9.50	38	**40.52906.0210**	12.60	15.60	50	**40.52909.0210**	18.90	22.00	61
2.15	.0846	3.00	**40.52903.0215**	6.45	9.50	38	**40.52906.0215**	12.90	15.90	50	—	—	—	—
2.20	.0866	3.00	**40.52903.0220**	6.60	9.50	38	**40.52906.0220**	13.20	16.20	50	**40.52909.0220**	19.80	23.00	61
2.25	.0886	3.00	**40.52903.0225**	6.75	10.00	38	**40.52906.0225**	13.50	16.50	50	—	—	—	—
2.30	.0906	3.00	**40.52903.0230**	6.90	10.00	38	**40.52906.0230**	13.80	16.80	50	**40.52909.0230**	20.70	24.00	61
2.35	.0925	3.00	**40.52903.0235**	7.05	10.00	38	**40.52906.0235**	14.10	17.10	50	—	—	—	—
2.40	.0945	3.00	**40.52903.0240**	7.20	10.00	38	**40.52906.0240**	14.40	17.40	50	**40.52909.0240**	21.60	24.50	61
2.45	.0965	3.00	**40.52903.0245**	7.35	10.00	38	**40.52906.0245**	14.70	17.70	50	—	—	—	—
2.50	.0984	3.00	**40.52903.0250**	7.50	10.50	50	**40.52906.0250**	15.00	18.00	50	**40.52909.0250**	22.50	25.50	61
2.55	.1004	3.00	**40.52903.0255**	7.65	11.00	50	**40.52906.0255**	15.30	18.30	50	—	—	—	—
2.60	.1024	3.00	**40.52903.0260**	7.80	11.00	50	**40.52906.0260**	15.60	18.60	50	**40.52909.0260**	23.40	26.50	61
2.65	.1043	3.00	**40.52903.0265**	7.95	11.00	50	**40.52906.0265**	15.90	18.90	50	—	—	—	—
2.70	.1063	3.00	**40.52903.0270**	8.10	11.50	50	**40.52906.0270**	16.20	19.20	50	**40.52909.0270**	24.30	27.50	61
2.75	.1083	3.00	**40.52903.0275**	8.25	11.50	50	**40.52906.0275**	16.50	19.50	50	—	—	—	—
2.80	.1102	3.00	**40.52903.0280**	8.40	11.50	50	**40.52906.0280**	16.80	19.80	50	**40.52909.0280**	25.20	28.00	61
2.85	.1122	3.00	**40.52903.0285**	8.55	12.00	50	**40.52906.0285**	17.10	20.10	50	—	—	—	—
2.90	.1142	3.00	**40.52903.0290**	8.70	12.00	50	**40.52906.0290**	17.40	20.40	50	**40.52909.0290**	26.10	29.00	61
2.95	.1161	3.00	**40.52903.0295**	8.85	12.00	50	**40.52906.0295**	17.70	20.70	50	—	—	—	—
3.00	.1181	3.00	**40.52903.0300**	9.00	12.50	50	**40.52906.0300**	18.00	21.00	50	**40.52909.0300**	27.00	31.00	61
3.05	.1201	6.00	**40.52903.0305**	9.15	12.50	55	**40.52906.0305**	18.30	22.30	66	—	—	—	—
3.10	.1220	6.00	**40.52903.0310**	9.30	12.50	55	**40.52906.0310**	18.60	22.60	66	**40.52909.0310**	27.90	32.00	79
3.15	.1240	6.00	**40.52903.0315**	9.45	12.50	55	**40.52906.0315**	18.90	22.90	66	—	—	—	—
3.20	.1260	6.00	**40.52903.0320**	9.60	12.50	55	**40.52906.0320**	19.20	23.20	66	**40.52909.0320**	28.80	33.00	79

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 148

Phoenix TC2

Art. 52903 / 52906 / 52909 Cont.



d_1	d_1 (in.)	d_2	Art. 52903				Art. 52906				Art. 52909			
			Catalog Number	l_2	l_3	l_1	Catalog Number	l_2	l_3	l_1	Catalog Number	l_2	l_3	l_1
3.25	.1280	6.00	**40.52903.0325**	9.75	12.50	55	**40.52906.0325**	19.50	23.50	66	—	—	—	—
3.30	.1299	6.00	**40.52903.0330**	9.90	12.50	55	**40.52906.0330**	19.80	23.80	66	**40.52909.0330**	29.70	34.00	79
3.35	.1319	6.00	**40.52903.0335**	10.05	14.00	55	**40.52906.0335**	20.10	24.10	66	—	—	—	—
3.40	.1339	6.00	**40.52903.0340**	10.20	14.00	55	**40.52906.0340**	20.40	24.40	66	**40.52909.0340**	30.60	35.00	79
3.45	.1358	6.00	**40.52903.0345**	10.35	14.00	55	**40.52906.0345**	20.70	24.70	66	—	—	—	—
3.50	.1378	6.00	**40.52903.0350**	10.50	14.50	55	**40.52906.0350**	21.00	25.00	66	**40.52909.0350**	31.50	36.50	79
3.55	.1398	6.00	**40.52903.0355**	10.65	14.50	55	**40.52906.0355**	21.30	25.30	66	—	—	—	—
3.60	.1417	6.00	**40.52903.0360**	10.80	15.00	55	**40.52906.0360**	21.60	25.60	66	**40.52909.0360**	32.40	37.50	79
3.65	.1437	6.00	**40.52903.0365**	10.95	15.00	55	**40.52906.0365**	21.90	25.90	66	—	—	—	—
3.70	.1457	6.00	**40.52903.0370**	11.10	15.00	55	**40.52906.0370**	22.20	26.20	66	**40.52909.0370**	33.30	38.50	79
3.75	.1476	6.00	**40.52903.0375**	11.25	15.00	55	**40.52906.0375**	22.50	26.50	66	—	—	—	—
3.80	.1496	6.00	**40.52903.0380**	11.40	15.50	55	**40.52906.0380**	22.80	26.80	66	**40.52909.0380**	34.20	39.00	79
3.85	.1516	6.00	**40.52903.0385**	11.55	15.50	55	**40.52906.0385**	23.10	27.10	66	—	—	—	—
3.90	.1535	6.00	**40.52903.0390**	11.70	15.50	55	**40.52906.0390**	23.40	27.40	66	**40.52909.0390**	35.10	4.00	79
3.95	.1555	6.00	**40.52903.0395**	11.85	15.50	55	**40.52906.0395**	23.70	27.70	66	—	—	—	—
4.00	.1575	6.00	**40.52903.0400**	12.00	15.50	55	**40.52906.0400**	24.00	28.00	66	**40.52909.0400**	36.00	41.00	79
4.05	.1594	6.00	**40.52903.0405**	12.15	16.50	60	**40.52906.0405**	24.30	30.20	79	—	—	—	—
4.10	.1614	6.00	**40.52903.0410**	12.30	18.50	60	**40.52906.0410**	24.60	30.50	79	**40.52909.0410**	36.90	43.00	91
4.15	.1634	6.00	**40.52903.0415**	12.45	18.50	60	**40.52906.0415**	24.90	30.80	79	—	—	—	—
4.20	.1654	6.00	**40.52903.0420**	12.60	18.50	60	**40.52906.0420**	25.20	31.00	79	**40.52909.0420**	37.80	44.00	91
4.25	.1673	6.00	**40.52903.0425**	12.75	18.50	60	**40.52906.0425**	25.50	31.50	79	—	—	—	—
4.30	.1693	6.00	**40.52903.0430**	12.90	19.00	60	**40.52906.0430**	25.80	32.00	79	**40.52909.0430**	38.70	45.00	91
4.35	.1713	6.00	**40.52903.0435**	13.05	19.00	60	**40.52906.0435**	26.10	32.50	79	—	—	—	—
4.40	.1732	6.00	**40.52903.0440**	13.20	19.00	60	**40.52906.0440**	26.40	32.50	79	**40.52909.0440**	39.60	45.50	91
4.45	.1752	6.00	**40.52903.0445**	13.35	2.50	60	**40.52906.0445**	26.70	33.00	79	—	—	—	—
4.50	.1772	6.00	**40.52903.0450**	13.50	2.50	60	**40.52906.0450**	27.00	33.00	79	**40.52909.0450**	40.50	46.50	91
4.55	.1791	6.00	**40.52903.0455**	13.65	2.50	60	**40.52906.0455**	27.30	35.50	79	—	—	—	—
4.60	.1811	6.00	**40.52903.0460**	13.80	22.00	60	**40.52906.0460**	27.60	35.50	79	**40.52909.0460**	41.40	49.50	91
4.65	.1831	6.00	**40.52903.0465**	13.95	22.00	60	**40.52906.0465**	27.90	36.00	79	—	—	—	—
4.70	.1850	6.00	**40.52903.0470**	14.10	22.00	60	**40.52906.0470**	28.20	36.00	79	**40.52909.0470**	42.30	5.50	91
4.75	.1870	6.00	**40.52903.0475**	14.25	22.00	60	**40.52906.0475**	28.50	37.00	79	—	—	—	—
4.80	.1890	6.00	**40.52903.0480**	14.40	22.50	60	**40.52906.0480**	28.80	37.00	79	**40.52909.0480**	43.20	51.00	91
4.85	.1909	6.00	**40.52903.0485**	14.55	22.50	60	**40.52906.0485**	29.10	37.50	79	—	—	—	—
4.90	.1929	6.00	**40.52903.0490**	14.70	22.50	60	**40.52906.0490**	29.40	37.60	79	**40.52909.0490**	44.10	52.00	91
4.95	.1949	6.00	**40.52903.0495**	14.85	23.00	60	**40.52906.0495**	29.70	38.00	79	—	—	—	—
5.00	.1969	6.00	**40.52903.0500**	15.00	23.00	60	**40.52906.0500**	30.00	38.00	79	**40.52909.0500**	45.00	53.00	91
5.05	.1988	6.00	**40.52903.0505**	15.15	23.00	64	**40.52906.0505**	30.30	38.50	79	—	—	—	—
5.10	.2008	6.00	**40.52903.0510**	15.30	23.50	64	**40.52906.0510**	30.60	38.50	79	**40.52909.0510**	45.90	54.00	100
5.15	.2028	6.00	**40.52903.0515**	15.45	23.50	64	**40.52906.0515**	30.90	39.00	79	—	—	—	—

d1	d1 (in.)	d2	Art. 52903				Art. 52906				Art. 52909			
			Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1
5.20	.2047	6.00	**40.52903.0520**	15.60	23.50	64	**40.52906.0520**	31.20	39.00	79	**40.52909.0520**	46.80	55.00	100
5.25	.2067	6.00	**40.52903.0525**	15.75	23.50	64	**40.52906.0525**	31.50	40.00	79	**—**	—	—	—
5.30	.2087	6.00	**40.52903.0530**	15.90	24.00	64	**40.52906.0530**	31.80	40.00	79	**40.52909.0530**	47.70	56.00	100
5.35	.2106	6.00	**40.52903.0535**	16.05	24.00	64	**40.52906.0535**	32.10	40.50	79	**—**	—	—	—
5.40	.2126	6.00	**40.52903.0540**	16.20	24.00	64	**40.52906.0540**	32.40	40.50	79	**40.52909.0540**	48.60	57.00	100
5.45	.2146	6.00	**40.52903.0545**	16.35	24.00	64	**40.52906.0545**	32.70	41.00	79	**—**	—	—	—
5.50	.2165	6.00	**40.52903.0550**	16.50	24.50	64	**40.52906.0550**	33.00	41.00	79	**40.52909.0550**	49.50	57.50	100
5.55	.2185	6.00	**40.52903.0555**	16.65	24.50	64	**40.52906.0555**	33.30	41.50	81	**—**	—	—	—
5.60	.2205	6.00	**40.52903.0560**	16.80	24.50	64	**40.52906.0560**	33.60	41.50	81	**40.52909.0560**	5.40	58.50	100
5.65	.2224	6.00	**40.52903.0565**	16.95	24.50	64	**40.52906.0565**	33.90	42.00	81	**—**	—	—	—
5.70	.2244	6.00	**40.52903.0570**	17.10	25.50	64	**40.52906.0570**	34.20	42.00	81	**40.52909.0570**	51.30	59.50	100
5.75	.2264	6.00	**40.52903.0575**	17.25	25.50	64	**40.52906.0575**	34.50	43.00	81	**—**	—	—	—
5.80	.2283	6.00	**40.52903.0580**	17.40	25.50	64	**40.52906.0580**	34.80	43.00	81	**40.52909.0580**	52.20	6.00	100
5.85	.2303	6.00	**40.52903.0585**	17.55	25.50	64	**40.52906.0585**	35.10	43.50	81	**—**	—	—	—
5.90	.2323	6.00	**40.52903.0590**	17.70	26.00	64	**40.52906.0590**	35.40	43.50	81	**40.52909.0590**	53.10	61.00	100
5.95	.2343	6.00	**40.52903.0595**	17.85	26.00	64	**40.52906.0595**	35.70	44.00	81	**—**	—	—	—
6.00	.2362	6.00	**40.52903.0600**	18.00	27.00	64	**40.52906.0600**	36.00	44.00	81	**40.52909.0600**	54.00	62.00	100
6.10	.2402	8.00	**40.52903.0610**	18.30	27.50	68	**40.52906.0610**	36.60	45.50	89	**40.52909.0610**	54.90	64.00	111
6.20	.2441	8.00	**40.52903.0620**	18.60	27.50	68	**40.52906.0620**	37.20	46.00	89	**40.52909.0620**	55.80	65.00	111
6.30	.2480	8.00	**40.52903.0630**	18.90	28.00	68	**40.52906.0630**	37.80	47.00	89	**40.52909.0630**	56.70	66.00	111
6.40	.2520	8.00	**40.52903.0640**	19.20	28.00	68	**40.52906.0640**	38.40	47.50	89	**40.52909.0640**	57.60	66.50	111
6.50	.2559	8.00	**40.52903.0650**	19.50	28.50	68	**40.52906.0650**	39.00	48.00	89	**40.52909.0650**	58.50	67.50	111
6.60	.2598	8.00	**40.52903.0660**	19.80	29.00	68	**40.52906.0660**	39.60	48.50	89	**40.52909.0660**	59.40	68.50	111
6.70	.2638	8.00	**40.52903.0670**	20.10	29.50	68	**40.52906.0670**	40.20	49.00	89	**40.52909.0670**	6.30	69.50	111
6.80	.2677	8.00	**40.52903.0680**	20.40	29.50	68	**40.52906.0680**	40.80	50.00	89	**40.52909.0680**	61.20	70.00	111
6.90	.2717	8.00	**40.52903.0690**	20.70	30.00	68	**40.52906.0690**	41.40	50.50	89	**40.52909.0690**	62.10	71.00	111
7.00	.2756	8.00	**40.52903.0700**	21.00	31.00	68	**40.52906.0700**	42.00	52.00	89	**40.52909.0700**	63.00	73.00	111
7.10	.2795	8.00	**40.52903.0710**	21.30	31.50	72	**40.52906.0710**	42.60	52.50	95	**40.52909.0710**	63.90	74.00	120
7.20	.2835	8.00	**40.52903.0720**	21.60	31.50	72	**40.52906.0720**	43.20	53.50	95	**40.52909.0720**	64.80	75.00	120
7.30	.2874	8.00	**40.52903.0730**	21.90	32.00	72	**40.52906.0730**	43.80	54.00	95	**40.52909.0730**	65.70	76.00	120
7.40	.2913	8.00	**40.52903.0740**	22.20	32.00	72	**40.52906.0740**	44.40	54.50	95	**40.52909.0740**	66.60	76.50	120
7.50	.2953	8.00	**40.52903.0750**	22.50	32.50	72	**40.52906.0750**	45.00	55.00	95	**40.52909.0750**	67.50	77.50	120
7.60	.2992	8.00	**40.52903.0760**	22.80	32.50	72	**40.52906.0760**	45.60	55.50	95	**40.52909.0760**	68.40	78.50	120
7.70	.3031	8.00	**40.52903.0770**	23.10	33.50	72	**40.52906.0770**	46.20	56.00	95	**40.52909.0770**	69.30	79.50	120
7.80	.3071	8.00	**40.52903.0780**	23.40	33.50	72	**40.52906.0780**	46.80	57.00	95	**40.52909.0780**	7.20	80.00	120
7.90	.3110	8.00	**40.52903.0790**	23.70	34.00	72	**40.52906.0790**	47.40	57.50	95	**40.52909.0790**	72.00	81.00	120
8.00	.3150	8.00	**40.52903.0800**	24.00	34.00	72	**40.52906.0800**	48.00	58.00	95	**40.52909.0800**	72.00	82.00	120
8.50	.3346	1.00	**40.52903.0850**	25.50	36.50	79	**40.52906.0850**	51.00	62.00	106	**40.52909.0850**	76.50	87.50	134
9.00	.3543	1.00	**40.52903.0900**	27.00	38.00	79	**40.52906.0900**	54.00	65.00	106	**40.52909.0900**	81.00	92.00	134
9.50	.3740	1.00	**40.52903.0950**	28.50	40.00	85	**40.52906.0950**	57.00	68.00	113	**40.52909.0950**	85.50	96.50	144
1.00	.3937	1.00	**40.52903.1000**	30.00	42.00	85	**40.52906.1000**	60.00	72.00	113	**40.52909.1000**	9.00	102.00	144

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 148

Phoenix TC2 Art. 52912

Carbide | Z 2 | 137° | 30° | 12xd

AlCrTiN

Blind Hole | Through Hole | Multi-Composite | Cross Hole

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic

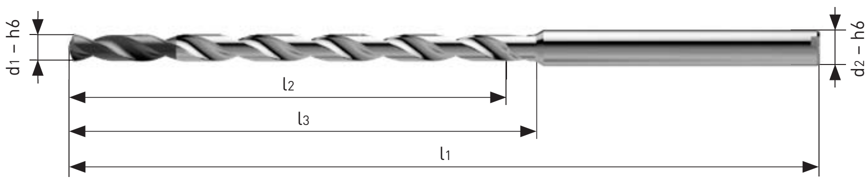
Phoenix TC2 Art. 52916

Carbide | Z 2 | 137° | 30° | 16xd

AlCrTiN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



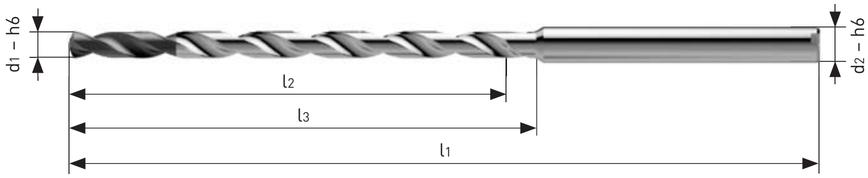
d1	d1 (in.)	d2	Art. 52912				Art. 52916			
			Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1
1.00	.0394	3.00	**40.52912.0100**	12.00	14.00	50	**40.52916.0100**	16.00	18.00	65
1.10	.0433	3.00	**40.52912.0110**	13.20	15.50	50	**40.52916.0110**	17.60	19.50	65
1.20	.0472	3.00	**40.52912.0120**	14.40	16.50	50	**40.52916.0120**	19.20	21.00	65
1.30	.0512	3.00	**40.52912.0130**	15.60	17.50	50	**40.52916.0130**	20.80	23.00	65
1.40	.0551	3.00	**40.52912.0140**	16.80	19.00	50	**40.52916.0140**	22.40	24.50	65
1.50	.0591	3.00	**40.52912.0150**	18.00	21.00	50	**40.52916.0150**	24.00	27.00	65
1.60	.0630	3.00	**40.52912.0160**	19.20	22.50	50	**40.52916.0160**	25.60	28.50	65
1.70	.0669	3.00	**40.52912.0170**	20.40	23.50	50	**40.52916.0170**	27.20	30.00	65
1.80	.0709	3.00	**40.52912.0180**	21.60	24.50	50	**40.52916.0180**	28.80	32.00	65
1.90	.0748	3.00	**40.52912.0190**	22.80	26.00	55	**40.52916.0190**	30.40	33.50	65
2.00	.0787	3.00	**40.52912.0200**	24.00	27.00	55	**40.52916.0200**	32.00	35.00	65
2.10	.0827	3.00	**40.52912.0210**	25.20	28.50	55	**40.52916.0210**	33.60	36.50	82
2.20	.0866	3.00	**40.52912.0220**	26.40	29.50	55	**40.52916.0220**	35.20	38.00	82
2.30	.0906	3.00	**40.52912.0230**	27.60	30.50	55	**40.52916.0230**	36.80	4.00	82
2.40	.0945	3.00	**40.52912.0240**	28.80	32.00	55	**40.52916.0240**	38.40	41.50	82
2.50	.0984	3.00	**40.52912.0250**	30.00	33.00	60	**40.52916.0250**	40.00	43.00	82
2.60	.1024	3.00	**40.52912.0260**	31.20	34.50	60	**40.52916.0260**	41.60	44.50	82
2.70	.1063	3.00	**40.52912.0270**	32.40	35.50	60	**40.52916.0270**	43.20	46.00	82
2.80	.1102	3.00	**40.52912.0280**	33.60	36.50	60	**40.52916.0280**	44.80	48.00	82
2.90	.1142	3.00	**40.52912.0290**	34.80	38.00	60	**40.52916.0290**	46.40	49.50	82
3.00	.1181	3.00	**40.52912.0300**	36.00	40.00	60	**40.52916.0300**	48.00	52.00	82

d_1	d_1 (in.)	d_2	Art. 52912				Art. 52916			
			Catalog Number	l_2	l_3	l_1	Catalog Number	l_2	l_3	l_1
3.10	.1220	6.00	**40.52912.0310**	37.20	41.50	80	**40.52916.0310**	49.60	53.50	107
3.20	.1260	6.00	**40.52912.0320**	38.40	42.50	80	**40.52916.0320**	51.20	55.00	107
3.30	.1299	6.00	**40.52912.0330**	39.60	43.50	80	**40.52916.0330**	52.80	57.00	107
3.40	.1339	6.00	**40.52912.0340**	40.80	45.00	85	**40.52916.0340**	54.40	58.50	107
3.50	.1378	6.00	**40.52912.0350**	42.00	47.00	85	**40.52916.0350**	56.00	61.00	107
3.60	.1417	6.00	**40.52912.0360**	43.20	48.50	85	**40.52916.0360**	57.60	62.50	107
3.70	.1457	6.00	**40.52912.0370**	44.40	49.50	90	**40.52916.0370**	59.20	64.00	107
3.80	.1496	6.00	**40.52912.0380**	45.60	50.50	90	**40.52916.0380**	60.80	66.00	107
3.90	.1535	6.00	**40.52912.0390**	46.80	52.00	90	**40.52916.0390**	62.40	67.50	107
4.00	.1575	6.00	**40.52912.0400**	48.00	53.00	90	**40.52916.0400**	64.00	69.00	107
4.10	.1614	6.00	**40.52912.0410**	49.20	55.50	105	**40.52916.0410**	65.60	71.50	126
4.20	.1654	6.00	**40.52912.0420**	50.40	56.50	105	**40.52916.0420**	67.20	73.00	126
4.30	.1693	6.00	**40.52912.0430**	51.60	57.50	105	**40.52916.0430**	68.80	75.00	126
4.40	.1732	6.00	**40.52912.0440**	52.80	59.00	105	**40.52916.0440**	70.40	76.50	126
4.50	.1772	6.00	**40.52912.0450**	54.00	60.00	105	**40.52916.0450**	72.00	78.00	126
4.60	.1811	6.00	**40.52912.0460**	55.20	63.50	105	**40.52916.0460**	73.60	81.50	126
4.70	.1850	6.00	**40.52912.0470**	56.40	64.50	105	**40.52916.0470**	75.20	83.00	126
4.80	.1890	6.00	**40.52912.0480**	57.60	65.50	105	**40.52916.0480**	76.80	85.00	126
4.90	.1929	6.00	**40.52912.0490**	58.80	67.00	105	**40.52916.0490**	78.40	86.50	126
5.00	.1969	6.00	**40.52912.0500**	60.00	68.00	105	**40.52916.0500**	80.00	88.00	126
5.10	.2008	6.00	**40.52912.0510**	61.20	69.50	118	**40.52916.0510**	81.60	89.50	142
5.20	.2047	6.00	**40.52912.0520**	62.40	70.50	118	**40.52916.0520**	83.20	91.00	142
5.30	.2087	6.00	**40.52912.0530**	63.60	71.50	118	**40.52916.0530**	84.80	93.00	142
5.40	.2126	6.00	**40.52912.0540**	64.80	73.00	118	**40.52916.0540**	86.40	94.50	142
5.50	.2165	6.00	**40.52912.0550**	66.00	74.00	118	**40.52916.0550**	88.00	96.00	142
5.60	.2205	6.00	**40.52912.0560**	67.20	75.50	118	**40.52916.0560**	89.60	97.50	142
5.70	.2244	6.00	**40.52912.0570**	68.40	76.50	118	**40.52916.0570**	91.20	99.00	142
5.80	.2283	6.00	**40.52912.0580**	69.60	77.50	118	**40.52916.0580**	92.80	101.00	142
5.90	.2323	6.00	**40.52912.0590**	70.80	79.00	118	**40.52916.0590**	94.40	102.50	142
6.00	.2362	6.00	**40.52912.0600**	72.00	80.00	118	**40.52916.0600**	96.00	104.00	142
6.10	.2402	8.00	**40.52912.0610**	73.20	82.50	136	**40.52916.0610**	97.60	106.50	160
6.20	.2441	8.00	**40.52912.0620**	74.40	83.50	136	**40.52916.0620**	99.20	108.00	160
6.30	.2480	8.00	**40.52912.0630**	75.60	84.50	136	**40.52916.0630**	100.80	110.00	160
6.40	.2520	8.00	**40.52912.0640**	76.80	86.00	136	**40.52916.0640**	102.40	111.50	160
6.50	.2559	8.00	**40.52912.0650**	78.00	87.50	136	**40.52916.0650**	104.00	113.00	160
6.60	.2598	8.00	**40.52912.0660**	79.20	88.50	136	**40.52916.0660**	105.60	114.50	160
6.70	.2638	8.00	**40.52912.0670**	80.40	89.50	136	**40.52916.0670**	107.20	116.00	160
6.80	.2677	8.00	**40.52912.0680**	81.60	90.50	136	**40.52916.0680**	108.80	118.00	160
6.90	.2717	8.00	**40.52912.0690**	82.80	92.00	136	**40.52916.0690**	110.40	119.50	160
7.00	.2756	8.00	**40.52912.0700**	84.00	94.00	136	**40.52916.0700**	112.00	122.00	160
7.10	.2795	8.00	**40.52912.0710**	85.20	95.50	148	**40.52916.0710**	113.60	123.50	176
7.20	.2835	8.00	**40.52912.0720**	86.40	96.50	148	**40.52916.0720**	115.20	125.00	176
7.30	.2874	8.00	**40.52912.0730**	87.60	97.50	148	**40.52916.0730**	116.80	127.00	176
7.40	.2913	8.00	**40.52912.0740**	88.80	99.00	148	**40.52916.0740**	118.40	128.50	176

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 149

Phoenix TC2

Art. 52912 / 52916 Cont.



d1	d1 (in.)	d2	Art. 52912				Art. 52916			
			Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1
7.50	.2953	8.00	**40.52912.0750**	90.00	100.00	148	**40.52916.0750**	120.00	130.00	176
7.60	.2992	8.00	**40.52912.0760**	91.20	101.50	148	**40.52916.0760**	121.60	131.50	176
7.70	.3031	8.00	**40.52912.0770**	92.40	102.50	148	**40.52916.0770**	123.20	133.00	176
7.80	.3071	8.00	**40.52912.0780**	93.60	103.50	148	**40.52916.0780**	124.80	135.00	176
7.90	.3110	8.00	**40.52912.0790**	94.80	105.00	148	**40.52916.0790**	126.40	136.50	176
8.00	.3150	8.00	**40.52912.0800**	96.00	106.00	148	**40.52916.0800**	128.00	138.00	176
8.50	.3346	10.00	**40.52912.0850**	102.00	113.00	162	**40.52916.0850**	136.00	147.00	197
9.00	.3543	10.00	**40.52912.0900**	108.00	119.00	162	**40.52916.0900**	144.00	155.00	197
9.50	.3740	10.00	**40.52912.0950**	114.00	125.00	175	**40.52916.0950**	152.00	163.00	214
10.00	.3937	10.00	**40.52912.1000**	120.00	132.00	175	**40.52916.1000**	160.00	172.00	214

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 149

Phoenix TC2 Art. 52920

Carbide | Z 2 | 137° | 30° | 20xd

AlCrTiN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Ti

HST | Plastic

Phoenix TC2 Art. 52930

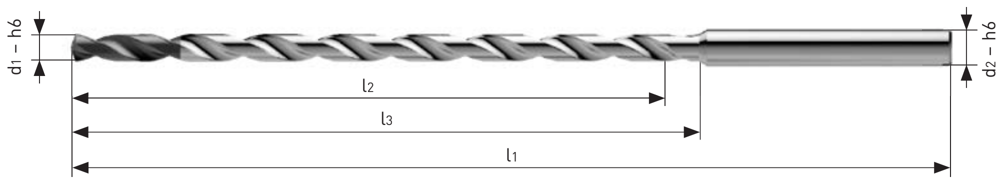
Carbide | Z 2 | 137° | 30° | 30xd

AlCrTiN

Blind Hole | Through Hole | Multi-Composite

ST | SST | C.I. | Al | Ti

HST | Plastic



d1	d1 (in.)	d2	Art. 52920				Art. 52930			
			Catalog Number	l2	l3	l1	Catalog Number	l2	l3	l1
3.00	.1181	6.00	**40.52920.0300**	60.00	69.00	108	**40.52930.0300**	90.00	99.00	138
3.30	.1299	6.00	**40.52920.0330**	66.00	75.00	113	**40.52930.0330**	99.00	108.00	146
4.00	.1575	6.00	**40.52920.0400**	80.00	94.00	132	**40.52930.0400**	120.00	134.00	172
4.20	.1654	6.00	**40.52920.0420**	84.00	98.00	136	**40.52930.0420**	126.00	140.00	178
5.00	.1969	6.00	**40.52920.0500**	100.00	107.00	145	**40.52930.0500**	150.00	167.00	205
6.00	.2362	6.00	**40.52920.0600**	120.00	138.00	176	**40.52930.0600**	180.00	198.00	236
6.80	.2677	8.00	**40.52920.0680**	136.00	156.00	196	**40.52930.0680**	204.00	224.00	264
7.00	.2756	8.00	**40.52920.0700**	140.00	161.00	201	**40.52930.0700**	210.00	231.00	271
8.00	.3150	8.00	**40.52920.0800**	160.00	182.00	222	**40.52930.0800**	240.00	262.00	302
8.50	.3346	10.00	**40.52920.0850**	170.00	195.00	240	**40.52930.0850**	255.00	280.00	325
9.00	.3543	10.00	**40.52920.0900**	180.00	207.00	252	**40.52930.0900**	270.00	297.00	342
10.00	.3937	10.00	**40.52920.1000**	200.00	230.00	275	**40.52930.1000**	285.00	300.00	345

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 149

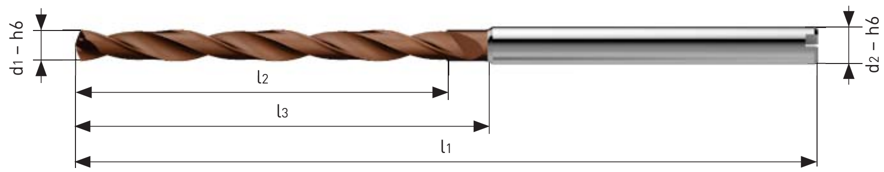
Phoenix

Art. 50938

Carbide | Z 2 | 140° | 30° | <2.5mm | >2.5mm | 3xd | AlCrN

Blind Hole | Through Hole | Multi-Composite | Cross Hole | Round Surface

ST | SST | C.I. | Al | Ti | HST



Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_3	l_1
40.50938.0100	1.00	.0394	3.00	3.00	5.00	38
40.50938.0110	1.10	.0433	3.00	3.30	5.50	38
40.50938.0120	1.20	.0472	3.00	3.60	5.50	38
40.50938.0130	1.30	.0512	3.00	3.90	6.00	38
40.50938.0140	1.40	.0551	3.00	4.20	6.00	38
40.50938.0150	1.50	.0591	3.00	4.50	6.50	38
40.50938.0160	1.60	.0630	3.00	4.80	7.50	38
40.50938.0170	1.70	.0669	3.00	5.10	8.00	38
40.50938.0180	1.80	.0709	3.00	5.40	8.50	38
40.50938.0190	1.90	.0748	3.00	5.70	8.50	38
40.50938.0200	2.00	.0787	3.00	6.00	9.00	38
40.50938.0210	2.10	.0827	3.00	6.30	9.50	38
40.50938.0220	2.20	.0866	3.00	6.60	9.50	38
40.50938.0230	2.30	.0906	3.00	6.90	10.00	38
40.50938.0240	2.40	.0945	3.00	7.20	10.00	38
40.50938.0250	2.50	.0984	3.00	7.50	10.50	50
40.50938.0260	2.60	.1024	3.00	7.80	11.00	50
40.50938.0270	2.70	.1063	3.00	8.10	11.50	50
40.50938.0280	2.80	.1102	3.00	8.40	11.50	50
40.50938.0290	2.90	.1142	3.00	8.70	12.00	50
40.50938.0300	3.00	.1181	3.00	9.00	12.50	50
40.50938.0310	3.10	.1220	6.00	9.30	13.50	55
40.50938.0320	3.20	.1260	6.00	9.60	13.50	55
40.50938.0330	3.30	.1299	6.00	9.90	13.50	55
40.50938.0340	3.40	.1339	6.00	10.20	14.00	55
40.50938.0350	3.50	.1378	6.00	10.50	14.50	55
40.50938.0360	3.60	.1417	6.00	10.80	15.00	55
40.50938.0380	3.80	.1496	6.00	11.40	15.50	55
40.50938.0390	3.90	.1535	6.00	11.70	15.50	55

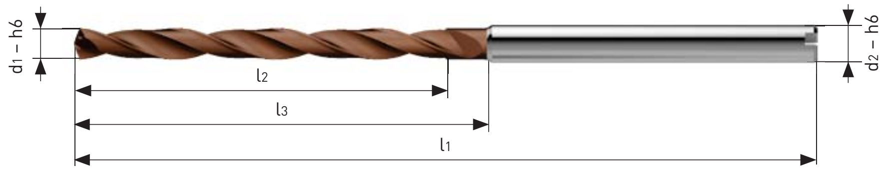
Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_3	l_1
40.50938.0400	4.00	.1575	6.00	12.00	16.00	55
40.50938.0410	4.10	.1614	6.00	12.30	18.50	60
40.50938.0420	4.20	.1654	6.00	12.60	18.50	60
40.50938.0430	4.30	.1693	6.00	12.90	19.00	60
40.50938.0440	4.40	.1732	6.00	13.20	19.00	60
40.50938.0450	4.50	.1772	6.00	13.50	20.50	60
40.50938.0460	4.60	.1811	6.00	13.80	22.00	60
40.50938.0470	4.70	.1850	6.00	14.10	22.00	60
40.50938.0480	4.80	.1890	6.00	14.40	22.50	60
40.50938.0490	4.90	.1929	6.00	14.70	22.50	60
40.50938.0500	5.00	.1969	6.00	15.00	23.00	60
40.50938.0510	5.10	.2008	6.00	15.30	23.50	64
40.50938.0520	5.20	.2047	6.00	15.60	23.50	64
40.50938.0530	5.30	.2087	6.00	15.90	24.00	64
40.50938.0540	5.40	.2126	6.00	16.20	24.00	64
40.50938.0550	5.50	.2165	6.00	16.50	24.50	64
40.50938.0560	5.60	.2205	6.00	16.80	24.50	64
40.50938.0570	5.70	.2244	6.00	17.10	25.50	64
40.50938.0580	5.80	.2283	6.00	17.40	25.50	64
40.50938.0590	5.90	.2323	6.00	17.70	25.50	64
40.50938.0600	6.00	.2362	6.00	18.00	27.00	64
40.50938.0610	6.10	.2402	8.00	18.30	27.50	68
40.50938.0620	6.20	.2441	8.00	18.60	27.50	68
40.50938.0630	6.30	.2480	8.00	18.90	28.00	68
40.50938.0640	6.40	.2520	8.00	19.20	28.00	68
40.50938.0650	6.50	.2559	8.00	19.50	28.50	68
40.50938.0660	6.60	.2598	8.00	19.80	29.00	68
40.50938.0670	6.70	.2638	8.00	20.10	29.50	68
40.50938.0680	6.80	.2677	8.00	20.40	29.50	68
40.50938.0690	6.90	.2717	8.00	20.70	30.00	68
40.50938.0700	7.00	.2756	8.00	21.00	31.00	68
40.50938.0710	7.10	.2795	8.00	21.30	31.50	72
40.50938.0720	7.20	.2835	8.00	21.60	31.50	72
40.50938.0730	7.30	.2874	8.00	21.90	32.00	72
40.50938.0740	7.40	.2913	8.00	22.20	32.00	72
40.50938.0750	7.50	.2953	8.00	22.50	32.50	72
40.50938.0760	7.60	.2992	8.00	22.80	32.50	72
40.50938.0770	7.70	.3031	8.00	23.10	33.50	72
40.50938.0780	7.80	.3071	8.00	23.40	33.50	72
40.50938.0790	7.90	.3110	8.00	23.70	34.00	72
40.50938.0800	8.00	.3150	8.00	24.00	34.00	72
40.50938.0810	8.10	.3189	10.00	24.30	35.50	79
40.50938.0820	8.20	.3228	10.00	24.60	35.50	79
40.50938.0830	8.30	.3268	10.00	24.90	36.00	79
40.50938.0840	8.40	.3307	10.00	25.20	36.00	79

- All dimensions are millimeters unless otherwise noted
- Internal coolant beginning at Ø2.5mm
- For cutting data see pg. 150

SPHINX TOOLS

Phoenix

Art. 50938 Cont.



Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_3	l_1
40.50938.0850	8.50	.3346	10.00	25.50	36.50	79
40.50938.0860	8.60	.3386	10.00	25.80	37.00	79
40.50938.0870	8.70	.3425	10.00	26.10	37.00	79
40.50938.0880	8.80	.3465	10.00	26.40	37.50	79
40.50938.0890	8.90	.3504	10.00	26.70	37.50	79
40.50938.0900	9.00	.3543	10.00	27.00	38.00	79
40.50938.0910	9.10	.3583	10.00	27.30	38.50	85
40.50938.0920	9.20	.3622	10.00	27.60	38.50	85
40.50938.0930	9.30	.3661	10.00	27.90	39.00	85
40.50938.0940	9.40	.3701	10.00	28.20	39.00	85
40.50938.0950	9.50	.3740	10.00	28.50	40.00	85
40.50938.0960	9.60	.3780	10.00	28.80	40.00	85
40.50938.0970	9.70	.3819	10.00	29.10	40.50	85
40.50938.0980	9.80	.3858	10.00	29.40	40.50	85
40.50938.0990	9.90	.3898	10.00	29.70	41.00	85
40.50938.1000	10.00	.3937	10.00	30.00	42.00	85
40.50938.1010	10.10	.3976	12.00	30.30	42.50	93
40.50938.1020	10.20	.4016	12.00	30.60	42.50	93
40.50938.1030	10.30	.4055	12.00	30.90	43.00	93
40.50938.1040	10.40	.4094	12.00	31.20	43.00	93
40.50938.1050	10.50	.4134	12.00	31.50	43.50	93
40.50938.1060	10.60	.4173	12.00	31.80	44.00	93
40.50938.1070	10.70	.4213	12.00	32.10	44.00	93
40.50938.1080	10.80	.4252	12.00	32.40	44.50	93
40.50938.1090	10.90	.4291	12.00	32.70	44.50	93
40.50938.1100	11.00	.4331	12.00	33.00	46.00	93
40.50938.1110	11.10	.4370	12.00	33.30	46.50	97
40.50938.1120	11.20	.4409	12.00	33.60	46.50	97
40.50938.1130	11.30	.4449	12.00	33.90	47.00	97
40.50938.1140	11.40	.4488	12.00	34.20	47.00	97
40.50938.1150	11.50	.4528	12.00	34.50	48.00	97
40.50938.1160	11.60	.4567	12.00	34.80	48.00	97
40.50938.1170	11.70	.4606	12.00	35.10	48.00	97
40.50938.1180	11.80	.4646	12.00	35.40	48.50	97
40.50938.1190	11.90	.4685	12.00	35.70	48.50	97
40.50938.1200	12.00	.4724	12.00	36.00	50.00	97
40.50938.1250	12.50	.4921	14.00	37.80	53.00	100
40.50938.1270	12.70	.5000	14.00	38.10	53.00	100

- All dimensions are millimeters unless otherwise noted
- Internal coolant beginning at Ø2.5mm
- For cutting data see pg. 150

SPHINX TOOLS

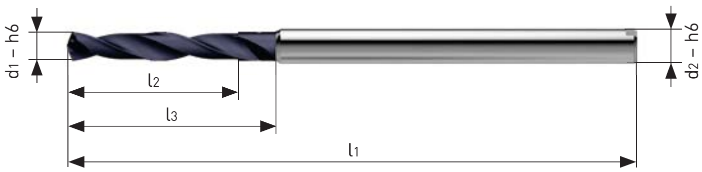
Phoenix

Art. 50940

Carbide | Z 2 | 140° | 30° | 6xd | TiAlN

Blind Hole | Through Hole | Multi-Composite | Cross Hole | Round Surface

ST | SST | C.I. | Al | Ti | HST



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50940.0100	1.00	.0394	6.00	8.00	38	3.00
40.50940.0105	1.05	.0413	6.30	8.30	38	3.00
40.50940.0110	1.10	.0433	6.60	8.60	38	3.00
40.50940.0115	1.15	.0453	6.90	8.90	38	3.00
40.50940.0120	1.20	.0472	7.20	9.20	38	3.00
40.50940.0125	1.25	.0492	7.50	9.50	38	3.00
40.50940.0130	1.30	.0512	7.80	9.80	38	3.00
40.50940.0135	1.35	.0531	8.10	10.10	38	3.00
40.50940.0140	1.40	.0551	8.40	10.40	38	3.00
40.50940.0145	1.45	.0571	8.70	10.70	38	3.00
40.50940.0150	1.50	.0591	9.00	11.00	38	3.00
40.50940.0155	1.55	.0610	9.30	11.30	38	3.00
40.50940.0160	1.60	.0630	9.60	12.60	38	3.00
40.50940.0165	1.65	.0650	9.90	12.90	38	3.00
40.50940.0170	1.70	.0669	10.20	13.20	38	3.00
40.50940.0175	1.75	.0689	10.50	13.50	38	3.00
40.50940.0180	1.80	.0709	10.80	13.80	38	3.00
40.50940.0185	1.85	.0728	11.10	14.10	38	3.00
40.50940.0190	1.90	.0748	11.40	14.40	38	3.00
40.50940.0195	1.95	.0768	11.70	14.70	38	3.00
40.50940.0200	2.00	.0787	12.00	15.00	50	3.00
40.50940.0205	2.05	.0807	12.30	15.30	50	3.00
40.50940.0210	2.10	.0827	12.60	15.60	50	3.00
40.50940.0215	2.15	.0846	12.90	15.90	50	3.00
40.50940.0220	2.20	.0866	13.20	16.20	50	3.00
40.50940.0225	2.25	.0886	13.50	16.50	50	3.00
40.50940.0230	2.30	.0906	13.80	16.80	50	3.00
40.50940.0235	2.35	.0925	14.10	17.10	50	3.00
40.50940.0240	2.40	.0945	14.40	17.40	50	3.00
40.50940.0245	2.45	.0965	14.70	17.70	50	3.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50940.0250	2.50	.0984	15.00	18.00	50	3.00
40.50940.0255	2.55	.1004	15.30	18.30	50	3.00
40.50940.0260	2.60	.1024	15.60	18.60	50	3.00
40.50940.0265	2.65	.1043	15.90	18.90	50	3.00
40.50940.0270	2.70	.1063	16.20	19.20	50	3.00
40.50940.0275	2.75	.1083	16.50	19.50	50	3.00
40.50940.0280	2.80	.1102	16.80	19.80	50	3.00
40.50940.0285	2.85	.1122	17.10	20.10	50	3.00
40.50940.0290	2.90	.1142	17.40	20.40	50	3.00
40.50940.0295	2.95	.1161	17.70	20.70	50	3.00
40.50940.0300	3.00	.1181	18.00	—	50	3.00
40.50940.0305	3.05	.1201	18.30	22.30	66	6.00
40.50940.0310	3.10	.1220	18.60	22.60	66	6.00
40.50940.0315	3.15	.1240	18.90	22.90	66	6.00
40.50940.0320	3.20	.1260	19.20	23.20	66	6.00
40.50940.0325	3.25	.1280	19.50	23.50	66	6.00
40.50940.0330	3.30	.1299	19.80	23.80	66	6.00
40.50940.0335	3.35	.1319	20.10	24.10	66	6.00
40.50940.0340	3.40	.1339	20.40	24.40	66	6.00
40.50940.0345	3.45	.1358	20.70	24.70	66	6.00
40.50940.0350	3.50	.1378	21.00	25.00	66	6.00
40.50940.0355	3.55	.1398	21.30	25.30	66	6.00
40.50940.0360	3.60	.1417	21.60	25.60	66	6.00
40.50940.0365	3.65	.1437	21.90	25.90	66	6.00
40.50940.0370	3.70	.1457	22.20	26.20	66	6.00
40.50940.0375	3.75	.1476	22.50	26.50	66	6.00
40.50940.0380	3.80	.1496	22.80	26.80	66	6.00
40.50940.0385	3.85	.1516	23.10	27.10	66	6.00
40.50940.0390	3.90	.1535	23.40	27.40	66	6.00
40.50940.0395	3.95	.1555	23.70	27.70	66	6.00

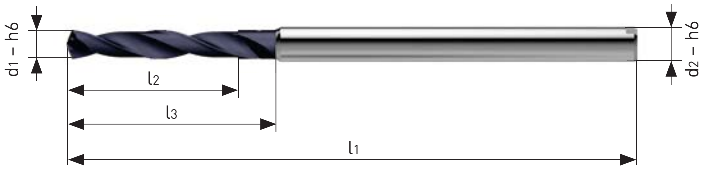
Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50940.0400	4.00	.1575	24.00	28.00	66	6.00
40.50940.0405	4.05	.1594	24.30	30.20	79	6.00
40.50940.0410	4.10	.1614	24.60	30.50	79	6.00
40.50940.0415	4.15	.1634	24.90	30.80	79	6.00
40.50940.0420	4.20	.1654	25.20	31.00	79	6.00
40.50940.0425	4.25	.1673	25.50	31.50	79	6.00
40.50940.0430	4.30	.1693	25.80	32.00	79	6.00
40.50940.0435	4.35	.1713	26.10	32.50	79	6.00
40.50940.0440	4.40	.1732	26.40	32.50	79	6.00
40.50940.0445	4.45	.1752	26.70	33.00	79	6.00
40.50940.0450	4.50	.1772	27.00	33.00	79	6.00
40.50940.0455	4.55	.1791	27.30	35.50	79	6.00
40.50940.0460	4.60	.1811	27.60	35.50	79	6.00
40.50940.0465	4.65	.1831	27.90	36.00	79	6.00
40.50940.0470	4.70	.1850	28.20	36.00	79	6.00
40.50940.0475	4.75	.1870	28.50	37.00	79	6.00
40.50940.0480	4.80	.1890	28.80	37.00	79	6.00
40.50940.0485	4.85	.1909	29.10	37.50	79	6.00
40.50940.0490	4.90	.1929	29.40	37.50	79	6.00
40.50940.0495	4.95	.1949	29.70	38.00	79	6.00
40.50940.0500	5.00	.1969	30.00	38.00	79	6.00
40.50940.0505	5.05	.1988	30.30	38.50	79	6.00
40.50940.0510	5.10	.2008	30.60	38.50	79	6.00
40.50940.0515	5.15	.2028	30.90	39.00	79	6.00
40.50940.0520	5.20	.2047	31.20	39.00	79	6.00
40.50940.0525	5.25	.2067	31.50	40.00	79	6.00
40.50940.0530	5.30	.2087	31.80	40.00	79	6.00
40.50940.0535	5.35	.2106	32.10	40.50	79	6.00
40.50940.0540	5.40	.2126	32.40	40.50	79	6.00
40.50940.0545	5.45	.2146	32.70	41.00	79	6.00
40.50940.0550	5.50	.2165	33.00	41.00	79	6.00
40.50940.0555	5.55	.2185	33.30	41.50	81	6.00
40.50940.0560	5.60	.2205	33.60	41.50	81	6.00
40.50940.0565	5.65	.2224	33.90	42.00	81	6.00
40.50940.0570	5.70	.2244	34.20	42.00	81	6.00
40.50940.0575	5.75	.2264	34.50	43.00	81	6.00
40.50940.0580	5.80	.2283	34.80	43.00	81	6.00
40.50940.0585	5.85	.2303	35.10	43.50	81	6.00
40.50940.0590	5.90	.2323	35.40	43.50	81	6.00
40.50940.0595	5.95	.2343	35.70	44.00	81	6.00
40.50940.0600	6.00	.2362	36.00	—	81	6.00
40.50940.0610	6.10	.2402	36.60	45.50	89	8.00
40.50940.0620	6.20	.2441	37.20	46.00	89	8.00
40.50940.0630	6.30	.2480	37.80	47.00	89	8.00
40.50940.0640	6.40	.2520	38.40	47.50	89	8.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50940.0650	6.50	.2559	39.00	48.00	89	8.00
40.50940.0660	6.60	.2598	39.60	48.50	89	8.00
40.50940.0670	6.70	.2638	40.20	49.00	89	8.00
40.50940.0680	6.80	.2677	40.80	50.00	89	8.00
40.50940.0690	6.90	.2717	41.40	50.50	89	8.00
40.50940.0700	7.00	.2756	42.00	52.00	89	8.00
40.50940.0710	7.10	.2795	42.60	52.50	95	8.00
40.50940.0720	7.20	.2835	43.20	53.50	95	8.00
40.50940.0730	7.30	.2874	43.80	54.00	95	8.00
40.50940.0740	7.40	.2913	44.40	54.50	95	8.00
40.50940.0750	7.50	.2953	45.00	55.00	95	8.00
40.50940.0760	7.60	.2992	45.60	55.50	95	8.00
40.50940.0770	7.70	.3031	46.20	56.00	95	8.00
40.50940.0780	7.80	.3071	46.80	57.00	95	8.00
40.50940.0790	7.90	.3110	47.40	57.50	95	8.00
40.50940.0800	8.00	.3150	48.00	58.00	95	8.00
40.50940.0810	8.10	.3189	48.60	59.50	106	1.00
40.50940.0820	8.20	.3228	49.20	60.00	106	1.00
40.50940.0830	8.30	.3268	49.80	61.00	106	1.00
40.50940.0840	8.40	.3307	50.40	61.50	106	1.00
40.50940.0850	8.50	.3346	51.00	62.00	106	1.00
40.50940.0860	8.60	.3386	51.60	62.50	106	1.00
40.50940.0870	8.70	.3425	52.20	63.00	106	1.00
40.50940.0880	8.80	.3465	52.80	64.00	106	1.00
40.50940.0890	8.90	.3504	53.40	64.50	106	1.00
40.50940.0900	9.00	.3543	54.00	65.00	106	1.00
40.50940.0910	9.10	.3583	54.60	65.50	113	1.00
40.50940.0920	9.20	.3622	55.20	66.00	113	1.00
40.50940.0930	9.30	.3661	55.80	67.00	113	1.00
40.50940.0940	9.40	.3701	56.40	67.50	113	1.00
40.50940.0950	9.50	.3740	57.00	68.00	113	1.00
40.50940.0960	9.60	.3780	57.60	68.50	113	1.00
40.50940.0970	9.70	.3819	58.20	69.00	113	1.00
40.50940.0980	9.80	.3858	58.80	70.00	113	1.00
40.50940.0990	9.90	.3898	59.40	70.50	113	1.00
40.50940.1000	1.00	.3937	6.00	72.00	113	1.00
40.50940.1010	1.10	.3976	6.60	72.50	125	12.00
40.50940.1020	1.20	.4016	61.20	73.00	125	12.00
40.50940.1030	1.30	.4055	61.80	74.00	125	12.00
40.50940.1040	1.40	.4094	62.40	74.50	125	12.00
40.50940.1050	1.50	.4134	63.00	75.00	125	12.00
40.50940.1060	1.60	.4173	63.60	75.50	125	12.00
40.50940.1070	1.70	.4213	64.20	76.00	125	12.00
40.50940.1080	1.80	.4252	64.80	77.00	125	12.00
40.50940.1090	1.90	.4291	65.40	77.50	125	12.00

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 150

Phoenix

Art. 50940 Cont.



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50940.1100	11.00	.4331	66.00	79.00	125	12.00
40.50940.1110	11.10	.4370	66.60	79.50	132	12.00
40.50940.1120	11.20	.4409	67.20	80.00	132	12.00
40.50940.1130	11.30	.4449	67.80	81.00	132	12.00
40.50940.1140	11.40	.4488	68.40	81.50	132	12.00
40.50940.1150	11.50	.4528	69.00	82.00	132	12.00
40.50940.1160	11.60	.4567	69.60	82.50	132	12.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50940.1170	11.70	.4606	70.20	83.00	132	12.00
40.50940.1180	11.80	.4646	70.80	84.00	132	12.00
40.50940.1190	11.90	.4685	71.40	84.50	132	12.00
40.50940.1200	12.00	.4724	72.00	86.00	132	12.00
40.50940.1250	12.50	.4921	75.00	90.00	140	14.00
40.50940.1270	12.70	.5000	76.20	91.00	140	14.00

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 150

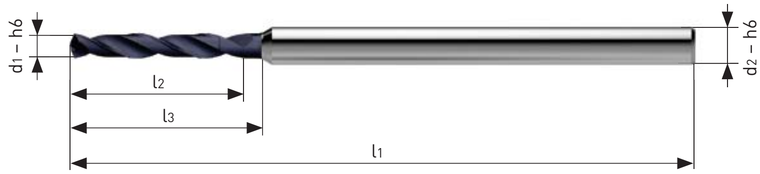
Phoenix

Art. 50941

Carbide | Z 2 | 140° | 30° | 6xd | TiAlN

Blind Hole | Through Hole | Multi-Composite | Cross Hole | Round Surface

ST | SST | C.I. | Al | Ti | HST



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50941.0050	.50	.0197	3.00	4.80	38	3.00
40.50941.0060	.60	.0236	3.60	5.40	38	3.00
40.50941.0070	.70	.0276	4.20	6.00	38	3.00
40.50941.0080	.80	.0315	4.80	6.70	38	3.00
40.50941.0090	.90	.0354	5.40	7.80	38	3.00
40.50941.0100	1.00	.0394	6.00	8.00	38	3.00
40.50941.0110	1.10	.0433	6.60	8.60	38	3.00
40.50941.0120	1.20	.0472	7.20	9.20	38	3.00
40.50941.0130	1.30	.0512	7.80	9.80	38	3.00
40.50941.0140	1.40	.0551	8.40	10.40	38	3.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.50941.0150	1.50	.0591	9.00	11.00	38	3.00
40.50941.0160	1.60	.0630	9.60	12.60	38	3.00
40.50941.0170	1.70	.0669	10.20	13.20	38	3.00
40.50941.0180	1.80	.0709	10.80	13.80	38	3.00
40.50941.0190	1.90	.0748	11.40	14.40	38	3.00
40.50941.0200	2.00	.0787	12.00	15.00	50	3.00
40.50941.0210	2.10	.0827	12.60	15.60	50	3.00
40.50941.0220	2.20	.0866	13.20	16.20	50	3.00
40.50941.0230	2.30	.0906	13.80	16.80	50	3.00
40.50941.0240	2.40	.0945	14.40	17.40	50	3.00

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 151

Quadro Art. 52100

Carbide | Z 2 | 140° | 0°

6xd

Blind Hole | Through Hole | Cross Hole

C.I. | Al | Brass | Plastic

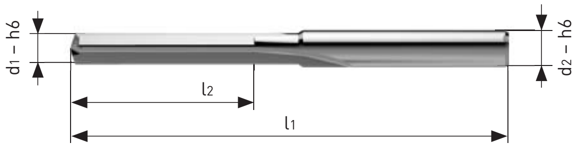
Quadro Art. 52200

Carbide | Z 2 | 140° | 0°

12xd

Blind Hole | Through Hole | Cross Hole

C.I. | Al | Brass | Plastic



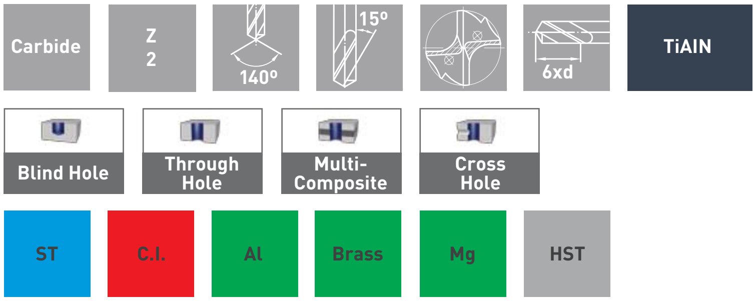
d_1	d_1 (in.)	d_2	Art. 52100			Art. 52200		
			Catalog Number	l_2	l_1	Catalog Number	l_2	l_1
3.00	.1181	6.00	**40.52100.0030**	18.00	82	**40.5220.0030**	36.00	106
3.20	.1260	6.00	**—**	—	—	**40.5220.0032**	39.00	106
3.30	.1299	6.00	**40.52100.0033**	20.00	82	**40.5220.0033**	40.00	106
3.50	.1378	6.00	**40.52100.0035**	21.00	82	**40.5220.0035**	42.00	106
4.00	.1575	6.00	**40.52100.0040**	24.00	82	**40.5220.0040**	48.00	106
4.20	.1654	6.00	**40.52100.0042**	26.00	88	**40.5220.0042**	51.00	118
4.50	.1772	6.00	**40.52100.0045**	27.00	88	**40.5220.0045**	54.00	118
4.80	.1890	6.00	**—**	—	—	**40.5220.0048**	58.00	118
5.00	.1969	6.00	**40.52100.0050**	30.00	88	**40.5220.0050**	60.00	118
5.50	.2165	6.00	**40.52100.0055**	33.00	94	**40.5220.0055**	66.00	130
6.00	.2362	6.00	**40.52100.0060**	36.00	94	**40.5220.0060**	72.00	130
6.40	.2520	8.00	**—**	—	—	**40.5220.0064**	78.00	144
6.50	.2559	8.00	**40.52100.0065**	39.00	102	**40.5220.0065**	78.00	144
6.80	.2677	8.00	**40.52100.0068**	41.00	102	**40.5220.0068**	82.00	144
7.00	.2756	8.00	**40.52100.0070**	42.00	102	**40.5220.0070**	84.00	144
7.50	.2953	8.00	**40.52100.0075**	45.00	108	**40.5220.0075**	90.00	156
7.60	.2992	8.00	**—**	—	—	**40.5220.0076**	92.00	156
8.00	.3150	8.00	**40.52100.0080**	48.00	108	**40.5220.0080**	96.00	156
8.50	.3346	10.00	**40.52100.0085**	51.00	121	**40.5220.0085**	102.00	175
9.00	.3543	10.00	**40.52100.0090**	54.00	121	**40.5220.0090**	108.00	175
9.50	.3740	10.00	**40.52100.0095**	57.00	127	**40.5220.0095**	114.00	187
1.00	.3937	10.00	**40.52100.1000**	60.00	127	**40.5220.1000**	120.00	187
1.20	.4016	12.00	**40.52100.1020**	62.00	141	**40.5220.1020**	123.00	207
1.50	.4134	12.00	**40.52100.1050**	63.00	141	**40.5220.1050**	126.00	207
11.00	.4331	12.00	**40.52100.1100**	66.00	141	**40.5220.1100**	132.00	207
11.50	.4528	12.00	**40.52100.1150**	69.00	147	**40.5220.1150**	138.00	219
12.00	.4724	12.00	**40.52100.1200**	72.00	147	**40.5220.1200**	144.00	219
12.50	.4921	14.00	**40.52100.1250**	75.00	155	**40.5220.1250**	150.00	233

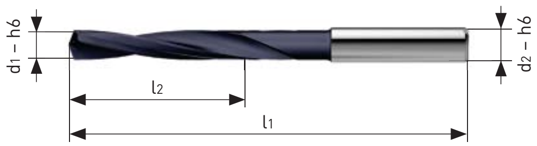
d_1	d_1 (in.)	d_2	Art. 52100			Art. 52200		
			Catalog Number	l_2	l_1	Catalog Number	l_2	l_1
12.70	.5000	14.00	**—**	—	—	**40.5220.1270**	153.00	233
13.00	.5118	14.00	**40.52100.1300**	78.00	155	**40.5220.1300**	156.00	233
13.50	.5315	14.00	**40.52100.1350**	81.00	162	**40.5220.1350**	162.00	245
14.00	.5512	14.00	**40.52100.1400**	84.00	162	**40.5220.1400**	168.00	245
14.50	.5709	16.00	**40.52100.1450**	87.00	172	**40.5220.1450**	174.00	262
15.00	.5906	16.00	**40.52100.1500**	90.00	172	**40.5220.1500**	180.00	262
15.50	.6102	16.00	**40.52100.1550**	93.00	178	**40.5220.1550**	186.00	274
15.90	.6260	16.00	**—**	—	—	**40.5220.1590**	191.00	274
16.00	.6299	16.00	**40.52100.1600**	96.00	178	**40.5220.1600**	192.00	274
16.50	.6496	18.00	**40.52100.1650**	99.00	192	**40.5220.1650**	198.00	300
17.00	.6693	18.00	**40.52100.1700**	102.00	192	**40.5220.1700**	204.00	300
17.50	.6890	18.00	**40.52100.1750**	105.00	192	**40.5220.1750**	210.00	300
18.00	.7087	18.00	**40.52100.1800**	108.00	192	**40.5220.1800**	216.00	300
18.50	.7283	20.00	**40.52100.1850**	111.00	207	**40.5220.1850**	222.00	327
19.00	.7480	20.00	**40.52100.1900**	114.00	207	**40.5220.1900**	228.00	327
19.50	.7677	20.00	**40.52100.1950**	117.00	207	**40.5220.1950**	234.00	327
20.00	.7874	20.00	**40.52100.2000**	120.00	207	**40.5220.2000**	240.00	327

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 151

Quadro

Art. 52150



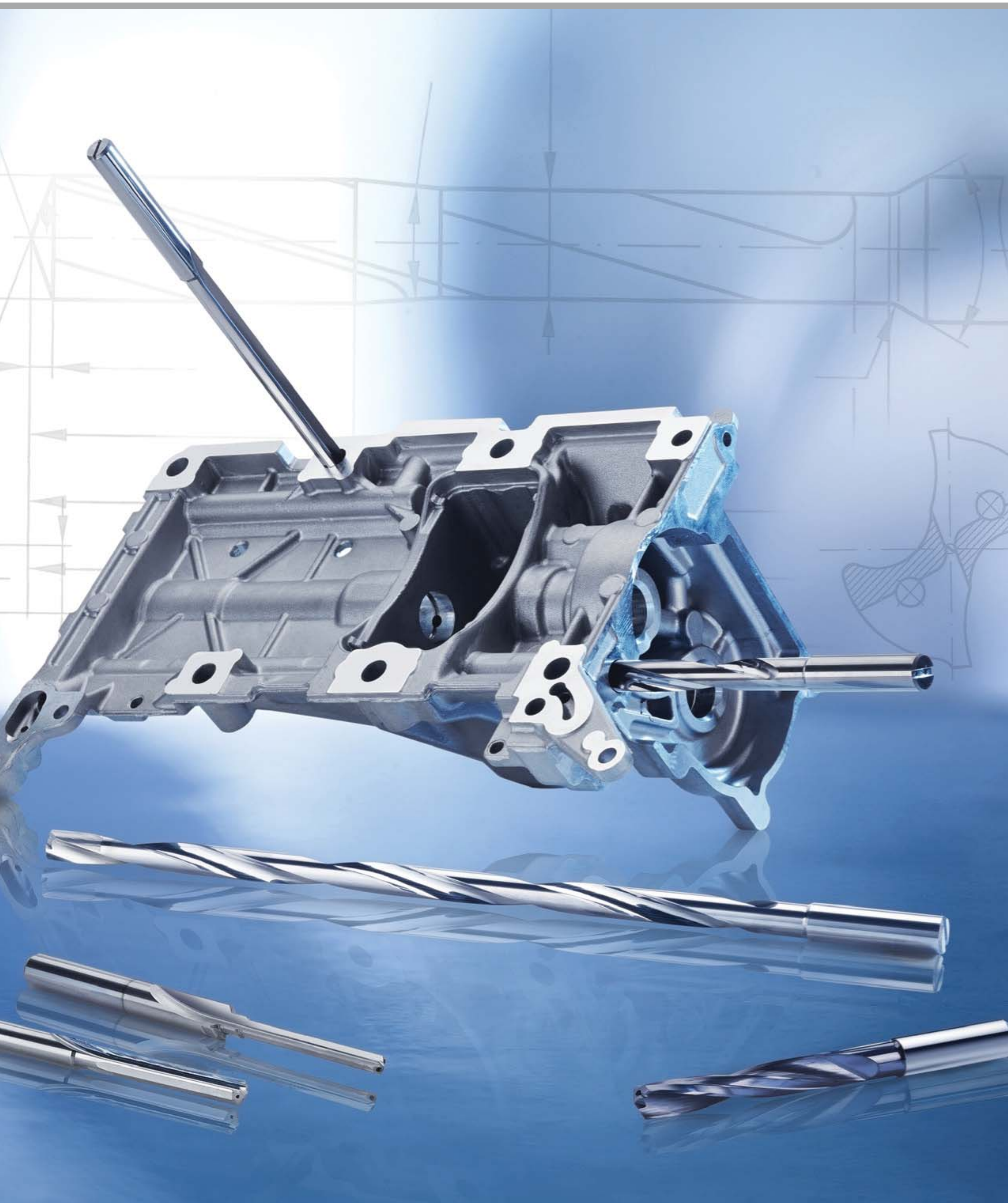


Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.52150.0040	4.00	.1575	24.00	75	6.00
40.52150.0042	4.20	.1654	25.50	75	6.00
40.52150.0045	4.50	.1772	27.00	75	6.00
40.52150.0050	5.00	.1969	30.00	87	6.00
40.52150.0055	5.50	.2165	33.00	87	6.00
40.52150.0060	6.00	.2362	36.00	87	6.00
40.52150.0065	6.50	.2559	39.00	100	8.00
40.52150.0068	6.80	.2677	41.00	100	8.00
40.52150.0070	7.00	.2756	42.00	100	8.00
40.52150.0075	7.50	.2953	45.00	100	8.00
40.52150.0080	8.00	.3150	48.00	100	8.00
40.52150.0085	8.50	.3346	51.00	118	10.00
40.52150.0090	9.00	.3543	54.00	118	10.00
40.52150.0095	9.50	.3740	57.00	118	10.00
40.52150.1000	10.00	.3937	60.00	118	10.00
40.52150.1020	10.20	.4016	62.00	135	12.00
40.52150.1050	10.50	.4134	63.00	135	12.00
40.52150.1100	11.00	.4331	66.00	135	12.00

Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.52150.1150	11.50	.4528	69.00	135	12.00
40.52150.1200	12.00	.4724	72.00	135	12.00
40.52150.1250	12.50	.4921	75.00	147	14.00
40.52150.1300	13.00	.5118	78.00	147	14.00
40.52150.1350	13.50	.5315	81.00	147	14.00
40.52150.1400	14.00	.5512	84.00	147	14.00
40.52150.1450	14.50	.5709	87.00	164	16.00
40.52150.1500	15.00	.5906	90.00	164	16.00
40.52150.1550	15.50	.6102	93.00	164	16.00
40.52150.1600	16.00	.6299	96.00	164	16.00
40.52150.1650	16.50	.6496	99.00	178	18.00
40.52150.1700	17.00	.6693	102.00	178	18.00
40.52150.1750	17.50	.6890	105.00	178	18.00
40.52150.1800	18.00	.7087	108.00	178	18.00
40.52150.1850	18.50	.7283	111.00	195	20.00
40.52150.1900	19.00	.7480	114.00	195	20.00
40.52150.1950	19.50	.7677	117.00	195	20.00
40.52150.2000	20.00	.7874	120.00	195	20.00

- All dimensions are millimeters unless otherwise noted
- Internal coolant for all sizes
- For cutting data see pg. 152

SPHINX TOOLS



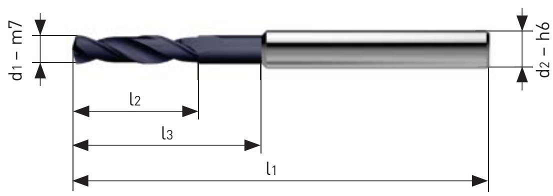
Fastcut

Art. 50950

Carbide | d1 - m7 | DIN 6537 | Z 2 | 140° | 30° | 3xd | TiAlN

Blind Hole | Through Hole | Multi-Composite | Cross Hole | Round Surface

ST | SST | C.I. | Al | Ti | HST



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50950.0300	3.00	.1181	14.00	20.00	62	6.00
40.50950.0310	3.10	.1220	14.00	20.00	62	6.00
40.50950.0320	3.20	.1260	14.00	20.00	62	6.00
40.50950.0330	3.30	.1299	14.00	20.00	62	6.00
40.50950.0340	3.40	.1339	14.00	20.00	62	6.00
40.50950.0350	3.50	.1378	14.00	20.00	62	6.00
40.50950.0360	3.60	.1417	14.00	20.00	62	6.00
40.50950.0370	3.70	.1457	14.00	20.00	62	6.00
40.50950.0380	3.80	.1496	17.00	24.00	66	6.00
40.50950.0390	3.90	.1535	17.00	24.00	66	6.00
40.50950.0400	4.00	.1575	17.00	24.00	66	6.00
40.50950.0410	4.10	.1614	17.00	24.00	66	6.00
40.50950.0420	4.20	.1654	17.00	24.00	66	6.00
40.50950.0430	4.30	.1693	17.00	24.00	66	6.00
40.50950.0440	4.40	.1732	17.00	24.00	66	6.00
40.50950.0450	4.50	.1772	17.00	24.00	66	6.00
40.50950.0460	4.60	.1811	17.00	24.00	66	6.00
40.50950.0470	4.70	.1850	17.00	24.00	66	6.00
40.50950.0480	4.80	.1890	20.00	28.00	66	6.00
40.50950.0490	4.90	.1929	20.00	28.00	66	6.00
40.50950.0500	5.00	.1969	20.00	28.00	66	6.00
40.50950.0510	5.10	.2008	20.00	28.00	66	6.00
40.50950.0520	5.20	.2047	20.00	28.00	66	6.00
40.50950.0530	5.30	.2087	20.00	28.00	66	6.00
40.50950.0540	5.40	.2126	20.00	28.00	66	6.00
40.50950.0550	5.50	.2165	20.00	28.00	66	6.00
40.50950.0560	5.60	.2205	20.00	28.00	66	6.00
40.50950.0570	5.70	.2244	20.00	28.00	66	6.00
40.50950.0580	5.80	.2283	20.00	28.00	66	6.00
40.50950.0590	5.90	.2323	20.00	28.00	66	6.00
40.50950.0600	6.00	.2362	20.00	28.00	66	6.00
40.50950.0610	6.10	.2402	24.00	34.00	79	8.00
40.50950.0620	6.20	.2441	24.00	34.00	79	8.00
40.50950.0630	6.30	.2480	24.00	34.00	79	8.00
40.50950.0640	6.40	.2520	24.00	34.00	79	8.00
40.50950.0650	6.50	.2559	24.00	34.00	79	8.00
40.50950.0660	6.60	.2598	24.00	34.00	79	8.00
40.50950.0670	6.70	.2638	24.00	34.00	79	8.00
40.50950.0680	6.80	.2677	24.00	34.00	79	8.00
40.50950.0690	6.90	.2717	24.00	34.00	79	8.00
40.50950.0700	7.00	.2756	24.00	34.00	79	8.00
40.50950.0710	7.10	.2795	29.00	41.00	79	8.00
40.50950.0720	7.20	.2835	29.00	41.00	79	8.00
40.50950.0730	7.30	.2874	29.00	41.00	79	8.00
40.50950.0740	7.40	.2913	29.00	41.00	79	8.00
40.50950.0750	7.50	.2953	29.00	41.00	79	8.00
40.50950.0760	7.60	.2992	29.00	41.00	79	8.00
40.50950.0770	7.70	.3031	29.00	41.00	79	8.00
40.50950.0780	7.80	.3071	29.00	41.00	79	8.00
40.50950.0790	7.90	.3110	29.00	41.00	79	8.00
40.50950.0800	8.00	.3150	29.00	41.00	79	8.00
40.50950.0810	8.10	.3189	35.00	47.00	89	10.00
40.50950.0820	8.20	.3228	35.00	47.00	89	10.00
40.50950.0830	8.30	.3268	35.00	47.00	89	10.00
40.50950.0840	8.40	.3307	35.00	47.00	89	10.00
40.50950.0850	8.50	.3346	35.00	47.00	89	10.00
40.50950.0860	8.60	.3386	35.00	47.00	89	10.00
40.50950.0870	8.70	.3425	35.00	47.00	89	10.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50950.0880	8.80	.3465	35.00	47.00	89	10.00
40.50950.0890	8.90	.3504	35.00	47.00	89	10.00
40.50950.0900	9.00	.3543	35.00	47.00	89	10.00
40.50950.0910	9.10	.3583	35.00	47.00	89	10.00
40.50950.0920	9.20	.3622	35.00	47.00	89	10.00
40.50950.0930	9.30	.3661	35.00	47.00	89	10.00
40.50950.0940	9.40	.3701	35.00	47.00	89	10.00
40.50950.0950	9.50	.3740	35.00	47.00	89	10.00
40.50950.0960	9.60	.3780	35.00	47.00	89	10.00
40.50950.0970	9.70	.3819	35.00	47.00	89	10.00
40.50950.0980	9.80	.3858	35.00	47.00	89	10.00
40.50950.0990	9.90	.3898	35.00	47.00	89	10.00
40.50950.1000	1.00	.3937	35.00	47.00	89	10.00
40.50950.1010	1.10	.3976	40.00	55.00	102	12.00
40.50950.1020	1.20	.4016	40.00	55.00	102	12.00
40.50950.1030	1.30	.4055	40.00	55.00	102	12.00
40.50950.1040	1.40	.4094	40.00	55.00	102	12.00
40.50950.1050	1.50	.4134	40.00	55.00	102	12.00
40.50950.1060	1.60	.4173	40.00	55.00	102	12.00
40.50950.1070	1.70	.4213	40.00	55.00	102	12.00
40.50950.1080	1.80	.4252	40.00	55.00	102	12.00
40.50950.1090	1.90	.4291	40.00	55.00	102	12.00
40.50950.1100	11.00	.4331	40.00	55.00	102	12.00
40.50950.1110	11.10	.4370	40.00	55.00	102	12.00
40.50950.1120	11.20	.4409	40.00	55.00	102	12.00
40.50950.1130	11.30	.4449	40.00	55.00	102	12.00
40.50950.1140	11.40	.4488	40.00	55.00	102	12.00
40.50950.1150	11.50	.4528	40.00	55.00	102	12.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.50950.1160	11.60	.4567	40.00	55.00	102	12.00
40.50950.1170	11.70	.4606	40.00	55.00	102	12.00
40.50950.1180	11.80	.4646	40.00	55.00	102	12.00
40.50950.1190	11.90	.4685	40.00	55.00	102	12.00
40.50950.1200	12.00	.4724	40.00	55.00	102	12.00
40.50950.1250	12.50	.4921	43.00	60.00	107	14.00
40.50950.1280	12.80	.5039	43.00	60.00	107	14.00
40.50950.1300	13.00	.5118	43.00	60.00	107	14.00
40.50950.1350	13.50	.5315	43.00	60.00	107	14.00
40.50950.1380	13.80	.5433	43.00	60.00	107	14.00
40.50950.1400	14.00	.5512	43.00	60.00	107	14.00
40.50950.1450	14.50	.5709	45.00	65.00	115	16.00
40.50950.1480	14.80	.5827	45.00	65.00	115	16.00
40.50950.1500	15.00	.5906	45.00	65.00	115	16.00
40.50950.1550	15.50	.6102	45.00	65.00	115	16.00
40.50950.1580	15.80	.6220	45.00	65.00	115	16.00
40.50950.1600	16.00	.6299	45.00	65.00	115	16.00
40.50950.1650	16.50	.6496	51.00	73.00	123	18.00
40.50950.1700	17.00	.6693	51.00	73.00	123	18.00
40.50950.1750	17.50	.6890	51.00	73.00	123	18.00
40.50950.1800	18.00	.7087	51.00	73.00	123	18.00
40.50950.1850	18.50	.7283	55.00	79.00	131	20.00
40.50950.1880	18.80	.7402	55.00	79.00	131	20.00
40.50950.1900	19.00	.7480	55.00	79.00	131	20.00
40.50950.1950	19.50	.7677	55.00	79.00	131	20.00
40.50950.1980	19.80	.7795	55.00	79.00	131	20.00
40.50950.2000	2.00	.7874	55.00	79.00	131	20.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 153

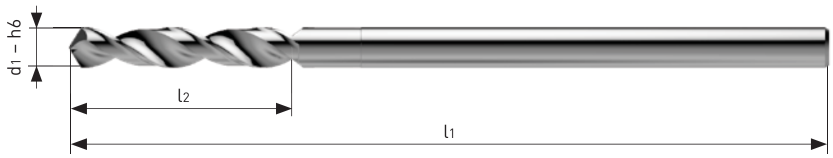
Posicut

Art. 50830

Carbide | DIN 6539 | Z 2 | 118° | 35° | ≈5xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Cu | Mg | Ti | Plastic



Catalog Number	d1	d1 (in.)	l2	l1
40.50830.0003	.30	.0118	1.50	19
40.50830.0004	.40	.0157	2.30	19
40.50830.0005	.50	.0197	2.80	20
40.50830.0006	.60	.0236	3.30	21
40.50830.0007	.70	.0276	4.30	23
40.50830.0008	.80	.0315	4.80	24
40.50830.0009	.90	.0354	5.30	25
40.50830.0010	1.00	.0394	5.70	26
40.50830.0011	1.10	.0433	6.70	28
40.50830.0012	1.20	.0472	7.70	30
40.50830.0013	1.30	.0512	7.70	30
40.50830.0014	1.40	.0551	8.70	32
40.50830.0015	1.50	.0591	8.70	32
40.50830.0016	1.60	.0630	9.70	34
40.50830.0017	1.70	.0669	9.70	34
40.50830.0018	1.80	.0709	10.70	36
40.50830.0019	1.90	.0748	10.70	36
40.50830.0020	2.00	.0787	11.50	38
40.50830.0021	2.10	.0827	11.50	38
40.50830.0022	2.20	.0866	12.50	40
40.50830.0023	2.30	.0906	12.50	40
40.50830.0024	2.40	.0945	13.50	43
40.50830.0025	2.50	.0984	13.50	43
40.50830.0026	2.60	.1024	13.50	43
40.50830.0027	2.70	.1063	15.50	46
40.50830.0028	2.80	.1102	15.50	46
40.50830.0029	2.90	.1142	15.50	46
40.50830.0030	3.00	.1181	15.50	46
40.50830.0031	3.10	.1220	17.50	49
40.50830.0032	3.20	.1260	17.50	49

Catalog Number	d1	d1 (in.)	l2	l1
40.50830.0033	3.30	.1299	17.50	49
40.50830.0034	3.40	.1339	19.50	52
40.50830.0035	3.50	.1378	19.50	52
40.50830.0036	3.60	.1417	19.50	52
40.50830.0037	3.70	.1457	19.50	52
40.50830.0038	3.80	.1496	21.50	55
40.50830.0039	3.90	.1535	21.50	55
40.50830.0040	4.00	.1575	21.50	55
40.50830.0041	4.10	.1614	21.50	55
40.50830.0042	4.20	.1654	21.50	55
40.50830.0043	4.30	.1693	23.00	58
40.50830.0044	4.40	.1732	23.00	58
40.50830.0045	4.50	.1772	23.00	58
40.50830.0046	4.60	.1811	23.00	58
40.50830.0047	4.70	.1850	23.00	58
40.50830.0048	4.80	.1890	25.00	62
40.50830.0049	4.90	.1929	25.00	62
40.50830.0050	5.00	.1969	25.00	62
40.50830.0051	5.10	.2008	25.00	62
40.50830.0052	5.20	.2047	25.00	62
40.50830.0053	5.30	.2087	25.00	62
40.50830.0054	5.40	.2126	27.00	66
40.50830.0055	5.50	.2165	27.00	66
40.50830.0056	5.60	.2205	27.00	66
40.50830.0057	5.70	.2244	27.00	66
40.50830.0058	5.80	.2283	27.00	66
40.50830.0059	5.90	.2323	27.00	66
40.50830.0060	6.00	.2362	27.00	66
40.50830.0061	6.10	.2402	30.00	70
40.50830.0062	6.20	.2441	30.00	70

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50830.0063	6.30	.2480	30.00	70
40.50830.0064	6.40	.2520	30.00	70
40.50830.0065	6.50	.2559	30.00	70
40.50830.0066	6.60	.2598	30.00	70
40.50830.0067	6.70	.2638	30.00	70
40.50830.0068	6.80	.2677	33.00	74
40.50830.0069	6.90	.2717	33.00	74
40.50830.0070	7.00	.2756	33.00	74
40.50830.0071	7.10	.2795	33.00	74
40.50830.0072	7.20	.2835	33.00	74
40.50830.0073	7.30	.2874	33.00	74
40.50830.0074	7.40	.2913	33.00	74
40.50830.0075	7.50	.2953	33.00	74
40.50830.0076	7.60	.2992	36.00	79
40.50830.0077	7.70	.3031	36.00	79
40.50830.0078	7.80	.3071	36.00	79
40.50830.0079	7.90	.3110	36.00	79
40.50830.0080	8.00	.3150	36.00	79
40.50830.0081	8.10	.3189	36.00	79
40.50830.0082	8.20	.3228	36.00	79
40.50830.0083	8.30	.3268	36.00	79
40.50830.0084	8.40	.3307	36.00	79
40.50830.0085	8.50	.3346	36.00	79
40.50830.0086	8.60	.3386	39.00	84
40.50830.0087	8.70	.3425	39.00	84
40.50830.0088	8.80	.3465	39.00	84
40.50830.0089	8.90	.3504	39.00	84

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50830.0090	9.00	.3543	39.00	84
40.50830.0091	9.10	.3583	39.00	84
40.50830.0092	9.20	.3622	39.00	84
40.50830.0093	9.30	.3661	39.00	84
40.50830.0094	9.40	.3701	39.00	84
40.50830.0095	9.50	.3740	39.00	84
40.50830.0096	9.60	.3780	41.00	89
40.50830.0097	9.70	.3819	41.00	89
40.50830.0098	9.80	.3858	41.00	89
40.50830.0099	9.90	.3898	41.00	89
40.50830.0100	10.00	.3937	41.00	89
40.50830.0102	10.20	.4016	41.00	89
40.50830.0105	10.50	.4134	41.00	89
40.50830.0110	11.00	.4331	45.00	95
40.50830.0115	11.50	.4528	45.00	95
40.50830.0120	12.00	.4724	49.00	102
40.50830.0125	12.50	.4921	49.00	102
40.50830.0130	13.00	.5118	49.00	102
40.50830.0135	13.50	.5315	52.00	107
40.50830.0140	14.00	.5512	52.00	107
40.50830.0150	15.00	.5906	54.00	111
40.50830.0160	16.00	.6299	56.00	115
40.50830.0170	17.00	.6693	58.00	119
40.50830.0180	18.00	.7087	60.00	123
40.50830.0190	19.00	.7480	62.00	127
40.50830.0200	2.00	.7874	64.00	131

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 154

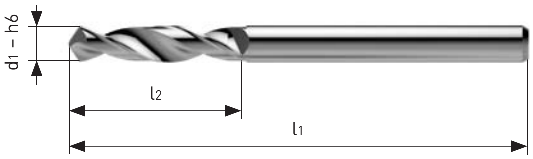
Spirec

Art. 50838

Carbide | Z 2 | 118° | 30° | ≈10xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Cu | Mg | Ti | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50838.0030	.30	.0118	3.70	38
40.50838.0035	.35	.0138	3.70	38
40.50838.0040	.40	.0157	4.70	38
40.50838.0045	.45	.0177	4.70	38
40.50838.0050	.50	.0197	5.70	38
40.50838.0055	.55	.0217	5.70	38
40.50838.0060	.60	.0236	7.70	38
40.50838.0065	.65	.0256	7.70	38
40.50838.0070	.70	.0276	9.70	38
40.50838.0075	.75	.0295	9.70	38
40.50838.0080	.80	.0315	11.70	38
40.50838.0085	.85	.0335	11.70	38
40.50838.0090	.90	.0354	14.70	38
40.50838.0095	.95	.0374	14.70	38
40.50838.0100	1.00	.0394	14.70	38
40.50838.0105	1.05	.0413	14.70	38
40.50838.0110	1.10	.0433	14.70	38
40.50838.0115	1.15	.0453	14.70	38
40.50838.0120	1.20	.0472	14.70	38
40.50838.0125	1.25	.0492	14.70	38
40.50838.0130	1.30	.0512	14.70	38
40.50838.0135	1.35	.0531	14.70	38
40.50838.0140	1.40	.0551	14.70	38
40.50838.0145	1.45	.0571	14.70	38
40.50838.0150	1.50	.0591	14.70	38
40.50838.0155	1.55	.0610	14.70	38
40.50838.0160	1.60	.0630	14.70	38
40.50838.0165	1.65	.0650	14.70	38
40.50838.0170	1.70	.0669	14.70	38
40.50838.0175	1.75	.0689	14.70	38
40.50838.0180	1.80	.0709	14.70	38
40.50838.0185	1.85	.0728	14.70	38
40.50838.0190	1.90	.0748	14.70	38
40.50838.0195	1.95	.0768	14.70	38
40.50838.0200	2.00	.0787	14.70	38
40.50838.0205	2.05	.0807	14.70	38
40.50838.0210	2.10	.0827	14.70	38
40.50838.0215	2.15	.0846	14.70	38
40.50838.0220	2.20	.0866	14.70	38
40.50838.0225	2.25	.0886	14.70	38
40.50838.0230	2.30	.0906	14.70	38
40.50838.0235	2.35	.0925	14.70	38
40.50838.0240	2.40	.0945	14.70	38
40.50838.0245	2.45	.0965	14.70	38
40.50838.0250	2.50	.0984	14.70	38
40.50838.0255	2.55	.1004	14.70	38
40.50838.0260	2.60	.1024	14.70	38
40.50838.0265	2.65	.1043	14.70	38
40.50838.0270	2.70	.1063	14.70	38
40.50838.0275	2.75	.1083	14.70	38
40.50838.0280	2.80	.1102	14.70	38
40.50838.0285	2.85	.1122	14.70	38
40.50838.0290	2.90	.1142	14.70	38
40.50838.0295	2.95	.1161	14.70	38
40.50838.0300	3.00	.1181	14.70	38
40.50838.0305	3.05	.1201	14.70	38
40.50838.0310	3.10	.1220	14.70	38
40.50838.0315	3.15	.1240	14.70	38
40.50838.3175	3.175	.1250	14.70	38
40.50838.0320	3.20	.1260	19.70	50

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50838.0330	3.30	.1299	19.70	50
40.50838.0340	3.40	.1339	19.70	50
40.50838.0350	3.50	.1378	19.70	50
40.50838.0360	3.60	.1417	19.70	50
40.50838.0370	3.70	.1457	19.70	50
40.50838.0380	3.80	.1496	19.70	50
40.50838.0390	3.90	.1535	19.70	50
40.50838.0400	4.00	.1575	19.70	50
40.50838.0410	4.10	.1614	24.70	50
40.50838.0420	4.20	.1654	24.70	50
40.50838.0430	4.30	.1693	24.70	50
40.50838.0440	4.40	.1732	24.70	50
40.50838.0450	4.50	.1772	24.70	50
40.50838.0460	4.60	.1811	24.70	50
40.50838.0470	4.70	.1850	24.70	50
40.50838.0480	4.80	.1890	24.70	50
40.50838.0490	4.90	.1929	24.70	50
40.50838.0500	5.00	.1969	24.70	50
40.50838.0510	5.10	.2008	24.70	50
40.50838.0520	5.20	.2047	24.70	50
40.50838.0530	5.30	.2087	24.70	50
40.50838.0540	5.40	.2126	24.70	50
40.50838.0550	5.50	.2165	24.70	50
40.50838.0560	5.60	.2205	24.70	50
40.50838.0570	5.70	.2244	24.70	50
40.50838.0580	5.80	.2283	24.70	50
40.50838.0590	5.90	.2323	24.70	50
40.50838.0600	6.00	.2362	24.70	50

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 154

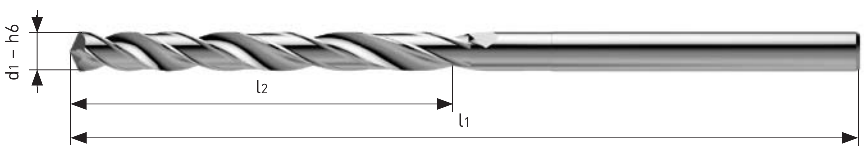
Spicut

Art. 50820

Carbide | DIN 338 | Z 2 | 130° | 35°-15° | ≈10xd

Blind Hole | Through Hole

ST | C.I. | Al | Brass



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50820.0007	.70	.0276	8.00	28
40.50820.0008	.80	.0315	9.00	30
40.50820.0009	.90	.0354	10.00	32
40.50820.0010	1.00	.0394	11.00	34
40.50820.0011	1.10	.0433	13.00	36
40.50820.0012	1.20	.0472	15.00	38
40.50820.0013	1.30	.0512	15.00	38
40.50820.0014	1.40	.0551	17.00	40
40.50820.0015	1.50	.0591	17.00	40
40.50820.0016	1.60	.0630	19.00	43
40.50820.0017	1.70	.0669	19.00	43
40.50820.0018	1.80	.0709	21.00	46
40.50820.0019	1.90	.0748	21.00	46
40.50820.0020	2.00	.0787	23.00	49
40.50820.0021	2.10	.0827	23.00	49
40.50820.0022	2.20	.0866	26.00	53
40.50820.0023	2.30	.0906	26.00	53
40.50820.0024	2.40	.0945	29.00	57
40.50820.0025	2.50	.0984	29.00	57
40.50820.0026	2.60	.1024	29.00	57
40.50820.0027	2.70	.1063	31.00	61
40.50820.0028	2.80	.1102	31.00	61
40.50820.0029	2.90	.1142	31.00	61
40.50820.0030	3.00	.1181	31.00	61
40.50820.0031	3.10	.1220	34.00	65
40.50820.0032	3.20	.1260	34.00	65
40.50820.0033	3.30	.1299	34.00	65
40.50820.0034	3.40	.1339	37.00	70
40.50820.0035	3.50	.1378	37.00	70
40.50820.0036	3.60	.1417	37.00	70

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50820.0037	3.70	.1457	37.00	70
40.50820.0038	3.80	.1496	41.00	75
40.50820.0039	3.90	.1535	41.00	75
40.50820.0040	4.00	.1575	41.00	75
40.50820.0041	4.10	.1614	41.00	75
40.50820.0042	4.20	.1654	41.00	75
40.50820.0043	4.30	.1693	45.00	80
40.50820.0044	4.40	.1732	45.00	80
40.50820.0045	4.50	.1772	45.00	80
40.50820.0046	4.60	.1811	45.00	80
40.50820.0047	4.70	.1850	45.00	80
40.50820.0048	4.80	.1890	50.00	86
40.50820.0049	4.90	.1929	50.00	86
40.50820.0050	5.00	.1969	50.00	86
40.50820.0051	5.10	.2008	50.00	86
40.50820.0052	5.20	.2047	50.00	86
40.50820.0053	5.30	.2087	50.00	86
40.50820.0054	5.40	.2126	55.00	93
40.50820.0055	5.50	.2165	55.00	93
40.50820.0056	5.60	.2205	55.00	93
40.50820.0057	5.70	.2244	55.00	93
40.50820.0058	5.80	.2283	55.00	93
40.50820.0059	5.90	.2323	55.00	93
40.50820.0060	6.00	.2362	55.00	93
40.50820.0061	6.10	.2402	61.00	101
40.50820.0062	6.20	.2441	61.00	101
40.50820.0063	6.30	.2480	61.00	101
40.50820.0064	6.40	.2520	61.00	101
40.50820.0065	6.50	.2559	61.00	101
40.50820.0066	6.60	.2598	61.00	101

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50820.0067	6.70	.2638	61.00	101
40.50820.0068	6.80	.2677	67.00	109
40.50820.0069	6.90	.2717	67.00	109
40.50820.0070	7.00	.2756	67.00	109
40.50820.0071	7.10	.2795	67.00	109
40.50820.0072	7.20	.2835	67.00	109
40.50820.0073	7.30	.2874	67.00	109
40.50820.0074	7.40	.2913	67.00	109
40.50820.0075	7.50	.2953	67.00	109
40.50820.0076	7.60	.2992	73.00	117
40.50820.0077	7.70	.3031	73.00	117
40.50820.0078	7.80	.3071	73.00	117
40.50820.0079	7.90	.3110	73.00	117
40.50820.0080	8.00	.3150	73.00	117
40.50820.0081	8.10	.3189	73.00	117
40.50820.0082	8.20	.3228	73.00	117
40.50820.0083	8.30	.3268	73.00	117
40.50820.0084	8.40	.3307	73.00	117
40.50820.0085	8.50	.3346	73.00	117
40.50820.0086	8.60	.3386	78.00	125
40.50820.0087	8.70	.3425	78.00	125
40.50820.0088	8.80	.3465	78.00	125

- All dimensions are millimeters unless otherwise noted
- Degressive helix from 35º to 15º
- Four margins beginning at Ø2mm
- For cutting data see pg. 155

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50820.0089	8.90	.3504	78.00	125
40.50820.0090	9.00	.3543	78.00	125
40.50820.0091	9.10	.3583	78.00	125
40.50820.0092	9.20	.3622	78.00	125
40.50820.0093	9.30	.3661	78.00	125
40.50820.0094	9.40	.3701	78.00	125
40.50820.0095	9.50	.3740	78.00	125
40.50820.0096	9.60	.3780	84.00	133
40.50820.0097	9.70	.3819	84.00	133
40.50820.0098	9.80	.3858	84.00	133
40.50820.0099	9.90	.3898	84.00	133
40.50820.0100	1.00	.3937	84.00	133
40.50820.0102	1.20	.4016	84.00	133
40.50820.0105	1.50	.4134	84.00	133
40.50820.0110	11.00	.4331	91.00	142
40.50820.0115	11.50	.4528	91.00	142
40.50820.0120	12.00	.4724	98.00	151
40.50820.0125	12.50	.4921	98.00	151
40.50820.0130	13.00	.5118	98.00	151
40.50820.0135	13.50	.5315	105.00	160
40.50820.0140	14.00	.5512	105.00	160

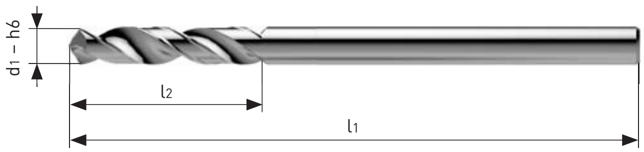
Asycut

Art. 50840

Carbide | DIN 6539 | 118° | 35° | ≈5xd

Blind Hole | Through Hole

ST | SST | C.I. | Al | Mg



Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50840.0020	2.00	.0787	11.5	38
40.50840.0021	2.10	.0827	11.5	38
40.50840.0022	2.20	.0866	12.5	40
40.50840.0023	2.30	.0906	12.5	40
40.50840.0024	2.40	.0945	13.5	43
40.50840.0025	2.50	.0984	13.5	43
40.50840.0026	2.60	.1024	13.5	43
40.50840.0027	2.70	.1063	15.5	46
40.50840.0028	2.80	.1102	15.5	46
40.50840.0029	2.90	.1142	15.5	46
40.50840.0030	3.00	.1181	15.5	46
40.50840.0031	3.10	.1220	17.5	49
40.50840.0032	3.20	.1260	17.5	49
40.50840.0033	3.30	.1299	17.5	49
40.50840.0034	3.40	.1339	19.5	52
40.50840.0035	3.50	.1378	19.5	52
40.50840.0036	3.60	.1417	19.5	52
40.50840.0037	3.70	.1457	19.5	52
40.50840.0038	3.80	.1496	21.5	55
40.50840.0039	3.90	.1535	21.5	55
40.50840.0040	4.00	.1575	21.5	55
40.50840.0041	4.10	.1614	21.5	55
40.50840.0042	4.20	.1654	21.5	55
40.50840.0043	4.30	.1693	23.0	58
40.50840.0044	4.40	.1732	23.0	58
40.50840.0045	4.50	.1772	23.0	58
40.50840.0046	4.60	.1811	23.0	58
40.50840.0047	4.70	.1850	23.0	58
40.50840.0048	4.80	.1890	25.0	62
40.50840.0049	4.90	.1929	25.0	62

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50840.0050	5.00	.1969	25.0	62
40.50840.0051	5.10	.2008	25.0	62
40.50840.0052	5.20	.2047	25.0	62
40.50840.0053	5.30	.2087	25.0	62
40.50840.0054	5.40	.2126	27.0	66
40.50840.0055	5.50	.2165	27.0	66
40.50840.0056	5.60	.2205	27.0	66
40.50840.0057	5.70	.2244	27.0	66
40.50840.0058	5.80	.2283	27.0	66
40.50840.0059	5.90	.2323	27.0	66
40.50840.0060	6.00	.2362	27.0	66
40.50840.0061	6.10	.2402	30.0	70
40.50840.0062	6.20	.2441	30.0	70
40.50840.0063	6.30	.2480	30.0	70
40.50840.0064	6.40	.2520	30.0	70
40.50840.0065	6.50	.2559	30.0	70
40.50840.0066	6.60	.2598	30.0	70
40.50840.0067	6.70	.2638	30.0	70
40.50840.0068	6.80	.2677	33.0	74
40.50840.0069	6.90	.2717	33.0	74
40.50840.0070	7.00	.2756	33.0	74
40.50840.0071	7.10	.2795	33.0	74
40.50840.0072	7.20	.2835	33.0	74
40.50840.0073	7.30	.2874	33.0	74
40.50840.0074	7.40	.2913	33.0	74
40.50840.0075	7.50	.2953	33.0	74
40.50840.0076	7.60	.2992	36.0	79
40.50840.0077	7.70	.3031	36.0	79
40.50840.0078	7.80	.3071	36.0	79
40.50840.0079	7.90	.3110	36.0	79

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50840.0080	8.00	.3150	36.0	79
40.50840.0081	8.10	.3189	36.0	79
40.50840.0082	8.20	.3228	36.0	79
40.50840.0083	8.30	.3268	36.0	79
40.50840.0084	8.40	.3307	36.0	79
40.50840.0085	8.50	.3346	36.0	79
40.50840.0086	8.60	.3386	39.0	84
40.50840.0087	8.70	.3425	39.0	84
40.50840.0088	8.80	.3465	39.0	84
40.50840.0089	8.90	.3504	39.0	84
40.50840.0090	9.00	.3543	39.0	84
40.50840.0091	9.10	.3583	39.0	84
40.50840.0092	9.20	.3622	39.0	84
40.50840.0093	9.30	.3661	39.0	84
40.50840.0094	9.40	.3701	39.0	84

Catalog Number	d_1	d_1 (in.)	l_2	l_1
40.50840.0095	9.50	.3740	39.0	84
40.50840.0096	9.60	.3780	41.0	89
40.50840.0097	9.70	.3819	41.0	89
40.50840.0098	9.80	.3858	41.0	89
40.50840.0099	9.90	.3898	41.0	89
40.50840.0100	10.00	.3937	41.0	89
40.50840.0102	10.20	.4016	41.0	89
40.50840.0105	10.50	.4134	41.0	89
40.50840.0110	11.00	.4331	45.0	95
40.50840.0115	11.50	.4528	45.0	95
40.50840.0120	12.00	.4724	49.0	102
40.50840.0125	12.50	.4921	49.0	102
40.50840.0130	13.00	.5118	49.0	102
40.50840.0135	13.50	.5315	52.0	107
40.50840.0140	14.00	.5512	52.0	107

- All dimensions are millimeters unless otherwise noted
- Three margin asymmetrical flute design
- For cutting data see pg. 156

Tricut Art. 55654

Carbide | Z 3 | DIN 6539 | 140° | 35° | 5xd

Blind Hole | Through Hole | Cross Hole | Round Surface | Inclined Surface

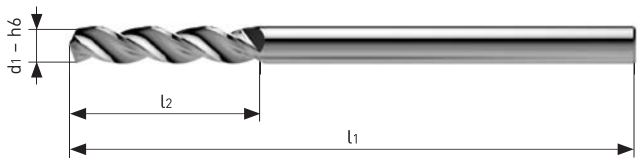
ST | SST | C.I. | Al | Ti | Plastic

Tricut Art. 55338

Carbide | Z 3 | DIN 338 | 140° | 35° | ≈10xd

Blind Hole | Through Hole | Cross Hole | Round Surface | Inclined Surface

ST | SST | C.I. | Al | Ti | Plastic



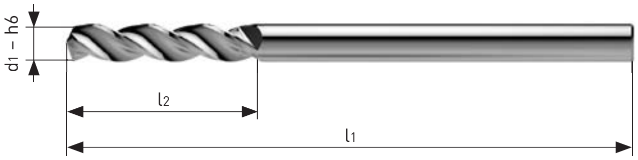
d1	d1 (in.)	Art. 55654			Art. 55338		
		Catalog Number	l2	l1	Catalog Number	l2	l1
1.00	.0394	**40.55654.0010**	6.00	26	**40.55338.0010**	11.50	34
1.10	.0433	**40.55654.0011**	6.50	28	**40.55338.0011**	13.00	36
1.20	.0472	**40.55654.0012**	7.50	30	**40.55338.0012**	15.00	38
1.30	.0512	**40.55654.0013**	7.50	30	**40.55338.0013**	15.00	38
1.40	.0551	**40.55654.0014**	8.50	32	**40.55338.0014**	17.00	40
1.50	.0591	**40.55654.0015**	8.50	32	**40.55338.0015**	17.00	40
1.60	.0630	**40.55654.0016**	9.50	34	**40.55338.0016**	19.00	43
1.70	.0669	**40.55654.0017**	9.50	34	**40.55338.0017**	19.00	43
1.80	.0709	**40.55654.0018**	10.50	36	**40.55338.0018**	21.00	46
1.90	.0748	**40.55654.0019**	10.50	36	**40.55338.0019**	21.00	46
2.00	.0787	**40.55654.0020**	11.50	38	**40.55338.0020**	22.00	49
2.10	.0827	**40.55654.0021**	11.50	38	**40.55338.0021**	22.00	49
2.20	.0866	**40.55654.0022**	12.50	40	**40.55338.0022**	25.00	53
2.30	.0906	**40.55654.0023**	12.50	40	**40.55338.0023**	25.00	53
2.40	.0945	**40.55654.0024**	13.50	43	**40.55338.0024**	28.00	57
2.50	.0984	**40.55654.0025**	13.50	43	**40.55338.0025**	28.00	57
2.60	.1024	**40.55654.0026**	13.50	43	**40.55338.0026**	28.00	57
2.70	.1063	**40.55654.0027**	15.50	46	**40.55338.0027**	31.00	61
2.80	.1102	**40.55654.0028**	15.50	46	**40.55338.0028**	31.00	61
2.90	.1142	**40.55654.0029**	15.50	46	**40.55338.0029**	31.00	61
3.00	.1181	**40.55654.0030**	15.50	46	**40.55338.0030**	31.00	61
3.10	.1220	**40.55654.0031**	17.00	49	**40.55338.0031**	34.00	65
3.175	.1250 (1/8)	**40.55654.3175**	17.00	49	—	—	—
3.20	.1260	**40.55654.0032**	17.00	49	**40.55338.0032**	34.00	65
3.30	.1299	**40.55654.0033**	17.00	49	**40.55338.0033**	34.00	65

d1	d1 (in.)	Art. 55654			Art. 55338		
		Catalog Number	l2	l1	Catalog Number	l2	l1
3.40	.1339	**40.55654.0034**	19.00	52	**40.55338.0034**	37.00	70
3.50	.1378	**40.55654.0035**	19.00	52	**40.55338.0035**	37.00	70
3.60	.1417	**40.55654.0036**	19.00	52	**40.55338.0036**	37.00	70
3.70	.1457	**40.55654.0037**	19.00	52	**40.55338.0037**	37.00	70
3.80	.1496	**40.55654.0038**	21.00	55	**40.55338.0038**	41.00	75
3.90	.1535	**40.55654.0039**	21.00	55	**40.55338.0039**	41.00	75
3.969	.1563 (5/32)	**40.55654.3969**	21.00	55	**—**	—	—
4.00	.1575	**40.55654.0040**	21.00	55	**40.55338.0040**	41.00	75
4.10	.1614	**40.55654.0041**	21.00	55	**40.55338.0041**	41.00	75
4.20	.1654	**40.55654.0042**	21.00	55	**40.55338.0042**	41.00	75
4.30	.1693	**40.55654.0043**	22.50	58	**40.55338.0043**	45.00	80
4.40	.1732	**40.55654.0044**	22.50	58	**40.55338.0044**	45.00	80
4.50	.1772	**40.55654.0045**	22.50	58	**40.55338.0045**	45.00	80
4.60	.1811	**40.55654.0046**	22.50	58	**40.55338.0046**	45.00	80
4.70	.1850	**40.55654.0047**	22.50	58	**40.55338.0047**	45.00	80
4.763	.1875 (3/16)	**40.55654.4763**	24.50	62	**—**	—	—
4.80	.1890	**40.55654.0048**	24.50	62	**40.55338.0048**	50.00	86
4.90	.1929	**40.55654.0049**	24.50	62	**40.55338.0049**	50.00	86
5.00	.1969	**40.55654.0050**	24.50	62	**40.55338.0050**	50.00	86
5.10	.2008	**40.55654.0051**	24.50	62	**40.55338.0051**	50.00	86
5.20	.2047	**40.55654.0052**	24.50	62	**40.55338.0052**	50.00	86
5.30	.2087	**40.55654.0053**	24.50	62	**40.55338.0053**	50.00	86
5.40	.2126	**40.55654.0054**	26.00	66	**40.55338.0054**	55.00	93
5.50	.2165	**40.55654.0055**	26.00	66	**40.55338.0055**	55.00	93
5.556	.2187 (7/32)	**40.55654.5556**	26.00	66	**—**	—	—
5.60	.2205	**40.55654.0056**	26.00	66	**40.55338.0056**	55.00	93
5.70	.2244	**40.55654.0057**	26.00	66	**40.55338.0057**	55.00	93
5.80	.2283	**40.55654.0058**	26.00	66	**40.55338.0058**	55.00	93
5.90	.2323	**40.55654.0059**	26.00	66	**40.55338.0059**	55.00	93
6.00	.2362	**40.55654.0060**	26.00	66	**40.55338.0060**	55.00	93
6.10	.2402	**40.55654.0061**	28.50	70	**40.55338.0061**	60.00	101
6.20	.2441	**40.55654.0062**	28.50	70	**40.55338.0062**	60.00	101
6.30	.2480	**40.55654.0063**	28.50	70	**40.55338.0063**	60.00	101
6.35	.2500 (1/4)	**40.55654.6350**	28.50	70	**—**	—	—
6.40	.2520	**40.55654.0064**	28.50	70	**40.55338.0064**	60.00	101
6.50	.2559	**40.55654.0065**	28.50	70	**40.55338.0065**	60.00	101
6.60	.2598	**40.55654.0066**	28.50	70	**40.55338.0066**	60.00	101
6.70	.2638	**40.55654.0067**	28.50	70	**40.55338.0067**	60.00	101
6.80	.2677	**40.55654.0068**	31.00	74	**40.55338.0068**	66.00	109
6.90	.2717	**40.55654.0069**	31.00	74	**40.55338.0069**	66.00	109
7.00	.2756	**40.55654.0070**	31.00	74	**40.55338.0070**	66.00	109
7.10	.2795	**40.55654.0071**	31.00	74	**40.55338.0071**	66.00	109
7.144	.2813 (9/32)	**40.55654.7144**	31.00	74	**—**	—	—
7.20	.2835	**40.55654.0072**	31.00	74	**40.55338.0072**	66.00	109
7.30	.2874	**40.55654.0073**	31.00	74	**40.55338.0073**	66.00	109
7.40	.2913	**40.55654.0074**	31.00	74	**40.55338.0074**	66.00	109

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 157

Tricut

Art. 55654 / 55338 Cont.



d1	d1 (in.)	Art. 55654			Art. 55338		
		Catalog Number	l2	l1	Catalog Number	l2	l1
7.50	.2953	**40.55654.0075**	31.00	74	**40.55338.0075**	66.00	109
7.60	.2992	**40.55654.0076**	34.00	79	**40.55338.0076**	72.00	117
7.70	.3031	**40.55654.0077**	34.00	79	**40.55338.0077**	72.00	117
7.80	.3071	**40.55654.0078**	34.00	79	**40.55338.0078**	72.00	117
7.90	.3110	**40.55654.0079**	34.00	79	**40.55338.0079**	72.00	117
7.938	.3125 (5/16)	**40.55654.7938**	34.00	79	**—**	—	—
8.00	.3150	**40.55654.0080**	34.00	79	**40.55338.0080**	72.00	117
8.10	.3189	**40.55654.0081**	34.00	79	**40.55338.0081**	72.00	117
8.20	.3228	**40.55654.0082**	34.00	79	**40.55338.0082**	72.00	117
8.30	.3268	**40.55654.0083**	34.00	79	**40.55338.0083**	72.00	117
8.40	.3307	**40.55654.0084**	34.00	79	**40.55338.0084**	72.00	117
8.50	.3346	**40.55654.0085**	34.00	79	**40.55338.0085**	72.00	117
8.60	.3386	**40.55654.0086**	36.50	84	**40.55338.0086**	78.00	125
8.70	.3425	**40.55654.0087**	36.50	84	**40.55338.0087**	78.00	125
8.80	.3465	**40.55654.0088**	36.50	84	**40.55338.0088**	78.00	125
8.90	.3504	**40.55654.0089**	36.50	84	**40.55338.0089**	78.00	125
9.00	.3543	**40.55654.0090**	36.50	84	**40.55338.0090**	78.00	125
9.10	.3583	**40.55654.0091**	36.50	84	**40.55338.0091**	78.00	125
9.20	.3622	**40.55654.0092**	36.50	84	**40.55338.0092**	78.00	125
9.30	.3661	**40.55654.0093**	36.50	84	**40.55338.0093**	78.00	125
9.40	.3701	**40.55654.0094**	36.50	84	**40.55338.0094**	78.00	125
9.50	.3740	**40.55654.0095**	36.50	84	**40.55338.0095**	78.00	125
9.525	.3750 (3/8)	**40.55654.9525**	39.00	89	**—**	—	—
9.60	.3780	**40.55654.0096**	39.00	89	**40.55338.0096**	84.00	133
9.70	.3819	**40.55654.0097**	39.00	89	**40.55338.0097**	84.00	133
9.80	.3858	**40.55654.0098**	39.00	89	**40.55338.0098**	84.00	133
9.90	.3898	**40.55654.0099**	39.00	89	**40.55338.0099**	84.00	133
10.00	.3937	**40.55654.1000**	39.00	89	**40.55338.0100**	84.00	133
10.20	.4016	**40.55654.1020**	39.00	89	**40.55338.0102**	84.00	133
10.50	.4134	**40.55654.1050**	39.00	89	**40.55338.0105**	84.00	133
11.00	.4331	**40.55654.1100**	43.00	95	**40.55338.0110**	91.00	142
11.113	.4375 (7/16)	**40.55654.1111**	43.00	95	**—**	—	—
11.50	.4528	**40.55654.1150**	43.00	95	**40.55338.0115**	91.00	142
12.00	.4724	**40.55654.1200**	47.00	102	**40.55338.0120**	98.00	151
12.50	.4921	**40.55654.1250**	47.00	102	**40.55338.0125**	98.00	151
12.70	.5000 (1/2)	**40.55654.1270**	47.00	102	**—**	—	—
13.00	.5118	**40.55654.1300**	47.00	102	**40.55338.0130**	98.00	151
13.50	.5315	**40.55654.1350**	50.00	107	**40.55338.0135**	105.00	160
14.00	.5512	**40.55654.1400**	50.00	107	**40.55338.0140**	105.00	160

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 157

SPHINX TOOLS

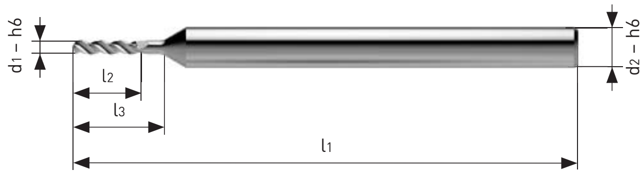
Microtricut

Art. 55652

Carbide | Z 3 | 140° | 35° | ≈5xd

Blind Hole | Through Hole | Cross Hole | Round Surface | Inclined Surface

ST | SST | C.I. | Al | Cu | Ti | Plastic



Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.55652.0020	.20	.0079	1.00	1.50	38	3.00
40.55652.0021	.21	.0083	1.05	1.50	38	3.00
40.55652.0022	.22	.0087	1.10	1.60	38	3.00
40.55652.0023	.23	.0091	1.15	1.60	38	3.00
40.55652.0024	.24	.0094	1.20	1.70	38	3.00
40.55652.0025	.25	.0098	1.25	1.70	38	3.00
40.55652.0026	.26	.0102	1.30	1.80	38	3.00
40.55652.0027	.27	.0106	1.35	1.80	38	3.00
40.55652.0028	.28	.0110	1.40	1.90	38	3.00
40.55652.0029	.29	.0114	1.45	1.90	38	3.00
40.55652.0030	.30	.0118	1.50	2.00	38	3.00
40.55652.0031	.31	.0122	1.55	2.00	38	3.00
40.55652.0032	.32	.0126	1.60	2.10	38	3.00
40.55652.0033	.33	.0130	1.65	2.10	38	3.00
40.55652.0034	.34	.0134	1.70	2.20	38	3.00
40.55652.0035	.35	.0138	1.75	2.20	38	3.00
40.55652.0036	.36	.0142	1.80	2.30	38	3.00
40.55652.0037	.37	.0146	1.85	2.30	38	3.00
40.55652.0038	.38	.0150	1.90	2.40	38	3.00
40.55652.0039	.39	.0154	1.95	2.40	38	3.00
40.55652.0040	.40	.0157	2.00	2.50	38	3.00
40.55652.0041	.41	.0161	2.05	2.50	38	3.00
40.55652.0042	.42	.0165	2.10	2.60	38	3.00
40.55652.0043	.43	.0169	2.15	2.60	38	3.00
40.55652.0044	.44	.0173	2.20	2.70	38	3.00
40.55652.0045	.45	.0177	2.25	2.70	38	3.00
40.55652.0046	.46	.0181	2.30	2.80	38	3.00
40.55652.0047	.47	.0185	2.35	2.80	38	3.00
40.55652.0048	.48	.0189	2.40	2.90	38	3.00
40.55652.0049	.49	.0193	2.45	2.90	38	3.00
40.55652.0050	.50	.0197	2.50	3.00	38	3.00
40.55652.0051	.51	.0201	2.55	3.00	38	3.00
40.55652.0052	.52	.0205	2.60	3.10	38	3.00
40.55652.0053	.53	.0209	2.65	3.10	38	3.00
40.55652.0054	.54	.0213	2.70	3.20	38	3.00
40.55652.0055	.55	.0217	2.75	3.20	38	3.00
40.55652.0056	.56	.0220	2.80	3.30	38	3.00
40.55652.0057	.57	.0224	2.85	3.30	38	3.00
40.55652.0058	.58	.0228	2.90	3.40	38	3.00
40.55652.0059	.59	.0232	2.95	3.40	38	3.00
40.55652.0060	.60	.0236	3.00	3.50	38	3.00
40.55652.0061	.61	.0240	3.05	3.50	38	3.00
40.55652.0062	.62	.0244	3.10	3.60	38	3.00
40.55652.0063	.63	.0248	3.15	3.60	38	3.00
40.55652.0064	.64	.0252	3.20	3.70	38	3.00
40.55652.0065	.65	.0256	3.25	3.70	38	3.00
40.55652.0066	.66	.0260	3.30	3.80	38	3.00
40.55652.0067	.67	.0264	3.35	3.80	38	3.00
40.55652.0068	.68	.0268	3.40	3.90	38	3.00
40.55652.0069	.69	.0272	3.45	3.90	38	3.00
40.55652.0070	.70	.0276	3.50	4.00	38	3.00
40.55652.0071	.71	.0280	3.55	4.00	38	3.00
40.55652.0072	.72	.0283	3.60	4.10	38	3.00
40.55652.0073	.73	.0287	3.65	4.10	38	3.00
40.55652.0074	.74	.0291	3.70	4.20	38	3.00
40.55652.0075	.75	.0295	3.75	4.20	38	3.00
40.55652.0076	.76	.0299	3.80	4.30	38	3.00
40.55652.0077	.77	.0303	3.85	4.30	38	3.00

SPHINX TOOLS

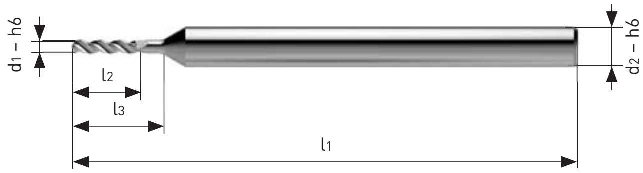
Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.55652.0078	.78	.0307	3.90	4.40	38	3.00
40.55652.0079	.79	.0311	3.95	4.40	38	3.00
40.55652.0080	.80	.0315	4.00	4.50	38	3.00
40.55652.0081	.81	.0319	4.05	4.50	38	3.00
40.55652.0082	.82	.0323	4.10	4.60	38	3.00
40.55652.0083	.83	.0327	4.15	4.60	38	3.00
40.55652.0084	.84	.0331	4.20	4.70	38	3.00
40.55652.0085	.85	.0335	4.25	4.70	38	3.00
40.55652.0086	.86	.0339	4.30	4.80	38	3.00
40.55652.0087	.87	.0343	4.35	4.80	38	3.00
40.55652.0088	.88	.0346	4.40	4.90	38	3.00
40.55652.0089	.89	.0350	4.45	4.90	38	3.00
40.55652.0090	.90	.0354	4.50	5.00	38	3.00
40.55652.0091	.91	.0358	4.55	5.00	38	3.00
40.55652.0092	.92	.0362	4.60	5.10	38	3.00
40.55652.0093	.93	.0366	4.65	5.10	38	3.00
40.55652.0094	.94	.0370	4.70	5.20	38	3.00
40.55652.0095	.95	.0374	4.75	5.20	38	3.00
40.55652.0096	.96	.0378	4.80	5.30	38	3.00
40.55652.0097	.97	.0382	4.85	5.30	38	3.00
40.55652.0098	.98	.0386	4.90	5.40	38	3.00
40.55652.0099	.99	.0390	4.95	5.40	38	3.00
40.55652.0100	1.00	.0394	5.00	6.50	38	3.00
40.55652.0101	1.01	.0398	5.05	6.50	38	3.00
40.55652.0102	1.02	.0402	5.10	6.50	38	3.00
40.55652.0103	1.03	.0406	5.15	6.50	38	3.00
40.55652.0104	1.04	.0409	5.20	6.50	38	3.00
40.55652.0105	1.05	.0413	5.25	6.50	38	3.00
40.55652.0106	1.06	.0417	5.30	6.50	38	3.00
40.55652.0107	1.07	.0421	5.35	7.50	38	3.00
40.55652.0108	1.08	.0425	5.40	7.50	38	3.00
40.55652.0109	1.09	.0429	5.45	7.50	38	3.00
40.55652.0110	1.10	.0433	5.50	7.50	38	3.00
40.55652.0111	1.11	.0437	5.55	7.50	38	3.00
40.55652.0112	1.12	.0441	5.60	7.50	38	3.00
40.55652.0113	1.13	.0445	5.65	7.50	38	3.00
40.55652.0114	1.14	.0449	5.70	7.50	38	3.00
40.55652.0115	1.15	.0453	5.75	7.50	38	3.00
40.55652.0116	1.16	.0457	5.80	7.50	38	3.00
40.55652.0117	1.17	.0461	5.85	7.50	38	3.00
40.55652.0118	1.18	.0465	5.90	8.50	38	3.00
40.55652.0119	1.19	.0469	5.95	8.50	38	3.00
40.55652.0120	1.20	.0472	6.00	8.50	38	3.00
40.55652.0121	1.21	.0476	6.05	8.50	38	3.00
40.55652.0122	1.22	.0480	6.10	8.50	38	3.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.55652.0123	1.23	.0484	6.15	8.50	38	3.00
40.55652.0124	1.24	.0488	6.20	8.50	38	3.00
40.55652.0125	1.25	.0492	6.25	8.50	38	3.00
40.55652.0126	1.26	.0496	6.30	8.50	38	3.00
40.55652.0127	1.27	.0500	6.35	8.50	38	3.00
40.55652.0128	1.28	.0504	6.40	8.50	38	3.00
40.55652.0129	1.29	.0508	6.45	8.50	38	3.00
40.55652.0130	1.30	.0512	6.50	8.50	38	3.00
40.55652.0131	1.31	.0516	6.55	8.50	38	3.00
40.55652.0132	1.32	.0520	6.60	8.50	38	3.00
40.55652.0133	1.33	.0524	6.65	9.50	38	3.00
40.55652.0134	1.34	.0528	6.70	9.50	38	3.00
40.55652.0135	1.35	.0531	6.75	9.50	38	3.00
40.55652.0136	1.36	.0535	6.80	9.50	38	3.00
40.55652.0137	1.37	.0539	6.85	9.50	38	3.00
40.55652.0138	1.38	.0543	6.90	9.50	38	3.00
40.55652.0139	1.39	.0547	6.95	9.50	38	3.00
40.55652.0140	1.40	.0551	7.00	9.50	38	3.00
40.55652.0141	1.41	.0555	7.05	9.50	38	3.00
40.55652.0142	1.42	.0559	7.10	9.50	38	3.00
40.55652.0143	1.43	.0563	7.15	9.50	38	3.00
40.55652.0144	1.44	.0567	7.20	9.50	38	3.00
40.55652.0145	1.45	.0571	7.25	9.50	38	3.00
40.55652.0146	1.46	.0575	7.30	9.50	38	3.00
40.55652.0147	1.47	.0579	7.35	9.50	38	3.00
40.55652.0148	1.48	.0583	7.40	9.50	38	3.00
40.55652.0149	1.49	.0587	7.45	9.50	38	3.00
40.55652.0150	1.50	.0591	7.50	9.50	38	3.00
40.55652.0151	1.51	.0594	7.55	10.50	38	3.00
40.55652.0152	1.52	.0598	7.60	10.50	38	3.00
40.55652.0153	1.53	.0602	7.65	10.50	38	3.00
40.55652.0154	1.54	.0606	7.70	10.50	38	3.00
40.55652.0155	1.55	.0610	7.75	10.50	38	3.00
40.55652.0156	1.56	.0614	7.80	10.50	38	3.00
40.55652.0157	1.57	.0618	7.85	10.50	38	3.00
40.55652.0158	1.58	.0622	7.90	10.50	38	3.00
40.55652.0159	1.59	.0626	7.95	10.50	38	3.00
40.55652.0160	1.60	.0630	8.00	10.50	38	3.00
40.55652.0161	1.61	.0634	8.05	10.50	38	3.00
40.55652.0162	1.62	.0638	8.10	10.50	38	3.00
40.55652.0163	1.63	.0642	8.15	10.50	38	3.00
40.55652.0164	1.64	.0646	8.20	10.50	38	3.00
40.55652.0165	1.65	.0650	8.25	10.50	38	3.00
40.55652.0166	1.66	.0654	8.30	10.50	38	3.00
40.55652.0167	1.67	.0657	8.35	10.50	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 158

Microtricut

Art. 55652 Cont.



Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.55652.0168	1.68	.0661	8.40	10.50	38	3.00
40.55652.0169	1.69	.0665	8.45	10.50	38	3.00
40.55652.0170	1.70	.0669	8.50	10.50	38	3.00
40.55652.0171	1.71	.0673	8.55	11.50	38	3.00
40.55652.0172	1.72	.0677	8.60	11.50	38	3.00
40.55652.0173	1.73	.0681	8.65	11.50	38	3.00
40.55652.0174	1.74	.0685	8.70	11.50	38	3.00
40.55652.0175	1.75	.0689	8.75	11.50	38	3.00
40.55652.0176	1.76	.0693	8.80	11.50	38	3.00
40.55652.0177	1.77	.0697	8.85	11.50	38	3.00
40.55652.0178	1.78	.0701	8.90	11.50	38	3.00
40.55652.0179	1.79	.0705	8.95	11.50	38	3.00
40.55652.0180	1.80	.0709	9.00	11.50	38	3.00
40.55652.0181	1.81	.0713	9.05	11.50	38	3.00
40.55652.0182	1.82	.0717	9.10	11.50	38	3.00
40.55652.0183	1.83	.0720	9.15	11.50	38	3.00
40.55652.0184	1.84	.0724	9.20	11.50	38	3.00
40.55652.0185	1.85	.0728	9.25	11.50	38	3.00
40.55652.0186	1.86	.0732	9.30	11.50	38	3.00
40.55652.0187	1.87	.0736	9.35	11.50	38	3.00
40.55652.0188	1.88	.0740	9.40	11.50	38	3.00
40.55652.0189	1.89	.0744	9.45	11.50	38	3.00
40.55652.0190	1.90	.0748	9.50	11.50	38	3.00
40.55652.0191	1.91	.0752	9.55	12.50	38	3.00
40.55652.0192	1.92	.0756	9.60	12.50	38	3.00
40.55652.0193	1.93	.0760	9.65	12.50	38	3.00
40.55652.0194	1.94	.0764	9.70	12.50	38	3.00
40.55652.0195	1.95	.0768	9.75	12.50	38	3.00
40.55652.0196	1.96	.0772	9.80	12.50	38	3.00
40.55652.0197	1.97	.0776	9.85	12.50	38	3.00
40.55652.0198	1.98	.0780	9.90	12.50	38	3.00
40.55652.0199	1.99	.0783	9.95	12.50	38	3.00
40.55652.0200	2.00	.0787	10.00	12.50	38	3.00
40.55652.0201	2.01	.0791	10.05	12.50	38	3.00
40.55652.0202	2.02	.0795	10.10	12.50	38	3.00
40.55652.0203	2.03	.0799	10.15	12.50	38	3.00
40.55652.0204	2.04	.0803	10.20	12.50	38	3.00
40.55652.0205	2.05	.0807	10.25	12.50	38	3.00
40.55652.0206	2.06	.0811	10.30	12.50	38	3.00

Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.55652.0207	2.07	.0815	10.35	12.50	38	3.00
40.55652.0208	2.08	.0819	10.40	12.50	38	3.00
40.55652.0209	2.09	.0823	10.45	12.50	38	3.00
40.55652.0210	2.10	.0827	10.50	12.50	38	3.00
40.55652.0211	2.11	.0831	10.55	12.50	38	3.00
40.55652.0212	2.12	.0835	10.60	12.50	38	3.00
40.55652.0213	2.13	.0839	10.65	13.50	38	3.00
40.55652.0214	2.14	.0843	10.70	13.50	38	3.00
40.55652.0215	2.15	.0846	10.75	13.50	38	3.00
40.55652.0216	2.16	.0850	10.80	13.50	38	3.00
40.55652.0217	2.17	.0854	10.85	13.50	38	3.00
40.55652.0218	2.18	.0858	10.90	13.50	38	3.00
40.55652.0219	2.19	.0862	10.95	13.50	38	3.00
40.55652.0220	2.20	.0866	11.00	13.50	38	3.00
40.55652.0221	2.21	.0870	11.05	13.50	38	3.00
40.55652.0222	2.22	.0874	11.10	13.50	38	3.00
40.55652.0223	2.23	.0878	11.15	13.50	38	3.00
40.55652.0224	2.24	.0882	11.20	13.50	38	3.00
40.55652.0225	2.25	.0886	11.25	13.50	38	3.00
40.55652.0226	2.26	.0890	11.30	13.50	38	3.00
40.55652.0227	2.27	.0894	11.35	13.50	38	3.00
40.55652.0228	2.28	.0898	11.40	13.50	38	3.00
40.55652.0229	2.29	.0902	11.45	13.50	38	3.00
40.55652.0230	2.30	.0906	11.50	13.50	38	3.00
40.55652.0231	2.31	.0909	11.55	13.50	38	3.00
40.55652.0232	2.32	.0913	11.60	13.50	38	3.00
40.55652.0233	2.33	.0917	11.65	13.50	38	3.00
40.55652.0234	2.34	.0921	11.70	13.50	38	3.00
40.55652.0235	2.35	.0925	11.75	13.50	38	3.00
40.55652.0236	2.36	.0929	11.80	13.50	38	3.00
40.55652.0237	2.37	.0933	11.85	14.50	38	3.00
40.55652.0238	2.38	.0937	11.90	14.50	38	3.00
40.55652.0239	2.39	.0941	11.95	14.50	38	3.00
40.55652.0240	2.40	.0945	12.00	14.50	38	3.00
40.55652.0241	2.41	.0949	12.05	14.50	38	3.00
40.55652.0242	2.42	.0953	12.10	14.50	38	3.00
40.55652.0243	2.43	.0957	12.15	14.50	38	3.00
40.55652.0244	2.44	.0961	12.20	14.50	38	3.00
40.55652.0245	2.45	.0965	12.25	14.50	38	3.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.55652.0246	2.46	.0969	12.30	14.50	38	3.00
40.55652.0247	2.47	.0972	12.35	14.50	38	3.00
40.55652.0248	2.48	.0976	12.40	14.50	38	3.00
40.55652.0249	2.49	.0980	12.45	14.50	38	3.00
40.55652.0250	2.50	.0984	12.50	14.50	38	3.00
40.55652.0251	2.51	.0988	12.55	14.50	38	3.00
40.55652.0252	2.52	.0992	12.60	14.50	38	3.00
40.55652.0253	2.53	.0996	12.65	14.50	38	3.00
40.55652.0254	2.54	.1000	12.70	14.50	38	3.00
40.55652.0255	2.55	.1004	12.75	14.50	38	3.00
40.55652.0256	2.56	.1008	12.80	14.50	38	3.00
40.55652.0257	2.57	.1012	12.85	14.50	38	3.00
40.55652.0258	2.58	.1016	12.90	14.50	38	3.00
40.55652.0259	2.59	.1020	12.95	14.50	38	3.00
40.55652.0260	2.60	.1024	13.00	14.50	38	3.00
40.55652.0261	2.61	.1028	13.05	14.50	38	3.00
40.55652.0262	2.62	.1031	13.10	14.50	38	3.00
40.55652.0263	2.63	.1035	13.15	14.50	38	3.00
40.55652.0264	2.64	.1039	13.20	14.50	38	3.00
40.55652.0265	2.65	.1043	13.25	14.50	38	3.00
40.55652.0266	2.66	.1047	13.30	16.50	38	3.00
40.55652.0267	2.67	.1051	13.35	16.50	38	3.00
40.55652.0268	2.68	.1055	13.40	16.50	38	3.00
40.55652.0269	2.69	.1059	13.45	16.50	38	3.00
40.55652.0270	2.70	.1063	13.50	16.50	38	3.00
40.55652.0271	2.71	.1067	13.55	16.50	38	3.00
40.55652.0272	2.72	.1071	13.60	16.50	38	3.00

Catalog Number	d1	d1 (in.)	l2	l3	l1	d2
40.55652.0273	2.73	.1075	13.65	16.50	38	3.00
40.55652.0274	2.74	.1079	13.70	16.50	38	3.00
40.55652.0275	2.75	.1083	13.75	16.50	38	3.00
40.55652.0276	2.76	.1087	13.80	16.50	38	3.00
40.55652.0277	2.77	.1091	13.85	16.50	38	3.00
40.55652.0278	2.78	.1094	13.90	16.50	38	3.00
40.55652.0279	2.79	.1098	13.95	16.50	38	3.00
40.55652.0280	2.80	.1102	14.00	16.50	38	3.00
40.55652.0281	2.81	.1106	14.05	16.50	38	3.00
40.55652.0282	2.82	.1110	14.10	16.50	38	3.00
40.55652.0283	2.83	.1114	14.15	16.50	38	3.00
40.55652.0284	2.84	.1118	14.20	16.50	38	3.00
40.55652.0285	2.85	.1122	14.25	16.50	38	3.00
40.55652.0286	2.86	.1126	14.30	16.50	38	3.00
40.55652.0287	2.87	.1130	14.35	16.50	38	3.00
40.55652.0288	2.88	.1134	14.40	16.50	38	3.00
40.55652.0289	2.89	.1138	14.45	16.50	38	3.00
40.55652.0290	2.90	.1142	14.50	16.50	38	3.00
40.55652.0291	2.91	.1146	14.55	16.50	38	3.00
40.55652.0292	2.92	.1150	14.60	16.50	38	3.00
40.55652.0293	2.93	.1154	14.65	16.50	38	3.00
40.55652.0294	2.94	.1157	14.70	16.50	38	3.00
40.55652.0295	2.95	.1161	14.75	16.50	38	3.00
40.55652.0296	2.96	.1165	14.80	16.50	38	3.00
40.55652.0297	2.97	.1169	14.85	16.50	38	3.00
40.55652.0298	2.98	.1173	14.90	16.50	38	3.00
40.55652.0299	2.99	.1177	14.95	16.50	38	3.00

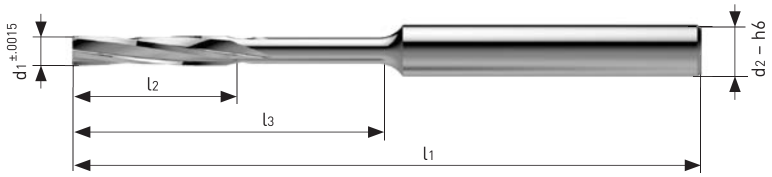
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 158

Art. 58000

Carbide | Z 3-6 | -8xd | 10° | RIGHT RIGHT

Blind Hole | Through Hole

ST | SST | C.I. | Al | Cu | Ti



Catalog Number	Ø	d1	d1 (in.)	l2	l3	l1	d2	z
40.58000.00987	1.0–P7	.987	.0389	8.00	16.00	48	3.00	3.00
40.58000.01005	1.0–H7	1.005	.0396	8.00	16.00	48	3.00	3.00
40.58000.01011	1.0–F7	1.011	.0398	8.00	16.00	48	3.00	3.00
40.58000.01102		1.102	.0434	8.00	16.00	48	3.00	3.00
40.58000.01115		1.115	.0439	8.00	16.00	48	3.00	3.00
40.58000.01255		1.255	.0494	8.00	16.00	48	3.00	3.00
40.58000.01480		1.480	.0583	10.00	20.00	52	3.00	3.00
40.58000.01679		1.679	.0661	11.00	22.00	54	3.00	3.00
40.58000.01690		1.690	.0665	11.00	22.00	54	3.00	3.00
40.58000.01692		1.692	.0666	11.00	22.00	54	3.00	3.00
40.58000.01695		1.695	.0667	11.00	22.00	54	3.00	3.00
40.58000.01697		1.697	.0668	11.00	22.00	54	3.00	3.00
40.58000.01701		1.701	.0670	11.00	22.00	54	3.00	3.00
40.58000.01790		1.790	.0705	11.00	22.00	54	3.00	3.00
40.58000.01985		1.985	.0781	11.00	22.00	54	3.00	4.00
40.58000.01987	2.0–P7	1.987	.0782	11.00	22.00	54	3.00	4.00
40.58000.01995		1.995	.0785	11.00	22.00	54	3.00	4.00
40.58000.02005	2.0–H7	2.005	.0789	11.00	22.00	54	3.00	4.00
40.58000.02011	2.0–F7	2.011	.0792	11.00	22.00	54	3.00	4.00
40.58000.02015		2.015	.0793	11.00	22.00	54	3.00	4.00
40.58000.02040		2.040	.0803	11.00	22.00	54	3.00	4.00
40.58000.02240		2.240	.0882	12.00	24.00	56	3.00	4.00
40.58000.02285		2.285	.0900	12.00	24.00	56	3.00	4.00
40.58000.02483		2.483	.0978	14.00	26.00	56	3.00	4.00
40.58000.02970		2.970	.1169	15.00	30.00	60	3.00	4.00
40.58000.02980		2.980	.1173	15.00	30.00	60	3.00	4.00
40.58000.02987	3.0–P7	2.987	.1176	15.00	30.00	60	3.00	4.00
40.58000.02995		2.995	.1179	15.00	30.00	60	3.00	4.00
40.58000.03005	3.0–H7	3.005	.1183	15.00	30.00	60	3.00	4.00
40.58000.03011	3.0–F7	3.011	.1185	15.00	30.00	60	3.00	4.00
40.58000.03020		3.020	.1189	15.00	30.00	60	3.00	4.00

Catalog Number	Ø	d1	d1 (in.)	l2	l3	l1	d2	z
40.58000.03030		3.030	.1192	15.00	30.00	60	3.00	4.00
40.58000.03045		3.045	.1199	15.00	30.00	60	3.00	4.00
40.58000.03050		3.050	.1201	15.00	30.00	60	3.00	4.00
40.58000.03060		3.060	.1205	15.00	30.00	60	3.00	4.00
40.58000.03870		3.870	.1524	19.00	38.00	76	6.00	4.00
40.58000.03970		3.970	.1563	19.00	38.00	76	6.00	6.00
40.58000.03980		3.980	.1567	19.00	38.00	76	6.00	6.00
40.58000.03986	4.0–P7	3.986	.1569	19.00	38.00	76	6.00	6.00
40.58000.03992		3.992	.1572	19.00	38.00	76	6.00	6.00
40.58000.04006	4.0–H7	4.006	.1577	19.00	38.00	76	6.00	6.00
40.58000.04016	4.0–F7	4.016	.1581	19.00	38.00	76	6.00	6.00
40.58000.04020		4.020	.1583	19.00	38.00	76	6.00	6.00
40.58000.04025		4.025	.1585	19.00	38.00	76	6.00	6.00
40.58000.04030		4.030	.1587	19.00	38.00	76	6.00	6.00
40.58000.04040		4.040	.1591	19.00	38.00	76	6.00	6.00
40.58000.04970		4.970	.1957	23.00	46.00	84	6.00	6.00
40.58000.04980		4.980	.1961	23.00	46.00	84	6.00	6.00
40.58000.04986	5.0–P7	4.986	.1963	23.00	46.00	84	6.00	6.00
40.58000.05006	5.0–H7	5.006	.1971	23.00	46.00	84	6.00	6.00
40.58000.05018	5.0–F7	5.018	.1976	23.00	46.00	84	6.00	6.00
40.58000.05020		5.020	.1976	23.00	46.00	84	6.00	6.00
40.58000.05030		5.030	.1980	23.00	46.00	84	6.00	6.00
40.58000.05206		5.206	.2050	23.00	46.00	84	6.00	6.00
40.58000.05220		5.220	.2055	23.00	46.00	84	6.00	6.00
40.58000.05970		5.970	.2350	26.00	52.00	90	6.00	6.00
40.58000.05980		5.980	.2354	26.00	52.00	90	6.00	6.00
40.58000.05986	6.0–P7	5.986	.2357	26.00	52.00	90	6.00	6.00
40.58000.06006	6.0–H7	6.006	.2365	26.00	52.00	90	6.00	6.00
40.58000.06018	6.0–F7	6.018	.2369	26.00	52.00	90	6.00	6.00
40.58000.06020		6.020	.2370	26.00	52.00	90	6.00	6.00
40.58000.06030		6.030	.2374	26.00	52.00	90	6.00	6.00

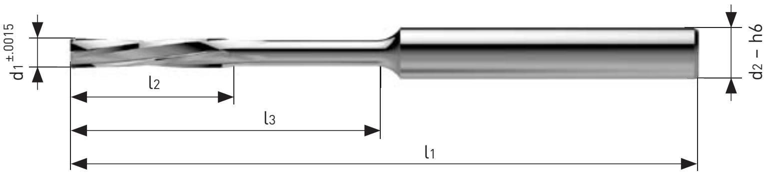
- All dimensions are millimeters unless otherwise noted
- Intermediate diameters available upon request
- For cutting data see pg. 159

Art. 58500

Carbide | Z 3-6 | -8xd | 10° | RIGHT LEFT

Through Hole

ST | SST | C.I. | Al | Cu | Ti



Catalog Number	Ø	d1	d1 (in.)	l2	l3	l1	d2	z
40.58500.00987	1.0–P7	.987	.0389	8.00	16.00	48	3.00	3.00
40.58500.01005	1.0–H7	1.005	.0396	8.00	16.00	48	3.00	3.00
40.58500.01011	1.0–F7	1.011	.0398	8.00	16.00	48	3.00	3.00
40.58500.01102		1.102	.0434	8.00	16.00	48	3.00	3.00
40.58500.01115		1.115	.0439	8.00	16.00	48	3.00	3.00
40.58500.01255		1.255	.0494	8.00	16.00	48	3.00	3.00
40.58500.01480		1.480	.0583	10.00	20.00	52	3.00	3.00
40.58500.01679		1.679	.0661	11.00	22.00	54	3.00	3.00
40.58500.01690		1.690	.0665	11.00	22.00	54	3.00	3.00
40.58500.01692		1.692	.0666	11.00	22.00	54	3.00	3.00
40.58500.01695		1.695	.0667	11.00	22.00	54	3.00	3.00
40.58500.01697		1.697	.0668	11.00	22.00	54	3.00	3.00
40.58500.01701		1.701	.0670	11.00	22.00	54	3.00	3.00
40.58500.01790		1.790	.0705	11.00	22.00	54	3.00	3.00
40.58500.01985		1.985	.0781	11.00	22.00	54	3.00	4.00
40.58500.01987	2.0–P7	1.987	.0782	11.00	22.00	54	3.00	4.00
40.58500.01995		1.995	.0785	11.00	22.00	54	3.00	4.00
40.58500.02005	2.0–H7	2.005	.0789	11.00	22.00	54	3.00	4.00
40.58500.02011	2.0–F7	2.011	.0792	11.00	22.00	54	3.00	4.00
40.58500.02015		2.015	.0793	11.00	22.00	54	3.00	4.00
40.58500.02040		2.040	.0803	11.00	22.00	54	3.00	4.00
40.58500.02240		2.240	.0882	12.00	24.00	56	3.00	4.00
40.58500.02285		2.285	.0900	12.00	24.00	56	3.00	4.00
40.58500.02483		2.483	.0978	14.00	26.00	58	3.00	4.00
40.58500.02970		2.970	.1169	15.00	30.00	60	3.00	4.00
40.58500.02980		2.980	.1173	15.00	30.00	60	3.00	4.00
40.58500.02987	3.0–P7	2.987	.1176	15.00	30.00	60	3.00	4.00
40.58500.02995		2.995	.1179	15.00	30.00	60	3.00	4.00
40.58500.03005	3.0–H7	3.005	.1183	15.00	30.00	60	3.00	4.00
40.58500.03011	3.0–F7	3.011	.1185	15.00	30.00	60	3.00	4.00
40.58500.03020		3.020	.1189	15.00	30.00	60	3.00	4.00

Catalog Number	Ø	d1	d1 (in.)	l2	l3	l1	d2	z
40.58500.03030		3.030	.1192	15.00	30.00	60	3.00	4.00
40.58500.03045		3.045	.1199	15.00	30.00	60	3.00	4.00
40.58500.03050		3.050	.1201	15.00	30.00	60	3.00	4.00
40.58500.03060		3.060	.1205	15.00	30.00	60	3.00	4.00
40.58500.03870		3.870	.1524	19.00	38.00	76	6.00	4.00
40.58500.03970		3.970	.1563	19.00	38.00	76	6.00	6.00
40.58500.03980		3.980	.1567	19.00	38.00	76	6.00	6.00
40.58500.03986	4.0–P7	3.986	.1569	19.00	38.00	76	6.00	6.00
40.58500.03992		3.992	.1572	19.00	38.00	76	6.00	6.00
40.58500.04006	4.0–H7	4.006	.1577	19.00	38.00	76	6.00	6.00
40.58500.04016	4.0–F7	4.016	.1581	19.00	38.00	76	6.00	6.00
40.58500.04020		4.020	.1583	19.00	38.00	76	6.00	6.00
40.58500.04025		4.025	.1585	19.00	38.00	76	6.00	6.00
40.58500.04030		4.030	.1587	19.00	38.00	76	6.00	6.00
40.58500.04040		4.040	.1591	19.00	38.00	76	6.00	6.00
40.58500.04970		4.970	.1957	23.00	46.00	84	6.00	6.00
40.58500.04980		4.980	.1961	23.00	46.00	84	6.00	6.00
40.58500.04986	5.0–P7	4.986	.1963	23.00	46.00	84	6.00	6.00
40.58500.05006	5.0–H7	5.006	.1971	23.00	46.00	84	6.00	6.00
40.58500.05018	5.0–F7	5.018	.1976	23.00	46.00	84	6.00	6.00
40.58500.05020		5.020	.1976	23.00	46.00	84	6.00	6.00
40.58500.05030		5.030	.1980	23.00	46.00	84	6.00	6.00
40.58500.05206		5.206	.2050	23.00	46.00	84	6.00	6.00
40.58500.05220		5.220	.2055	23.00	46.00	84	6.00	6.00
40.58500.05970		5.970	.2350	26.00	52.00	90	6.00	6.00
40.58500.05980		5.980	.2354	26.00	52.00	90	6.00	6.00
40.58500.05986	6.0–P7	5.986	.2357	26.00	52.00	90	6.00	6.00
40.58500.06006	6.0–H7	6.006	.2365	26.00	52.00	90	6.00	6.00
40.58500.06018	6.0–F7	6.018	.2369	26.00	52.00	90	6.00	6.00
40.58500.06020		6.020	.2370	26.00	52.00	90	6.00	6.00
40.58500.06030		6.030	.2374	26.00	52.00	90	6.00	6.00

- All dimensions are millimeters unless otherwise noted
- Intermediate diameters available upon request
- For cutting data see pg. 159

SPHINX TOOLS

Milling

	Article	Diameter Range	Increments	Cutting Length	Point Angle	Helix Angle	Number of Teeth	
Engraving Mill								
	70030	.02–.15	.01		30°	0°	1	
	70040	.02–.15	.01		40°	0°	1	
	70050	.02–.15	.01		50°	0°	1	
	70060	.02–.15	.01		60°	0°	1	
	70090	.02–.15	.01		90°	0°	1	
	70130	.04–.10	.01		30°	0°	1	
	70140	.04–.10	.01		40°	0°	1	
	70150	.04–.10	.01		50°	0°	1	
	70160	.04–.10	.01		60°	0°	1	
	70190	.04–.10	.01		90°	0°	1	
Micro End Mill								
	72075	.20–2.00	.10	.75 × Ø		30°	2	
	72150	.10–2.00	.10	1.5 × Ø		30°	2	
	42000	.10–3.00	.05	3 × Ø		30°	2	
	72500	.30–2.50	.10	5 × Ø		30°	2	
	72800	.40–2.50	.10	8 × Ø		30°	2	
	73130	.30–3.00	.10	1.3 × Ø		30°	3	
	73200	.30–2.90	.10	2 × Ø		30°	3	

	Material	Workpiece Material *							Application *	Page
		P	M	K	N	S	H	O		
	Carbide	✓	✓	✓	✓	✓		✓		108
	Carbide	✓	✓	✓	✓	✓		✓		108
	Carbide	✓	✓	✓	✓	✓		✓		108
	Carbide	✓	✓	✓	✓	✓		✓		108
	Carbide	✓	✓	✓	✓	✓		✓		108
	Carbide	✓	✓	✓	✓	✓		✓		110
	Carbide	✓	✓	✓	✓	✓		✓		110
	Carbide	✓	✓	✓	✓	✓		✓		110
	Carbide	✓	✓	✓	✓	✓		✓		110
	Carbide	✓	✓	✓	✓	✓		✓		110
	Carbide	✓	•	✓	✓	•		•		112
	Carbide	✓	•	✓	✓	•		•		112
	Carbide	✓	•	✓	✓	•		•		113
	Carbide	✓	•	✓	✓	•		•		114
	Carbide	✓	•	✓	✓	•		•		114
	Carbide	✓	•	✓	•	•				116
	Carbide	✓	•	✓	•	•				116

* S. 142+143
p. 142+143

✓ outstanding

• suitable

Milling

	Article	Diameter Range	Increments	Cutting Length	Point Angle	Helix Angle	Number of Teeth	
Micro End Mill								
	73300	.30–2.90	.10	3 × Ø		30°	3	
	73800	.50–2.50	.10	8 × Ø		30°	3	
	73725	.30–2.90	.10	2.5 × Ø		45°	3	
	43105	.30–3.00	.10	1 × Ø		35°	3	
	43305	.30–3.00	.10	3 × Ø		35°	3	
	74720	.30–2.90	.10	2 × Ø		40°	4	
	74740	.40–2.90	.10	4 × Ø		40°	4	
Ball Nose End Mill								
	74075	.20–2.00	.10	.75 × Ø		30°	2	
	74150	.20–2.00	.10	1.5 × Ø		30°	2	
	74300	.20–2.80	.10	3 × Ø		30°	2	
End Mill								
	40000	2.00–12.00	.50	DIN 6528		30°	2	
	40002	2.00–12.00	.50	DIN 6528		30°	3	
	40004	2.00–12.00	.50	DIN 6528		30°	4	
	47000	3.00–2.00	1.00	1.5–4 × Ø		55°	2	
	47500	6.00–2.00	2.00	4–8 × Ø		55°	2	
	76300	1.50–6.00	.50	1.5–4 × Ø		30°	3	

SPHINX TOOLS

	Material	Workpiece Material *							Application *	Page
		P	M	K	N	S	H	O		
	Carbide	✓	•	✓	•	•				116
	Carbide	✓	•	✓	✓	•				116
	Carbide	✓	✓	✓	•	✓				118
	Carbide; Cro-Nova	✓	✓	•	✓	✓	•	•		119
	Carbide; Cro-Nova	✓	✓	•	✓	✓	•	•		119
	Carbide	✓	✓	✓	•	•				120
	Carbide	✓	✓	✓	•	•				121
	Carbide	✓	•	✓	✓	•		•		122
	Carbide	✓	•	✓	✓	•		•		122
	Carbide	✓	•	✓	✓	•		•		122
	Carbide	•		•	✓			•		124
	Carbide	✓	•	✓	✓					125
	Carbide	✓	•	✓						126
	Carbide				✓			•		127
	Carbide				✓			•		128
	Carbide	✓	•	✓						129

* S. 142+143
p. 142+143

✓ outstanding • suitable

Art. 70030

Carbide | Z 1 | 30° | 0°

Groove Flat

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

Art. 70040

Carbide | Z 1 | 40° | 0°

Groove Flat

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

Art. 70050

Carbide | Z 1 | 50° | 0°

Groove Flat

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

Art. 70060

Carbide | Z 1 | 60° | 0°

Groove Flat

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

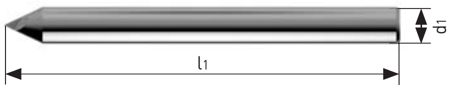
Art. 70090

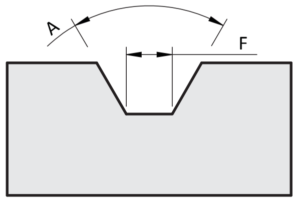
Carbide | Z 1 | 90° | 0°

Groove Flat

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic





Catalog Number	Point Angle A	Flat Width F	Flat Width F (in.)	L1	d1
40.70030.0002		.02	.0008	33	3.00
40.70030.0003		.03	.0012	33	3.00
40.70030.0004		.04	.0016	33	3.00
40.70030.0005		.05	.0020	33	3.00
40.70030.0006		.06	.0024	33	3.00
40.70030.0007	30º	.07	.0028	33	3.00
40.70030.0008		.08	.0031	33	3.00
40.70030.0009		.09	.0035	33	3.00
40.70030.0010		.10	.0039	33	3.00
40.70030.0012		.12	.0047	33	3.00
40.70030.0015		.15	.0059	33	3.00
40.70040.0002		.02	.0008	33	3.00
40.70040.0003		.03	.0012	33	3.00
40.70040.0004		.04	.0016	33	3.00
40.70040.0005		.05	.0020	33	3.00
40.70040.0006		.06	.0024	33	3.00
40.70040.0007	40º	.07	.0028	33	3.00
40.70040.0008		.08	.0031	33	3.00
40.70040.0009		.09	.0035	33	3.00
40.70040.0010		.10	.0039	33	3.00
40.70040.0012		.12	.0047	33	3.00
40.70040.0015		.15	.0059	33	3.00
40.70050.0002		.02	.0008	33	3.00
40.70050.0003		.03	.0012	33	3.00
40.70050.0004		.04	.0016	33	3.00
40.70050.0005		.05	.0020	33	3.00
40.70050.0006		.06	.0024	33	3.00
40.70050.0007	50º	.07	.0028	33	3.00
40.70050.0008		.08	.0031	33	3.00
40.70050.0009		.09	.0035	33	3.00
40.70050.0010		.10	.0039	33	3.00
40.70050.0012		.12	.0047	33	3.00
40.70050.0015		.15	.0059	33	3.00

Catalog Number	Point Angle A	Flat Width F	Flat Width F (in.)	L1	d1
40.70060.0002		.02	.0008	33	3.00
40.70060.0003		.03	.0012	33	3.00
40.70060.0004		.04	.0016	33	3.00
40.70060.0005		.05	.0020	33	3.00
40.70060.0006		.06	.0024	33	3.00
40.70060.0007	60º	.07	.0028	33	3.00
40.70060.0008		.08	.0031	33	3.00
40.70060.0009		.09	.0035	33	3.00
40.70060.0010		.10	.0039	33	3.00
40.70060.0012		.12	.0047	33	3.00
40.70060.0015		.15	.0059	33	3.00
40.70090.0002		.02	.0008	33	3.00
40.70090.0003		.03	.0012	33	3.00
40.70090.0004		.04	.0016	33	3.00
40.70090.0005		.05	.0020	33	3.00
40.70090.0006		.06	.0024	33	3.00
40.70090.0007	90º	.07	.0028	33	3.00
40.70090.0008		.08	.0031	33	3.00
40.70090.0009		.09	.0035	33	3.00
40.70090.0010		.10	.0039	33	3.00
40.70090.0012		.12	.0047	33	3.00
40.70090.0015		.15	.0059	33	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 160

Art. 70130

Carbide | Z 1 | 30° | 0°

Groove Radius

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

Art. 70140

Carbide | Z 1 | 40° | 0°

Groove Radius

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

Art. 70150

Carbide | Z 1 | 50° | 0°

Groove Radius

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

Art. 70160

Carbide | Z 1 | 60° | 0°

Groove Radius

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic

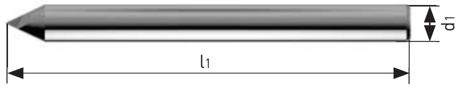
Art. 70190

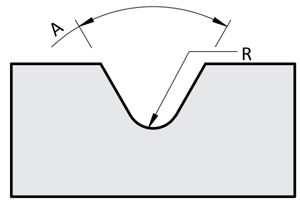
Carbide | Z 1 | 90° | 0°

Groove Radius

ST | SST | C.I. | Al | Cu

Brass | Mg | Ti | Plastic





Catalog Number	Point Angle A	Radius		L1	d1
		R	R (in.)		
40.70130.0004		.04	.0016	33	3.00
40.70130.0005		.05	.0020	33	3.00
40.70130.0006		.06	.0024	33	3.00
40.70130.0007	30º	.07	.0028	33	3.00
40.70130.0008		.08	.0031	33	3.00
40.70130.0009		.09	.0035	33	3.00
40.70130.0010		.10	.0039	33	3.00
40.70140.0004		.04	.0016	33	3.00
40.70140.0005		.05	.0020	33	3.00
40.70140.0006		.06	.0024	33	3.00
40.70140.0007	40º	.07	.0028	33	3.00
40.70140.0008		.08	.0031	33	3.00
40.70140.0009		.09	.0035	33	3.00
40.70140.0010		.10	.0039	33	3.00
40.70150.0004		.04	.0016	33	3.00
40.70150.0005		.05	.0020	33	3.00
40.70150.0006		.06	.0024	33	3.00
40.70150.0007	50º	.07	.0028	33	3.00
40.70150.0008		.08	.0031	33	3.00
40.70150.0009		.09	.0035	33	3.00
40.70150.0010		.10	.0039	33	3.00
40.70160.0004		.04	.0016	33	3.00
40.70160.0005		.05	.0020	33	3.00
40.70160.0006		.06	.0024	33	3.00
40.70160.0007	60º	.07	.0028	33	3.00
40.70160.0008		.08	.0031	33	3.00
40.70160.0009		.09	.0035	33	3.00
40.70160.0010		.10	.0039	33	3.00
40.70190.0004		.04	.0016	33	3.00
40.70190.0005		.05	.0020	33	3.00
40.70190.0006		.06	.0024	33	3.00
40.70190.0007	90º	.07	.0028	33	3.00
40.70190.0008		.08	.0031	33	3.00
40.70190.0009		.09	.0035	33	3.00
40.70190.0010		.10	.0039	33	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 160

Art. 72075

Carbide | Z 2 | 30° | .75xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing

Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass

Ti | Plastic

Art. 72150

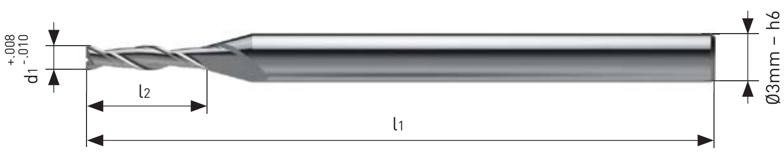
Carbide | Z 2 | 30° | 1.5xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing

Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass

Ti | Plastic



d1	d1 (in.)	72075			72150		
		Catalog Number	l2	l1	Catalog Number	l2	l1
.10	.0039	**—**	—	—	**40.72150.0010**	.15	39
.15	.0059	**—**	—	—	**40.72150.0015**	.20	39
.20	.0079	**40.72075.0020**	.15	39	**40.72150.0020**	.30	39
.25	.0098	**—**	—	—	**40.72150.0025**	.35	39
.30	.0118	**40.72075.0030**	.25	39	**40.72150.0030**	.45	39
.40	.0157	**40.72075.0040**	.30	39	**40.72150.0040**	.60	39
.50	.0197	**40.72075.0050**	.37	39	**40.72150.0050**	.75	39
.60	.0236	**40.72075.0060**	.45	39	**40.72150.0060**	.90	39
.70	.0276	**40.72075.0070**	.53	39	**40.72150.0070**	1.05	39
.80	.0315	**40.72075.0080**	.60	39	**40.72150.0080**	1.20	39
.90	.0354	**40.72075.0090**	.70	39	**40.72150.0090**	1.35	39
1.00	.0394	**40.72075.0100**	.75	39	**40.72150.0100**	1.50	39
1.10	.0433	**40.72075.0110**	.90	39	**40.72150.0110**	1.65	39
1.20	.0472	**40.72075.0120**	.90	39	**40.72150.0120**	1.80	39
1.30	.0512	**40.72075.0130**	1.00	39	**40.72150.0130**	1.95	39
1.40	.0551	**40.72075.0140**	1.10	39	**40.72150.0140**	2.10	39
1.50	.0591	**40.72075.0150**	1.15	39	**40.72150.0150**	2.25	39
1.60	.0630	**40.72075.0160**	1.20	39	**40.72150.0160**	2.40	39
1.70	.0669	**40.72075.0170**	1.30	39	**40.72150.0170**	2.55	39
1.80	.0709	**40.72075.0180**	1.40	39	**40.72150.0180**	2.70	39
1.90	.0748	**40.72075.0190**	1.45	39	**40.72150.0190**	2.85	39
2.00	.0787	**40.72075.0200**	1.50	39	**40.72150.0200**	3.00	39
2.50	.0984	**—**	—	—	**—**	—	—

- All dimensions are millimeters unless otherwise noted

* Indicates Ø4mm - h6 shank

- For cutting data see pg. 160

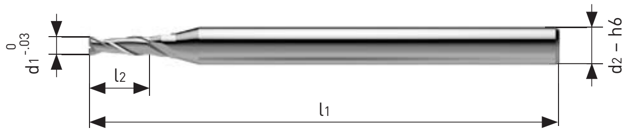
SPHINX TOOLS

Art. 42000

Carbide | Z 2 | 30° | 3xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.42000.0010	.10	.0039	.30	38	3.00
40.42000.0015	.15	.0059	.45	38	3.00
40.42000.0020	.20	.0079	.60	38	3.00
40.42000.0025	.25	.0098	.75	38	3.00
40.42000.0030	.30	.0118	.90	38	3.00
40.42000.0035	.35	.0138	1.05	38	3.00
40.42000.0040	.40	.0157	1.20	38	3.00
40.42000.0045	.45	.0177	1.35	38	3.00
40.42000.0050	.50	.0197	1.50	38	3.00
40.42000.0055	.55	.0217	1.65	38	3.00
40.42000.0060	.60	.0236	1.80	38	3.00
40.42000.0065	.65	.0256	1.95	38	3.00
40.42000.0070	.70	.0276	2.10	38	3.00
40.42000.0075	.75	.0295	2.25	38	3.00
40.42000.0080	.80	.0315	2.40	38	3.00
40.42000.0085	.85	.0335	2.55	38	3.00
40.42000.0090	.90	.0354	2.70	38	3.00
40.42000.0095	.95	.0374	2.85	38	3.00
40.42000.0100	1.00	.0394	3.00	38	3.00
40.42000.0105	1.05	.0413	3.10	38	3.00
40.42000.0110	1.10	.0433	3.30	38	3.00
40.42000.0115	1.15	.0453	3.40	38	3.00
40.42000.0120	1.20	.0472	3.60	38	3.00
40.42000.0125	1.25	.0492	3.70	38	3.00
40.42000.0130	1.30	.0512	3.90	38	3.00

Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.42000.0135	1.35	.0531	4.00	38	3.00
40.42000.0140	1.40	.0551	4.20	38	3.00
40.42000.0145	1.45	.0571	4.30	38	3.00
40.42000.0150	1.50	.0591	4.50	38	3.00
40.42000.0155	1.55	.0610	4.60	38	3.00
40.42000.0160	1.60	.0630	4.80	38	3.00
40.42000.0165	1.65	.0650	4.90	38	3.00
40.42000.0170	1.70	.0669	5.10	38	3.00
40.42000.0175	1.75	.0689	5.20	38	3.00
40.42000.0180	1.80	.0709	5.40	38	3.00
40.42000.0185	1.85	.0728	5.50	38	3.00
40.42000.0190	1.90	.0748	5.70	38	3.00
40.42000.0195	1.95	.0768	5.80	38	3.00
40.42000.0200	2.00	.0787	6.00	38	3.00
40.42000.0210	2.10	.0827	6.30	38	3.00
40.42000.0220	2.20	.0866	6.60	38	3.00
40.42000.0230	2.30	.0906	6.90	38	3.00
40.42000.0240	2.40	.0945	7.20	38	3.00
40.42000.0250	2.50	.0984	7.50	38	3.00
40.42000.0260	2.60	.1024	7.80	38	3.00
40.42000.0270	2.70	.1063	8.10	38	3.00
40.42000.0280	2.80	.1102	8.40	38	3.00
40.42000.0290	2.90	.1142	8.70	38	3.00
40.42000.0300	3.00	.1181	9.00	38	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 161

Art. 72500

Carbide | Z 2 | 30° | 5xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

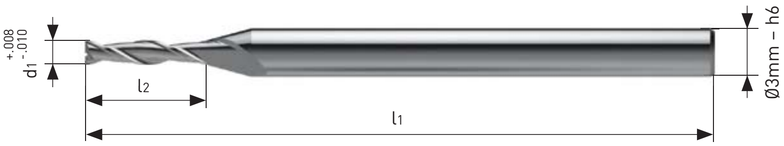
ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic

Art. 72800

Carbide | Z 2 | 30° | 8xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

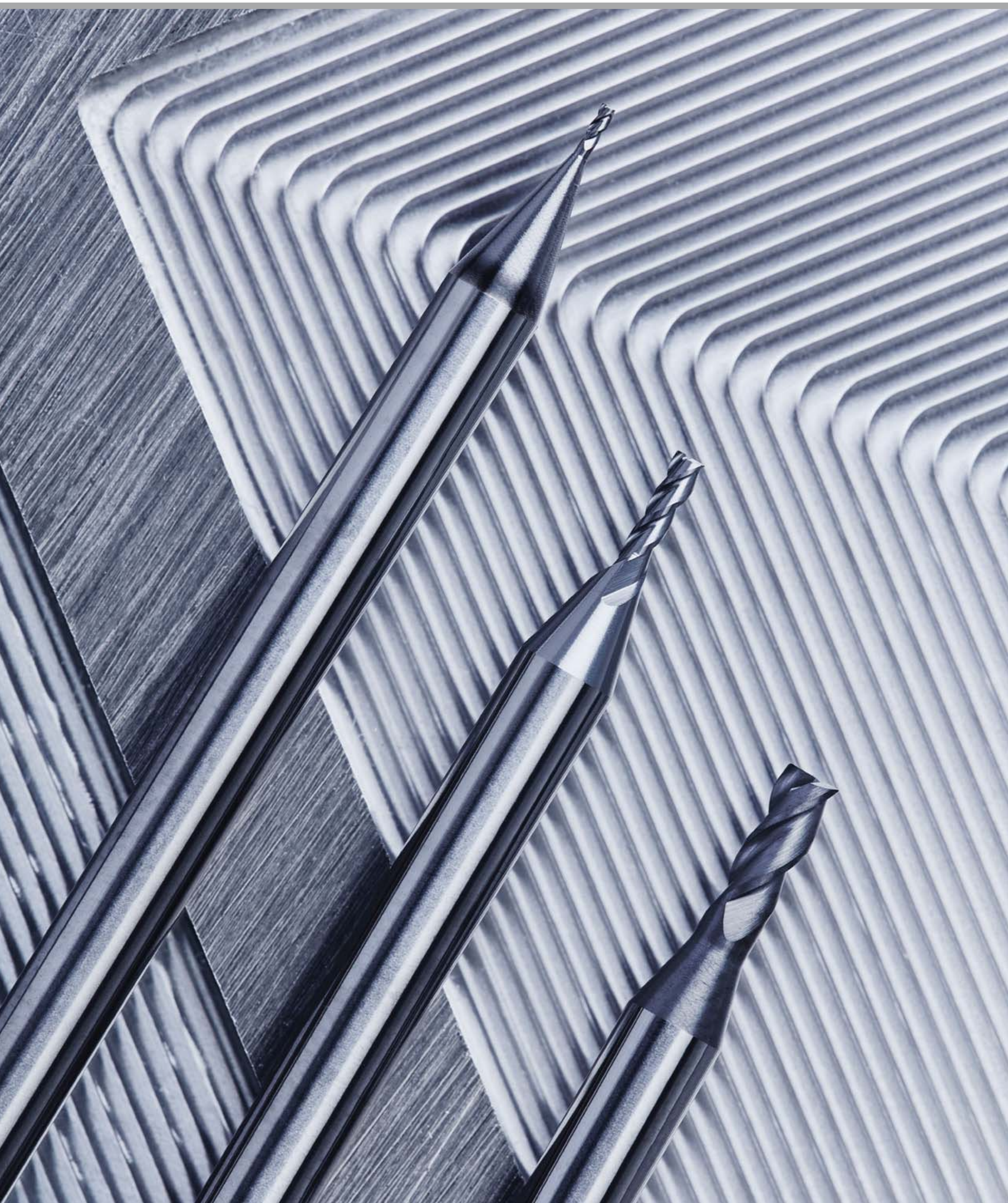
ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic



d1	d1 (in.)	72500			72800		
		Catalog Number	l2	l1	Catalog Number	l2	l1
.10	.0039	—	—	—	—	—	—
.15	.0059	—	—	—	—	—	—
.20	.0079	—	—	—	—	—	—
.25	.0098	—	—	—	—	—	—
.30	.0118	**40.72500.0030**	1.50	39	—	—	—
.40	.0157	**40.72500.0040**	2.00	39	**40.72800.0040**	3.20	39
.50	.0197	**40.72500.0050**	2.50	39	**40.72800.0050**	4.00	39
.60	.0236	**40.72500.0060**	3.00	39	**40.72800.0060**	5.00	39
.70	.0276	**40.72500.0070**	3.50	39	**40.72800.0070**	5.60	39
.80	.0315	**40.72500.0080**	4.00	39	**40.72800.0080**	6.00	39
.90	.0354	**40.72500.0090**	4.50	39	**40.72800.0090**	7.20	39
1.00	.0394	**40.72500.0100**	5.00	39	**40.72800.0100**	8.00	39
1.10	.0433	**40.72500.0110**	5.50	39	—	—	—
1.20	.0472	**40.72500.0120**	6.00	39	**40.72800.0120**	9.00	39
1.30	.0512	—	—	—	—	—	—
1.40	.0551	—	—	—	—	—	—
1.50	.0591	**40.72500.0150**	7.50	39	**40.72800.0150***	12.00	50
1.60	.0630	—	—	—	—	—	—
1.70	.0669	—	—	—	—	—	—
1.80	.0709	—	—	—	—	—	—
1.90	.0748	—	—	—	—	—	—
2.00	.0787	**40.72500.0200**	10.00	39	**40.72800.0200***	16.00	50
2.50	.0984	**40.72500.0250**	12.50	39	**40.72800.0250***	20.00	50

• All dimensions are millimeters unless otherwise noted
* Indicates Ø4mm - h6 shank
• For cutting data see pg. 161

SPHINX TOOLS



Art. 73130

Carbide | Z 3 | 30° | 1.3xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass | Ti

Art. 73200

Carbide | Z 3 | 30° | 2xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass | Ti

Art. 73300

Carbide | Z 3 | 30° | 3xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

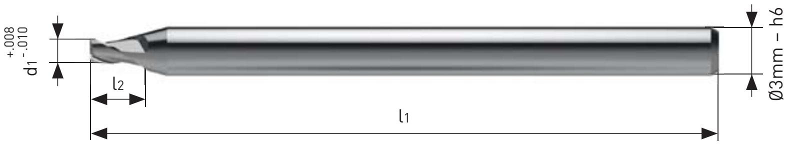
ST | SST | C.I. | Al | Cu | Brass | Ti

Art. 73800

Carbide | Z 3 | 30° | 8xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass | Ti



d_1	d1 (in.)	73130			73200			73300			73800		
		Catalog Number	l_2	l_1	Catalog Number	l_2	l_1	Catalog Number	l_2	l_1	Catalog Number	l_2	l_1
.30	.0118	**40.73130.0030**	.40	39	**40.73200.0030**	.60	39	**40.73300.0030**	.90	39	—	—	—
.40	.0157	**40.73130.0040**	.50	39	**40.73200.0040**	.80	39	**40.73300.0040**	1.20	39	—	—	—
.45	.0177	**40.73130.0045**	.60	39	—	—	—	—	—	—	—	—	—
.50	.0197	**40.73130.0050**	.70	39	**40.73200.0050**	1.00	39	**40.73300.0050**	1.50	39	**40.73800.0050**	4.00	39
.60	.0236	**40.73130.0060**	.80	39	**40.73200.0060**	1.20	39	**40.73300.0060**	2.00	39	**40.73800.0060**	5.00	39
.70	.0276	**40.73130.0070**	.90	39	**40.73200.0070**	1.40	39	**40.73300.0070**	2.00	39	**40.73800.0070**	5.60	39
.75	.0295	—	—	—	**40.73200.0075**	1.50	39	**40.73300.0075**	2.00	39	—	—	—
.80	.0315	**40.73130.0080**	1.00	39	**40.73200.0080**	1.60	39	**40.73300.0080**	2.50	39	**40.73800.0080**	6.00	39
.90	.0354	**40.73130.0090**	1.30	39	**40.73200.0090**	1.80	39	**40.73300.0090**	2.50	39	**40.73800.0090**	7.20	39
1.00	.0394	**40.73130.0100**	1.30	39	**40.73200.0100**	2.00	39	**40.73300.0100**	3.00	39	**40.73800.0100**	8.00	39
1.10	.0433	**40.73130.0110**	1.50	39	**40.73200.0110**	2.20	39	**40.73300.0110**	3.30	39	—	—	—
1.20	.0472	**40.73130.0120**	1.60	39	**40.73200.0120**	2.40	39	**40.73300.0120**	4.00	39	**40.73800.0120**	9.00	39
1.30	.0512	**40.73130.0130**	1.80	39	**40.73200.0130**	2.60	39	**40.73300.0130**	4.00	39	—	—	—
1.40	.0551	**40.73130.0140**	1.80	39	**40.73200.0140**	2.80	39	**40.73300.0140**	4.00	39	—	—	—
1.50	.0591	**40.73130.0150**	2.00	39	**40.73200.0150**	3.00	39	**40.73300.0150**	4.50	39	**40.73800.0150***	12.00	50
1.60	.0630	**40.73130.0160**	2.00	39	**40.73200.0160**	3.20	39	**40.73300.0160**	4.50	39	—	—	—
1.70	.0669	**40.73130.0170**	2.00	39	**40.73200.0170**	3.40	39	**40.73300.0170**	5.00	39	—	—	—
1.80	.0709	**40.73130.0180**	2.40	39	**40.73200.0180**	3.60	39	**40.73300.0180**	6.00	39	—	—	—
1.90	.0748	**40.73130.0190**	2.40	39	**40.73200.0190**	3.80	39	**40.73300.0190**	6.00	39	—	—	—
2.00	.0787	**40.73130.0200**	2.60	39	**40.73200.0200**	4.00	39	**40.73300.0200**	6.00	39	**40.73800.0200***	16.00	50
2.10	.0827	—	—	—	**40.73200.0210**	4.20	39	**40.73300.0210**	6.50	39	—	—	—
2.20	.0866	**40.73130.0220**	3.00	39	**40.73200.0220**	4.40	39	**40.73300.0220**	7.00	39	—	—	—
2.30	.0906	—	—	—	**40.73200.0230**	4.60	39	**40.73300.0230**	7.00	39	—	—	—
2.40	.0945	—	—	—	**40.73200.0240**	4.80	39	**40.73300.0240**	7.50	39	—	—	—
2.50	.0984	**40.73130.0250**	3.30	39	**40.73200.0250**	5.00	39	**40.73300.0250**	7.50	39	**40.73800.0250***	20.00	50
2.60	.1024	—	—	—	**40.73200.0260**	5.20	39	**40.73300.0260**	7.50	39	—	—	—
2.70	.1063	—	—	—	**40.73200.0270**	5.40	39	**40.73300.0270**	8.00	39	—	—	—
2.80	.1102	**40.73130.0280**	3.50	39	**40.73200.0280**	5.60	39	**40.73300.0280**	8.00	39	—	—	—
2.90	.1142	**40.73130.0290**	3.50	39	**40.73200.0290**	5.80	39	**40.73300.0290**	8.50	39	—	—	—
3.00	.1181	—	—	—	—	—	—	—	—	—	—	—	—

* Indicates Ø4mm - h6 shank

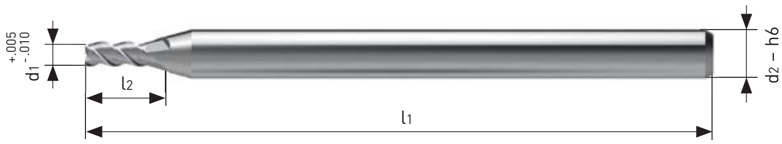
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 162-163

Art. 73725

Carbide | Z 3 | 45° | 1xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.73725.0030	.30	.0118	.80	39	3.00
40.73725.0040	.40	.0157	1.00	39	3.00
40.73725.0050	.50	.0197	1.30	39	3.00
40.73725.0060	.60	.0236	1.50	39	3.00
40.73725.0070	.70	.0276	1.70	39	3.00
40.73725.0080	.80	.0315	2.00	39	3.00
40.73725.0090	.90	.0354	2.30	39	3.00
40.73725.0100	1.00	.0394	2.50	39	3.00
40.73725.0110	1.10	.0433	2.80	39	3.00
40.73725.0120	1.20	.0472	3.00	39	3.00
40.73725.0130	1.30	.0512	3.30	39	3.00
40.73725.0140	1.40	.0551	3.50	39	3.00
40.73725.0150	1.50	.0591	3.80	39	3.00
40.73725.0160	1.60	.0630	4.00	39	3.00
40.73725.0170	1.70	.0669	4.30	39	3.00
40.73725.0180	1.80	.0709	4.50	39	3.00
40.73725.0190	1.90	.0748	4.80	39	3.00
40.73725.0200	2.00	.0787	5.00	39	3.00
40.73725.0210	2.10	.0827	5.30	39	3.00
40.73725.0220	2.20	.0866	5.50	39	3.00
40.73725.0230	2.30	.0906	5.80	39	3.00
40.73725.0240	2.40	.0945	6.00	39	3.00
40.73725.0250	2.50	.0984	6.30	39	3.00
40.73725.0260	2.60	.1024	6.50	39	3.00
40.73725.0270	2.70	.1063	6.80	39	3.00
40.73725.0280	2.80	.1102	7.00	39	3.00
40.73725.0290	2.90	.1142	7.30	39	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 163

SPHINX TOOLS

Art. 43105

Carbide | Z 3 | 35° | 1xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing

Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass

Mg | Ti | HST | Plastic

Art. 43305

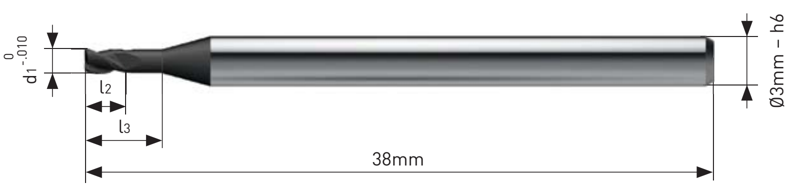
Carbide | Z 3 | 35° | 3xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing

Side Finishing | Angular | Circular

ST | SST | C.I. | Al | Cu | Brass

Mg | Ti | HST | Plastic



d1	d1 (in.)	43105		43305		
		Catalog Number	l2	Catalog Number	l2	l3
.30	.0118	**40.43105.0030**	.30	**40.43305.0030**	.30	.90
.40	.0157	**40.43105.0040**	.40	**40.43305.0040**	.40	1.20
.50	.0197	**40.43105.0050**	.50	**40.43305.0050**	.50	1.50
.60	.0236	**40.43105.0060**	.60	**40.43305.0060**	.60	1.80
.70	.0276	**40.43105.0070**	.70	**40.43305.0070**	.70	2.10
.80	.0315	**40.43105.0080**	.80	**40.43305.0080**	.80	2.40
.90	.0354	**40.43105.0090**	.90	**40.43305.0090**	.90	2.70
1.00	.0394	**40.43105.0100**	1.00	**40.43305.0100**	1.00	3.00
1.10	.0433	**40.43105.0110**	1.10	**40.43305.0110**	1.10	3.30
1.20	.0472	**40.43105.0120**	1.20	**40.43305.0120**	1.20	3.60
1.30	.0512	**40.43105.0130**	1.30	**40.43305.0130**	1.30	3.90
1.40	.0551	**40.43105.0140**	1.40	**40.43305.0140**	1.40	4.20
1.50	.0591	**40.43105.0150**	1.50	**40.43305.0150**	1.50	4.50
1.60	.0630	**40.43105.0160**	1.60	**40.43305.0160**	1.60	4.80

d1	d1 (in.)	43105		43305		
		Catalog Number	l2	Catalog Number	l2	l3
1.70	.0669	**40.43105.0170**	1.70	**40.43305.0170**	1.70	5.10
1.80	.0709	**40.43105.0180**	1.80	**40.43305.0180**	1.80	5.40
1.90	.0748	**40.43105.0190**	1.90	**40.43305.0190**	1.90	5.70
2.00	.0787	**40.43105.0200**	2.00	**40.43305.0200**	2.00	6.00
2.10	.0827	**40.43105.0210**	2.10	**40.43305.0210**	2.10	6.30
2.20	.0866	**40.43105.0220**	2.20	**40.43305.0220**	2.20	6.60
2.30	.0906	**40.43105.0230**	2.30	**40.43305.0230**	2.30	6.90
2.40	.0945	**40.43105.0240**	2.40	**40.43305.0240**	2.40	7.20
2.50	.0984	**40.43105.0250**	2.50	**40.43305.0250**	2.50	7.50
2.60	.1024	**40.43105.0260**	2.60	**40.43305.0260**	2.60	7.80
2.70	.1063	**40.43105.0270**	2.70	**40.43305.0270**	2.70	8.10
2.80	.1102	**40.43105.0280**	2.80	**40.43305.0280**	2.80	8.40
2.90	.1142	**40.43105.0290**	2.90	**40.43305.0290**	2.90	8.70
3.00	.1181	**40.43105.0300**	3.00	**40.43305.0300**	3.00	9.00

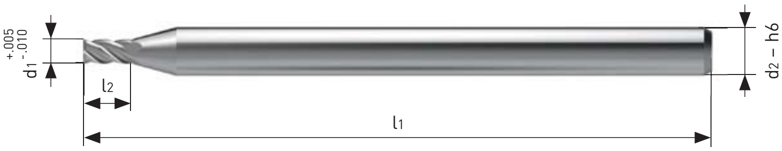
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 164

Art. 74720

Carbide | Z 4 | 40° | 1xd

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

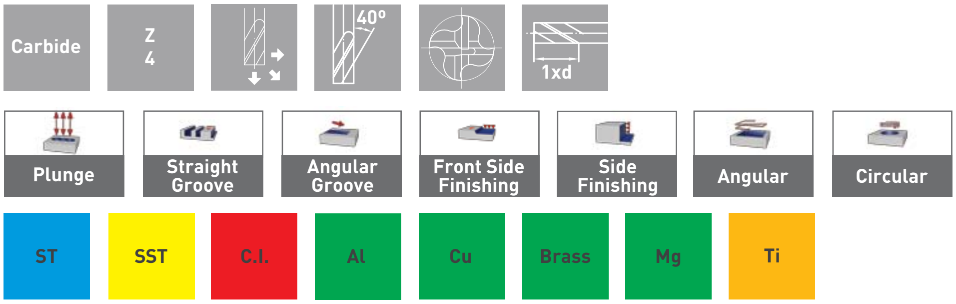
ST | SST | C.I. | Al | Cu | Brass | Mg | Ti

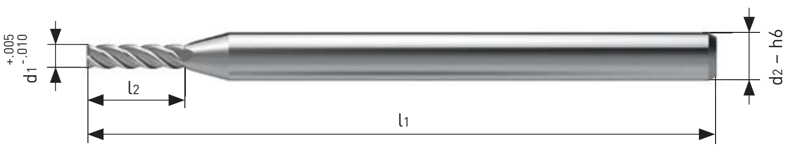


Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.74720.0030	.30	.0118	.60	39	3.00
40.74720.0040	.40	.0157	.80	39	3.00
40.74720.0050	.50	.0197	1.00	39	3.00
40.74720.0060	.60	.0236	1.20	39	3.00
40.74720.0070	.70	.0276	1.40	39	3.00
40.74720.0080	.80	.0315	1.60	39	3.00
40.74720.0090	.90	.0354	1.80	39	3.00
40.74720.0100	1.00	.0394	2.00	39	3.00
40.74720.0110	1.10	.0433	2.20	39	3.00
40.74720.0120	1.20	.0472	2.40	39	3.00
40.74720.0130	1.30	.0512	2.60	39	3.00
40.74720.0140	1.40	.0551	2.80	39	3.00
40.74720.0150	1.50	.0591	3.00	39	3.00
40.74720.0160	1.60	.0630	3.20	39	3.00
40.74720.0170	1.70	.0669	3.40	39	3.00
40.74720.0180	1.80	.0709	3.60	39	3.00
40.74720.0190	1.90	.0748	3.80	39	3.00
40.74720.0200	2.00	.0787	4.00	39	3.00
40.74720.0210	2.10	.0827	4.20	39	3.00
40.74720.0220	2.20	.0866	4.40	39	3.00
40.74720.0230	2.30	.0906	4.60	39	3.00
40.74720.0240	2.40	.0945	4.80	39	3.00
40.74720.0250	2.50	.0984	5.00	39	3.00
40.74720.0260	2.60	.1024	5.20	39	3.00
40.74720.0270	2.70	.1063	5.40	39	3.00
40.74720.0280	2.80	.1102	5.60	39	3.00
40.74720.0290	2.90	.1142	5.80	39	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 165

Art. 74740





Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.74740.0040	.40	.0157	1.60	39	3.00
40.74740.0050	.50	.0197	2.00	39	3.00
40.74740.0060	.60	.0236	2.40	39	3.00
40.74740.0070	.70	.0276	2.80	39	3.00
40.74740.0080	.80	.0315	3.20	39	3.00
40.74740.0090	.90	.0354	3.60	39	3.00
40.74740.0100	1.00	.0394	4.00	39	3.00
40.74740.0110	1.10	.0433	4.40	39	3.00
40.74740.0120	1.20	.0472	4.80	39	3.00
40.74740.0130	1.30	.0512	5.20	39	3.00
40.74740.0140	1.40	.0551	5.60	39	3.00
40.74740.0150	1.50	.0591	6.00	39	3.00
40.74740.0160	1.60	.0630	6.40	39	3.00
40.74740.0170	1.70	.0669	6.80	39	3.00
40.74740.0180	1.80	.0709	7.20	39	3.00
40.74740.0190	1.90	.0748	7.60	39	3.00
40.74740.0200	2.00	.0787	8.00	39	3.00
40.74740.0210	2.10	.0827	8.40	39	3.00
40.74740.0220	2.20	.0866	8.80	39	3.00
40.74740.0230	2.30	.0906	9.20	39	3.00
40.74740.0240	2.40	.0945	9.60	39	3.00
40.74740.0250	2.50	.0984	10.00	39	3.00
40.74740.0260	2.60	.1024	10.40	39	3.00
40.74740.0270	2.70	.1063	10.80	39	3.00
40.74740.0280	2.80	.1102	11.20	39	3.00
40.74740.0290	2.90	.1142	11.60	39	3.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 165

Art. 74075

Carbide | Z 2 | 30° | .75xd

Plunge | Straight Groove | Plunge Radius | Straight Radius

ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic

Art. 74150

Carbide | Z 2 | 30° | 1.5xd

Plunge | Straight Groove | Plunge Radius | Straight Radius

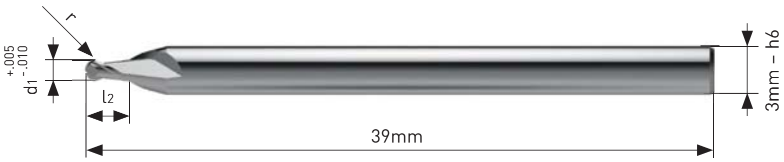
ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic

Art. 74300

Carbide | Z 2 | 30° | 3xd

Plunge | Straight Groove | Plunge Radius | Straight Radius

ST | SST | C.I. | Al | Cu | Brass | Ti | Plastic



d1	d1 (in.)	r	74075		74150		74300	
			Catalog Number	l2	Catalog Number	l2	Catalog Number	l2
.20	.0079	.100	**40.74075.0020**	.15	**40.74150.0020**	.30	**40.74300.0020**	.60
.25	.0098	.125	—	—	**40.74150.0025**	.35	—	—
.30	.0118	.150	**40.74075.0030**	.20	**40.74150.0030**	.45	**40.74300.0030**	1.00
.40	.0157	.200	**40.74075.0040**	.30	**40.74150.0040**	.60	**40.74300.0040**	1.00
.50	.0197	.250	**40.74075.0050**	.37	**40.74150.0050**	.75	**40.74300.0050**	1.50
.60	.0236	.300	**40.74075.0060**	.45	**40.74150.0060**	.90	**40.74300.0060**	1.50
.70	.0276	.350	—	—	**40.74150.0070**	1.05	**40.74300.0070**	2.00
.80	.0315	.400	**40.74075.0080**	.60	**40.74150.0080**	1.20	**40.74300.0080**	2.00
.90	.0354	.450	—	—	**40.74150.0090**	1.35	**40.74300.0090**	2.50
1.00	.0394	.500	**40.74075.0100**	.75	**40.74150.0100**	1.50	**40.74300.0100**	3.00
1.10	.0433	.550	—	—	**40.74150.0110**	1.65	—	—
1.20	.0472	.600	—	—	**40.74150.0120**	1.80	**40.74300.0110**	4.00
1.30	.0512	.650	—	—	**40.74150.0130**	1.95	—	—
1.40	.0551	.700	—	—	**40.74150.0140**	2.10	**40.74300.0140**	4.00
1.50	.0591	.750	—	—	**40.74150.0150**	2.25	**40.74300.0150**	4.00
1.60	.0630	.800	—	—	**40.74150.0160**	2.40	**40.74300.0160**	4.00
1.80	.0709	.900	—	—	**40.74150.0180**	2.70	**40.74300.0180**	5.50
1.90	.0748	.950	—	—	—	—	—	—
2.00	.0787	1.000	—	—	**40.74150.0200**	3.00	**40.74300.0200**	6.00
2.10	.0827	1.050	—	—	—	—	**40.74300.0210**	6.00
2.20	.0866	1.100	—	—	—	—	**40.74300.0220**	6.00
2.50	.0984	1.250	—	—	—	—	**40.74300.0250**	7.50
2.80	.1102	1.400	—	—	—	—	**40.74300.0280**	8.40

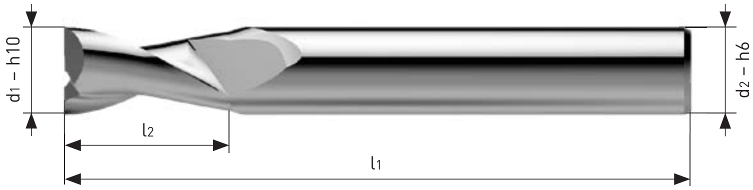
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 166

Art. 40000

Carbide | DIN 6528 | Z 2 | 30°

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | C.I. | Al | Cu | Brass | Mg



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.40000.0200	2.00	.0787	8.00	50	2.00
40.40000.0250	2.50	.0984	8.00	50	2.50
40.40000.0300	3.00	.1181	8.00	50	3.00
40.40000.0350	3.50	.1378	8.00	50	3.50
40.40000.0400	4.00	.1575	8.00	50	4.00
40.40000.0450	4.50	.1772	8.00	50	4.50
40.40000.0500	5.00	.1969	10.00	50	5.00
40.40000.0600	6.00	.2362	10.00	57	6.00
40.40000.0800	8.00	.3150	16.00	63	8.00
40.40000.1000	10.00	.3937	19.00	72	10.00
40.40000.1200	12.00	.4724	22.00	83	12.00

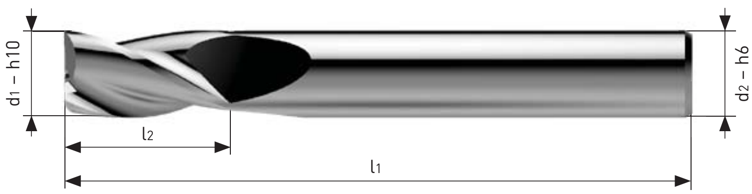
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 166

Art. 40002

Carbide | DIN 6528 | Z 3 | 30°

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I.



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.40002.0200	2.00	.0787	8.00	50	2.00
40.40002.0250	2.50	.0984	8.00	50	2.50
40.40002.0300	3.00	.1181	8.00	50	3.00
40.40002.0350	3.50	.1378	8.00	50	3.50
40.40002.0400	4.00	.1575	8.00	50	4.00
40.40002.0450	4.50	.1772	8.00	50	4.50
40.40002.0500	5.00	.1969	10.00	50	5.00
40.40002.0600	6.00	.2362	10.00	57	6.00
40.40002.0800	8.00	.3150	16.00	63	8.00
40.40002.1000	10.00	.3937	19.00	72	10.00
40.40002.1200	12.00	.4724	22.00	83	12.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 167

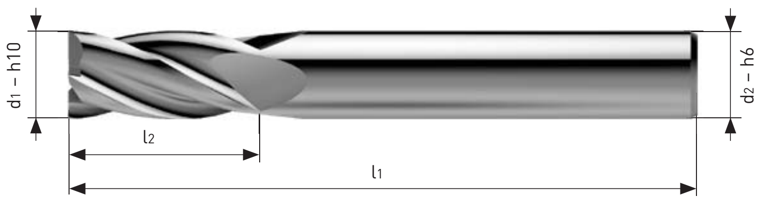
SPHINX TOOLS

Art. 40004

Carbide | DIN 6528 | Z 4 | 30°

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I.



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.40004.0200	2.00	.0787	10.00	50	2.00
40.40004.0250	2.50	.0984	10.00	50	2.50
40.40004.0300	3.00	.1181	10.00	50	3.00
40.40004.0350	3.50	.1378	10.00	50	3.50
40.40004.0400	4.00	.1575	11.00	50	4.00
40.40004.0450	4.50	.1772	11.00	50	4.50
40.40004.0500	5.00	.1969	13.00	50	5.00
40.40004.0600	6.00	.2362	13.00	57	6.00
40.40004.0800	8.00	.3150	19.00	63	8.00
40.40004.1000	10.00	.3937	22.00	72	10.00
40.40004.1200	12.00	.4724	26.00	83	12.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 167

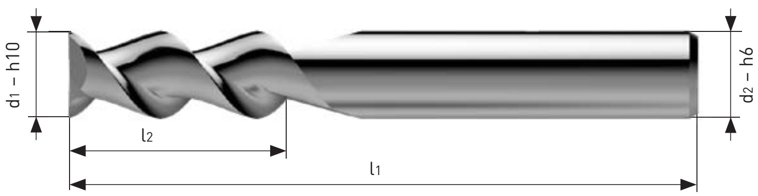
AC2

Art. 47000

Carbide | Z 2 | 55°

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

Al | Cu | Brass | Plastic

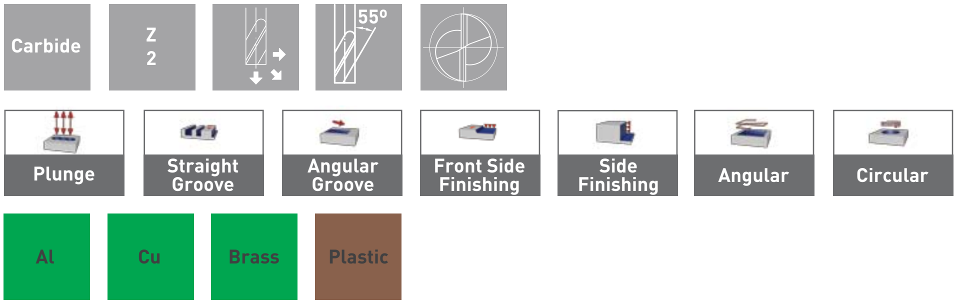


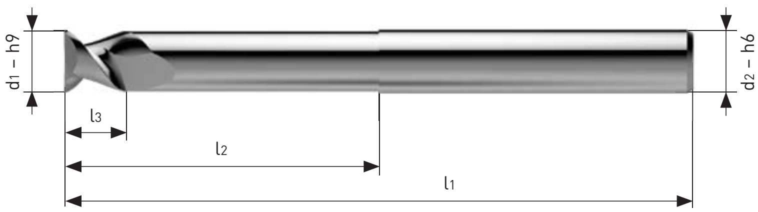
Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.47000.0300	3.00	.1181	12.00	50	3.00
40.47000.0400	4.00	.1575	15.00	50	4.00
40.47000.0500	5.00	.1969	20.00	50	5.00
40.47000.0600	6.00	.2362	20.00	57	6.00
40.47000.0800	8.00	.3150	20.00	63	8.00
40.47000.1000	10.00	.3937	25.00	72	10.00
40.47000.1200	12.00	.4724	25.00	83	12.00
40.47000.1400	14.00	.5512	30.00	90	14.00
40.47000.1600	16.00	.6299	30.00	92	16.00
40.47000.2000	20.00	.7874	38.00	104	20.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 168

ACL2

Art. 47500





Catalog Number	d_1	d_1 (in.)	l_2	l_3	l_1	d_2
40.47500.0600	6.00	.2362	50.00	6.00	100	6.00
40.47500.0800	8.00	.3150	50.00	8.00	100	8.00
40.47500.1000	10.00	.3937	50.00	10.00	100	10.00
40.47500.1200	12.00	.4724	50.00	12.00	100	12.00
40.47500.1600	16.00	.6299	75.00	16.00	125	16.00
40.47500.2000	20.00	.7874	75.00	20.00	125	20.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 168

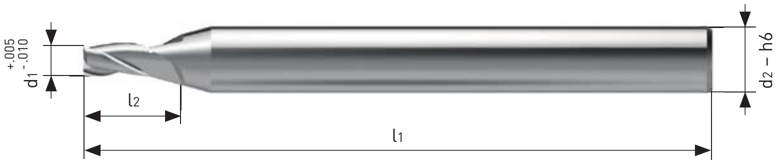
AC2

Art. 76300

Carbide | Z 3 | 30°

Plunge | Straight Groove | Angular Groove | Front Side Finishing | Side Finishing | Angular | Circular

ST | SST | C.I.



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.76300.0150	1.50	.0591	6.00	57	6.00
40.76300.0200	2.00	.0787	6.00	57	6.00
40.76300.0250	2.50	.0984	6.00	57	6.00
40.76300.0300	3.00	.1181	7.00	57	6.00
40.76300.0350	3.50	.1378	7.00	57	6.00
40.76300.0400	4.00	.1575	8.00	57	6.00
40.76300.0450	4.50	.1772	8.00	57	6.00
40.76300.0500	5.00	.1969	10.00	57	6.00
40.76300.0550	5.50	.2165	10.00	57	6.00
40.76300.0600	6.00	.2362	10.00	57	6.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 168

Art. 73000

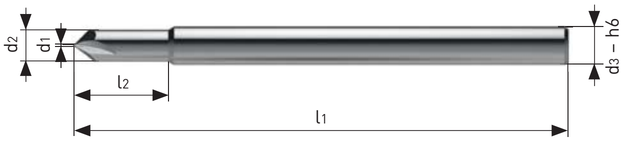
Carbide

Z 3/4

90°

Chamfer 90°

ST | SST | C.I. | Al | Brass | Ti | Plastic



Catalog Number	d_1	d_2	d_2 (in.)	l_2	l_1	d_3	z
40.73000.0050	.10	.50	.0197	3.00	39	3.00	3
40.73000.0100	.10	1.00	.0394	3.00	39	3.00	3
40.73000.0150	.10	1.50	.0591	4.50	39	3.00	3
40.73000.0200	.10	2.00	.0787	6.00	39	3.00	3
40.73000.0250	.10	2.50	.0984	7.50	39	3.00	3
40.73000.0300	.10	3.00	.1181	7.50	39	3.00	3
40.73000.0600	.70	6.00	.2362	—	50	6.00	4
40.73000.0800	1.20	8.00	.3150	—	60	8.00	4

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 169

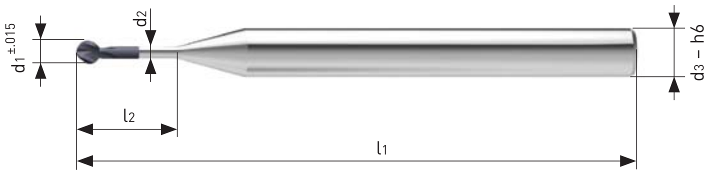
Lollipop

Art. 43400

Carbide | Z 3 | 12° | AlTiCrN+S

Deburring

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | Plastic



Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_1	d_3
40.43400.0100	1.00	.0394	.60	4.00	60	4.00
40.43400.0150	1.50	.0591	.90	6.00	60	4.00
40.43400.0200	2.00	.0787	1.20	8.00	60	4.00
40.43400.0250	2.50	.0984	1.35	10.00	70	6.00
40.43400.0300	3.00	.1181	1.50	12.00	70	6.00
40.43400.0400	4.00	.1575	2.00	16.00	70	6.00
40.43400.0500	5.00	.1969	2.50	20.00	80	8.00
40.43400.0600	6.00	.2362	3.00	24.00	80	8.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 169

SPHINX TOOLS

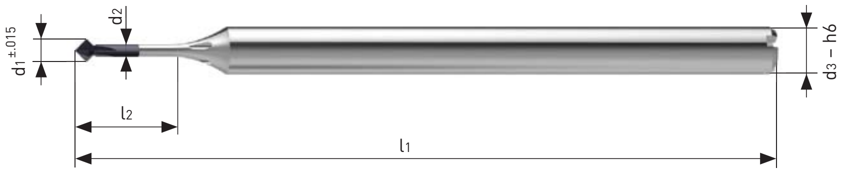
Noventa

Art. 44400

Carbide | Z 4 | 90° | AlTiCrN+S

Angular

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	d_2	l_2	l_1	d_3
40.44400.0080	.80	.0315	.30	3.6	60	4.00
40.44400.0100	1.00	.0394	.40	4.0	60	4.00
40.44400.0150	1.50	.0591	.60	6.0	60	4.00
40.44400.0200	2.00	.0787	1.00	8.0	60	4.00
40.44400.0250	2.50	.0984	1.30	10.0	70	6.00
40.44400.0300	3.00	.1181	1.80	12.0	70	6.00
40.44400.0400	4.00	.1575	2.50	16.0	70	6.00
40.44400.0500	5.00	.1969	3.20	20.0	80	8.00
40.44400.0600	6.00	.2362	4.00	24.0	80	8.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 170

SPHINX TOOLS

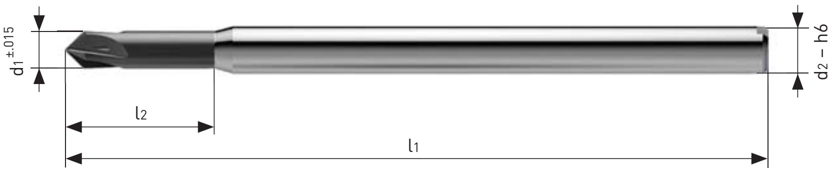
Ninety

Art. 45400

Carbide | Z 4 | 90° | AlTiCrN+S

Chamfer 90°

ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | HST | Plastic



Catalog Number	d_1	d_1 (in.)	l_2	l_1	d_2
40.45400.0100	1.00	.0394	4.00	60	4.00
40.45400.0150	1.50	.0591	6.00	60	4.00
40.45400.0200	2.00	.0787	8.00	60	4.00
40.45400.0250	2.50	.0984	10.00	60	4.00
40.45400.0300	3.00	.1181	12.00	70	4.00
40.45400.0400	4.00	.1575	—	70	4.00
40.45400.0500	5.00	.1969	20.00	80	6.00
40.45400.0600	6.00	.2362	—	80	6.00

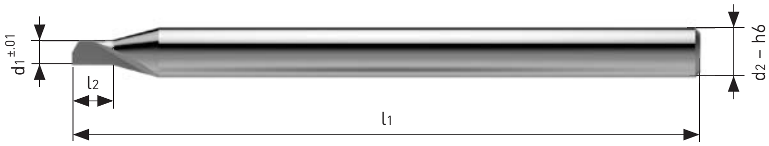
- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 170

Art. 71330

Carbide | Z 1 | 0°

Straight Groove | Front Side Finishing | Side Finishing

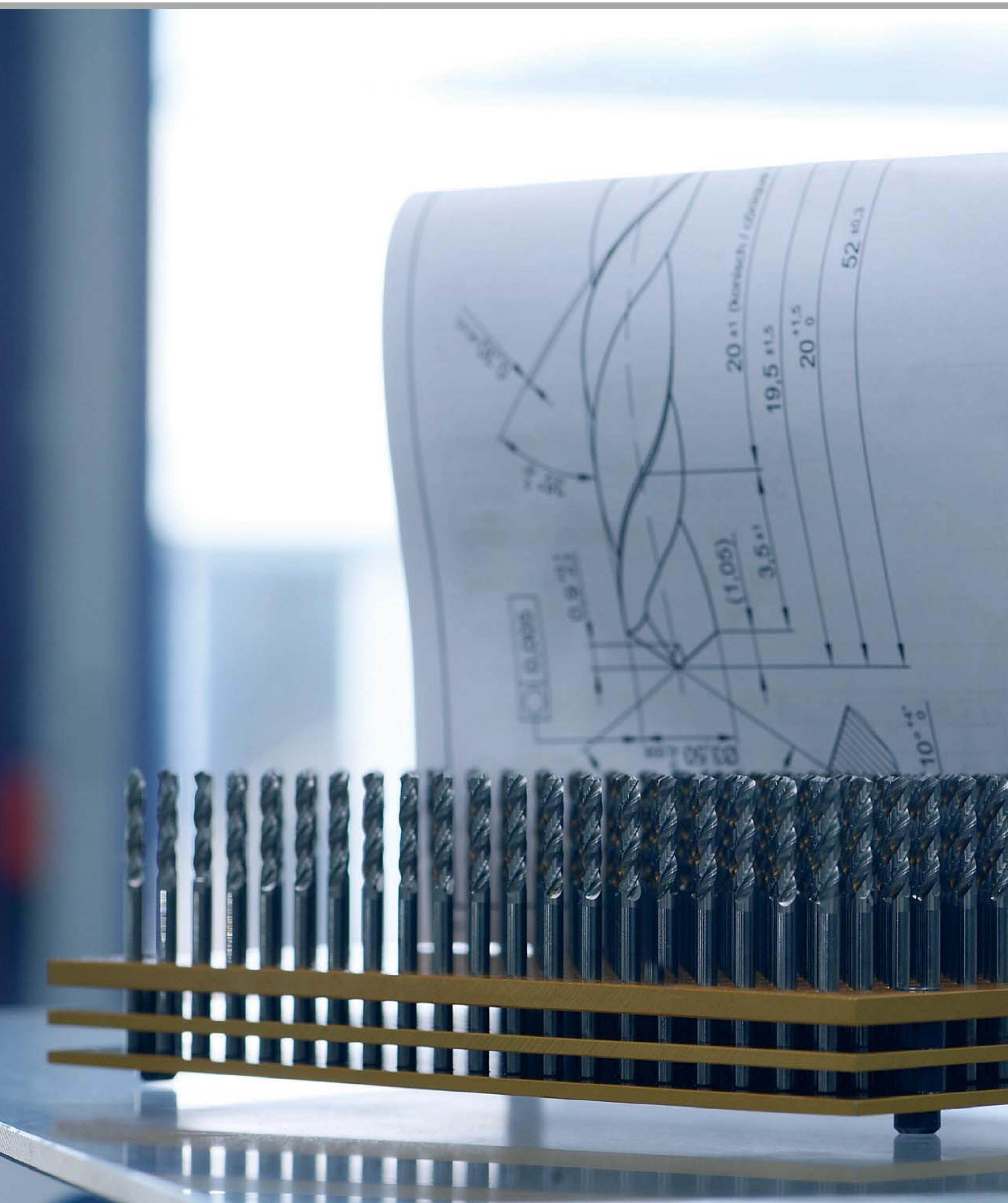
ST | SST | C.I. | Al | Cu | Brass | Mg | Ti | Plastic



Catalog Number	d1	d1 (in.)	l2	l1	d2
40.71330.0020	.20	.0079	.40	39	3.00
40.71330.0030	.30	.0118	.60	39	3.00
40.71330.0040	.40	.0157	.80	39	3.00
40.71330.0050	.50	.0197	1.00	39	3.00
40.71330.0060	.60	.0236	1.20	39	3.00
40.71330.0070	.70	.0276	1.40	39	3.00
40.71330.0080	.80	.0315	1.60	39	3.00
40.71330.0090	.90	.0354	1.80	39	3.00
40.71330.0100	1.00	.0394	2.00	39	3.00
40.71330.0110	1.10	.0433	2.20	39	3.00
40.71330.0120	1.20	.0472	2.40	39	3.00
40.71330.0130	1.30	.0512	2.60	39	3.00
40.71330.0140	1.40	.0551	2.80	39	3.00
40.71330.0150	1.50	.0591	3.00	39	3.00
40.71330.0160	1.60	.0630	3.20	39	3.00
40.71330.0170	1.70	.0669	3.40	39	3.00
40.71330.0180	1.80	.0709	3.60	39	3.00
40.71330.0190	1.90	.0748	3.80	39	3.00
40.71330.0200	2.00	.0787	4.00	39	3.00
40.71330.0210	2.10	.0827	4.20	39	3.00
40.71330.0220	2.20	.0866	4.40	39	3.00
40.71330.0230	2.30	.0906	4.60	39	3.00
40.71330.0240	2.40	.0945	4.80	39	3.00
40.71330.0250	2.50	.0984	5.00	39	3.00
40.71330.0260	2.60	.1024	5.20	39	3.00
40.71330.0270	2.70	.1063	5.40	39	3.00
40.71330.0280	2.80	.1102	5.60	39	3.00
40.71330.0290	2.90	.1142	5.80	39	3.00
40.71330.0300	3.00	.1181	6.00	40	4.00

- All dimensions are millimeters unless otherwise noted
- For cutting data see pg. 171

SPHINX TOOLS



Cutting Speed v: $$v = \frac{d \times \Pi \times n}{1000}$$

Spindle Speed n: $$n = \frac{v \times 1000}{d \times \Pi}$$

Drill / Reamer

V_c = Cutting speed in m/min

f = Cutting feed in mm/rev

End Mill

V_c = Cutting speed in m/min

f_Z = Cutting speed in mm/tooth

V_f = Cutting speed in mm/min $f_Z \times t \times n$

a_p = Cutting depth

a_e = Cutting width

Hole Dia. (Ø)	Tolerance (Upper Limit/Lower Limit)								
	H1	H2	H3	H4	H5	H6	H7	H8	H9
Ø≤3	+.0008	+.0012	+.002	+.003	+.004	+.006	+.010	+.014	+.025
	0	0	0	0	0	0	0	0	0
3<Ø≤6	+.001	+.0015	+.0025	+.004	+.005	+.008	+.012	+.018	+.030
	0	0	0	0	0	0	0	0	0
6<Ø≤10	+.001	+.0015	+.0025	+.004	+.006	+.009	+.015	+.022	+.036
	0	0	0	0	0	0	0	0	0
10<Ø≤18	+.0012	+.002	+.003	+.005	+.008	+.011	+.018	+.027	+.043
	0	0	0	0	0	0	0	0	0
18<Ø≤30	+.0015	+.0025	+.004	+.006	+.009	+.013	+.021	+.033	+.052
	0	0	0	0	0	0	0	0	0
30<Ø≤50	+.0015	+.0025	+.004	+.007	+.011	+.016	+.025	+.039	+.062
	0	0	0	0	0	0	0	0	0
50<Ø≤80	+.002	+.003	+.005	+.008	+.013	+.019	+.030	+.046	+.074
	0	0	0	0	0	0	0	0	0
80<Ø≤120	+.0025	+.004	+.006	+.010	+.015	+.022	+.035	+.054	+.087
	0	0	0	0	0	0	0	0	0
120<Ø≤180	+.0035	+.005	+.008	+.012	+.018	+.025	+.040	+.063	+.100
	0	0	0	0	0	0	0	0	0
180<Ø≤250	+.0045	+.007	+.010	+.014	+.020	+.029	+.046	+.072	+.115
	0	0	0	0	0	0	0	0	0
250<Ø≤315	+.006	+.008	+.012	+.016	+.023	+.032	+.052	+.081	+.130
	0	0	0	0	0	0	0	0	0
315<Ø≤400	+.007	+.009	+.013	+.018	+.025	+.036	+.057	+.089	+.140
	0	0	0	0	0	0	0	0	0
400<Ø≤500	+.008	+.010	+.015	+.020	+.027	+.040	+.063	+.097	+.155
	0	0	0	0	0	0	0	0	0

- All dimensions are millimeters unless otherwise noted

SPHINX TOOLS

Shaft Dia. (Ø)	Tolerance (Upper Limit/Lower Limit)								
	h1	h2	h3	h4	h5	h6	h7	h8	h9
Ø≤3	0	0	0	0	0	0	0	0	0
	-.0008	-.0012	-.002	-.003	-.004	-.006	-.010	-.014	-.025
3<Ø≤6	0	0	0	0	0	0	0	0	0
	-.001	-.0015	-.0025	-.004	-.005	-.008	-.012	-.018	-.030
6<Ø≤10	0	0	0	0	0	0	0	0	0
	-.001	-.0015	-.0025	-.004	-.006	-.009	-.015	-.022	-.036
10<Ø≤18	0	0	0	0	0	0	0	0	0
	-.0012	-.002	-.003	-.005	-.008	-.011	-.018	-.027	-.043
18<Ø≤30	0	0	0	0	0	0	0	0	0
	-.0015	-.0025	-.004	-.006	-.009	-.013	-.021	-.033	-.052
30<Ø≤50	0	0	0	0	0	0	0	0	0
	-.0015	-.0025	-.004	-.007	-.011	-.016	-.025	-.039	-.062
50<Ø≤80	0	0	0	0	0	0	0	0	0
	-.002	-.003	-.005	-.008	-.013	-.019	-.030	-.046	-.074
80<Ø≤120	0	0	0	0	0	0	0	0	0
	-.0025	-.004	-.006	-.010	-.015	-.022	-.035	-.054	-.087
120<Ø≤180	0	0	0	0	0	0	0	0	0
	-.0035	-.005	-.008	-.012	-.018	-.025	-.040	-.063	-.100
180<Ø≤250	0	0	0	0	0	0	0	0	0
	-.0045	-.007	-.010	-.014	-.020	-.029	-.046	-.072	-.115
250<Ø≤315	0	0	0	0	0	0	0	0	0
	-.006	-.008	-.012	-.016	-.023	-.032	-.052	-.081	-.130
315<Ø≤400	0	0	0	0	0	0	0	0	0
	-.007	-.009	-.013	-.018	-.025	-.036	-.057	-.089	-.140
400<Ø≤500	0	0	0	0	0	0	0	0	0
	-.008	-.010	-.015	-.020	-.027	-.040	-.063	-.097	-.155

- All dimensions are millimeters unless otherwise noted

Art. 50806 / 50809

Material		Ø.50–1.00	Ø1.10–2.90	Ø3.00–6.00
P1	V_c	15–25	25–40	25–40
	f	.020–.080	.060–.140	.120–.250
P2	V_c	12–20	20–35	20–35
	f	.010–.060	.040–.120	.100–.220
P3	V_c	8–18	12–30	12–30
	f	.010–.040	.030–.090	.080–.200
M1	V_c	6–12	10–20	10–20
	f	.020–.050	.030–.070	.050–.150
M2	V_c	5–10	8–16	8–16
	f	.010–.040	.030–.060	.040–.080
K1	V_c	15–25	25–40	25–40
	f	.010–.050	.030–.080	.070–.150
K2	V_c	12–20	20–35	20–35
	f	.010–.040	.030–.060	.050–.100
N1	V_c	30–45	45–60	45–60
	f	.030–.080	.060–.120	.100–.250
N2	V_c	20–35	30–45	30–45
	f	.040–.080	.070–.150	.130–.300
N3	V_c	15–30	25–40	25–40
	f	.020–.070	.060–.120	.100–.250
N4	V_c	15–25	25–40	25–40
	f	.010–.050	.030–.080	.060–.150
N5	V_c	30–45	45–60	45–60
	f	.040–.080	.070–.130	.100–.250
N6	V_c	15–30	25–40	25–40
	f	.010–.040	.038–.065	.060–.090
N7	V_c	15–25	25–40	25–40
	f	.010–.040	.030–.080	.050–.130
N8	V_c	8–18	12–30	12–30
	f	.010–.040	.020–.050	.030–.100
S1	V_c	20–35	30–45	30–45
	f	.010–.040	.020–.056	.040–.100
S2	V_c			
	f			
H1	V_c			
	f			
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	20–35	30–45	30–45
	f	.020–.060	.050–.120	.100–.250
O2	V_c			
	f			
O3	V_c			
	f			

Art. 50808

Material		Ø.50–1.00	Ø1.10–2.00	Ø2.10–3.00
P1	V_c	20–35	35–50	35–50
	f	.010–.030	.030–.050	.050–.070
P2	V_c	15–30	30–45	30–45
	f	.010–.025	.025–.045	.045–.065
P3	V_c	12–25	25–40	25–40
	f	.010–.020	.020–.040	.040–.060
M1	V_c	10–20	20–35	20–35
	f	.010–.020	.020–.035	.035–.045
M2	V_c	8–16	16–30	16–30
	f	.010–.020	.020–.030	.030–.040
K1	V_c	20–35	35–50	35–50
	f	.010–.035	.035–.055	.055–.075
K2	V_c	15–30	30–45	30–45
	f	.010–.030	.030–.050	.050–.070
N1	V_c	35–50	50–65	50–65
	f	.020–.040	.040–.060	.060–.080
N2	V_c	25–40	40–55	40–55
	f	.020–.050	.050–.070	.070–.090
N3	V_c	20–35	35–50	35–50
	f	.020–.040	.040–.060	.060–.080
N4	V_c	15–30	30–45	30–45
	f	.010–.030	.030–.050	.050–.070
N5	V_c	35–50	50–65	50–65
	f	.020–.050	.050–.070	.070–.090
N6	V_c	20–35	35–50	35–50
	f	.010–.030	.030–.050	.050–.070
N7	V_c	15–30	30–45	30–45
	f	.010–.025	.025–.045	.045–.065
N8	V_c	10–20	20–35	20–35
	f	.010–.020	.020–.030	.030–.040
S1	V_c	25–35	35–50	35–50
	f	.010–.030	.030–.050	.050–.070
S2	V_c	10–15	15–25	15–25
	f	.010–.020	.020–.035	.035–.050
H1	V_c	10–15	15–25	15–25
	f	.010–.020	.020–.030	.030–.040
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	20–35	30–45	30–45
	f	.020–.050	.050–.075	.075–.100
O2	V_c	20–35	30–45	30–45
	f	.015–.035	.035–.055	.055–.080
O3	V_c			
	f			

Art. 50810 / 50812 / 50814 / 50818

Material		Ø3.00–6.00	Ø6.00–12.00	Ø12.00–2.00
P1	V_c	25–40	25–40	25–40
	f	.120–.250	.250–.300	.300–.400
P2	V_c	20–35	20–35	20–35
	f	.100–.200	.200–.250	.250–.300
P3	V_c	10–30	10–30	10–30
	f	.008–.150	.150–.220	.220–.300
M1	V_c	10–20	10–20	10–20
	f	.050–.150	.150–.200	.200–.250
M2	V_c	8–16	8–16	8–16
	f	.040–.080	.080–.140	.140–.200
K1	V_c	25–40	25–40	25–40
	f	.070–.150	.150–.200	.200–.350
K2	V_c	20–35	20–35	20–35
	f	.050–.100	.100–.150	.150–.250
N1	V_c	45–60	45–60	45–60
	f	.100–.250	.250–.350	.350–.400
N2	V_c	30–45	30–45	30–45
	f	.150–.300	.300–.400	.400–.600
N3	V_c	25–40	25–40	25–40
	f	.100–.250	.250–.350	.350–.550
N4	V_c	25–40	25–40	25–40
	f	.060–.150	.150–.250	.250–.400
N5	V_c	45–60	45–60	45–60
	f	.100–.250	.250–.350	.350–.450
N6	V_c	25–40	25–40	25–40
	f	.060–.100	.100–.150	.150–.250
N7	V_c	25–40	25–40	25–40
	f	.050–.150	.150–.250	.250–.350
N8	V_c	12–30	12–30	12–30
	f	.030–.100	.100–.150	.150–.200
S1	V_c	30–45	30–45	30–45
	f	.040–.150	.150–.200	.200–.300
S2	V_c			
	f			
H1	V_c			
	f			
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	30–45	30–45	30–45
	f	.100–.250	.250–.400	.400–.800
O2	V_c			
	f			
O3	V_c			
	f			

Art. 50811 / 50813 / 50815

Material		Ø2.00–4.00	Ø4.00–6.00	Ø6.00–12.00
P1	V_c	40–60	40–60	40–60
	f	.120–.250	.250–.300	.300–.400
P2	V_c	35–55	35–55	35–55
	f	.100–.200	.200–.250	.250–.300
P3	V_c	30–45	30–45	30–45
	f	.008–.150	.150–.220	.220–.300
M1	V_c	25–40	25–40	25–40
	f	.050–.150	.150–.200	.200–.250
M2	V_c	20–35	20–35	20–35
	f	.040–.080	.080–.140	.140–.200
K1	V_c	35–50	35–50	35–50
	f	.070–.150	.150–.200	.200–.350
K2	V_c	30–45	30–45	30–45
	f	.050–.100	.100–.150	.150–.250
N1	V_c	60–70	60–70	60–70
	f	.100–.250	.250–.350	.350–.400
N2	V_c	50–60	50–60	50–60
	f	.150–.300	.300–.400	.400–.600
N3	V_c	40–55	40–55	40–55
	f	.100–.250	.250–.350	.350–.550
N4	V_c	35–50	35–50	35–50
	f	.060–.150	.150–.250	.250–.400
N5	V_c	60–70	60–70	60–70
	f	.100–.250	.250–.350	.350–.450
N6	V_c	40–55	40–55	40–55
	f	.060–.100	.100–.150	.150–.250
N7	V_c	35–50	35–50	35–50
	f	.050–.150	.150–.250	.250–.350
N8	V_c	25–40	25–40	25–40
	f	.030–.100	.100–.150	.150–.200
S1	V_c	35–50	35–50	35–50
	f	.040–.150	.150–.200	.200–.300
S2	V_c	15–25	15–25	15–25
	f	.030–.100	.100–.150	.150–.200
H1	V_c	15–25	15–25	15–25
	f	.040–.060	.060–.080	.080–.120
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	30–45	30–45	30–45
	f	.100–.250	.250–.400	.400–.800
O2	V_c	30–45	30–45	30–45
	f	.080–.200	.200–.350	.350–.600
O3	V_c			
	f			

Art. 56005

Material		Ø.10–.30	Ø.35–.80	Ø.85–1.50
P1	V_c	8–18	15–30	30–60
	f	.001–.003	.002–.010	.010–.020
P2	V_c	6–16	12–25	20–40
	f	.001–.002	.002–.008	.006–.015
P3	V_c	6–13	10–20	18–35
	f	.001–.002	.002–.005	.004–.012
M1	V_c	5–12	10–18	15–30
	f	.001–.002	.002–.005	.004–.010
M2	V_c	5–10	8–15	13–25
	f	.001–.002	.002–.004	.003–.009
K1	V_c	8–18	15–30	30–60
	f	.003–.008	.006–.010	.008–.025
K2	V_c	6–16	12–25	20–40
	f	.002–.004	.005–.008	.007–.020
N1	V_c	12–20	18–35	35–65
	f	.001–.004	.003–.008	.006–.015
N2	V_c	10–18	15–30	25–50
	f	.002–.005	.004–.010	.008–.025
N3	V_c	8–18	15–30	30–60
	f	.002–.005	.004–.008	.006–.020
N4	V_c	8–18	15–30	30–60
	f	.001–.004	.003–.006	.005–.015
N5	V_c	12–20	18–35	35–65
	f	.002–.005	.004–.010	.009–.025
N6	V_c	8–18	15–30	30–60
	f	.002–.005	.004–.008	.007–.020
N7	V_c	8–18	15–30	30–60
	f	.002–.005	.004–.008	.007–.020
N8	V_c	6–13	10–20	18–35
	f	.001–.004	.002–.007	.005–.015
S1	V_c	15–30	28–45	30–45
	f	.002–.006	.005–.010	.008–.020
S2	V_c			
	f			
H1	V_c			
	f			
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	8–18	15–30	30–60
	f	.005–.010	.008–.015	.013–.035
O2	V_c			
	f			
O3	V_c			
	f			

Art. 56033

Material		Ø.03–.10	Ø.11–.50	Ø.51–1.00	Ø1.01–2.00	Ø2.01–3.00
P1	V_c	1.5–5	4–10	10–30	30–60	30–60
	f	.001–.003	.002–.010	.010–.018	.018–.028	.028–.045
P2	V_c	1.2–4	3.5–8	8–25	25–50	25–50
	f	.001–.002	.002–.008	.008–.016	.016–.026	.026–.040
P3	V_c	1–3	3–6	6–20	20–45	20–45
	f	.001–.002	.002–.007	.007–.013	.013–.024	.024–.035
M1	V_c	1.2–4	3.5–8	8–20	20–45	20–45
	f	.001–.002	.002–.007	.007–.013	.013–.023	.023–.033
M2	V_c	1–3	3–6	5–15	15–30	15–30
	f	.001–.002	.002–.005	.005–.010	.010–.020	.020–.030
K1	V_c	1.5–5	4–10	10–30	30–60	30–60
	f	.001–.004	.004–.008	.008–.015	.015–.030	.030–.045
K2	V_c	1.2–4	3.5–8	8–25	25–50	25–50
	f	.001–.003	.003–.007	.007–.013	.013–.025	.025–.040
N1	V_c	2–6	5–15	15–40	40–70	40–70
	f	.001–.003	.003–.006	.006–.012	.012–.023	.023–.035
N2	V_c	1.8–5.5	5–15	15–40	40–65	40–65
	f	.001–.003	.003–.007	.007–.013	.013–.025	.025–.040
N3	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.002	.002–.006	.006–.011	.011–.022	.022–.035
N4	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.002	.002–.005	.005–.010	.010–.020	.020–.030
N5	V_c	2–6	5–15	15–35	35–65	35–65
	f	.001–.003	.003–.006	.006–.013	.013–.025	.025–.040
N6	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.002	.002–.004	.004–.010	.010–.022	.022–.035
N7	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.002	.002–.004	.004–.009	.009–.020	.020–.031
N8	V_c	1–3	3–6	6–20	20–45	20–45
	f	.001–.002	.002–.004	.004–.008	.008–.016	.016–.027
S1	V_c	.8–5	4–7	7–15	15–30	15–30
	f	.001–.002	.002–.004	.004–.009	.009–.018	.018–.030
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c	1.5–5	4–10	10–25	20–35	30–60
	f	.001–.003	.003–.008	.008–.014	.014–.035	.035–.060
O2	V_c					
	f					
O3	V_c					
	f					

Art. 56036

Material		Ø.30–.95	Ø1.00–1.95	Ø2.00–2.95	Ø3.00–3.95	Ø4.00–6.00
P1	V_c	40–60	60–90	60–90	60–90	60–90
	f	.010–.025	.025–.040	.040–.055	.055–.070	.070–.100
P2	V_c	30–50	50–70	50–70	50–70	50–70
	f	.009–.023	.023–.036	.036–.050	.050–.065	.065–.080
P3	V_c	20–40	40–60	40–60	40–60	40–60
	f	.006–.015	.015–.025	.025–.040	.040–.055	.055–.070
M1	V_c	20–35	35–50	35–50	35–50	35–50
	f	.005–.013	.013–.023	.023–.035	.035–.050	.050–.065
M2	V_c	20–30	30–45	30–45	30–45	30–45
	f	.004–.010	.010–.020	.020–.032	.032–.046	.046–.060
K1	V_c	60–100	100–150	100–150	100–150	100–150
	f	.015–.025	.025–.038	.038–.055	.055–.075	.075–.130
K2	V_c	40–80	80–130	80–130	80–130	80–130
	f	.012–.022	.022–.035	.035–.050	.050–.070	.070–.090
N1	V_c	60–90	90–120	90–120	90–120	90–120
	f	.015–.025	.025–.035	.035–.050	.050–.070	.070–.085
N2	V_c	70–120	120–150	120–150	120–150	120–150
	f	.016–.027	.027–.042	.042–.060	.060–.080	.080–.110
N3	V_c	70–120	120–150	120–150	120–150	120–150
	f	.015–.025	.025–.035	.035–.050	.050–.070	.070–.085
N4	V_c	40–70	70–100	70–100	70–100	70–100
	f	.013–.023	.023–.033	.033–.045	.045–.060	.060–.080
N5	V_c	70–120	120–150	120–150	120–150	120–150
	f	.015–.025	.025–.035	.035–.050	.050–.070	.070–.100
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c	30–40	40–70	40–70	40–70	40–70
	f	.010–.022	.022–.035	.035–.050	.050–.070	.070–.090
S2	V_c					
	f					
H1	V_c	15–25	20–35	20–35	20–35	20–35
	f	.005–.010	.010–.020	.020–.030	.030–.040	.040–.055
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c					
	f					
O2	V_c					
	f					
O3	V_c					
	f					

Art. 16004

Material		Ø.10–.30	Ø.35–.50	Ø.55–.80	Ø.85–1.50
P1	V_c	1.0–2.0	2.0–5.5	3.5–11	9.0–15
	f	.001–.005	.004–.007	.006–.011	.010–.015
P2	V_c	.8–1.5	1.2–4.0	3.5–8.0	7.0–12
	f	.001–.003	.002–.006	.005–.007	.006–.010
P3	V_c				
	f				
M1	V_c	.8–1.5	1.2–4.0	3.5–8.0	7.0–12
	f	.001–.002	.002–.004	.003–.006	.005–.010
M2	V_c	.5–1.2	1.0–3.5	2.0–5.0	3.0–7.5
	f	.001–.002	.002–.004	.003–.005	.004–.008
K1	V_c	1.0–2.0	2.0–5.5	3.5–11	9.0–15
	f	.001–.005	.004–.008	.007–.011	.010–.015
K2	V_c	.8–1.5	1.2–4.0	3.5–8.0	7.0–12
	f	.001–.003	.002–.006	.005–.007	.006–.010
N1	V_c	1.0–2.0	2.0–5.5	3.5–11	9.0–15
	f	.001–.006	.005–.010	.008–.015	.013–.025
N2	V_c	.8–1.5	1.2–4.0	3.5–8.0	7.0–12
	f	.002–.006	.005–.010	.008–.015	.013–.025
N3	V_c				
	f				
N4	V_c				
	f				
N5	V_c	1.0–2.0	2.0–5.5	3.5–11	9.0–15
	f	.002–.006	.005–.010	.008–.015	.013–.020
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c				
	f				
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

Art. 50695 / 50699

Material		Ø.05–.30	Ø.31–.50	Ø.51–.80	Ø.81–1.20	Ø1.21–2.00
P1	V_c	1.0–6.0	6.0–15	10–23	23–60	23–60
	f	.001–.004	.003–.008	.007–.013	.012–.018	.016–.025
P2	V_c	1.0–6.0	2.0–10	3.5–16	7.0–30	7.0–30
	f	.001–.003	.002–.007	.006–.012	.010–.016	.014–.022
P3	V_c	.5–5.0	1.0–8.0	2.5–13	5.0–25	5.0–25
	f	.001–.002	.002–.006	.005–.010	.008–.014	.012–.020
M1	V_c	.5–3.0	1.0–6.0	4.0–10	8.0–18	8.0–18
	f	.001–.002	.002–.005	.004–.008	.007–.012	.010–.016
M2	V_c					
	f					
K1	V_c	2.0–8.0	6.0–15	10–23	23–60	23–60
	f	.001–.004	.003–.008	.007–.013	.012–.018	.016–.025
K2	V_c	1.0–6.0	2.0–10	3.5–16	7.0–30	7.0–30
	f	.001–.003	.002–.007	.006–.012	.010–.016	.014–.022
N1	V_c					
	f					
N2	V_c	3.0–16	8.0–26	13–55	30–100	30–100
	f	.001–.004	.004–.007	.007–.011	.010–.016	.015–.022
N3	V_c	2.5–13	6.0–22	10–40	20–80	20–80
	f	.001–.004	.004–.006	.005–.010	.009–.015	.014–.020
N4	V_c	2.0–8.0	6.0–15	10–23	23–60	23–60
	f	.001–.002	.002–.005	.004–.008	.007–.017	.010–.016
N5	V_c	3.0–16	8.0–26	13–55	30–100	30–100
	f	.001–.004	.004–.006	.005–.010	.009–.015	.014–.020
N6	V_c					
	f					
N7	V_c	2.0–8.0	6.0–15	10–23	23–60	23–60
	f	.001–.004	.004–.006	.005–.010	.009–.015	.014–.020
N8	V_c	1.0–6.0	2.0–10	3.5–16	7.0–30	7.0–30
	f	.001–.002	.002–.005	.004–.008	.007–.010	.008–.013
S1	V_c					
	f					
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c					
	f					
O2	V_c					
	f					
O3	V_c					
	f					

Art. 51200

Material		Ø.03–.30	Ø.31–.50	Ø.51–1.00	Ø1.01–2.00	Ø2.01–3.00
P1	V_c	1.5–5	4–10	10–30	30–60	30–60
	f	.001–.004	.003–.008	.007–.015	.014–.025	.023–.035
P2	V_c	1.2–4	3.5–8	8–25	25–50	25–50
	f	.001–.003	.002–.007	.006–.014	.012–.023	.021–.032
P3	V_c	1–3	3–6	6–20	20–45	20–45
	f	.001–.002	.002–.006	.005–.013	.011–.020	.018–.030
M1	V_c	1.2–4	3.5–8	8–20	20–45	20–45
	f	.001–.002	.002–.005	.004–.011	.010–.018	.016–.028
M2	V_c	1–3	3–6	5–15	15–30	15–30
	f	.001–.002	.002–.004	.003–.009	.008–.016	.016–.028
K1	V_c	1.5–5	4–10	10–30	30–60	30–60
	f	.001–.004	.003–.008	.007–.015	.014–.025	.023–.035
K2	V_c	1.2–4	3.5–8	8–25	25–50	25–50
	f	.001–.003	.002–.007	.006–.014	.012–.022	.020–.032
N1	V_c	2–6	5–15	15–40	40–70	40–70
	f	.001–.003	.002–.006	.005–.013	.012–.020	.018–.030
N2	V_c	1.8–5.5	5.0–15	15–40	40–65	40–65
	f	.001–.004	.003–.007	.006–.015	.014–.022	.020–.035
N3	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.004	.003–.006	.006–.013	.012–.020	.018–.032
N4	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.002	.002–.005	.004–.010	.009–.016	.015–.025
N5	V_c	2–6	5–15	15–35	35–65	35–65
	f	.001–.004	.003–.006	.005–.013	.012–.020	.018–.032
N6	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.002	.002–.005	.004–.010	.009–.016	.015–.020
N7	V_c	1.5–5	4–12	12–30	30–60	30–60
	f	.001–.004	.003–.006	.005–.012	.011–.018	.016–.025
N8	V_c	1–3	2.5–6	6–20	20–45	20–45
	f	.001–.002	.002–.005	.004–.009	.008–.013	.012–.018
S1	V_c	.8–5	4–7	7–15	15–30	15–30
	f	.001–.003	.002–.006	.005–.013	.012–.020	.018–.030
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c	1.5–5	4–10	10–25	20–35	30–60
	f	.001–.004	.003–.010	.009–.018	.016–.028	.026–.040
O2	V_c					
	f					
O3	V_c					
	f					

Art. 51201

Material		Ø.30–.50	Ø.51–1.00	Ø1.01–2.00	Ø2.01–3.00
P1	V_c	5–12	12–35	35–65	35–60
	f	.003–.008	.007–.015	.014–.025	.023–.035
P2	V_c	4–9	9–28	28–55	28–55
	f	.002–.007	.006–.014	.012–.023	.021–.032
P3	V_c	3.3–7	7–23	23–50	23–50
	f	.002–.006	.005–.013	.011–.020	.018–.030
M1	V_c	4–9	9–28	28–55	28–55
	f	.002–.005	.004–.011	.010–.018	.016–.028
M2	V_c	3–8	8–20	18–35	18–35
	f	.002–.004	.003–.009	.008–.016	.016–.028
K1	V_c	5–12	12–35	35–65	35–60
	f	.003–.008	.007–.015	.014–.025	.023–.035
K2	V_c	4–10	10–30	30–55	30–50
	f	.002–.007	.006–.014	.012–.022	.020–.032
N1	V_c	6–19	19–45	45–80	45–80
	f	.002–.006	.005–.013	.012–.020	.018–.030
N2	V_c	5.5–17	17–45	45–70	45–70
	f	.003–.007	.006–.015	.014–.022	.020–.035
N3	V_c	5.5–15	15–35	35–65	35–65
	f	.003–.006	.006–.013	.012–.020	.018–.032
N4	V_c	5.5–15	15–35	35–65	35–65
	f	.002–.005	.004–.010	.009–.016	.015–.025
N5	V_c	6.5–18	18–40	40–70	40–70
	f	.003–.006	.005–.013	.012–.020	.018–.032
N6	V_c	5.5–15	15–35	35–65	35–65
	f	.002–.005	.004–.010	.009–.016	.015–.020
N7	V_c	5.5–15	15–35	35–65	35–65
	f	.003–.006	.005–.012	.011–.018	.016–.025
N8	V_c	3–7	7–23	23–50	23–50
	f	.002–.005	.004–.009	.008–.013	.012–.018
S1	V_c	5–8	8.0–18	18–35	18–35
	f	.002–.006	.005–.013	.012–.020	.018–.030
S2	V_c	2.5–7	6–12	11–20	11–20
	f	.002–.004	.003–.007	.006–.011	.010–.018
H1	V_c	2.5–7	6–12	11–20	11–20
	f	.002–.004	.003–.007	.006–.011	.010–.018
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c	5–12	12–35	35–65	35–60
	f	.003–.010	.009–.018	.016–.028	.026–.040
O2	V_c	2.5–6	6–20	20–45	20–45
	f	.002–.009	.008–.016	.015–.025	.022–.035
O3	V_c				
	f				

Art. 50621

Material		Ø.20–.50	Ø.51–1.00	Ø1.01–2.00	Ø2.01–3.00
P1	V_c	6–15	15–35	15–35	15–35
	f	.001–.010	.010–.020	.020–.030	.030–.045
P2	V_c	5–13	13–30	13–30	13–30
	f	.001–.008	.008–.018	.018–.028	.028–.042
P3	V_c	4–12	12–25	12–25	12–25
	f	.001–.007	.007–.016	.016–.025	.025–.038
M1	V_c	4–12	12–25	12–25	12–25
	f	.001–.007	.007–.016	.016–.025	.025–.038
M2	V_c				
	f				
K1	V_c	6–15	15–35	15–35	15–35
	f	.001–.010	.010–.020	.020–.030	.030–.045
K2	V_c	5–13	13–30	13–30	13–30
	f	.001–.008	.008–.018	.018–.028	.028–.042
N1	V_c				
	f				
N2	V_c	8–20	20–45	20–45	20–45
	f	.001–.010	.010–.020	.020–.030	.030–.045
N3	V_c	6–18	18–40	18–40	18–40
	f	.001–.008	.008–.018	.018–.028	.028–.042
N4	V_c				
	f				
N5	V_c	6–18	18–40	18–40	18–40
	f	.001–.010	.010–.020	.020–.035	.035–.060
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c				
	f				
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

Art. 50622

Material		Ø.20–.50	Ø.51–1.00	Ø1.01–2.00	Ø2.01–3.00
P1	V_c	8–20	20–40	20–40	20–40
	f	.001–.010	.010–.020	.020–.030	.030–.045
P2	V_c	6–18	18–38	18–38	18–38
	f	.001–.008	.008–.018	.018–.028	.028–.042
P3	V_c	5–14	14–30	14–30	14–30
	f	.001–.007	.007–.016	.016–.025	.025–.038
M1	V_c	5–14	14–30	14–30	14–30
	f	.001–.007	.007–.016	.016–.025	.025–.038
M2	V_c				
	f				
K1	V_c	8–20	20–40	20–40	20–40
	f	.001–.010	.010–.020	.020–.030	.030–.045
K2	V_c	6–18	18–38	18–38	18–38
	f	.001–.008	.008–.018	.018–.028	.028–.042
N1	V_c				
	f				
N2	V_c	10–25	25–55	25–55	25–55
	f	.001–.010	.010–.020	.020–.030	.030–.045
N3	V_c	8–22	22–50	22–50	22–50
	f	.001–.008	.008–.018	.018–.028	.028–.042
N4	V_c				
	f				
N5	V_c	8–22	22–50	22–50	22–50
	f	.001–.010	.010–.020	.020–.035	.035–.060
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c				
	f				
S2	V_c				
	f				
H1	V_c	2–5	5–12	5–12	5–12
	f	.001–.004	.004–.008	.008–.015	.015–.025
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

Art. 12604

Material		Ø.05–.30	Ø.31–.80	Ø.81–1.50	Ø1.55–3.17
P1	V_c	1.0–2.0	2.0–8.0	8.0–20	8.0–20
	f	.001–.005	.005–.011	.010–.015	.014–.021
P2	V_c	.5–1.5	1.5–7.0	7.0–16	7.0–16
	f	.001–.002	.002–.006	.005–.009	.008–.012
P3	V_c				
	f				
M1	V_c	.5–1.5	1.5–7.0	7.0–16	7.0–16
	f	.001–.002	.002–.006	.005–.009	.008–.015
M2	V_c	.5–1.2	1.2–6.0	6.0–15	6.0–15
	f	.001–.002	.002–.005	.004–.007	.006–.012
K1	V_c	1.0–5.0	5.0–10	10–20	10–20
	f	.001–.005	.004–.011	.010–.015	.014–.020
K2	V_c	.8–4.0	4.0–8.0	8.0–18	8.0–18
	f	.001–.004	.003–.008	.007–.011	.010–.016
N1	V_c	2.0–7.0	7.0–13	13–25	13–25
	f	.001–.004	.003–.010	.009–.016	.015–.022
N2	V_c	1.5–6.0	6.0–12	12–22	12–22
	f	.001–.005	.004–.011	.010–.020	.018–.035
N3	V_c				
	f				
N4	V_c				
	f				
N5	V_c	2.0–7.0	7.0–13	13–25	13–25
	f	.001–.004	.003–.010	.009–.018	.017–.030
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c				
	f				
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

Art. 50720

Material		Ø.20–.50	Ø.55–.80	Ø.85–1.20	Ø1.25–2.00
P1	V_c	8–20	20–40	20–40	20–40
	f	.001–.010	.010–.018	.018–.025	.025–.035
P2	V_c	6–18	18–38	18–38	18–38
	f	.001–.008	.008–.016	.016–.023	.023–.033
P3	V_c	5–14	14–30	14–30	14–30
	f	.001–.007	.007–.015	.015–.020	.020–.030
M1	V_c	5–14	14–30	14–30	14–30
	f	.001–.008	.008–.016	.016–.023	.023–.033
M2	V_c	3–12	12–25	12–25	12–25
	f	.001–.005	.005–.010	.010–.016	.016–.020
K1	V_c	8–20	20–40	20–40	20–40
	f	.001–.010	.010–.018	.018–.025	.025–.035
K2	V_c	6–18	6–18	6–18	6–18
	f	.001–.008	.008–.016	.016–.023	.023–.033
N1	V_c	6–18	18–38	18–38	18–38
	f	.001–.007	.007–.015	.015–.020	.020–.030
N2	V_c	10–25	25–55	25–55	25–55
	f	.001–.010	.010–.018	.018–.025	.025–.035
N3	V_c	8–22	22–50	22–50	22–50
	f	.001–.008	.008–.016	.016–.023	.023–.033
N4	V_c	5–14	14–30	14–30	14–30
	f	.001–.005	.005–.010	.010–.016	.016–.020
N5	V_c	10–25	25–55	25–55	25–55
	f	.001–.010	.010–.018	.018–.025	.025–.035
N6	V_c	5–15	15–30	15–30	15–30
	f	.001–.005	.005–.010	.010–.016	.016–.020
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	6–10	10–20	10–20	10–20
	f	.001–.005	.005–.010	.010–.016	.016–.020
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c	15–30	15–30	15–30	15–30
	f	.005–.015	.015–.030	.030–.045	.045–.060
O2	V_c				
	f				
O3	V_c				
	f				

Art. 50740 / 50760 / 50780

Material		Ø.20–.50	Ø.55–.80	Ø.85–1.20	Ø1.25–2.00
P1	V_c	6–10	10–25	10–25	10–25
	f	.001–.006	.006–.010	.010–.022	.022–.030
P2	V_c	5–8	8–20	8–20	8–20
	f	.001–.005	.005–.008	.008–.015	.015–.020
P3	V_c	4–7	7–18	7–18	7–18
	f	.001–.004	.004–.007	.007–.012	.012–.015
M1	V_c	4–5	5–15	5–15	5–15
	f	.001–.003	.003–.006	.006–.012	.012–.018
M2	V_c	2–4	4–12	4–12	4–12
	f	.001–.003	.003–.005	.005–.010	.010–.015
K1	V_c	6–10	10–25	10–25	10–25
	f	.001–.006	.006–.010	.010–.022	.022–.030
K2	V_c	5–8	8–20	8–20	8–20
	f	.001–.005	.005–.008	.008–.015	.015–.020
N1	V_c	4–6	6–18	6–18	6–18
	f	.001–.004	.004–.007	.007–.012	.012–.015
N2	V_c	6–10	10–25	10–25	10–25
	f	.001–.006	.006–.010	.010–.022	.022–.030
N3	V_c	5–8	8–20	8–20	8–20
	f	.001–.005	.005–.008	.008–.015	.015–.020
N4	V_c	3–5	5–15	5–15	5–15
	f	.001–.004	.004–.007	.007–.012	.012–.015
N5	V_c	6–10	10–25	10–25	10–25
	f	.001–.006	.006–.010	.010–.022	.022–.030
N6	V_c	4–6	6–18	6–18	6–18
	f	.001–.003	.003–.005	.005–.010	.010–.015
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	3–5	5–12	5–12	5–12
	f	.001–.003	.003–.005	.005–.010	.010–.015
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c	10–20	10–20	10–20	10–20
	f	.005–.010	.010–.015	.015–.020	.020–.025
O2	V_c				
	f				
O3	V_c				
	f				

Art. 51609

Material		Ø.30–.95	Ø1.00–1.95	Ø2.00–3.00
P1	V_c	50–70	70–100	70–100
	f	.010–.025	.025–.040	.040–.055
P2	V_c	40–60	60–80	60–80
	f	.010–.025	.025–.035	.035–.050
P3	V_c	30–50	50–70	50–70
	f	.010–.020	.015–.025	.025–.040
M1	V_c	20–35	30–45	30–45
	f	.005–.008	.015–.025	.025–.035
M2	V_c	20–30	25–35	25–35
	f	.005–.008	.010–.020	.020–.030
K1	V_c	70–110	110–150	110–150
	f	.020– .050	.030–.040	.040–.050
K2	V_c	50–90	90–130	90–130
	f	.015– .040	.025–.035	.035–.050
N1	V_c	70–100	100–130	100–130
	f	.020–.030	.030–.040	.040–.050
N2	V_c	80–120	130–160	130–160
	f	.020–.030	.030–.050	.050–.060
N3	V_c	80–120	130–160	130–160
	f	.020–.030	.030–.050	.050–.060
N4	V_c	50–80	80–110	80–110
	f	.015–.025	.025–.035	.035–.045
N5	V_c	80–120	130–160	130–160
	f	.015–.025	.025–.035	.035–.045
N6	V_c			
	f			
N7	V_c			
	f			
N8	V_c			
	f			
S1	V_c	20–30	20–30	20–30
	f	.005–.010	.010–.020	.020–.030
S2	V_c	15–25	15–25	15–25
	f	.005–.010	.010–.020	.020–.030
H1	V_c	20–30	25–40	25–40
	f	.005–.015	.015–.025	.025–.035
H2	V_c	8–12	12–15	15–20
	f	.003–.008	.008–.015	.015–.020
H3	V_c			
	f			
O1	V_c	60–100	70–110	70–110
	f	.010–.020	.020–.030	.030–.040
O2	V_c			
	f			
O3	V_c			
	f			

Art. 52903 / 52906 / 52909

Material		Ø1.00–1.90	Ø2.00–5.00	Ø5.10–8.00	Ø8.10–12.70
P1	V_c	70–110	70–110	70–110	70–110
	f	.025–.055	.050–.130	.125–.170	.165–.215
P2	V_c	60–100	60–100	60–100	60–100
	f	.020–.050	.045–.120	.115–.150	.140–.190
P3	V_c	60–100	60–100	60–100	60–100
	f	.020–.050	.045–.120	.115–.150	.140–.190
M1	V_c	60–100	60–100	60–100	60–100
	f	.020–.050	.045–.120	.115–.150	.140–.190
M2	V_c	50–90	50–90	50–90	50–90
	f	.015–.045	.040–.100	.090–.130	.120–.150
K1	V_c	90–140	90–140	90–140	90–140
	f	.050–.110	.100–.270	.260–.340	.320–.420
K2	V_c	80–120	80–120	80–120	80–120
	f	.040–.100	.090–.250	.240–.300	.280–.360
N1	V_c	120–170	120–170	120–170	120–170
	f	.050–.110	.100–.250	.240–.340	.320–.420
N2	V_c	150–200	150–200	150–200	150–200
	f	.050–.110	.100–.250	.240–.340	.320–.420
N3	V_c	200–250	200–250	200–250	200–250
	f	.050–.110	.100–.250	.240–.340	.320–.420
N4	V_c	90–130	90–130	90–130	90–130
	f	.050–.110	.100–.250	.240–.340	.320–.420
N5	V_c	150–200	150–200	150–200	150–200
	f	.050–.110	.100–.250	.240–.340	.320–.420
N6	V_c	60–100	60–100	60–100	60–100
	f	.020–.050	.045–.120	.115–.150	.140–.190
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	30–60	30–60	30–60	30–60
	f	.015–.035	.030–.085	.080–.110	.100–.135
S2	V_c	20–50	20–50	20–50	20–50
	f	.020–.050	.045–.120	.115–.150	.140–.190
H1	V_c	30–60	30–60	30–60	30–60
	f	.020–.030	.030–.100	.090–.140	.120–.170
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c	70–110	70–110	70–110	70–110
	f	.025–.055	.050–.130	.125–.170	.165–.215
O2	V_c				
	f				
O3	V_c				
	f				

Art. 52912 / 52916

Material		Ø1.00–2.40	Ø2.50–5.00	Ø5.10–8.00	Ø8.10–1.00
P1	V_c	70–110	70–110	70–110	70–110
	f	.030–.080	.060–.130	.125–.170	.170–.240
P2	V_c	60–100	60–100	60–100	60–100
	f	.020–.060	.050–.120	.115–.150	.150–.220
P3	V_c	50–90	50–90	50–90	50–90
	f	.015–.050	.040–.100	.080–.130	.140–.200
M1	V_c	50–90	50–90	50–90	50–90
	f	.015–.050	.040–.100	.080–.130	.140–.190
M2	V_c	40–80	40–80	40–80	40–80
	f	.010–.045	.030–.090	.070–.120	.120–.170
K1	V_c	90–140	90–140	90–140	90–140
	f	.030–.080	.080–.150	.150–.280	.280–.350
K2	V_c	80–120	80–120	80–120	80–120
	f	.040–.100	.060–.130	.130–.220	.220–.300
N1	V_c	150–200	150–200	150–200	150–200
	f	.050–.110	.100–.250	.240–.340	.320–.420
N2	V_c	150–200	150–200	150–200	150–200
	f	.050–.110	.100–.250	.240–.340	.320–.420
N3	V_c	150–200	150–200	150–200	150–200
	f	.050–.110	.100–.250	.240–.340	.320–.420
N4	V_c	120–170	120–170	120–170	120–170
	f	.030–.080	.060–.130	.140–.190	.165–.210
N5	V_c	120–170	120–170	120–170	120–170
	f	.040–.100	.100–.250	.240–.300	.280–.360
N6	V_c	80–120	80–120	80–120	80–120
	f	.040–.100	.100–.250	.240–.300	.280–.360
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	50–90	50–90	50–90	50–90
	f	.020–.060	.040–.100	.100–.200	.100–.135
S2	V_c	30–55	30–55	30–55	30–55
	f	.010–.040	.030–.070	.080–.130	.100–.170
H1	V_c	30–60	30–60	30–60	30–60
	f	.015–.050	.040–.100	.090–.140	.120–.150
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c	70–110	70–110	70–110	70–110
	f	.025–.050	.050–.130	.130–.170	.170–.220
O2	V_c				
	f				
O3	V_c				
	f				

Art. 52920 / 52930

Material		Ø3.00–5.00	Ø5.10–8.00	Ø8.10–1.00
P1	V_c			
	f			
P2	V_c			
	f			
P3	V_c	40–80	40–80	40–80
	f	.050–.085	.080–.110	.100–.150
M1	V_c	30–70	30–70	30–70
	f	.045–.070	.065–.085	.080–.120
M2	V_c	25–55	25–55	25–55
	f	.035–.050	.045–.065	.080–.110
K1	V_c	70–110	70–110	70–110
	f	.100–.200	.180–.250	.230–.280
K2	V_c	60–100	60–100	60–100
	f	.090–.180	.170–.240	.220–.260
N1	V_c	60–100	60–100	60–100
	f	.130–.250	.230–.340	.320–.380
N2	V_c	65–100	65–100	65–100
	f	.130–.250	.230–.340	.320–.380
N3	V_c	70–110	70–110	70–110
	f	.130–.250	.230–.340	.320–.380
N4	V_c			
	f			
N5	V_c			
	f			
N6	V_c			
	f			
N7	V_c			
	f			
N8	V_c			
	f			
S1	V_c	30–60	30–60	30–60
	f	.035–.070	.065–.085	.080–.110
S2	V_c	20–50	20–50	20–50
	f	.030–.060	.050–.080	.070–.100
H1	V_c	20–40	20–40	20–40
	f	.010–.035	.030–.040	.035–.060
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	60–100	60–100	60–100
	f	.090–.180	.170–.240	.220–.260
O2	V_c			
	f			
O3	V_c			
	f			

Art. 50938

Material		Ø1.00–2.40	Ø2.50–5.00	Ø5.10–8.00	Ø8.10–12.70
P1	V_c	50–80	60–100	60–100	60–100
	f	.030–.070	.045–.120	.110–.150	.150–.200
P2	V_c	45–70	55–90	55–90	55–90
	f	.030–.060	.040–.115	.100–.140	.140–.180
P3	V_c	40–60	55–90	55–90	55–90
	f	.020–.050	.040–.115	.100–.140	.140–.180
M1	V_c	20–45	50–90	50–90	50–90
	f	.010–.040	.040–.100	.090–.130	.120–.150
M2	V_c	20–40	40–80	40–80	40–80
	f	.010–.035	.035–.090	.075–.110	.110–.130
K1	V_c	60–80	80–120	80–120	80–120
	f	.050–.080	.090–.250	.240–.300	.280–.360
K2	V_c	50–70	70–100	70–100	70–100
	f	.040–.070	.080–.230	.220–.280	.265–.320
N1	V_c				
	f				
N2	V_c	80–110	140–190	140–190	140–190
	f	.040–.130	.090–.230	.220–.300	.300–.360
N3	V_c	90–130	180–220	180–220	180–220
	f	.040–.140	.090–.230	.220–.300	.300–.360
N4	V_c				
	f				
N5	V_c				
	f				
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	20–40	25–55	25–55	25–55
	f	.010–.030	.025–.050	.040–.070	.060–.100
S2	V_c				
	f				
H1	V_c	25–45	35–55	35–55	35–55
	f	.010–.020	.015–.040	.030–.060	.050–.090
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

Art. 50940

Material		Ø1.00–1.90	Ø2.00–5.00	Ø5.10–8.00	Ø8.10–12.70
P1	V_c	60–100	60–100	60–100	60–100
	f	.020–.050	.045–.120	.110–.150	.150–.200
P2	V_c	55–90	55–90	55–90	55–90
	f	.015–.045	.040–.115	.100–.140	.140–.180
P3	V_c	55–90	55–90	55–90	55–90
	f	.015–.045	.040–.115	.100–.140	.140–.180
M1	V_c	50–90	50–90	50–90	50–90
	f	.015–.045	.040–.100	.090–.130	.120–.150
M2	V_c	40–80	40–80	40–80	40–80
	f	.010–.040	.035–.090	.075–.110	.110–.130
K1	V_c	80–120	80–120	80–120	80–120
	f	.040–.100	.090–.250	.240–.300	.280–.360
K2	V_c	70–100	70–100	70–100	70–100
	f	.030–.090	.080–.230	.220–.280	.265–.320
N1	V_c				
	f				
N2	V_c	140–190	140–190	140–190	140–190
	f	.040–.100	.090–.230	.220–.300	.300–.360
N3	V_c	180–220	180–220	180–220	180–220
	f	.040–.100	.090–.230	.220–.300	.300–.360
N4	V_c				
	f				
N5	V_c				
	f				
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	25–55	25–55	25–55	25–55
	f	.010–.030	.025–.050	.040–.070	.060–.100
S2	V_c				
	f				
H1	V_c	30–50	30–50	30–50	30–50
	f	.005–.015	.010–.040	.030–.050	.050–.065
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

Art. 50941

Material		Ø.50–.90	Ø1.00–1.90	Ø2.00–3.00
P1	V_c	50–70	70–100	70–100
	f	.020–.040	.035–.060	.060–.120
P2	V_c	40–60	60–80	60–80
	f	.010–.030	.025–.045	.045–.100
P3	V_c	30–50	50–70	50–70
	f	.010–.020	.015–.040	.040–.080
M1	V_c	20–35	30–45	30–45
	f	.005–.008	.008–.020	.020–.030
M2	V_c	20–30	25–35	25–35
	f	.005–.008	.008–.015	.015–.025
K1	V_c	50–100	100–150	100–150
	f	.020–.050	.040–.080	.080–.120
K2	V_c	50–90	90–130	90–130
	f	.015–.040	.030–.060	.060–.100
N1	V_c			
	f			
N2	V_c	60–120	120–150	120–150
	f	.020–.040	.040–.080	.080–.120
N3	V_c	80–120	130–170	130–170
	f	.020–.040	.040–.080	.080–.120
N4	V_c			
	f			
N5	V_c			
	f			
N6	V_c			
	f			
N7	V_c			
	f			
N8	V_c			
	f			
S1	V_c	30–40	30–40	30–40
	f	.005–.008	.008–.020	.020–.035
S2	V_c			
	f			
H1	V_c	10–20	15–30	15–30
	f	.003–.006	.005–.015	.015–.020
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c			
	f			
O2	V_c			
	f			
O3	V_c			
	f			

Art. 52100 / 52200

Material		Ø3.00–4.00	Ø4.10–8.00	Ø8.10–12.00	Ø12.10–16.00	Ø16.10–2.00
P1	V_c					
	f					
P2	V_c					
	f					
P3	V_c					
	f					
M1	V_c					
	f					
M2	V_c					
	f					
K1	V_c	60–110	60–110	60–110	60–110	60–110
	f	.040–.060	.050–.200	.160–.300	.280–.400	.380–.500
K2	V_c	50–100	50–100	50–100	50–100	50–100
	f	.020–.050	.040–.160	.140–.250	.220–.350	.320–.400
N1	V_c					
	f					
N2	V_c	200–250	200–250	200–250	200–250	200–250
	f	.040–.060	.050–.150	.140–.260	.250–.400	.380–.600
N3	V_c	220–280	220–280	220–280	220–280	220–280
	f	.040–.060	.050–.150	.140–.260	.250–.400	.380–.600
N4	V_c					
	f					
N5	V_c	80–120	80–120	80–120	80–120	80–120
	f	.040–.060	.050–.150	.140–.250	.230–.330	.300–.400
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c					
	f					
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c	20–40	20–40	20–40	20–40	20–40
	f	.030–.050	.040–.100	.080–.150	.130–.180	.160–.200
O2	V_c					
	f					
O3	V_c					
	f					

Art. 52150

Material		Ø4.00–7.00	Ø7.10–1.00	Ø1.10–13.00	Ø13.10–16.00	Ø16.10–2.00
P1	V_c	90–120	90–120	90–120	90–120	90–120
	f	.080–.200	.180–.350	.300–.400	.350–.450	.400–.600
P2	V_c	80–150	80–150	80–150	80–150	80–150
	f	.050–.180	.160–.250	.220–.350	.330–.400	.380–.550
P3	V_c					
	f					
M1	V_c					
	f					
M2	V_c					
	f					
K1	V_c	200–250	200–250	200–250	200–250	200–250
	f	.100–.250	.220–.350	.330–.450	.420–.550	.520–.700
K2	V_c	160–200	160–200	160–200	160–200	160–200
	f	.080–.180	.160–.250	.230–.350	.330–.500	.450–.550
N1	V_c					
	f					
N2	V_c					
	f					
N3	V_c	250–300	250–300	250–300	250–300	250–300
	f	.050–.150	.130–.250	.230–.350	.330–.450	.430–.550
N4	V_c					
	f					
N5	V_c	80–120	80–120	80–120	80–120	80–120
	f	.050–.120	.100–.220	.200–.320	.300–.400	.380–.450
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c					
	f					
S2	V_c					
	f					
H1	V_c	70–100	70–100	70–100	70–100	70–100
	f	.050–.100	.080–.180	.160–.260	.240–.300	.280–.350
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c					
	f					
O2	V_c					
	f					
O3	V_c					
	f					

SPHINX TOOLS

Art. 50950

Material		Ø3.00–5.00	Ø5.10–8.00	Ø8.10–12.00	Ø12.10–16.00	Ø16.10–2.00
P1	V_c	80–120	80–120	80–120	80–120	80–120
	f	.060–.150	.120–.250	.220–.350	.320–.450	.400–.500
P2	V_c	60–80	60–80	60–80	60–80	60–80
	f	.050–.120	.100–.220	.200–.300	.280–.360	.340–.450
P3	V_c	50–70	50–70	50–70	50–70	50–70
	f	.040–.100	.090–.180	.160–.260	.240–.320	.300–.380
M1	V_c	40–60	40–60	40–60	40–60	40–60
	f	.030–.080	.070–.150	.140–.180	.170–.250	.230–.320
M2	V_c	30–50	30–50	30–50	30–50	30–50
	f	.030–.080	.070–.130	.120–.160	.150–.220	.200–.300
K1	V_c	100–130	100–130	100–130	100–130	100–130
	f	.100–.250	.230–.350	.320–.450	.400–.500	.450–.600
K2	V_c	60–80	60–80	60–80	60–80	60–80
	f	.060–.200	.180–.280	.250–.350	.320–.450	.420–.500
N1	V_c					
	f					
N2	V_c	150–200	150–200	150–200	150–200	150–200
	f	.100–.270	.250–.350	.330–.400	.380–.480	.460–.550
N3	V_c	130–160	130–160	130–160	130–160	130–160
	f	.100–.250	.220–.320	.300–.380	.360–.450	.420–.500
N4	V_c					
	f					
N5	V_c					
	f					
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c	30–60	30–60	30–60	30–60	30–60
	f	.005–.040	.030–.070	.060–.110	.100–.150	.140–.180
S2	V_c					
	f					
H1	V_c	60–90	60–90	60–90	60–90	60–90
	f	.050–.120	.100–.220	.200–.300	.280–.360	.340–.400
H2	V_c	40–60	40–60	40–60	40–60	40–60
	f	.030–.070	.060–.130	.110–.180	.160–.240	.200–.260
H3	V_c	15–35	15–35	15–35	15–35	15–35
	f	.005–.030	.020–.050	.040–.070	.060–.100	.080–.120
O1	V_c					
	f					
O2	V_c					
	f					
O3	V_c					
	f					

Art. 50830

Material		Ø.30–1.00	Ø1.10–5.00	Ø5.10–1.00	Ø1.10–15.00	Ø15.10–2.00
P1	V_c	30–60	50–90	50–90	50–90	50–90
	f	.010–.040	.038–.080	.076–.110	.100–.180	.170–.260
P2	V_c	20–35	30–60	30–60	30–60	30–60
	f	.010–.030	.028–.070	.065–.090	.085–.160	.150–.230
P3	V_c	15–30	25–50	25–50	25–50	25–50
	f	.005–.020	.018–.060	.057–.085	.080–.130	.125–.200
M1	V_c	15–30	25–50	25–50	25–50	25–50
	f	.005–.020	.018–.060	.057–.085	.080–.130	.125–.200
M2	V_c	10–20	15–40	15–40	15–40	15–40
	f	.004–.018	.016–.050	.048–.090	.085–.120	.110–.160
K1	V_c	40–80	70–120	70–120	70–120	70–120
	f	.010–.060	.055–.090	.085–.110	.100–.280	.260–.500
K2	V_c	30–50	40–80	40–80	40–80	40–80
	f	.010–.030	.028–.070	.067–.100	.095–.180	.170–.300
N1	V_c	30–60	50–90	50–90	50–90	50–90
	f	.012–.045	.042–.085	.080–.140	.135–.250	.230–.300
N2	V_c	40–80	70–120	70–120	70–120	70–120
	f	.015–.050	.480–.100	.095–.180	.170–.280	.260–.450
N3	V_c	30–70	60–110	60–110	60–110	60–110
	f	.010–.045	.040–.085	.080–.160	.150–.260	.240–.400
N4	V_c	20–40	30–70	30–70	30–70	30–70
	f	.005–.030	.028–.070	.065–.090	.085–.160	.150–.230
N5	V_c					
	f					
N6	V_c	15–30	25–50	25–50	25–50	25–50
	f	.012–.045	.042–.085	.080–.140	.135–.250	.230–.300
N7	V_c	15–30	25–50	25–50	25–50	25–50
	f	.012–.045	.042–.085	.080–.140	.135–.250	.230–.300
N8	V_c	10–20	15–35	15–35	15–35	15–35
	f	.004–.018	.016–.050	.048–.090	.085–.120	.110–.180
S1	V_c	20–30	25–50	25–50	25–50	25–50
	f	.020–.040	.038–.070	.065–.100	.095–.150	.145–.200
S2	V_c	10–20	15–35	15–35	15–35	15–35
	f	.004–.018	.016–.050	.048–.090	.085–.120	.110–.180
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c	20–40	30–70	30–70	30–70	30–70
	f	.015–.050	.048–.100	.095–.180	.170–.280	.260–.450
O2	V_c					
	f					
O3	V_c					
	f					

Art. 50838

Material		Ø.30–1.00	Ø1.05–3.00	Ø3.105–6.00
P1	V_c	30–60	50–90	50–90
	f	.010–.040	.038–.050	.045–.060
P2	V_c	20–35	30–60	30–60
	f	.010–.030	.028–.045	.040–.055
P3	V_c	15–30	25–50	25–50
	f	.005–.020	.018–.035	.030–.050
M1	V_c	15–30	25–50	25–50
	f	.005–.020	.018–.035	.030–.050
M2	V_c	10–20	15–40	15–40
	f	.004–.018	.016–.030	.028–.040
K1	V_c	40–80	70–120	70–120
	f	.010–.060	.055–.070	.065–.100
K2	V_c	30–50	40–80	40–80
	f	.010–.030	.028–.055	.050–.080
N1	V_c	30–60	50–90	50–90
	f	.012–.045	.042–.060	.055–.090
N2	V_c	40–80	70–120	70–120
	f	.015–.050	.048–.070	.065–.110
N3	V_c	30–70	60–110	60–110
	f	.010–.045	.040–.065	.060–.100
N4	V_c	20–40	30–70	30–70
	f	.005–.030	.028–.050	.048–.075
N5	V_c	30–60	50–90	50–90
	f	.015–.050	.048–.070	.065–.110
N6	V_c	15–30	25–50	25–50
	f	.012–.045	.040–.065	.060–.100
N7	V_c			
	f			
N8	V_c			
	f			
S1	V_c	20–35	30–60	30–60
	f	.010–.030	.028–.045	.040–.055
S2	V_c			
	f			
H1	V_c			
	f			
H2	V_c			
	f			
H3	V_c			
	f			
O1	V_c	20–40	30–70	30–70
	f	.015–.050	.048–.070	.065–.120
O2	V_c			
	f			
O3	V_c			
	f			

Art. 50820

Material		Ø.70–2.50	Ø2.60–6.00	Ø6.10–9.00	Ø9.10–11.00	Ø11.10–14.00
P1	V_c	30–60	50–90	50–90	50–90	50–90
	f	.010–.020	.018–.040	.038–.065	.060–.090	.085–.120
P2	V_c	20–35	30–60	30–60	30–60	30–60
	f	.008–.018	.016–.035	.033–.055	.050–.075	.070–.100
P3	V_c					
	f					
M1	V_c					
	f					
M2	V_c					
	f					
K1	V_c	20–40	30–70	30–70	30–70	30–70
	f	.010–.025	.023–.045	.042–.075	.072–.110	.100–.150
K2	V_c	15–30	25–50	25–50	25–50	25–50
	f	.010–.020	.018–.040	.038–.065	.060–.090	.085–.120
N1	V_c					
	f					
N2	V_c	80–120	110–160	110–160	110–160	110–160
	f	.010–.030	.028–.080	.075–.120	.110–.160	.150–.200
N3	V_c	60–100	50–120	50–120	50–120	50–120
	f	.010–.030	.028–.080	.075–.120	.110–.160	.150–.200
N4	V_c					
	f					
N5	V_c	40–70	60–120	60–120	60–120	60–120
	f	.010–.025	.023–.045	.042–.075	.072–.110	.100–.150
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c					
	f					
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c					
	f					
O2	V_c					
	f					
O3	V_c					
	f					

Art. 50840

Material		Ø2.00–5.00	Ø5.10–8.00	Ø8.10–11.00	Ø11.10–14.00
P1	V_c	30–60	30–60	30–60	30–60
	f	.020–.050	.045–.090	.080–.150	.130–.200
P2	V_c	25–50	25–50	25–50	25–50
	f	.015–.045	.040–.080	.075–.120	.100–.150
P3	V_c				
	f				
M1	V_c	20–45	20–45	20–45	20–45
	f	.150–.040	.035–.070	.065–.100	.090–.130
M2	V_c	15–35	15–35	15–35	15–35
	f	.010–.035	.030–.060	.055–.085	.080–.110
K1	V_c	30–60	30–60	30–60	30–60
	f	.020–.050	.450–.090	.080–.150	.130–.200
K2	V_c	25–50	25–50	25–50	25–50
	f	.015–.045	.040–.080	.075–.120	.100–.150
N1	V_c	30–60	30–60	30–60	30–60
	f	.020–.050	.045–.090	.080–.150	.130–.200
N2	V_c	60–100	60–100	60–100	60–100
	f	.030–.080	.070–.150	.140–.220	.200–.300
N3	V_c	50–90	50–90	50–90	50–90
	f	.025–.070	.060–.130	.120–.190	.180–.250
N4	V_c	50–90	50–90	50–90	50–90
	f	.030–.090	.080–.150	.130–.200	.180–.300
N5	V_c				
	f				
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c				
	f				
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c				
	f				
O2	V_c				
	f				
O3	V_c				
	f				

SPHINX TOOLS

Art. 55654 / 55338

Material		Ø1.00–2.00	Ø2.10–5.00	Ø5.10–8.00	Ø8.10–11.00	Ø11.10–14.00
P1	V_c	40–60	40–60	40–60	40–60	40–60
	f	.015–.040	.035–.080	.075–.170	.160–.230	.200–.300
P2	V_c	30–50	30–50	30–50	30–50	30–50
	f	.010–.035	.030–.075	.070–.155	.150–.210	.190–.250
P3	V_c					
	f					
M1	V_c	25–40	25–40	25–40	25–40	25–40
	f	.010–.030	.025–.070	.060–.100	.090–.140	.120–.200
M2	V_c					
	f					
K1	V_c	60–100	60–100	60–100	60–100	60–100
	f	.020–.050	.040–.090	.080–.180	.160–.280	.250–.350
K2	V_c	40–80	40–80	40–80	40–80	40–80
	f	.015–.040	.035–.080	.700–.170	.150–.230	.210–.300
N1	V_c					
	f					
N2	V_c	80–120	80–120	80–120	80–120	80–120
	f	.020–.060	.050–.120	.100–.230	.210–.340	.330–.450
N3	V_c	60–100	60–100	60–100	60–100	60–100
	f	.020–.060	.050–.120	.100–.230	.210–.340	.330–.450
N4	V_c					
	f					
N5	V_c					
	f					
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c	30–50	30–50	30–50	30–50	30–50
	f	.010–.030	.025–.070	.060–.130	.100–.160	.150–.200
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c	30–50	30–50	30–50	30–50	30–50
	f	.013–.035	.035–.045	.045–.060	.060–.080	.080–.100
O2	V_c					
	f					
O3	V_c					
	f					

Art. 55652

Material		Ø.20–.50	Ø.51–1.00	Ø1.01–2.00	Ø2.01–2.99
P1	V_c	10–25	25–40	40–60	40–60
	f	.005–.008	.007–.015	.013–.040	.035–.050
P2	V_c	8.0–20	20–30	30–50	30–50
	f	.004–.007	.006–.015	.013–.035	.030–.045
P3	V_c				
	f				
M1	V_c	8–15	15–25	25–40	25–40
	f	.003–.006	.005–.012	.010–.020	.018–.030
M2	V_c				
	f				
K1	V_c	20–45	45–60	60–100	60–100
	f	.004–.008	.007–.015	.013–.040	.035–.050
K2	V_c	15–30	30–40	40–80	40–80
	f	.002–.006	.005–.013	.011–.032	.030–.045
N1	V_c				
	f				
N2	V_c	20–50	50–80	80–120	80–120
	f	.005–.010	.008–.020	.018–.050	.040–.080
N3	V_c	10–30	30–60	60–100	60–100
	f	.005–.010	.008–.020	.018–.050	.040–.080
N4	V_c				
	f				
N5	V_c				
	f				
N6	V_c				
	f				
N7	V_c				
	f				
N8	V_c				
	f				
S1	V_c	10–20	20–30	30–50	30–50
	f	.002–.005	.004–.010	.008–.030	.028–.040
S2	V_c				
	f				
H1	V_c				
	f				
H2	V_c				
	f				
H3	V_c				
	f				
O1	V_c	8.0–20	20–30	30–50	30–50
	f	.004–.007	.006–.015	.013–.035	.030–.045
O2	V_c				
	f				
O3	V_c				
	f				

SPHINX TOOLS

Art. 58000 / 58500

Material		Ø.99–2.00	Ø2.01–3.00	Ø3.01–4.00	Ø4.01–5.00	Ø5.01–6.00
P1	V_c	20–30	20–30	20–30	20–30	20–30
	f	.050–.100	.080–.130	.120–.180	.170–.230	.220–.280
P2	V_c	15–25	15–25	15–25	15–25	15–25
	f	.040–.080	.070–.120	.110–.170	.160–.220	.210–.260
P3	V_c	10–20	10–20	10–20	10–20	10–20
	f	.035–.070	.060–.100	.090–.150	.130–.180	.170–.200
M1	V_c	10–20	10–20	10–20	10–20	10–20
	f	.040–.080	.070–.120	.110–.170	.160–.220	.200–.260
M2	V_c	10–15	10–15	10–15	10–15	10–15
	f	.035–.070	.060–.100	.090–.150	.130–.180	.170–.200
K1	V_c	20–30	20–30	20–30	20–30	20–30
	f	.050–.100	.080–.150	.140–.220	.200–.260	.030–.280
K2	V_c	15–25	15–25	15–25	15–25	15–25
	f	.050–.090	.750–.140	.130–.200	.180–.240	.200–.260
N1	V_c					
	f					
N2	V_c	30–40	30–40	30–40	30–40	30–40
	f	.060–.120	.110–.160	.150–.220	.200–.260	.240–.300
N3	V_c	25–35	25–35	25–35	25–35	25–35
	f	.060–.120	.110–.160	.150–.220	.200–.260	.240–.300
N4	V_c	15–25	15–25	15–25	15–25	15–25
	f	.035–.070	.060–.100	.090–.150	.130–.180	.170–.200
N5	V_c	30–40	30–40	30–40	30–40	30–40
	f	.035–.070	.060–.100	.090–.150	.130–.180	.170–.200
N6	V_c					
	f					
N7	V_c					
	f					
N8	V_c					
	f					
S1	V_c	10–15	10–15	10–15	10–15	10–15
	f	.035–.070	.060–.100	.090–.150	.130–.180	.170–.200
S2	V_c					
	f					
H1	V_c					
	f					
H2	V_c					
	f					
H3	V_c					
	f					
O1	V_c					
	f					
O2	V_c					
	f					
O3	V_c					
	f					

Art. 70030–70090 / 70130–70190

Material			
P1	V_c	180–280	
	V_f	80–180	mm/min
P2	V_c	180–280	
	V_f	70–160	mm/min
P3	V_c	180–280	
	V_f	70–150	mm/min
M1	V_c	180–280	
	V_f	70–150	mm/min
M2	V_c	180–280	
	V_f	70–150	mm/min
K1	V_c	180–280	
	V_f	80–180	mm/min
K2	V_c	180–280	
	V_f	70–160	mm/min
N1	V_c	180–280	
	V_f	60–140	mm/min
N2	V_c	180–280	
	V_f	80–180	mm/min
N3	V_c	180–280	
	V_f	70–160	mm/min
N4	V_c	180–280	
	V_f	60–120	mm/min
N5	V_c	180–280	
	V_f	80–200	mm/min
N6	V_c	180–280	
	V_f	60–150	mm/min
N7	V_c	180–280	
	V_f	80–200	mm/min
N8	V_c	180–280	
	V_f	80–200	mm/min
S1	V_c	180–280	
	V_f	50–120	mm/min
S2	V_c		
	V_f		
H1	V_c		
	V_f		
H2	V_c		
	V_f		
H3	V_c		
	V_f		
O1	V_c	180–280	
	V_f	80–200	mm/min
O2	V_c		
	V_f		
O3	V_c		
	V_f		

Art. 72075 / 72150

Material		Ø.10–.30	Ø.40–1.50	Ø1.50–3.0	a_p	a_e
P1	V_c	60–80	60–80	60–80		
	f_z	.001–.005	.004–.020	.018–.040	.5×d1	1×d1
P2	V_c	50–70	50–70	50–70		
	f_z	.001–.005	.004–.020	.018–.040	.3×d1	1×d1
P3	V_c	40–60	40–60	40–60		
	f_z	.001–.004	.003–.200	.015–.035	.2×d1	1×d1
M1	V_c	30–50	30–50	30–50		
	f_z	.001–.004	.003–.020	.015–.035	.4×d1	1×d1
M2	V_c	25–40	25–40	25–40		
	f_z	.001–.004	.003–.016	.014–.028	.25×d1	1×d1
K1	V_c	40–70	40–70	40–70		
	f_z	.001–.005	.004–.020	.018–.040	1×d1	1×d1
K2	V_c	30–60	30–60	30–60		
	f_z	.001–.004	.003–.020	.015–.035	.4×d1	1×d1
N1	V_c	70–100	70–100	70–100		
	f_z	.001–.004	.003–.020	.015–.035	1×d1	1×d1
N2	V_c	80–120	80–120	80–120		
	f_z	.001–.005	.004–.020	.018–.040	.9×d1	1×d1
N3	V_c	60–100	60–100	60–100		
	f_z	.001–.005	.004–.020	.018–.040	.9×d1	1×d1
N4	V_c					
	f_z					
N5	V_c	40–80	40–80	40–80		
	f_z	.001–.005	.004–.020	.018–.040	1×d1	1×d1
N6	V_c	25–50	25–50	25–50		
	f_z	.001–.004	.003–.020	.015–.035	.5×d1	1×d1
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c	25–50	25–50	25–50		
	f_z	.001–.003	.002–.015	.012–.030	.4×d1	1×d1
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c	80–120	80–120	80–120		
	f_z	.001–.006	.005–.025	.020–.045	1×d1	1×d1
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 42000

Material		Ø.30–.70	Ø.70–1.50	Ø1.50–2.50	a_p	a_e
P1	V_c	60–80	60–80	60–80		
	f_z	.005–.010	.008–.020	.018–.040	.30 x d1	1 x d1
P2	V_c	50–70	50–70	50–70		
	f_z	.005–.010	.008–.020	.018–.040	.15 x d1	1 x d1
P3	V_c	40–60	40–60	40–60		
	f_z	.004–.010	.006–.020	.0015–.035	.10 x d1	1 x d1
M1	V_c	30–50	30–50	30–50		
	f_z	.004–.010	.006–.020	.015–.035	.10 x d1	1 x d1
M2	V_c	25–40	25–40	25–40		
	f_z	.004–.008	.005–.016	.014–.028	.10 x d1	1 x d1
K1	V_c	40–70	40–70	40–70		
	f_z	.005–.010	.008–.020	.018–.040	.40 x d1	1 x d1
K2	V_c	30–60	30–60	30–60		
	f_z	.004–.010	.006–.020	.015–.035	.20 x d1	1 x d1
N1	V_c	70–100	70–100	70–100		
	f_z	.004–.01	.006–.020	.015–0035	.40 x d1	1 x d1
N2	V_c	80–120	80–120	80–120		
	f_z	.005–.010	.008–.020	.018–.040	.25 x d1	1 x d1
N3	V_c	60–100	60–100	60–100		
	f_z	.005–.010	.008–.020	.018–.040	.25 x d1	1 x d1
N4	V_c					
	f_z					
N5	V_c	40–80	40–80	40–80		
	f_z	.005–.010	.008–.020	.018–.040	.40 x d1	1 x d1
N6	V_c	25–50	25–50	25–50		
	f_z	.004–.010	.006–.020	.015–.035	.20 x d1	1 x d1
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c	25–50	25–50	25–50		
	f_z	.003–.008	.006–.015	.012–.030	.20 x d1	1 x d1
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c	80–120	80–120	80–120		
	f_z	.006–.012	.010–.025	.020–.045	.20 x d1	1 x d1
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 72500 / 72800

Material		Ø.30–.70	Ø.70–1.50	Ø1.50–2.50	a_p	a_e
P1	V_c	60–80	60–80	60–80		
	f_z	.005–.010	.008–.020	.018–.040	.30 × d1	1 × d1
P2	V_c	50–70	50–70	50–70		
	f_z	.005–.010	.008–.020	.018–.040	.15 × d1	1 × d1
P3	V_c	40–60	40–60	40–60		
	f_z	.004–.010	.006–.020	.0015–.035	.10 × d1	1 × d1
M1	V_c	30–50	30–50	30–50		
	f_z	.004–.010	.006–.020	.015–.035	.10 × d1	1 × d1
M2	V_c	25–40	25–40	25–40		
	f_z	.004–.008	.005–.016	.014–.028	.10 × d1	1 × d1
K1	V_c	40–70	40–70	40–70		
	f_z	.005–.010	.008–.020	.018–.040	.40 × d1	1 × d1
K2	V_c	30–60	30–60	30–60		
	f_z	.004–.010	.006–.020	.015–.035	.20 × d1	1 × d1
N1	V_c	70–100	70–100	70–100		
	f_z	.004–.01	.006–.020	.015–0035	.40 × d1	1 × d1
N2	V_c	80–120	80–120	80–120		
	f_z	.005–.010	.008–.020	.018–.040	.25 × d1	1 × d1
N3	V_c	60–100	60–100	60–100		
	f_z	.005–.010	.008–.020	.018–.040	.25 × d1	1 × d1
N4	V_c					
	f_z					
N5	V_c	40–80	40–80	40–80		
	f_z	.005–.010	.008–.020	.018–.040	.40 × d1	1 × d1
N6	V_c	25–50	25–50	25–50		
	f_z	.004–.010	.006–.020	.015–.035	.20 × d1	1 × d1
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c	25–50	25–50	25–50		
	f_z	.003–.008	.006–.015	.012–.030	.20 × d1	1 × d1
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c	80–120	80–120	80–120		
	f_z	.006–.012	.010–.025	.020–.045	.20 × d1	1 × d1
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 73130

Material		Ø.30–.70	Ø.70–1.50	Ø1.50–2.90	a_p	a_e
P1	V_c	60–80	60–80	60–80		
	f_z	.005–.010	.008–.020	.018–.040	.80 x d1	1 x d1
P2	V_c	50–70	50–70	50–70		
	f_z	.005–.010	.008–.020	.018–.040	.60 x d1	1 x d1
P3	V_c	40–60	40–60	40–60		
	f_z	.004–.010	.006–.020	.0015–.035	.50 x d1	1 x d1
M1	V_c	30–50	30–50	30–50		
	f_z	.004–.010	.006–.020	.015–.035	.50 x d1	1 x d1
M2	V_c	25–40	25–40	25–40		
	f_z	.004–.008	.005–.016	.014–.028	.40 x d1	1 x d1
K1	V_c	40–70	40–70	40–70		
	f_z	.005–.010	.008–.020	.018–.040	.80 x d1	1 x d1
K2	V_c	30–60	30–60	30–60		
	f_z	.004–.010	.006–.020	.015–.035	.80 x d1	1 x d1
N1	V_c	70–100	70–100	70–100		
	f_z	.004–.01	.006–.020	.015–0035	1.00 x d1	1 x d1
N2	V_c	80–120	80–120	80–120		
	f_z	.005–.010	.008–.020	.018–.040	1.00 x d1	1 x d1
N3	V_c	60–100	60–100	60–100		
	f_z	.005–.010	.008–.020	.018–.040	1.30 x d1	1 x d1
N4	V_c					
	f_z					
N5	V_c	40–80	40–80	40–80		
	f_z	.005–.010	.008–.020	.018–.040	1.00 x d1	1 x d1
N6	V_c	25–50	25–50	25–50		
	f_z	.004–.010	.006–.020	.015–.035	.80 x d1	1 x d1
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c	25–50	25–50	25–50		
	f_z	.003–.008	.006–.015	.012–.030	.80 x d1	1 x d1
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c					
	f_z					
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 73200 / 73300

Material		Ø.30–.70	Ø.70–1.50	Ø1.50–2.90	a_p	a_e
P1	V_c	60–80	60–80	60–80		
	f_z	.005–.010	.008–.020	.018–.040	.9×d1	1×d1
P2	V_c	50–70	50–70	50–70		
	f_z	.005–.010	.008–.020	.018–.040	.8×d1	1×d1
P3	V_c	40–60	40–60	40–60		
	f_z	.004–.010	.006–.020	.0015–.035	.7×d1	1×d1
M1	V_c	30–50	30–50	30–50		
	f_z	.004–.010	.006–.020	.015–.035	.6×d1	1×d1
M2	V_c	25–40	25–40	25–40		
	f_z	.004–.008	.005–.016	.014–.028	.5×d1	1×d1
K1	V_c	40–70	40–70	40–70		
	f_z	.005–.010	.008–.020	.018–.040	1.0×d1	1×d1
K2	V_c	30–60	30–60	30–60		
	f_z	.004–.010	.006–.020	.015–.035	.9×d1	1×d1
N1	V_c	70–100	70–100	70–100		
	f_z	.004–.01	.006–.020	.015–0035	.9×d1	1×d1
N2	V_c	80–120	80–120	80–120		
	f_z	.005–.010	.008–.020	.018–.040	.9×d1	1×d1
N3	V_c	60–100	60–100	60–100		
	f_z	.005–.010	.008–.020	.018–.040	.9×d1	1×d1
N4	V_c					
	f_z					
N5	V_c	40–80	40–80	40–80		
	f_z	.005–.010	.008–.020	.018–.040	1×d1	1×d1
N6	V_c	25–50	25–50	25–50		
	f_z	.004–.010	.006–.020	.015–.035	.8×d1	1×d1
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c	25–50	25–50	25–50		
	f_z	.003–.008	.006–.015	.012–.030	.7×d1	1×d1
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c					
	f_z					
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 73800

Material		Ø.50–1.00	Ø1.00–2.00	Ø2.00–2.50	a_p	a_e
P1	v_c	60–80	60–80	60–80		
	f_z	.003–.008	.008–.016	.016–.030	.30 × d1	1 × d1
P2	v_c	50–70	50–70	50–70		
	f_z	.003–.008	.008–.016	.016–.030	.15 × d1	1 × d1
P3	v_c	40–60	40–60	40–60		
	f_z	.002–.007	.007–.014	.014–.026	.10 × d1	1 × d1
M1	v_c	30–50	30–50	30–50		
	f_z	.002–.007	.007–.014	.014–.026	.20 × d1	1 × d1
M2	v_c	25–40	25–40	25–40		
	f_z	.002–.006	.006–.012	.012–.022	.10 × d1	1 × d1
K1	v_c	40–70	40–70	40–70		
	f_z	.003–.008	.008–.016	.016–.030	.40 × d1	1 × d1
K2	v_c	30–60	30–60	30–60		
	f_z	.002–.007	.007–.014	.014–.026	.20 × d1	1 × d1
N1	v_c	70–100	70–100	70–100		
	f_z	.002–.007	.007–.014	.014–.026	.40 × d1	1 × d1
N2	v_c	80–120	80–120	80–120		
	f_z	.003–.008	.008–.016	.016–.030	.25 × d1	1 × d1
N3	v_c	60–100	60–100	60–100		
	f_z	.003–.008	.008–.016	.016–.030	.25 × d1	1 × d1
N4	v_c					
	f_z					
N5	v_c	40–80	40–80	40–80		
	f_z	.003–.008	.008–.016	.016–.030	.40 × d1	1 × d1
N6	v_c	25–50	25–50	25–50		
	f_z	.002–.007	.007–.014	.014–.026	.20 × d1	1 × d1
N7	v_c					
	f_z					
N8	v_c					
	f_z					
S1	v_c	25–50	25–50	25–50		
	f_z	.002–.006	.006–.012	.012–.020	.20 × d1	1 × d1
S2	v_c					
	f_z					
H1	v_c					
	f_z					
H2	v_c					
	f_z					
H3	v_c					
	f_z					
01	v_c					
	f_z					
02	v_c					
	f_z					
03	v_c					
	f_z					

Art. 73725

Material		Ø.30–.70	Ø.70–1.50	Ø1.50–2.90	a_p	a_e
P1	v_c	60–80	60–80	60–80		
	f_z	.003–.008	.008–.016	.016–.030	.45 × d1	1 × d1
P2	v_c	50–70	50–70	50–70		
	f_z	.003–.008	.008–.016	.016–.030	.25 × d1	1 × d1
P3	v_c	40–60	40–60	40–60		
	f_z	.002–.007	.007–.014	.014–.026	.15 × d1	1 × d1
M1	v_c	30–50	30–50	30–50		
	f_z	.002–.007	.007–.014	.014–.026	.35 × d1	1 × d1
M2	v_c	25–40	25–40	25–40		
	f_z	.002–.006	.006–.012	.012–.022	.2 × d1	1 × d1
K1	v_c	40–70	40–70	40–70		
	f_z	.003–.008	.008–.016	.016–.030	.8 × d1	1 × d1
K2	v_c	30–60	30–60	30–60		
	f_z	.002–.007	.007–.014	.014–.026	.35 × d1	1 × d1
N1	v_c	70–100	70–100	70–100		
	f_z	.002–.007	.007–.014	.014–.026	.8 × d1	1 × d1
N2	v_c	80–120	80–120	80–120		
	f_z	.003–.008	.008–.016	.016–.030	.7 × d1	1 × d1
N3	v_c	60–100	60–100	60–100		
	f_z	.003–.008	.008–.016	.016–.030	.7 × d1	1 × d1
N4	v_c					
	f_z					
N5	v_c	40–80	40–80	40–80		
	f_z	.003–.008	.008–.016	.016–.030	.8 × d1	1 × d1
N6	v_c	25–50	25–50	25–50		
	f_z	.002–.007	.007–.014	.014–.026	.45 × d1	1 × d1
N7	v_c					
	f_z					
N8	v_c					
	f_z					
S1	v_c	25–50	25–50	25–50		
	f_z	.002–.006	.006–.012	.012–.020	.3 × d1	1 × d1
S2	v_c					
	f_z					
H1	v_c					
	f_z					
H2	v_c					
	f_z					
H3	v_c					
	f_z					
01	v_c					
	f_z					
02	v_c					
	f_z					
03	v_c					
	f_z					

Art. 43105

Material		Ø.30–.70	Ø.80–1.50	Ø1.60–3.00	a_p	a_e
P1	v_c	80–120	80–120	80–120		
	f_z	.002–.005	.003–.015	.005–.030	.8×d1	1×d1
P2	v_c	70–100	70–100	70–100		
	f_z	.001–.004	.003–.012	.005–.025	.6×d1	1×d1
P3	v_c	40–70	40–70	40–70		
	f_z	.001–.003	.002–.012	.003–.018	.5×d1	1×d1
M1	v_c	60–90	60–90	60–90		
	f_z	.001–.003	.002–.012	.003–.016	.5×d1	1×d1
M2	v_c	30–60	30–60	30–60		
	f_z	.001–.003	.002–.010	.003–.013	.4×d1	1×d1
K1	v_c	150–200	150–200	150–200		
	f_z	.002–.005	.003–.014	.005–.028	.8×d1	1×d1
K2	v_c	60–100	60–100	60–100		
	f_z	.001–.006	.003–.012	.005–.023	.8×d1	1×d1
N1	v_c	150–300	150–300	150–300		
	f_z	.001–.004	.002–.012	.004–.025	1×d1	1×d1
N2	v_c	150–300	150–300	150–300		
	f_z	.002–.005	.003–.014	.005–.028	1×d1	1×d1
N3	v_c	130–250	130–250	130–250		
	f_z	.002–.015	.004–.030	.006–.060	1×d1	1×d1
N4	v_c	60–100	60–100	60–100		
	f_z	.001–.009	.003–.018	.004–.036	.8×d1	1×d1
N5	v_c	100–250	100–250	100–250		
	f_z	.002–.010	.004–.020	.006–.040	1×d1	1×d1
N6	v_c	80–150	80–150	80–150		
	f_z	.001–.008	.002–.018	.004–.035	.8×d1	1×d1
N7	v_c	80–130	80–130	80–130		
	f_z	.002–.010	.003–.020	.006–.050	1×d1	1×d1
N8	v_c	80–130	80–130	80–130		
	f_z	.002–.010	.003–.020	.006–.050	1×d1	1×d1
S1	v_c	40–70	40–70	40–70		
	f_z	.001–.005	.003–.012	.005–.025	.8×d1	1×d1
S2	v_c	20–40	20–40	20–40		
	f_z	.001–.002	.001–.004	.002–.008	.2×d1	1×d1
H1	v_c	20–45	20–45	20–45		
	f_z	.001–.002	.001–.003	.002–.006	.2×d1	1×d1
H2	v_c					
	f_z					
H3	v_c					
	f_z					
O1	v_c	100–150	100–150	100–150		
	f_z	.003–.025	.006–.055	.010–.095	1×d1	1×d1
O2	v_c					
	f_z					
O3	v_c					
	f_z					

Art. 43305

Material		Ø.30–.70	Ø.80–1.50	Ø1.60–3.00	a_p	a_e
P1	v_c	80–120	80–120	80–120		
	f_z	.001–.004	.002–.012	.004–.025	.6×d1	1×d1
P2	v_c	70–100	70–100	70–100		
	f_z	.001–.003	.002–.008	.003–.020	.4×d1	1×d1
P3	v_c	40–70	40–70	40–70		
	f_z	.001–.003	.001–.010	.002–.015	.3×d1	1×d1
M1	v_c	60–90	60–90	60–90		
	f_z	.001–.003	.002–.008	.002–.012	.3×d1	1×d1
M2	v_c	30–60	30–60	30–60		
	f_z	.001–.003	.002–.008	.002–.009	.2×d1	1×d1
K1	v_c	150–200	150–200	150–200		
	f_z	.001–.004	.001–.010	.002–.023	.6×d1	1×d1
K2	v_c	60–100	60–100	60–100		
	f_z	.001–.005	.002–.010	.003–.019	.6×d1	1×d1
N1	v_c	150–300	150–300	150–300		
	f_z	.001–.003	.001–.010	.002–.020	.8×d1	1×d1
N2	v_c	150–300	150–300	150–300		
	f_z	.001–.005	.002–.011	.003–.024	.8×d1	1×d1
N3	v_c	130–250	130–250	130–250		
	f_z	.001–.012	.002–.025	.003–.050	1×d1	1×d1
N4	v_c	60–100	60–100	60–100		
	f_z	.001–.007	.001–.016	.002–.032	.6×d1	1×d1
N5	v_c	100–250	100–250	100–250		
	f_z	.001–.008	.002–.018	.003–.030	.8×d1	1×d1
N6	v_c	80–150	80–150	80–150		
	f_z	.001–.006	.001–.015	.002–.030	.6×d1	1×d1
N7	v_c	80–130	80–130	80–130		
	f_z	.001–.008	.001–.015	.002–.035	.8×d1	1×d1
N8	v_c	80–130	80–130	80–130		
	f_z	.001–.008	.001–.016	.003–.040	.8×d1	1×d1
S1	v_c	40–70	40–70	40–70		
	f_z	.001–.003	.002–.008	.003–.018	.6×d1	1×d1
S2	v_c	20–40	20–40	20–40		
	f_z	.001–.002	.001–.003	.002–.005	.1×d1	1×d1
H1	v_c	20–45	20–45	20–45		
	f_z	.001–.002	.001–.003	.002–.006	.1×d1	1×d1
H2	v_c					
	f_z					
H3	v_c					
	f_z					
O1	v_c	100–150	100–150	100–150		
	f_z	.002–.020	.005–.050	.008–.090	1×d1	1×d1
O2	v_c					
	f_z					
O3	v_c					
	f_z					

Art. 74720

Material		Ø.30–.70	Ø.70 – 1.50	Ø1.50 – 2.90	a_p	a_e
P1	v_c	60–80	60–80	60–80		
	f_z	.003–.008	.008–.016	.016–.030	.45 x d1	1 x d1
P2	v_c	50–70	50–70	50–70		
	f_z	.003–.008	.008–.016	.016–.030	.25 x d1	1 x d1
P3	v_c	40–60	40–60	40–60		
	f_z	.002–.007	.007–.014	.014–.026	.20 x d1	1 x d1
M1	v_c	30–50	30–50	30–50		
	f_z	.002–.007	.007–.014	.014–.026	.15 x d1	1 x d1
M2	v_c	25–40	25–40	25–40		
	f_z	.002–.006	.006–.012	.012–.022	.20 x d1	1 x d1
K1	v_c	40–70	40–70	40–70		
	f_z	.003–.008	.008–.016	.016–.030	.70 x d1	1 x d1
K2	v_c	30–60	30–60	30–60		
	f_z	.002–.007	.007–.014	.014–.026	.35 x d1	1 x d1
N1	v_c	70–100	70–100	70–100		
	f_z	.002–.007	.007–.014	.014–.026	.80 x d1	1 x d1
N2	v_c	80–120	80–120	80–120		
	f_z	.003–.008	.008–.016	.016–.030	.70 x d1	1 x d1
N3	v_c	60–100	60–100	60–100		
	f_z	.003–.008	.008–.016	.016–.030	.70 x d1	1 x d1
N4	v_c					
	f_z					
N5	v_c	40–80	40–80	40–80		
	f_z	.003–.008	.008–.016	.016–.030	.80 x d1	1 x d1
N6	v_c	25–50	25–50	25–50		
	f_z	.002–.007	.007–.014	.014–.026	.45 x d1	1 x d1
N7	v_c					
	f_z					
N8	v_c					
	f_z					
S1	v_c	25–50	25–50	25–50		
	f_z	.002–.006	.006–.012	.012–.020	.30 x d1	1 x d1
S2	v_c					
	f_z					
H1	v_c					
	f_z					
H2	v_c					
	f_z					
H3	v_c					
	f_z					
01	v_c					
	f_z					
02	v_c					
	f_z					
03	v_c					
	f_z					

Art. 74740

Material		Ø.40–.70	Ø.70–1.50	Ø1.50–2.90	a_p	a_e
P1	v_c	60–80	60–80	60–80		
	f_z	.003–.008	.008–.016	.016–.030	.40 x d1	1 x d1
P2	v_c	50–70	50–70	50–70		
	f_z	.003–.008	.008–.016	.016–.030	.20 x d1	1 x d1
P3	v_c	40–60	40–60	40–60		
	f_z	.002–.007	.007–.014	.014–.026	.12 x d1	1 x d1
M1	v_c	30–50	30–50	30–50		
	f_z	.002–.007	.007–.014	.014–.026	.30 x d1	1 x d1
M2	v_c	25–40	25–40	25–40		
	f_z	.002–.006	.006–.012	.012–.022	.15 x d1	1 x d1
K1	v_c	40–70	40–70	40–70		
	f_z	.003–.008	.008–.016	.016–.030	.65 x d1	1 x d1
K2	v_c	30–60	30–60	30–60		
	f_z	.002–.007	.007–.014	.014–.026	.30 x d1	1 x d1
N1	v_c	70–100	70–100	70–100		
	f_z	.002–.007	.007–.014	.014–.026	.65 x d1	1 x d1
N2	v_c	80–120	80–120	80–120		
	f_z	.003–.008	.008–.016	.016–.030	.5 x d1	1 x d1
N3	v_c	60–100	60–100	60–100		
	f_z	.003–.008	.008–.016	.016–.030	.5 x d1	1 x d1
N4	v_c					
	f_z					
N5	v_c	40–80	40–80	40–80		
	f_z	.003–.008	.008–.016	.016–.030	.65 x d1	1 x d1
N6	v_c	25–50	25–50	25–50		
	f_z	.002–.007	.007–.014	.014–.026	.40 x d1	1 x d1
N7	v_c					
	f_z					
N8	v_c					
	f_z					
S1	v_c	25–50	25–50	25–50		
	f_z	.002–.006	.006–.012	.012–.020	.3 x d1	1 x d1
S2	v_c					
	f_z					
H1	v_c					
	f_z					
H2	v_c					
	f_z					
H3	v_c					
	f_z					
01	v_c					
	f_z					
02	v_c					
	f_z					
03	v_c					
	f_z					

Art. 74075 / 74150 / 74300

Material		Ø.20–.70	Ø.70–1.50	Ø1.50–2.80	ap	ae
P1	V_c	60–80	60–80	60–80		
	f_z	.004–.010	.008–.020	.018–.040	.45×d1	1×d1
P2	V_c	50–70	50–70	50–70		
	f_z	.004–.010	.008–.020	.018–.040	.25×d1	1×d1
P3	V_c	40–60	40–60	40–60		
	f_z	.003–.010	.006–.020	.0015–.035	.15×d1	1×d1
M1	V_c	30–50	30–50	30–50		
	f_z	.003–.010	.006–.020	.015–.035	.35×d1	1×d1
M2	V_c	25–40	25–40	25–40		
	f_z	.003–.008	.005–.016	.014–.028	.2×d1	1×d1
K1	V_c	40–70	40–70	40–70		
	f_z	.004–.010	.008–.020	.018–.040	.8×d1	1×d1
K2	V_c	30–60	30–60	30–60		
	f_z	.003–.010	.006–.020	.015–.035	.35×d1	1×d1
N1	V_c	70–100	70–100	70–100		
	f_z	.003–.01	.006–.020	.015–0035	.8×d1	1×d1
N2	V_c	80–120	80–120	80–120		
	f_z	.004–.010	.008–.020	.018–.040	.7×d1	1×d1
N3	V_c	60–100	60–100	60–100		
	f_z	.004–.010	.008–.020	.018–.040	.7×d1	1×d1
N4	V_c					
	f_z					
N5	V_c	40–80	40–80	40–80		
	f_z	.004–.010	.008–.020	.018–.040	.8×d1	1×d1
N6	V_c	25–50	25–50	25–50		
	f_z	.004–.010	.006–.020	.015–.035	.45×d1	1×d1
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c	25–50	25–50	25–50		
	f_z	.002–.008	.006–.015	.012–.030	.3×d1	1×d1
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c	80–120	80–120	80–120		
	f_z	.005–.012	.010–.025	.020–.045	.9×d1	1×d1
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 40000

Material		Ø2.00–5.00	Ø6.00–12.00	ap	ae
P1	V_c	60–90	60–90		
	f_z	.015–.060	.050–.100	.5×d1	1×d1
P2	V_c	50–80	50–80		
	f_z	.015–.060	.050–.100	.3×d1	1×d1
P3	V_c				
	f_z				
M1	V_c				
	f_z				
M2	V_c				
	f_z				
K1	V_c	40–60	40–60		
	f_z	.020–.070	.050–.110	1×d1	1×d1
K2	V_c	30–50	30–50		
	f_z	.015–.060	.050–.100	.4×d1	1×d1
N1	V_c	100–150	100–150		
	f_z	.015–.060	.040–.120	1×d1	1×d1
N2	V_c	200–250	200–250		
	f_z	.020–.070	.050–.120	1×d1	1×d1
N3	V_c	180–220	180–220		
	f_z	.020–.070	.050–.120	1×d1	1×d1
N4	V_c	50–100	50–100		
	f_z	.015–.050	.030–.080	.5×d1	1×d1
N5	V_c	100–150	100–150		
	f_z	.020–.070	.050–.120	1×d1	1×d1
N6	V_c	30–60	30–60		
	f_z	.015–.050	.040–.100	.7×d1	1×d1
N7	V_c				
	f_z				
N8	V_c				
	f_z				
S1	V_c				
	f_z				
S2	V_c				
	f_z				
H1	V_c				
	f_z				
H2	V_c				
	f_z				
H3	V_c				
	f_z				
O1	V_c				
	f_z				
O2	V_c				
	f_z				
O3	V_c				
	f_z				

Art. 40002

Material		Ø2.00–5.00	Ø6.00–12.00	ap	ae
P1	V_c	60–80	60–80		
	f_z	.015–.060	.030–.110	1×d1	1×d1
P2	V_c	50–70	50–70		
	f_z	.015–.060	.030–.110	.6×d1	1×d1
P3	V_c	40–60	40–60		
	f_z	.010–.050	.020–.100	.5×d1	1×d1
M1	V_c	40–60	40–60		
	f_z	.010–.050	.020–.100	.5×d1	1×d1
M2	V_c				
	f_z				
K1	V_c	60–80	60–80		
	f_z	.015–.060	.030–.110	1×d1	1×d1
K2	V_c	50–70	60–80		
	f_z	.015–.060	.030–.100	.6×d1	1×d1
N1	V_c				
	f_z				
N2	V_c				
	f_z				
N3	V_c				
	f_z				
N4	V_c				
	f_z				
N5	V_c				
	f_z				
N6	V_c				
	f_z				
N7	V_c				
	f_z				
N8	V_c				
	f_z				
S1	V_c				
	f_z				
S2	V_c				
	f_z				
H1	V_c				
	f_z				
H2	V_c				
	f_z				
H3	V_c				
	f_z				
O1	V_c				
	f_z				
O2	V_c				
	f_z				
O3	V_c				
	f_z				

Art. 40004

Material		Ø2.00–5.00	Ø6.00–12.00	ap	ae
P1	V_c	60–80	60–80		
	f_z	.020–.060	.030–.110	.5×d1	1×d1
P2	V_c	50–70	50–70		
	f_z	.015–.060	.030–.110	.5×d1	1×d1
P3	V_c	40–60	40–60		
	f_z	.010–.050	.020–.100	.4×d1	1×d1
M1	V_c	40–60	40–60		
	f_z	.010–.050	.020–.100	.4×d1	1×d1
M2	V_c				
	f_z				
K1	V_c	60–80	60–80		
	f_z	.020–.060	.030–.110	.80×d1	1×d1
K2	V_c	50–70	50–70		
	f_z	.150–.050	.030–.100	.70×d1	1×d1
N1	V_c				
	f_z				
N2	V_c				
	f_z				
N3	V_c				
	f_z				
N4	V_c				
	f_z				
N5	V_c				
	f_z				
N6	V_c				
	f_z				
N7	V_c				
	f_z				
N8	V_c				
	f_z				
S1	V_c				
	f_z				
S2	V_c				
	f_z				
H1	V_c				
	f_z				
H2	V_c				
	f_z				
H3	V_c				
	f_z				
O1	V_c				
	f_z				
O2	V_c				
	f_z				
O3	V_c				
	f_z				

Art. 47000 / 47500

Material		Ø2.00–5.00	Ø6.00–12.00	Ø13.00–2.00	ap	ae
P1	V_c					
	f_z					
P2	V_c					
	f_z					
P3	V_c					
	f_z					
M1	V_c					
	f_z					
M2	V_c					
	f_z					
K1	V_c					
	f_z					
K2	V_c					
	f_z					
N1	V_c	300–600	300–600	300–600		
	f_z	.030–.050	.050–.120	.120–.200	.5×d1	1×d1
N2	V_c	300–1000	300–1000	300–1000		
	f_z	.030–.060	.060–.140	.140–.250	.5×d1	1×d1
N3	V_c	300–1000	300–1000	300–1000		
	f_z	.030–.060	.060–.140	.140–.250	.5×d1	1×d1
N4	V_c					
	f_z					
N5	V_c					
	f_z					
N6	V_c					
	f_z					
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c					
	f_z					
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c	300–600	300–600	300–600		
	f_z	.030–.050	.050–.120	.120–.200	.5×d1	1×d1
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 76300

Material		Ø1.50–2.50	Ø2.50–4.00	Ø4.00–6.00	ap	ae
P1	V_c	60–80	60–80	60–80		
	f_z	.010–.020	.020–.040	.040–.060	1 × d1	1 × d1
P2	V_c	50–70	50–70	50–70		
	f_z	.010–.020	.020–.040	.040–.060	.6 × d1	1 × d1
P3	V_c	40–60	40–60	40–60		
	f_z	.008–.015	.015–.035	.035–.050	.5 × d1	1 × d1
M1	V_c	40–60	40–60	40–60		
	f_z	.008–.015	.015–.035	.035–.050	.5 × d1	1 × d1
M2	V_c					
	f_z					
K1	V_c	60–80	60–80	60–80		
	f_z	.010–.020	.020–.040	.040–.060	1 × d1	1 × d1
K2	V_c	50–70	50–70	50–70		
	f_z	.010–.020	.020–.040	.040–.060	.6 × d1	1 × d1
N1	V_c					
	f_z					
N2	V_c					
	f_z					
N3	V_c					
	f_z					
N4	V_c					
	f_z					
N5	V_c					
	f_z					
N6	V_c					
	f_z					
N7	V_c					
	f_z					
N8	V_c					
	f_z					
S1	V_c					
	f_z					
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c					
	f_z					
O2	V_c					
	f_z					
O3	V_c					
	f_z					

Art. 73000

Material		Ø.50–1.50	Ø2.00–3.00	Ø6.00–8.00
P1	V_c	70–120	70–120	70–120
	f_z	.004–.015	.015–.030	.050–.120
P2	V_c	60–100	60–100	60–100
	f_z	.003–.013	.013–.025	.045–.100
P3	V_c	40–80	40–80	40–80
	f_z	.002–.012	.012–.023	.040–.090
M1	V_c	40–80	40–80	40–80
	f_z	.002–.012	.008–.020	.030–.080
M2	V_c	30–70	30–70	30–70
	f_z	.001–.010	.010–.016	.025–.070
K1	V_c	120–150	100–150	100–150
	f_z	.004–.015	.015–.030	.050–.120
K2	V_c	100–130	100–130	100–130
	f_z	.003–.013	.013–.025	.045–.100
N1	V_c	150–200	150–200	150–200
	f_z	.005–.018	.018–.035	.060–.150
N2	V_c	150–200	150–200	150–200
	f_z	.005–.018	.018–.035	.060–.150
N3	V_c	150–200	150–200	150–200
	f_z	.004–.015	.015–.030	.050–.120
N4	V_c	150–200	150–200	150–200
	f_z	.005–.018	.018–.035	.060–.150
N5	V_c	150–200	150–200	150–200
	f_z	.005–.018	.018–.035	.060–.150
N6	V_c			
	f_z			
N7	V_c	80–120	80–120	80–120
	f_z	.005–.018	.018–.035	.060–.150
N8	V_c	80–120	80–120	80–120
	f_z	.005–.018	.018–.035	.060–.150
S1	V_c	40–70	40–70	40–70
	f_z	.002–.012	.012–.023	.040–.090
S2	V_c			
	f_z			
H1	V_c			
	f_z			
H2	V_c			
	f_z			
H3	V_c			
	f_z			
O1	V_c			
	f_z			
O2	V_c			
	f_z			
O3	V_c			
	f_z			

Art. 43400

Material		Ø1.00–2.00	Ø3.00–4.00	Ø5.00–6.00
P1	V_c	80–120	80–120	80–120
	f_z	.020–.030	.030–.040	.040–.050
P2	V_c	80–100	80–100	80–100
	f_z	.010–.020	.020–.030	.030–.040
P3	V_c	50–80	50–80	50–80
	f_z	.005–.015	.015–.025	.025–.035
M1	V_c	60–100	60–100	60–100
	f_z	.010–.015	.015–.025	.025–.035
M2	V_c	40–70	40–70	40–70
	f_z	.015–.025	.025–.035	.035–.045
K1	V_c	100–150	100–150	100–150
	f_z	.010–.020	.020–.030	.030–.040
K2	V_c	60–100	60–100	60–100
	f_z	.005–.015	.015–.025	.025–.035
N1	V_c	150–200	150–200	150–200
	f_z	.020–.030	.030–.040	.040–.050
N2	V_c	150–200	150–200	150–200
	f_z	.020–.030	.030–.050	.050–.060
N3	V_c	130–200	130–200	130–200
	f_z	.020–.030	.030–.050	.050–.060
N4	V_c	60–150	60–150	60–150
	f_z	.015–.025	.025–.035	.035–.045
N5	V_c	100–200	100–200	100–200
	f_z	.015–.025	.025–.035	.035–.045
N6	V_c	80–150	80–150	80–150
	f_z	.010–.020	.020–.030	.030–.040
N7	V_c	80–150	80–150	80–150
	f_z	.010–.020	.020–.030	.030–.040
N8	V_c	80–150	80–150	80–150
	f_z	.010–.020	.020–.030	.030–.040
S1	V_c	40–70	40–70	40–70
	f_z	.010–.025	.020–.035	.030–.045
S2	V_c	20–40	20–40	20–40
	f_z	.005–.015	.015–.025	.020–.035
H1	V_c	20–45	25–40	25–40
	f_z	.005–.015	.015–.025	.025–.035
H2	V_c	20–30	15–25	15–25
	f_z	.005–.010	.010–.015	.015–.020
H3	V_c			
	f_z			
O1	V_c	100–150	70–110	70–110
	f_z	.010–.020	.020–.030	.030–.040
O2	V_c			
	f_z			
O3	V_c			
	f_z			

SPHINX TOOLS

Art. 44400

Material		Ø.80-1.50	Ø2.00-3.00	Ø4.00–6.00
P1	V_c	140–160	140–160	140–160
	f_z	.020–.030	.030–.040	.040–.060
P2	V_c	120–140	120–140	120–140
	f_z	.010–.020	.020–.030	.030–.050
P3	V_c	100–120	100–120	100–120
	f_z	.005–015	.015–.025	.025–.045
M1	V_c	100–120	100–120	100–120
	f_z	.010–.020	.020–.030	.030–.050
M2	V_c	80–100	80–100	80–100
	f_z	.005–.015	.015–.025	.025–.045
K1	V_c	120–140	120–140	120–140
	f_z	.015–.025	.025–.035	.035–.055
K2	V_c	100–120	100–120	100–120
	f_z	.010–.020	.020–.030	.030–.040
N1	V_c	230–250	230–250	230–250
	f_z	.020–.030	.030–.040	.040–.060
N2	V_c	200–220	200–220	200–220
	f_z	.020–.030	.030–.040	.040–.060
N3	V_c	180–200	180–200	180–200
	f_z	.020–.030	.030–.040	.040–.060
N4	V_c	80–100	80–100	80–100
	f_z	.015–.025	.025–.035	.035–.055
N5	V_c	130–150	130–150	130–150
	f_z	.015–.025	.025–.035	.035–.055
N6	V_c	100–120	100–120	100–120
	f_z	.010–.020	.020–.030	.030–.050
N7	V_c	100–120	100–120	100–120
	f_z	.010–.020	.020–.030	.030–.050
N8	V_c	100–120	100–120	100–120
	f_z	.010–.020	.020–.030	.030–.050
S1	V_c	60–80	60–80	60–80
	f_z	.010–.020	.020–.030	.030–.050
S2	V_c	40–60	40–60	40–60
	f_z	.005–.015	.015–.025	.025–.045
H1	V_c	40–60	40–60	40–60
	f_z	.005–.015	.015–.025	.025–.035
H2	V_c	30–50	30–50	30–50
	f_z	.005–.010	.010–.020	.020–.030
H3	V_c			
	f_z			
O1	V_c	140–160	140–160	140–160
	f_z	.015–.025	.025–.035	.035–.055
O2	V_c			
	f_z			
O3	V_c			
	f_z			

Art. 45400

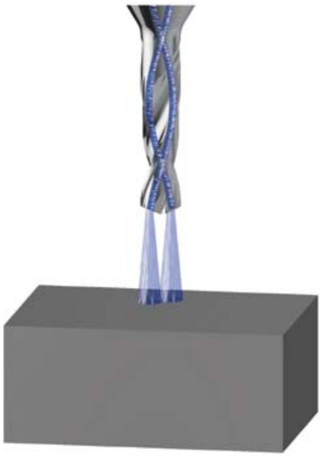
Material		Ø1.00–2.00	Ø3.00–4.00	Ø5.00–6.00
P1	V_c	140–160	140–160	140–160
	f_z	.025–.030	.035–.045	.050–.070
P2	V_c	120–140	120–140	120–140
	f_z	.015–.020	.025–.035	.040–.060
P3	V_c	100–120	100–120	100–120
	f_z	.010–.015	.020–.030	.035–.055
M1	V_c	100–120	100–120	100–120
	f_z	.015–.020	.025–.035	.040–.060
M2	V_c	80–100	80–100	80–100
	f_z	.010–.015	.020–.030	.035–.055
K1	V_c	120–140	120–140	120–140
	f_z	.020–.025	.030–.040	.045–.065
K2	V_c	100–120	100–120	100–120
	f_z	.015–.020	.025–.035	.040–.060
N1	V_c	230–250	230–250	230–250
	f_z	.025–.030	.035–.045	.050–.070
N2	V_c	200–220	200–220	200–220
	f_z	.025–.030	.035–.045	.050–.070
N3	V_c	180–200	180–200	180–200
	f_z	.025–.030	.035–.045	.050–.070
N4	V_c	80–100	80–100	80–100
	f_z	.020–.025	.030–.040	.045–.065
N5	V_c	130–150	130–150	130–150
	f_z	.020–.025	.030–.040	.045–.065
N6	V_c	100–120	100–120	100–120
	f_z	.015–.020	.025–.035	.040–.060
N7	V_c	100–120	100–120	100–120
	f_z	.015–.020	.025–.035	.040–.060
N8	V_c	100–120	100–120	100–120
	f_z	.015–.020	.025–.035	.040–.060
S1	V_c	60–80	60–80	60–80
	f_z	.015–.020	.025–.035	.040–.060
S2	V_c	40–60	40–60	40–60
	f_z	.010–.015	.020–.030	.035–.055
H1	V_c	40–60	40–60	40–60
	f_z	.010–.015	.020–.030	.035–.055
H2	V_c	30–50	30–50	30–50
	f_z	.010–.010	.015–.025	.030–.040
H3	V_c			
	f_z			
O1	V_c	140–160	140–160	140–160
	f_z	.020–.025	.030–.040	.045–.065
O2	V_c			
	f_z			
O3	V_c			
	f_z			

Art. 71330

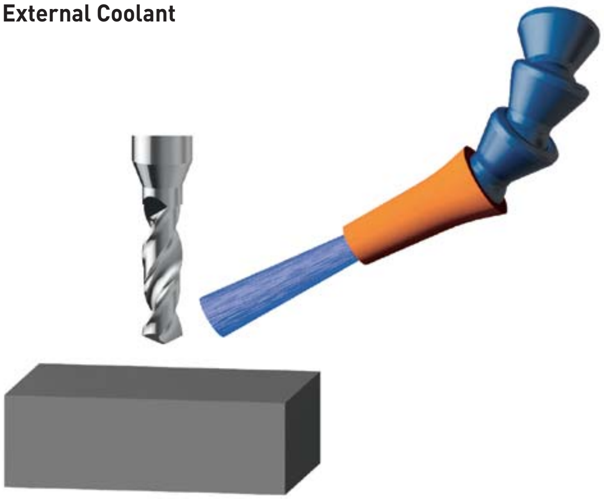
Material		Ø.20–1.00	Ø1.00–2.00	Ø2.00–3.00	ap	ae
P1	V_c	40–60	40–60	40–60		
	f_z	.002–.013	.013–.020	.020–.030	1 × d	.2 × d
P2	V_c	30–50	30–50	30–50		
	f_z	.002–.012	.012–.018	.018–.025	1 × d	.2 × d
P3	V_c					
	f_z					
M1	V_c	25–40	25–40	24–40		
	f_z	.002–.011	.011–.016	.016–.022	1 × d	.1 × d
M2	V_c	20–35	20–35	20–35		
	f_z	.002–.010	.010–.015	.015–.020	1 × d	.1 × d
K1	V_c	40–60	40–60	40–60		
	f_z	.002–.013	.013–.020	.020–.030	1 × d	.2 × d
K2	V_c	35–55	35–55	35–55		
	f_z	.002–.012	.012–.018	.018–.025	1 × d	.2 × d
N1	V_c					
	f_z					
N2	V_c	150–200	150–200	150–200		
	f_z	.003–.015	.015–.030	.030–.050	1 × d	.2 × d
N3	V_c	150–200	150–200	150–200		
	f_z	.002–.013	.013–.020	.020–.030	1 × d	.1 × d
N4	V_c					
	f_z					
N5	V_c	100–130	100–130	100–130		
	f_z	.003–.015	.015–.030	.030–.050	1 × d	.2 × d
N6	V_c					
	f_z					
N7	V_c	120–150	120–150	120–150		
	f_z	.003–.015	.015–.030	.030–.050	1 × d	.2 × d
N8	V_c	120–150	120–150	120–150		
	f_z	.002–.013	.013–.020	.020–.030	1 × d	.1 × d
S1	V_c	30–50	30–50	30–50		
	f_z	.002–.012	.012–.018	.018–.025	1 × d	.2 × d
S2	V_c					
	f_z					
H1	V_c					
	f_z					
H2	V_c					
	f_z					
H3	V_c					
	f_z					
O1	V_c	150–200	150–200	150–200		
	f_z	.003–.015	.015–.030	.030–.050	1 × d	.2 × d
O2	V_c					
	f_z					
O3	V_c					
	f_z					

COOLANT

Internal Coolant



External Coolant



Diameter	Pressure			
	bar		psi	
	<6xd	>6xd	<6xd	>6xd
1.00–3.00	30	60	435	870
3.00–6.00	20	30	290	435
6.00–1.00	10	20	145	290

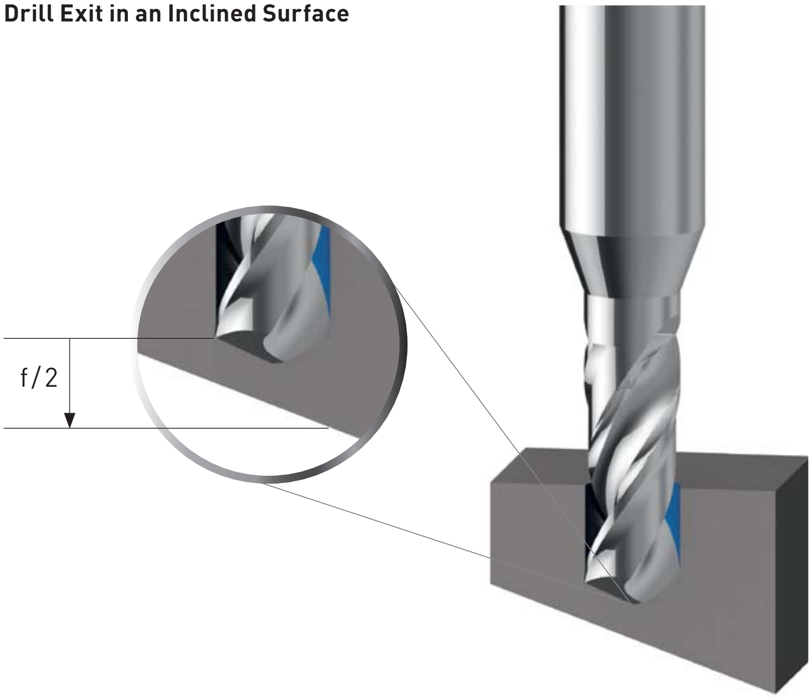
SPOT DRILLING – Entering and Exit

Centering

Pilot Hole

Milling a Flat

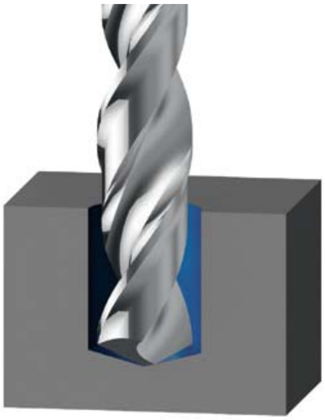
Drill Exit in an Inclined Surface



CAUTION

Reduce feed rate by 50%

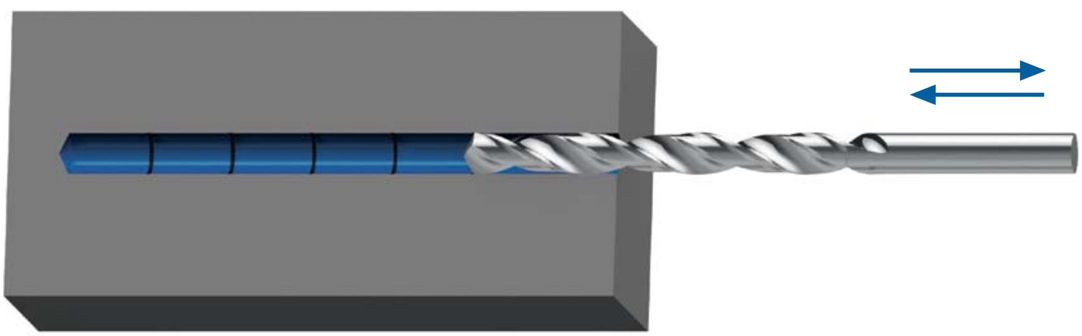
PILOT DRILLING (Subsequent tool shown, not pilot tool)

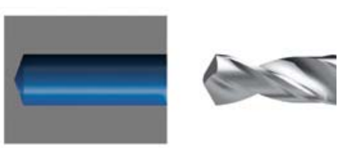


• Pilot diameter too small

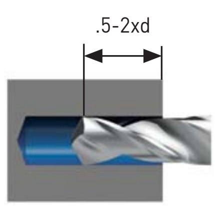
• Pilot point angle too small

PECKING CYCLE





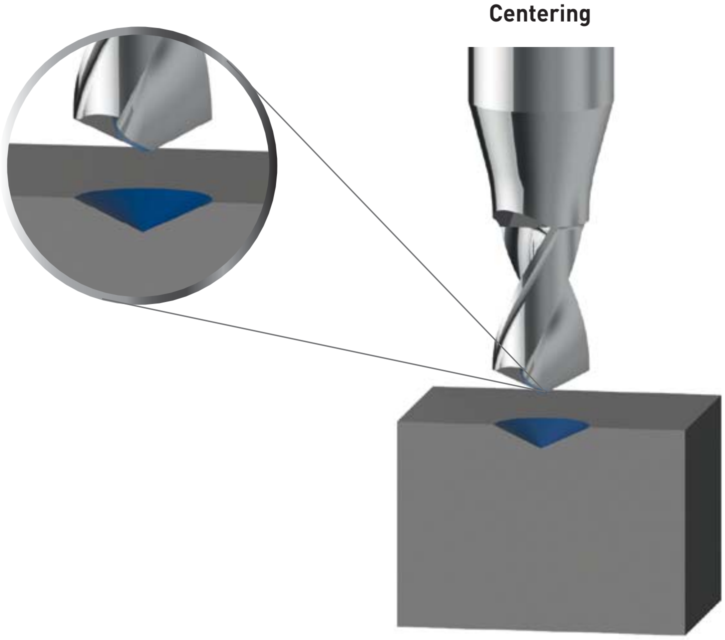
• No Pecking Cycle



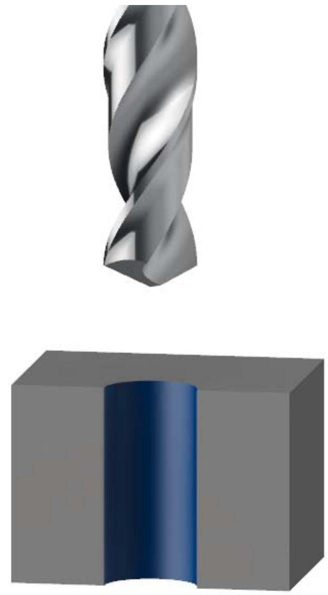
• Pecking .5-2xd

CENTERING ≤6xd

Centering

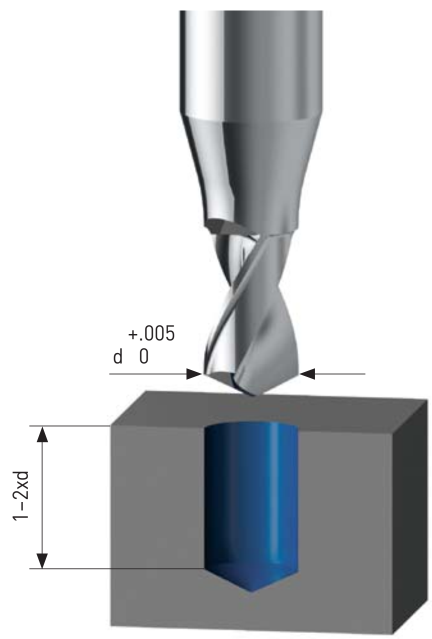


Micro Drilling

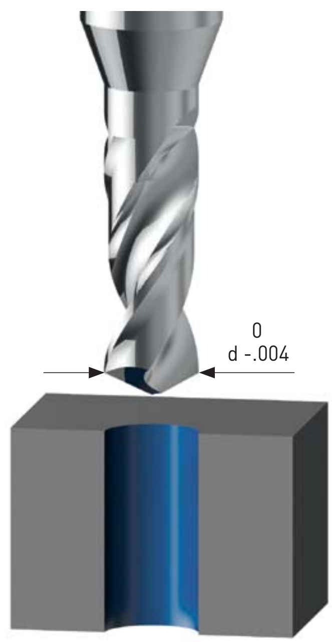


PILOT HOLE DRILLING ≥6xd

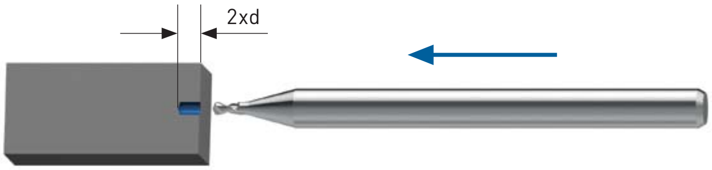
Pilot Hole Drilling



Micro Drilling



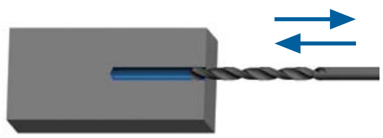
Micro Deep Hole Drilling – Art. 50720



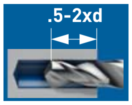
Art. 56033 Ø +.01

n = Max 500 RPM | vf = 25% - 50%

vc = 100% | vf = 100%



.5-2xd



vc = 100% | vf = 200% – 500%

vc = 100% | vf = 100%

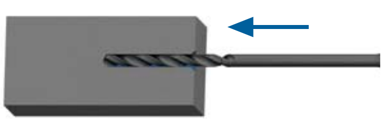
vc = 100% | vf = 200% – 500%

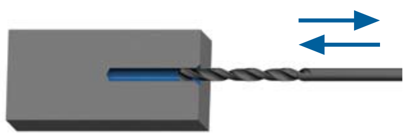
n = Max 500 RPM | vf = Max

Micro Deep Hole Drilling – Art. 50740/50760/50780

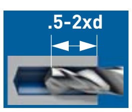
Art. 56036

n = Max 500 RPM | vf = 25% - 50%





vc = 100% | vf = 100%



vc = 100% | vf = 200% – 500%

vc = 100% | vf = 100%

vc = 100% | vf = 200% – 500%

n = Max 500 RPM | vf = Max

Centering ≤9xd – Art. 50810/50812/50814/50818

Without Centering

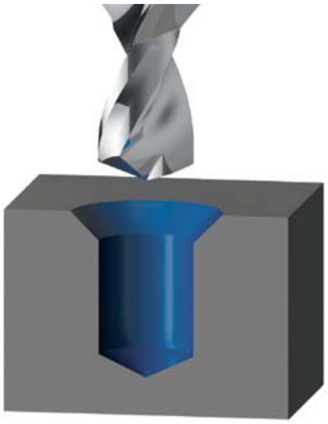
- Smooth entering surface

Center Drilling

- Rough or uneven entering surface

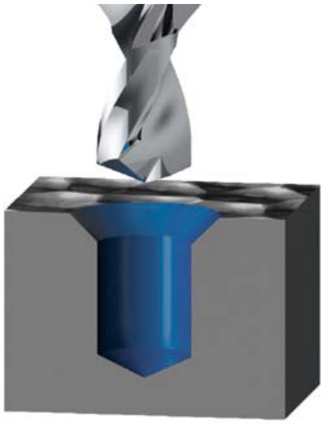
Pilot Hole Drilling >9xd – Art. 56036/50950

Pilot Hole Drilling



- Smooth entering surface

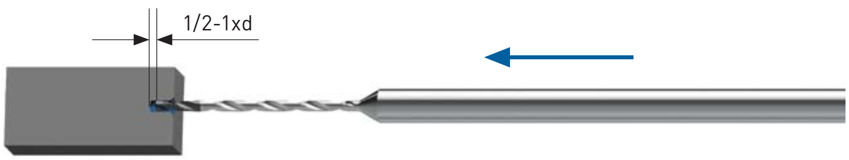
Pilot Hole Drilling



- Rough or uneven entering surface

Drilling Strategy >9xd

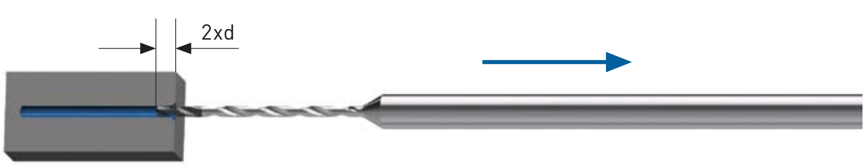
Art. 56036



n = Max 500 RPM | vf = 25% - 50%

vc = 100% → start vf | vc = 100% | vf = 100%

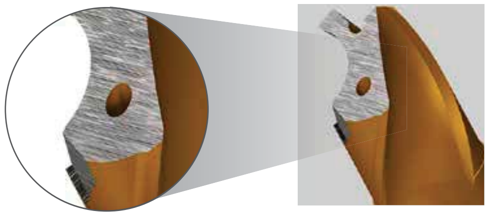
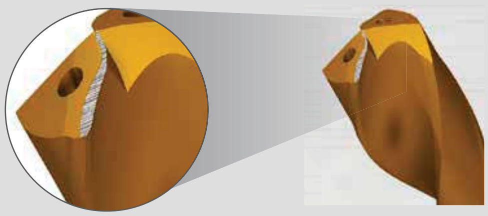
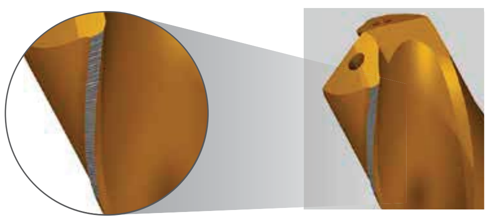
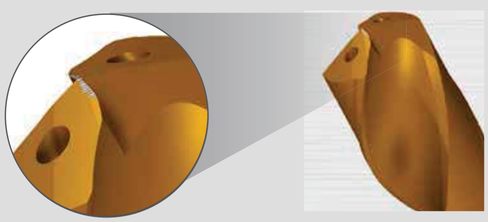
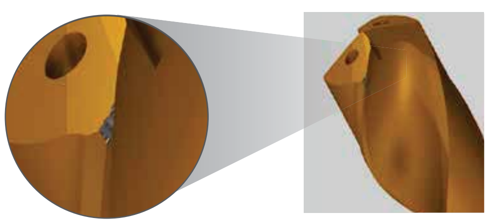
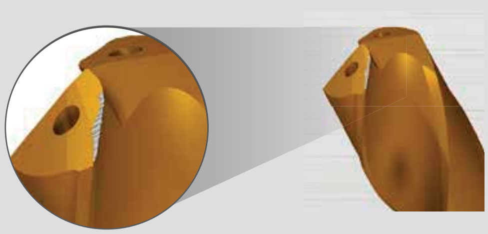
vc = 100% | vf = 100%



vc = 100% | vf = 200% – 500%

n = Max 500 RPM | vf = Max

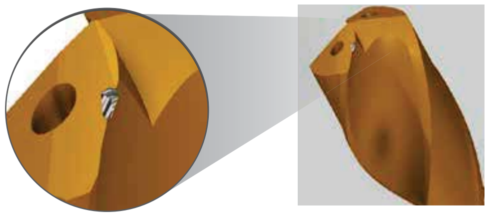
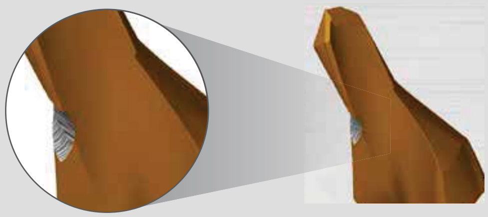
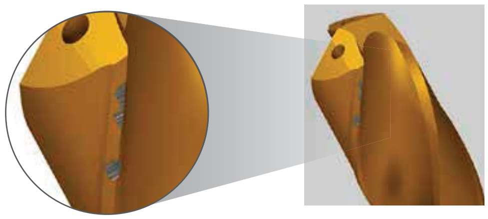
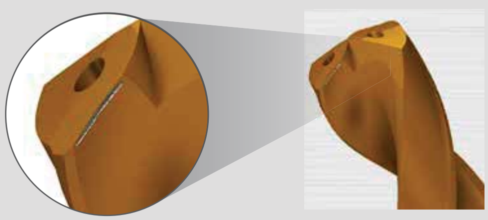
Troubleshooting in Case of Tool Wear

Type Of Wear		Cutting Conditions	
		Cutting Speed	Feed Rate
Drill Breakage		⚠	↓
Flank Wear		↓	↑
Wear on Margin		↓	●
Chipping on Chisel Edge		⚠	↑
Chipping on Corner		⚠	↓
Wear on Main Cutting Edge		↑	↑

Cutting Conditions			
Entry Feed Rate	**Exit Feed Rate**	**Pre-Machining (Centering, Pilot Hole Drilling)**	**Pecking Cycle**
⬇	⬇	⚠	⚠
⬆	⚠	●	●
●	●	⚠	⚠
⬆	⬇	⚠	●
⬇	⬇	⚠	⚠
⚠	⚠	⚠	●

⬆ increase ⬇ reduce ⚠ verify ● not relevant

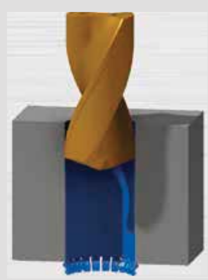
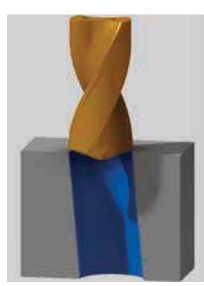
Troubleshooting in Case of Tool Wear

Type of Wear		Cutting Conditions	
		Cutting Speed	Feed Rate
Chipping Main Cutting Edge		⚠	↓
Chipping on Step Transition		⚠	↓
Chipping on Margin		●	⚠
Built-Up Edge		↑	⚠

Cutting Conditions			
Entry Feed Rate	Exit Feed Rate	Pre-Machining (Centering, Pilot Hole Drilling)	Pecking Cycle
↓	↓	⚠	⚠
↓	↓	⚠	⚠
⚠	⚠	⚠	⚠
●	⚠	●	●

↑ increase ↓ reduce ⚠ verify ● not relevant

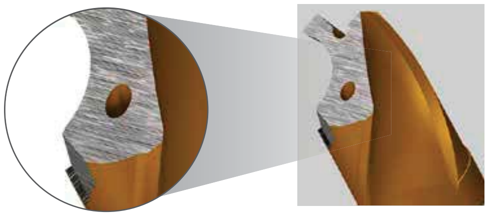
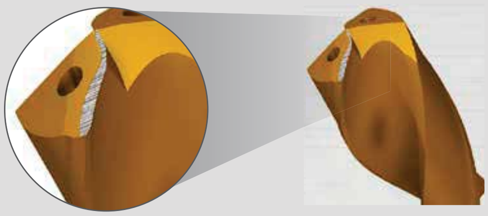
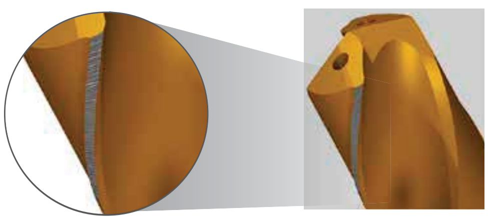
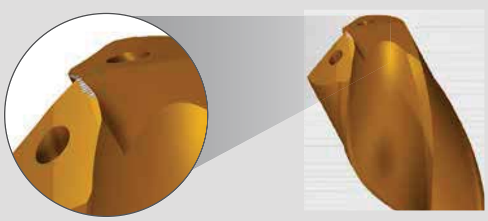
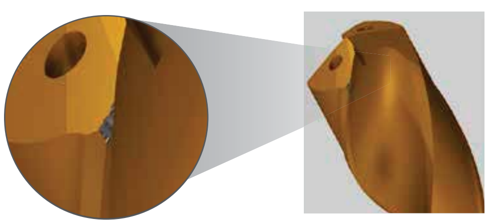
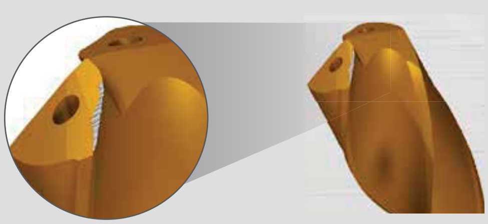
Troubleshooting in Case of Deviation at the Workpiece

Type of Wear		Cutting Conditions	
		Cutting Speed	Feed Rate
Diameter Too Large		↓	↑
Misalignment from the Center		●	↓
Poor Surface Quality		↑	↓
Burr Formation at Bore Exit		⚠	●
Bore Runout		⚠	↑

Cutting Conditions			
Entry Feed Rate	Exit Feed Rate	Pre-Machining (Centering, Pilot Hole Drilling)	Pecking Cycle
⬆	⚠	⚠	⚠
⬇	⚠	⚠	●
●	●	⚠	⚠
●	⬇	●	●
⚠	●	⚠	⚠

⬆ increase ⬇ reduce ⚠ verify ● not relevant

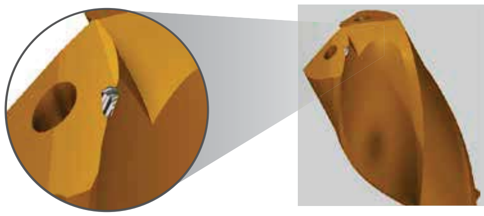
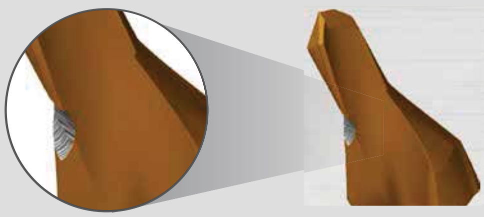
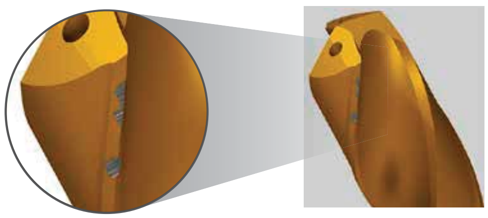
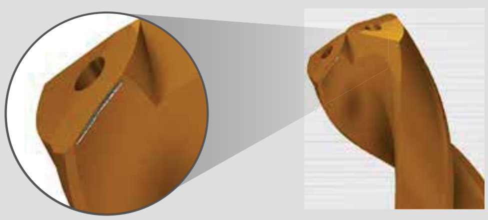
Troubleshooting in Case of Tool Wear

Type of Wear		Coolant	
		Concentration of Coolant	Rate of Coolant
Drill Breakage		●	↑
Flank Wear		↑	↑
Wear on Margin		↑	↑
Chipping on Chisel Edge		●	↑
Chipping on Corner		●	↑
Wear on Main Cutting Edge		↑	↑

Coolant	Machine and Fitting of the Tool			
Coolant Pressure	Concentricity	Shorter Projecting Length	Workpiece Clamping	Stability of the Machine
↑	⚠	⚠	⚠	⚠
↑	⚠	⚠	⚠	⚠
↑	⚠	●	⚠	⚠
↑	⚠	⚠	⚠	⚠
↑	⚠	⚠	⚠	⚠
↑	⚠	⚠	⚠	⚠

↑ increase ↓ reduce ⚠ verify ● not relevant

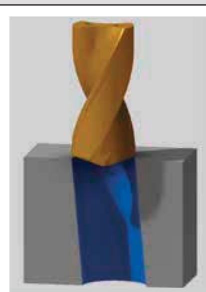
Troubleshooting in Case of Tool Wear

Type of Wear	Coolant	
	Concentration of Coolant	Rate of Coolant
Chipping Main Cutting Edge 	●	●
Chipping on Step Transition 	●	●
Chipping on Margin 	●	●
Built-Up Edge 	↑	↑

Coolant	Machine and Fitting of the Tool			
Coolant Pressure	**Concentricity**	**Shorter Projecting Length**	**Workpiece Clamping**	**Stability of the Machine**
●	⚠	⚠	⚠	⚠
●	⚠	⚠	⚠	⚠
●	●	●	⚠	⚠
▲	⚠	●	●	●

▲ increase ▼ reduce ⚠ verify ● not relevant

Troubleshooting in Case of Deviation at the Workpiece

Type of Wear		Coolant	
		Concentration of Coolant	Rate of Coolant
Diameter Too Large		↓	⚠
Misalignment from the Center		●	●
Poor Surface Quality		↑	↑
Burr Formation at Bore Exit		●	●
Bore Runout		●	⚠

Coolant	Machine and Fitting of the Tool			
Coolant Pressure	Concentricity	Shorter Projecting Length	Workpiece Clamping	Stability of the Machine
⚠	⚠	⚠	⚠	⚠
●	⚠	⚠	⚠	●
⬆	⚠	⚠	⚠	⚠
●	●	●	⚠	●
⚠	●	⚠	⚠	⚠

⬆ increase ⬇ reduce ⚠ verify ● not relevant

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