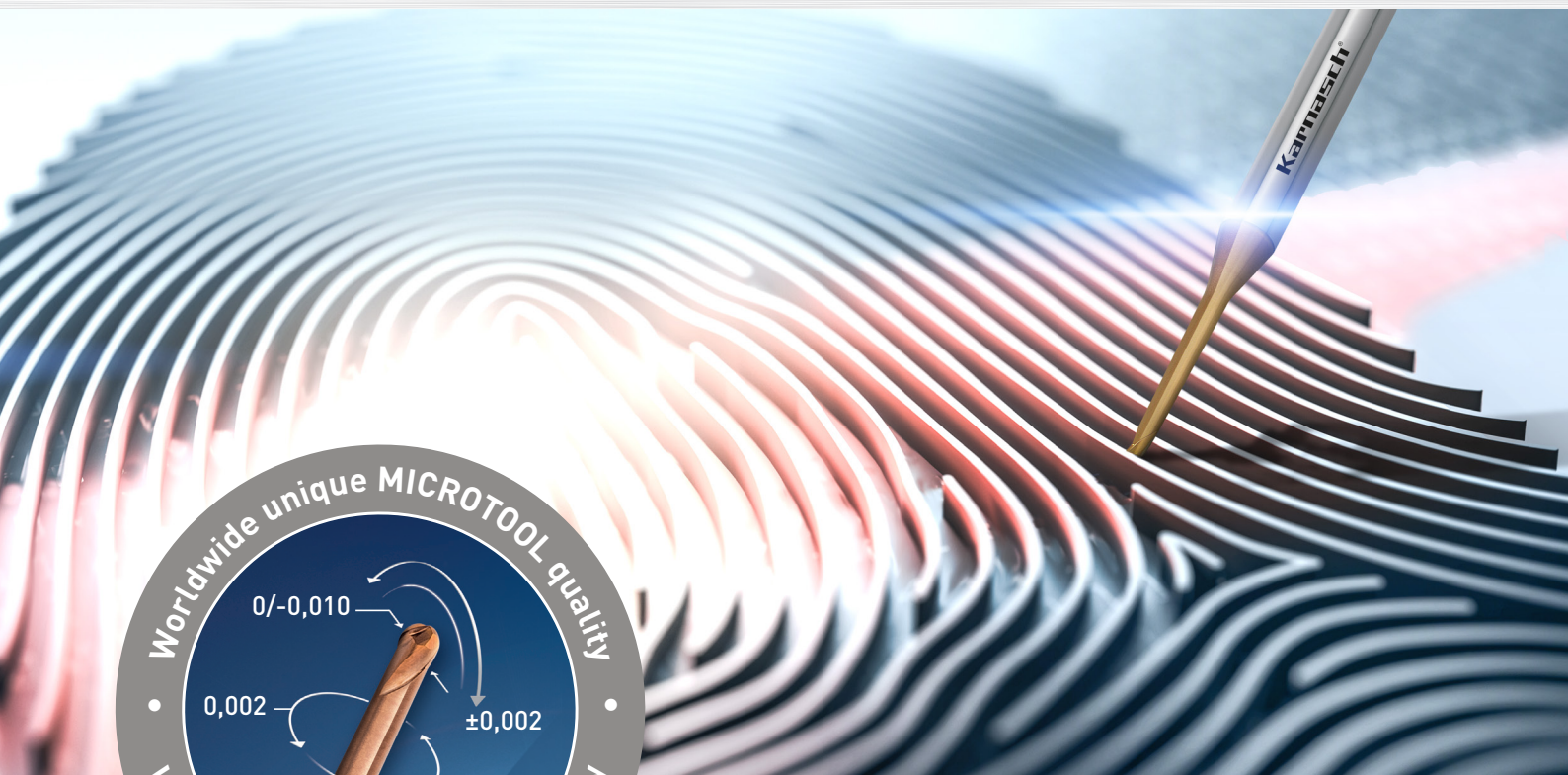


MICROTOOLS

MILLING - DRILLING - THREAD MILLS

> $\varnothing$ 0.05 mm



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25	Micro Ball Nose Lollipop Cutter
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COMPANY PROFILE

ITC is a specialist tooling supplier. Our objective is to supply our customers with the best possible products, at the same time making them more efficient by introducing productivity and method improvements. To achieve this we continue to invest in our team of capable and enthusiastic engineers and technical sales people, backed up by an in-house team which we believe is second to none.

From solid carbide and PCD tooling, through to indexable milling, turning and boring, plus top quality tool holders, ITC has an unbeatable product range.

BETTER BY DESIGN BETTER BY ITC

ITC's state-of-the-art production facility includes CNC grinding machines from world leading manufacturers including Walter, Deckel, Rollomatic and Anca. We have invested in a centralised oil filtration system to ensure that grinding takes place under optimum conditions with clean oil, and our inspection department includes computerised laser measuring equipment, to maintain the high standards for which ITC is renowned.

We manufacture and source the best available products from around the world, and hold well over 100,000 Solid Carbide tools, tool bodies, inserts and tool holders on the shelf ready for same day despatch. ITC also offers modification and regrind services, meaning we can adapt existing tools to your requirements, and return used tools to an 'as new' condition. Our continued investment in cutting edge CNC grinding equipment gives us the capacity to

rapidly manufacture custom made tools to your precise specifications.

ITC - AN EASY COMPANY TO DO BUSINESS WITH

We believe that good customer service is vital, and all of our staff are highly trained to provide expert support, whether you know exactly what you need, or need guidance from start to finish.

Manufacturing companies rely on ITC to provide an unbeatable combination of first class service, rapid response, huge stocks, and access to a diverse and ever growing product line.



PRODUCT OVERVIEW

Micro Tooling gives the customer the ability to produce high precision parts with complex geometries using 3 and 5 axis CNC Machining Centres.

The Tools can manufacture the tiniest components whilst maintaining Micron level precision, typical industries that use Micro Tools are Aerospace, Automotive, Medical, Military, watch making and Micro Electronics.

Micro Tools are made to exacting tolerances that ensure that when machining critical components quality is never compromised.

Specific coatings are used relevant to the different demanding applications that the tools are used in.

ata Karnasch®



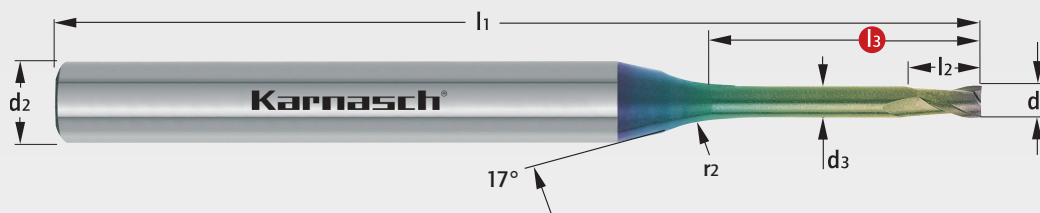
Solid Carbide Micro Tools

Page	Code	Description	Tool
FOR NON-FERROUS MATERIALS			
8	306202	Micro Endmill – Sharp Corner	
10	306203	Micro Endmill – Corner Radius	
12	306204	Micro Endmill – Ball Nose	
FOR FERROUS MATERIALS UP TO 55 HRC			
14	308011	Micro Endmill – Corner Radius	
16	308012	Micro Endmill – Ball Nose	
FOR HIGH HARDNESS MATERIALS UP TO 70 HRC			
18	306255	Micro Endmill – Sharp Corner	
20	306256	Micro Endmill – Corner Radius	
22	306264	Micro Endmill – Ball Nose	
SPECIALIST CARBIDE TOOLS			
24	306495	Concave Radius	
25	306485	Solid Carbide Micro Ball Nose Lollipop Cutter	
MICRO CARBIDE THREAD MILLS			
26	231760	Solid Carbide Micro Threadmill for Non-Ferrous / Aluminium	
27	231764	Solid Carbide Micro Threadmill for Steels	
28	231768	Solid Carbide Micro Threadmill – Diamond Coated for Composites / Graphite	
SOLID CARBIDE MICRO DRILLS			
30	220341	Solid Carbide Micro Drills – No Through Coolant	
32	220322	Solid Carbide Micro Drills – Through Coolant	
34	220321	Solid Carbide Micro Pilot Drills – for use with 220341 & 220322	

**POWER.
PRECISION.
PERFORMANCE.**

Icon Index

Tool Coatings	 NHC 7000	DLC Diamond Like Coated	Coolant	 Use Coolant
	 HXC-NANO ⁴	HXC-NANO ⁴ TiAlN/TiSiN ideal for the Machining of Hardened Steels, Stainless Steel & Titanium		 Can be used with or without Coolant
	 UFX-3	TiAlN ideal for soft to medium hard materials		 Can be used with Coolant, Oil or MQL
	 DVC-X2	TiAlN for drilling in steels up to 52 HRC		 Use with MQL
	 CKS-V2	TiAlN Universal coating for machining of steels	Tool Design	 Micro Tool Full Radius Milling
	 DVC-X2 [®] Nano-finish	TiAlN Universal coating for deep hole drilling up to 55RC		 Micro Tool Square End Milling
	 WRC [®]	AlTiN coating for machining of steels up to 55RC wet and dry		 Micro Tool Corner Radius Milling
	 DCC-G	Diamond coated, ideal for machining GFRP/CFRP and composites		 170 Degree Drill Point
	 NANO SPIN	AlTiN ideal for thread milling		 250 Degree Lollipop Type Milling
	 Thread form 60 degree			 Thread Milling
	 Ball Nose Milling			 Forward and Backward Quarter Circle Milling
	 Slot Milling		Material Application Groups	 Aluminium
Machining Applications	 Profile Milling			 Cast Aluminium
	 Trochoidal Milling			 Titanium
	 Drill - Through Coolant			 Glass Fibre Reinforced Plastic
	 Step Drill			 Composite Materials
	 Solid Drill			 Mild Steel
	 Direction of Machining			 Steel below 1200N/mm ²
	 Endmill 15 degree Helix Angle			 Steel below 1400 N/mm ²
	 Endmill 20 degree Helix Angle			 Steel below 55 HRC
Helix Angle	 Endmill 30 degree Helix Angle			 Steel below 70 HRC
	 Drill 30 degree Helix Angle			 Stainless Steels
	 DIN 6535 Form HA	Shank Type		 Exotic Alloys
				 Universal



NHC-7000 DLC Coating.

Best machining results in all non-ferrous metals, plastics and CFRP/GFRP.

- Coating technology: PACVD Plasma Assisted Chemical Vapour Deposition
- Micro hardness: 7000 HV0.05
- Coating material: DLC
- Coating thickness: <0.7μ
- Max. operating temperature: 900 degrees C



GFRP-CFRP



COMPO-SITES



DIN 6535
Form HA



30°

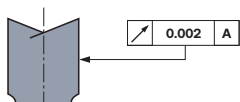


NHC
7000



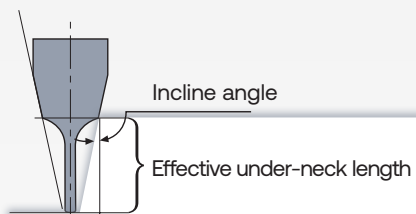
TOLERANCE

sharp edge



d1* = Ø 0.1 - Ø 5.0 mm tol 0.000 / -0.008 mm

d1* = Ø 6.0 mm tol -0.006 / -0.014 mm

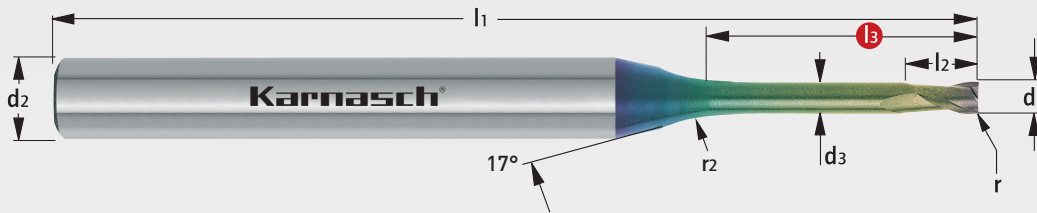


Catalogue no.		d1*	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062020005	•	0.05	-	4	-	1	45	0.08	-	-	-	-
3062020006	•	0.06	-	4	-	1	45	0.09	-	-	-	-
3062020008	•	0.08	-	4	-	1	45	0.12	-	-	-	-
3062020010002	•	0.1	0.2	4	0.08	1	45	0.15	0.36	0.38	0.42	0.46
3062020010003	•	0.1	0.3	4	0.08	1	45	0.15	0.47	0.49	0.54	0.58
3062020010004	•	0.1	0.4	4	0.08	1	45	0.15	0.57	0.60	0.65	0.70
3062020010005	•	0.1	0.5	4	0.08	1	45	0.15	0.68	0.71	0.77	0.82
3062020020005	•	0.2	0.5	4	0.17	1	50	0.30	0.70	0.73	0.79	0.84
3062020020010	•	0.2	1	4	0.17	1	50	0.30	1.23	1.27	1.35	1.45
3062020020015	•	0.2	1.5	4	0.17	1	50	0.30	1.74	1.80	1.92	2.05
3062020020020	•	0.2	2	4	0.17	1	50	0.30	2.26	2.33	2.48	2.65
3062020030010	•	0.3	1	4	0.27	2	50	0.45	1.32	1.39	1.52	1.63
3062020030015	•	0.3	1.5	4	0.27	2	50	0.45	1.85	1.94	2.09	2.23
3062020030020	•	0.3	2	4	0.27	2	50	0.45	2.38	2.48	2.65	2.83
3062020030025	•	0.3	2.5	4	0.27	2	50	0.45	2.90	3.02	3.22	3.44
3062020030030	•	0.3	3	4	0.27	2	50	0.45	3.42	3.55	3.78	4.04
3062020040010	•	0.4	1	4	0.37	2	50	0.60	1.32	1.39	1.52	1.63
3062020040015	•	0.4	1.5	4	0.37	2	50	0.60	1.85	1.94	2.09	2.23
3062020040020	•	0.4	2	4	0.37	2	50	0.60	2.38	2.48	2.65	2.83
3062020040030	•	0.4	3	4	0.37	2	50	0.60	3.42	3.55	3.78	4.04
3062020040040	•	0.4	4	4	0.37	2	50	0.60	4.46	4.61	4.91	5.25
3062020050010	•	0.5	1	4	0.47	2	50	0.75	1.32	1.39	1.52	1.63
3062020050020	•	0.5	2	4	0.47	2	50	0.75	2.38	2.48	2.65	2.83
3062020050030	•	0.5	3	4	0.47	2	50	0.75	3.42	3.55	3.78	4.04
3062020050040	•	0.5	4	4	0.47	2	50	0.75	4.46	4.61	4.91	5.25
3062020050050	•	0.5	5	4	0.47	2	50	0.75	5.50	5.67	6.04	6.45
3062020050060	•	0.5	6	4	0.47	2	50	0.75	6.53	6.73	7.17	7.66

Solid Carbide Micro Endmills - Sharp Corner - Non-Ferrous Materials

306202

Catalogue no.		d1*	l3	d2h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062020060020	•	0.6	2	4	0.57	4	50	0.90	2.54	2.70	2.97	3.19
3062020060030	•	0.6	3	4	0.57	4	50	0.90	3.61	3.80	4.12	4.40
3062020060040	•	0.6	4	4	0.57	4	50	0.90	4.67	4.89	5.25	5.61
3062020060050	•	0.6	5	4	0.57	4	50	0.90	5.72	5.97	6.38	6.82
3062020060060	•	0.6	6	4	0.57	4	50	0.90	6.77	7.04	7.50	8.02
3062020060080	•	0.6	8	4	0.57	4	50	0.90	8.85	9.17	9.76	10.44
3062020080020	•	0.8	2	4	0.77	4	50	1.20	2.54	2.70	2.97	3.19
3062020080040	•	0.8	4	4	0.77	4	50	1.20	4.67	4.89	5.25	5.61
3062020080050	•	0.8	5	4	0.77	4	50	1.20	5.72	5.97	6.38	6.82
3062020080060	•	0.8	6	4	0.77	4	50	1.20	6.77	7.04	7.50	8.02
3062020080080	•	0.8	8	4	0.77	4	50	1.20	8.85	9.18	9.76	10.44
3062020080100	•	0.8	10	4	0.77	4	50	1.20	10.93	11.29	12.02	12.85
3062020100020	•	1.0	2	4	0.96	4	50	1.50	2.58	2.73	2.99	3.21
3062020100030	•	1.0	3	4	0.96	4	50	1.50	3.64	3.83	4.13	4.42
3062020100040	•	1.0	4	4	0.96	4	50	1.50	4.70	4.91	5.26	5.63
3062020100050	•	1.0	5	4	0.96	4	50	1.50	5.75	5.99	6.39	6.83
3062020100060	•	1.0	6	4	0.96	4	50	1.50	6.79	7.06	7.52	8.04
3062020100070	•	1.0	7	4	0.96	4	50	1.50	7.84	8.13	8.65	9.25
3062020100080	•	1.0	8	4	0.96	4	50	1.50	8.88	9.19	9.78	10.46
3062020100090	•	1.0	9	4	0.96	4	50	1.50	9.92	10.25	10.91	11.66
3062020100100	•	1.0	10	4	0.96	4	50	1.50	10.95	11.31	12.04	12.87
3062020100120	•	1.0	12	4	0.96	4	55	1.50	13.03	13.43	14.30	15.28
3062020100150	•	1.0	15	4	0.96	4	55	1.50	16.12	16.61	17.68	18.90
3062020100200	•	1.0	20	4	0.96	4	60	1.50	21.27	21.91	23.33	24.94
3062020120060	•	1.2	6	4	1.15	4	50	1.80	6.82	7.08	7.54	8.06
3062020120120	•	1.2	12	4	1.15	4	55	1.80	13.04	13.45	14.21	15.30
3062020150040	•	1.5	4	4	1.44	4	50	2.25	4.38	4.70	5.12	5.47
3062020150060	•	1.5	6	4	1.44	4	50	2.25	6.54	6.89	7.37	7.88
3062020150080	•	1.5	8	4	1.44	4	50	2.25	8.66	9.04	9.63	10.30
3062020150100	•	1.5	10	4	1.44	4	50	2.25	10.77	11.17	11.89	12.71
3062020150120	•	1.5	12	4	1.44	4	55	2.25	12.85	13.29	14.15	15.13
3062020150140	•	1.5	14	4	1.44	4	55	2.25	14.93	15.41	16.41	17.54
3062020150160	•	1.5	16	4	1.44	4	55	2.25	17.01	17.53	18.66	19.95
3062020150180	•	1.5	18	4	1.44	4	60	2.25	19.07	19.65	20.92	22.37
3062020150200	•	1.5	20	4	1.44	4	60	2.25	21.14	21.78	23.18	-
3062020200040	•	2.0	4	4	1.92	4	50	3.00	4.81	5.00	5.34	5.71
3062020200060	•	2.0	6	4	1.92	4	50	3.00	6.89	7.14	7.60	8.12
3062020200080	•	2.0	8	4	1.92	4	50	3.00	8.97	9.26	9.85	10.53
3062020200100	•	2.0	10	4	1.92	4	50	3.00	11.04	11.38	12.11	12.95
3062020200120	•	2.0	12	4	1.92	4	55	3.00	13.10	13.50	14.37	15.36
3062020200150	•	2.0	15	4	1.92	4	55	3.00	16.19	16.68	17.76	18.98
3062020200200	•	2.0	20	4	1.92	4	60	3.00	21.34	21.98	23.40	-
3062020200250	•	2.0	25	4	1.92	4	65	3.00	26.48	27.29	-	-
3062020200300	•	2.0	30	4	1.92	4	65	3.00	31.63	32.59	-	-
3062020300100	•	3.0	10	4	2.90	4	65	4.50	11.41	11.93	12.15	-
3062020300150	•	3.0	15	4	2.90	4	65	4.50	16.22	16.72	-	-
3062020300200	•	3.0	20	4	2.90	4	65	4.50	21.37	22.02	-	-
3062020300250	•	3.0	25	4	2.90	4	75	4.50	26.52	27.32	-	-
3062020300300	•	3.0	30	4	2.90	4	75	4.50	31.61	-	-	-
3062020400100	•	4.0	10	6	3.90	4	65	6.00	11.07	11.41	12.15	12.99
3062020400150	•	4.0	15	6	3.90	4	65	6.00	16.22	16.72	17.79	19.02
3062020400200	•	4.0	20	6	3.90	4	65	6.00	21.37	23.44	-	-
3062020400250	•	4.0	25	6	3.90	4	75	6.00	26.52	27.32	-	-
3062020400300	•	4.0	30	6	3.90	4	75	6.00	31.67	32.63	-	-
3062020500200	•	5.0	20	6	4.90	4	65	7.50	21.37	22.02	-	-
3062020500300	•	5.0	30	6	4.90	4	75	7.50	31.67	-	-	-
3062020500400	•	5.0	40	6	4.90	4	90	7.50	41.96	-	-	-
3062020600200	•	6.0	20	6	5.90	4	65	9.00	-	-	-	-
3062020600300	•	6.0	30	6	5.90	4	75	9.00	-	-	-	-
3062020600400	•	6.0	40	6	5.90	4	90	9.00	-	-	-	-
3062020600500	•	6.0	50	6	5.90	4	90	9.00	-	-	-	-



NHC-7000 DLC Coating.

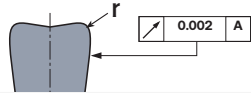
Best machining results in all non-ferrous metals, plastics and CFRP/GFRP.

- Coating technology: PACVD Plasma Assisted Chemical Vapour Deposition
- Micro hardness: 7000 HV0.05
- Coating material: DLC
- Coating thickness: <0.7μ
- Max. operating temperature: 900 degrees C



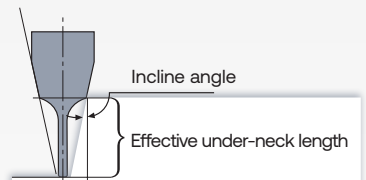
TOLERANCE

tol. r = -0.004 mm



d1* = Ø 0.1 - Ø 5.9 mm tol 0.000 / -0.008 mm

d1* = Ø 6.0 mm tol -0.006 / -0.014 mm

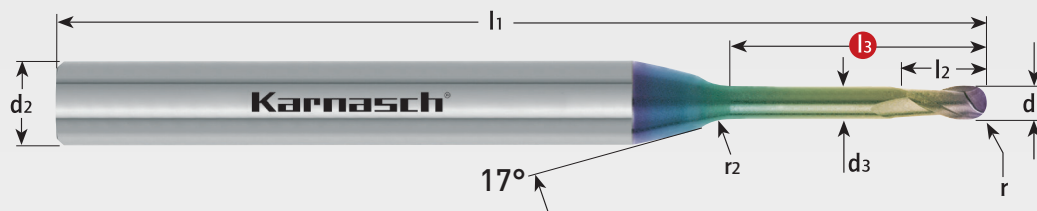


Catalogue no.		d1*	r-0.004	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062030010002002	•	0.1	0.02	0.2	4	0.08	1	45	0.10	0.36	0.38	0.42	0.46
3062030010002003	•	0.1	0.02	0.3	4	0.08	1	45	0.10	0.47	0.49	0.54	0.58
3062030010002004	•	0.1	0.02	0.4	4	0.08	1	45	0.10	0.57	0.60	0.65	0.70
3062030020005005	•	0.2	0.05	0.5	4	0.17	1	50	0.15	0.70	0.73	0.79	0.84
3062030020005010	•	0.2	0.05	1	4	0.17	1	50	0.15	1.23	1.27	1.35	1.45
3062030020005015	•	0.2	0.05	1.5	4	0.17	1	50	0.15	1.74	1.80	1.92	2.05
3062030020005020	•	0.2	0.05	2	4	0.17	1	50	0.15	2.26	2.33	2.48	2.65
3062030030005010	•	0.3	0.05	1	4	0.27	2	50	0.25	1.32	1.39	1.52	1.63
3062030030005015	•	0.3	0.05	1.5	4	0.27	2	50	0.25	1.85	1.94	2.09	2.23
3062030030005020	•	0.3	0.05	2	4	0.27	2	50	0.25	2.38	2.48	2.65	2.83
3062030030005025	•	0.3	0.05	2.5	4	0.27	2	50	0.25	2.90	3.02	3.22	3.44
3062030030005030	•	0.3	0.05	3	4	0.27	2	50	0.25	3.42	3.55	3.78	4.04
3062030040005020	•	0.4	0.05	2	4	0.37	2	50	0.30	2.38	2.48	2.65	2.83
3062030040005040	•	0.4	0.05	4	4	0.37	2	50	0.30	4.46	4.61	4.91	5.25
3062030040010010	•	0.4	0.10	1	4	0.37	2	50	0.30	1.32	1.39	1.52	1.63
3062030040010015	•	0.4	0.10	1.5	4	0.37	2	50	0.30	1.85	1.94	2.09	2.23
3062030040010020	•	0.4	0.10	2	4	0.37	2	50	0.30	2.38	2.48	2.65	2.83
3062030040010030	•	0.4	0.10	3	4	0.37	2	50	0.30	3.42	3.55	3.78	4.04
3062030040010040	•	0.4	0.10	4	4	0.37	2	50	0.30	4.46	4.61	4.91	5.25
3062030050005020	•	0.5	0.05	2	4	0.47	2	50	0.35	2.38	2.48	2.65	2.83
3062030050005030	•	0.5	0.05	3	4	0.47	2	50	0.35	3.42	3.55	3.78	4.04
3062030050005040	•	0.5	0.05	4	4	0.47	2	50	0.35	4.46	4.61	4.91	5.25
3062030050005050	•	0.5	0.05	5	4	0.47	2	50	0.35	5.50	5.67	6.04	6.45
3062030050010010	•	0.5	0.10	1	4	0.47	2	50	0.35	1.32	1.39	1.52	1.63
3062030050010020	•	0.5	0.10	2	4	0.47	2	50	0.35	2.38	2.48	2.65	2.83
3062030050010030	•	0.5	0.10	3	4	0.47	2	50	0.35	3.42	3.55	3.78	4.04
3062030050010040	•	0.5	0.10	4	4	0.47	2	50	0.35	4.46	4.61	4.91	5.25
3062030050010050	•	0.5	0.10	5	4	0.47	2	50	0.35	5.50	5.67	6.04	6.45
3062030050010060	•	0.5	0.10	6	4	0.47	2	50	0.35	6.53	6.73	7.17	7.66
3062030060006020	•	0.6	0.06	2	4	0.57	4	50	0.40	2.54	2.70	2.97	3.19
3062030060006040	•	0.6	0.06	4	4	0.57	4	50	0.40	4.67	4.89	5.25	5.61

Solid Carbide Micro Endmills - Corner Radius - Non-Ferrous Materials

306203

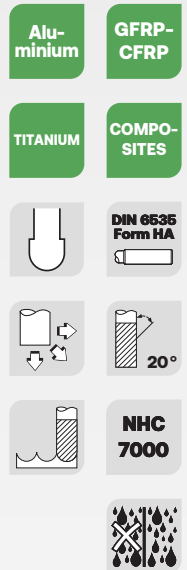
Catalogue no.		d1*	r -0,004	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062030060006060	•	0.6	0.06	6	4	0.57	4	50	0.40	6.77	7.04	7.50	8.02
3062030060006080	•	0.6	0.06	8	4	0.57	4	50	0.40	8.85	9.17	9.76	10.44
3062030060010020	•	0.6	0.10	2	4	0.57	4	50	0.40	2.54	2.70	2.97	3.19
3062030060010030	•	0.6	0.10	3	4	0.57	4	50	0.40	3.61	3.80	4.12	4.40
3062030060010040	•	0.6	0.10	4	4	0.57	4	50	0.40	4.67	4.89	5.25	5.61
3062030060010050	•	0.6	0.10	5	4	0.57	4	50	0.40	5.72	5.97	6.38	6.82
3062030060010060	•	0.6	0.10	6	4	0.57	4	50	0.40	6.77	7.04	7.50	8.02
3062030060010080	•	0.6	0.10	8	4	0.57	4	50	0.40	8.85	9.17	9.76	10.44
3062030080008040	•	0.8	0.08	4	4	0.77	4	50	0.50	4.67	4.89	5.25	5.61
3062030080008060	•	0.8	0.08	6	4	0.77	4	50	0.50	6.77	7.04	7.50	8.02
3062030080008080	•	0.8	0.08	8	4	0.77	4	50	0.50	8.85	9.17	9.76	10.44
3062030080008100	•	0.8	0.08	10	4	0.77	4	50	0.50	10.93	11.29	12.02	12.85
3062030080020020	•	0.8	0.20	2	4	0.77	4	50	0.50	2.54	2.70	2.91	3.19
3062030080020040	•	0.8	0.20	4	4	0.77	4	50	0.50	4.67	4.89	5.25	5.61
3062030080020050	•	0.8	0.20	5	4	0.77	4	50	0.50	5.72	5.97	6.38	6.82
3062030080020060	•	0.8	0.20	6	4	0.77	4	50	0.50	6.77	7.04	7.50	8.02
3062030080020080	•	0.8	0.20	8	4	0.77	4	50	0.50	8.85	9.17	9.76	10.44
3062030080020100	•	0.8	0.20	10	4	0.77	4	50	0.50	10.93	11.29	12.02	12.85
3062030100010030	•	1.0	0.10	3	4	0.96	4	50	0.80	3.64	3.83	4.13	4.42
3062030100010050	•	1.0	0.10	5	4	0.96	4	50	0.80	5.75	5.99	6.39	6.83
3062030100010070	•	1.0	0.10	7	4	0.96	4	50	0.80	7.84	8.13	8.65	9.25
3062030100010100	•	1.0	0.10	10	4	0.96	4	50	0.80	10.95	11.31	12.04	12.87
3062030100010120	•	1.0	0.10	12	4	0.96	4	55	0.80	13.03	13.43	14.30	15.28
3062030100010150	•	1.0	0.10	15	4	0.96	4	55	0.80	16.12	16.61	17.68	18.90
3062030100010200	•	1.0	0.10	20	4	0.96	4	60	0.80	21.27	21.91	23.33	24.94
3062030100020020	•	1.0	0.20	2	4	0.96	4	50	0.80	2.58	2.73	2.99	3.21
3062030100020030	•	1.0	0.20	3	4	0.96	4	50	0.80	3.64	3.83	4.13	4.42
3062030100020040	•	1.0	0.20	4	4	0.96	4	50	0.80	4.70	4.91	5.26	5.63
3062030100020050	•	1.0	0.20	5	4	0.96	4	50	0.80	5.75	5.99	6.39	6.83
3062030100020060	•	1.0	0.20	6	4	0.96	4	50	0.80	6.79	7.06	7.52	8.04
3062030100020070	•	1.0	0.20	7	4	0.96	4	50	0.80	7.84	8.13	8.65	9.25
3062030100020080	•	1.0	0.20	8	4	0.96	4	50	0.80	8.88	9.19	9.78	10.46
3062030100020090	•	1.0	0.20	9	4	0.96	4	50	0.80	9.92	10.25	10.91	11.66
3062030100020100	•	1.0	0.20	10	4	0.96	4	50	0.80	10.95	11.31	12.04	12.87
3062030100020120	•	1.0	0.20	12	4	0.96	4	55	0.80	13.03	13.43	14.30	15.28
3062030100020150	•	1.0	0.20	15	4	0.96	4	55	0.80	16.12	16.61	17.68	18.90
3062030120020060	•	1.2	0.20	6	4	1.15	4	50	1.00	6.82	7.08	7.54	8.06
3062030120020120	•	1.2	0.20	12	4	1.15	4	55	1.00	13.04	13.45	14.21	15.30
3062030150015040	•	1.5	0.15	4	4	1.44	4	50	1.35	4.38	4.70	5.12	5.47
3062030150015060	•	1.5	0.15	6	4	1.44	4	50	1.35	6.54	6.89	7.37	7.88
3062030150015080	•	1.5	0.15	8	4	1.44	4	50	1.35	8.66	9.04	9.63	10.30
3062030150015100	•	1.5	0.15	10	4	1.44	4	50	1.35	10.77	11.17	11.89	12.71
3062030150015120	•	1.5	0.15	12	4	1.44	4	55	1.35	12.85	13.29	14.15	15.13
3062030150015160	•	1.5	0.15	16	4	1.44	4	55	1.35	17.01	17.53	18.66	19.95
3062030150015200	•	1.5	0.15	20	4	1.44	4	60	1.35	21.14	21.78	23.18	–
3062030150020040	•	1.5	0.20	4	4	1.44	4	50	1.35	4.38	4.70	5.12	5.47
3062030150020060	•	1.5	0.20	6	4	1.44	4	50	1.35	6.54	6.89	7.37	7.88
3062030150020080	•	1.5	0.20	8	4	1.44	4	50	1.35	8.66	9.04	9.63	10.30
3062030150020100	•	1.5	0.20	10	4	1.44	4	50	1.35	10.77	11.17	11.89	12.71
3062030150020120	•	1.5	0.20	12	4	1.44	4	55	1.35	12.85	13.29	14.15	15.13
3062030150020140	•	1.5	0.20	14	4	1.44	4	55	1.35	14.93	15.41	16.41	17.54
3062030150020160	•	1.5	0.20	16	4	1.44	4	55	1.35	17.01	17.53	18.66	19.95
3062030150020180	•	1.5	0.20	18	4	1.44	4	60	1.35	19.07	19.65	20.92	22.37
3062030150020200	•	1.5	0.20	20	4	1.44	4	60	1.35	21.14	21.78	23.18	–
3062030200020040	•	2.0	0.20	4	4	1.92	4	50	1.70	4.81	5.00	5.34	5.71
3062030200020060	•	2.0	0.20	6	4	1.92	4	50	1.70	6.89	7.14	7.60	8.12
3062030200020080	•	2.0	0.20	8	4	1.92	4	50	1.70	8.97	9.26	9.85	10.53
3062030200020100	•	2.0	0.20	10	4	1.92	4	50	1.70	11.04	11.38	12.11	12.95
3062030200020120	•	2.0	0.20	12	4	1.92	4	55	1.70	13.10	13.50	14.37	15.36
3062030200020150	•	2.0	0.20	15	4	1.92	4	55	1.70	16.19	16.68	17.76	18.98
3062030200020200	•	2.0	0.20	20	4	1.92	4	60	1.70	21.34	21.98	23.40	–
3062030200020250	•	2.0	0.20	25	4	1.92	4	65	1.70	26.48	27.29	–	–
3062030200020300	•	2.0	0.20	30	4	1.92	4	65	1.70	31.63	32.59	–	–
3062030200050040	•	2.0	0.50	4	4	1.92	4	50	1.70	4.81	5.00	5.34	5.71
3062030200050060	•	2.0	0.50	6	4	1.92	4	50	1.70	6.89	7.14	7.60	8.12
3062030200050080	•	2.0	0.50	8	4	1.92	4	50	1.70	8.97	9.26	9.85	10.53
3062030200050100	•	2.0	0.50	10	4	1.92	4	50	1.70	11.04	11.38	12.11	12.95
3062030200050120	•	2.0	0.50	12	4	1.92	4	55	1.70	13.10	13.50	14.37	15.36
3062030200050150	•	2.0	0.50	15	4	1.92	4	55	1.70	16.19	16.68	17.76	18.98
3062030200050200	•	2.0	0.50	20	4	1.92	4	60	1.70	21.34	21.98	23.40	–
3062030300030100	•	3.0	0.30	10	4	2.90	4	65	3.00	11.41	11.39	12.15	–
3062030300030150	•	3.0	0.30	15	4	2.90	4	65	3.00	16.22	16.72	–	–
3062030300030200	•	3.0	0.30	20	4	2.90	4	65	3.00	21.37	22.02	–	–
3062030300030250	•	3.0	0.30	25	4	2.90	4	75	3.00	26.52	27.32	–	–
3062030300030300	•	3.0	0.30	30	4	2.90	4	75	3.00	32.40	–	–	–
3062030300050150	•	3.0	0.50	15	4	2.90	4	65	3.00	16.22	16.72	–	–
3062030300050200	•	3.0	0.50	20	4	2.90	4	65	3.00	21.37	22.02	–	–
3062030400030100	•	4.0	0.30	10	6	3.90	4	65	4.00	11.07	11.41	12.15	12.99
3062030400030150	•	4.0	0.30	15	6	3.90	4	65	4.00	16.22	16.72	17.79	19.02
3062030400030200	•	4.0	0.30	20	6	3.90	4	65	4.00	21.37	23.44	–	–
3062030400030250	•	4.0	0.30	25	6	3.90	4	75	4.00	26.52	27.32	–	–
3062030400030300	•	4.0	0.30	30	6	3.90	4	75	4.00	31.67	32.63	–	–
3062030400050200	•	4.0	0.50	20	6	3.90	4	65	4.00	21.37	23.44	–	–
3062030400050300	•	4.0	0.50	30	6	3.90	4	75	4.00	31.67	32.63	–	–
3062030500030200	•	5.0	0.30	20	6	4.90	4	65	5.00	21.37	22.02	–	–
3062030500030300	•	5.0	0.30	30	6	4.90	4	75	5.00	31.67	–	–	–
3062030500030400	•	5.0	0.30	40	6	4.90	4	90	5.00	41.96	–	–	–
3062030600030200	•	6.0	0.30	20	6	5.90	4	65	6.00	–	–	–	–
3062030600030300	•	6.0	0.30	30	6	5.90	4	75	6.00	–	–	–	–
3062030600030400	•	6.0	0.30	40	6	5.90	4	90	6.00	–	–	–	–
3062030600030500	•	6.0	0.30	50	6	5.90	4	90	6.00	–	–	–	–
3062030600050200	•	6.0	0.50	20	6	5.90	4	65	6.00	–	–	–	–
3062030600050300	•	6.0	0.50	30	6	5.90	4	75	6.00	–	–	–	–
3062030600100250	•	6.0	1.00	25	6	5.90	4	65	6.00	–	–	–	–



NHC-7000 DLC Coating.

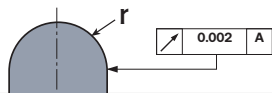
Best machining results in all non-ferrous metals, plastics and CFRP/GFRP.

- Coating technology: PACVD Plasma Assisted Chemical Vapour Deposition
- Micro hardness: 7000 HV0.05
- Coating material: DLC
- Coating thickness: <0.7μ
- Max. operating temperature: 900 degrees C



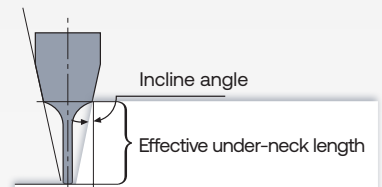
TOLERANCE

tol. r = ±0.002 mm



d1* = Ø 0.1 - Ø 5.9 mm tol 0.000 / -0.008 mm

d1* = Ø 6.0 mm tol -0.006 / -0.014 mm

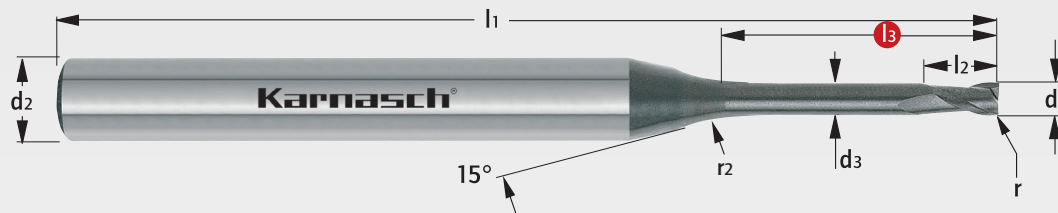


Catalogue no.		d1*	r ±0.002	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062040010002	•	0.1	0.05	0.2	4	0.08	1	45	0.08	0.36	0.38	0.42	0.46
3062040010003	•	0.1	0.05	0.3	4	0.08	1	45	0.08	0.47	0.49	0.54	0.58
3062040010004	•	0.1	0.05	0.4	4	0.08	1	45	0.08	0.57	0.60	0.65	0.70
3062040010005	•	0.1	0.05	0.5	4	0.08	1	45	0.08	0.68	0.71	0.77	0.82
3062040020005	•	0.2	0.10	0.5	4	0.17	1	50	0.20	0.70	0.73	0.79	1.45
3062040020010	•	0.2	0.10	1	4	0.17	1	50	0.20	1.23	1.27	1.35	2.11
3062040020015	•	0.2	0.10	1.5	4	0.17	1	50	0.20	1.74	1.92	2.05	2.75
3062040020020	•	0.2	0.10	2	4	0.17	1	50	0.20	2.26	2.33	2.48	2.65
3062040030010	•	0.3	0.15	1	4	0.27	2	50	0.25	1.32	1.39	1.52	1.63
3062040030015	•	0.3	0.15	1.5	4	0.27	2	50	0.25	1.85	1.94	2.09	2.23
3062040030020	•	0.3	0.15	2	4	0.27	2	50	0.25	2.38	2.48	2.65	2.83
3062040030025	•	0.3	0.15	2.5	4	0.27	2	50	0.25	2.90	3.02	3.22	3.44
3062040030030	•	0.3	0.15	3	4	0.27	2	50	0.25	3.42	3.55	3.78	4.04
3062040040010	•	0.4	0.20	1	4	0.37	2	50	0.30	1.32	1.39	1.52	1.63
3062040040020	•	0.4	0.20	2	4	0.37	2	50	0.30	2.38	2.48	2.65	2.83
3062040040030	•	0.4	0.20	3	4	0.37	2	50	0.30	3.42	3.55	3.78	4.04
3062040040040	•	0.4	0.20	4	4	0.37	2	50	0.30	4.46	4.61	4.91	5.25
3062040050010	•	0.5	0.25	1	4	0.47	2	50	0.40	1.32	1.39	1.52	1.63
3062040050020	•	0.5	0.25	2	4	0.47	2	50	0.40	2.38	2.48	2.65	2.83
3062040050030	•	0.5	0.25	3	4	0.47	2	50	0.40	3.42	3.55	3.78	4.04
3062040050040	•	0.5	0.25	4	4	0.47	2	50	0.40	4.46	4.61	4.91	5.25
3062040050050	•	0.5	0.25	5	4	0.47	2	50	0.40	5.50	5.67	6.04	6.45
3062040050060	•	0.5	0.25	6	4	0.47	2	50	0.40	6.53	6.73	7.17	7.66
3062040060020	•	0.6	0.30	2	4	0.57	4	50	0.50	2.54	2.70	2.97	3.19
3062040060030	•	0.6	0.30	3	4	0.57	4	50	0.50	3.61	3.80	4.12	4.40
3062040060040	•	0.6	0.30	4	4	0.57	4	50	0.50	4.67	4.89	5.25	5.61
3062040060050	•	0.6	0.30	5	4	0.57	4	50	0.50	5.72	5.97	6.38	6.82

Solid Carbide Micro Endmills - Ball Nose - Non-Ferrous Materials

306204

Catalogue no.		d1*	r ±0.002	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062040060060	•	0.6	0.30	6	4	0.57	4	50	0.50	6.77	7.04	7.50	8.02
3062040060080	•	0.6	0.30	8	4	0.57	4	50	0.50	8.85	9.17	9.76	10.44
3062040080020	•	0.8	0.40	2	4	0.77	4	50	0.60	2.54	2.70	2.97	3.19
3062040080040	•	0.8	0.40	4	4	0.77	4	50	0.60	4.67	4.89	5.25	5.61
3062040080060	•	0.8	0.40	6	4	0.77	4	50	0.60	6.77	7.04	7.50	8.02
3062040080080	•	0.8	0.40	8	4	0.77	4	50	0.60	8.85	9.17	9.76	10.44
3062040080100	•	0.8	0.40	10	4	0.77	4	50	0.60	10.93	11.29	12.02	12.85
3062040100020	•	1.0	0.50	2	4	0.96	4	50	0.80	2.58	2.73	2.99	3.21
3062040100030	•	1.0	0.50	3	4	0.96	4	50	0.80	3.64	3.83	4.13	4.42
3062040100040	•	1.0	0.50	4	4	0.96	4	50	0.80	4.70	4.91	5.26	5.63
3062040100050	•	1.0	0.50	5	4	0.96	4	50	0.80	5.75	5.99	6.39	6.83
3062040100060	•	1.0	0.50	6	4	0.96	4	50	0.80	6.79	7.06	7.52	8.04
3062040100080	•	1.0	0.50	8	4	0.96	4	50	0.80	8.88	9.19	9.78	10.46
3062040100100	•	1.0	0.50	10	4	0.96	4	50	0.80	10.95	11.31	12.04	12.87
3062040100120	•	1.0	0.50	12	4	0.96	4	55	0.80	13.03	13.43	14.30	15.28
3062040100150	•	1.0	0.50	15	4	0.96	4	55	0.80	16.12	16.61	17.68	18.90
3062040100180	•	1.0	0.50	18	4	0.96	4	60	0.80	19.21	19.79	21.07	22.52
3062040100200	•	1.0	0.50	20	4	0.96	4	60	0.80	21.27	21.91	23.33	24.94
3062040120060	•	1.2	0.60	6	4	1.15	4	50	1.00	6.82	7.08	7.54	8.06
3062040120120	•	1.2	0.60	12	4	1.15	4	55	1.00	13.04	13.45	14.31	15.30
3062040150040	•	1.5	0.75	4	4	1.44	4	50	1.20	4.75	4.96	5.30	5.67
3062040150060	•	1.5	0.75	6	4	1.44	4	50	1.20	6.84	7.10	7.56	8.08
3062040150080	•	1.5	0.75	8	4	1.44	4	50	1.20	8.92	9.22	9.82	10.49
3062040150100	•	1.5	0.75	10	4	1.44	4	50	1.20	11.00	11.34	12.08	12.91
3062040150120	•	1.5	0.75	12	4	1.44	4	55	1.20	13.06	13.46	14.33	15.32
3062040150140	•	1.5	0.75	14	4	1.44	4	55	1.20	15.13	15.59	16.59	17.74
3062040150160	•	1.5	0.75	16	4	1.44	4	55	1.20	17.19	17.71	18.85	20.15
3062040150180	•	1.5	0.75	18	4	1.44	4	60	1.20	19.24	19.83	21.11	22.56
3062040150200	•	1.5	0.75	20	4	1.44	4	60	1.20	21.30	21.95	23.36	–
3062040200040	•	2.0	1.00	4	4	1.92	4	50	1.50	4.81	5.00	5.34	5.71
3062040200060	•	2.0	1.00	6	4	1.92	4	50	1.50	6.89	7.14	7.60	8.12
3062040200080	•	2.0	1.00	8	4	1.92	4	50	1.50	8.97	9.26	9.85	10.53
3062040200100	•	2.0	1.00	10	4	1.92	4	50	1.50	11.04	11.38	12.11	12.95
3062040200120	•	2.0	1.00	12	4	1.92	4	55	1.50	13.10	13.50	14.37	15.36
3062040200150	•	2.0	1.00	15	4	1.92	4	55	1.50	16.19	16.68	17.16	18.98
3062040200200	•	2.0	1.00	20	4	1.92	4	60	1.50	21.34	21.98	23.40	–
3062040300050	•	3.0	1.50	5	4	2.90	4	65	3.0	5.90	6.11	6.50	6.95
3062040300100	•	3.0	1.50	10	4	2.90	4	65	3.0	11.07	11.41	12.15	–
3062040300150	•	3.0	1.50	15	4	2.90	4	65	3.0	16.22	16.72	–	–
3062040300200	•	3.0	1.50	20	4	2.90	4	65	3.0	21.37	22.02	–	–
3062040300250	•	3.0	1.50	25	4	2.90	4	75	3.0	26.52	27.32	–	–
3062040300300	•	3.0	1.50	30	4	2.90	4	75	3.0	31.67	–	–	–
3062040400100	•	4.0	2.00	10	6	3.90	4	65	4.0	11.08	11.41	12.15	12.99
3062040400150	•	4.0	2.00	15	6	3.90	4	65	4.0	16.22	16.72	17.79	19.02
3062040400200	•	4.0	2.00	20	6	3.90	4	65	4.0	21.37	22.02	23.44	–
3062040400250	•	4.0	2.00	25	6	3.90	4	75	4.0	26.52	27.32	–	–
3062040400300	•	4.0	2.00	30	6	3.90	4	75	4.0	31.67	32.62	–	–
3062040500200	•	5.0	2.50	20	6	4.90	4	65	5.0	21.37	22.02	–	–
3062040500300	•	5.0	2.50	30	6	4.90	4	75	5.0	31.67	–	–	–
3062040500400	•	5.0	2.50	40	6	4.90	4	90	5.0	41.96	–	–	–
3062040600200	•	6.0	3.00	20	6	5.90	4	65	6.0	–	–	–	–
3062040600300	•	6.0	3.00	30	6	5.90	4	75	6.0	–	–	–	–
3062040600400	•	6.0	3.00	40	6	5.90	4	90	6.0	–	–	–	–
3062040600500	•	6.0	3.00	50	6	5.90	4	90	6.0	–	–	–	–



HRC
≤ 55

STEEL
≤ 1200 N/mm²

STEEL
≤ 1400 N/mm²

INOX
stainless steel
≤ 900 N/mm²
ferritic



DIN 6535
Form HA



WRC²

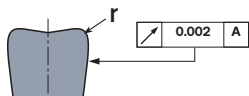
WRC² AlTiN Coating.

For milling of steel up to 55 HRC.

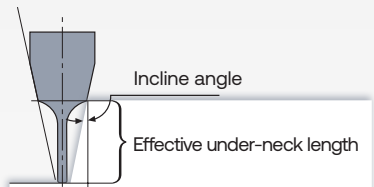
- Coating technology: Sputtering
- Micro hardness: 3700 HV0.05
- Coating material: AlTiN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C

TOLERANCE

tol. r = -0.002 mm



d1* = Ø 0.2 - Ø 6.0 mm tol 0.000 / -0.012 mm

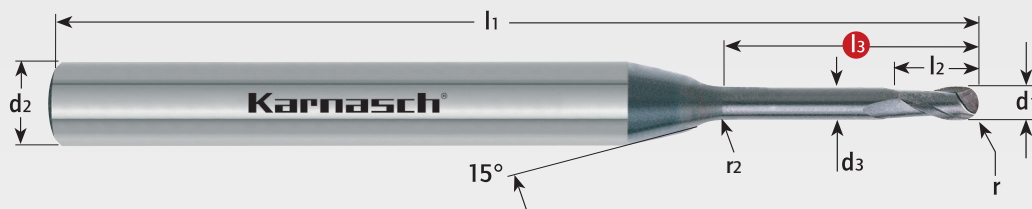


Catalogue no.		d1*	r -0.005	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3080110020005005	•	0.2	0.05	0.5	4	0.18	1	45	0.30	0.68	0.71	0.77	0.83
308011002000501	•	0.2	0.05	1	4	0.18	1	45	0.30	1.20	1.25	1.34	1.45
308011003000501	•	0.3	0.05	1	4	0.28	2	45	0.45	1.29	1.37	1.49	1.62
308011003000502	•	0.3	0.05	2	4	0.28	2	45	0.45	2.35	2.46	2.65	2.86
308011003000503	•	0.3	0.05	3	4	0.28	2	45	0.45	3.40	3.53	3.80	4.10
308011004000502	•	0.4	0.05	2	4	0.38	2	45	0.60	2.35	2.46	2.65	2.86
308011004000503	•	0.4	0.05	3	4	0.38	2	45	0.60	3.40	3.53	3.80	4.10
308011004000504	•	0.4	0.05	4	4	0.38	2	45	0.60	4.44	4.60	4.95	5.35
308011005000502	•	0.5	0.05	2	4	0.48	2	45	0.70	2.35	2.46	2.65	2.86
308011005000503	•	0.5	0.05	3	4	0.48	2	45	0.70	3.40	3.53	3.80	4.10
308011005000504	•	0.5	0.05	4	4	0.48	2	45	0.70	4.44	4.60	4.95	5.35
308011006000602	•	0.6	0.06	2	4	0.58	4	45	0.90	2.50	2.67	2.94	3.19
308011006000603	•	0.6	0.06	3	4	0.58	4	45	0.90	3.57	3.78	4.10	4.43
308011006000604	•	0.6	0.06	4	4	0.58	4	45	0.90	4.63	4.87	5.25	5.67
308011006000606	•	0.6	0.06	6	4	0.58	4	45	0.90	6.74	7.02	7.55	8.16
308011008000802	•	0.8	0.08	2	4	0.77	4	45	1.20	2.54	2.70	2.97	3.21
308011008000804	•	0.8	0.08	4	4	0.77	4	45	1.20	4.67	4.89	5.27	5.70
308011008000805	•	0.8	0.08	5	4	0.77	4	45	1.20	5.72	5.97	6.42	6.94
308011008000806	•	0.8	0.08	6	4	0.77	4	45	1.20	6.77	7.04	7.57	8.18
308011008000808	•	0.8	0.08	8	4	0.77	4	50	1.20	8.85	9.18	9.87	10.67
308011008000810	•	0.8	0.08	10	4	0.77	4	50	1.20	10.93	11.32	12.17	13.16
308011010001003	•	1.0	0.10	3	4	0.95	4	50	1.60	3.67	3.85	4.16	4.50
308011010001004	•	1.0	0.10	4	4	0.95	4	50	1.60	4.72	4.94	5.31	5.74
308011010001005	•	1.0	0.10	5	4	0.95	4	50	1.60	5.77	6.01	6.46	6.99

Solid Carbide Micro Endmills - Corner Radius - Ferrous Materials

308011

Catalogue no.		d1*	r -0.005	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
308011010001006	•	1.0	0.10	6	4	0.95	4	50	1.60	6.82	7.08	7.61	8.23
308011010001007	•	1.0	0.10	7	4	0.95	4	50	1.60	7.86	8.15	8.76	9.47
308011010001008	•	1.0	0.10	8	4	0.95	4	50	1.60	8.90	9.22	9.91	10.72
308011010001010	•	1.0	0.10	10	4	0.95	4	50	1.60	10.98	11.36	12.21	13.20
308011010001012	•	1.0	0.10	12	4	0.95	4	50	1.60	13.04	13.50	14.51	15.69
308011010001015	•	1.0	0.10	15	4	0.95	4	60	1.60	16.15	16.71	17.96	19.42
308011010001020	•	1.0	0.10	20	4	0.95	4	60	1.60	21.31	22.06	23.71	25.63
308011010003004	•	1.0	0.30	4	4	0.95	4	50	1.60	4.72	4.94	5.31	5.74
308011010003008	•	1.0	0.30	8	4	0.95	4	50	1.60	8.90	9.22	9.91	10.72
308011010003012	•	1.0	0.30	12	4	0.95	4	50	1.60	13.04	13.50	14.51	15.69
308011012001206	•	1.2	0.12	6	4	1.15	4	50	1.90	6.82	7.08	7.61	8.23
308011012001208	•	1.2	0.12	8	4	1.15	4	50	1.90	8.90	9.22	9.91	10.72
308011012001210	•	1.2	0.12	10	4	1.15	4	50	1.90	10.98	11.36	12.21	13.20
308011012001212	•	1.2	0.12	12	4	1.15	4	50	1.90	13.04	13.50	14.51	15.69
308011014001408	•	1.4	0.14	8	4	1.35	4	50	2.20	8.90	9.22	9.91	10.72
308011015001506	•	1.5	0.15	6	4	1.44	4	50	2.40	6.84	7.10	7.63	8.25
308011015001508	•	1.5	0.15	8	4	1.44	4	50	2.40	8.92	9.24	9.93	10.74
308011015001510	•	1.5	0.15	10	4	1.44	4	50	2.40	11.00	11.38	12.23	13.23
308011015001512	•	1.5	0.15	12	4	1.44	4	50	2.40	13.06	13.52	14.53	15.71
308011015001515	•	1.5	0.15	15	4	1.44	4	60	2.40	16.17	16.73	17.98	19.44
308011015001520	•	1.5	0.15	20	4	1.44	4	60	2.40	21.33	22.08	23.73	–
308011015003006	•	1.5	0.30	6	4	1.44	4	50	2.40	6.84	7.10	7.63	8.25
308011015003012	•	1.5	0.30	12	4	1.44	4	50	2.40	13.06	13.52	14.53	15.71
308011018001810	•	1.8	0.18	10	4	1.74	4	50	2.60	11.00	11.38	12.23	13.23
308011018001820	•	1.8	0.18	20	4	1.74	4	60	2.60	21.33	22.08	23.73	–
308011020002006	•	2.0	0.20	6	4	1.92	4	50	2.80	6.89	7.14	7.68	8.30
308011020002008	•	2.0	0.20	8	4	1.92	4	50	2.80	8.97	9.28	9.98	10.79
308011020002010	•	2.0	0.20	10	4	1.92	4	50	2.80	11.04	11.42	12.28	13.27
308011020002012	•	2.0	0.20	12	4	1.92	4	50	2.80	13.10	13.56	14.58	15.76
308011020002015	•	2.0	0.20	15	4	1.92	4	60	2.80	16.20	16.77	18.03	–
308011020002020	•	2.0	0.20	20	4	1.92	4	60	2.80	21.37	22.12	23.77	–
308011020002025	•	2.0	0.20	25	4	1.92	4	70	2.80	26.54	27.47	–	–
308011020002030	•	2.0	0.20	30	4	1.92	4	70	2.80	31.71	32.81	–	–
308011020005008	•	2.0	0.50	8	4	1.92	4	50	2.80	8.97	9.28	9.98	10.79
308011020005015	•	2.0	0.50	15	4	1.92	4	60	2.80	16.20	16.77	18.03	–
308011020005025	•	2.0	0.50	25	4	1.92	4	70	2.80	26.54	27.47	–	–
308011025002510	•	2.5	0.25	10	4	2.40	4	50	2.50	11.07	11.46	12.32	13.32
308011025002515	•	2.5	0.25	15	4	2.40	4	60	2.50	16.24	16.81	18.07	–
308011025002520	•	2.5	0.25	20	4	2.40	4	60	2.50	21.41	22.16	–	–
308011025002525	•	2.5	0.25	25	4	2.40	4	70	2.50	26.58	27.50	–	–
308011030003010	•	3.0	0.30	10	6	2.90	4	50	3.00	11.27	11.66	12.53	13.55
308011030003020	•	3.0	0.30	20	6	2.90	4	60	3.00	21.60	22.36	24.03	25.98
308011030003030	•	3.0	0.30	30	6	2.90	4	70	3.00	31.94	33.05	35.53	–
308011030005010	•	3.0	0.50	10	6	2.90	4	50	3.00	11.27	11.66	12.53	13.55
308011030005015	•	3.0	0.50	15	6	2.90	4	60	3.00	16.44	17.01	18.28	19.77
308011030005020	•	3.0	0.50	20	6	2.90	4	60	3.00	21.60	22.36	24.03	25.98
308011030005025	•	3.0	0.50	25	6	2.90	4	70	3.00	26.77	27.70	29.78	–
308011030005030	•	3.0	0.50	30	6	2.90	4	70	3.00	31.94	33.05	35.53	–
308011040005010	•	4.0	0.50	10	6	3.90	4	50	4.00	11.07	11.46	12.32	13.32
308011040005015	•	4.0	0.50	15	6	3.90	4	60	4.00	16.24	16.81	18.07	–
308011040005020	•	4.0	0.50	20	6	3.90	4	60	4.00	21.41	22.16	23.82	–
308011040005025	•	4.0	0.50	25	6	3.90	4	70	4.00	26.58	27.50	–	–
308011040005030	•	4.0	0.50	30	6	3.90	4	70	4.00	31.75	32.85	–	–
308011050005015	•	5.0	0.50	15	6	4.90	4	60	5.00	16.44	17.01	–	–
308011050005020	•	5.0	0.50	20	6	4.90	4	60	5.00	21.60	22.36	–	–
308011050005030	•	5.0	0.50	30	6	4.90	4	70	5.00	31.94	–	–	–
308011050005040	•	5.0	0.50	40	6	4.90	4	80	5.00	42.28	–	–	–
308011060005010	•	6.0	0.50	10	6	5.90	4	50	6.00	–	–	–	–
308011060005015	•	6.0	0.50	15	6	5.90	4	60	6.00	–	–	–	–
308011060005020	•	6.0	0.50	20	6	5.90	4	60	6.00	–	–	–	–
308011060005030	•	6.0	0.50	30	6	5.90	4	70	6.00	–	–	–	–
308011060005040	•	6.0	0.50	40	6	5.90	4	80	6.00	–	–	–	–



WRC² AlTiN Coating.

For milling of steel up to 55 HRC.

- Coating technology: Sputtering
- Micro hardness: 3700 HV0.05
- Coating material: AlTiN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C

HRC
≤ 55

STEEL
≤ 1200 N/mm²

STEEL
≤ 1400 N/mm²

INOX
stainless steel
≤ 900 N/mm²
ferritic



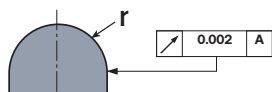
DIN 6535
Form HA



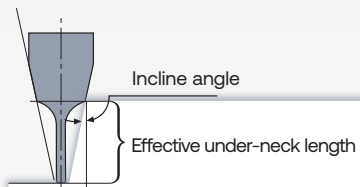
WRC²

TOLERANCE

tol. r = ±0.002 mm



d1* = Ø 0.2 - Ø 6.0 mm tol 0.000 / -0.012 mm

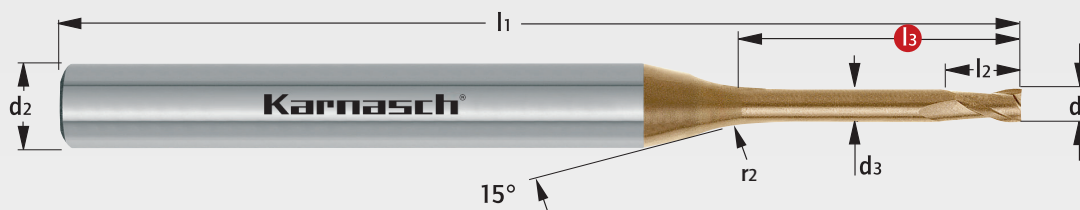


Catalogue no.		d1*	r ±0.004	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3080120020005	•	0.2	0.10	0.5	4	0.18	1	45	0.20	0.68	0.71	0.77	0.83
308012002001	•	0.2	0.10	1	4	0.18	1	45	0.20	1.20	1.25	1.34	1.45
308012003001	•	0.3	0.15	1	4	0.28	2	45	0.25	1.29	1.37	1.49	1.62
308012003002	•	0.3	0.15	2	4	0.28	2	45	0.25	2.35	2.46	2.65	2.86
308012003003	•	0.3	0.15	3	4	0.28	2	45	0.25	3.40	3.53	3.80	4.10
308012004002	•	0.4	0.20	2	4	0.38	2	45	0.30	2.35	2.46	2.65	2.86
308012004003	•	0.4	0.20	3	4	0.38	2	45	0.30	3.40	3.53	3.80	4.10
308012004004	•	0.4	0.20	4	4	0.38	2	45	0.30	4.44	4.60	4.95	5.35
308012005002	•	0.5	0.25	2	4	0.48	2	45	0.40	2.35	2.46	2.65	2.86
308012005003	•	0.5	0.25	3	4	0.48	2	45	0.40	3.40	3.53	3.80	4.10
308012005004	•	0.5	0.25	4	4	0.48	2	45	0.40	4.44	4.60	4.95	5.35
308012006002	•	0.6	0.30	2	4	0.58	4	45	0.50	2.50	2.67	2.94	3.19
308012006003	•	0.6	0.30	3	4	0.58	4	45	0.50	3.57	3.78	4.10	4.43
308012006004	•	0.6	0.30	4	4	0.58	4	45	0.50	4.63	4.87	5.25	5.67
308012006006	•	0.6	0.30	6	4	0.58	4	45	0.50	6.74	7.02	7.55	8.16
308012006008	•	0.6	0.30	8	4	0.58	4	50	0.50	8.83	9.16	9.85	10.65
308012008002	•	0.8	0.40	2	4	0.77	4	45	0.60	2.54	2.70	2.97	3.21
308012008004	•	0.8	0.40	4	4	0.77	4	45	0.60	4.67	4.89	5.27	5.70
308012008005	•	0.8	0.40	5	4	0.77	4	45	0.60	5.72	5.97	6.42	6.94
308012008006	•	0.8	0.40	6	4	0.77	4	45	0.60	6.77	7.04	7.57	8.18
308012008008	•	0.8	0.40	8	4	0.77	4	50	0.60	8.85	9.18	9.87	10.67
308012008010	•	0.8	0.40	10	4	0.77	4	50	0.60	10.93	11.32	12.17	13.16

Solid Carbide Micro Endmills - Ball Nose - Ferrous Materials

308012

Catalogue no.		d1*	r ±0.004	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
308012010003	•	1.0	0.50	3	4	0.95	4	50	0.80	3.67	3.85	4.16	4.50
308012010004	•	1.0	0.50	4	4	0.95	4	50	0.80	4.72	4.94	5.31	5.74
308012010005	•	1.0	0.50	5	4	0.95	4	50	0.80	5.77	6.01	6.46	6.99
308012010006	•	1.0	0.50	6	4	0.95	4	50	0.80	6.82	7.08	7.61	8.23
308012010007	•	1.0	0.50	7	4	0.95	4	50	0.80	7.86	8.15	8.76	9.47
308012010008	•	1.0	0.50	8	4	0.95	4	50	0.80	8.90	9.22	9.91	10.72
308012010010	•	1.0	0.50	10	4	0.95	4	50	0.80	10.98	11.36	12.21	13.20
308012010012	•	1.0	0.50	12	4	0.95	4	50	0.80	13.04	13.50	14.51	15.69
308012010015	•	1.0	0.50	15	4	0.95	4	60	0.80	16.15	16.71	17.96	19.42
308012010020	•	1.0	0.50	20	4	0.95	4	60	0.80	21.31	22.06	23.71	25.63
308012012005	•	1.2	0.60	5	4	1.15	4	50	1.00	5.77	6.01	6.46	6.99
308012012006	•	1.2	0.60	6	4	1.15	4	50	1.00	6.82	7.08	7.61	8.23
308012012008	•	1.2	0.60	8	4	1.15	4	50	1.00	8.90	9.22	9.91	10.72
308012012010	•	1.2	0.60	10	4	1.15	4	50	1.00	10.98	11.36	12.21	13.20
308012012012	•	1.2	0.60	12	4	1.15	4	50	1.00	13.04	13.50	14.51	15.69
308012015006	•	1.5	0.75	6	4	1.44	4	50	1.20	6.84	7.10	7.63	8.25
308012015008	•	1.5	0.75	8	4	1.44	4	50	1.20	8.92	9.24	9.93	10.74
308012015010	•	1.5	0.75	10	4	1.44	4	50	1.20	11.00	11.38	12.23	13.23
308012015012	•	1.5	0.75	12	4	1.44	4	50	1.20	13.06	13.52	14.53	15.71
308012015015	•	1.5	0.75	15	4	1.44	4	60	1.20	16.17	16.73	17.98	19.44
308012015020	•	1.5	0.75	20	4	1.44	4	60	1.20	21.33	22.08	23.73	–
308012020006	•	2.0	1.00	6	4	1.92	4	50	1.50	6.89	7.14	7.68	8.30
308012020008	•	2.0	1.00	8	4	1.92	4	50	1.50	8.97	9.28	9.98	10.79
308012020010	•	2.0	1.00	10	4	1.92	4	50	1.50	11.04	11.42	12.28	13.27
308012020012	•	2.0	1.00	12	4	1.92	4	50	1.50	13.10	13.56	14.58	15.76
308012020015	•	2.0	1.00	15	4	1.92	4	60	1.50	16.20	16.77	18.03	–
308012020020	•	2.0	1.00	20	4	1.92	4	60	1.50	21.37	22.12	23.77	–
308012020025	•	2.0	1.00	25	4	1.92	4	70	1.50	26.54	27.47	–	–
308012020030	•	2.0	1.00	30	4	1.92	4	70	1.50	31.71	32.81	–	–
308012025010	•	2.5	1.25	10	4	2.40	4	50	2.50	11.07	11.46	12.32	13.32
308012025015	•	2.5	1.25	15	4	2.40	4	60	2.50	16.24	16.81	18.07	–
308012030005	•	3.0	1.50	5	6	2.90	4	50	2.50	6.10	6.31	6.78	7.33
308012030010	•	3.0	1.50	10	6	2.90	4	50	2.50	11.27	11.66	12.53	13.55
308012030015	•	3.0	1.50	15	6	2.90	4	60	2.50	16.44	17.01	18.28	19.77
308012030020	•	3.0	1.50	20	6	2.90	4	60	2.50	21.60	22.36	24.03	25.98
308012030025	•	3.0	1.50	25	6	2.90	4	70	2.50	26.77	27.70	29.78	–
308012030030	•	3.0	1.50	30	6	2.90	4	70	2.50	31.94	33.05	35.53	–
308012040010	•	4.0	2.00	10	6	3.90	4	50	3.20	11.07	11.46	12.32	13.32
308012040015	•	4.0	2.00	15	6	3.90	4	60	3.20	16.24	16.81	18.07	–
308012040020	•	4.0	2.00	20	6	3.90	4	60	3.20	21.41	22.16	23.82	–
308012040025	•	4.0	2.00	25	6	3.90	4	70	3.20	26.58	27.50	–	–
308012040030	•	4.0	2.00	30	6	3.90	4	70	3.20	31.75	32.85	–	–
308012050010	•	5.0	2.50	10	6	4.90	4	50	4.00	11.27	11.66	12.53	–
308012050015	•	5.0	2.50	15	6	4.90	4	60	4.00	16.44	17.01	–	–
308012050020	•	5.0	2.50	20	6	4.90	4	60	4.00	21.60	22.36	–	–
308012050025	•	5.0	2.50	25	6	4.90	4	70	4.00	26.77	27.70	–	–
308012050030	•	5.0	2.50	30	6	4.90	4	70	4.00	31.94	–	–	–
308012050040	•	5.0	2.50	40	6	4.90	4	80	4.00	42.28	–	–	–
308012060010	•	6.0	3.00	10	6	5.90	4	50	5.00	–	–	–	–
308012060015	•	6.0	3.00	15	6	5.90	4	60	5.00	–	–	–	–
308012060020	•	6.0	3.00	20	6	5.90	4	60	5.00	–	–	–	–
308012060025	•	6.0	3.00	25	6	5.90	4	70	5.00	–	–	–	–
308012060030	•	6.0	3.00	30	6	5.90	4	70	5.00	–	–	–	–
308012060040	•	6.0	3.00	40	6	5.90	4	80	5.00	–	–	–	–



HXC-NANO⁴ TiAlN/TiSiN Coating.

For the machining of hardened steels up to 70 HRC / stainless steels and titanium.

- Coating technology: Sputtering
- Micro hardness: 3800 HV0.05
- Coating material: TiAlN/TiSiN based
- Coating thickness: Diameter-related
- Max. operating temperature: 1100 degrees C

HRC
< 70

INOX
stainless steel
< 900 N/mm²
ferritic

STEEL
< 1400 N/mm²

INCONEL
HASTELLOY
TITANIUM



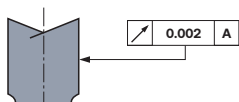
DIN 6535
Form HA



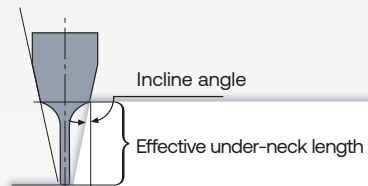
HXC-
NANO⁴

TOLERANCE

sharp edge



d1* = Ø 0.1 - Ø 2.0 mm tol 0.000 / -0.008 mm

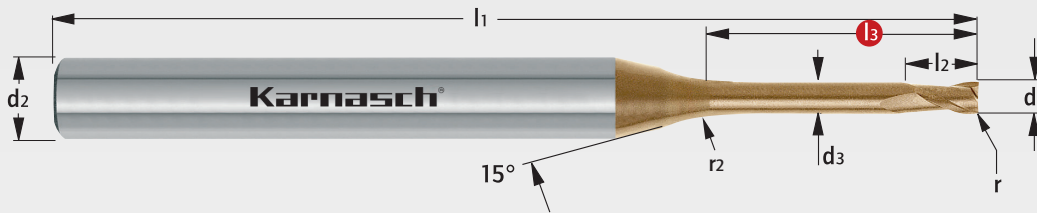


Catalogue no.		d1*	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062550010002	•	0,1	0,2	4	0,08	1	45	0,15	0,36	0,38	0,42	0,46
3062550010003	•	0,1	0,3	4	0,08	1	45	0,15	0,47	0,49	0,54	0,58
3062550010004	•	0,1	0,4	4	0,08	1	45	0,15	0,57	0,60	0,65	0,70
3062550010005	•	0,1	0,5	4	0,08	1	45	0,15	0,68	0,71	0,77	0,82
3062550020005	•	0,2	0,5	4	0,17	1	50	0,30	0,70	0,73	0,79	0,84
3062550020010	•	0,2	1	4	0,17	1	50	0,30	1,23	1,27	1,35	1,45
3062550020015	•	0,2	1,5	4	0,17	1	50	0,30	1,74	1,80	1,92	2,05
3062550020020	•	0,2	2	4	0,17	1	50	0,30	2,26	2,33	2,48	2,65
3062550030010	•	0,3	1	4	0,27	2	50	0,45	1,33	1,40	1,52	1,63
3062550030015	•	0,3	1,5	4	0,27	2	50	0,45	1,85	1,94	2,09	2,23
3062550030020	•	0,3	2	4	0,27	2	50	0,45	2,38	2,48	2,65	2,83
3062550030025	•	0,3	2,5	4	0,27	2	50	0,45	2,90	3,02	3,22	3,44
3062550030030	•	0,3	3	4	0,27	2	50	0,45	3,42	3,55	3,78	4,04
3062550040010	•	0,4	1	4	0,37	2	50	0,60	1,33	1,40	1,52	1,63
3062550040015	•	0,4	1,5	4	0,37	2	50	0,60	1,85	1,94	2,09	2,23
3062550040020	•	0,4	2	4	0,37	2	50	0,60	2,38	2,48	2,65	2,83
3062550040030	•	0,4	3	4	0,37	2	50	0,60	3,42	3,55	3,78	4,04
3062550040040	•	0,4	4	4	0,37	2	50	0,60	4,46	4,61	4,91	5,25
3062550050010	•	0,5	1	4	0,47	2	50	0,75	1,33	1,40	1,52	1,63
3062550050020	•	0,5	2	4	0,47	2	50	0,75	2,38	2,48	2,65	2,83
3062550050030	•	0,5	3	4	0,47	2	50	0,75	3,42	3,55	3,78	4,04
3062550050040	•	0,5	4	4	0,47	2	50	0,75	4,46	4,61	4,91	5,25

Solid Carbide Micro Endmills - Sharp Corner - High Hardness Materials

306255

Catalogue no.		d1*	l3	d2 h5	d3	r2	l1	l2	0,5°	1°	2°	3°
3062550050050	•	0,5	5	4	0,47	2	50	0,75	5,50	5,67	6,04	6,45
3062550050060	•	0,5	6	4	0,47	2	50	0,75	6,53	6,73	7,17	7,66
3062550060020	•	0,6	2	4	0,57	4	50	0,90	2,54	2,70	2,97	3,19
3062550060030	•	0,6	3	4	0,57	4	50	0,90	3,61	3,80	4,12	4,40
3062550060040	•	0,6	4	4	0,57	4	50	0,90	4,67	4,89	5,25	5,61
3062550060050	•	0,6	5	4	0,57	4	50	0,90	5,72	5,97	6,38	6,82
3062550060060	•	0,6	6	4	0,57	4	50	0,90	6,77	7,04	7,50	8,02
3062550060080	•	0,6	8	4	0,57	4	50	0,90	8,85	9,17	9,76	10,44
3062550080020	•	0,8	2	4	0,77	4	50	1,20	2,54	2,70	2,97	3,19
3062550080040	•	0,8	4	4	0,77	4	50	1,20	4,67	4,89	5,25	5,61
3062550080060	•	0,8	6	4	0,77	4	50	1,20	6,77	7,04	7,50	8,02
3062550080080	•	0,8	8	4	0,77	4	50	1,20	8,85	9,17	9,76	10,44
3062550100020	•	1,0	2	4	0,96	4	50	1,50	2,58	2,73	2,99	3,21
3062550100030	•	1,0	3	4	0,96	4	50	1,50	3,64	3,83	4,14	4,42
3062550100040	•	1,0	4	4	0,96	4	50	1,50	4,70	4,91	5,27	5,63
3062550100050	•	1,0	5	4	0,96	4	50	1,50	5,75	5,99	6,39	6,84
3062550100060	•	1,0	6	4	0,96	4	50	1,50	6,79	7,06	7,52	8,04
3062550100080	•	1,0	8	4	0,96	4	50	1,50	8,88	9,19	9,78	10,46
3062550100100	•	1,0	10	4	0,96	4	50	1,50	10,96	11,31	12,04	12,87
3062550100120	•	1,0	12	4	0,96	4	55	1,50	13,03	13,43	14,30	15,28
3062550100150	•	1,0	15	4	0,96	4	55	1,50	16,12	16,61	17,68	18,90
3062550120060	•	1,2	6	4	1,15	4	50	1,80	6,82	7,08	7,54	8,06
3062550120120	•	1,2	12	4	1,15	4	55	1,80	13,05	13,45	14,32	15,30
3062550150040	•	1,5	4	4	1,44	4	50	2,25	4,75	4,96	5,30	5,71
3062550150060	•	1,5	6	4	1,44	4	50	2,25	6,84	7,10	7,56	8,14
3062550150080	•	1,5	8	4	1,44	4	50	2,25	8,92	9,22	9,82	10,57
3062550150100	•	1,5	10	4	1,44	4	50	2,25	11,00	11,34	12,08	13,00
3062550150120	•	1,5	12	4	1,44	4	55	2,25	13,06	13,47	14,33	15,43
3062550150140	•	1,5	14	4	1,44	4	55	2,25	15,13	15,59	16,59	17,74
3062550150160	•	1,5	16	4	1,44	4	55	2,25	17,19	17,71	18,85	20,15
3062550150180	•	1,5	18	4	1,44	4	60	2,25	19,24	19,83	21,11	22,56
3062550150200	•	1,5	20	4	1,44	4	60	2,25	21,30	21,95	23,37	-
3062550200040	•	2,0	4	4	1,92	4	50	3,00	4,81	5,00	5,34	5,71
3062550200060	•	2,0	6	4	1,92	4	50	3,00	6,89	7,14	7,60	8,12
3062550200080	•	2,0	8	4	1,92	4	50	3,00	8,97	9,26	9,85	10,53
3062550200100	•	2,0	10	4	1,92	4	50	3,00	11,04	11,38	12,11	12,95
3062550200120	•	2,0	12	4	1,92	4	55	3,00	13,10	13,50	14,37	15,36
3062550200150	•	2,0	15	4	1,92	4	55	3,00	16,19	16,68	17,76	18,98
3062550200200	•	2,0	20	4	1,92	4	60	3,00	21,34	21,98	23,40	-



HRC
< 70

INOX
stainless steel
< 900 N/mm²
ferritic

STEEL
< 1400 N/mm²

INCONEL
HASTELLOY
TITANIUM



DIN 6535
Form HA



HXC-
NANO⁴

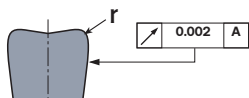
HXC-NANO⁴ TiAlN/TiSiN Coating.

For the machining of hardened steels up to 70 HRC / stainless steels and titanium.

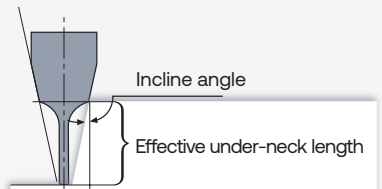
- Coating technology: Sputtering
- Micro hardness: 3800 HV0.05
- Coating material: TiAlN/TiSiN based
- Coating thickness: Diameter-related
- Max. operating temperature: 1100 degrees C

TOLERANCE

tol. r = -0.004 mm



d1* = Ø 0.1 - Ø 2.0 mm tol 0.000 / -0.008 mm

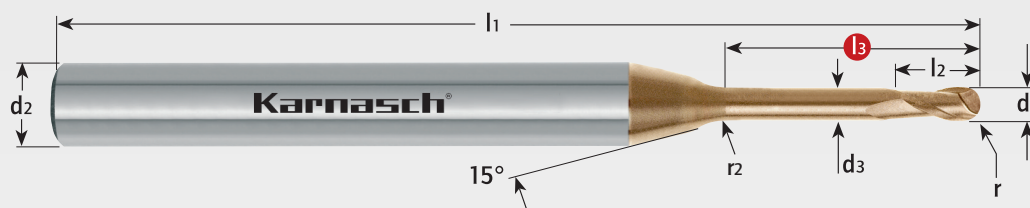


Catalogue no.		d1*	r -0.004	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062560010002002	•	0.1	0.02	0.2	4	0.08	1	45	0.10	0.36	0.38	0.42	0.45
3062560010002003	•	0.1	0.02	0.3	4	0.08	1	45	0.10	0.47	0.49	0.54	0.58
3062560010002004	•	0.1	0.02	0.4	4	0.08	1	45	0.10	0.57	0.60	0.65	0.70
3062560020005005	•	0.2	0.05	0.5	4	0.17	1	50	0.15	0.70	0.73	0.78	0.83
3062560020005010	•	0.2	0.05	1	4	0.17	1	50	0.15	1.22	1.27	1.35	1.44
3062560020005015	•	0.2	0.05	1.5	4	0.17	1	50	0.15	1.74	1.80	1.91	2.04
3062560020005020	•	0.2	0.05	2	4	0.17	1	50	0.15	2.26	2.33	2.48	2.64
3062560030005010	•	0.3	0.05	1	4	0.27	2	50	0.25	1.32	1.39	1.51	1.62
3062560030005015	•	0.3	0.05	1.5	4	0.27	2	50	0.25	1.85	1.94	2.08	2.22
3062560030005020	•	0.3	0.05	2	4	0.27	2	50	0.25	2.37	2.48	2.64	2.82
3062560030005025	•	0.3	0.05	2.5	4	0.27	2	50	0.25	2.90	3.01	3.21	3.43
3062560030005030	•	0.3	0.05	3	4	0.27	2	50	0.25	3.42	3.55	3.77	4.03
3062560040010010	•	0.4	0.10	1	4	0.37	2	50	0.30	1.32	1.39	1.50	1.61
3062560040010015	•	0.4	0.10	1.5	4	0.37	2	50	0.30	1.85	1.93	2.07	2.21
3062560040010020	•	0.4	0.10	2	4	0.37	2	50	0.30	2.37	2.47	2.64	2.81
3062560040010030	•	0.4	0.10	3	4	0.37	2	50	0.30	3.42	3.54	3.77	4.02
3062560040010040	•	0.4	0.10	4	4	0.37	2	50	0.30	4.46	4.61	4.90	5.23
3062560050010010	•	0.5	0.10	1	4	0.47	2	50	0.35	1.32	1.39	1.50	1.61
3062560050010020	•	0.5	0.10	2	4	0.47	2	50	0.35	2.37	2.47	2.64	2.81
3062560050010030	•	0.5	0.10	3	4	0.47	2	50	0.35	3.42	3.54	3.77	4.02
3062560050010040	•	0.5	0.10	4	4	0.47	2	50	0.35	4.46	4.61	4.90	5.23
3062560050010050	•	0.5	0.10	5	4	0.47	2	50	0.35	5.49	5.67	6.03	6.43

Solid Carbide Micro Endmills - Corner Radius - High Hardness Materials

306256

Catalogue no.		d1*	r -0.004	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062560050010060	•	0.5	0.10	6	4	0.47	2	50	0.35	6.53	6.73	7.15	7.64
3062560060010020	•	0.6	0.10	2	4	0.57	4	50	0.40	2.54	2.69	2.95	3.17
3062560060010030	•	0.6	0.10	3	4	0.57	4	50	0.40	3.60	3.79	4.10	4.38
3062560060010040	•	0.6	0.10	4	4	0.57	4	50	0.40	4.66	4.88	5.23	5.59
3062560060010050	•	0.6	0.10	5	4	0.57	4	50	0.40	5.71	5.96	6.36	6.80
3062560060010060	•	0.6	0.10	6	4	0.57	4	50	0.40	6.76	7.03	7.49	8.00
3062560060010080	•	0.6	0.10	8	4	0.57	4	50	0.40	8.85	9.16	9.75	10.42
3062560080020020	•	0.8	0.20	2	4	0.77	4	50	0.50	2.53	2.68	2.93	3.15
3062560080020040	•	0.8	0.20	4	4	0.77	4	50	0.50	4.65	4.87	5.22	5.57
3062560080020050	•	0.8	0.20	5	4	0.77	4	50	0.50	5.71	5.95	6.35	6.78
3062560080020060	•	0.8	0.20	6	4	0.77	4	50	0.50	6.76	7.03	7.48	7.98
3062560080020080	•	0.8	0.20	8	4	0.77	4	50	0.50	8.85	9.16	9.74	10.40
3062560080020100	•	0.8	0.20	10	4	0.77	4	50	0.50	10.93	11.28	11.99	12.81
3062560100020020	•	1.0	0.20	2	4	0.96	4	50	0.80	2.57	2.71	2.96	3.17
3062560100020030	•	1.0	0.20	3	4	0.96	4	50	0.80	3.63	3.81	4.11	4.38
3062560100020040	•	1.0	0.20	4	4	0.96	4	50	0.80	4.69	4.90	5.24	5.59
3062560100020050	•	1.0	0.20	5	4	0.96	4	50	0.80	5.74	5.98	6.37	6.80
3062560100020060	•	1.0	0.20	6	4	0.96	4	50	0.80	6.78	7.05	7.50	8.00
3062560100020070	•	1.0	0.20	7	4	0.96	4	50	0.80	7.83	8.11	8.63	9.21
3062560100020080	•	1.0	0.20	8	4	0.96	4	50	0.80	8.87	9.18	9.76	10.42
3062560100020090	•	1.0	0.20	9	4	0.96	4	50	0.80	9.91	10.24	10.88	11.62
3062560100020100	•	1.0	0.20	10	4	0.96	4	50	0.80	10.95	11.30	12.01	12.83
3062560100020120	•	1.0	0.20	12	4	0.96	4	55	0.80	13.02	13.42	14.27	15.24
3062560100020150	•	1.0	0.20	15	4	0.96	4	55	0.80	16.12	16.60	17.66	18.86
3062560120020060	•	1.2	0.20	6	4	1.15	4	50	1.00	6.81	7.07	7.52	8.02
3062560120020120	•	1.2	0.20	12	4	1.15	4	55	1.00	13.04	13.44	14.29	15.26
3062560150020040	•	1.5	0.20	4	4	1.44	4	50	1.35	4.74	4.94	5.28	5.63
3062560150020060	•	1.5	0.20	6	4	1.44	4	50	1.35	6.83	7.09	7.53	8.04
3062560150020080	•	1.5	0.20	8	4	1.44	4	50	1.35	8.92	9.21	9.79	10.46
3062560150020100	•	1.5	0.20	10	4	1.44	4	50	1.35	10.99	11.33	12.05	12.87
3062560150020120	•	1.5	0.20	12	4	1.44	4	55	1.35	13.06	13.45	14.31	15.28
3062560150020140	•	1.5	0.20	14	4	1.44	4	55	1.35	15.12	15.57	16.57	17.70
3062560150020160	•	1.5	0.20	16	4	1.44	4	55	1.35	17.18	17.70	18.82	20.11
3062560150020180	•	1.5	0.20	18	4	1.44	4	60	1.35	19.24	19.82	21.08	22.52
3062560150020200	•	1.5	0.20	20	4	1.44	4	60	1.35	21.29	21.94	23.34	-
3062560200020040	•	2.0	0.20	4	4	1.92	4	50	1.70	4.80	4.99	5.31	5.67
3062560200020060	•	2.0	0.20	6	4	1.92	4	50	1.70	6.88	7.12	7.57	8.08
3062560200020080	•	2.0	0.20	8	4	1.92	4	50	1.70	8.96	9.25	9.83	10.49
3062560200020100	•	2.0	0.20	10	4	1.92	4	50	1.70	11.03	11.37	12.09	12.91
3062560200020120	•	2.0	0.20	12	4	1.92	4	55	1.70	13.09	13.49	14.35	15.32
3062560200020150	•	2.0	0.20	15	4	1.92	4	55	1.70	16.19	16.67	17.73	18.94
3062560200020200	•	2.0	0.20	20	4	1.92	4	60	1.70	21.33	21.97	23.38	-
3062560200050040	•	2.0	0.50	4	4	1.92	4	50	1.70	4.78	4.96	5.28	5.61
3062560200050060	•	2.0	0.50	6	4	1.92	4	50	1.70	6.87	7.10	7.53	8.02
3062560200050080	•	2.0	0.50	8	4	1.92	4	50	1.70	8.95	9.23	9.79	10.43
3062560200050100	•	2.0	0.50	10	4	1.92	4	50	1.70	11.02	11.35	12.05	12.85
3062560200050120	•	2.0	0.50	12	4	1.92	4	55	1.70	13.09	13.47	14.31	15.26
3062560200050150	•	2.0	0.50	15	4	1.92	4	55	1.70	16.18	16.65	17.69	18.88
3062560200050200	•	2.0	0.50	20	4	1.92	4	60	1.70	21.32	21.95	23.34	-



HRC
< 70

INOX
stainless steel
< 900 N/mm²
ferritic

STEEL
< 1400 N/mm²

INCONEL
HASTELLOY
TITANIUM



DIN 6535
Form HA



HXC-
NANO⁴

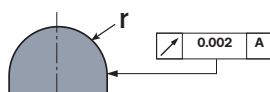
HXC-NANO⁴ TiAlN/TiSiN Coating.

For the machining of hardened steels up to 70 HRC / stainless steels and titanium.

- Coating technology: Sputtering
- Micro hardness: 3800 HV0.05
- Coating material: TiAlN/TiSiN based
- Coating thickness: Diameter-related
- Max. operating temperature: 1100 degrees C

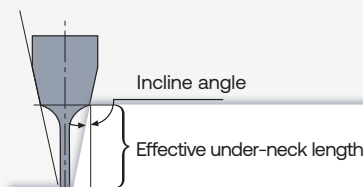
TOLERANCE

tol. r = ±0.002 mm



d1* = Ø 0.1 - Ø 5.9 mm tol 0.000 / -0.008 mm

d1* = Ø 6.0 mm tol -0.006 / -0.014 mm



Catalogue no.		d1*	r ±0.002	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
3062640020005	•	0.2	0.10	0.5	6	0.18	1	55	0.20	0.68	0.71	0.77	0.83
306264002001	•	0.2	0.10	1	6	0.18	1	55	0.20	1.20	1.25	1.34	1.45
306264003001	•	0.3	0.15	1	6	0.28	2	55	0.25	1.29	1.37	1.50	1.62
306264003002	•	0.3	0.15	2	6	0.28	2	55	0.25	2.35	2.46	2.65	2.86
306264003003	•	0.3	0.15	3	6	0.28	2	55	0.25	3.40	3.53	3.80	4.10
306264003005	•	0.3	0.15	5	6	0.28	5	55	0.25	6.56	7.26	7.85	-
306264004002	•	0.4	0.20	2	6	0.38	2	55	0.30	2.35	2.46	2.65	2.86
306264004003	•	0.4	0.20	3	6	0.38	2	55	0.30	3.40	3.53	3.80	4.10
306264004004	•	0.4	0.20	4	6	0.38	2	55	0.30	4.44	4.60	4.95	5.35
306264004006	•	0.4	0.20	6	6	0.38	2	55	0.30	6.51	6.74	7.24	7.83
306264005002	•	0.5	0.25	2	6	0.48	2	55	0.40	2.35	2.46	2.65	2.86
306264005003	•	0.5	0.25	3	6	0.48	2	55	0.40	3.40	3.53	3.80	4.10
306264005004	•	0.5	0.25	4	6	0.48	2	55	0.40	4.44	4.60	4.95	5.35
306264005005	•	0.5	0.25	5	6	0.48	2	55	0.40	5.48	5.67	6.09	6.59
306264006002	•	0.6	0.30	2	6	0.58	4	55	0.50	2.50	2.67	2.94	3.19
306264006003	•	0.6	0.30	3	6	0.58	4	55	0.50	3.57	3.78	4.10	4.43
306264006004	•	0.6	0.30	4	6	0.58	4	55	0.50	4.63	4.87	5.25	5.67
306264006005	•	0.6	0.30	5	6	0.58	4	55	0.50	5.69	5.95	6.40	6.92
306264006006	•	0.6	0.30	6	6	0.58	4	55	0.50	6.74	7.02	7.55	8.16
306264006008	•	0.6	0.30	8	6	0.58	4	55	0.50	8.83	9.16	9.85	10.65
306264008002	•	0.8	0.40	2	6	0.77	4	55	0.60	2.54	2.70	2.97	3.21
306264008004	•	0.8	0.40	4	6	0.77	4	55	0.60	4.67	4.89	5.27	5.70
306264008005	•	0.8	0.40	5	6	0.77	4	55	0.60	5.72	5.97	6.42	6.94
306264008006	•	0.8	0.40	6	6	0.77	4	55	0.60	6.77	7.04	7.57	8.18
306264008007	•	0.8	0.40	7	6	0.77	10	55	0.60	8.79	9.57	10.21	-

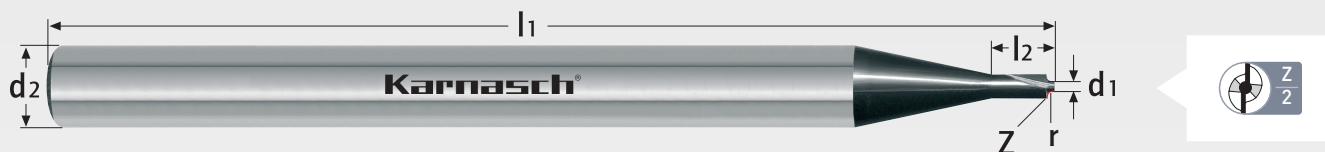
Solid Carbide Micro Endmills - Ball Nose - High Hardness Materials

306264

Catalogue no.		d1*	r ±0.002	l3	d2 h5	d3	r2	l1	l2	0.5°	1°	2°	3°
306264008008	•	0.8	0.40	8	6	0.77	4	55	0.60	8.85	9.18	9.87	10.67
306264008010	•	0.8	0.40	10	6	0.77	4	65	0.60	10.93	11.32	12.17	13.16
306264009006	•	0.9	0.45	6	6	0.87	10	55	0.70	7.21	7.67	8.40	9.01
306264009012	•	0.9	0.45	12	6	0.87	10	65	0.70	13.61	14.25	15.21	15.99
306264010003	•	1.0	0.50	3	6	0.95	4	55	0.80	3.67	3.85	4.16	4.50
306264010004	•	1.0	0.50	4	6	0.95	4	55	0.80	4.72	4.94	5.31	5.74
306264010005	•	1.0	0.50	5	6	0.95	4	55	0.80	5.77	6.01	6.41	6.99
306264010006	•	1.0	0.50	6	6	0.95	4	55	0.80	6.82	7.08	7.61	8.23
306264010007	•	1.0	0.50	7	6	0.95	4	55	0.80	7.86	8.15	8.76	9.47
306264010008	•	1.0	0.50	8	6	0.95	4	55	0.80	8.90	9.22	9.91	10.72
306264010010	•	1.0	0.50	10	6	0.95	4	65	0.80	10.98	11.36	12.21	13.20
306264010012	•	1.0	0.50	12	6	0.95	4	65	0.80	13.04	13.50	14.51	15.69
306264010015	•	1.0	0.50	15	6	0.95	4	65	0.80	16.14	16.71	17.96	19.42
306264010020	•	1.0	0.50	20	6	0.95	4	65	0.80	21.31	22.06	23.71	25.63
306264012005	•	1.2	0.60	5	6	1.15	4	55	1.00	5.72	5.97	6.42	6.94
306264012006	•	1.2	0.60	6	6	1.15	4	55	1.00	6.77	7.04	7.57	8.18
306264012008	•	1.2	0.60	8	6	1.15	4	55	1.00	8.85	9.18	9.87	10.67
306264012010	•	1.2	0.60	10	6	1.15	4	65	1.00	10.93	11.32	12.17	13.16
306264012012	•	1.2	0.60	12	6	1.15	4	65	1.00	13.04	13.50	14.51	15.69
306264012015	•	1.2	0.60	15	6	1.15	4	65	1.00	16.15	16.71	17.96	19.42
306264012020	•	1.2	0.60	20	6	1.15	4	65	1.00	21.31	22.06	23.71	25.63
306264012025	•	1.2	0.60	25	6	1.15	4	70	1.00	26.48	27.41	29.46	31.58
306264014015	•	1.4	0.70	15	6	1.35	10	65	1.10	17.50	18.54	19.37	–
306264015006	•	1.5	0.75	6	6	1.44	4	55	1.20	6.77	7.04	7.57	8.18
306264015008	•	1.5	0.75	8	6	1.44	4	55	1.20	8.85	9.18	9.87	10.67
306264015010	•	1.5	0.75	10	6	1.44	4	65	1.20	10.93	11.32	12.17	13.16
306264015012	•	1.5	0.75	12	6	1.44	4	65	1.20	13.01	13.46	14.47	15.64
306264015015	•	1.5	0.75	15	6	1.44	4	65	1.20	16.11	16.67	17.92	19.37
306264015020	•	1.5	0.75	20	6	1.44	4	65	1.20	21.28	22.02	23.67	25.59
306264016015	•	1.6	0.80	15	6	1.54	10	65	1.30	16.84	17.52	18.55	19.36
306264018020	•	1.8	0.90	20	6	1.74	10	65	1.40	22.06	22.84	24.00	24.91
306264020006	•	2.0	1.00	6	6	1.92	4	55	1.50	6.90	7.14	7.68	8.30
306264020008	•	2.0	1.00	8	6	1.92	4	55	1.50	8.97	9.28	9.98	10.79
306264020010	•	2.0	1.00	10	6	1.92	4	65	1.50	11.04	11.42	12.28	13.27
306264020012	•	2.0	1.00	12	6	1.92	4	65	1.50	13.10	13.56	14.58	15.76
306264020015	•	2.0	1.00	15	6	1.92	4	65	1.50	16.20	16.77	18.03	19.49
306264020020	•	2.0	1.00	20	6	1.92	4	65	1.50	21.37	22.12	23.77	25.70
306264020025	•	2.0	1.00	25	6	1.92	4	70	1.50	26.54	27.47	29.52	31.92
306264020030	•	2.0	1.00	30	6	1.92	4	75	1.50	31.71	32.81	35.27	38.13
306264025010	•	2.5	1.25	10	6	2.40	4	65	2.50	11.07	11.46	12.32	13.32
306264025015	•	2.5	1.25	15	6	2.40	4	65	2.50	16.24	16.81	18.07	19.53
306264025020	•	2.5	1.25	20	6	2.40	4	65	2.50	21.41	22.16	23.82	25.75
306264025025	•	2.5	1.25	25	6	2.40	4	70	2.50	26.58	27.50	29.57	31.97
306264030005	•	3.0	1.50	5	6	2.90	4	55	2.50	6.10	6.31	6.78	7.33
306264030010	•	3.0	1.50	10	6	2.90	4	65	2.50	11.27	11.66	12.53	13.55
306264030015	•	3.0	1.50	15	6	2.90	4	65	2.50	16.44	17.01	18.28	19.77
306264030020	•	3.0	1.50	20	6	2.90	4	65	2.50	21.60	22.36	24.03	25.98
306264030025	•	3.0	1.50	25	6	2.90	4	70	2.50	26.77	27.70	29.78	–
306264030030	•	3.0	1.50	30	6	2.90	4	75	2.50	31.94	33.05	35.53	–
306264040010	•	4.0	2.00	10	6	3.90	4	65	3.20	11.07	11.46	12.32	13.32
306264040015	•	4.0	2.00	15	6	3.90	4	65	3.20	16.24	16.81	18.07	–
306264040020	•	4.0	2.00	20	6	3.90	4	65	3.20	21.41	22.16	23.82	–
306264040025	•	4.0	2.00	25	6	3.90	4	70	3.20	26.58	27.50	–	–
306264040030	•	4.0	2.00	30	6	3.90	4	75	3.20	31.75	32.85	–	–
306264050010	•	5.0	2.50	10	6	4.90	4	65	4.00	11.27	11.66	12.53	–
306264050015	•	5.0	2.50	15	6	4.90	4	65	4.00	16.44	17.01	–	–
306264050020	•	5.0	2.50	20	6	4.90	4	65	4.00	21.60	22.36	–	–
306264050025	•	5.0	2.50	25	6	4.90	4	70	4.00	26.77	27.70	–	–
306264050030	•	5.0	2.50	30	6	4.90	4	75	4.00	31.94	–	–	–
306264050040	•	5.0	2.50	40	6	4.90	4	90	4.00	42.28	–	–	–
306264060010	•	6.0	3.00	10	6	5.90	4	65	5.00	–	–	–	–
306264060015	•	6.0	3.00	15	6	5.90	4	65	5.00	–	–	–	–
306264060020	•	6.0	3.00	20	6	5.90	4	65	5.00	–	–	–	–
306264060025	•	6.0	3.00	25	6	5.90	4	70	5.00	–	–	–	–
306264060030	•	6.0	3.00	30	6	5.90	4	75	5.00	–	–	–	–
306264060040	•	6.0	3.00	40	6	5.90	4	90	5.00	–	–	–	–
306264060050	•	6.0	3.00	50	6	5.90	4	90	5.00	–	–	–	–

306495

Solid Carbide Micro Corner Rounding Cutter - Concave



OXS-V2 Coating.

For universal machining of steel.

- Coating technology: Sputtering
- Micro hardness: 3500 HV0.05
- Coating material: TiAlN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C

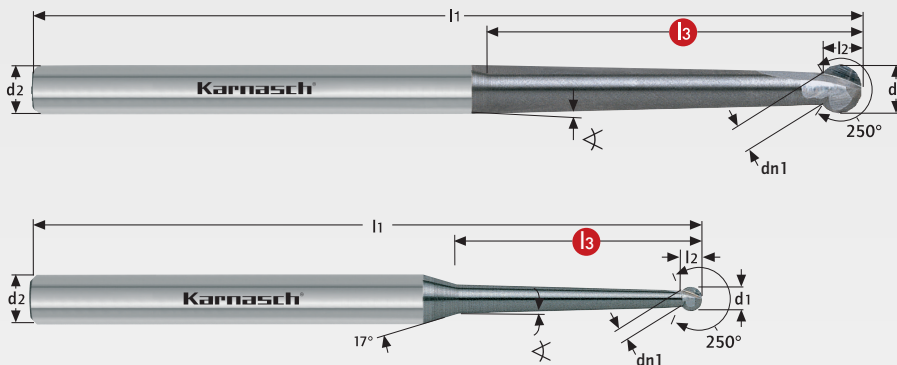
OXS-V2

UNIVERSAL

Catalogue no.		$r \pm 0.008$	$d1 \pm 0.008$	$d2 \text{ h6}$	$d3$	$l1$	$l2$	Z
3064950010	•	0.1	0.5	3	0.8	55	2.5	2
306495001003	•	0.1	0.5	4	0.8	55	3.0	2
3064950020	•	0.2	0.5	3	1.0	55	2.5	2
306495002006	•	0.2	0.5	4	1.0	55	6.0	2
3064950030	•	0.3	0.5	3	1.2	55	2.5	2
306495003009	•	0.3	0.5	4	1.2	55	9.0	2
3064950040	•	0.4	0.5	3	1.4	55	2.5	2
306495004010	•	0.4	0.5	4	1.4	55	10.0	2
3064950050	•	0.5	0.5	3	1.6	55	2.5	2
306495005010	•	0.5	0.5	4	1.6	55	10.0	2
3064950060	•	0.6	0.5	3	1.8	55	3.0	2
306495006010	•	0.6	0.5	4	1.8	55	12.0	2
30649500803	•	0.8	0.8	3	2.5	55	4.0	3
3064950080123	•	0.8	0.8	4	2.5	55	12.0	3
30649501003	•	1.0	0.8	3	2.9	55	4.0	3
3064950100123	•	1.0	0.8	4	2.9	55	12.0	3
3064950150	•	1.5	1.5	5	4.6	50	6.0	2
30649501503	•	1.5	1.5	6	4.6	60	6.0	3
3064950150153	•	1.5	1.5	6	4.6	65	15.0	3
30649502003	•	2.0	1.5	6	5.6	60	8.0	3
3064950200153	•	2.0	1.5	6	5.6	65	15.0	3
30649502503	•	2.5	1.5	8	6.5	80	10.0	3
3064950300	•	3.0	1.5	8	7.5	50	10.0	2
30649503003	•	3.0	1.5		7.5	80	10.0	3

Solid Carbide Micro Ball Nose Lollipop Cutter

306485


 $\frac{Z}{2}$ d1 Ø 4 - Ø 10

 $\frac{Z}{2}$ d1 Ø 1 - Ø 3

UFX-3

UNIVERSAL

UFX-3 Coating.

For steels from soft to medium hard.

- Coating technology: Sputtering
- Micro hardness: 3500 HV0.05
- Coating material: TiAlN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C

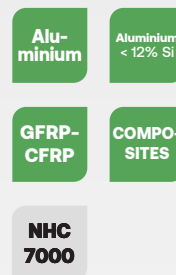
Catalogue no.		d1	r	d2 h5	dn1	∠	l1	l2	l3	Z
3064850100	•	1	0.5	6	0.77	1.5°	80	0.70	20	2
3064850200	•	2	1.0	6	1.53	1.5°	80	1.35	20	2
3064850300	•	3	1.5	6	2.30	1.5°	80	2.00	30	2
3064850400	•	4	2.0	6	3.06	3.0°	80	2.70	30	2
3064850500	•	5	2.5	6	3.83	1.0°	90	3.40	40	2
3064850600	•	6	3.0	6	4.60	1.0°	100	4.05	45	2
3064850800	•	8	4.0	8	6.13	1.0°	100	5.40	45	2



NHC-7000 DLC Coating.

Best machining results in all non-ferrous metals, plastics and CFRP/GFRP.

- Coating technology: PACVD Plasma Assisted Chemical Vapour Deposition
- Micro hardness: 7000 HV0.05
- Coating material: DLC
- Coating thickness: <0.7µ
- Max. operating temperature: 900 degrees



Catalogue no.		M	Stg	x D	l2	l1	d1 ±0.03	d3	d2 h5	Z	Thread Milling Size
231760006	•	M 0.6	0.15	2.5	1.5	45	0.41	0.20	4	3	M 0.6
231760007	•	M 0.7	0.175	2.5	1.8	45	0.48	0.24	4	3	M 0.7
231760008	•	M 0.8	0.20	2.2	1.8	45	0.56	0.28	4	3	M 0.8
231760009	•	M 0.9	0.225	2.3	2.1	45	0.63	0.33	4	3	M 0.9
231760010	•	M 1	0.25	2.6	2.7	45	0.72	0.34	4	4	M 1 – M 1.1
231760012	•	M 1.2	0.25	2.2	2.7	45	0.92	0.54	4	4	M 1.2
231760014	•	M 1.4	0.30	2.2	3.2	45	1.05	0.60	4	4	M 1.4
231760016	•	M 1.6	0.35	2.3	3.8	45	1.20	0.68	4	4	M 1.6
231760017	•	M 1.7	0.35	2.1	3.8	45	1.30	0.78	4	4	M 1.7 – M 1.8
231760020	•	M 2	0.40	2.5	5.1	45	1.50	0.90	4	6	M 2 – M 2.3
231760025	•	M 2.5	0.45	2.2	5.7	45	1.95	1.26	4	6	M 2.5 – M 2.6
231760030	•	M 3	0.50	2.1	6.3	45	2.36	1.60	4	6	M 3

Solid Carbide Micro Threadmill - High Hardness Materials

231764



NANO SPIN Coating.

Specially developed for our whirling thread cutters for steel processing.

- Coating technology: PVD
- Micro hardness: 3200 HV0.05
- Coating material: AlTiN
- Coating thickness: Diameter-related
- Max. operating temperature: 900 degrees C



Catalogue no.		M	Stg	x D	l2	l1	d1 ±0.03	d3	d2 h5	Z	Thread Milling Size
231764006	•	M 0.6	0,15	2,5	1,5	45	0,41	0,20	4	3	M 0.6
231764007	•	M 0.7	0,175	2,5	1,8	45	0,48	0,24	4	3	M 0.7
231764008	•	M 0.8	0,20	2,2	1,8	45	0,56	0,28	4	3	M 0.8
231764009	•	M 0.9	0,225	2,3	2,1	45	0,63	0,33	4	3	M 0.9
231764010	•	M 1	0,25	2,6	2,7	45	0,72	0,34	4	4	M 1 - M 1.1
231764012	•	M 1.2	0,25	2,2	2,7	45	0,92	0,54	4	4	M 1.2
231764014	•	M 1.4	0,30	2,2	3,2	45	1,05	0,60	4	4	M 1.4
231764016	•	M 1.6	0,35	2,3	3,8	45	1,20	0,68	4	4	M 1.6
231764017	•	M 1.7	0,35	2,1	3,8	45	1,30	0,78	4	4	M 1.7 - M 1.8
231764020	•	M 2	0,40	2,5	5,1	45	1,50	0,90	4	6	M 2 - M 2.3
231764025	•	M 2.5	0,45	2,2	5,7	45	1,95	1,26	4	6	M 2.5 - M 2.6
231764030	•	M 3	0,50	2,1	6,3	45	2,36	1,60	4	6	M 3



GFRP-
CFRP

COMPO-
SITES

DCC-G

DCC-G Coating.

Specially developed for our whirling thread cutters for the machining of CFRP/GFRP and graphite.

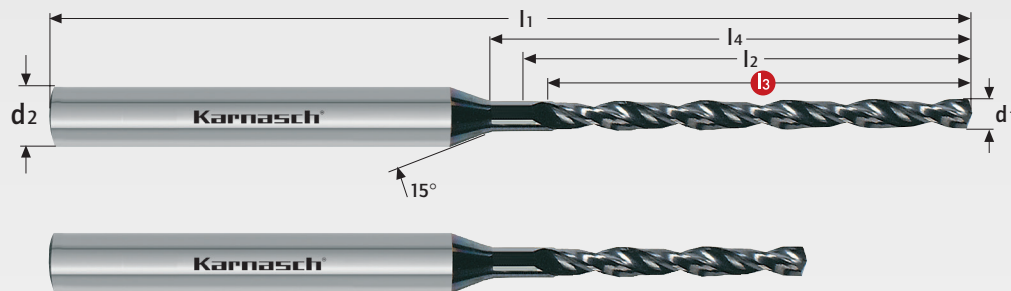
- Coating technology: CVD Chemical Vapour Deposition
- Micro hardness: 10000 HV0.05
- Coating material: Diamond
- Coating thickness: Diameter-related
- Max. operating temperature: 700 degrees C

Catalogue no.		M	Stg	x D	l2	l1	d1 ±0.02	d3	d2 h5	Z	Thread Milling Size
231768006	•	M 0.6	0.15	2.5	1.5	45	0.41	0.20	4	3	M 0.6
231768007	•	M 0.7	0.175	2.5	1.8	45	0.48	0.24	4	3	M 0.7
231768008	•	M 0.8	0.20	2.2	1.8	45	0.56	0.28	4	3	M 0.8
231768009	•	M 0.9	0.225	2.3	2.1	45	0.63	0.33	4	3	M 0.9
231768010	•	M 1	0.25	2.6	2.7	45	0.72	0.34	4	4	M 1 – M 1.1
231768012	•	M 1.2	0.25	2.2	2.7	45	0.92	0.54	4	4	M 1.2
231768014	•	M 1.4	0.30	2.2	3.2	45	1.05	0.60	4	4	M 1.4
231768016	•	M 1.6	0.35	2.3	3.8	45	1.20	0.68	4	4	M 1.6
231768017	•	M 1.7	0.35	2.1	3.8	45	1.30	0.78	4	4	M 1.7 – M 1.8
231768020	•	M 2	0.40	2.5	5.1	45	1.50	0.90	4	6	M 2 – M 2.3
231768025	•	M 2.5	0.45	2.2	5.7	45	1.95	1.26	4	6	M 2.5 – M 2.6
231768030	•	M 3	0.50	2.1	6.3	45	2.36	1.60	4	6	M 3

Your Notes

220341

Solid Carbide Micro Twist Drill - No Through Coolant



DVC-X2

DVC-X2² NANO-FINISH Coating.

For drilling in steel up to 52 HRC.

- Coating technology: Sputtering
- Micro hardness: 3500 HV0.05
- Coating material: TiAlN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C

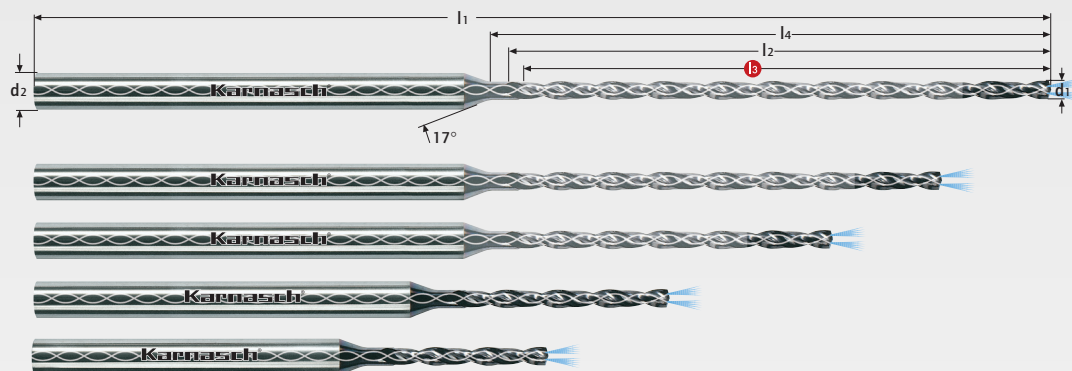
 Drill tolerance	
≤ 3.0	+ 0.004 - 0.000

Catalogue no.		d1 k5	l3	l2	l4	l1	d2 h6
2203410010005	•	0.10	0.5	1.5	2.0	38	3.0
2203410020008	•	0.20	0.8	1.8	2.3	38	3.0
2203410020012	•	0.20	1.2	2.2	2.7	38	3.0
2203410030012	•	0.30	1.2	2.2	2.7	38	3.0
2203410030018	•	0.30	1.8	2.8	3.3	38	3.0
2203410040016	•	0.40	1.6	2.6	3.1	38	3.0
2203410040024	•	0.40	2.4	3.4	3.9	38	3.0
2203410050020	•	0.50	2.0	3.0	3.5	38	3.0
2203410050030	•	0.50	3.0	4.0	4.5	38	3.0
2203410060024	•	0.60	2.4	3.4	3.9	38	3.0
2203410060036	•	0.60	3.6	4.6	5.1	38	3.0
2203410070028	•	0.70	2.8	3.8	4.3	38	3.0
2203410070042	•	0.70	4.2	5.2	5.7	38	3.0
2203410080032	•	0.80	3.2	4.8	5.3	46	3.0
2203410080048	•	0.80	4.8	5.8	6.3	54	3.0
2203410090036	•	0.90	3.6	5.4	5.9	46	3.0
2203410090054	•	0.90	5.4	6.5	6.7	54	3.0
2203410100040	•	1.00	4.0	6.0	6.5	46	3.0
2203410100060	•	1.00	6.0	7.2	7.7	54	3.0
2203410110044	•	1.10	4.4	6.6	7.1	46	3.0
2203410110066	•	1.10	6.6	7.9	8.4	54	3.0
2203410120048	•	1.20	4.8	7.2	7.7	46	3.0
2203410120072	•	1.20	7.2	8.6	9.1	54	3.0
2203410130052	•	1.30	5.2	7.8	8.3	46	3.0
2203410130078	•	1.30	7.8	9.4	9.9	54	3.0
2203410140056	•	1.40	5.6	8.4	8.9	46	3.0
2203410140084	•	1.40	8.4	10.1	10.6	54	3.0
2203410150060	•	1.50	6.0	9.0	9.5	46	3.0

Solid Carbide Micro Twist Drill - No Through Coolant

220341

Catalogue no.		d1 k5	l3	l2	l4	l1	d2 h6
2203410150090	•	1.50	9.0	10.8	11.3	54	3.0
2203410160064	•	1.60	6.4	7.7	8.2	46	3.0
2203410160096	•	1.60	9.6	11.5	12.0	54	3.0
2203410170068	•	1.70	6.8	8.2	8.7	46	3.0
2203410170102	•	1.70	10.2	12.2	12.7	54	3.0
2203410180072	•	1.80	7.2	8.6	9.1	46	3.0
2203410180108	•	1.80	10.8	13.0	13.5	54	3.0
2203410190076	•	1.90	7.6	9.1	9.6	46	3.0
2203410190114	•	1.90	11.4	13.7	14.2	54	3.0
2203410200080	•	2.00	8.0	12.0	12.5	60	4.0
2203410200120	•	2.00	12.0	14.4	14.9	65	4.0
2203410210084	•	2.10	8.4	12.6	13.1	60	4.0
2203410210126	•	2.10	12.6	15.1	15.6	65	4.0
2203410220088	•	2.20	8.8	13.2	13.7	60	4.0
2203410220132	•	2.20	13.2	15.8	16.3	65	4.0
2203410230092	•	2.30	9.2	13.8	14.3	60	4.0
2203410230138	•	2.30	13.8	16.6	17.1	65	4.0
2203410240096	•	2.40	9.6	14.4	14.9	60	4.0
2203410240144	•	2.40	14.4	17.2	17.7	65	4.0
2203410250100	•	2.50	10.0	15.0	15.5	60	4.0
2203410250150	•	2.50	15.0	18.0	18.5	65	4.0
2203410260104	•	2.60	10.4	15.6	16.1	60	4.0
2203410260156	•	2.60	15.6	18.7	19.2	65	4.0
2203410270108	•	2.70	10.8	16.2	16.7	60	4.0
2203410270162	•	2.70	16.2	19.4	19.9	65	4.0
2203410280112	•	2.80	11.2	16.8	17.3	60	4.0
2203410280168	•	2.80	16.8	20.2	20.7	65	4.0
2203410290116	•	2.90	11.6	17.4	17.9	60	4.0
2203410290174	•	2.90	17.4	20.9	21.4	65	4.0
2203410300120	•	3.00	12.0	18.0	18.5	60	4.0
2203410300180	•	3.00	18.0	21.6	22.1	65	4.0



UNIVERSAL

DVC-X2

Power Chamber Cooling System.

+0.000, -0.010 Drill Tolerances.

DVC-X2² NANO-FINISH Coating.

For drilling in steel up to 52 HRC.

- Coating technology: Sputtering
- Micro hardness: 3500 HV0.05
- Coating material: TiAlN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C

Pilot drill Catalogue no. 22 0321

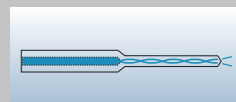


Drill tolerance

≤ 3.0

+ 0.000
- 0.010

Powerchamber



Advantages

- Increased cooling pressure even at a lower pressure
- Increased cooling pressure at identical pressure

Catalogue no.		d1 h7	I3	I2	I4	I1	d2 h6
2203220080050	•	0,80	5	6	7	50	3
2203220080105	•	0,80	10,5	11	12	50	3
2203220085055	•	0,85	5,5	7	8	50	3
2203220085105	•	0,85	10,5	12	13	50	3
2203220090055	•	0,90	5,5	7	8	50	3
2203220090115	•	0,90	11,5	13	14	50	3
2203220095060	•	0,95	6	7	8	50	3
2203220095115	•	0,95	11,5	13	14	50	3
2203220100060	•	1,00	6	7	8	60	3
2203220100120	•	1,00	12	13	14	65	3
2203220100180	•	1,00	18	20	21	65	3
2203220105070	•	1,05	7	8	10	60	3
2203220105130	•	1,05	13	14	16	65	3
2203220105190	•	1,05	19	21	22	65	3
2203220110070	•	1,10	7	9	10	60	3
2203220110140	•	1,10	14	16	17	65	3
2203220110200	•	1,10	20	22	23	65	3
2203220115070	•	1,15	7	9	10	60	3
2203220115140	•	1,15	14	16	17	65	3
2203220115210	•	1,15	21	23	24	65	3
2203220120080	•	1,20	8	10	11	60	3
2203220120150	•	1,20	15	17	18	65	3

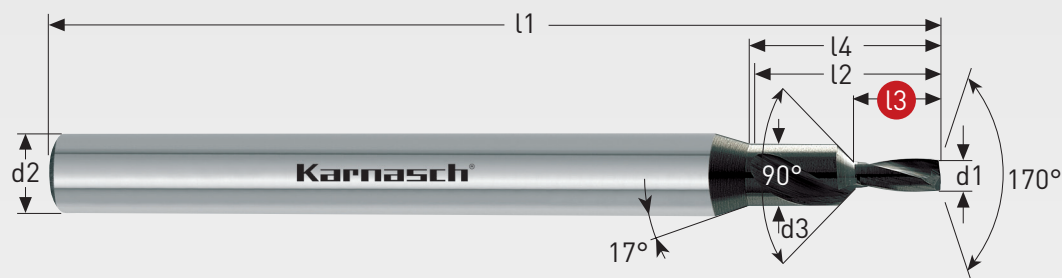
Catalogue no.		d1 h7	I3	I2	I4	I1	d2 h6
2203220120220	•	1,20	22	24	25	65	3
2203220125080	•	1,25	8	10	11	60	3
2203220125150	•	1,25	15	17	18	65	3
2203220125 230	•	1,25	23	25	26	65	3
2203220130080	•	1,30	8	10	11	60	3
2203220130160	•	1,30	16	18	19	65	3
2203220130240	•	1,30	24	26	27	65	3
2203220135090	•	1,35	9	11	12	60	3
2203220135170	•	1,35	17	19	20	65	3
2203220135250	•	1,35	25	27	28	65	3
2203220140090	•	1,40	9	11	12	60	3
2203220140170	•	1,40	17	19	20	65	3
2203220140260	•	1,40	26	28	29	65	3
2203220145090	•	1,45	9	12	13	60	3
2203220145180	•	1,45	18	20	21	65	3
2203220145270	•	1,45	27	30	31	65	3
2203220150090	•	1,50	9	11	12	60	3
2203220150180	•	1,50	18	20	21	65	3
2203220150270	•	1,50	27	30	31	65	3
2203220155100	•	1,55	10	12	13	60	3
2203220155190	•	1,55	19	21	22	65	3
2203220155280	•	1,55	28	31	32	65	3

Solid Carbide Micro Twist Drill - With Through Coolant

220322

Catalogue no.		d1 h7	l3	l2	l4	l1	d2 h6
2203220160100	•	1,60	10	13	14	60	3
2203220160200	•	1,60	20	22	23	65	3
2203220160300	•	1,60	30	32	33	65	3
2203220165100	•	1,65	10	13	14	60	3
2203220165200	•	1,65	20	22	23	65	3
2203220165300	•	1,65	30	32	33	65	3
2203220170110	•	1,70	11	14	15	60	3
2203220170210	•	1,70	21	23	24	65	3
2203220170310	•	1,70	31	34	35	70	3
2203220175110	•	1,75	11	14	15	60	3
2203220175210	•	1,75	21	23	24	65	3
2203220175320	•	1,75	32	35	36	70	3
2203220180110	•	1,80	11	14	15	60	3
2203220180220	•	1,80	22	25	26	70	3
2203220180330	•	1,80	33	36	37	70	3
2203220185120	•	1,85	12	15	16	60	3
2203220185230	•	1,85	23	26	27	70	3
2203220185340	•	1,85	34	37	38	70	3
2203220190120	•	1,90	12	15	16	60	3
2203220190230	•	1,90	23	26	27	70	3
2203220190350	•	1,90	35	37	38	70	3
2203220195120	•	1,95	12	15	16	60	3
2203220195240	•	1,95	24	27	28	70	3
2203220195360	•	1,95	36	39	40	70	3
2203220200120	•	2,00	12	15	16	60	3
2203220200240	•	2,00	24	26	27	70	3
2203220200360	•	2,00	36	37	38	70	3
2203220205130	•	2,05	13	16	17	60	3
2203220205250	•	2,05	25	28	29	70	3
2203220205370	•	2,05	37	40	41	70	3
2203220205630	•	2,05	63	66	67	118	3
2203220210130	•	2,10	13	16	17	60	3
2203220210260	•	2,10	26	29	30	70	3
2203220210380	•	2,10	38	42	43	70	3
2203220210650	•	2,10	65	68	69	118	3
2203220215130	•	2,15	13	16	17	60	3
2203220215260	•	2,15	26	29	30	70	3
2203220215390	•	2,15	39	43	44	70	3
2203220220140	•	2,20	14	18	19	60	3
2203220220270	•	2,20	27	30	31	70	3
2203220220400	•	2,20	40	44	45	75	3
2203220225140	•	2,25	14	18	19	60	3
2203220225270	•	2,25	27	30	31	70	3
2203220225410	•	2,25	41	44	45	75	3
2203220230140	•	2,30	14	18	19	60	3
2203220230280	•	2,30	28	31	32	70	3
2203220230420	•	2,30	42	45	46	82	3
2203220235150	•	2,35	15	19	20	60	3
2203220235290	•	2,35	29	32	33	70	3
2203220235430	•	2,35	43	46	48	82	3
2203220240150	•	2,40	15	19	20	60	3
2203220240290	•	2,40	29	32	33	70	3
2203220240440	•	2,40	44	47	48	82	3
2203220245150	•	2,45	15	19	20	60	3
2203220245300	•	2,45	30	33	34	70	3
2203220245450	•	2,45	45	49	50	82	3
2203220250150	•	2,50	15	19	20	60	3
2203220250300	•	2,50	30	33	34	70	3
2203220250450	•	2,50	45	49	50	82	3
2203220250770	•	2,50	77	80	81	120	3
2203220255160	•	2,55	16	20	21	60	3
2203220255310	•	2,55	31	35	36	75	3

Catalogue no.		d1 h7	l3	l2	l4	l1	d2 h6
2203220255460	•	2,55	46	50	53	82	3
2203220260160	•	2,60	16	20	21	60	3
2203220260320	•	2,60	32	36	37	75	3
2203220260470	•	2,60	47	52	53	82	3
2203220265160	•	2,65	16	20	21	60	3
2203220265320	•	2,65	32	36	37	75	3
2203220265480	•	2,65	48	53	54	82	3
2203220270170	•	2,70	17	21	22	60	3
2203220270330	•	2,70	33	37	38	75	3
2203220270490	•	2,70	49	54	55	90	3
2203220275170	•	2,75	17	21	22	60	3
2203220275330	•	2,75	33	37	38	75	3
2203220275500	•	2,75	50	54	56	90	3
2203220280170	•	2,80	17	21	22	60	3
2203220280340	•	2,80	34	38	39	75	3
2203220280530	•	2,80	53	57	58	90	3
2203220285180	•	2,85	18	23	24	60	3
2203220285350	•	2,85	35	39	40	75	3
2203220285530	•	2,85	53	57	58	90	3
2203220290180	•	2,90	18	23	24	60	3
2203220290350	•	2,90	35	39	40	75	3
2203220290530	•	2,90	53	57	58	90	3
2203220295180	•	2,95	18	23	24	60	3
2203220295360	•	2,95	36	40	41	75	3
2203220295540	•	2,95	54	58	59	90	3



DVC-X2

DVC-X2 Coating.

For drilling in steel up to 52 HRC.

- Coating technology: Sputtering
- Micro hardness: 3500 HV0.05
- Coating material: TiAlN
- Coating thickness: Diameter-related
- Max. operating temperature: 1000 degrees C



Hole tolerance

≤ 3.0

+ 0.002

+ 0.012

Catalogue no.		d1 m7	l3	l2	l4	l1	d3	d2 h6
2203210080	•	0.80	2.00	4.7	5.2	50.0	1.7	4.0
2203210085	•	0.85	2.12	4.8	5.3	50.0	1.7	4.0
2203210090	•	0.90	2.25	4.9	5.4	50.0	1.7	4.0
2203210095	•	0.95	2.37	5.0	5.5	50.0	1.7	4.0
2203210100	•	1.00	2.50	5.6	6.1	55.0	2.0	4.0
2203210105	•	1.05	2.62	5.7	6.2	55.0	2.0	4.0
2203210110	•	1.10	2.75	5.9	6.4	55.0	2.0	4.0
2203210115	•	1.15	2.87	6.0	6.5	55.0	2.0	4.0
2203210120	•	1.20	3.00	6.1	6.6	55.0	2.0	4.0
2203210125	•	1.25	3.12	7.1	7.6	55.0	2.5	4.0
2203210130	•	1.30	3.25	7.2	7.7	55.0	2.5	4.0
2203210135	•	1.35	3.37	7.3	7.8	55.0	2.5	4.0
2203210140	•	1.40	3.50	7.4	7.9	55.0	2.5	4.0
2203210145	•	1.45	3.62	7.5	8.0	55.0	2.5	4.0
2203210150	•	1.50	3.75	8.6	9.1	55.0	3.0	4.0
2203210155	•	1.55	3.87	8.7	9.2	55.0	3.0	4.0
2203210160	•	1.60	4.00	8.8	9.3	55.0	3.0	4.0
2203210165	•	1.65	4.12	8.9	9.4	55.0	3.0	4.0
2203210170	•	1.70	4.25	9.1	9.6	55.0	3.0	4.0
2203210175	•	1.75	4.37	9.2	9.7	55.0	3.0	4.0
2203210180	•	1.80	4.50	10.1	10.6	55.0	3.5	4.0
2203210185	•	1.85	4.62	10.3	10.8	55.0	3.5	4.0
2203210190	•	1.90	4.75	10.4	10.9	55.0	3.5	4.0
2203210195	•	1.95	4.87	10.5	11.0	55.0	3.5	4.0
2203210200	•	2.00	5.00	10.6	11.1	65.0	3.5	6.0
2203210205	•	2.05	5.12	10.7	11.2	65.0	3.5	6.0
2203210210	•	2.10	5.25	10.8	11.3	65.0	3.5	6.0
2203210215	•	2.15	5.37	10.9	11.4	65.0	3.5	6.0
2203210220	•	2.20	5.50	12.8	13.3	65.0	4.5	6.0
2203210225	•	2.25	5.62	12.9	13.4	65.0	4.5	6.0
2203210230	•	2.30	5.75	13.0	13.5	65.0	4.5	6.0

Solid Carbide Micro Pilot Drill For Use With 220341 & 220322

220321

Catalogue no.		d1 m7	l3	l2	l4	l1	d3	d2 h6
2203210235	•	2.35	5.87	13.1	13.6	65.0	4.5	6.0
2203210240	•	2.40	6.00	13.2	13.7	65.0	4.5	6.0
2203210245	•	2.45	6.12	13.4	13.9	65.0	4.5	6.0
2203210250	•	2.50	6.25	13.5	14.0	65.0	4.5	6.0
2203210255	•	2.55	6.37	13.6	14.1	65.0	4.5	6.0
2203210260	•	2.60	6.50	13.7	14.2	65.0	4.5	6.0
2203210265	•	2.65	6.62	14.7	15.2	65.0	5.0	6.0
2203210270	•	2.70	6.75	14.8	15.3	65.0	5.0	6.0
2203210275	•	2.75	6.87	14.9	15.4	65.0	5.0	6.0
2203210280	•	2.80	7.00	15.0	15.5	65.0	5.0	6.0
2203210285	•	2.85	7.12	15.1	15.6	65.0	5.0	6.0
2203210290	•	2.90	7.25	15.2	15.7	65.0	5.0	6.0
2203210295	•	2.95	7.37	15.4	15.9	65.0	5.0	6.0



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