HT 800 WP interchangeable inserts

HT 800 WP interchangeable inserts utilize the perfect combination of carbide substrate, point geometry, and coating to accommodate your specific application. Dull inserts can be reliably changed out while the drill remains in the machine. Therefore, you will consistently achieve optimal machining results with the highest level of performance and economic efficiency.

Technical features and application recommendations

● optimal suitability
○ limited suitability

Application group	Material examples	4112	4113	4114	4115	4111	4229
Series		**4112**	**4113**	**4114**	**4115**	**4111**	**4229**
Tool material		solid carbide	solid carbide	solid carbide	solid carbide	solid carbide	solid carbide
Coating		nano-FIREX®	FIREX®	bright	nano-A	nano-A	nano-FIREX®
Point geometry		2-facet	2-facet	relieved cone	relieved cone	2-facet	2-facet
Point angle		140°	140°	140°	140°	145°	125° / 160°
Tolerance		h7	m7	h7	h7	m7	h7
Diameter		11.0 - 40.0	11.0 - 40.0	11.0 - 40.0	11.0 - 40.0	11.0 - 40.0	12.0 - 40.0
Application		**steel**	**cast iron**	**aluminum**	**stainl. steel**	**pilot drilling**	**steel beams**
Page		**10-12**	**10-12**	**10-12**	**10-12**	**14-15**	**13**
							
P	steel, cast steel, stainless steel (ferritic and martensitic)	●	○		○	○	●
M	stainless steel and cast steel (austenitic and austenitic/ferritic)	○			●	○	
K	grey cast iron, spheroidal graphite and malleable cast iron	○	●		○	○	
N	aluminum and other non-ferrous metals			●		○	
S	Special, Super- and Ti-alloys				○	○	
H	Hardened steels and chilled cast iron				○	○	

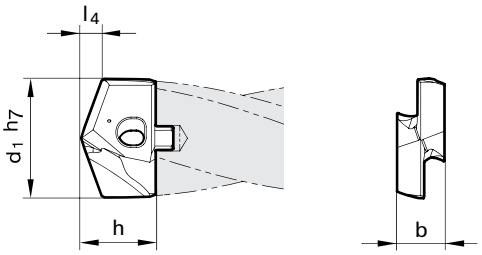
● optimal suitability
○ limited suitability

Application group	Material examples	7645	7632	7635
Series		**7645**	**7632**	**7635**
Tool material		solid carbide	solid carbide	solid carbide
Coating		TiN	TiAlN	bright
Type		CPGT ... R	CPGW ...	CPGT ... R
Application		**steel**	**cast iron**	**aluminum**
Page		**16**	**16**	**16**
				
P	steel, cast steel, stainless steel (ferritic and martensitic)	●	○	
M	stainless steel and cast steel (austenitic and austenitic/ferritic)	○		
K	grey cast iron, spheroidal graphite und malleable cast iron	○	●	
N	aluminum and other non-ferrous metals			●
S	Special, Super- and Ti-alloys	○		
H	Hardened steels and chilled cast iron	○		

Material-specific drill inserts

Four unique material-specific drill insert geometries are available. The unique design of the central locating post and heavy-duty Torx clamping screw allows quick and accurate insert replacement.

The high-performance insert design provides maximum penetration rates that far exceed conventional spade drills or indexable insert drills.



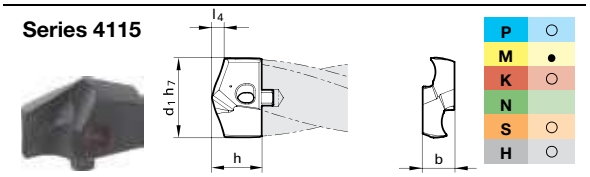
① Choose your diameter

② Choose the appropriate insert for your workpiece material

③ Determine corresponding drill body size; select desired length from drill body pages.

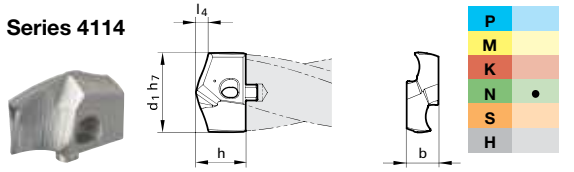
d1 fract.	d1 mm	h mm	b mm	l4 mm	Series 4112 nano-FIREX® EDP No.	Series 4113 FIREX® EDP No.	Series 4114 bright EDP No.	Series 4115 nano-A EDP No.	Drill Body Size	Pilot Drill Body Size
	11.00	7.5	4.5	2.1	9041120110000	9041130110000	9041140110000	9041150110000	110	110
	11.20				9041120112000	9041130112000	9041140112000	9041150112000		
	11.50			2.1	9041120115000	9041130115000	9041140115000	9041150115000		
29/64	11.51			2.1	9041120115100	9041130115100	9041140115100	9041150115100		
	11.70	7.5	4.5	2.1	9041120117000	9041130117000	9041140117000	9041150117000	115	110
	11.80			2.1	9041120118000	9041130118000	9041140118000	9041150118000		
15/32	11.91			2.2	9041120119100	9041130119100	9041140119100	9041150119100		
	12.00			2.2	9041120120000	9041130120000	9041140120000	9041150120000		
	12.10	7.7	5.0	2.2	9041120121000	9041130121000	9041140121000	9041150121000	120	120
	12.20			2.2	9041120122000	9041130122000	9041140122000	9041150122000		
31/64	12.30			2.2	9041120123000	9041130123000	9041140123000	9041150123000		
	12.50			2.3	9041120125000	9041130125000	9041140125000	9041150125000		
	12.60			2.3	9041120126000	9041130126000	9041140126000	9041150126000		
1/2	12.70	7.7	5.0	2.3	9041120127000	9041130127000	9041140127000	9041150127000	125	120
	12.80			2.3	9041120128000	9041130128000	9041140128000	9041150128000		
	12.90			2.3	9041120129000	9041130129000	9041140129000	9041150129000		
	13.00			2.4	9041120130000	9041130130000	9041140130000	9041150130000		
33/64	13.10	8.5	5.5	2.4	9041120131000	9041130131000	9041140131000	9041150131000	130	130
17/32	13.49			2.4	9041120134900	9041130134900	9041140134900	9041150134900		
	13.50			2.4	9041120135000	9041130135000	9041140135000	9041150135000		
	13.60			2.4	9041120136000	9041130136000	9041140136000	9041150136000		
	13.70	8.5	5.5	2.4	9041120137000	9041130137000	9041140137000	9041150137000	135	130
	13.80			2.5	9041120138000	9041130138000	9041140138000	9041150138000		
35/64	13.89			2.5	9041120138900	9041130138900	9041140138900	9041150138900		
	14.00			2.5	9041120140000	9041130140000	9041140140000	9041150140000		
	14.10	9.6	6.0	2.5	9041120141000	9041130141000	9041140141000	9041150141000	140	140
9/16	14.29			2.6	9041120142900	9041130142900	9041140142900	9041150142900		
	14.40			2.6	9041120144000	9041130144000	9041140144000	9041150144000		
	14.50			2.6	9041120145000	9041130145000	9041140145000	9041150145000		
	14.60			2.7	9041120146000	9041130146000	9041140146000	9041150146000		
37/64	14.68	9.6	6.0	2.7	9041120146800	9041130146800	9041140146800	9041150146800	145	140
	14.70			2.7	9041120147000	9041130147000	9041140147000	9041150147000		
	14.80			2.7	9041120148000	9041130148000	9041140148000	9041150148000		
	15.00			2.7	9041120150000	9041130150000	9041140150000	9041150150000		
19/32	15.08			2.7	9041120150800	9041130150800	9041140150800	9041150150800		
	15.10	9.8	6.0	2.7	9041120151000	9041130151000	9041140151000	9041150151000	150	140
	15.20			2.8	9041120152000	9041130152000	9041140152000	9041150152000		
	15.30			2.8	9041120153000	9041130153000	9041140153000	9041150153000		
39/64	15.48			2.8	9041120154800	9041130154800	9041140154800	9041150154800		
	15.50			2.8	9041120155000	9041130155000	9041140155000	9041150155000		
	15.60			2.9	9041120156000	9041130156000	9041140156000	9041150156000		
	15.70	9.8	6.0	2.9	9041120157000	9041130157000	9041140157000	9041150157000	155	140
	15.80			2.9	9041120158000	9041130158000	9041140158000	9041150158000		
5/8	15.87			2.9	9041120158700	9041130158700	9041140158700	9041150158700		

Series 4115



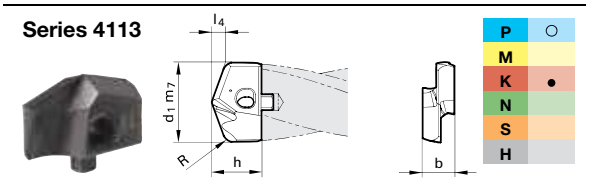
P	○
M	●
K	○
N	
S	○
H	○

Series 4114



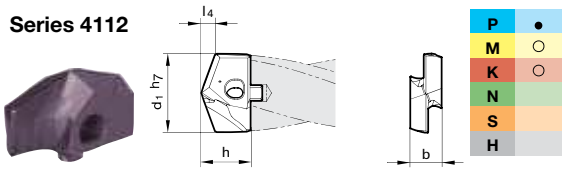
P	
M	
K	
N	●
S	
H	

Series 4113



P	○
M	
K	●
N	
S	
H	

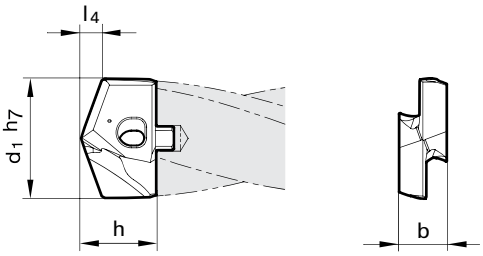
Series 4112



P	●
M	○
K	○
N	
S	
H	

d1 fract.	d1 mm	h mm	b mm	l4 mm	Series 4112 nano-FIREX® EDP No.	Series 4113 FIREX® EDP No.	Series 4114 bright EDP No.	Series 4115 nano-A EDP No.	Drill Body Size	Pilot Drill Body Size
	16.00	11.0	7.0	2.9	9041120160000	9041130160000	9041140160000	9041150160000	160	160
41/64	16.27			3.0	9041120162700	9041130162700	9041140162700	9041150162700		
	16.50	11.0	7.0	3.0	9041120165000	9041130165000	9041140165000	9041150165000	165	160
21/32	16.67			3.0	9041120166700	9041130166700	9041140166700	9041150166700		
	17.00	11.0	7.0	3.1	9041120170000	9041130170000	9041140170000	9041150170000	170	160
43/64	17.07			3.1	9041120170700	9041130170700	9041140170700	9041150170700		
11/16	17.46			3.1	9041120174600	9041130174600	9041140174600	9041150174600		
	17.50	11.0	7.0	3.2	9041120175000	9041130175000	9041140175000	9041150175000	175	160
	17.60			3.2	9041120176000	9041130176000	9041140176000	9041150176000		
45/64	17.86			3.3	9041120178600	9041130178600	9041140178600	9041150178600		
	18.00	12.6	8.0	3.3	9041120180000	9041130180000	9041140180000	9041150180000	180	180
23/32	18.26			3.3	9041120182600	9041130182600	9041140182600	9041150182600		
	18.50	12.6	8.0	3.4	9041120185000	9041130185000	9041140185000	9041150185000	185	180
47/64	18.65			3.4	9041120186500	9041130186500	9041140186500	9041150186500		
	19.00	12.6	8.0	3.5	9041120190000	9041130190000	9041140190000	9041150190000	190	180
3/4	19.05			3.5	9041120190500	9041130190500	9041140190500	9041150190500		
49/64	19.45			3.5	9041120194500	9041130194500	9041140194500	9041150194500		
	19.50	12.6	8.0	3.5	9041120195000	9041130195000	9041140195000	9041150195000	195	180
	19.60			3.6	9041120196000	9041130196000	9041140196000	9041150196000		
25/32	19.84			3.6	9041120198400	9041130198400	9041140198400	9041150198400		
	20.00	13.9	9.0	3.6	9041120200000	9041130200000	9041140200000	9041150200000	200	200
51/64	20.24			3.6	9041120202400	9041130202400	9041140202400	9041150202400		
	20.50	13.9	9.0	3.7	9041120205000	9041130205000	9041140205000	9041150205000	205	200
13/16	20.64			3.8	9041120206400	9041130206400	9041140206400	9041150206400		
	21.00	13.9	9.0	3.8	9041120210000	9041130210000	9041140210000	9041150210000	210	200
53/64	21.03			3.8	9041120210300	9041130210300	9041140210300	9041150210300		
	21.10			3.9	9041120211000	9041130211000	9041140211000	9041150211000		
27/32	21.43			3.9	9041120214300	9041130214300	9041140214300	9041150214300		
	21.50	13.9	9.0	3.9	9041120215000	9041130215000	9041140215000	9041150215000	215	200
55/64	21.83			4.0	9041120218300	9041130218300	9041140218300	9041150218300		
	22.00	15.3	10.0	4.0	9041120220000	9041130220000	9041140220000	9041150220000	220	220
7/8	22.22			4.0	9041120222200	9041130222200	9041140222200	9041150222200		
	22.50	15.3	10.0	4.1	9041120225000	9041130225000	9041140225000	9041150225000	225	220
57/64	22.62			4.1	9041120226200	9041130226200	9041140226200	9041150226200		
	23.00	15.3	10.0	4.2	9041120230000	9041130230000	9041140230000	9041150230000	230	220
29/32	23.02			4.2	9041120230200	9041130230200	9041140230200	9041150230200		
59/64	23.42			4.3	9041120234200	9041130234200	9041140234200	9041150234200		
	23.50	15.3	10.0	4.3	9041120235000	9041130235000	9041140235000	9041150235000	235	220
15/16	23.81			4.3	9041120238100	9041130238100	9041140238100	9041150238100		
	24.00	15.8	11.0	4.4	9041120240000	9041130240000	9041140240000	9041150240000	240	240
	24.10			4.4	9041120241000	9041130241000	9041140241000	9041150241000		
61/64	24.21			4.4	9041120242100	9041130242100	9041140242100	9041150242100		
	24.50	15.8	11.0	4.5	9041120245000	9041130245000	9041140245000	9041150245000	245	240
31/32	24.61			4.5	9041120246100	9041130246100	9041140246100	9041150246100		
	25.00	15.8	11.0	4.5	9041120250000	9041130250000	9041140250000	9041150250000	250	240
1	25.40			4.6	9041120254000	9041130254000	9041140254000	9041150254000		
	25.50	15.8	11.0	4.6	9041120255000	9041130255000	9041140255000	9041150255000	255	240
	26.00	20.00	12.00	4.80	9041120260000	9041130260000	9041140260000	9041150260000	260	260
1 1/32	26.19	20.00	12.00	4.80	9041120261900	9041130261900	9041140261900	9041150261900		
	26.50	20.00	12.00	4.90	9041120265000	9041130265000	9041140265000	9041150265000	265	260
1 3/64	26.59	20.00	12.00	4.90	9041120265900	9041130265900	9041140265900	9041150265900		
	27.00	20.00	12.00	5.00	9041120270000	9041130270000	9041140270000	9041150270000	270	260

HT 800 WP drill inserts



d1 fract.	d1 mm	h mm	b mm	l4 mm	Series 4112 nano-FIREX® EDP No.	Series 4113 FIREX® EDP No.	Series 4114 bright EDP No.	Series 4115 nano-A EDP No.	Drill Body Size	Pilot Drill Body Size
	27.50	20.00	12.00	5.10	9041120275000	9041130275000	9041140275000	9041150275000		
	27.70	20.00	12.00	5.10	9041120277000	9041130277000	9041140277000	9041150277000	275	260
1 3/32	27.78	20.00	12.00	5.10	9041120277800	9041130277800	9041140277800	9041150277800		
	28.00	20.70	13.00	5.10	9041120280000	9041130280000	9041140280000	9041150280000	280	280
1 7/64	28.18	20.70	13.00	5.20	9041120281800	9041130281800	9041140281800	9041150281800		
	28.50	20.70	13.00	5.20	9041120285000	9041130285000	9041140285000	9041150285000	285	280
1 1/8	28.58	20.70	13.00	5.30	9041120285800	9041130285800	9041140285800	9041150285800		
	29.00	20.70	13.00	5.30	9041120290000	9041130290000	9041140290000	9041150290000	290	280
1 5/32	29.37	20.70	13.00	5.40	9041120293700	9041130293700	9041140293700	9041150293700		
	29.50	20.70	13.00	5.40	9041120295000	9041130295000	9041140295000	9041150295000		
	29.60	20.70	13.00	5.50	9041120296000			9041150296000	295	280
1 11/64	29.77	20.70	13.00	5.50	9041120297700	9041130297700	9041140297700	9041150297700		
	30.00	22.30	14.00	5.50	9041120300000	9041130300000	9041140300000	9041150300000	300	300
1 3/16	30.16	22.30	14.00	5.60	9041120301600	9041130301600	9041140301600	9041150301600		
	30.50	22.30	14.00	5.70	9041120305000	9041130305000	9041140305000	9041150305000	305	300
1 7/32	30.96	22.30	14.00	5.70	9041120309600	9041130309600	9041140309600	9041150309600		
	31.00	22.30	14.00	5.80	9041120310000	9041130310000	9041140310000	9041150310000	310	300
	31.50	22.30	14.00	5.80	9041120315000	9041130315000	9041140315000	9041150315000	315	300
1 1/4	31.75	22.30	14.00	5.90	9041120317500	9041130317500	9041140317500	9041150317500		
	32.00	23.10	15.00	6.00	9041120320000	9041130320000	9041140320000	9041150320000		
	32.50	23.10	15.00	6.00	9041120325000	9041130325000	9041140325000	9041150325000	320	320
1 9/32	32.54	23.10	15.00	6.00	9041120325400	9041130325400	9041140325400	9041150325400		
1 19/64	32.94	23.10	15.00	6.10	9041120329400	9041130329400	9041140329400	9041150329400		
	33.00	23.10	15.00	6.10	9041120330000	9041130330000	9041140330000	9041150330000		
1 5/16	33.34	23.10	15.00	6.10	9041120333400	9041130333400	9041140333400	9041150333400	330	320
	33.50	23.10	15.00	6.20	9041120335000	9041130335000	9041140335000	9041150335000		
	34.00	23.10	15.00	6.30	9041120340000	9041130340000	9041140340000	9041150340000		
1 11/32	34.13	23.10	15.00	6.30	9041120341300	9041130341300	9041140341300	9041150341300	340	320
	34.50	23.10	15.00	6.40	9041120345000	9041130345000	9041140345000	9041150345000		
1 3/8	34.93	23.10	15.00	6.40	9041120349300	9041130349300	9041140349300	9041150349300		
	35.00	23.10	15.00	6.50	9041120350000	9041130350000	9041140350000	9041150350000		
	35.50	23.10	15.00	6.60	9041120355000	9041130355000	9041140355000	9041150355000	350	320
1 13/32	35.72	23.10	15.00	6.60	9041120357200	9041130357200	9041140357200	9041150357200		
	36.00	23.90	16.00	6.70	9041120360000	9041130360000	9041140360000	9041150360000		
	36.50	23.90	16.00	6.70	9041120365000	9041130365000	9041140365000	9041150365000	360	360
1 7/16	36.51	23.90	16.00	6.80	9041120365100	9041130365100	9041140365100	9041150365100		
	37.00	23.90	16.00	6.80	9041120370000	9041130370000	9041140370000	9041150370000		
1 15/32	37.31	23.90	16.00	6.90	9041120373100	9041130373100	9041140373100	9041150373100	370	360
	37.50	23.90	16.00	7.00	9041120375000	9041130375000	9041140375000	9041150375000		
	38.00	23.90	16.00	7.00	9041120380000	9041130380000	9041140380000	9041150380000		
1 1/2	38.10	23.90	16.00	7.00	9041120381000	9041130381000	9041140381000	9041150381000	380	360
1 33/64	38.50	23.90	16.00	7.10	9041120385000	9041130385000	9041140385000	9041150385000		
	39.00	23.90	16.00	7.10	9041120390000	9041130390000	9041140390000	9041150390000		
	39.50	23.90	16.00	7.20	9041120395000	9041130395000	9041140395000	9041150395000	390	360
	40.00	23.90	16.00	7.30	9041120400000	9041130400000	9041140400000	9041150400000		

Inserts are supplied with clamping screw, series 4071.

Body 4105 through 4108

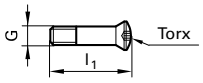
Material group	Hardness HRc	Hardness Bhn	SFM	Feed Rate - IPR 1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Hardened steels	≤ 48 ≤ 66	≤ 460 -	80				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100
Stainless steels, sulphured	≤ 28	≤ 273	180				0.0050	0.0050	0.0065	0.0080	0.0100	0.0100	0.0125
austenitic	≤ 36	≤ 337	130				0.0050	0.0050	0.0065	0.0080	0.0100	0.0100	0.0125
martensitic	≤ 46	≤ 435	115				0.0050	0.0050	0.0065	0.0080	0.0100	0.0100	0.0125
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354											
Chilled cast iron	≤ 38	≤ 354	295				0.0100	0.0100	0.0125	0.0155	0.0195	0.0195	0.0250
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301											
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402											
Special alloys	≤ 54	≤ 549	80				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100
Ti and Ti-alloys	≤ 25	≤ 255	130				0.0050	0.0050	0.0065	0.0080	0.0100	0.0100	0.0125
	≤ 43	≤ 402	115				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100

Body 4109 & 4110

Material group	Hardness HRc	Hardness Bhn	SFM	Feed Rate - IPR 1/16 in. 1.590 mm	1/8 in. 3.170 mm	1/4 in. 6.350 mm	3/8 in. 9.520 mm	1/2 in. 12.700 mm	5/8 in. 15.870 mm	3/4 in. 19.050 mm	1 in. 25.400 mm	1 1/4 in. 31.750 mm	1 1/2 in. 38.100 mm
Hardened steels	≤ 48 ≤ 66	≤ 460 -	80				0.0030	0.0030	0.0040	0.0050	0.0065	0.0065	0.0080
Stainless steels, sulphured	≤ 28	≤ 273	180				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100
austenitic	≤ 36	≤ 337	130				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100
martensitic	≤ 46	≤ 435	115				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100
Cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354											
Spheroidal graphite iron and malleable cast iron	≤ 23 ≤ 38	≤ 242 ≤ 354											
Chilled cast iron	≤ 38	≤ 354	230				0.0100	0.0100	0.0125	0.0155	0.0195	0.0195	0.0250
New cast materials GGV	≤ 20 ≤ 32	≤ 220 ≤ 301											
New cast materials ADI	≤ 32 ≤ 43	≤ 301 ≤ 402											
Special alloys	≤ 54	≤ 549	80				0.0030	0.0030	0.0040	0.0050	0.0065	0.0065	0.0080
Ti and Ti-alloys	≤ 25	≤ 255	130				0.0040	0.0040	0.0050	0.0065	0.0080	0.0080	0.0100
	≤ 43	≤ 402	115				0.0030	0.0030	0.0040	0.0050	0.0065	0.0065	0.0080

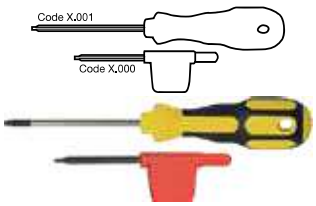
Clamping screws for HT 800 inserts

Series 4071



For body size	Size	OAL	with Torx	EDP No.
110/115	M2.2	9.50	T7	9040710022000
120/125	M2.2	10.50	T7	9040710022010
130/135	M2.5	11.40	T8	9040710025000
140/145	M3	12.10	T9	9040710030000
150/155	M3	13.10	T9	9040710030010
160 - 175	M3.5	14.25	T10	9040710035000
180 - 195	M4	16.00	T15	9040710040000
200 - 215	M4.5	18.00	T15	9040710045000
220 - 235	M5	19.75	T20	9040710050000
240 - 255	M5	21.75	T20	9040710050010
260 - 295	M5	23.40	T20	9040710050030
300 - 315	M6	27.00	T25	9040710060000
320 - 350	M6	28.50	T25	9040710060010
360 - 390	M6	32.50	T25	9040710060020

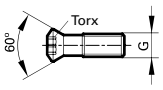
Screw driver Series 1612



For body size	for Torx	EDP No.
Pilot Body 110 - 140	T6	9016120060000
Pilot Body 160 - 280	T7	9016120070000
110 - 125	T7	9016120070010
130/135	T8	9016120080010
140 - 155	T9	9016120090010
160 - 175	T10	9016120100010
Pilot Body 300 - 360	T15	9016120150000
180 - 215	T15	9016120150010
220-295	T20	9016120200010
300 - 390	T25	9016120250000

Clamping screws for chamfering inserts

Series 6128



For body size	Size	OAL	with Torx	EDP No.
110 - 140	M2.0	5.5	T6	9061280020000
160 - 240	M2.5	5.3	T7	9061280025000
300 - 360	M4.0	9.5	T15	9061280040000

Torx Bits

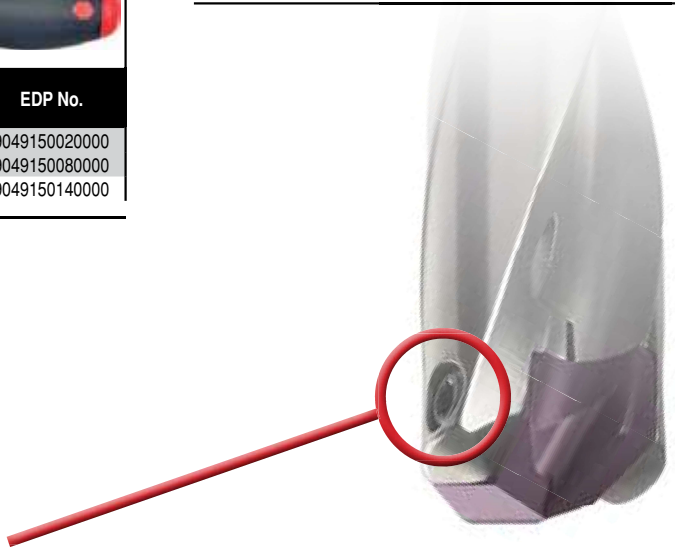
Series 4917

for Torx	Drive	l1 mm	EDP No.
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
T25	1/4"	25	9049170250000

Torque wrench

Series 4915

Type	Drive	l1 mm	Tightening torque (Nm)	EDP No.
A	1/4"	160.00	0.8 - 2	9049150020000
A	1/4"	160.00	2 - 8	9049150080000
A	1/4"	200.00	5 - 14	9049150140000



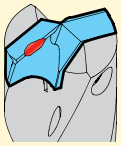
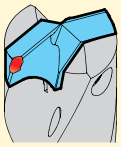
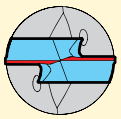
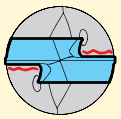
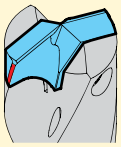
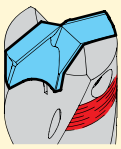
Torque values for clamping screws

Diameter range (mm)	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 - 29.99	30.0 - 40.00
Thread	M2.2	M2.5	M3	M3.5	M4	M4.5	M5	M6
Torx size	T7	T8	T9	T10	T15	T15	T20	T25
Tightening torque [Nm]	**0.80**	**1.00**	**1.70**	**2.70**	**4.00**	**6.0**	**8.00**	**14.0**

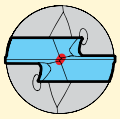
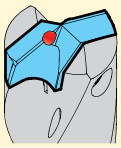
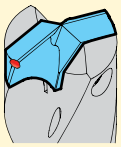
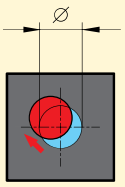
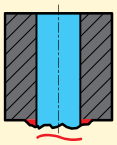
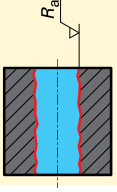
The information above applies to screws containing thread locker (Loctite). Guhring HT800 drill tip insert screws are supplied containing thread locker.

Bodies are supplied with clamping screw, series 4071, and screwdriver, series 1612.

12 tips to help diagnose problems

Problem	Cause	Remedy
1 Cutting edge build up 	low cutting speed	increase cutting speed
	excessive honing of cutting lip	reduce cutting lip honing
	bright finish cutting lip	have tool coated
2 Crumbling of outer corners 	non-rigid conditions, insufficient workpiece clamping	rigid clamping of workpiece
	deviation from concentricity too large	check and correct concentricity if possible
	interrupted cut	reduce feed
3 Heavy wear at flank 	cutting speed too high	reduce cutting speed
	feed too low	increase feed
	clearance angle too small	increase clearance angle
4 Crumbling on cutting lips 	non-rigid conditions, insufficient workpiece clamping	rigid clamping of workpiece
	interrupted cut	reduce feed
	max. wear values exceeded	reduce tool change intervals
	incorrect tool type	apply suitable tool
5 Land wear 	non-rigid conditions, insufficient workpiece clamping	rigid clamping of workpiece
	deviation from concentricity too large	check and correct concentricity if possible
	back taper too small	increase back taper
	incorrect coolant (oil), coolant too weak	increase strength of coolant or use neat oil
6 Scoring on tool body 	non-rigid conditions, insufficient workpiece clamping	rigid clamping of workpiece
	deviation from concentricity too large	check and correct concentricity if possible
	interrupted cut	reduce feed
	abrasive workpiece material	increase strength of coolant or use neat oil

12 tips to help diagnose problems

Problem	Cause	Remedy
7 Heavy chisel edge wear 	cutting speed too low	increase cutting speed
	feed too high	reduce feed
	excessive honing of cutting lip	reduce cutting lip honing
8 Crumbling at intersection, web thinning and cutting lip 	clearance angle too small	increase clearance angle
	excessive honing of cutting lip	reduce cutting lip honing
	incorrect tool type	apply suitable tool
9 Plastic deformation of outer corner 	cutting speed too high	reduce cutting speed
	insufficient coolant volume	increase volume/pressure
	incorrect or no honing at corner	correct honing
10 Misalignment 	non-rigid conditions, insufficient workpiece clamping	rigid clamping of workpiece
	deviation from concentricity too large	check and correct concentricity if possible
	spotting area not flat	use milling cutter (2-fluted) for spotting
	chisel edge too large	reduce chisel edge
11 Heavy burring on break-through 	feed too high	reduce feed
	max. wear values exceeded	reduce tool change intervals
	excessive honing of cutting lip	reduce cutting lip honing
12 Unsatisfactory surface quality 	non-rigid conditions, insufficient workpiece clamping	rigid clamping of workpiece
	deviation from concentricity too large	check and correct concentricity if possible
	insufficient coolant volume	increase volume/pressure

With the HT 800 WP replaceable tip drilling system Guhring provides high-performance and cost-efficient drilling options for holes with a diameter range of 11.00 to 40.0 mm (0.433 - 1.575 in.) These drills excel thanks to the following advantages:

A Extended tool life

Thanks to application-specific, precision-ground cutting edge geometries and coatings, the interchangeable inserts of the HT 800 WP drilling system are especially wear resistant.
The hardened tool steel and nickel-plated surface treatment utilized during the manufacturing process for the drill bodies, combined with incremental body sizes in steps of 0.5mm up to 31.99mm diameter and 1.0mm above 32.00mm diameter, results in optimal wear resistance on the drill bodies as well.

B Effective chip evacuation

The optimized flute geometry of the drill bodies results in outstanding chip evacuation capabilities, even while drilling deeper holes.

C Optimal cooling and lubrication

Optimal cooling and lubrication is applied through coolant ducts which exit into the flutes and directly onto the cutting edge, resulting in longer tool life and better chip evacuation.

D Highly accurate and rigid insert seat

The precise and easily accessible insert seat allows the insert to be changed while the drill remains in the machine spindle. Due to the unique clamping design, the insert can be changed more times than with competitors' systems before the body needs to be replaced due fatigue of the insert seat. The heavy-duty Torx clamping screws containing thread locker ensure secure clamping of the inserts, even during applications subject to high levels of vibration.

Rigid drill bodies

The small incremental diameter transitions of the drill bodies provide additional benefits other than simply reducing wear on the bodies. Due to the improved guidance and stabilization from margin contact while drilling, the rigidity is also increased, resulting in longer tool life and improved workpiece finishes.