

GUHRING

The image features a close-up of several Gühring HT 800 WP drill bits. The bits are arranged in a fan-like pattern, with their cutting edges pointing towards the left. The background is a blurred, high-speed shot of a drill bit cutting through a metal workpiece, with bright sparks and coolant spray visible. The overall color palette is dominated by metallic grays and blues, with a light blue gradient at the bottom where the text is located.

HT 800 WP

Interchangeable Insert Drilling System

** Expanded offering **

HT 800 WP Interchangeable Insert Drills

The new HT 800 WP interchangeable drilling system from Guhring - High-performance, cost-efficient drilling for diameters from 11.00 to 25.5mm (29/64 to 1.0"). Features include:

A Extended tool life

Thanks to special micro-machined cutting edges and an application-oriented surface finish the interchangeable inserts of the HT 800 WP drilling system are especially wear resistant. The holders of the HT 800 WP drilling system also possess a very high wear resistance, due to the optimized holder substrate and nickel plated surface. Incremental holder sizes in steps of 0.5 mm also lead to less wear on the holder body.

B Optimized chip flow

Thanks to their flute cross section the holders of the HT 800 WP drilling system ensure optimal chip evacuation from the hole, even with deeper drilling depths.

C Perfect coolant delivery

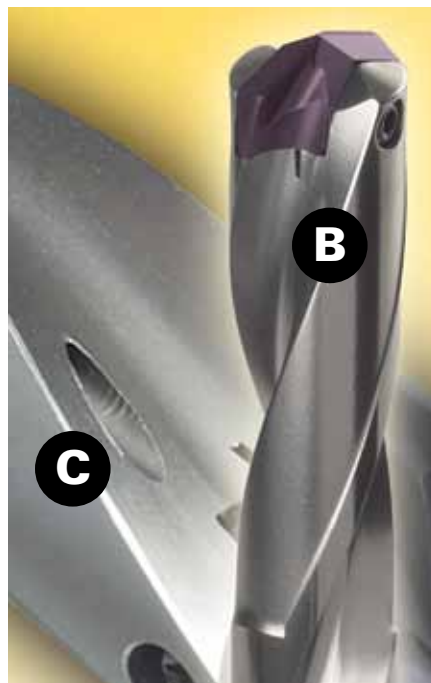
Perfect coolant delivery to the cutting surface is ensured by coolant ducts with maximum cross section, exiting in the flutes. This aids in both reducing the heat at the cutting edge as well as facilitating maximum chip evacuation.

D Highly accurate and rigid insert seat

The accurate insert seat enables insert changes in the machine in only a few simple steps with a standard Torx screw driver. Thanks to the optimized material for the HT 800 WP holders insert seat wear is much lower than with conventional tooling, allowing for more frequent insert changes without having to replace the holder. The clamping screws with screw lock ensure a secure holding of the interchangeable insert in the holder even with machines subject to high levels of vibrations.

Rigid holders




The close stepped diameter jumps of 0.5 mm with the holder sizes reduce wear, plus, through the better guidance of the tool in the hole they also increase the rigidity of the HT 800 WP drilling system. This allows for longer tool life as well as improved workpiece surfaces. All holders are offered with a metric or fractional inch size option.



Overview

Countersink inserts

NEW

Series	7645	7632	7635
Surface finish	TiN coated	TiAlN coated	Bright finish
Type	CPGT ... R	CPGW ...	CPGT ... R
Applications	steels	cast iron	aluminum
			

Drill inserts

NEW

NEW

Series	4111	4112	4113	4114	4115
Surface finish	nano-A® coated	nano-FIREX® coated	FIREX® coated	Bright finish	nano-A® coated
Point geometry	2-facet	2-facet	2-facet	relieved cone	relieved cone
Point angle	145°	140°	140°	140°	140°
Tolerance	m7	h7	m7	h7	h7
Applications	Pilot drilling	steels	cast iron	aluminum	stainless steel
					

Drill holders

NEW

NEW

NEW

Series	4105	4106	4107	4108	4109	4110
Drilling depth	1xD w/countersink	1.5xD	3xD	5xD	7xD	10xD
						

HT 800 WP Interchangeable Insert Drills

Carbide inserts with material-specific attributes DK 460 UF carbide, self-centering 140° SF point

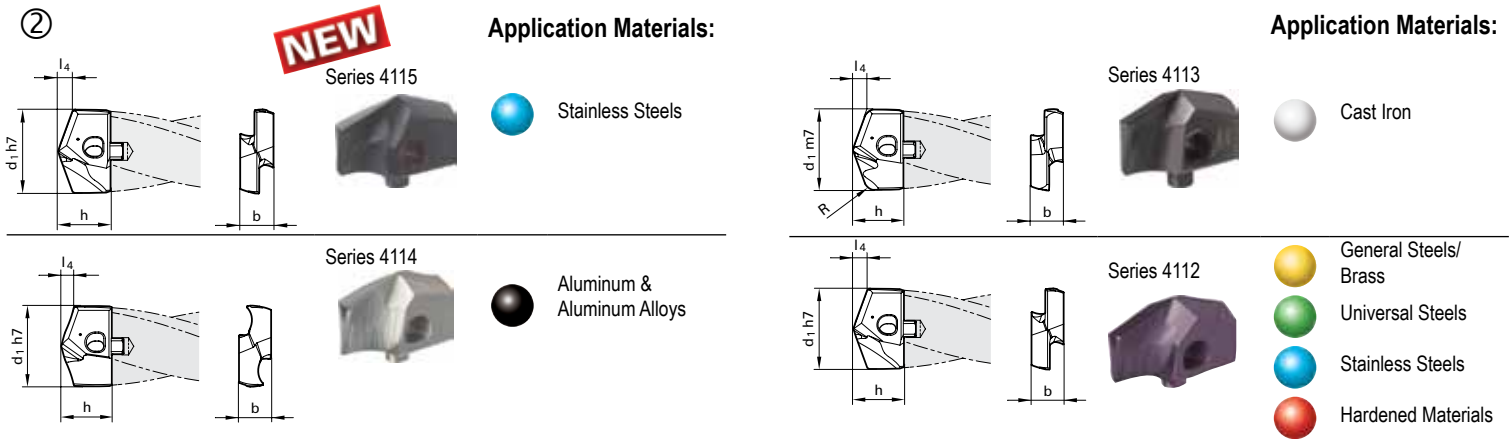
Four distinct geometries are available with the HT 800 WP drilling system, and they are completely interchangeable with any style drill body. The unique locating post and set screw design assures quick and accurate tool changes. The high performance insert designs allow for maximum penetration rates that far exceed conventional spade drills or dual insert drill designs.



- ① Choose your diameter (metric or inch)
- ② Choose the appropriate insert for your workpiece material
- ③ Note the holder size for that insert diameter; select a holder (1.5xD to 10xD) from the holder pages.

①					②				③	
Dia fract.	Dia mm	h mm	b mm	l4 mm	Series 4115 nano-A EDP No.	Series 4114 bright EDP No.	Series 4113 FIREX EDP No.	Series 4112 nano-FIREX EDP No.	Drill Holder Size (see pg. 6-9)	Pilot Drill Holder Size (see pg. 11)
	11.00 11.20	7.5	4.5	2.1	9041150110000 9041150112000	9041140110000 9041140112000	9041130110000 9041130112000	9041120110000 9041120112000	110	110
29/64	11.50 11.51 11.70 11.80	7.5	4.5	2.1 2.1 2.1 2.1	9041150115000 9041150115100 9041150117000 9041150118000	9041140115000 9041140115100 9041140117000 9041140118000	9041130115000 9041130115100 9041130117000 9041130118000	9041120115000 9041120115100 9041120117000 9041120118000	115	110
15/32	11.91			2.2	9041150119100	9041140119100	9041130119100	9041120119100		
	12.00 12.10 12.20 12.30	7.7	5.0	2.2 2.2 2.2 2.2	9041150120000 9041150121000 9041150122000 9041150123000	9041140120000 9041140121000 9041140122000 9041140123000	9041130120000 9041130121000 9041130122000 9041130123000	9041120120000 9041120121000 9041120122000 9041120123000	120	120
31/64	12.50 12.60 12.70 12.80 12.90	7.7	5.0	2.3 2.3 2.3 2.3 2.3	9041150125000 9041150126000 9041150127000 9041150128000 9041150129000	9041140125000 9041140126000 9041140127000 9041140128000 9041140129000	9041130125000 9041130126000 9041130127000 9041130128000 9041130129000	9041120125000 9041120126000 9041120127000 9041120128000 9041120129000	125	120
	13.00 13.10 17/32 13.49	8.5	5.5	2.4 2.4 2.4	9041150130000 9041150131000 9041150134900	9041140130000 9041140131000 9041140134900	9041130130000 9041130131000 9041130134900	9041120130000 9041120131000 9041120134900	130	130
33/64	13.50 13.60 13.70 13.80 13.89	8.5	5.5	2.4 2.4 2.4 2.5 2.5	9041150135000 9041150136000 9041150137000 9041150138000 9041150138900	9041140135000 9041140136000 9041140137000 9041140138000 9041140138900	9041130135000 9041130136000 9041130137000 9041130138000 9041130138900	9041120135000 9041120136000 9041120137000 9041120138000 9041120138900	135	130
35/64	14.00 14.10 14.29 14.40	9.6	6.0	2.5 2.5 2.6 2.6	9041150140000 9041150141000 9041150142900 9041150144000	9041140140000 9041140141000 9041140142900 9041140144000	9041130140000 9041130141000 9041130142900 9041130144000	9041120140000 9041120141000 9041120142900 9041120144000	140	140
	14.50 14.60 14.68 14.70 14.80	9.6	6.0	2.6 2.7 2.7 2.7 2.7	9041150145000 9041150146000 9041150146800 9041150147000 9041150148000	9041140145000 9041140146000 9041140146800 9041140147000 9041140148000	9041130145000 9041130146000 9041130146800 9041130147000 9041130148000	9041120145000 9041120146000 9041120146800 9041120147000 9041120148000	145	140
19/32	15.00 15.08 15.10 15.20 15.30 15.48	9.8	6.0	2.7 2.7 2.7 2.8 2.8 2.8	9041150150000 9041150150800 9041150151000 9041150152000 9041150153000 9041150154800	9041140150000 9041140150800 9041140151000 9041140152000 9041140153000 9041140154800	9041130150000 9041130150800 9041130151000 9041130152000 9041130153000 9041130154800	9041120150000 9041120150800 9041120151000 9041120152000 9041120153000 9041120154800	150	140
39/64	15.50 15.60 15.70 15.80 15.87	9.8	6.0	2.8 2.9 2.9 2.9 2.9	9041150155000 9041150156000 9041150157000 9041150158000 9041150158700	9041140155000 9041140156000 9041140157000 9041140158000 9041140158700	9041130155000 9041130156000 9041130157000 9041130158000 9041130158700	9041120155000 9041120156000 9041120157000 9041120158000 9041120158700	155	140
5/8	16.00 41/64 16.27	11.0	7.0	2.9 3.0	9041150160000 9041150162700	9041140160000 9041140162700	9041130160000 9041130162700	9041120160000 9041120162700	160	160

Carbide Inserts for Drilling



①

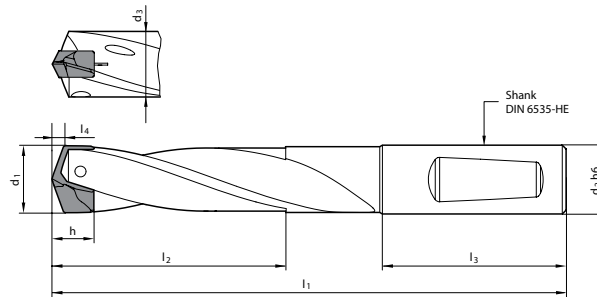
②

③

Dia fract.	Dia mm	h mm	b mm	l4 mm	Series 4115 nano-A	Series 4114 bright	Series 4113 FIREX	Series 4112 nano-FIREX	Drill Holder Size	Pilot Drill Holder Size
					EDP No.	EDP No.	EDP No.	EDP No.	(see pg. 6-9)	(see pg. 11)
21/32	16.50	11.0	7.0	3.0	9041150165000	9041140165000	9041130165000	9041120165000	165	160
	16.67			3.0	9041150166700	9041140166700	9041130166700	9041120166700		
43/64	17.00	11.0	7.0	3.1	9041150170000	9041140170000	9041130170000	9041120170000	170	160
	17.07			3.1	9041150170700	9041140170700	9041130170700	9041120170700		
11/16	17.46	11.0	7.0	3.1	9041150174600	9041140174600	9041130174600	9041120174600	175	160
	17.50			3.2	9041150175000	9041140175000	9041130175000	9041120175000		
45/64	17.60	11.0	7.0	3.2	9041150176000	9041140176000	9041130176000	9041120176000	175	160
	17.86			3.3	9041150178600	9041140178600	9041130178600	9041120178600		
23/32	18.00	12.6	8.0	3.3	9041150180000	9041140180000	9041130180000	9041120180000	180	180
	18.26			3.3	9041150182600	9041140182600	9041130182600	9041120182600		
47/64	18.50	12.6	8.0	3.4	9041150185000	9041140185000	9041130185000	9041120185000	185	180
	18.65			3.4	9041150186500	9041140186500	9041130186500	9041120186500		
3/4	19.00	12.6	8.0	3.5	9041150190000	9041140190000	9041130190000	9041120190000	190	180
	19.05			3.5	9041150190500	9041140190500	9041130190500	9041120190500		
49/64	19.45	12.6	8.0	3.5	9041150194500	9041140194500	9041130194500	9041120194500	195	180
	19.50			3.5	9041150195000	9041140195000	9041130195000	9041120195000		
25/32	19.60	12.6	8.0	3.6	9041150196000	9041140196000	9041130196000	9041120196000	195	180
	19.84			3.6	9041150198400	9041140198400	9041130198400	9041120198400		
51/64	20.00	13.9	9.0	3.6	9041150200000	9041140200000	9041130200000	9041120200000	200	200
	20.24			3.6	9041150202400	9041140202400	9041130202400	9041120202400		
13/16	20.50	13.9	9.0	3.7	9041150205000	9041140205000	9041130205000	9041120205000	205	200
	20.64			3.8	9041150206400	9041140206400	9041130206400	9041120206400		
53/64	21.00	13.9	9.0	3.8	9041150210000	9041140210000	9041130210000	9041120210000	210	200
	21.03			3.8	9041150210300	9041140210300	9041130210300	9041120210300		
27/32	21.10	13.9	9.0	3.9	9041150211000	9041140211000	9041130211000	9041120211000	210	200
	21.43			3.9	9041150214300	9041140214300	9041130214300	9041120214300		
55/64	21.50	13.9	9.0	3.9	9041150215000	9041140215000	9041130215000	9041120215000	215	200
	21.83			4.0	9041150218300	9041140218300	9041130218300	9041120218300		
7/8	22.00	15.3	10.0	4.0	9041150220000	9041140220000	9041130220000	9041120220000	220	220
	22.22			4.0	9041150222200	9041140222200	9041130222200	9041120222200		
57/64	22.50	15.3	10.0	4.1	9041150225000	9041140225000	9041130225000	9041120225000	225	220
	22.62			4.1	9041150226200	9041140226200	9041130226200	9041120226200		
29/32	23.00	15.3	10.0	4.2	9041150230000	9041140230000	9041130230000	9041120230000	230	220
	23.02			4.2	9041150230200	9041140230200	9041130230200	9041120230200		
59/64	23.42	15.3	10.0	4.3	9041150234200	9041140234200	9041130234200	9041120234200	235	220
	23.50			4.3	9041150235000	9041140235000	9041130235000	9041120235000		
15/16	23.81	15.3	10.0	4.3	9041150238100	9041140238100	9041130238100	9041120238100	235	220
	24.00			4.4	9041150240000	9041140240000	9041130240000	9041120240000		
61/64	24.10	15.8	11.0	4.4	9041150241000	9041140241000	9041130241000	9041120241000	240	240
	24.21			4.4	9041150242100	9041140242100	9041130242100	9041120242100		
31/32	24.50	15.8	11.0	4.5	9041150245000	9041140245000	9041130245000	9041120245000	245	240
	24.61			4.5	9041150246100	9041140246100	9041130246100	9041120246100		
1	25.00	15.8	11.0	4.5	9041150250000	9041140250000	9041130250000	9041120250000	250	240
	25.40			4.6	9041150254000	9041140254000	9041130254000	9041120254000		
	25.50	15.8	11.0	4.6	9041150255000	9041140255000	9041130255000	9041120255000	255	240

HT 800 WP Interchangeable Insert Drills

Holders for drilling - 1.5 x D, 3 x D and 5 x D HSS, coolant fed, nickel treated



③

*l1 dimensions listed include insert series 4112, 4113, 4114, and 4115 only. Pilot insert series 4111 has different h and l4 dimensions -- see page 10 for details.

Holder Size	d1 Insert Range mm	d2 mm	d2 in	d3 mm	l3 mm	Series 4106 (1.5xD)			Series 4107 (3xD)			Series 4108 (5xD)		
						EDP No.	l1* mm	l2 mm	EDP No.	l1* mm	l2 mm	EDP No.	l1* mm	l2 mm
110	11.00-11.49	12.00		10.70		9041060110000			9041070110000			9041080110000		
110	11.00-11.49	12.70	1/2	10.70	45.00	9041060110050	84.00	19.30	9041070110050	101.00	36.60	9041080110050	124.00	59.60
115	11.50-11.99	12.00		11.20		9041060115000			9041070115000			9041080115000		
115	11.50-11.99	12.70	1/2	11.20	45.00	9041060115050	85.00	20.10	9041070115050	103.00	38.10	9041080115050	127.00	62.10
120	12.00-12.49	12.00		11.70		9041060120000			9041070120000			9041080120000		
120	12.00-12.49	12.70	1/2	11.70	45.00	9041060120050	87.00	21.00	9041070120050	106.00	39.70	9041080120050	131.00	64.70
125	12.50-12.99	14.00		12.20		9041060125000			9041070125000			9041080125000		
125	12.50-12.99	15.875	5/8	12.20	45.00	9041060125050	89.00	21.90	9041070125050	108.00	41.30	9041080125050	134.00	67.30
130	13.00-13.49	14.00		12.70		9041060130000			9041070130000			9041080130000		
130	13.00-13.49	15.875	5/8	12.70	45.00	9041060130050	90.00	22.60	9041070130050	110.00	42.90	9041080130050	137.00	69.90
135	13.50-13.99	14.00		13.20		9041060135000			9041070135000			9041080135000		
135	13.50-13.99	15.875	5/8	13.20	45.00	9041060135050	92.00	23.60	9041070135050	113.00	44.60	9041080135050	141.00	72.60
140	14.00-14.49	14.00		13.70		9041060140000			9041070140000			9041080140000		
140	14.00-14.49	15.875	5/8	13.70	45.00	9041060140050	93.00	24.50	9041070140050	115.00	46.20	9041080140050	144.00	75.20
145	14.50-14.99	16.00		14.20		9041060145000			9041070145000			9041080145000		
145	14.50-14.99	15.875	5/8	14.20	48.00	9041060145050	98.00	25.30	9041070145050	120.00	47.80	9041080145050	150.00	77.80
150	15.00-15.49	16.00		14.70		9041060150000			9041070150000			9041080150000		
150	15.00-15.49	15.875	5/8	14.70	48.00	9041060150050	100.00	26.10	9041070150050	123.00	49.30	9041080150050	154.00	80.30
155	15.50-15.99	16.00		15.20		9041060155000			9041070155000			9041080155000		
155	15.50-15.99	15.875	5/8	15.20	48.00	9041060155050	101.00	27.00	9041070155050	125.00	50.90	9041080155050	157.00	82.90
160	16.00-16.49	16.00		15.70		9041060160000			9041070160000			9041080160000		
160	16.00-16.49	15.875	5/8	15.70	48.00	9041060160050	102.00	27.80	9041070160050	127.00	52.90	9041080160050	160.00	85.90
165	16.50-16.99	18.00		16.20		9041060165000			9041070165000			9041080165000		
165	16.50-16.99	19.05	3/4	16.20	48.00	9041060165050	105.00	28.70	9041070165050	130.00	54.10	9041080165050	164.00	88.10
170	17.00-17.49	18.00		16.70		9041060170000			9041070170000			9041080170000		
170	17.00-17.49	19.05	3/4	16.70	48.00	9041060170050	106.00	29.60	9041070170050	132.00	55.80	9041080170050	167.00	90.80
175	17.50-17.99	18.00		17.20		9041060175000			9041070175000			9041080175000		
175	17.50-17.99	19.05	3/4	17.20	48.00	9041060175050	107.00	30.40	9041070175050	134.00	57.40	9041080175050	170.00	93.40
180	18.00-18.49	18.00		17.70		9041060180000			9041070180000			9041080180000		
180	18.00-18.49	19.05	3/4	17.70	48.00	9041060180050	109.00	31.20	9041070180050	137.00	58.90	9041080180050	174.00	95.90

Holders



NEW

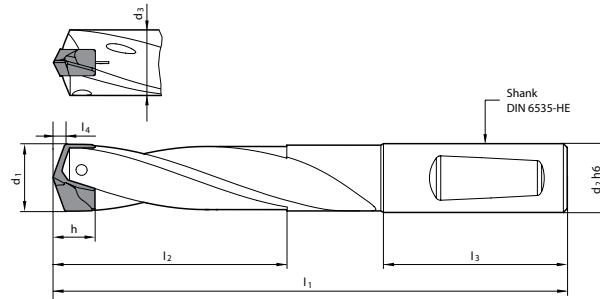


③

Holder Size	d1 Insert Range mm	d2 mm	d2 in	d3 mm	l3 mm	Series 4106 (1.5xD)			Series 4107 (3xD)			Series 4108 (5xD)		
						EDP No.	l1* mm	l2 mm	EDP No.	l1* mm	l2 mm	EDP No.	l1* mm	l2 mm
185	18.50-18.99	20.00		18.20	50.00	9041060185000	113.00	32.10	9041070185000	141.00	60.50	9041080185000	179.00	98.50
185	18.50-18.99	19.05	3/4	18.20		9041060185050			9041070185050			9041080185050		
190	19.00-19.49	20.00		18.70	50.00	9041060190000	114.00	32.90	9041070190000	143.00	62.10	9041080190000	182.00	101.10
190	19.00-19.49	19.05	3/4	18.70		9041060190050			9041070190050			9041080190050		
195	19.50-19.99	20.00		19.20	50.00	9041060195000	116.00	33.70	9041070195000	146.00	63.70	9041080195000	186.00	103.70
195	19.50-19.99	19.05	3/4	19.20		9041060195050			9041070195050			9041080195050		
200	20.00-20.49	20.00		19.70	50.00	9041060200000	117.00	34.60	9041070200000	148.00	65.30	9041080200000	189.00	106.30
200	20.00-20.49	19.05	3/4	19.70		9041060200050			9041070200050			9041080200050		
205	20.50-20.99	25.00		20.20	56.00	9041060205000	128.00	35.50	9041070205000	159.00	67.00	9041080205000	201.00	109.00
205	20.50-20.99	25.40	1.0"	20.20		9041060205050			9041070205050			9041080205050		
210	21.00-21.49	25.00		20.70	56.00	9041060210000	129.00	36.40	9041070210000	161.00	68.60	9041080210000	204.00	111.60
210	21.00-21.49	25.40	1.0"	20.70		9041060210050			9041070210050			9041080210050		
215	21.50-21.99	25.00		21.20	56.00	9041060215000	130.00	37.20	9041070215000	163.00	70.10	9041080215000	207.00	114.10
215	21.50-21.99	25.40	1.0"	21.20		9041060215050			9041070215050			9041080215050		
220	22.00-22.49	25.00		21.70	56.00	9041060220000	131.00	38.00	9041070220000	165.00	71.70	9041080220000	210.00	116.70
220	22.00-22.49	25.40	1.0"	21.70		9041060220050			9041070220050			9041080220050		
225	22.50-22.99	25.00		22.20	56.00	9041060225000	134.00	38.90	9041070225000	168.00	73.30	9041080225000	214.00	119.30
225	22.50-22.99	25.40	1.0"	22.20		9041060225050			9041070225050			9041080225050		
230	23.00-23.49	25.00		22.70	56.00	9041060230000	135.00	39.80	9041070230000	170.00	74.90	9041080230000	217.00	121.90
230	23.00-23.49	25.40	1.0"	22.70		9041060230050			9041070230050			9041080230050		
235	23.50-23.99	25.00		23.20	56.00	9041060235000	137.00	40.60	9041070235000	173.00	76.50	9041080235000	221.00	124.50
235	23.50-23.99	25.40	1.0"	23.20		9041060235050			9041070235050			9041080235050		
240	24.00-24.49	25.00		23.70	56.00	9041060240000	138.00	41.50	9041070240000	175.00	78.10	9041080240000	224.00	127.10
240	24.00-24.49	25.40	1.0"	23.70		9041060240050			9041070240050			9041080240050		
245	24.50-24.99	25.00		24.20	56.00	9041060245000	140.00	42.30	9041070245000	177.00	79.70	9041080245000	227.00	129.70
245	24.50-24.99	25.40	1.0"	24.20		9041060245050			9041070245050			9041080245050		
250	25.00-25.49	25.00		24.70	56.00	9041060250000	142.00	43.20	9041070250000	180.00	81.30	9041080250000	231.00	132.30
250	25.00-25.49	25.40	1.0"	24.70		9041060250050			9041070250050			9041080250050		
255	25.50-25.99	32.00		25.20	60.00	9041060255000	148.00	44.00	9041070255000	187.00	82.90	9041080255000	239.00	134.90
255	25.50-25.99	31.75		25.20		9041060255050			9041070255050			9041080255050		

HT 800 WP Interchangeable Insert Drills

Extra length holders for drilling - 7 x D and 10 x D
HSS, coolant fed, nickel treated



③

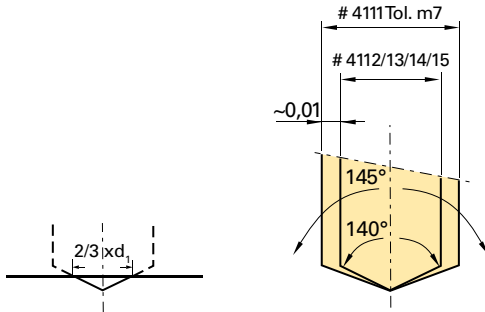
*l1 dimensions listed include insert series 4112, 4113, 4114, and 4115 only. Pilot insert series 4111 has different h and l4 dimensions -- see page 10 for details.

Holder Size	d1 Insert Range mm	d2 mm	d2 in	d3 mm	l3 mm	Series 4109 (7xD)			Series 4110 (10xD)		
						EDP No.	l1* mm	l2 mm	EDP No.	l1* mm	l2 mm
110	11.00-11.49	12.00		10.70		9041090110000			9041100110000		
110	11.00-11.49	12.70	1/2	10.70	45.00	9041090110050	147.00	82.60	9041100110050	182.00	117.10
115	11.50-11.99	12.00		11.20		9041090115000			9041100115000		
115	11.50-11.99	12.70	1/2	11.20	45.00	9041090115050	151.00	86.10	9041100115050	187.00	122.10
120	12.00-12.49	12.00		11.70		9041090120000			9041100120000		
120	12.00-12.49	12.70	1/2	11.70	45.00	9041090120050	156.00	89.70	9041100120050	194.00	127.20
125	12.50-12.99	14.00		12.20		9041090125000			9041100125000		
125	12.50-12.99	15.875	5/8	12.20	45.00	9041090125050	160.00	93.30	9041100125050	199.00	132.30
130	13.00-13.49	14.00		12.70		9041090130000			9041100130000		
130	13.00-13.49	15.875	5/8	12.70	45.00	9041090130050	164.00	96.90	9041100130050	205.00	137.50
135	13.50-13.99	14.00		13.20		9041090135000			9041100135000		
135	13.50-13.99	15.875	5/8	13.20	45.00	9041090135050	169.00	100.60	9041100135050	211.00	142.50
140	14.00-14.49	14.00		13.70		9041090140000			9041100140000		
140	14.00-14.49	15.875	5/8	13.70	45.00	9041090140050	173.00	104.20	9041100140050	217.00	147.70
145	14.50-14.99	16.00		14.20		9041090145000			9041100145000		
145	14.50-14.99	15.875	5/8	14.20	48.00	9041090145050	180.00	107.80	9041100145050	225.00	152.80
150	15.00-15.49	16.00		14.70		9041090150000			9041100150000		
150	15.00-15.49	15.875	5/8	14.70	48.00	9041090150050	185.00	111.30	9041100150050	232.00	157.80
155	15.50-15.99	16.00		15.20		9041090155000			9041100155000		
155	15.50-15.99	15.875	5/8	15.20	48.00	9041090155050	189.00	114.90	9041100155050	237.00	162.90
160	16.00-16.49	16.00		15.70		9041090160000			9041100160000		
160	16.00-16.49	15.875	5/8	15.70	48.00	9041090160050	193.00	118.90	9041100160050	243.00	168.00
165	16.50-16.99	18.00		16.20		9041090165000			9041100165000		
165	16.50-16.99	19.05	3/4	16.20	48.00	9041090165050	198.00	122.10	9041100165050	249.00	173.10
170	17.00-17.49	18.00		16.70		9041090170000			9041100170000		
170	17.00-17.49	19.05	3/4	16.70	48.00	9041090170050	202.00	125.80	9041100170050	255.00	178.30
175	17.50-17.99	18.00		17.20		9041090175000			9041100175000		
175	17.50-17.99	19.05	3/4	17.20	48.00	9041090175050	206.00	129.40	9041100175050	260.00	183.50
180	18.00-18.49	18.00		17.70		9041090180000			9041100180000		
180	18.00-18.49	19.05	3/4	17.70	48.00	9041090180050	211.00	132.90	9041100180050	267.00	188.40

Holders

NEW

For drilling depths over 5xD, we generally recommend spot drilling prior to finish drilling to depth. Drilling depths over 7xD will typically require use of a series 4105 pilot drill with a series 4111 (145°) insert.



Spot drill for 7xD drilling depths

Pilot drill for 10xD drilling depths (see page 10-11)

③



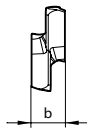
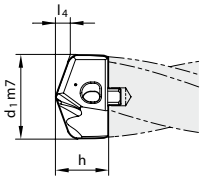
Holder Size	d1 Insert Range mm	d2 mm	d2 in	d3 mm	l3 mm	Series 4109 (7xD)			Series 4110 (10xD)		
						EDP No.	l1* mm	l2 mm	EDP No.	l1* mm	l2 mm
185	18.50-18.99	20.00		18.20		9041090185000			9041100185000		
185	18.50-18.99	19.05	3/4	18.20	50.00	9041090185050	217.00	136.50	9041100185050	274.00	193.50
190	19.00-19.49	20.00		18.70		9041090190000			9041100190000		
190	19.00-19.49	19.05	3/4	18.70	50.00	9041090190050	221.00	140.10	9041100190050	280.00	198.70
195	19.50-19.99	20.00		19.20		9041090195000			9041100195000		
195	19.50-19.99	19.05	3/4	19.20	50.00	9041090195050	226.00	143.70	9041100195050	286.00	203.70
200	20.00-20.49	20.00		19.70		9041090200000			9041100200000		
200	20.00-20.49	19.05	3/4	19.70	50.00	9041090200050	230.00	147.30	9041100200050	292.00	208.90
205	20.50-20.99	25.00		20.20		9041090205000			9041100205000		
205	20.50-20.99	25.40	1.0"	20.20	56.00	9041090205050	243.00	151.00	9041100205050	306.00	214.00
210	21.00-21.49	25.00		20.70		9041090210000			9041100210000		
210	21.00-21.49	25.40	1.0"	20.70	56.00	9041090210050	247.00	154.60	9041100210050	312.00	219.10
215	21.50-21.99	25.00		21.20		9041090215000			9041100215000		
215	21.50-21.99	25.40	1.0"	21.20	56.00	9041090215050	251.00	158.10	9041100215050	317.00	224.20
220	22.00-22.49	25.00		21.70		9041090220000			9041100220000		
220	22.00-22.49	25.40	1.0"	21.70	56.00	9041090220050	255.00	161.70	9041100220050	323.00	229.30
225	22.50-22.99	25.00		22.20		9041090225000			9041100225000		
225	22.50-22.99	25.40	1.0"	22.20	56.00	9041090225050	260.00	165.30	9041100225050	329.00	234.40
230	23.00-23.49	25.00		22.70		9041090230000			9041100230000		
230	23.00-23.49	25.40	1.0"	22.70	56.00	9041090230050	264.00	168.90	9041100230050	335.00	239.50
235	23.50-23.99	25.00		23.20		9041090235000			9041100235000		
235	23.50-23.99	25.40	1.0"	23.20	56.00	9041090235050	269.00	172.50	9041100235050	341.00	244.60
240	24.00-24.49	25.00		23.70		9041090240000			9041100240000		
240	24.00-24.49	25.40	1.0"	23.70	56.00	9041090240050	273.00	176.10	9041100240050	347.00	249.70
245	24.50-24.99	25.00		24.20		9041090245000			9041100245000		
245	24.50-24.99	25.40	1.0"	24.20	56.00	9041090245050	277.00	179.70	9041100245050	352.00	254.80
250	25.00-25.49	25.00		24.70		9041090250000			9041100250000		
250	25.00-25.49	25.40	1.0"	24.70	56.00	9041090250050	282.00	183.30	9041100250050	359.00	259.90
255	25.50-25.99	32.00		25.20		9041090255000			9041100255000		
255	25.50-25.99	31.75		25.20	60.00	9041090255050	291.00	186.90	9041100255050	369.00	265.00

HT 800 WP Interchangeable Insert Drills

NEW

Drill inserts for pilot drilling - Series 4111 DK 460 UF carbide, nano-A™ coated 145° point angle, m7 tolerance on diameter

The Series 4105 is a pilot and chamfering tool specifically designed for pilot drilling 7xD and especially 10xD deep hole applications. The Series 4111 insert has a 145° point angle which is required for proper application of a pre-drill pilot operation. This pilot drilling insert is also interchangeable with all other HT 800 WP body series.



Series 4111



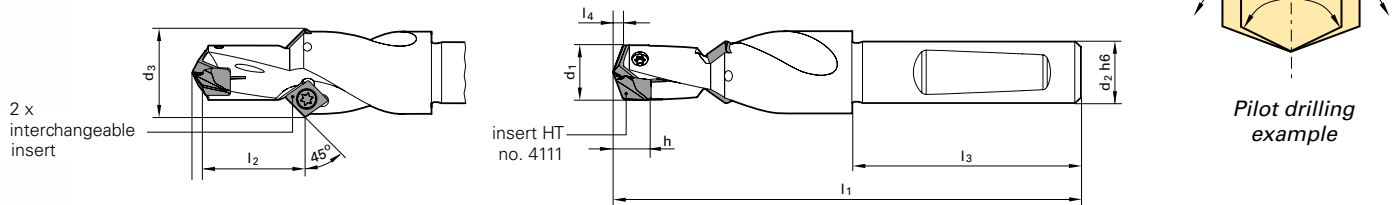
Dia	Dia	h	b	l4	Series 4111 nano-A insert	Holder Size
fract.	mm	mm	mm	mm	EDP No.	(see next pg)
	11.00	6.9	4.5	1.5	9041110110000	110
	11.20	6.9	4.5	1.5	9041110112000	
29/64	11.50	6.9	4.5	1.5	9041110115000	115
	11.51	6.9	4.5	1.5	9041110115100	
	11.70	6.9	4.5	1.6	9041110117000	
	11.80	6.9	4.5	1.6	9041110118000	
15/32	11.91	6.9	4.5	1.6	9041110119100	
31/64	12.00	7.1	5.0	1.6	9041110120000	120
	12.10	7.1	5.0	1.6	9041110121000	
	12.20	7.1	5.0	1.6	9041110122000	
	12.30	7.1	5.0	1.6	9041110123000	
1/2	12.50	7.1	5.0	1.7	9041110125000	125
	12.60	7.1	5.0	1.7	9041110126000	
	12.70	7.1	5.0	1.7	9041110127000	
	12.80	7.1	5.0	1.7	9041110128000	
33/64	12.90	7.1	5.0	1.7	9041110129000	
17/32	13.00	7.9	5.5	1.7	9041110130000	130
	13.10	7.9	5.5	1.7	9041110131000	
	13.49	7.9	5.5	1.8	9041110134900	
35/64	13.50	7.9	5.5	1.8	9041110135000	135
	13.60	7.9	5.5	1.8	9041110136000	
	13.70	7.9	5.5	1.8	9041110137000	
	13.80	7.9	5.5	1.9	9041110138000	
	13.89	7.9	5.5	1.9	9041110138900	
9/16	14.00	9.1	6.0	1.9	9041110140000	140
	14.10	9.1	6.0	1.9	9041110141000	
	14.29	9.1	6.0	1.9	9041110142900	
	14.40	9.1	6.0	1.9	9041110144000	
37/64	14.50	9.1	6.0	1.9	9041110145000	145
	14.60	9.1	6.0	2.0	9041110146000	
	14.68	9.1	6.0	2.0	9041110146800	
	14.70	9.1	6.0	2.0	9041110147000	
	14.80	9.1	6.0	2.0	9041110148000	
19/32	15.00	9.1	6.0	2.0	9041110150000	150
	15.08	9.1	6.0	2.0	9041110150800	
	15.10	9.1	6.0	2.0	9041110151000	
	15.20	9.1	6.0	2.0	9041110152000	
	15.30	9.1	6.0	2.1	9041110153000	
	15.48	9.1	6.0	2.1	9041110154800	
5/8	15.50	9.1	6.0	2.1	9041110155000	155
	15.60	9.1	6.0	2.1	9041110156000	
	15.70	9.1	6.0	2.1	9041110157000	
	15.80	9.1	6.0	2.1	9041110158000	
	15.87	9.1	6.0	2.1	9041110158700	
41/64	16.00	10.2	7.0	2.1	9041110160000	160
	16.27	10.2	7.0	2.2	9041110162700	

Dia	Dia	h	b	l4	Series 4111 nano-A insert	Holder Size
fract.	mm	mm	mm	mm	EDP No.	(see next pg)
21/32	16.50	10.2	7.0	2.2	9041110165000	165
	16.67	10.2	7.0	2.2	9041110166700	
43/64	17.00	10.2	7.0	2.3	9041110170000	170
	17.07	10.2	7.0	2.3	9041110170700	
	17.46	10.2	7.0	2.3	9041110174600	
45/64	17.50	10.2	7.0	2.3	9041110175000	175
	17.60	10.2	7.0	2.3	9041110176000	
	17.86	10.2	7.0	2.4	9041110178600	
23/32	18.00	11.7	8.0	2.4	9041110180000	180
	18.26	11.7	8.0	2.4	9041110182600	
47/64	18.50	11.7	8.0	2.5	9041110185000	185
	18.65	11.7	8.0	2.5	9041110186500	
3/4	19.00	11.7	8.0	2.5	9041110190000	190
	19.05	11.7	8.0	2.5	9041110190500	
	19.45	11.7	8.0	2.6	9041110194500	
25/32	19.50	11.7	8.0	2.6	9041110195000	195
	19.60	11.7	8.0	2.6	9041110196000	
	19.84	11.7	8.0	2.7	9041110198400	
51/64	20.00	12.9	9.0	2.7	9041110200000	200
	20.24	12.9	9.0	2.7	9041110202400	
13/16	20.50	12.9	9.0	2.7	9041110205000	205
	20.64	12.9	9.0	2.8	9041110206400	
	21.00	12.9	9.0	2.8	9041110210000	
53/64	21.03	12.9	9.0	2.8	9041110210300	210
	21.10	12.9	9.0	2.8	9041110211000	
	21.43	12.9	9.0	2.9	9041110214300	
55/64	21.50	12.9	9.0	2.9	9041110215000	215
	21.83	12.9	9.0	2.9	9041110218300	
7/8	22.00	14.3	10.0	3.0	9041110220000	220
	22.22	14.3	10.0	3.0	9041110222200	
57/64	22.50	14.3	10.0	3.0	9041110225000	225
	22.62	14.3	10.0	3.0	9041110226200	
29/32	23.00	14.3	10.0	3.1	9041110230000	230
	23.02	14.3	10.0	3.1	9041110230200	
	23.42	14.3	10.0	3.1	9041110234200	
59/64	23.50	14.3	10.0	3.1	9041110235000	235
	23.81	14.3	10.0	3.2	9041110238100	
61/64	24.00	14.7	11.0	3.2	9041110240000	240
	24.10	14.7	11.0	3.2	9041110241000	
	24.21	14.7	11.0	3.2	9041110242100	
	24.50	14.7	11.0	3.3	9041110245000	
31/32	24.61	14.7	11.0	3.3	9041110246100	245
	25.00	14.7	11.0	3.4	9041110250000	
1	25.40	14.7	11.0	3.4	9041110254000	250
	25.50	14.7	11.0	3.4	9041110255000	

1 x D for Pilot Drilling and Countersinking

NEW

Holders for pilot drilling - Series 4105 HSS, coolant fed, nickel treated



Holder Size	EDP No.	d1 Insert Range mm	d2 mm	d2 in	d3 mm	Series 4105 Holder (1xD w/countersink)		
						l1 mm	l2 mm	l3 mm
110	9041050110000	11.00-11.99	12.00		17.00	81.00	14.80	45.00
	9041050110050	11.00-11.99	12.70	1/2	17.00			
120	9041050120000	12.00-12.99	12.00		18.00	84.00	15.80	45.00
	9041050120050	12.00-12.99	12.70	1/2	18.00			
130	9041050130000	13.00-13.99	14.00		18.00	86.00	16.30	45.00
	9041050130050	13.00-13.99	15.875	5/8	18.00			
140	9041050140000	14.00-15.99	16.00		18.00	93.00	17.40	48.00
	9041050140050	14.00-15.99	15.875	5/8	18.00			
160	9041050160000	16.00-17.99	18.00		20.00	99.00	19.40	48.00
	9041050160050	16.00-17.99	19.05	3/4	20.00			
180	9041050180000	18.00-19.99	20.00		22.00	106.00	21.40	50.00
	9041050180050	18.00-19.99	19.05	3/4	22.00			
200	9041050200000	20.00-21.99	25.00		24.00	117.00	23.40	56.00
	9041050200050	20.00-21.99	25.40	1.0"	24.00			
220	9041050220000	22.00-23.99	25.00		26.00	122.00	25.40	56.00
	9041050220050	22.00-23.99	25.40	1.0"	26.00			
240	9041050240000	24.00-25.99	25.00		28.00	128.00	27.40	56.00
	9041050240050	24.00-25.99	25.40	1.0"	28.00			

NEW

Countersink inserts for pilot and countersink holes



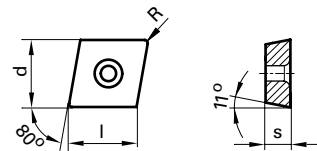
Series 7645 for steels



Series 7632 for cast iron



Series 7635 for aluminum



Type	d mm	s mm	R mm	l mm	Series 7645 TiN coated	Series 7632 TiAlN coated	Series 7635 Bright finish	Drill Holder Size
					EDP No.	EDP No.	EDP No.	(see below)
CPGT050204R	5.56	2.38	0.4	5.64	9076450520400		9076350520400	110-140
CPGT060204R	6.35	2.38	0.4	6.45	9076450620400		9076350620400	160-240
CPGW050204	5.56	2.38	0.4	5.60		9076320520400		110-140
CPGW060204	6.35	2.38	0.4	6.40		9076320620400		160-240

Series # 4107 body (3xD) with # 4112 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Common structural steels	≤100 Bhn	425	0.010	0.012	0.016	0.020
	>100-260 Bhn	360	0.008	0.010	0.012	0.016
Free-cutting steels	≤24 Rc	425	0.012	0.016	0.020	0.025
	>24-30 Rc	360	0.010	0.012	0.016	0.020
Unalloyed heat-treatable steels	≤16 Rc	425	0.010	0.012	0.016	0.020
	16-24 Rc	410	0.010	0.012	0.016	0.020
	24-30 Rc	360	0.008	0.010	0.012	0.016
Alloyed heat-treatable steels	24-30 Rc	360	0.010	0.012	0.016	0.020
	>30-38 Rc	295	0.008	0.010	0.012	0.016
Unalloyed case hardened steels	≤230 Bhn	425	0.012	0.016	0.020	0.025
Alloyed case hardened steels	24-30 Rc	360	0.010	0.012	0.016	0.020
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Nitriding steels	≥24-30 Rc	345	0.008	0.010	0.012	0.016
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Tool steels	≤24 Rc	195	0.008	0.010	0.012	0.016
	>24-30 Rc	180	0.006	0.008	0.010	0.012
High speed steels	≥14-30 Rc	180	0.005	0.006	0.010	0.010
Spring steels	≤330 Bhn	165	0.004	0.005	0.016	0.008
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.010	0.010
	≤24 Rc	130	0.005	0.006	0.010	0.010
	≤24 Rc	115	0.005	0.006	0.010	0.010
Hardened steels	≤40-48 Rc	80	0.004	0.005	0.016	0.008
	>48-60 Rc	*	*	*	*	*
Special alloys	≤38 Rc	80	0.004	0.005	0.016	0.008
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.010	0.010
	>24-38 Rc	115	0.004	0.005	0.016	0.008

Series #4108 body (5xD) with #4112 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Common structural steels	≤100 Bhn	410	0.010	0.012	0.016	0.020
	>100-260 Bhn	345	0.008	0.010	0.012	0.016
Free-cutting steels	≤24 Rc	410	0.012	0.016	0.020	0.025
	>24-30 Rc	345	0.010	0.012	0.016	0.020
Unalloyed heat-treatable steels	≤16 Rc	410	0.010	0.012	0.016	0.020
	16-24 Rc	395	0.010	0.012	0.016	0.020
	24-30 Rc	345	0.008	0.010	0.012	0.016
Alloyed heat-treatable steels	24-30 Rc	345	0.010	0.012	0.016	0.020
	>30-38 Rc	280	0.008	0.010	0.012	0.016
Unalloyed case hardened steels	≤230 Bhn	410	0.012	0.016	0.020	0.025
Alloyed case hardened steels	24-30 Rc	345	0.010	0.012	0.016	0.020
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Nitriding steels	≥24-30 Rc	345	0.008	0.010	0.012	0.016
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Tool steels	≤24 Rc	180	0.008	0.010	0.012	0.016
	>24-30 Rc	165	0.006	0.008	0.010	0.012
High speed steels	≥14-30 Rc	180	0.005	0.006	0.010	0.010
Spring steels	≤330 Bhn	165	0.004	0.005	0.016	0.008
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.010	0.010
	≤24 Rc	130	0.005	0.006	0.010	0.010
	≤24 Rc	115	0.005	0.006	0.010	0.010
Hardened steels	≤40-48 Rc	80	0.004	0.005	0.016	0.008
	>48-60 Rc	*	*	*	*	*
Special alloys	≤38 Rc	80	0.004	0.005	0.016	0.008
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.010	0.010
	>24-38 Rc	115	0.004	0.005	0.016	0.008

Series # 4107 body (3xD) with # 4113 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Cast iron	≤240 Bhn	330	0.010	0.012	0.016	0.020
	<300 Bhn	295	0.010	0.012	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	395	0.012	0.016	0.020	0.025
	<300 Bhn	330	0.010	0.012	0.016	0.020
Chilled cast iron	≤350 Bhn	295	0.010	0.012	0.016	0.020

Series #4108 body (5xD) with #4113 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Cast iron	≤240 Bhn	330	0.010	0.012	0.016	0.020
	<300 Bhn	295	0.010	0.012	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	395	0.012	0.016	0.020	0.025
	<300 Bhn	330	0.010	0.012	0.016	0.020
Chilled cast iron	≤350 Bhn	295	0.010	0.012	0.016	0.020

Series #4107 body (3xD) with #4114 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Aluminium and Al-alloys	≤120 Bhn	1000	0.012	0.016	0.020	0.025
Al wrought alloys	≤150 Bhn	1000	0.012	0.016	0.020	0.025
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn	845	0.012	0.016	0.020	0.025
	<200 Bhn	710	0.012	0.016	0.020	0.025
Magnesium alloys	≤150 Bhn	900	0.012	0.016	0.020	0.025
Copper, low-alloyed	≤120 Bhn	400	0.010	0.012	0.016	0.020
Brass, short-chipping long-chipping	≤200 Bhn	1050	0.012	0.016	0.020	0.025
	<200 Bhn	710	0.010	0.012	0.016	0.020
Bronze, short-chipping	≤200 Bhn	410	0.010	0.012	0.016	0.020
	>200-260 Bhn	345	0.008	0.010	0.012	0.016

Series #4108 body (5xD) with #4114 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Aluminium and Al-alloys	≤120 Bhn	590	0.012	0.016	0.020	0.025
Al wrought alloys	≤150 Bhn	590	0.012	0.016	0.020	0.025
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn	460	0.012	0.016	0.020	0.025
	<200 Bhn	360	0.012	0.016	0.020	0.025
Magnesium alloys	≤150 Bhn	590	0.012	0.016	0.020	0.025
Copper, low-alloyed	≤120 Bhn	230	0.010	0.012	0.016	0.020
Brass, short-chipping long-chipping	≤200 Bhn	590	0.012	0.016	0.020	0.025
	<200 Bhn	395	0.010	0.012	0.016	0.020
Bronze, short-chipping	≤200 Bhn	195	0.010	0.012	0.016	0.020
	>200-260 Bhn	130	0.008	0.010	0.012	0.016

Series # 4107 body (3xD) with # 4115 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.008	0.010
	≤24 Rc	130	0.005	0.006	0.008	0.010
	≤24 Rc	115	0.005	0.006	0.008	0.010
Chilled cast iron	≤350 Bhn	295	0.010	0.012	0.016	0.020
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.008	0.010
	>24-38 Rc	115	0.004	0.005	0.006	0.008

Series # 4108 body (3xD) with # 4115 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.008	0.010
	≤24 Rc	130	0.005	0.006	0.008	0.010
	≤24 Rc	115	0.005	0.006	0.008	0.010
Chilled cast iron	≤350 Bhn	295	0.010	0.012	0.016	0.020
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.008	0.010
	>24-38 Rc	115	0.004	0.005	0.006	0.008

Application Tips

- For through holes supporting lands must remain in permanent contact.
- Don't apply drilling tool without first testing in an interrupted cut application (grooves, transverse holes). For interrupted cutting (max. 0.2 x D) it is recommended to reduce the feed rate whenever possible.
- Unlike conventional indexable inserts, HT 800 tools are also suitable for drilling stacked sheets.
- On a lathe (stationary tool) it must be ensured that the tool is accurately centered.
- We recommend when changing the insert to also replace the clamping screw.
- Every holder is supplied with a clamping screw and screw driver.
- Every new insert is also supplied with a clamping screw.



Series #4109 body (7xD) with #4112 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Common structural steels	≤100 Bhn	395	0.008	0.010	0.012	0.016
	>100-260 Bhn	345	0.006	0.008	0.010	0.012
Free-cutting steels	≤24 Rc	395	0.010	0.012	0.016	0.020
	>24-30 Rc	345	0.008	0.010	0.012	0.016
Unalloyed heat-treatable steels	≤16 Rc	395	0.008	0.010	0.012	0.016
	16-24 Rc	360	0.008	0.010	0.012	0.016
	24-30 Rc	330	0.006	0.008	0.010	0.012
Alloyed heat-treatable steels	24-30 Rc	330	0.008	0.010	0.012	0.016
	>30-38 Rc	280	0.006	0.008	0.010	0.012
Unalloyed case hardened steels	<230 Bhn	395	0.010	0.012	0.016	0.020
Alloyed case hardened steels	24-30 Rc	330	0.008	0.010	0.012	0.016
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Nitriding steels	≥24-30 Rc	345	0.006	0.008	0.010	0.012
	>30-38 Rc	230	0.005	0.006	0.008	0.010
Tool steels	≤24 Rc	180	0.006	0.008	0.010	0.012
	>24-30 Rc	165	0.005	0.006	0.008	0.010
High speed steels	>14-30 Rc	180	0.004	0.005	0.006	0.008
Spring steels	≤330 Bhn	165	0.004	0.005	0.006	0.008
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.004	0.005	0.006	0.008
	≤24 Rc	130	0.004	0.005	0.006	0.008
	≤24 Rc	115	0.004	0.005	0.006	0.008
Hardened steels	≤40-48 Rc	80	0.003	0.004	0.005	0.006
	>48-60 Rc	0	•	•	•	•
Special alloys	≤38 Rc	80	0.003	0.004	0.005	0.006
Ti and Ti-alloys	≤24 Rc	•	•	•	•	•
	>24-38 Rc	•	•	•	•	•

Series #4110 body (10xD) with #4112 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Common structural steels	≤100 Bhn	330	0.008	0.010	0.012	0.016
	>100-260 Bhn	310	0.006	0.008	0.010	0.012
Free-cutting steels	≤24 Rc	330	0.010	0.012	0.016	0.020
	>24-30 Rc	310	0.008	0.010	0.012	0.016
Unalloyed heat-treatable steels	≤16 Rc	330	0.008	0.010	0.012	0.016
	16-24 Rc	310	0.008	0.010	0.012	0.016
	24-30 Rc	295	0.006	0.008	0.010	0.012
Alloyed heat-treatable steels	24-30 Rc	295	0.008	0.010	0.012	0.016
	>30-38 Rc	280	0.006	0.008	0.010	0.012
Unalloyed case hardened steels	<230 Bhn	330	0.010	0.012	0.016	0.020
Alloyed case hardened steels	24-30 Rc	295	0.008	0.010	0.012	0.016
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Nitriding steels	≥24-30 Rc	310	0.006	0.008	0.010	0.012
	>30-38 Rc	230	0.005	0.006	0.008	0.010
Tool steels	≤24 Rc	180	0.006	0.008	0.010	0.012
	>24-30 Rc	165	0.005	0.006	0.008	0.010
High speed steels	>14-30 Rc	180	0.004	0.005	0.006	0.008
Spring steels	≤330 Bhn	165	0.004	0.005	0.006	0.008
Stainless steels, sulphured austenitic martensitic	≤24 Rc	•	•	•	•	•
	≤24 Rc	•	•	•	•	•
	≤24 Rc	•	•	•	•	•
Hardened steels	≤40-48 Rc	•	•	•	•	•
	>48-60 Rc	•	•	•	•	•
Special alloys	≤38 Rc	•	•	•	•	
Ti and Ti-alloys	≤24 Rc	•	•	•	•	
	>24-38 Rc	•	•	•	•	

Series #4109 body (7xD) with #4113 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Cast iron	≤240 Bhn	260	0.010	0.012	0.016	0.020
	<300 Bhn	230	0.010	0.012	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	330	0.012	0.016	0.020	0.025
	<300 Bhn	260	0.010	0.012	0.016	0.020
Chilled cast iron	≤350 Bhn	230	0.010	0.012	0.016	0.020

Series #4110 body (10xD) with #4113 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Cast iron	≤240 Bhn	265	0.010	0.012	0.016	0.020
	<300 Bhn	230	0.010	0.012	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	330	0.012	0.016	0.020	0.025
	<300 Bhn	260	0.010	0.012	0.016	0.020
Chilled cast iron	≤350 Bhn	•	•	•	•	•

Series #4109 body (7xD) with #4114 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Aluminium and Al-alloys	≤120 Bhn	590	0.010	0.012	0.016	0.020
Al wrought alloys	≤150 Bhn	590	0.010	0.012	0.016	0.020
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn	460	0.010	0.012	0.016	0.020
	<200 Bhn	360	0.010	0.012	0.016	0.020
Magnesium alloys	<150 Bhn	590	0.010	0.012	0.016	0.020
Copper, low-alloyed	<120 Bhn	230	0.008	0.010	0.012	0.016
Brass, short-chipping long-chipping	≤200 Bhn	590	0.010	0.012	0.016	0.020
	<200 Bhn	395	0.008	0.010	0.012	0.016
Bronze, short-chipping	≤200 Bhn	195	0.008	0.010	0.012	0.016
	>200-260 Bhn	130	0.006	0.008	0.010	0.012

Series #4110 body (10xD) with #4114 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Aluminium and Al-alloys	≤120 Bhn	490	0.010	0.012	0.016	0.020
Al wrought alloys	≤150 Bhn	490	0.010	0.012	0.016	0.020
Al cast alloys ≤ 10 % Si > 10 % Si	≤200 Bhn	425	0.010	0.012	0.016	0.020
	<200 Bhn	345	0.010	0.012	0.016	0.020
Magnesium alloys	<150 Bhn	230	0.010	0.012	0.016	0.020
Copper, low-alloyed	<120 Bhn	425	0.008	0.010	0.012	0.016
Brass, short-chipping long-chipping	≤200 Bhn	490	0.010	0.012	0.016	0.020
	<200 Bhn	360	0.008	0.010	0.012	0.016
Bronze, short-chipping	≤200 Bhn	230	0.008	0.010	0.012	0.016
	>200-260 Bhn	165	0.008	0.010	0.012	0.016

Series # 4109 body (3xD) with # 4115 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.004	0.005	0.006	0.008
	≤24 Rc	130	0.004	0.005	0.006	0.008
	≤24 Rc	115	0.004	0.005	0.006	0.008
Chilled cast iron	≤350 Bhn	295	0.009	0.014	0.016	0.020
Ti and Ti-alloys	≤24 Rc	130	0.004	0.005	0.006	0.008
	>24-38 Rc	115	0.003	0.004	0.005	0.006

Series # 4110 body (3xD) with # 4115 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.004	0.005	0.006	0.008
	≤24 Rc	130	0.004	0.005	0.006	0.008
	≤24 Rc	115	0.004	0.005	0.006	0.008
Chilled cast iron	≤350 Bhn	230	0.010	0.012	0.016	0.020
Ti and Ti-alloys	≤24 Rc	130	0.004	0.005	0.006	0.008
	>24-38 Rc	115	0.003	0.004	0.005	0.006



Series # 4105/4106 body (1xD/1.5xD) with # 4111 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Common structural steels	≤100 Bhn	425	0.010	0.012	0.016	0.020
	>100-260 Bhn	360	0.008	0.010	0.012	0.016
Free-cutting steels	≤24 Rc	425	0.012	0.016	0.020	0.025
	>24-30 Rc	361	0.010	0.012	0.016	0.020
Unalloyed heat-treatable steels	≤16 Rc	425	0.010	0.012	0.016	0.020
	16-24 Rc	410	0.010	0.012	0.016	0.020
	24-30 Rc	360	0.008	0.010	0.012	0.016
Alloyed heat-treatable steels	24-30 Rc	360	0.010	0.012	0.016	0.020
	>30-38 Rc	295	0.008	0.010	0.012	0.016
Unalloyed case hardened steels	<230 Bhn	425	0.012	0.016	0.020	0.025
Alloyed case hardened steels	24-30 Rc	360	0.010	0.012	0.016	0.020
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Nitriding steels	≥24-30 Rc	345	0.008	0.010	0.012	0.016
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Tool steels	≤24 Rc	195	0.008	0.010	0.012	0.016
	>24-30 Rc	180	0.006	0.008	0.010	0.012
High speed steels	>14-30 Rc	180	0.005	0.006	0.008	0.010
Spring steels	<330 Bhn	165	0.004	0.005	0.006	0.008
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.008	0.010
	≤24 Rc	130	0.005	0.006	0.008	0.010
	≤24 Rc	115	0.005	0.006	0.008	0.010
Hardened steels	≤40-48 Rc	80	0.004	0.005	0.006	0.008
	>48-60 Rc	0	0.000	0.000	0.000	0.000
Special alloys	<38 Rc	80	0.004	0.005	0.006	0.008
Cast iron	≤240 Bhn	325	0.010	0.012	0.016	0.020
	<300 Bhn	295	0.010	0.012	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	395	0.012	0.016	0.020	0.025
	<300 Bhn	330	0.010	0.012	0.016	0.020
Chilled cast iron	<350 Bhn	295	0.010	0.012	0.016	0.020
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.008	0.010
	>24-38 Rc	115	0.004	0.005	0.006	0.008
Aluminium and Al-alloys	≤120 Bhn	650	0.012	0.016	0.020	0.025
	<150 Bhn	590	0.012	0.016	0.020	0.025
Al wrought alloys	<150 Bhn	590	0.012	0.016	0.020	0.025
Al cast alloys ≤ 10 % Si	≤200 Bhn	490	0.012	0.016	0.020	0.025
	> 10 % Si	395	0.012	0.016	0.020	0.025
Magnesium alloys	<150 Bhn	590	0.012	0.016	0.020	0.025
Copper, low-alloyed	<120 Bhn	230	0.010	0.012	0.016	0.020
Brass, short-chipping long-chipping	≤200 Bhn	590	0.012	0.016	0.020	0.025
	<200 Bhn	395	0.010	0.012	0.016	0.020
Bronze, short-chipping	≤200 Bhn	195	0.010	0.012	0.016	0.020
	>200-260 Bhn	130	0.010	0.012	0.016	0.020

Series # 4105/4106 body (1xD/1.5xD) with # 4113 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Cast iron	≤240 Bhn	325	0.010	0.012	0.016	0.020
	<300 Bhn	295	0.010	0.012	0.016	0.020
Spheroidal graphite iron and malleable cast iron	≤240 Bhn	395	0.012	0.016	0.020	0.025
	<300 Bhn	330	0.010	0.012	0.016	0.020
Chilled cast iron	<350 Bhn	295	0.010	0.012	0.016	0.020

Series # 4105/4106 body (1xD/1.5xD) with #4114 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Aluminium and Al-alloys	≤120 Bhn	650	0.012	0.016	0.020	0.025
	<150 Bhn	590	0.012	0.016	0.020	0.025
Al wrought alloys	<150 Bhn	590	0.012	0.016	0.020	0.025
Al cast alloys ≤ 10 % Si	≤200 Bhn	490	0.012	0.016	0.020	0.025
	> 10 % Si	395	0.012	0.016	0.020	0.025
Magnesium alloys	<150 Bhn	590	0.012	0.016	0.020	0.025
Copper, low-alloyed	<120 Bhn	230	0.010	0.012	0.016	0.020
Brass, short-chipping long-chipping	≤200 Bhn	590	0.012	0.016	0.020	0.025
	<200 Bhn	395	0.010	0.012	0.016	0.020
Bronze, short-chipping	≤200 Bhn	195	0.010	0.012	0.016	0.020
	>200-260 Bhn	130	0.010	0.012	0.016	0.020

Series # 4105/4106 body (1xD/1.5xD) with # 4115 insert

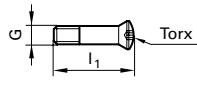
Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.008	0.010
	≤24 Rc	130	0.005	0.006	0.008	0.010
	≤24 Rc	115	0.005	0.006	0.008	0.010
Chilled cast iron	<350 Bhn	295	0.010	0.012	0.016	0.020
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.008	0.010
	>24-38 Rc	115	0.004	0.005	0.006	0.008

Series # 4105/4106 body (1xD/1.5xD) with # 4112 insert

Material group	Hardness	SFM	Feed Rate (IPR)			
			1/2 in. 12.700mm	5/8 in. 15.870mm	3/4 in. 19.050mm	1 in. 25.400mm
Common structural steels	≤100 Bhn	425	0.010	0.012	0.016	0.020
	>100-260 Bhn	360	0.008	0.010	0.012	0.016
Free-cutting steels	≤24 Rc	425	0.012	0.016	0.020	0.025
	>24-30 Rc	361	0.010	0.012	0.016	0.020
Unalloyed heat-treatable steels	≤16 Rc	425	0.010	0.012	0.016	0.020
	16-24 Rc	410	0.010	0.012	0.016	0.020
	24-30 Rc	360	0.008	0.010	0.012	0.016
Alloyed heat-treatable steels	24-30 Rc	360	0.010	0.012	0.016	0.020
	>30-38 Rc	295	0.008	0.010	0.012	0.016
Unalloyed case hardened steels	<230 Bhn	425	0.012	0.016	0.020	0.025
Alloyed case hardened steels	24-30 Rc	360	0.010	0.012	0.016	0.020
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Nitriding steels	≥24-30 Rc	345	0.008	0.010	0.012	0.016
	>30-38 Rc	230	0.006	0.008	0.010	0.012
Tool steels	≤24 Rc	195	0.008	0.010	0.012	0.016
	>24-30 Rc	180	0.006	0.008	0.010	0.012
High speed steels	>14-30 Rc	180	0.005	0.006	0.008	0.010
Spring steels	<330 Bhn	165	0.004	0.005	0.006	0.008
Stainless steels, sulphured austenitic martensitic	≤24 Rc	180	0.005	0.006	0.008	0.010
	≤24 Rc	130	0.005	0.006	0.008	0.010
	≤24 Rc	115	0.005	0.006	0.008	0.010
Hardened steels	≤40-48 Rc	80	0.004	0.005	0.006	0.008
	>48-60 Rc	0	0.000	0.000	0.000	0.000
Special alloys	<38 Rc	80	0.004	0.005	0.006	0.008
Ti and Ti-alloys	≤24 Rc	130	0.005	0.006	0.008	0.010
	>24-38 Rc	115	0.004	0.005	0.006	0.008



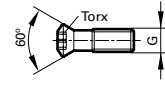
Clamping screws for HT 800 inserts



Series 4071

For holder size	Size	OAL	with Torx	Order Code
115	M2.2	10.0	T7	9040710022000
120/125	M2.2	11.0	T7	9040710022010
130/135	M2.5	12.0	T8	9040710025000
140/145	M3	12.85	T9	9040710030000
150/155	M3	13.85	T9	9040710030010
160/170	M3.5	15.0	T10	9040710035000
180/190	M4	17.0	T15	9040710040000
200/210	M4.5	19.0	T15	9040710045000
220/230	M5	21.0	T20	9040710050000
240/250	M5	23.0	T20	9040710050010


Clamping screws for chamfering inserts





Series 6128

For holder size	Size	OAL	with Torx	Order Code
110-140	M2.0	5.5	T6	9061280020000
160-240	M2.5	5.3	T7	9061280025000


Torx driver



Series 4915

Type	Drive	l1 mm	Torque (Nm)	Order Code
A	1/4" 	131	0.8 - 2	9049150020000
A	1/4" 	142	2 - 8	9049150080000


Screw driver









Series 1612

For holder size	for Torx	Order Code
115-125	T7	9016120070010
130/135	T8	9016120080010
140-155	T9	9016120090010
160/170	T10	9016120100010
180-210	T15	9016120150010
220-250	T20	9016120200010

Torx Bits



Series 4917

for Torx	Drive	l1 mm	Order Code
T7	1/4" 	25	9049170070000
T8	1/4" 	25	9049170080000
T9	1/4" 	25	9049170090000
T10	1/4" 	25	9049170100000
T15	1/4" 	25	9049170150000
T20	1/4" 	25	9049170200000

Torque values for clamping screws

Diameter range	11.0 - 12.99	13.0 - 13.99	14.0 - 15.99	16.0 - 17.99	18.0 - 19.99	20.0 - 21.99	22.0 - 25.99
Thread	M2.2	M2.5	M3	M3.5	M4	M4.5	M5
Torx size	T7	T8	T9	T10	T15	T15	T20
Tightening torque (Ncm)	80	100	170	270	400	580	810

STANDARD & SPECIAL PRODUCT RANGE

• HSS, HSCO & PM Standards •

GU 500 DZ Universal Drills
GT 500 DZ High Performance Drills
GT 100 Parabolic Flute Deep Hole Drills
Coolant-Through GT 100 IC Parabolic Flute Deep Hole Drills
GT 80 Parabolic Flute Deep Hole Drills
Coolant-Through GT 80 IC Parabolic Flute Deep Hole Drills
GT 50 Parabolic Flute Deep Hole Drills
General Purpose Drills
Heavy Duty Drills
Heavy Duty Split Point Drills
Low Helix Drills
High Helix Drills
Micro-Precision Drills
NC Spot Drills
Drill-Countersinks
High Performance HSS-E Taps
High Performance PM HSS-E Taps

• HSS & HSCO Specials •

Drills
Step Drills
Step Drill Reamers
Step Core Drills
Step Core Drill Reamers
Reamers
Step Reamers
Subland Drills
Subland Drill Reamers
Subland Core Drills
Taps

• Carbide Standards •

RT 100 U/F High Penetration Drills
RT 100 X High Penetration Drills
RT 100 R High Penetration Drills
RT 100 T Deep Hole Drills
Coolant-Through RT 100 U/F/C High Penetration Drills
Coolant-Through RT 150 GG Straight-Flute High Penetration Drills
Coolant-Through HT/RT 800 WP Interchangeable Insert Drills
GS 200 U/G Three-Flute High Precision Drills
GT 100 Parabolic Flute Deep Hole Drills
Exclusive Line® Small-Diameter Drills
EB 100 Small-Diameter Single-Flute Gun Drills
General Purpose Drills
NC Spot Drills
PRO-Line Universal End Mills
TECH-Line High Performance End Mills

• Carbide Specials •

Drills
RT High Performance Drills
G Drills
Gun Drills
Three- & Four-Flute Drills
Step Drills
Step Drill Reamers
Step Core Drills
Step Core Drill Reamers
Reamers
Step Reamers
Subland Drills
Subland Drill Reamers
Subland Core Drills
Taps
End Mills

• PCD Specials •

• Coating Services •

Titanium Nitride (TiN)
Titanium Carbonitride (TiCN)
Titanium Aluminum Nitride (TiAlN)
FIREX® Special Multilayer Hard Coating
Super A (AlTiN)
MolyGlide® Lubricating Soft Coating
Nitride/Steam Oxide
nano-A™ micro thin AlTiN
nano-FIREX® micro thin film gradient structure

• Reconditioning Service •

• GM 300 Modular HSK Toolholding System •

Hydraulic / Shrink / Collet Chucks
Adapters
Collets

• GE 100 Modular Tooling System •

DISTRIBUTED BY:

GUHRING

www.guhring.com

Guhring, Inc.
P.O. Box 643, Brookfield, WI 53008-0643

Shipping Address
1445 Commerce Avenue
Brookfield, WI 53045
Tel (262) 784-6730 (800) 776-6170
Fax (262) 784-9096

West Coast Distribution Center
17902 Georgetown Lane
Huntington Beach, CA 92647

Guhring Corporation
20 Steckle Place, Unit #14
Kitchener, ON N2E 2C3
Tel (519) 748-9664 (800) 463-5555
Fax (519) 748-2954