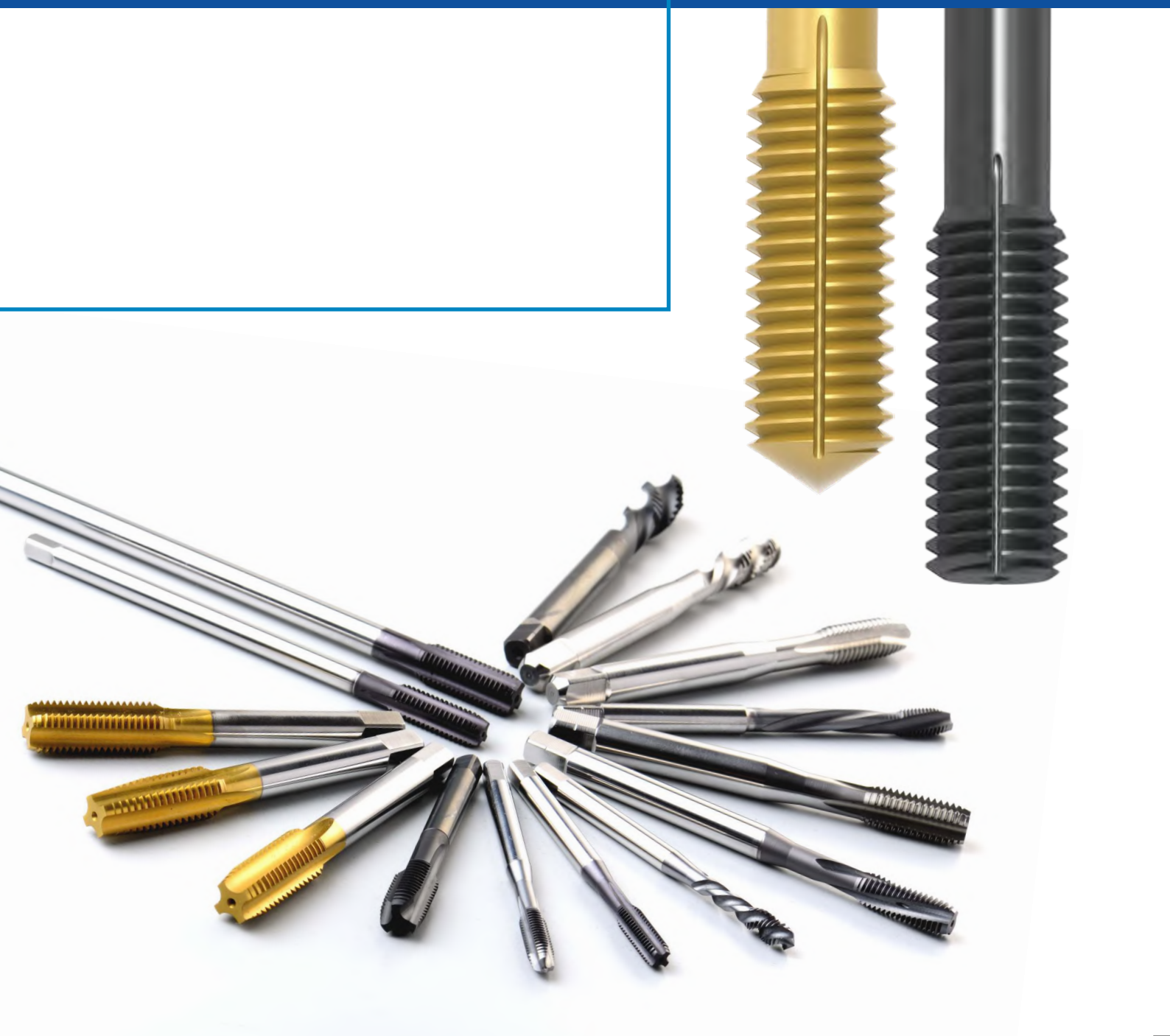
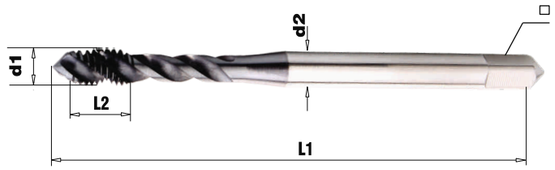
bilz

Gewindebohrer
Taps



SCHNEIDEN GEWINDEBOHRER
CUT TAPS

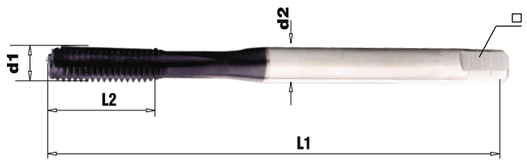
SPIRAL FLUTED TAPS FOR GENERAL APPLICATION



HSS-E | Form C | TiCN | RH | M | 6H

Größe Size (d1)	Ident No.		d2 mm		L1 mm		L2 mm	□ Square size mm	
	DIN	ISO	DIN	ISO	DIN	ISO		DIN	ISO
M4 X 0.7	TA8A8043	TA8B82667	4.5	4.0	63	53	8	3.4	3.15
M5 X 0.8	TA8A8044	TA8B82668	6.0	5.0	70	58	10	4.9	4.0
M6 X 1.0	TA8A8045	TA8B82669	6.0	6.3	80	66	11	4.9	5.0
M8 X 1.25	TA8A8046	TA8B82670	8.0	8.0	90	72	13	6.2	6.3
M10 X 1.5	TA8A8047	TA8B82671	10.0	10.0	100	80	15	8.0	8.0
M12 X 1.75	TA8A8048	TA8B82672	9.0	9.0	110	89	18	7.0	7.1
M14 X 2.0	TA8A8325	TA8B82673	11.0	11.2	110	95	20	9.0	9.0
M16 X 2.0	TA8A8326	TA8B81386	12.0	12.5	110	102	20	9.0	10.0
M20 X 2.5	TA8A8327	TA8B8809	16.0	14.0	140	112	25	12.0	11.2

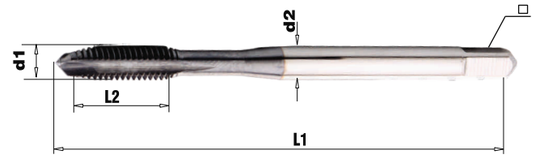
STRAIGHT FLUTED TAPS FOR CAST IRON AND ALUMINIUM



HSS-E | Form C | TiAlN | RH | M | 6HX

Größe Size (d1)	Ident No.		d2 mm		L1 mm		L2 mm		□ Square size mm	
	DIN	ISO	DIN	ISO	DIN	ISO	DIN	ISO	DIN	ISO
M4 X 0.7	TA6A7321	TA6B72663	4.5	4.0	63	53	13	13	3.4	3.15
M5 X 0.8	TA6A7174	TA6B72664	6.0	5.0	70	58	15	15	4.9	4.0
M6 X 1.0	TA6A7072	TA6B71376	6.0	6.3	80	66	16	16	4.9	5.0
M8 X 1.25	TA6A7004	TA6B71340	8.0	8.0	90	72	18	22	6.2	6.3
M10 X 1.5	TA6A7073	TA6B71339	10.0	10.0	100	80	20	24	8.0	8.0
M12 X 1.75	TA6A7083	TA6B71360	9.0	9.0	110	89	24	29	7.0	7.1
M14 X 2.0	TA6A7322	TA6B7970	11.0	11.2	110	95	28	28	9.0	9.0
M16 X 2.0	TA6A7323	TA6B7994	12.0	12.5	110	102	30	30	9.0	10.0
M20 X 2.5	TA6A7324	TA6B71043	16.0	14.0	140	112	30	30	12.0	11.2

SPIRAL POINT TAPS FOR THROUGH HOLES



HSS-E | Form B | TiCN | RH | M | 6H

Größe Size (d1)	Ident No.		d2 mm		L1 mm		L2 mm		□ Square size mm	
	DIN	ISO	DIN	ISO	DIN	ISO	DIN	ISO	DIN	ISO
M4 X 0.7	TA7A8312	TA7B8035	4.5	4.0	63	53	13	13	3.4	3.15
M5 X 0.8	TA7A8313	TA7B8036	6.0	5.0	70	58	15	15	4.9	4.0
M6 X 1.0	TA7A8314	TA7B8037	6.0	6.3	80	66	16	16	4.9	5.0
M8 X 1.25	TA7A8315	TA7B8038	8.0	8.0	90	72	18	22	6.2	6.3
M10 X 1.5	TA7A8316	TA7B8039	10.0	10.0	100	80	20	24	8.0	8.0
M12 X 1.75	TA7A8317	TA7B8040	9.0	9.0	110	89	24	29	7.0	7.1
M14 X 2.0	TA7A8318	TA7B82665	11.0	11.2	110	95	28	28	9.0	9.0
M16 X 2.0	TA7A8319	TA7B82666	12.0	12.5	110	102	30	30	9.0	10.0
M20 X 2.5	TA7A8320	TA7B8357	16.0	14.0	140	112	30	30	12.0	11.2

SPECIALS ON REQUEST

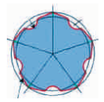
- UNF / UNC taps with Straight, Spiral & Spiral point flutes
- JIS standards also available for the above listed items
- Uncoated taps - TiN / TiCN / TiAlN
- Thread tolerance - 4H / 5H, 6H, 6HX, 7H/8H, 7G, 8G, 1B, 2B, 3B
- Left hand taps
- Internal coolant taps
- ACME taps, Taper taps like NPT, BSPT, Multistart taps, Interrupted taps, Spiral lock taps and Hollow taps can be supplied upon request

FORMEN GEWINDEBOHRER
FORM TAPS

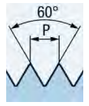
HSSE - M35

6HX

With Oil Groove

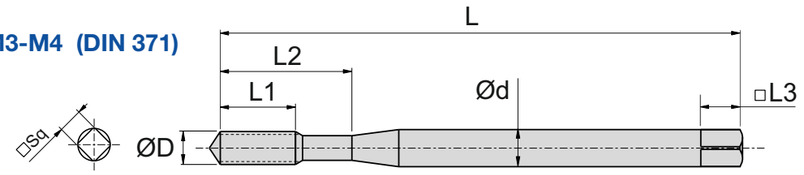


M

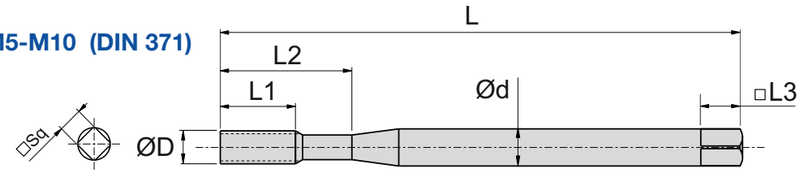


RH

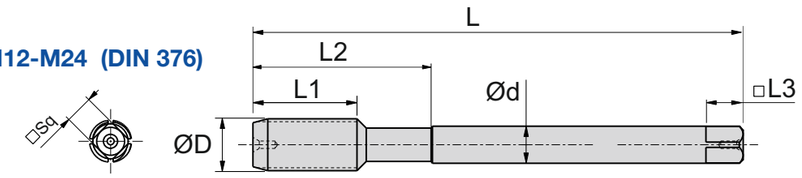
M3-M4 (DIN 371)



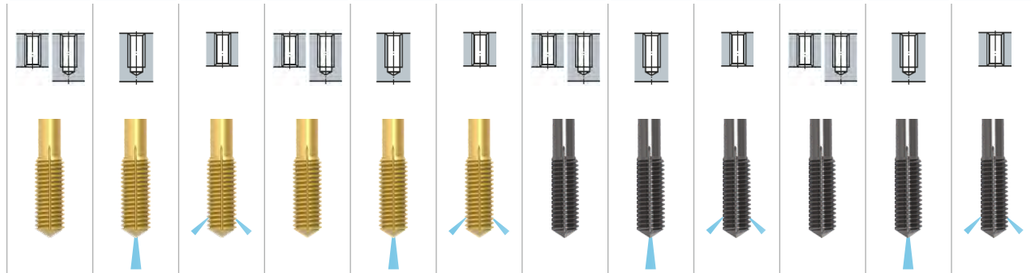
M5-M10 (DIN 371)



M12-M24 (DIN 376)



bilz

Tolerance	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX
Coating	TiN	TiN	TiN	TiN	TiN	TiN	TiCN	TiCN	TiCN	TiCN	TiCN	TiCN
Cutting Material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coolant	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR
	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5
Hole Type												

ØD x P	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		ØD x P	M35 6HX											
	OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
										Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
										TiN (BTA3A9..)						TiCN (BTA3A8..)					
M3 x 0.5	63	4.5	3.4	6	11	21	2.76	2.80	M3 x 0.5	..10001	..10101	..10201	..10301	..10401	..10501	..10601	..10701	..10801	..10901	..11001	..11101
M4 x 0.7	63	4.5	3.4	6	13	21	3.66	3.70	M4 x 0.7	..10002	..10102	..10202	..10302	..10402	..10502	..10602	..10702	..10802	..10902	..11002	..11102
M5 x 0.8	70	6.0	4.9	8	15	25	4.61	4.65	M5 x 0.8	..10003	..10103	..10203	..10303	..10403	..10503	..10603	..10703	..10803	..10903	..11003	..11103
M6 x 1.0	80	6.0	4.9	8	16	30	5.50	5.56	M6 x 1.0	..10004	..10104	..10204	..10304	..10404	..10504	..10604	..10704	..10804	..10904	..11004	..11104
M8 x 1.0	90	8.0	6.2	9	18	35	7.50	7.56	M8 x 1.0	..10005	..10105	..10205	..10305	..10405	..10505	..10605	..10705	..10805	..10905	..11005	..11105
M8 x 1.25	90	8.0	6.2	9	18	35	7.37	7.44	M8 x 1.25	..10006	..10106	..10206	..10306	..10406	..10506	..10606	..10706	..10806	..10906	..11006	..11106
M10 x 1.0	100	10.0	8.0	11	20	39	9.50	9.56	M10 x 1.0	..10007	..10107	..10207	..10307	..10407	..10507	..10607	..10707	..10807	..10907	..11007	..11107
M10 x 1.25	100	10.0	8.0	11	20	39	9.37	9.44	M10 x 1.25	..10008	..10108	..10208	..10308	..10408	..10508	..10608	..10708	..10808	..10908	..11008	..11108
M10 x 1.5	100	10.0	8.0	11	20	39	9.24	9.32	M10 x 1.5	..10009	..10109	..10209	..10309	..10409	..10509	..10609	..10709	..10809	..10909	..11009	..11109
M12 x 1.0	100	9.0	7.0	10	24	45	11.50	11.56	M12 x 1.0	..10010	..10110	..10210	..10310	..10410	..10510	..10610	..10710	..10810	..10910	..11010	..11110
M12 x 1.25	100	9.0	7.0	10	24	45	11.38	11.44	M12 x 1.25	..10011	..10111	..10211	..10311	..10411	..10511	..10611	..10711	..10811	..10911	..11011	..11111
M12 x 1.5	100	9.0	7.0	10	24	45	11.24	11.32	M12 x 1.5	..10012	..10112	..10212	..10312	..10412	..10512	..10612	..10712	..10812	..10912	..11012	..11112
M12 x 1.75	110	9.0	7.0	10	24	45	11.11	11.20	M12 x 1.75	..10013	..10113	..10213	..10313	..10413	..10513	..10613	..10713	..10813	..10913	..11013	..11113
M14 x 1.0	100	11.0	9.0	12	28	46	13.50	13.60	M14 x 1.0	..10014	..10114	..10214	..10314	..10414	..10514	..10614	..10714	..10814	..10914	..11014	..11114
M14 x 1.25	100	11.0	9.0	12	28	46	13.38	13.44	M14 x 1.25	..10015	..10115	..10215	..10315	..10415	..10515	..10615	..10715	..10815	..10915	..11015	..11115
M14 x 1.5	100	11.0	9.0	12	28	46	13.24	14.97	M14 x 1.5	..10016	..10116	..10216	..10316	..10416	..10516	..10616	..10716	..10816	..10916	..11016	..11116
M14 x 2.0	110	11.0	9.0	12	28	46	12.97	13.08	M14 x 2.0	..10017	..10117	..10217	..10317	..10417	..10517	..10617	..10717	..10817	..10917	..11017	..11117
M16 x 1.0	100	12.0	9.0	13	30	43	15.50	15.60	M16 x 1.0	..10018	..10118	..10218	..10318	..10418	..10518	..10618	..10718	..10818	..10918	..11018	..11118
M16 x 1.5	110	12.0	9.0	13	30	43	15.24	15.32	M16 x 1.5	..10019	..10119	..10219	..10319	..10419	..10519	..10619	..10719	..10819	..10919	..11019	..11119
M16 x 2.0	110	12.0	9.0	13	30	43	14.97	15.08	M16 x 2.0	..10020	..10120	..10220	..10320	..10420	..10520	..10620	..10720	..10820	..10920	..11020	..11120
M18 x 1.0	125	14.0	11.0	14	25	48	17.50	17.60	M18 x 1.0	..10021	..10121	..10221	..10321	..10421	..10521	..10621	..10721	..10821	..10921	..11021	..11121
M18 x 1.5	125	14.0	11.0	14	25	48	17.25	17.33	M18 x 1.5	..10022	..10122	..10222	..10322	..10422	..10522	..10622	..10722	..10822	..10922	..11022	..11122
M18 x 2.0	125	14.0	11.0	14	25	48	17.00	17.11	M18 x 2.0	..10023	..10123	..10223	..10323	..10423	..10523	..10623	..10723	..10823	..10923	..11023	..11123
M18 x 2.5	125	14.0	11.0	14	25	48	16.75	16.85	M18 x 2.5	..10024	..10124	..10224	..10324	..10424	..10524	..10624	..10724	..10824	..10924	..11024	..11124
M20 x 1.5	125	16.0	12.0	15	30	60	19.25	19.33	M20 x 1.5	..10025	..10125	..10225	..10325	..10425	..10525	..10625	..10725	..10825	..10925	..11025	..11125
M20 x 2.0	140	16.0	12.0	15	30	60	19.00	19.11	M20 x 2.0	..10026	..10126	..10226	..10326	..10426	..10526	..10626	..10726	..10826	..10926	..11026	..11126
M20 x 2.5	140	16.0	12.0	15	30	60	18.75	18.85	M20 x 2.5	..10027	..10127	..10227	..10327	..10427	..10527	..10627	..10727	..10827	..10927	..11027	..11127
M22 x 1.0	125	18.0	14.5	18	30	60	21.50	21.60	M22 x 1.0	..10028	..10128	..10228	..10328	..10428	..10528	..10628	..10728	..10828	..10928	..11028	..11128
M22 x 1.5	125	18.0	14.5	18	30	60	21.25	21.33	M22 x 1.5	..10029	..10129	..10229	..10329	..10429	..10529	..10629	..10729	..10829	..10929	..11029	..11129
M22 x 2.5	140	18.0	14.5	18	30	60	20.75	20.85	M22 x 2.5	..10030	..10130	..10230	..10330	..10430	..10530	..10630	..10730	..10830	..10930	..11030	..11130
M24 x 1.5	160	18.0	14.5	18	35	60	23.25	23.33	M24 x 1.5	..10031	..10131	..10231	..10331	..10431	..10531	..10631	..10731	..10831	..10931	..11031	..11131
M24 x 2.0	160	18.0	14.5	18	35	60	23.00	23.10	M24 x 2.0	..10032	..10132	..10232	..10332	..10432	..10532	..10632	..10732	..10832	..10932	..11032	..11132
M24 x 3.0	160	18.0	14.5	18	35	60	22.50	22.60	M24 x 3.0	..10033	..10133	..10233	..10333	..10433	..10533	..10633	..10733	..10833	..10933	..11033	..11133

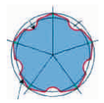
* For example, for dia. 'M3x0.5' with 'TiN'+'Form C'+'Non IKA' combination- order it as 'BTA3A910001' and the same with 'TiCN' coating order it as ''BTA3A810601' as given in the above table.

FORMEN GEWINDEBOHRER
FORM TAPS

HSSE - M35

6GX

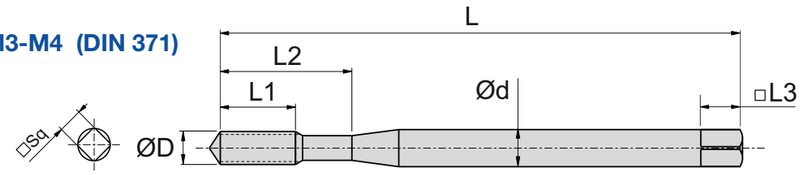
With Oil Groove



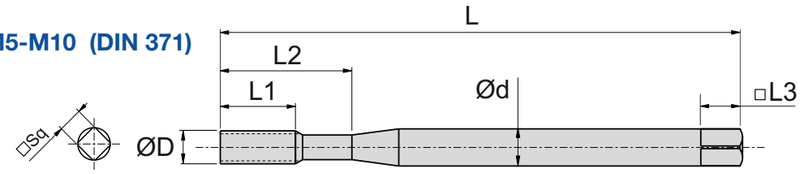
M

RH

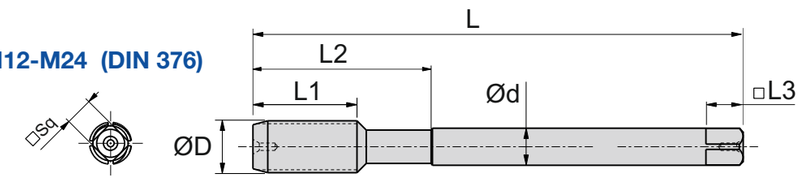
M3-M4 (DIN 371)



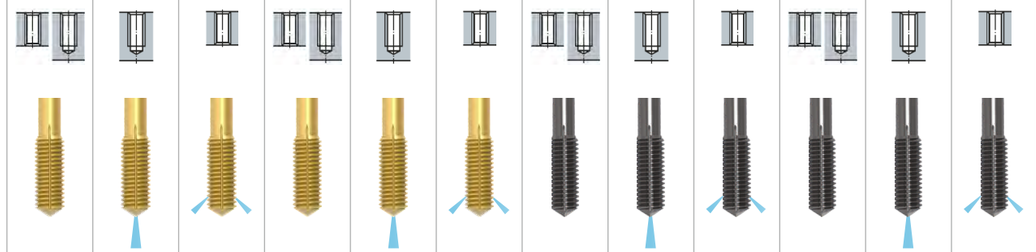
M5-M10 (DIN 371)



M12-M24 (DIN 376)



bilz

Tolerance	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX
Coating	TiN	TiN	TiN	TiN	TiN	TiN	TiCN	TiCN	TiCN	TiCN	TiCN	TiCN
Cutting Material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coolant	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR
	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5
Hole Type												

ØD x P	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		ØD x P	M35 6GX											
	OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
										Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
										TiN (BTA3A9..)						TiCN (BTA3A8..)					
M3 x 0.5	63	4.5	3.4	6	11	21	2.76	2.80	M3 x 0.5	..11201	..11301	..11401	..11501	..11601	..11701	..11801	..11901	..12001	..12101	..12201	..12301
M4 x 0.7	63	4.5	3.4	6	13	21	3.66	3.70	M4 x 0.7	..11202	..11302	..11402	..11502	..11602	..11702	..11802	..11902	..12002	..12102	..12202	..12302
M5 x 0.8	70	6.0	4.9	8	15	25	4.61	4.65	M5 x 0.8	..11203	..11303	..11403	..11503	..11603	..11703	..11803	..11903	..12003	..12103	..12203	..12303
M6 x 1.0	80	6.0	4.9	8	16	30	5.50	5.56	M6 x 1.0	..11204	..11304	..11404	..11504	..11604	..11704	..11804	..11904	..12004	..12104	..12204	..12304
M8 x 1.0	90	8.0	6.2	9	18	35	7.50	7.56	M8 x 1.0	..11205	..11305	..11405	..11505	..11605	..11705	..11805	..11905	..12005	..12105	..12205	..12305
M8 x 1.25	90	8.0	6.2	9	18	35	7.37	7.44	M8 x 1.25	..11206	..11306	..11406	..11506	..11606	..11706	..11806	..11906	..12006	..12106	..12206	..12306
M10 x 1.0	100	10.0	8.0	11	20	39	9.50	9.56	M10 x 1.0	..11207	..11307	..11407	..11507	..11607	..11707	..11807	..11907	..12007	..12107	..12207	..12307
M10 x 1.25	100	10.0	8.0	11	20	39	9.37	9.44	M10 x 1.25	..11208	..11308	..11408	..11508	..11608	..11708	..11808	..11908	..12008	..12108	..12208	..12308
M10 x 1.5	100	10.0	8.0	11	20	39	9.24	9.32	M10 x 1.5	..11209	..11309	..11409	..11509	..11609	..11709	..11809	..11909	..12009	..12109	..12209	..12309
M12 x 1.0	100	9.0	7.0	10	24	45	11.50	11.56	M12 x 1.0	..11210	..11310	..11410	..11510	..11610	..11710	..11810	..11910	..12010	..12110	..12210	..12310
M12 x 1.25	100	9.0	7.0	10	24	45	11.38	11.44	M12 x 1.25	..11211	..11323	..11411	..11511	..11611	..11711	..11811	..11911	..12011	..12111	..12211	..12311
M12 x 1.5	100	9.0	7.0	10	24	45	11.24	11.32	M12 x 1.5	..11212	..11312	..11424	..11512	..11612	..11712	..11812	..11912	..12012	..12112	..12212	..12312
M12 x 1.75	110	9.0	7.0	10	24	45	11.11	11.20	M12 x 1.75	..11213	..11313	..11413	..11525	..11613	..11713	..11813	..11913	..12013	..12113	..12213	..12313
M14 x 1.0	100	11.0	9.0	12	28	46	13.50	13.60	M14 x 1.0	..11214	..11314	..11414	..11514	..11626	..11714	..11814	..11914	..12014	..12114	..12214	..12314
M14 x 1.25	100	11.0	9.0	12	28	46	13.38	13.44	M14 x 1.25	..11215	..11315	..11415	..11515	..11615	..11727	..11815	..11915	..12015	..12115	..12215	..12315
M14 x 1.5	100	11.0	9.0	12	28	46	13.24	14.97	M14 x 1.5	..11216	..11316	..11416	..11516	..11616	..11716	..11828	..11916	..12016	..12116	..12216	..12316
M14 x 2.0	110	11.0	9.0	12	28	46	12.97	13.08	M14 x 2.0	..11217	..11317	..11417	..11517	..11617	..11717	..11817	..11929	..12017	..12117	..12217	..12317
M16 x 1.0	100	12.0	9.0	13	30	43	15.50	15.60	M16 x 1.0	..11218	..11318	..11418	..11518	..11618	..11718	..11818	..11918	..12030	..12118	..12218	..12318
M16 x 1.5	110	12.0	9.0	13	30	43	15.24	15.32	M16 x 1.5	..11219	..11319	..11419	..11519	..11619	..11719	..11819	..11919	..12019	..12131	..12219	..12319
M16 x 2.0	110	12.0	9.0	13	30	43	14.97	15.08	M16 x 2.0	..11220	..11320	..11420	..11520	..11620	..11720	..11820	..11920	..12020	..12120	..12232	..12320
M18 x 1.0	125	14.0	11.0	14	25	48	17.50	17.60	M18 x 1.0	..11221	..11321	..11421	..11521	..11621	..11721	..11821	..11921	..12021	..12121	..12221	..12333
M18 x 1.5	125	14.0	11.0	14	25	48	17.25	17.33	M18 x 1.5	..11222	..11322	..11422	..11522	..11622	..11722	..11822	..11922	..12022	..12122	..12222	..12322
M18 x 2.0	125	14.0	11.0	14	25	48	17.00	17.11	M18 x 2.0	..11223	..11323	..11423	..11523	..11623	..11723	..11823	..11923	..12023	..12123	..12223	..12323
M18 x 2.5	125	14.0	11.0	14	25	48	16.75	16.85	M18 x 2.5	..11224	..11324	..11424	..11524	..11624	..11724	..11824	..11924	..12024	..12124	..12224	..12324
M20 x 1.5	125	16.0	12.0	15	30	60	19.25	19.33	M20 x 1.5	..11225	..11325	..11425	..11525	..11625	..11725	..11825	..11925	..12025	..12125	..12225	..12325
M20 x 2.0	140	16.0	12.0	15	30	60	19.00	19.11	M20 x 2.0	..11226	..11326	..11426	..11526	..11626	..11726	..11826	..11926	..12026	..12126	..12226	..12326
M20 x 2.5	140	16.0	12.0	15	30	60	18.75	18.85	M20 x 2.5	..11227	..11327	..11427	..11527	..11627	..11727	..11827	..11927	..12027	..12127	..12227	..12327
M22 x 1.0	125	18.0	14.5	18	30	60	21.50	21.60	M22 x 1.0	..11228	..11328	..11428	..11528	..11628	..11728	..11828	..11928	..12028	..12128	..12228	..12328
M22 x 1.5	125	18.0	14.5	18	30	60	21.25	21.33	M22 x 1.5	..11229	..11329	..11429	..11529	..11629	..11729	..11829	..11929	..12029	..12129	..12229	..12329
M22 x 2.5	140	18.0	14.5	18	30	60	20.75	20.85	M22 x 2.5	..11230	..11330	..11430	..11530	..11630	..11730	..11830	..11930	..12030	..12130	..12230	..12330
M24 x 1.5	160	18.0	14.5	18	35	60	23.25	23.33	M24 x 1.5	..11231	..11331	..11431	..11531	..11631	..11731	..11831	..11931	..12031	..12131	..12231	..12331
M24 x 2.0	160	18.0	14.5	18	35	60	23.00	23.10	M24 x 2.0	..11232	..11332	..11432	..11532	..11632	..11732	..11832	..11932	..12032	..12132	..12232	..12332
M24 x 3.0	160	18.0	14.5	18	35	60	22.50	22.60	M24 x 3.0	..11233	..11333	..11433	..11533	..11633	..11733	..11833	..11933	..12033	..12133	..12233	..12333

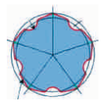
* For example, for dia. 'M3x0.5' with 'TiN'+'Form C'+'Non IKA' combination- order it as 'BTA3A911201' and the same with 'TiCN' coating order it as ''BTB3A811801' as given in the above table.

FORMEN GEWINDEBOHRER
FORM TAPS

HSSE - PM

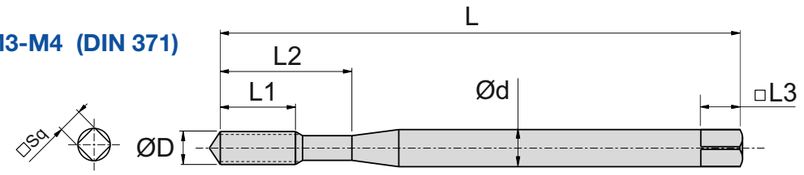
6HX

With Oil Groove

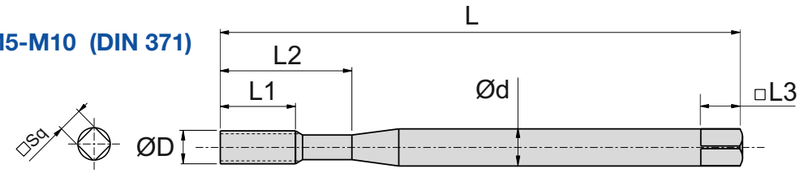


M | RH

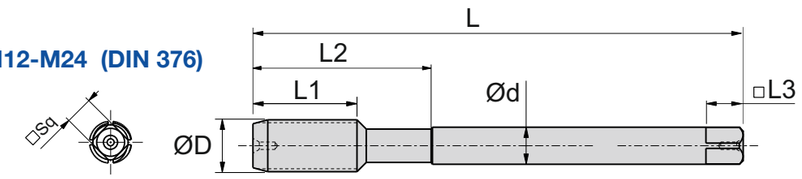
M3-M4 (DIN 371)



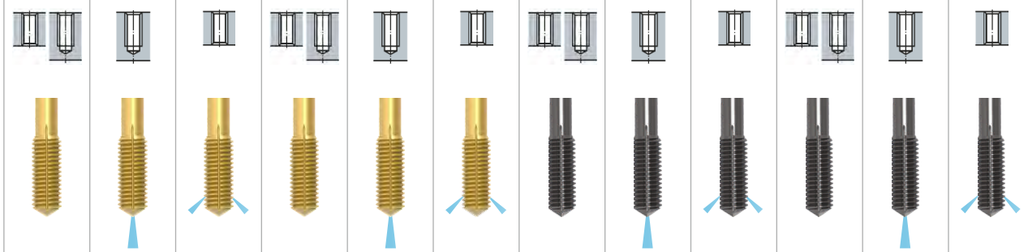
M5-M10 (DIN 371)



M12-M24 (DIN 376)



bilz

Tolerance	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX	6HX
Coating	TiN	TiN	TiN	TiN	TiN	TiN	TiCN	TiCN	TiCN	TiCN	TiCN	TiCN
Cutting Material	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM
Coolant	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR
	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5
Hole Type												

ØD x P	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		ØD x P	PM 6HX												
	OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
										Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
										TiN (BTB3A9..)						TiCN (BTB3A8..)					
M3 x 0.5	63	4.5	3.4	6	11	21	2.76	2.80	M3 x 0.5	..19601	..19701	..19801	..19901	..20001	..20101	..20201	..20301	..20401	..20501	..20601	..20701
M4 x 0.7	63	4.5	3.4	6	13	21	3.66	3.70	M4 x 0.7	..19602	..19702	..19802	..19902	..20002	..20102	..20202	..20302	..20402	..20502	..20602	..20702
M5 x 0.8	70	6.0	4.9	8	15	25	4.61	4.65	M5 x 0.8	..19603	..19703	..19803	..19903	..20003	..20103	..20203	..20303	..20403	..20503	..20603	..20703
M6 x 1.0	80	6.0	4.9	8	16	30	5.50	5.56	M6 x 1.0	..19604	..19704	..19804	..19904	..20004	..20104	..20204	..20304	..20404	..20504	..20604	..20704
M8 x 1.0	90	8.0	6.2	9	18	35	7.50	7.56	M8 x 1.0	..19605	..19705	..19805	..19905	..20005	..20105	..20205	..20305	..20405	..20505	..20605	..20705
M8 x 1.25	90	8.0	6.2	9	18	35	7.37	7.44	M8 x 1.25	..19606	..19706	..19806	..19906	..20006	..20106	..20206	..20306	..20406	..20506	..20606	..20706
M10 x 1.0	100	10.0	8.0	11	20	39	9.50	9.56	M10 x 1.0	..19607	..19707	..19807	..19907	..20007	..20107	..20207	..20307	..20407	..20507	..20607	..20707
M10 x 1.25	100	10.0	8.0	11	20	39	9.37	9.44	M10 x 1.25	..19608	..19708	..19808	..19908	..20008	..20108	..20208	..20308	..20408	..20508	..20608	..20708
M10 x 1.5	100	10.0	8.0	11	20	39	9.24	9.32	M10 x 1.5	..19609	..19709	..19809	..19909	..20009	..20109	..20209	..20309	..20409	..20509	..20609	..20709
M12 x 1.0	100	9.0	7.0	10	24	45	11.50	11.56	M12 x 1.0	..19610	..19710	..19810	..19910	..20010	..20110	..20210	..20310	..20410	..20510	..20610	..20710
M12 x 1.25	100	9.0	7.0	10	24	45	11.38	11.44	M12 x 1.25	..19611	..19711	..19811	..19911	..20011	..20111	..20211	..20311	..20411	..20511	..20611	..20711
M12 x 1.5	100	9.0	7.0	10	24	45	11.24	11.32	M12 x 1.5	..19612	..19712	..19812	..19912	..20012	..20112	..20212	..20312	..20412	..20512	..20612	..20712
M12 x 1.75	110	9.0	7.0	10	24	45	11.11	11.20	M12 x 1.75	..19613	..19713	..19813	..19913	..20013	..20113	..20213	..20313	..20413	..20513	..20613	..20713
M14 x 1.0	100	11.0	9.0	12	28	46	13.50	13.60	M14 x 1.0	..19614	..19714	..19814	..19914	..20014	..20114	..20214	..20314	..20414	..20514	..20614	..20714
M14 x 1.25	100	11.0	9.0	12	28	46	13.38	13.44	M14 x 1.25	..19615	..19715	..19815	..19915	..20015	..20115	..20215	..20315	..20415	..20515	..20615	..20715
M14 x 1.5	100	11.0	9.0	12	28	46	13.24	14.97	M14 x 1.5	..19616	..19716	..19816	..19916	..20016	..20116	..20216	..20316	..20416	..20516	..20616	..20716
M14 x 2.0	110	11.0	9.0	12	28	46	12.97	13.08	M14 x 2.0	..19617	..19717	..19817	..19917	..20017	..20117	..20217	..20317	..20417	..20517	..20617	..20717
M16 x 1.0	100	12.0	9.0	13	30	43	15.50	15.60	M16 x 1.0	..19618	..19718	..19818	..19918	..20018	..20118	..20218	..20318	..20418	..20518	..20618	..20718
M16 x 1.5	110	12.0	9.0	13	30	43	15.24	15.32	M16 x 1.5	..19619	..19719	..19819	..19919	..20019	..20119	..20219	..20319	..20419	..20519	..20619	..20719
M16 x 2.0	110	12.0	9.0	13	30	43	14.97	15.08	M16 x 2.0	..19620	..19720	..19820	..19920	..20020	..20120	..20220	..20320	..20420	..20520	..20620	..20720
M18 x 1.0	125	14.0	11.0	14	25	48	17.50	17.60	M18 x 1.0	..19621	..19721	..19821	..19921	..20021	..20121	..20221	..20321	..20421	..20521	..20621	..20721
M18 x 1.5	125	14.0	11.0	14	25	48	17.25	17.33	M18 x 1.5	..19622	..19722	..19822	..19922	..20022	..20122	..20222	..20322	..20422	..20522	..20622	..20722
M18 x 2.0	125	14.0	11.0	14	25	48	17.00	17.11	M18 x 2.0	..19623	..19723	..19823	..19923	..20023	..20123	..20223	..20323	..20423	..20523	..20623	..20723
M18 x 2.5	125	14.0	11.0	14	25	48	16.75	16.85	M18 x 2.5	..19624	..19724	..19824	..19924	..20024	..20124	..20224	..20324	..20424	..20524	..20624	..20724
M20 x 1.5	125	16.0	12.0	15	30	60	19.25	19.33	M20 x 1.5	..19625	..19725	..19825	..19925	..20025	..20125	..20225	..20325	..20425	..20525	..20625	..20725
M20 x 2.0	140	16.0	12.0	15	30	60	19.00	19.11	M20 x 2.0	..19626	..19726	..19826	..19926	..20026	..20126	..20226	..20326	..20426	..20526	..20626	..20726
M20 x 2.5	140	16.0	12.0	15	30	60	18.75	18.85	M20 x 2.5	..19627	..19727	..19827	..19927	..20027	..20127	..20227	..20327	..20427	..20527	..20627	..20727
M22 x 1.0	125	18.0	14.5	18	30	60	21.50	21.60	M22 x 1.0	..19628	..19728	..19828	..19928	..20028	..20128	..20228	..20328	..20428	..20528	..20628	..20728
M22 x 1.5	125	18.0	14.5	18	30	60	21.25	21.33	M22 x 1.5	..19629	..19729	..19829	..19929	..20029	..20129	..20229	..20329	..20429	..20529	..20629	..20729
M22 x 2.5	140	18.0	14.5	18	30	60	20.75	20.85	M22 x 2.5	..19630	..19730	..19830	..19930	..20030	..20130	..20230	..20330	..20430	..20530	..20630	..20730
M24 x 1.5	160	18.0	14.5	18	35	60	23.25	23.33	M24 x 1.5	..19631	..19731	..19831	..19931	..20031	..20131	..20231	..20331	..20431	..20531	..20631	..20731
M24 x 2.0	160	18.0	14.5	18	35	60	23.00	23.10	M24 x 2.0	..19632	..19732	..19832	..19932	..20032	..20132	..20232	..20332	..20432	..20532	..20632	..20732
M24 x 3.0	160	18.0	14.5	18	35	60	22.50	22.60	M24 x 3.0	..19633	..19733	..19833	..19933	..20033	..20133	..20233	..20333	..20433	..20533	..20633	..20733

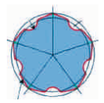
* For example, for dia. 'M3x0.5' with 'TiN'+'Form C'+'Non IKA' combination- order it as 'BTB3A919601' and the same with 'TiCN' coating order it as ''BTA3A820201' as given in the above table.

FORMEN GEWINDEBOHRER
FORM TAPS

HSSE - PM

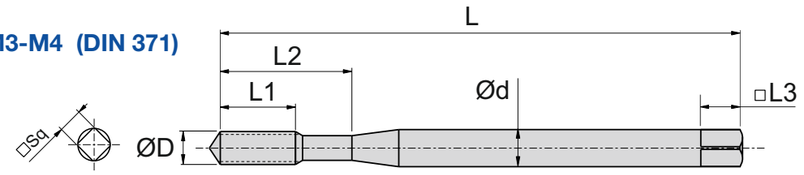
6GX

With Oil Groove

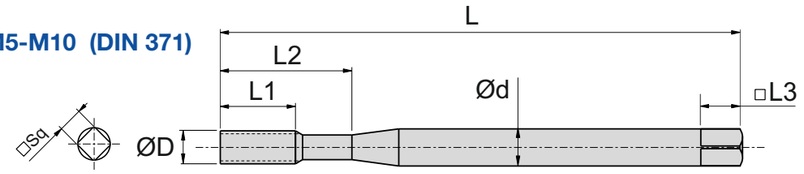


M | RH

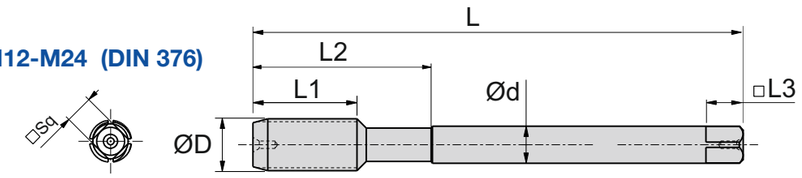
M3-M4 (DIN 371)



M5-M10 (DIN 371)

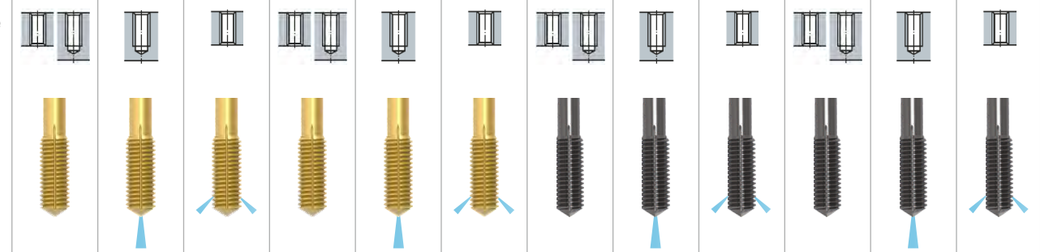


M12-M24 (DIN 376)



bilz

Tolerance	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX	6GX
Coating	TiN	TiN	TiN	TiN	TiN	TiN	TiCN	TiCN	TiCN	TiCN	TiCN	TiCN
Cutting Material	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM	HSSE-PM
Coolant	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR
	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5
Hole Type												



ØD x P	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		ØD x P	PM 6GX											
	OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
										Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
										TiN (BTB3A9..)						TiCN (BTB3A8..)					
M3 x 0.5	63	4.5	3.4	6	11	21	2.76	2.80	M3 x 0.5	..20801	..20901	..21001	..21101	..21201	..21301	..21401	..21501	..21601	..21701	..21801	..21901
M4 x 0.7	63	4.5	3.4	6	13	21	3.66	3.70	M4 x 0.7	..20802	..20902	..21002	..21102	..21202	..21302	..21402	..21502	..21602	..21702	..21802	..21902
M5 x 0.8	70	6.0	4.9	8	15	25	4.61	4.65	M5 x 0.8	..20803	..20903	..21003	..21103	..21203	..21303	..21403	..21503	..21603	..21703	..21803	..21903
M6 x 1.0	80	6.0	4.9	8	16	30	5.50	5.56	M6 x 1.0	..20804	..20904	..21004	..21104	..21204	..21304	..21404	..21504	..21604	..21704	..21804	..21904
M8 x 1.0	90	8.0	6.2	9	18	35	7.50	7.56	M8 x 1.0	..20805	..20905	..21005	..21105	..21205	..21305	..21405	..21505	..21605	..21705	..21805	..21905
M8 x 1.25	90	8.0	6.2	9	18	35	7.37	7.44	M8 x 1.25	..20806	..20906	..21006	..21106	..21206	..21306	..21406	..21506	..21606	..21706	..21806	..21906
M10 x 1.0	100	10.0	8.0	11	20	39	9.50	9.56	M10 x 1.0	..20807	..20907	..21007	..21107	..21207	..21307	..21407	..21507	..21607	..21707	..21807	..21907
M10 x 1.25	100	10.0	8.0	11	20	39	9.37	9.44	M10 x 1.25	..20808	..20908	..21008	..21108	..21208	..21308	..21408	..21508	..21608	..21708	..21808	..21908
M10 x 1.5	100	10.0	8.0	11	20	39	9.24	9.32	M10 x 1.5	..20809	..20909	..21009	..21109	..21209	..21309	..21409	..21509	..21609	..21709	..21809	..21909
M12 x 1.0	100	9.0	7.0	10	24	45	11.50	11.56	M12 x 1.0	..20810	..20910	..21010	..21110	..21210	..21310	..21410	..21510	..21610	..21710	..21810	..21910
M12 x 1.25	100	9.0	7.0	10	24	45	11.38	11.44	M12 x 1.25	..20811	..20923	..21011	..21111	..21211	..21311	..21411	..21511	..21611	..21711	..21811	..21911
M12 x 1.5	100	9.0	7.0	10	24	45	11.24	11.32	M12 x 1.5	..20812	..20912	..21024	..21112	..21212	..21312	..21412	..21512	..21612	..21712	..21812	..21912
M12 x 1.75	110	9.0	7.0	10	24	45	11.11	11.20	M12 x 1.75	..20813	..20913	..21013	..21125	..21213	..21313	..21413	..21513	..21613	..21713	..21813	..21913
M14 x 1.0	100	11.0	9.0	12	28	46	13.50	13.60	M14 x 1.0	..20814	..20914	..21014	..21114	..21226	..21314	..21414	..21514	..21614	..21714	..21814	..21914
M14 x 1.25	100	11.0	9.0	12	28	46	13.38	13.44	M14 x 1.25	..20815	..20915	..21015	..21115	..21215	..21327	..21415	..21515	..21615	..21715	..21815	..21915
M14 x 1.5	100	11.0	9.0	12	28	46	13.24	14.97	M14 x 1.5	..20816	..20916	..21016	..21116	..21216	..21316	..21428	..21516	..21616	..21716	..21816	..21916
M14 x 2.0	110	11.0	9.0	12	28	46	12.97	13.08	M14 x 2.0	..20817	..20917	..21017	..21117	..21217	..21317	..21417	..21529	..21617	..21717	..21817	..21917
M16 x 1.0	100	12.0	9.0	13	30	43	15.50	15.60	M16 x 1.0	..20818	..20918	..21018	..21118	..21218	..21318	..21418	..21518	..21630	..21718	..21818	..21918
M16 x 1.5	110	12.0	9.0	13	30	43	15.24	15.32	M16 x 1.5	..20819	..20919	..21019	..21119	..21219	..21319	..21419	..21519	..21619	..21731	..21819	..21919
M16 x 2.0	110	12.0	9.0	13	30	43	14.97	15.08	M16 x 2.0	..20820	..20920	..21020	..21120	..21220	..21320	..21420	..21520	..21620	..21720	..21832	..21920
M18 x 1.0	125	14.0	11.0	14	25	48	17.50	17.60	M18 x 1.0	..20821	..20921	..21021	..21121	..21221	..21321	..21421	..21521	..21621	..21721	..21821	..21933
M18 x 1.5	125	14.0	11.0	14	25	48	17.25	17.33	M18 x 1.5	..20822	..20922	..21022	..21122	..21222	..21322	..21422	..21522	..21622	..21722	..21822	..21922
M18 x 2.0	125	14.0	11.0	14	25	48	17.00	17.11	M18 x 2.0	..20823	..20923	..21023	..21123	..21223	..21323	..21423	..21523	..21623	..21723	..21823	..21923
M18 x 2.5	125	14.0	11.0	14	25	48	16.75	16.85	M18 x 2.5	..20824	..20924	..21024	..21124	..21224	..21324	..21424	..21524	..21624	..21724	..21824	..21924
M20 x 1.5	125	16.0	12.0	15	30	60	19.25	19.33	M20 x 1.5	..20825	..20925	..21025	..21125	..21225	..21325	..21425	..21525	..21625	..21725	..21825	..21925
M20 x 2.0	140	16.0	12.0	15	30	60	19.00	19.11	M20 x 2.0	..20826	..20926	..21026	..21126	..21226	..21326	..21426	..21526	..21626	..21726	..21826	..21926
M20 x 2.5	140	16.0	12.0	15	30	60	18.75	18.85	M20 x 2.5	..20827	..20927	..21027	..21127	..21227	..21327	..21427	..21527	..21627	..21727	..21827	..21927
M22 x 1.0	125	18.0	14.5	18	30	60	21.50	21.60	M22 x 1.0	..20828	..20928	..21028	..21128	..21228	..21328	..21428	..21528	..21628	..21728	..21828	..21928
M22 x 1.5	125	18.0	14.5	18	30	60	21.25	21.33	M22 x 1.5	..20829	..20929	..21029	..21129	..21229	..21329	..21429	..21529	..21629	..21729	..21829	..21929
M22 x 2.5	140	18.0	14.5	18	30	60	20.75	20.85	M22 x 2.5	..20830	..20930	..21030	..21130	..21230	..21330	..21430	..21530	..21630	..21730	..21830	..21930
M24 x 1.5	160	18.0	14.5	18	35	60	23.25	23.33	M24 x 1.5	..20831	..20931	..21031	..21131	..21231	..21331	..21431	..21531	..21631	..21731	..21831	..21931
M24 x 2.0	160	18.0	14.5	18	35	60	23.00	23.10	M24 x 2.0	..20832	..20932	..21032	..21132	..21232	..21332	..21432	..21532	..21632	..21732	..21832	..21932
M24 x 3.0	160	18.0	14.5	18	35	60	22.50	22.60	M24 x 3.0	..20833	..20933	..21033	..21133	..21233	..21333	..21433	..21533	..21633	..21733	..21833	..21933

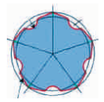
* For example, for dia. 'M3x0.5' with 'TiN'+'Form C'+'Non IKA' combination- order it as 'BTB3A920801' and the same with 'TiCN' coating order it as ''BTB3A821401' as given in the above table.

FORMEN GEWINDEBOHRER
FORM TAPS

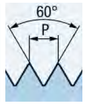
HSSE - UNC / UNF

2BX

With Oil Groove



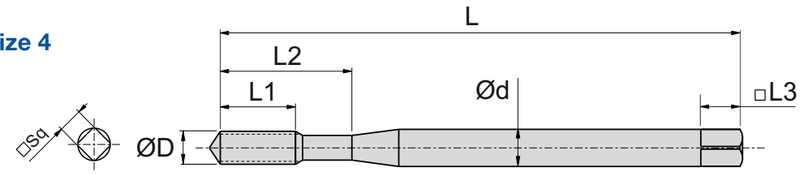
UNC



UNF

RH

Size 4



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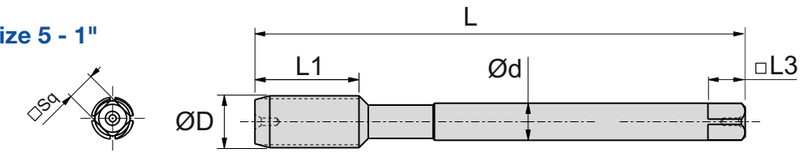
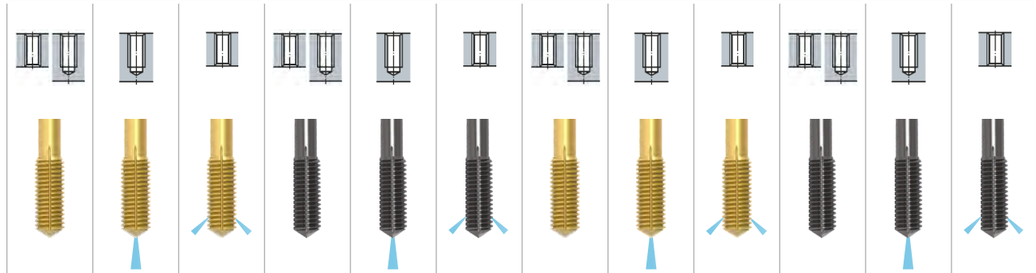


bilz

Tolerance	2BX	2BX	2BX	2BX	2BX	2BX	2BX	2BX	2BX	2BX	2BX	2BX
Coating	TiN	TiN	TiN	TiCN	TiCN	TiCN	TiN	TiN	TiN	TiCN	TiCN	TiCN
Cutting Material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coolant	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR
	C / 2-3	C / 2-3	C / 2-3	E / 2-3	E / 2-3	E / 2-3	C / 2-3	C / 2-3	C / 2-3	E / 2-3	E / 2-3	E / 2-3
Hole Type												

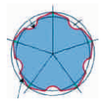
UNC UNF	Size	TPI	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		Size	M35 2BX						PM 2BX					
			OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
												Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
												TiN (BTA3A9..)			TiCN (BTA3A8..)			TiN (BTB3A9..)			TiCN (BTB3A8..)		
UNC	4	40	63	4.5	3.4	6	11	18	2.55	2.58	4	..12401	..12501	..12601	..12701	..12801	..12901	..13001	..13101	..13201	..13301	..13401	..13501
UNC	5	40	63	4.5	3.4	6	11	18	2.90	2.93	5	..12402	..12502	..12602	..12702	..12802	..12902	..13002	..13102	..13202	..13302	..13402	..13502
UNC	6	32	63	4.5	3.4	6	12	20	3.15	3.19	6	..12403	..12503	..12603	..12703	..12803	..12903	..13003	..13103	..13203	..13303	..13403	..13503
UNC	8	32	63	4.5	3.4	6	13	21	3.80	3.84	8	..12404	..12504	..12604	..12704	..12804	..12904	..13004	..13104	..13204	..13304	..13404	..13504
UNC	10	24	70	6.0	4.9	8	15	25	4.35	4.40	10	..12405	..12505	..12605	..12705	..12805	..12905	..13005	..13105	..13205	..13305	..13405	..13505
UNC	12	24	80	6.0	4.9	8	16	30	5.00	5.40	12	..12406	..12506	..12606	..12706	..12806	..12906	..13006	..13106	..13206	..13306	..13406	..13506
UNC	1/4	20	80	6.0	4.9	8	16	30	5.75	5.81	1/4	..12407	..12507	..12607	..12707	..12807	..12907	..13007	..13107	..13207	..13307	..13407	..13507
UNC	5/16	18	90	8.0	6.2	9	18	35	7.30	8.00	5/16	..12408	..12508	..12608	..12708	..12808	..12908	..13008	..13108	..13208	..13308	..13408	..13508
UNC	3/8	16	100	10.0	8.0	11	20	39	8.80	9.60	3/8	..12409	..12509	..12609	..12709	..12809	..12909	..13009	..13109	..13209	..13309	..13409	..13509
UNC	7/16	14	100	9.0	7.0	10	24		10.25	10.35	7/16	..12410	..12510	..12610	..12710	..12810	..12910	..13010	..13110	..13210	..13310	..13410	..13510
UNC	1/2	13	110	9.0	7.0	10	24		11.80	11.90	1/2	..12411	..12511	..12611	..12711	..12811	..12911	..13011	..13111	..13211	..13311	..13411	..13511
UNC	9/16	12	110	11.0	9.0	12	28		13.30	13.42	9/16	..12412	..12512	..12612	..12712	..12812	..12912	..13012	..13112	..13212	..13312	..13412	..13512
UNC	5/8	11	110	12.0	9.0	13	30		14.80	14.95	5/8	..12413	..12513	..12613	..12713	..12813	..12913	..13013	..13113	..13213	..13313	..13413	..13513
UNC	3/4	10	140	16.0	12.0	15	30		17.85	17.98	3/4	..12414	..12514	..12614	..12714	..12814	..12914	..13014	..13114	..13214	..13314	..13414	..13514
UNC	7/8	9	140	18.0	14.5	18	30		20.90	21.05	7/8	..12415	..12515	..12615	..12715	..12815	..12915	..13015	..13115	..13215	..13315	..13415	..13515
UNC	1"	8	160	18.0	14.5	18	35		23.90	24.06	1"	..12416	..12516	..12616	..12716	..12816	..12916	..13016	..13116	..13216	..13316	..13416	..13516
UNF	4	48	63	4.5	3.4	6	13	18	2.62	2.66	4	..13601	..13701	..13801	..13901	..14001	..14101	..14201	..14301	..14401	..14501	..14601	..14701
UNF	5	44	63	4.5	3.4	6	13	18	2.92	2.98	5	..13602	..13702	..13802	..13902	..14002	..14102	..14202	..14302	..14402	..14502	..14602	..14702
UNF	6	40	63	4.5	3.4	6	13	20	3.22	3.28	6	..13603	..13703	..13803	..13903	..14003	..14103	..14203	..14303	..14403	..14503	..14603	..14703
UNF	8	36	63	4.5	3.4	6	13	21	3.85	2.92	8	..13604	..13704	..13804	..13904	..14004	..14104	..14204	..14304	..14404	..14504	..14604	..14704
UNF	10	32	70	6.0	4.9	8	15	25	4.45	4.52	10	..13605	..13705	..13805	..13905	..14005	..14105	..14205	..14305	..14405	..14505	..14605	..14705
UNF	12	28	80	6.0	4.9	8	16	30	5.10	5.17	12	..13606	..13706	..13806	..13906	..14006	..14106	..14206	..14306	..14406	..14506	..14606	..14706
UNF	1/4	28	80	6.0	4.9	8	16	30	5.95	6.02	1/4	..13607	..13707	..13807	..13907	..14007	..14107	..14207	..14307	..14407	..14507	..14607	..14707
UNF	5/16	24	90	8.0	6.2	9	18	35	7.45	7.55	5/16	..13608	..13708	..13808	..13908	..14008	..14108	..14208	..14308	..14408	..14508	..14608	..14708
UNF	3/8	24	100	10.0	8.0	11	20	39	9.05	9.15	3/8	..13609	..13709	..13809	..13909	..14009	..14109	..14209	..14309	..14409	..14509	..14609	..14709
UNF	7/16	20	100	9.0	7.0	10	24		10.55	10.66	7/16	..13610	..13710	..13810	..13910	..14010	..14110	..14210	..14310	..14410	..14510	..14610	..14710
UNF	1/2	20	100	9.0	7.0	10	24		12.11	12.22	1/2	..13611	..13711	..13811	..13911	..14011	..14111	..14211	..14311	..14411	..14511	..14611	..14711
UNF	9/16	18	110	11.0	9.0	12	28		13.65	13.78	9/16	..13612	..13712	..13812	..13912	..14012	..14112	..14212	..14312	..14412	..14512	..14612	..14712
UNF	5/8	18	110	12.0	9.0	12	30		15.25	15.38	5/8	..13613	..13713	..13813	..13913	..14013	..14113	..14213	..14313	..14413	..14513	..14613	..14713
UNF	3/4	16	125	16.0	12.0	15	30		18.35	18.40	3/4	..13614	..13714	..13814	..13914	..14014	..14114	..14214	..14314	..14414	..14514	..14614	..14714
UNF	7/8	14	125	18.0	14.5	18	30		21.40	21.56	7/8	..13615	..13715	..13815	..13915	..14015	..14115	..14215	..14315	..14415	..14515	..14615	..14715
UNF	1"	12	140	18.0	14.5	18	35		24.50	24.50	1"	..13616	..13716	..13816	..13916	..14016	..14116	..14216	..14316	..14416	..14516	..14616	..14716

* For example, for size '4' with 'TiN'+'Form C'+'Non IKA' combination- order it as 'BTA3A912401' and the same with 'TiCN' coating order it as ''BTA3A812701' as given in the above table.

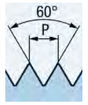
HSSE - BSP

G

With Oil Groove



BSP



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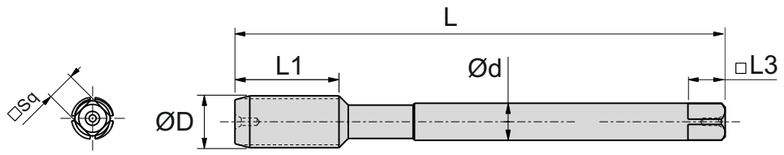
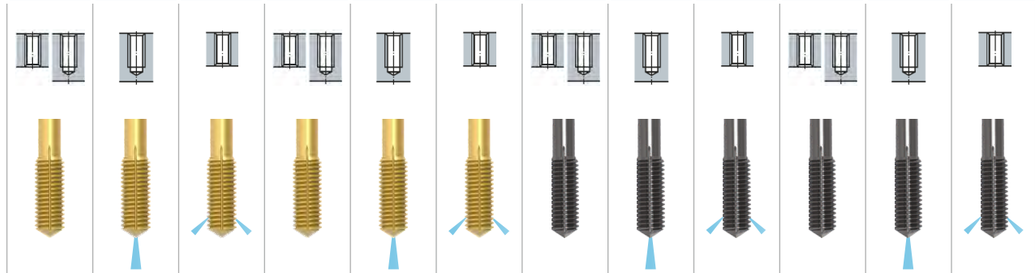
RH



bilz

Tolerance	G	G	G	G	G	G	G	G	G	G	G	G
Coating	TiN	TiN	TiN	TiN	TiN	TiN	TiCN	TiCN	TiCN	TiCN	TiCN	TiCN
Cutting Material	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E	HSS-E
Coolant	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR	Non-IKA	IKA	IKR
	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5	C / 2-3	C / 2-3	C / 2-3	E / 1.5	E / 1.5	E / 1.5
Hole Type												

BSP	Size	TPI	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		Size	M35 G											
			OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
												Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
												TiN (BTA3A9..)			TiN (BTA3A9..)			TiCN (BTA3A8..)			TiCN (BTA3A8..)		
BSP	1/16	28	90	8	6.2	9	18	35	7.25	7.30	1/16	..17201	..17301	..17401	..17501	..17601	..17701	..17801	..17901	..18001	..18101	..18201	..18301
BSP	1/8	28	100	10	8.0	11	20	39	9.25	9.30	1/8	..17202	..17302	..17402	..17502	..17602	..17702	..17802	..17902	..18002	..18102	..18202	..18302
BSP	1/4	19	100	11	9.0	12	20		12.55	13.00	1/4	..17203	..17303	..17403	..17503	..17603	..17703	..17803	..17903	..18003	..18103	..18203	..18303
BSP	3/8	19	125	14	11.0	14	25		16.05	16.11	3/8	..17204	..17304	..17404	..17504	..17604	..17704	..17804	..17904	..18004	..18104	..18204	..18304
BSP	1/2	14	125	16	12.0	15	25		20.10	20.16	1/2	..17205	..17305	..17405	..17505	..17605	..17705	..17805	..17905	..18005	..18105	..18205	..18305
BSP	5/8	14	140	18	14.5	18	30		22.05	22.13	5/8	..17206	..17306	..17406	..17506	..17606	..17706	..17806	..17906	..18006	..18106	..18206	..18306
BSP	3/4	14	160	20	16.0	20	35		25.60	25.68	3/4	..17207	..17307	..17407	..17507	..17607	..17707	..17807	..17907	..18007	..18107	..18207	..18307
BSP	7/8	14	180	22	18.0	22	40		29.35	29.45	7/8	..17208	..17308	..17408	..17508	..17608	..17708	..17808	..17908	..18008	..18108	..18208	..18308
BSP	1"	11	180	25	20.0	23	30		32.15	32.25	1"	..17209	..17309	..17409	..17509	..17609	..17709	..17809	..17909	..18009	..18109	..18209	..18309

BSP	Size	TPI	Blank Details				Thread Length L1	Neck Length L2	Drill Size (mm)		Size	PM G											
			OAL (L)	Shank Ød	■ Sq	■ Length L3			Min. Ø	Max. Ø		FORM C			FORM E			FORM C			FORM E		
												Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR	Non	IKA	IKR
												TiN (BTB3A9..)			TiN (BTB3A9..)			TiCN (BTB3A8..)			TiCN (BTB3A8..)		
BSP	1/16	28	90	8	6.2	9	18	35	7.25	7.30	1/16	..18401	..18501	..18601	..18701	..18801	..18901	..19001	..19101	..19201	..19301	..19401	..19501
BSP	1/8	28	100	10	8.0	11	20	39	9.25	9.30	1/8	..18402	..18502	..18602	..18702	..18802	..18902	..19002	..19102	..19202	..19302	..19402	..19502
BSP	1/4	19	100	11	9.0	12	20		12.55	13.00	1/4	..18403	..18503	..18603	..18703	..18803	..18903	..19003	..19103	..19203	..19303	..19403	..19503
BSP	3/8	19	125	14	11.0	14	25		16.05	16.11	3/8	..18404	..18504	..18604	..18704	..18804	..18904	..19004	..19104	..19204	..19304	..19404	..19504
BSP	1/2	14	125	16	12.0	15	25		20.10	20.16	1/2	..18405	..18505	..18605	..18705	..18805	..18905	..19005	..19105	..19205	..19305	..19405	..19505
BSP	5/8	14	140	18	14.5	18	30		22.05	22.13	5/8	..18406	..18506	..18606	..18706	..18806	..18906	..19006	..19106	..19206	..19306	..19406	..19506
BSP	3/4	14	160	20	16.0	20	35		25.60	25.68	3/4	..18407	..18507	..18607	..18707	..18807	..18907	..19007	..19107	..19207	..19307	..19407	..19507
BSP	7/8	14	180	22	18.0	22	40		29.35	29.45	7/8	..18408	..18508	..18608	..18708	..18808	..18908	..19008	..19108	..19208	..19308	..19408	..19508
BSP	1"	11	180	25	20.0	23	30		32.15	32.25	1"	..18409	..18509	..18609	..18709	..18809	..18909	..19009	..19109	..19209	..19309	..19409	..19509

* For example, for size '1/16' with 'TiN'+'Form C'+'Non IKA' combination- order it as 'BTA3A917201' and the same with 'TiCN' coating order it as ''BTA3A817801' as given in the above table.

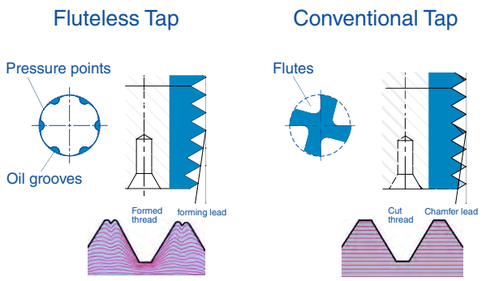
FLUTELESS TAPS & THREAD FORMING

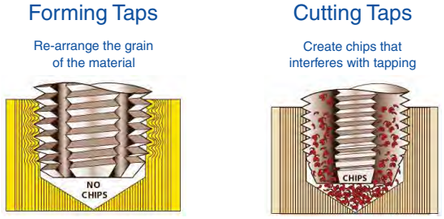
Fluteless taps are used for the forming of internal threads without chip production. In contrast to conventional tapping where material is cut from the workpiece, thread forming is a pressure deformation process without chip removal for the production of internal threads. During the process the material is cold formed without interrupting the grain flow.

According to DIN 8583, thread forming is described as “pressing the thread into the workpiece with a tool possessing a spiral working area”. The spiral threaded, polygonal portion of the fluteless tap is “screwed” into the pre-drilled workpiece with an appropriate constant feed rate equal to the thread pitch. The thread profile is pressed gradually via the forming lead into the material of the workpiece. Subsequently, the pressure in the deformation zone exceeds the compression limit, the workpiece becomes ductile and is deformed. The material yields radially, “flows” along the thread profile in the unoccupied base of the tool and forms the minor diameter of the nut thread. The flow process creates the process specific form pockets (claws).

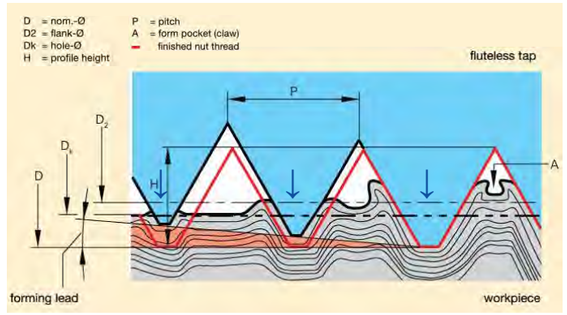
The drill size hole diameter is heavily dependent on the formability of the material, the workpiece geometry and the required effective depth of the thread. In comparison to conventional tapping, a larger diameter tapping size hole should be selected. With a larger diameter tapping size hole the load on the tool is reduced while increasing the tool life.

Thread formation:
The production of internal threads without chip removal (thread forming) in comparison to conventional tapping.





Flow characteristics of the material during thread forming and the deformation process



Forming Tap Drill Size

Thread forming taps require a larger pre-tap hole size than cutting taps because they do not produce a chip during tapping. The pre-tap hole size tolerance for smaller fine-pitch taps must be controlled more closely to prevent after-tap minor diameter problems.

Finding the correct drill size for a Thredfloer Tap may be a “Cut and Try” process. Not all drills are alike and therefore the pre-tap holes produced by different drills may be vastly different. What matters is the actual pre-tap hole size, how consistently this hole size is maintained, and finally, the after-tap thread percentage or minor diameter. To get good results, you must know the actual hole size and not just the drill size! Thin wall parts may expand during tapping and produce oversize after-tap minor diameters. Diecast parts may contain porosity which may cause oversize holes due to shrinkage.

Tapping size hole diameter

With fluteless tapping, the tapping size hole diameter influences the distinction of the formed thread. A too small tapping size hole diameter results in an over-forming of the thread which must definitely be prevented because this can lead to tool breakage. A too large tapping size hole is acceptable with certain tolerances because formed threads have a sufficient loading capacity from a 50% bearing depth.

Thread Inspection Procedures
Pitch Diameter: Primary requirement of the tap is qualifying the “GO˝ and “NO-GO˝ thread gauges, which check the pitch diameter to work correctly. As a thumb rule, forming taps should be two to three “H˝ or “D˝ numbers larger than cutting taps in order to gauge correctly. Threads that are tight or loose after tapping can be rectified by increasing or decreasing the tap pitch diameter (”H˝ or “D” number).

Minor Diameter: The most common problem is thread percentage. Unless otherwise specified, acceptance criteria are the minimum and maximum minor diameters for various thread sizes and classes of fit, also vary. These measurements are checked with cylindrical plug gages. It is important that these criteria be inspected during the initial “Testing” stage of drilling and tapping.

Procedure for using a Forming Tap

1. Drill a part and measure the pre-tap hole size.

2. Tap the part. Check pitch diameter with go and no-go gauges. Check the thread percentage or minor diameter against the customer requirement.

3. Establish a maximum condition for the pre-tap hole size and monitor this frequently during the production tap run.

Visual Thread Inspection

All formed threads have a cup or “U˝ in the crest due to the nature of the thread forming process. A properly sized hole should result in a thread percentage of 65-75%. Tapping with too small of a pre-tap hole size results in excessive tapping torque, tap wear, and possible tap breakage. Always check your hole size after drilling. Do not expect the drill will cut the size hole marked on the drill. Use a drill that will satisfy both thread gauge as well as minor dia./PIN gauge.

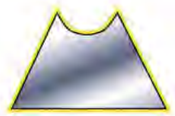
Correct Hole

Pre-tap hole size is correct. Thread percentage is 65-75%, and the after-tap minor diameter is in specification.

Too Small

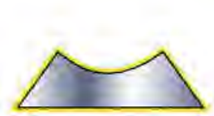
Resulting in a high thread percentage (90-100%) and an after-tap minor diameter which is too small.

Large



Suitable for some applications. Thread percentage is 55%. After-tap minor diameter is too large for 2B and 3B tolerances.

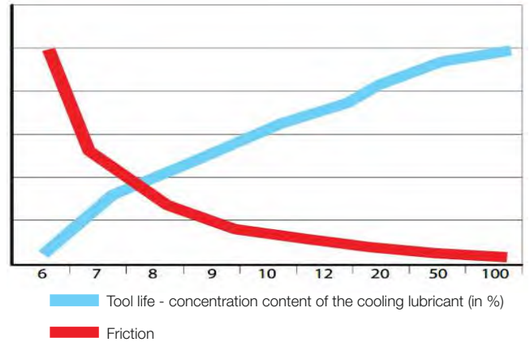
Too Large



Resulting in a low thread percentage (40%) and an after-tap minor diameter which is too big

Lubrication is of significant importance. The lubrication prevents material from building up on the thread flanks and ensures that the necessary torque for the forming process is not too high. Therefore, under no circumstances should there ever be a breakdown in lubrication! Preference should be given to lubricants such as cooling agents of oils containing graphite such as those used in rolling processes. Always follow the rule: “The better the lubrication the easier the thread forming process”.

Cooling lubricants with fluteless taps
The better the lubrication with the maximum concentration, the longer the tool life. There are two different types of lubricant:
Oil based lubricants: These are mineral oils with the best lubricating characteristics. They reduce friction and achieve optimal life.
Soluble lubricants: Soluble, or emulsion, lubricants are concentrates mixed with water. Where a 6% emulsion is typically fine for most cutting processes, a higher level of lubricity is needed for thread forming. A content of 12% is ideal for forming threads. It should be noted that 50% of the success of thread forming is based on proper lubrication.



Advantages of thread forming:

- No cutting errors
- No chip formation
- Application in wide range of materials
- One tool for the production of threads in through and blind holes
- Pitch and angle of thread errors that can occur with thread cutting are eliminated
- Internal threads produced by thread forming possess a higher tensile strength particularly at the thread flanks, thanks to the so-called “uninterrupted grain flow” and the cold forming process
- The surface of the thread is improved
- Fluteless taps can be applied at higher speeds because the formability of many materials increases with the forming speed. This does not have a negative effect on the tool life
- Reduced danger of breakage through rigid design.

TAPPING DRILL SIZES

High Performer & Super Saver

bilz

Form Taps

M
ISO Metric Coarse Thread DIN 13

D mm	P mm	mm
M 1	0,25	0,9
1,1	0,25	1
1,2	0,25	1,1
1,4	0,3	1,28
1,6	0,35	1,47
1,7	0,35	1,57
1,8	0,35	1,67
2	0,4	1,85
2,2	0,45	2,03
2,3	0,4	2,15
2,5	0,45	2,33
2,6	0,45	2,43
3	0,5	2,8
3,5	0,6	3,25
4	0,7	3,7
4,5	0,75	4,2
5	0,8	4,65
5,5	0,9	5,1
6	1	5,6
7	1	6,6
8	1,25	7,45
9	1,25	8,45
10	1,5	9,35
12	1,75	11,25
14	2	13,1
16	2	15,1
18	2,5	16,85
20	2,5	18,85
22	2,5	20,85
24	3	22,65
27	3	25,65
30	3,5	28,4
33	3,5	31,4
36	4	34,15
39	4	37,15
42	4,5	39,9
45	4,5	42,9
48	5	45,65

MF
ISO Metric Fine Thread DIN 13

D mm	x	P mm	mm
M 2,5	x	0,35	2,37
2,6	x	0,35	2,47
3	x	0,35	2,88
3,5	x	0,35	3,38
4	x	0,5	3,8
5	x	0,5	4,8
6	x	0,5	5,8
6	x	0,75	5,7
7	x	0,75	6,7
8	x	0,75	7,7
8	x	1	7,6
9	x	0,75	8,7
9	x	1	8,6
10	x	0,75	9,7
10	x	1	9,6
10	x	1,25	9,45
11	x	1	10,6
12	x	1	11,6
12	x	1,25	11,45
12	x	1,5	11,35
14	x	1	13,6
14	x	1,25	13,45
14	x	1,5	13,35
15	x	1	14,6
15	x	1,5	14,35
16	x	1	15,6
16	x	1,5	15,35
18	x	1	17,6
18	x	1,5	17,35
18	x	2	17,1
20	x	1	19,6
20	x	1,5	19,35
20	x	2	19,1
24	x	2	23,1
30	x	2	29,1
36	x	3	34,65
42	x	4	40,15
48	x	3	46,65

UNC
Unified Coarse Thread ASME B1.1

D inch	-	P/1" (tpi)	mm
Nr. 4	-	40	2,55
Nr. 5	-	40	2,9
Nr. 6	-	32	3,15
Nr. 8	-	32	3,8
Nr. 10	-	24	4,35
Nr. 12	-	24	5
1/4	-	20	5,75
5/16	-	18	7,3
3/8	-	16	8,8
7/16	-	14	10,25
1/2	-	13	11,8
9/16	-	12	13,3
5/8	-	11	14,8
3/4	-	10	17,85
7/8	-	9	20,9
1"	-	8	23,9

UNF
Unified Fine Thread ASME B1.1

D inch	-	P/1" (tpi)	mm
Nr. 2	-	64	2,02
Nr. 3	-	56	2,32
Nr. 4	-	48	2,62
Nr. 5	-	44	2,92
Nr. 6	-	40	3,22
Nr. 8	-	36	3,85
Nr. 10	-	32	4,45
Nr. 12	-	28	5,1
1/4	-	28	5,95
5/16	-	24	7,45
3/8	-	24	9,05
7/16	-	20	10,55
1/2	-	20	12,15
9/16	-	18	13,65
5/8	-	18	15,25
3/4	-	16	18,35
7/8	-	14	21,4
1"	-	12	24,45

G
Whitworth Pipe Thread DIN EN ISO 228

D	-	P/1" (tpi)	mm
G 1/16	-	28	7,25
1/8	-	28	9,25
1/4	-	19	12,55
3/8	-	19	16,05
1/2	-	14	20,1
5/8	-	14	22,05
3/4	-	14	25,6
7/8	-	14	29,35
1"	-	11	32,15

ISO Metric

M
ISO Metric Coarse Thread DIN 13

Nom. Size D mm	P mm	D1 (6H) min. mm	D1 (6H) max. mm	mm
M 1	0,25	0,729	0,785	0,75
1,1	0,25	0,829	0,885	0,85
1,2	0,25	0,929	0,985	0,95
1,4	0,3	1,075	1,142	1,1
1,6	0,35	1,221	1,321	1,25
1,7	0,35	1,321	1,421	1,35
1,8	0,35	1,421	1,521	1,45
2	0,4	1,567	1,679	1,6
2,2	0,45	1,713	1,838	1,75
2,3	0,4	1,867	1,979	1,9
2,5	0,45	2,013	2,138	2,05
2,6	0,45	2,113	2,238	2,15
3	0,5	2,459	2,599	2,5 (2,55)
3,5	0,6	2,850	3,010	2,9
4	0,7	3,242	3,422	3,3 (3,4)
4,5	0,75	3,688	3,878	3,7
5	0,8	4,134	4,334	4,2 (4,3)
5,5	0,9	4,526	4,750	4,6
6	1	4,917	5,153	5 (5,1)
7	1	5,917	6,153	6
8	1,25	6,647	6,912	6,8 (6,9)
9	1,25	7,647	7,912	7,8
10	1,5	8,376	8,676	8,5 (8,6)
11	1,5	9,376	9,676	9,5
12	1,75	10,106	10,441	10,2 (10,4)
14	2	11,835	12,210	12 (12,2)
16	2	13,835	14,210	14 (14,2)
18	2,5	15,294	15,744	15,5
20	2,5	17,294	17,744	17,5
22	2,5	19,294	19,744	19,5
24	3	20,752	21,252	21
27	3	23,752	24,252	24
30	3,5	26,211	26,771	26,5
33	3,5	29,211	29,771	29,5
36	4	31,670	32,270	32
39	4	34,670	35,270	35
42	4,5	37,129	37,799	37,5
45	4,5	40,129	40,799	40,5
48	5	42,587	43,297	43
52	5	46,587	47,297	47
56	5,5	50,046	50,796	50,5
60	5,5	54,046	54,796	54,5
64	6	57,505	58,305	58
68	6	61,505	62,305	62

P ≤ 0,3 mm = Tol. 5H

( ) = Vorfertigungsdurchmesser für Gewindebohrer Typ HCUT
Preparatory diameters for taps of type HCUT

MF
ISO Metric Fine Thread DIN 13

Nom. Size D mm	x	P mm	D1 (6H) min. mm	D1 (6H) max. mm	mm
M 2,5	x	0,35	2,121	2,221	2,15
2,6	x	0,35	2,221	2,321	2,25
3	x	0,35	2,621	2,721	2,65
3,5	x	0,35	3,121	3,221	3,15
4	x	0,35	3,621	3,721	3,65
4	x	0,5	3,459	3,599	3,5
5	x	0,5	4,459	4,599	4,5
6	x	0,5	5,459	5,599	5,5
6	x	0,75	5,188	5,378	5,2
7	x	0,75	6,188	6,378	6,2
8	x	0,75	7,188	7,378	7,2
8	x	1	6,917	7,153	7 (7,1)
9	x	0,75	8,188	8,378	8,2
9	x	1	7,917	8,153	8
10	x	0,75	9,188	9,378	9,2
10	x	1	8,917	9,153	9 (9,1)
10	x	1,25	8,647	8,912	8,8
11	x	1	9,917	10,153	10
12	x	1	10,917	11,153	11
12	x	1,25	10,647	10,912	10,8
12	x	1,5	10,376	10,676	10,5 (10,6)
14	x	1	12,917	13,153	13
14	x	1,25	12,647	12,912	12,8
14	x	1,5	12,376	12,676	12,5 (12,6)
15	x	1	13,917	14,153	14
16	x	1	14,917	15,153	15
16	x	1,5	14,376	14,676	14,5 (14,6)
18	x	1	16,917	17,153	17
18	x	1,5	16,376	16,676	16,5
18	x	2	15,835	16,210	16
20	x	1	18,917	19,153	19
20	x	1,5	18,376	18,676	18,5
20	x	2	17,835	18,210	18
22	x	1	20,917	21,153	21
22	x	1,5	20,376	20,676	20,5
22	x	2	19,835	20,210	20
24	x	1	22,917	23,153	23
24	x	1,5	22,376	22,676	22,5
24	x	2	21,835	22,210	22
25	x	1,5	23,376	23,676	23,5
26	x	1,5	24,376	24,676	24,5
27	x	1,5	25,376	25,676	25,5
27	x	2	24,835	25,210	25
28	x	1,5	26,376	26,676	26,5
28	x	2	25,835	26,210	26
30	x	1,5	28,376	28,676	28,5
30	x	2	27,835	28,210	28
32	x	1,5	30,376	30,676	30,5
32	x	2	29,835	30,210	30
33	x	1,5	31,376	31,676	31,5
33	x	2	30,835	31,210	31
34	x	1,5	32,376	32,676	32,5
M 35	x	1,5	33,376	33,676	33,5
36	x	1,5	34,376	34,676	34,5
36	x	2	33,835	34,210	34
36	x	3	32,752	33,252	33
38	x	1,5	36,376	36,676	36,5
39	x	1,5	37,376	37,676	37,5
39	x	2	36,835	37,210	37
39	x	3	35,752	36,252	36
40	x	1,5	38,376	38,676	38,5
40	x	2	37,835	38,210	38
42	x	1,5	40,376	40,676	40,5
42	x	2	39,835	40,210	40
42	x	3	38,752	39,252	39
45	x	1,5	43,376	43,676	43,5
45	x	2	42,835	43,210	43
45	x	3	41,752	42,252	42
48	x	1,5	46,376	46,676	46,5
48	x	2	45,835	46,210	46
48	x	3	44,752	45,252	45
50	x	1,5	48,376	48,676	48,5
50	x	2	47,835	48,210	48
52	x	1,5	50,376	50,676	50,5
52	x	2	49,835	50,210	50
52	x	3	48,752	49,252	49
56	x	3	52,752	53,252	53
56	x	4	51,670	52,270	52
60	x	4	55,670	56,270	56
64	x	3	60,752	61,252	61
64	x	4	59,670	60,270	60
68	x	4	63,670	64,270	64
70	x	3	66,752	67,252	67
70	x	4	65,670	66,270	66
72	x	3	68,752	69,252	69
72	x	4	67,670	68,270	68
72	x	6	65,505	66,305	66
76	x	3	72,752	73,252	73
76	x	4	71,670	72,270	72
76	x	6	69,505	70,305	70
80	x	4	75,670	76,270	76
80	x	6	73,505	74,305	74
85	x	3	81,752	82,252	82
85	x	4	80,670	81,270	81
90	x	3	86,752	87,252	87
90	x	4	85,670	86,270	86
90	x	6	83,505	84,305	84
95	x	6	88,505	89,305	89
100	x	4	95,670	96,270	96
100	x	6	93,505	94,305	94
110	x	6	103,505	104,305	104
115	x	3	111,752	112,252	112
120	x	4	115,670	116,270	116
120	x	6	113,505	114,305	114

Unified

UNC
Unified Coarse Thread ASME B1.1

Nom. Size D inch	-	Gg/1" (tpi)	D1 (2B) min. mm	D1 (2B) max. mm	mm
Nr. 1	-	64	1,425	1,582	1,55
Nr. 2	-	56	1,694	1,872	1,85
Nr. 3	-	48	1,941	2,146	2,1
Nr. 4	-	40	2,156	2,385	2,35
Nr. 5	-	40	2,487	2,697	2,65
Nr. 6	-	32	2,647	2,896	2,85
Nr. 8	-	32	3,307	3,528	3,5
Nr. 10	-	24	3,680	3,949	3,9
Nr. 12	-	24	4,341	4,590	4,5
1/4	-	20	4,976	5,268	5,1
5/16	-	18	6,411	6,734	6,6
3/8	-	16	7,805	8,164	8
7/16	-	14	9,149	9,550	9,4
1/2	-	13	10,584	11,016	10,8
9/16	-	12	11,996	12,456	12,2
5/8	-	11	13,376	13,868	13,5
3/4	-	10	16,299	16,833	16,5
7/8	-	9	19,169	19,748	19,5
1"	-	8	21,963	22,598	22,25
1 1/8	-	7	24,648	25,349	25
1 1/4	-	7	27,823	28,524	28
1 3/8	-	6	30,343	31,120	30,75
1 1/2	-	6	33,518	34,295	34
1 3/4	-	5	38,951	39,814	39,5
2"	-	4 1/2	44,689	45,598	45

UNF
Unified Fine Thread ASME B1.1

Nom. Size D inch	-	Gg/1" (tpi)	D1 (2B) min. mm	D1 (2B) max. mm	mm
Nr. 2	-	64	1,755	1,913	1,85
Nr. 3	-	56	2,024	2,197	2,15
Nr. 4	-	48	2,271	2,459	2,4
Nr. 5	-	44	2,550	2,741	2,7
Nr. 6	-	40	2,817	3,012	2,95
Nr. 8	-	36	3,401	3,597	3,5
Nr. 10	-	32	3,967	4,168	4,1
Nr. 12	-	28	4,503	4,716	4,6
1/4	-	28	5,367	5,580	5,5
5/16	-	24	6,792	7,038	6,9
3/8	-	24	8,379	8,626	8,5
7/16	-	20	9,738	10,030	9,9
1/2	-	20	11,326	11,618	11,5
9/16	-	18	12,761	13,084	12,9
5/8	-	18	14,348	14,671	14,5
3/4	-	16	17,330	17,689	17,5
7/8	-	14	20,262	20,663	20,4
1"	-	12	23,109	23,569	23,25
1 1/8	-	12	26,284	26,744	26,5
1 1/4	-	12	29,459	29,919	29,5
1 3/8	-	12	32,634	33,094	32,75
1 1/2	-	12	35,809	36,269	36

UN-8
Unified thread ASME B1.1

Nom. Size D inch	-	Gg/1" (tpi)	D1 (2B) min. mm	D1 (2B) max. mm	mm
1 1/8	-	8	25,138	25,773	25,4
1 1/4	-	8	28,313	28,948	28,6
1 1/2	-	8	34,663	35,298	35
1 3/4	-	8	41,013	41,648	41,3
2"	-	8	47,363	47,998	47,7

UNEF
Unified extra fine thread ASME B1.1

Nom. Size D inch	-	Gg/1" (tpi)	D1 (2B) min. mm	D1 (2B) max. mm	mm
1/4	-	32	5,491	5,679	5,55
5/16	-	32	7,079	7,267	7,15
3/8	-	32	8,666	8,854	8,7
7/16	-	28	10,130	10,343	10,2
1/2	-	28	11,717	11,930	11,8
9/16	-	24	13,142	13,388	13,2
5/8	-	24	14,729	14,975	14,8
3/4	-	20	17,676	17,968	17,8
7/8	-	20	20,851	21,143	20,95
1"	-	20	24,026	24,318	24,15

Trapezoidal and Round Threads

Tr
ISO Metric trapezoidal coarse thread DIN 103

Nom. Size D mm	x	P mm	D1 (7H) min. mm	D1 (7H) max. mm	mm
Tr 8	x	1,5	6,5	6,69	6,6
9	x	2	7	7,236	7,2
10	x	2	8	8,236	8,2
10	x	3	7	7,315	7,25
11	x	3	8	8,315	8,25
12	x	3	9	9,315	9,25
14	x	3	11	11,315	11,25
14	x	4	10	10,375	10,25
16	x	4	12	12,375	12,25
18	x	4	14	14,375	14,25
20	x	4	16	16,375	16,25
22	x	5	17	17,45	17,25
24	x	5	19	19,45	19,25
26	x	5	21	21,45	21,25
28	x	5	23	23,45	23,25
30	x	6	24	24,5	24,25
32	x	6	26	26,5	26,25
34	x	6	28	28,5	28,25
36	x	6	30	30,5	30,25
38	x	7	31	31,56	31,5
40	x	7	33	33,56	33,5
42	x	7	35	35,56	35,5
44	x	7	37	37,56	37,5
46	x	8	38	38,63	38,5
48	x	8	40	40,63	40,5
50	x	8	42	42,63	42,5
52	x	8	44	44,63	44,5

Tr-F
ISO Metric trapezoidal fine thread DIN 103

Nom. Size D mm	x	P mm	D1 (7H) min. mm	D1 (7H) max. mm	mm
Tr 9	x	1,5	7,5	7,69	7,6
10	x	1,5	8,5	8,69	8,6
11	x	2	9	9,236	9,2
12	x	2	10	10,236	10,2
14	x	2	12	12,236	12,2
16	x	2	14	14,236	14,2
18	x	2	16	16,236	16,2
20	x	2	18	16,236	18,2
22	x	3	19	19,315	19,25
24	x	3	21	21,315	21,25
26	x	3	23	23,315	23,25
28	x	3	25	25,315	25,25
30	x	3	27	27,315	27,25

Rd
Round thread DIN 405

Nom. Size D mm	x	P/1" (tpi)	D1 (7H) min. mm	D1 (7H) max. mm	mm
Rd 8	x	10	5,714	6,164	6
9	x	10	6,714	7,164	7
10	x	10	7,714	8,164	8
11	x	10	8,714	9,164	9
12	x	10	9,714	10,164	10
14	x	8	11,142	11,672	11,5
16	x	8	13,142	13,672	13,5
18	x	8	15,142	15,672	15,5
20	x	8	17,142	17,672	17,5
22	x	8	19,142	19,672	19,5
24	x	8	21,142	21,672	21,5
26	x	8	23,142	23,672	23,5
28	x	8	25,142	25,672	25,5
30	x	8	27,142	27,672	27,5

Aerospace Industry

MJ
MJ thread DIN ISO 5855

Nom. Size D mm	x	P mm	D1 min. mm	D1 max. mm	mm
MJ 3	x	0,5	2,513	2,653	2,6
4	x	0,7	3,318	3,498	3,4
5	x	0,8	4,221	4,421	4,3
6	x	1	5,026	5,216	5,1
8	x	1	7,026	7,216	7,1
8	x	1,25	6,782	6,994	6,9
10	x	1,25	8,782	8,994	8,9
10	x	1,5	8,539	8,775	8,6

UNJC
Unified coarse thread ASME B1.15

Nom. Size D inch	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
Nr. 4	-	40	2,228	2,393	2,3
Nr. 6	-	32	2,733	2,939	2,85
Nr. 8	-	32	3,393	3,599	3,5
Nr. 10	-	24	3,795	4,064	3,9
1/4	-	20	5,113	5,387	5,25
5/16	-	18	6,563	6,833	6,7
3/8	-	16	7,978	8,255	8,1

UNJF
Unified fine thread ASME B1.15

Nom. Size D inch	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
Nr. 4	-	48	2,329	2,466	2,4
Nr. 6	-	40	2,888	3,053	3
Nr. 8	-	36	3,480	3,663	3,55
Nr. 10	-	32	4,054	4,255	4,15
1/4	-	28	5,466	5,662	5,55
5/16	-	24	6,906	7,109	7
3/8	-	24	8,494	8,679	8,6

Cylindrical Pipe

G
Whitworth pipe thread DIN EN ISO 228

Nom. Size D	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
G 1/16	-	28	6,561	6,843	6,8
1/8	-	28	8,566	8,848	8,8
1/4	-	19	11,445	11,890	11,8 (11,9)
3/8	-	19	14,950	15,395	15,25 (15,35)
1/2	-	14	18,631	19,172	19 (19,1)
5/8	-	14	20,587	21,128	21
3/4	-	14	24,117	24,658	24,5
7/8	-	14	27,877	28,418	28,25
1"	-	11	30,291	30,931	30,75
1 1/8	-	11	34,939	35,579	35,5
1 1/4	-	11	38,952	39,592	39,5
1 3/8	-	11	41,365	42,005	41,75
1 1/2	-	11	44,845	45,485	45,25
1 5/8	-	11	49,030	49,670	49,5
1 3/4	-	11	50,788	51,428	51
2"	-	11	56,656	57,296	57
2 1/4	-	11	62,752	63,392	63,3
2 1/2	-	11	72,226	72,866	72,8
2 3/4	-	11	78,576	79,216	79,1
3"	-	11	84,926	85,566	85,5

( ) = Preparatory diameters for taps of type HCUT

NPSM
American Standard straight pipe thread ANSI/ASME B1.20.1
for mechanical joints (previously NPS)

Nom. Size D inch	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
1/8	-	27	9,093	9,246	9,1
1/4	-	18	11,887	12,217	12
3/8	-	18	15,316	15,545	15,5
1/2	-	14	18,974	19,279	19
3/4	-	14	24,333	24,638	24,5
1"	-	11 1/2	30,505	30,759	30,5

NPSC
American Standard internal straight thread ANSI/ASME B1.20.1
in pipe coupling

Nom. Size D inch	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
1/8	-	27	8,636	8,814	8,8
1/4	-	18	11,227	11,491	11,4
3/8	-	18	14,656	14,920	14,9
1/2	-	14	18,161	18,501	18,4
3/4	-	14	23,495	23,835	23,7
1"	-	11 1/2	29,489	29,903	29,8

Rp (BSPP)
Cylindrical Whitworth pipe thread DIN EN 10226-1 and ISO 7-1
where pressure-tight joints are made on the threads

Nom. Size D	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
Rp 1/16	-	28	6,490	6,632	6,55
1/8	-	28	8,495	8,637	8,6
1/4	-	19	11,341	11,549	11,5
3/8	-	19	14,846	15,054	15
1/2	-	14	18,489	18,773	18,5
3/4	-	14	23,975	24,259	24
1"	-	11	30,111	30,471	30,25

NPSF
American Standard straight pipe thread ANSI B1.20.3
dryseal internal straight pipe thread for fuel, combined with external tapered pipe thread NPTF or PTF-SAE-SHORT; Gauge with tapered gauges

Nom. Size D inch	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
1/16	-	27	6,304	6,393	6,35
1/8	-	27	8,651	8,740	8,7
1/4	-	18	11,232	11,364	11,3
3/8	-	18	14,671	14,803	14,75
1/2	-	14	18,118	18,288	18,2
3/4	-	14	23,465	23,635	23,5
1"	-	11 1/2	29,464	29,670	29,5

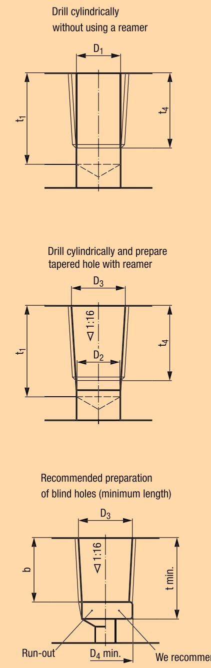
Steel Conduit

Pg
Steel conduit thread DIN 40430

Nom. Size D mm	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
Pg 7	20	11,28	11,43	11,35
9	18	13,86	14,01	13,95
11	18	17,26	17,41	17,35
13,5	18	19,06	19,21	19,15
16	18	21,16	21,31	21,25
21	16	26,78	27,03	26,95
29	16	35,48	35,73	35,6
36	16	45,48	45,73	45,6
42	16	52,48	52,73	52,6
48	16	57,78	58,03	57,9

Steel conduit thread (Pg) DIN 40430 will be replaced by Metric fine thread acc. DIN EN

Tapered Pipe



We recommend using a recessed design wherever possible

Rc (BSPT)
Tapered Whitworth pipe thread DIN EN 10226-2 and ISO 7-1 where pressure-tight joints are made on the threads, taper 1:16

Nom. Size D inch	-	P/1" (tpi)	D1 mm	t1 mm	t4 mm
Rc 1/16	-	28	6,15	11,1	9,5
1/8	-	28	8,15	11,1	9,5
1/4	-	19	10,85	16,3	14
3/8	-	19	14,3	16,7	14,4
1/2	-	14	17,8	22,3	19,1
3/4	-	14	23,2	23,6	20,4
1"	-	11	29,2	28,3	24,3

Nom. Size D inch	-	P/1" (tpi)	D2 mm	D3 (JS11) mm	t1 mm	t4 mm
Rc 1/16	-	28	6,1	6,56	11,1	9,5
1/8	-	28	8,1	8,57	11,1	9,5
1/4	-	19	10,75	11,45	16,3	14
3/8	-	19	14,25	14,95	16,7	14,4
1/2	-	14	17,7	18,63	22,3	19,1
3/4	-	14	23,1	24,12	23,6	20,4
1"	-	11	29,1	30,29	28,3	24,3

Nom. Size D inch	-	P/1" (tpi)	D3 (JS11) mm	b	t min. mm	D4 min. mm
Rc 1/16	-	28	6,56	5,6	9,9	7,6 +0,3
1/8	-	28	8,57	5,6	9,9	9,6 +0,3
1/4	-	19	11,45	8,4	14,6	13 +0,5
3/8	-	19	14,95	8,8	15	16,5 +0,5
1/2	-	14	18,63	11,4	20	20,6 +0,5
3/4	-	14	24,12	12,7	21,3	26 +0,5
1"	-	11	30,29	14,5	25,4	32,8 +0,5

NPT
American tapered pipe thread ANSI/ASME B1.20.1 for threads with dryseal material taper 1:16

Nom. Size D inch	-	P/1" (tpi)	D1 mm	t1 mm	t4 mm
1/16	-	27	6,15	11,8	9,7
1/8	-	27	8,5	11,9	9,75
1/4	-	18	11	17,4	14,25
3/8	-	18	14,4	17,7	14,55
1/2	-	14	17,8	23,1	19
3/4	-	14	23,15	23,6	19,5
1"	-	11 1/2	29,05	28,4	23,4
1 1/4	-	11 1/2	37,8	28,9	23,9
1 1/2	-	11 1/2	43,85	28,9	23,9
2"	-	11 1/2	55,85	29,3	24,35

Nom. Size D inch	-	P/1" (tpi)	D2 mm	D3 +0,05 mm	t1 mm	t4 mm
1/16	-	27	5,95	6,39	11,8	9,7
1/8	-	27	8,3	8,74	11,9	9,75
1/4	-	18	10,75	11,36	17,4	14,25
3/8	-	18	14,15	14,8	17,7	14,55
1/2	-	14	17,45	18,32	23,1	19
3/4	-	14	22,8	23,67	23,6	19,5
1"	-	11 1/2	28,65	29,69	28,4	23,4
1 1/4	-	11 1/2	37,35	38,45	28,9	23,9
1 1/2	-	11 1/2	43,45	44,52	28,9	23,9
2"	-	11 1/2	55,45	56,56	29,3	24,35

Nom. Size D inch	-	P/1" (tpi)	D3 +0,05 mm	b	t min. mm	D4 min. mm
1/16	-	27	6,39	7	10	7,6
1/8	-	27	8,74	7	10	10
1/4	-	18	11,36	10,2	14,5	13,1
3/8	-	18	14,8	10,6	15	16,5
1/2	-	14	18,32	13,8	19	20,5
3/4	-	14	23,67	14,2	20	25,8
1"	-	11 1/2	29,69	17	24	32,2
1 1/4	-	11 1/2	38,45	17,5	24,5	41
1 1/2	-	11 1/2	44,52	17,5	24,5	47,2
2"	-	11 1/2	56,56	18	25	59,2

NPTF
American tapered pipe thread ANSI B1.20.3 for threads without dryseal material taper 1:16

Nom. Size D inch	-	P/1" (tpi)	D1 mm	t1 mm	t4 mm
1/16	-	27	6,1	13	10,65
1/8	-	27	8,45	13	10,7
1/4	-	18	10,9	19,2	15,65
3/8	-	18	14,3	19,5	16
1/2	-	14	17,6	25,4	20,85
3/4	-	14	23	25,9	21,3
1"	-	11 1/2	28,75	31,1	25,6
1 1/4	-	11 1/2	37,5	31,7	26,15
1 1/2	-	11 1/2	43,75	31,7	26,15
2"	-	11 1/2	55,75	32,1	26,55

Nom. Size D inch	-	P/1" (tpi)	D2 mm	D3 +0,05 mm	t1 mm	t4 mm
1/16	-	27	5,95	6,41	13	10,65
1/8	-	27	8,3	8,76	13	10,7
1/4	-	18	10,75	11,4	19,2	15,65
3/8	-	18	14,15	14,84	19,5	16
1/2	-	14	17,45	18,33	25,4	20,85
3/4	-	14	22,8	23,68	25,9	21,3
1"	-	11 1/2	28,65	29,72	31,1	25,6
1 1/4	-	11 1/2	37,35	38,48	31,7	26,15
1 1/2	-	11 1/2	43,45	44,55	31,7	26,15
2"	-	11 1/2	55,45	56,59	32,1	26,55

Nom. Size D inch	-	P/1" (tpi)	D3 +0,05 mm	b	t min. mm	D4 min. mm
1/16	-	27	6,41	8	11	7,4
1/8	-	27	8,76	8	11	9,8
1/4	-	18	11,4	11,6	15,5	12,9
3/8	-	18	14,84	12	16	16,3
1/2	-	14	18,33	15,6	20,5	20,3
3/4	-	14	23,68	16	21,5	25,6
1"	-	11 1/2	29,72	19,2	26	32
1 1/4	-	11 1/2	38,48	19,7	26,5	40,8
1 1/2	-	11 1/2	44,55	19,7	26,5	47
2"	-	11 1/2	56,59	20,2	27	59

British

BSW
Whitworth thread BS 84

Nom. Size D	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
BSW 1/16	-	60	1,045	1,230	1,15
3/32	-	48	1,704	1,912	1,85
1/8	-	40	2,362	2,591	2,55
5/32	-	32	2,952	3,214	3,2
3/16	-	24	3,406	3,744	3,7
7/32	-	24	4,201	4,539	4,5
1/4	-	20	4,724	5,156	5,1
5/16	-	18	6,129	6,589	6,5
3/8	-	16	7,493	7,988	7,9
7/16	-	14	8,791	9,332	9,25
1/2	-	12	9,987	10,589	10,5
9/16	-	12	11,575	12,177	12
5/8	-	11	12,918	13,559	13,5
3/4	-	10	15,799	16,485	16,4
7/8	-	9	18,613	19,355	19,25
1"	-	8	21,336	22,149	22
1 1/8	-	7	23,927	24,831	24,75
1 1/4	-	7	27,102	28,006	27,75
1 3/8	-	6	29,504	30,528	30,5
1 1/2	-	6	32,680	33,703	33,5
1 5/8	-	5	34,769	35,963	35,5
1 3/4	-	5	37,943	39,136	39
1 7/8	-	4 1/2	40,396	41,702	41,5
2"	-	4 1/2	43,571	44,877	44,5

BSF
Whitworth fine thread BS 84

Nom. Size D	-	P/1" (tpi)	D1 min. mm	D1 max. mm	mm
BSF 3/16	-	32	3,747	4,006	4
1/4	-	26	5,100	5,398	5,3
5/16	-	22	6,459	6,817	6,8
3/8	-	20	7,899	8,331	8,3
7/16	-	18	9,304	9,764	9,7
1/2	-	16	10,668	11,163	11,1
5/8	-	14	13,553	14,094	14
3/4	-	12	16,337	16,939	16,75
7/8	-	11	19,268	19,909	19,75
1"	-	10	22,149	22,835	22,75

Helicoil Taps

M (STI)
ISO Metric coarse thread DIN 8140-2

Nom. Size D mm	P mm	DEG min. mm	D1EG min. mm	D1EG max. mm	mm
EG M 2,5	0,45	3,084	2,597	2,697	2,65
3	0,5	3,650	3,108	3,220	3,15
4	0,7	4,910	4,152	4,292	4,2
5	0,8	6,040	5,174	5,334	5,25
6	1	7,300	6,217	6,407	6,3
8	1,25	9,624	8,271	8,483	8,4
10	1,5	11,948	10,324	10,560	10,5
12	1,75	14,274	12,379	12,644	12,5
14	2	16,598	14,433	14,733	14,5
16	2	18,598	16,433	16,733	16,5
18	2,5	21,248	18,541	18,896	18,75
20	2,5	23,248	20,541	20,896	20,75

UNC (STI)
Unified coarse thread ASME B18.29.1

Nom. Size D mm	-	P/1" (tpi)	DEG min. mm	D1EG min. mm	D1EG max. mm	mm
EG Nr. 4	-	40	3,671	2,982	3,178	3,1
Nr. 6	-	32	4,536	3,678	3,879	3,8
Nr. 8	-	32	5,197	4,338	4,523	4,4
Nr. 10	-	24	6,200	5,054	5,283	5,2
1/4	-	20	8,002	6,628	6,872	6,7
5/16	-	18	9,771	8,244	8,490	8,4
3/8	-	16	11,587	9,867	10,126	10
7/16	-	14	13,469	11,506	11,783	11,6
1/2	-	13	15,237	13,121	13,393	13,3
9/16	-	12	17,039	14,747	15,031	14,9
5/8	-	11	18,875	16,376	16,673	16,5
3/4	-	10	22,349	19,598	19,908	19,75

UNF (STI)
Unified coarse thread ASME B18.29.1

Nom. Size D mm	-	P/1" (tpi)	DEG min. mm	D1EG min. mm	D1EG max. mm	mm
EG Nr. 4	-	48	3,533	2,959	3,119	3
Nr. 6	-	40	4,330	3,642	3,815	3,7
Nr. 8	-	36	5,083	4,318	4,496	4,4
Nr. 10	-	32	5,858	4,999	5,184	5,1
1/4	-	28	7,528	6,545	6,720	6,6
5/16	-	24	9,312	8,166	8,351	8,25
3/8	-	24	10,899	9,753	9,931	9,8
7/16	-	20	12,763	11,389	11,587	11,5
1/2	-	20	14,352	12,978	13,176	13,1
9/16	-	18	16,121	14,594	14,800	14,7
5/8	-	18	17,709	16,182	16,388	16,25
3/4	-	16	21,112	19,392	19,608	19,5

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