



# TOTEM



High Performance Cutting Tools

## PRICE LIST

EFFECTIVE 08.01.2024



### HIGH SPEED STEEL DRILLS



Forbes & Company Limited



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**IS 5101 : 2002, DIN 338 : 1984, ISO 235 : 1980, BS 328**



ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

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Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200001	1.00		12	34	461
FBR0200002	1.10		14	36	461
FBR0200157	1.19	3/64"	16	38	461
FBR0200003	1.20		16	38	461
FBR0200004	1.30		16	38	461
FBR0200005	1.40		18	40	461
FBR0200006	1.50		18	40	461
FBR0200158	1.59	1/16"	20	43	461
FBR0200007	1.60		20	43	461
FBR0200008	1.70		20	43	494
FBR0200009	1.80		22	46	494
FBR0200010	1.90		22	46	494
FBR0200159	1.98	5/64"	24	49	494
FBR0200011	2.00		24	49	494
FBR0200012	2.10		24	49	575
FBR0200013	2.20		27	53	575
FBR0200014	2.30		27	53	575
FBR0200160	2.38	3/32"	30	57	575
FBR0200015	2.40		30	57	575
FBR0200016	2.50		30	57	575
FBR0200017	2.60		30	57	575
FBR0200018	2.70		33	61	575
FBR0200103	2.78	7/64"	33	61	575
FBR0200019	2.80		33	61	544
FBR0200020	2.90		33	61	544
FBR0200021	3.00		33	61	544
FBR0200022	3.10		36	65	647
FBR0200102	3.17	1/8"	36	65	647
FBR0200023	3.20		36	65	669
FBR0200024	3.30		36	65	669

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200025	3.40		39	70	669
FBR0200026	3.50		39	70	669
FBR0200104	3.57	9/64"	39	70	776
FBR0200027	3.60		39	70	948
FBR0200028	3.70		39	70	948
FBR0200029	3.80		43	75	948
FBR0200030	3.90		43	75	948
FBR0200105	3.97	5/32"	43	75	948
FBR0200031	4.00		43	75	948
FBR0200032	4.10		43	75	1146
FBR0200033	4.20		43	75	1146
FBR0200034	4.30		47	80	1146
FBR0200106	4.37	11/64"	47	80	1146
FBR0200035	4.40		47	80	1146
FBR0200036	4.50		47	80	1504
FBR0200037	4.60		47	80	1504
FBR0200038	4.70		47	80	1504
FBR0200107	4.76	3/16"	52	86	1504
FBR0200039	4.80		52	86	1504
FBR0200040	4.90		52	86	1635
FBR0200041	5.00		52	86	1635
FBR0200042	5.10		52	86	1635
FBR0200109	5.16	13/64"	52	86	1635
FBR0200043	5.20		52	86	1635
FBR0200044	5.30		52	86	1766
FBR0200045	5.40		57	93	1766
FBR0200046	5.50		57	93	1766
FBR0200161	5.56	7/32"	57	93	1766
FBR0200047	5.60		57	93	1766
FBR0200048	5.70		57	93	1985



## HSS Parallel Shank Twist Drill - Jobber Series ( Full Ground Straight Shank Drill, 118° Point Angle)



**IS 5101 : 2002, DIN 338 : 1984, ISO 235 : 1980, BS 328**



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Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200049	5.80		57	93	1985
FBR0200050	5.90		57	93	1985
FBR0200282	5.95	15/64"	57	93	1985
FBR0200051	6.00		57	93	1985
FBR0200052	6.10		63	101	2160
FBR0200053	6.20		63	101	2160
FBR0200054	6.30		63	101	2160
FBR0200108	6.35	1/4"	63	101	2160
FBR0200055	6.40		63	101	2160
FBR0200056	6.50		63	101	2757
FBR0200057	6.60		63	101	2757
FBR0200058	6.70		63	101	2757
FBR0200110	6.75	17/64"	69	109	2757
FBR0200059	6.80		69	109	2757
FBR0200060	6.90		69	109	3017
FBR0200061	7.00		69	109	3017
FBR0200062	7.10		69	109	3017
FBR0200162	7.14	9/32"	69	109	3017
FBR0200063	7.20		69	109	3017
FBR0200064	7.30		69	109	3186
FBR0200065	7.40		69	109	3186
FBR0200066	7.50		69	109	3186
FBR0200163	7.54	19/64"	75	117	3449
FBR0200067	7.60		75	117	3449
FBR0200068	7.70		75	117	3449
FBR0200069	7.80		75	117	3449
FBR0200070	7.90		75	117	3449
FBR0200111	7.94	5/16"	75	117	3785
FBR0200071	8.00		75	117	3785
FBR0200072	8.10		75	117	3785

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200073	8.20		75	117	3785
FBR0200074	8.30		75	117	4588
FBR0200112	8.33	21/64"	75	117	4588
FBR0200075	8.40		75	117	4588
FBR0200076	8.50		75	117	4588
FBR0200077	8.60		81	125	4588
FBR0200078	8.70		81	125	4588
FBR0200164	8.73	11/32"	81	125	4832
FBR0200079	8.80		81	125	4832
FBR0200080	8.90		81	125	4832
FBR0200081	9.00		81	125	4832
FBR0200082	9.10		81	125	5041
FBR0200165	9.13	23/64"	81	125	5041
FBR0200083	9.20		81	125	5041
FBR0200084	9.30		81	125	5041
FBR0200085	9.40		81	125	5041
FBR0200086	9.50		81	125	5041
FBR0200113	9.52	3/8"	87	133	5715
FBR0200087	9.60		87	133	5715
FBR0200088	9.70		87	133	5715
FBR0200089	9.80		87	133	5715
FBR0200090	9.90		87	133	6394
FBR0200283	9.92	25/64"	87	133	6394
FBR0200091	10.00		87	133	6394
FBR0200264	10.10		87	133	6394
FBR0200092	10.20		87	133	6394
FBR0200265	10.30		87	133	6932
FBR0200284	10.32	13/32"	87	133	6932
FBR0200266	10.40		87	133	6932
FBR0200093	10.50		87	133	6932

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Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200141	10.60		87	133	6932
FBR0200094	10.70		94	142	7339
FBR0200285	10.72	27/64"	94	142	7339
FBR0200095	10.80		94	142	7339
FBR0200267	10.90		94	142	7339
FBR0200096	11.00		94	142	7339
FBR0200268	11.10		94	142	8190
FBR0200114	11.11	7/16"	94	142	8190
FBR0200269	11.20		94	142	8190
FBR0200270	11.30		94	142	8190
FBR0200271	11.40		94	142	8190
FBR0200097	11.50		94	142	8639
FBR0200286	11.51	29/64"	94	142	8639
FBR0200272	11.60		94	142	8639
FBR0200273	11.70		94	142	8639
FBR0200098	11.80		94	142	8639
FBR0200274	11.90		101	151	9227
FBR0200287	11.91	15/32"	101	151	9227
FBR0200099	12.00		101	151	9227
FBR0200275	12.10		101	151	9227
FBR0200276	12.20		101	151	9227
FBR0200288	12.30	31/64"	101	151	9787
FBR0200278	12.40		101	151	9787
FBR0200100	12.50		101	151	9787
FBR0200142	12.60		101	151	9787
FBR0200115	12.70	1/2"	101	151	10334
FBR0200280	12.80		101	151	10334
FBR0200281	12.90		101	151	10334
FBR0200101	13.00		101	151	10334

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200289	13.10	33/64"	101	151	16285
FBR0200290	13.49	17/32"	108	160	16285
FBR0200143	13.50		108	160	16285
FBR0200291	13.89	35/64"	108	160	16285
FBR0200144	14.00		108	160	16285
FBR0200292	14.29	9/16"	114	169	19440
FBR0200145	14.50		114	169	19464
FBR0200293	14.68	37/64"	114	169	19464
FBR0200146	15.00		114	169	19464
FBR0200294	15.08	19/32"	120	178	23077
FBR0200295	15.48	39/64"	120	178	23077
FBR0200147	15.50		120	178	23077
FBR0200296	15.87	5/8"	120	178	23077
FBR0200148	16.00		120	178	23077
FBR0200149	16.50		125	184	27151
FBR0200297	16.67	21/32"	125	184	27151
FBR0200150	17.00		125	184	27151
FBR0200298	17.46	11/16"	125	184	30765
FBR0200151	17.50		130	191	30765
FBR0200152	18.00		130	191	30780
FBR0200299	18.26	23/32"	135	198	35138
FBR0200153	18.50		135	198	35138
FBR0200154	19.00		135	198	35149
FBR0200300	19.05	3/4"	140	205	40139
FBR0200155	19.50		140	205	40139
FBR0200301	18.84	25/32"	140	205	40139
FBR0200156	20.00		140	205	40139
FBR0200302	20.64	13/16"	140	205	55913

## HSS Parallel Shank Twist Drill - Stub Series

(Full Ground Straight Shank Drill, 118° Point Angle)



**IS 5100 : 2000, DIN 1897 : 1984, ISO 235 : 1980, BS 328**



ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

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Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200313	1.00		6	26	455
FBR0200314	1.10		7	28	455
FBR0200940	1.19	3/64"	8	30	455
FBR0200315	1.20		8	30	455
FBR0200316	1.30		8	30	455
FBR0200317	1.40		9	32	455
FBR0200318	1.50		9	32	455
FBR0200941	1.59	1/16"	10	34	455
FBR0200319	1.60		10	34	455
FBR0200320	1.70		10	34	455
FBR0200321	1.80		11	36	455
FBR0200322	1.90		11	36	455
FBR0200942	1.98	5/64"	12	38	455
FBR0200323	2.00		12	38	455
FBR0200324	2.10		12	38	455
FBR0200325	2.20		13	40	455
FBR0200326	2.30		13	40	455
FBR0200943	2.38	3/32"	14	43	455
FBR0200327	2.40		14	43	455
FBR0200328	2.50		14	43	455
FBR0200329	2.60		14	43	465
FBR0200330	2.70		16	46	465
FBR0200944	2.78	7/64"	16	46	465
FBR0200331	2.80		16	46	501
FBR0200332	2.90		16	46	501
FBR0200333	3.00		16	46	524
FBR0200334	3.10		18	49	650
FBR0200450	3.18	1/8"	18	49	650
FBR0200335	3.20		18	49	650

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200336	3.30		18	49	650
FBR0200337	3.40		20	52	650
FBR0200338	3.50		20	52	650
FBR0200451	3.57	9/64"	20	52	650
FBR0200339	3.60		20	52	717
FBR0200340	3.70		20	52	717
FBR0200341	3.80		22	55	924
FBR0200342	3.90		22	55	924
FBR0200452	3.97	5/32"	22	55	924
FBR0200343	4.00		22	55	924
FBR0200344	4.10		22	55	937
FBR0200345	4.20		22	55	1034
FBR0200346	4.30		24	58	1042
FBR0200453	4.37	11/64"	24	58	1042
FBR0200347	4.40		24	58	1042
FBR0200348	4.50		24	58	1338
FBR0200349	4.60		24	58	1381
FBR0200350	4.70		24	58	1381
FBR0200454	4.76	3/16	26	62	1381
FBR0200351	4.80		26	62	1381
FBR0200352	4.90		26	62	1381
FBR0200353	5.00		26	62	1434
FBR0200354	5.10		26	62	1468
FBR0200456	5.16	13/64	26	62	1468
FBR0200355	5.20		26	62	1468
FBR0200356	5.30		26	62	1468
FBR0200357	5.40		28	66	1468
FBR0200358	5.50		28	66	1594
FBR0200945	5.56	7/32"	28	66	1641

**IS 5100 : 2000, DIN 1897 : 1984, ISO 235 : 1980, BS 328**



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Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200359	5.60		28	66	1641
FBR0200360	5.70		28	66	1641
FBR0200361	5.80		28	66	1794
FBR0200362	5.90		28	66	1794
FBR0200946	5.95	15/64	28	66	1794
FBR0200363	6.00		28	66	1794
FBR0200364	6.10		31	70	1794
FBR0200365	6.20		31	70	2008
FBR0200366	6.30		31	70	2008
FBR0200367	6.40		31	70	2008
FBR0200455	6.35	1/4"	31	70	2103
FBR0200368	6.50		31	70	2428
FBR0200369	6.60		31	70	2473
FBR0200370	6.70		31	70	2473
FBR0200947	6.75	17/64	34	74	2473
FBR0200371	6.80		34	74	2473
FBR0200372	6.90		34	74	2473
FBR0200373	7.00		34	74	2697
FBR0200374	7.10		34	74	2712
FBR0200948	7.14	9/32"	34	74	2712
FBR0200375	7.20		34	74	2712
FBR0200376	7.30		34	74	2712
FBR0200377	7.40		34	74	2712
FBR0200378	7.50		34	74	2818
FBR0200949	7.54	19/64	37	79	2869
FBR0200379	7.60		37	79	2869
FBR0200380	7.70		37	79	2869
FBR0200381	7.80		37	79	3093
FBR0200382	7.90		37	79	3093

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200457	7.94	5/16"	37	79	3403
FBR0200383	8.00		37	79	3403
FBR0200384	8.10		37	79	3403
FBR0200385	8.20		37	79	3340
FBR0200386	8.30		37	79	3340
FBR0200950	8.33	21/64	37	79	3340
FBR0200387	8.40		37	79	3340
FBR0200388	8.50		37	79	4228
FBR0200389	8.60		40	84	4252
FBR0200390	8.70		40	84	4252
FBR0200951	8.73	11/32"	40	84	4436
FBR0200391	8.80		40	84	4436
FBR0200392	8.90		40	84	4436
FBR0200393	9.00		40	84	4436
FBR0200394	9.10		40	84	4436
FBR0200952	9.13	23/64	40	84	4686
FBR0200395	9.20		40	84	4686
FBR0200396	9.30		40	84	4686
FBR0200397	9.40		40	84	4686
FBR0200398	9.50		40	84	4686
FBR0200399	9.60		43	89	4686
FBR0200400	9.70		43	89	4686
FBR0200458	9.52	3/8"	43	89	4897
FBR0200401	9.80		43	89	4622
FBR0200402	9.90		43	89	4622
FBR0200953	9.92	25/64	43	89	4622
FBR0200403	10.00		43	89	5945
FBR0200404	10.10		43	89	5992
FBR0200405	10.20		43	89	5992

## HSS Parallel Shank Twist Drill - Stub Series (Full Ground Straight Shank Drill, 118° Point Angle)



IS 5100 : 2000, DIN 1897 : 1984, ISO 235 : 1980, BS 328



ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200406	10.30		43	89	5992
FBR0200954	10.32	13/32	43	89	5992
FBR0200407	10.40		43	89	5992
FBR0200408	10.50		43	89	6415
FBR0200409	10.60		43	89	6450
FBR0200410	10.70		47	95	6450
FBR0200955	10.72	27/64	47	95	7249
FBR0200411	10.80		47	95	7249
FBR0200412	10.90		47	95	7249
FBR0200413	11.00		47	95	7249
FBR0200414	11.10		47	95	7263
FBR0200459	11.11	7/16"	47	95	7566
FBR0200415	11.20		47	95	7566
FBR0200416	11.30		47	95	7566
FBR0200417	11.40		47	95	7566
FBR0200418	11.50		47	95	8094
FBR0200956	11.51	29/64	47	95	8094
FBR0200419	11.60		47	95	8094
FBR0200420	11.70		47	95	8094
FBR0200421	11.80		47	95	8094
FBR0200422	11.90		51	102	8094
FBR0200957	11.91	15/32	51	102	8564
FBR0200423	12.00		51	102	8564
FBR0200424	12.10		51	102	8564
FBR0200425	12.20		51	102	8564
FBR0200426	12.30		51	102	9306
FBR0200427	12.40		51	102	9306
FBR0200428	12.50		51	102	9306
FBR0200429	12.60		51	102	9306
FBR0200460	12.70	1/2"	51	102	9506

ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0200431	12.80		51	102	9506
FBR0200432	12.90		51	102	9506
FBR0200433	13.00		51	102	9506
FBR0200435	13.50		54	107	11861
FBR0200437	14.00		54	107	12917
FBR0201799	14.28	9/16"	56	111	13452
FBR0200438	14.50		56	111	13452
FBR0200439	15.00		56	111	14546
FBR0200440	15.50		58	115	14546
FBR0200441	16.00		58	115	15745
FBR0200442	16.50		60	119	15996
FBR0200443	17.00		60	119	16320
FBR0200444	17.50		62	123	16617
FBR0200445	18.00		62	123	16842
FBR0200446	18.50		64	127	17463
FBR0200447	19.00		64	127	17463
FBR0200448	19.50		66	131	20015
FBR0200449	20.00		66	131	20015

### FEATURES & BENEFITS

1. An excellent general purpose drill with conventional 118° point angle
2. Shorter flute & overall length increases the rigidity, resulting in less deflection, better hole accuracy & longer tool life
3. Stable cutting edge
4. Better chip evacuation
5. Better hole straightness
6. Eliminated breakages
7. Operating at higher feeds
8. Ideal to use in manual hand held drilling application
9. Superior tool life

**IS 5102 : 2002 , DIN 340 : 1978 , ISO 494 : 1975 , BS 328**



ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	List Price Each
	MM	INCH			
FBRO200958	1.00		33	56	286
FBRO200959	1.10		37	60	286
FBRO200960	1.19	3/64"	41	65	286
FBRO200961	1.20		41	65	286
FBRO200962	1.30		41	65	286
FBRO200963	1.40		45	70	286
FBRO200964	1.50		45	70	286
FBRO200965	1.59	1/16"	50	76	286
FBRO200966	1.60		50	76	286
FBRO200967	1.80		53	80	286
FBRO200968	1.90		53	80	286
FBRO200969	1.98	5/64"	56	85	286
FBRO200561	2.00		56	85	286
FBRO200970	2.10		56	85	286
FBRO200971	2.20		59	90	286
FBRO200972	2.30		59	90	361
FBRO200973	2.38	3/32"	62	95	361
FBRO200974	2.40		62	95	361
FBRO200562	2.50		62	95	363
FBRO200975	2.60		62	95	361
FBRO200976	2.70		66	100	361
FBRO200977	2.78	7/64"	66	100	361
FBRO200978	2.80		66	100	361
FBRO200979	2.90		66	100	361
FBRO200563	3.00		66	100	363
FBRO200980	3.10		69	106	363
FBRO200981	3.17	1/8"	69	106	363
FBRO200982	3.20		69	106	363
FBRO200983	3.30		69	106	363
FBRO200984	3.40		73	112	363
FBRO200564	3.50		73	112	363
FBRO200985	3.60		73	112	393
FBRO200986	3.70		73	112	393
FBRO200987	3.80		78	119	393
FBRO200988	3.90		78	119	393
FBRO200989	3.97	5/32"	78	119	393
FBRO200565	4.00		78	119	393
FBRO200990	4.10		78	119	393
FBRO200991	4.20		78	119	393

Material Code	Size		Flute Length MM	Overall Length MM	List Price Each
	MM	INCH			
FBRO200992	4.30		82	126	393
FBRO200993	4.37	11/64"	82	126	393
FBRO200994	4.40		82	126	393
FBRO200566	4.50		82	126	393
FBRO200995	4.60		82	126	393
FBRO200996	4.70		82	126	393
FBRO200997	4.76	3/16"	87	132	393
FBRO200998	4.80		87	132	393
FBRO200999	4.90		87	132	458
FBRO200567	5.00		87	132	458
FBRO201000	5.10		87	132	458
FBRO201001	5.16	13/64	87	132	458
FBRO201002	5.20		87	132	458
FBRO201003	5.30		87	132	534
FBRO201004	5.40		91	139	534
FBRO201005	5.50		91	139	534
FBRO201006	5.56	7/32"	91	139	534
FBRO201007	5.60		91	139	579
FBRO201008	5.70		91	139	579
FBRO201009	5.80		91	139	579
FBRO201010	5.90		91	139	579
FBRO201011	5.95	15/64"	91	139	579
FBRO200568	6.00		91	139	579
FBRO201012	6.10		97	148	655
FBRO201013	6.20		97	148	655
FBRO201014	6.30		97	148	655
FBRO201015	6.35	1/4"	97	148	655
FBRO201016	6.40		97	148	839
FBRO201017	6.50		97	148	839
FBRO201018	6.60		97	148	1012
FBRO201019	6.70		97	148	1012
FBRO201020	6.75	17/64"	102	156	1012
FBRO201021	6.80		102	156	1012
FBRO201022	6.90		102	156	1012
FBRO201023	7.00		102	156	1012
FBRO201024	7.10		102	156	1012
FBRO201025	7.14	9/32"	102	156	1012
FBRO201026	7.20		102	156	1012
FBRO201027	7.30		102	156	1012

## HSS Parallel Shank Twist Drill - Long Series

(Full Ground Straight Shank Drill, 118° Point Angle)



**IS 5102 : 2002 , DIN 340 : 1978 , ISO 494 : 1975 , BS 328**



ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	List Price Each
	MM	INCH			
FBR0201028	7.40		102	156	1012
FBR0201029	7.50		102	156	1012
FBR0201030	7.54	19/64"	109	165	1012
FBR0201031	7.60		109	165	1012
FBR0201032	7.70		109	165	1012
FBR0201033	7.80		109	165	1012
FBR0201034	7.90		109	165	1041
FBR0201035	7.94	5/16"	109	165	1041
FBR0201036	8.00		109	165	1041
FBR0201037	8.10		109	165	1041
FBR0201038	8.20		109	165	1041
FBR0201039	8.30		109	165	1041
FBR0201040	8.33	21/64"	109	165	1041
FBR0201041	8.40		109	165	1041
FBR0201042	8.50		109	165	1051
FBR0201043	8.60		115	175	1102
FBR0201044	8.70		115	175	1102
FBR0201045	8.73	11/32"	115	175	1102
FBR0201046	8.80		115	175	1158
FBR0201047	8.90		115	175	1158
FBR0201048	9.00		115	175	1158
FBR0201049	9.10		115	175	1158
FBR0201050	9.13	23/64"	115	175	1158
FBR0201051	9.20		115	175	1158
FBR0201052	9.30		115	175	1158
FBR0201053	9.40		115	175	1158
FBR0201054	9.50		115	175	1158
FBR0201055	9.52	3/8"	121	184	1158
FBR0201056	9.60		121	184	1342
FBR0201057	9.70		121	184	1342
FBR0201058	9.80		121	184	1342
FBR0201059	9.90		121	184	1342
FBR0201060	9.92	25/64"	121	184	1342
FBR0201061	10.00		121	184	1342
FBR0201062	10.10		121	184	1342
FBR0201063	10.20		121	184	1342
FBR0201064	10.30		121	184	1458
FBR0201065	10.32	13/32"	121	184	1458
FBR0201066	10.40		121	184	1458
FBR0201067	10.50		121	184	1458

Material Code	Size		Flute Length MM	Overall Length MM	List Price Each
	MM	INCH			
FBR0201068	10.60		121	184	1651
FBR0201069	10.70		128	195	1651
FBR0201070	10.72	27/64	128	195	1651
FBR0201071	10.80		128	195	1651
FBR0201072	10.90		128	195	1651
FBR0201073	11.00		128	195	1651
FBR0201074	11.11	7/16"	128	195	1651
FBR0201075	11.20		128	195	1774
FBR0201076	11.30		128	195	1774
FBR0201077	11.40		128	195	1774
FBR0201078	11.50		128	195	1774
FBR0201079	11.51	29/64"	128	195	1774
FBR0201080	11.60		128	195	1774
FBR0201081	11.70		128	195	1774
FBR0201082	11.80		128	195	1774
FBR0201083	11.90		134	205	1774
FBR0201084	11.91	15/32"	134	205	1774
FBR0201085	12.00		134	205	1774
FBR0201086	12.10		134	205	1801
FBR0201087	12.20		134	205	1801
FBR0201088	12.30	31/64"	134	205	1801
FBR0201089	12.40		134	205	1801
FBR0201090	12.50		134	205	1801
FBR0201091	12.60		134	205	1801
FBR0201092	12.70	1/2"	134	205	1801
FBR0201093	12.80		134	205	2243
FBR0201094	12.90		134	205	2243
FBR0201095	13.00		134	205	2243

### FEATURES & BENEFITS

1. For general purpose drilling in deep hole applications
2. Stable cutting edge
3. Better chip evacuation
4. Better hole straightness
5. Eliminated breakages
6. Well suited for deep holes
7. Superior tool life



**IS 5101 : 2002 , DIN 338 : 1984, ISO 235, BS 328**



ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0201801	1.00		12	34	744
FBR0201802	1.10		14	36	744
FBR0201923	1.19	3/64	16	38	744
FBR0201803	1.20		16	38	744
FBR0201804	1.30		16	38	744
FBR0201805	1.40		18	40	744
FBR0201806	1.50		18	40	744
FBR0201924	1.59	1/16	20	43	805
FBR0201807	1.60		20	43	805
FBR0201808	1.70		20	43	805
FBR0201809	1.80		22	46	805
FBR0201810	1.90		22	46	805
FBR0201925	1.98	5/64	24	49	805
FBR0201811	2.00		24	49	805
FBR0201812	2.10		24	49	1014
FBR0201813	2.20		27	53	1014
FBR0201814	2.30		27	53	1019
FBR0201926	2.38	3/32	30	57	1019
FBR0201815	2.40		30	57	1019
FBR0201816	2.50		30	57	1019
FBR0201817	2.60		30	57	1181
FBR0201818	2.70		33	61	1181
FBR0201927	2.78	7/64	33	61	1181
FBR0201819	2.80		33	61	1181
FBR0201820	2.90		33	61	1181
FBR0201821	3.00		33	61	1181
FBR0201822	3.10		36	65	1409
FBR0201928	3.17	1/8	36	65	1409

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0201823	3.20		36	65	1409
FBR0201824	3.30		36	65	1409
FBR0201825	3.40		39	70	1409
FBR0201826	3.50		39	70	1409
FBR0201929	3.57	9/64	39	70	1588
FBR0201827	3.60		39	70	1707
FBR0201828	3.70		39	70	1707
FBR0201829	3.80		43	75	1707
FBR0201830	3.90		43	75	1707
FBR0201930	3.97	5/32	43	75	1707
FBR0201831	4.00		43	75	1707
FBR0201832	4.10		43	75	2109
FBR0201833	4.20		43	75	2109
FBR0201834	4.30		47	80	2123
FBR0201931	4.37	11/64	47	80	2123
FBR0201835	4.40		47	80	2123
FBR0201836	4.50		47	80	2123
FBR0201837	4.60		47	80	2560
FBR0201838	4.70		47	80	2560
FBR0201932	4.76	3/16	52	86	2560
FBR0201839	4.80		52	86	2560
FBR0201840	4.90		52	86	2560
FBR0201841	5.00		52	86	2560
FBR0201842	5.10		52	86	3187
FBR0201933	5.16	13/64	52	86	3187
FBR0201843	5.20		52	86	3187
FBR0201844	5.30		52	86	3187
FBR0201845	5.40		57	93	3187

**HSS Parallel Shank Twist Drill - M35 Series  
Black & Gold (Full Ground Straight Shank Drill,  
135° Point Angle With Split Point)**



**IS 5101 : 2002 , DIN 338 : 1984, ISO 235, BS 328**



ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0201846	5.50		57	93	3187
FBR0201934	5.56	7/32	57	93	3191
FBR0201847	5.60		57	93	3612
FBR0201848	5.70		57	93	3612
FBR0201849	5.80		57	93	3612
FBR0201850	5.90		57	93	3612
FBR0201935	5.95	15/64	57	93	3612
FBR0201851	6.00		57	93	3612
FBR0201852	6.10		63	101	3982
FBR0201853	6.20		63	101	3982
FBR0201854	6.30		63	101	3982
FBR0201936	6.35	1/4	63	101	3982
FBR0201855	6.40		63	101	3990
FBR0201856	6.50		63	101	3990
FBR0201857	6.60		63	101	5068
FBR0201858	6.70		63	101	5068
FBR0201937	6.75	17/64	69	109	5068
FBR0201859	6.80		69	109	5068
FBR0201860	6.90		69	109	5068
FBR0201861	7.00		69	109	5068
FBR0201862	7.10		69	109	5550
FBR0201938	7.14	9/32	69	109	5550
FBR0201863	7.20		69	109	5550
FBR0201864	7.30		69	109	5550
FBR0201865	7.40		69	109	5550
FBR0201866	7.50		69	109	5550
FBR0201939	7.54	19/64	75	117	5550
FBR0201867	7.60		75	117	6100

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0201868	7.70		75	117	6100
FBR0201869	7.80		75	117	6100
FBR0201870	7.90		75	117	6100
FBR0201940	7.94	5/16	75	117	6100
FBR0201871	8.00		75	117	6100
FBR0201872	8.10		75	117	6956
FBR0201873	8.20		75	117	6956
FBR0201874	8.30		75	117	6956
FBR0201941	8.33	21/64	75	117	6956
FBR0201875	8.40		75	117	6956
FBR0201876	8.50		75	117	6956
FBR0201877	8.60		81	125	8384
FBR0201878	8.70		81	125	8384
FBR0201942	8.73	11/32	81	125	8384
FBR0201879	8.80		81	125	8384
FBR0201880	8.90		81	125	8384
FBR0201881	9.00		81	125	8384
FBR0201882	9.10		81	125	9042
FBR0201943	9.13	23/64	81	125	9042
FBR0201883	9.20		81	125	9042
FBR0201884	9.30		81	125	9042
FBR0201885	9.40		81	125	9042
FBR0201886	9.50		81	125	9042
FBR0201944	9.52	3/8	87	133	9042
FBR0201887	9.60		87	133	10285
FBR0201888	9.70		87	133	10285
FBR0201889	9.80		87	133	10285
FBR0201890	9.90		87	133	10285

**IS 5101 : 2002 , DIN 338 : 1984, ISO 235, BS 328**



ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0201945	9.92	25/64	87	133	10285
FBR0201891	10.00		87	133	10285
FBR0201892	10.10		87	133	11204
FBR0201893	10.20		87	133	11204
FBR0201894	10.30		87	133	11204
FBR0201946	10.32	13/32	87	133	11204
FBR0201895	10.40		87	133	11204
FBR0201896	10.50		87	133	11204
FBR0201897	10.60		87	133	13105
FBR0201898	10.70		94	142	13105
FBR0201947	10.72	27/64	94	142	13105
FBR0201899	10.80		94	142	13105
FBR0201900	10.90		94	142	13105
FBR0201901	11.00		94	142	13105
FBR0201902	11.10		94	142	14236
FBR0201948	11.11	7/16	94	142	14236
FBR0201903	11.20		94	142	14236
FBR0201904	11.30		94	142	14236
FBR0201905	11.40		94	142	14236
FBR0201906	11.50		94	142	14236
FBR0201949	11.51	29/64	94	142	14236
FBR0201907	11.60		94	142	15772
FBR0201908	11.70		94	142	15772
FBR0201909	11.80		94	142	15772
FBR0201910	11.90		101	151	15772
FBR0201950	11.91	15/32	101	151	15772
FBR0201911	12.00		101	151	15772
FBR0201912	12.10		101	151	16787

ALL RATES ARE IN RUPEES PER 10 NOS (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	Price Per 10 nos
	MM	INCH			
FBR0201913	12.20		101	151	16787
FBR0201914	12.30		101	151	16787
FBR0201915	12.40		101	151	16787
FBR0201916	12.50		101	151	16787
FBR0201917	12.60		101	151	18515
FBR0201952	12.70	1/2	101	151	18515
FBR0201919	12.80		101	151	18515
FBR0201920	12.90		101	151	18515
FBR0201921	13.00		101	151	18515

### FEATURES & BENEFITS

1. Made from premium grade High Speed Steel with 5% Co
2. High performance drills suitable for Production applications & also for tough Maintenance applications
3. Well suited for drilling on Stainless Steel & challenging Alloy Steel materials
4. Precision ground 135 Degree Split Point angle is Self Centreing & reduces Thrust during application
5. Special Black & Gold surface treatment to increase lubricity & reduce friction
6. Stable cutting edge
7. The strong web construction provides greater strength & rigidity to the drill
8. Better chip evacuation
9. Better hole straightness
10. Eliminated breakages
11. Operating at higher feeds
12. Superior tool life

## Reduced Shank Drill Series



ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size	Shank Dia	Price Per Piece
	MM	INCH	Each
FBR0200479	13.50	1/2"	1342
FBR0200461	14.00	1/2"	1523
FBR0200480	14.50	1/2"	1597
FBR0200462	15.00	1/2"	1708
FBR0200481	15.50	1/2"	1733
FBR0200463	16.00	1/2"	1867
FBR0200482	16.50	1/2"	1949
FBR0200464	17.00	1/2"	2014
FBR0200483	17.50	1/2"	2103
FBR0200465	18.00	1/2"	2265
FBR0200484	18.50	1/2"	2352
FBR0200466	19.00	1/2"	2497
FBR0200485	19.50	1/2"	2522
FBR0200467	20.00	1/2"	2678
FBR0200486	20.50	1/2"	2783
FBR0200469	21.00	1/2"	2888
FBR0200487	21.50	1/2"	2943

ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size	Shank Dia	Price Per Piece
	MM	INCH	Each
FBR0200470	22.00	1/2"	3113
FBR0200488	22.50	1/2"	3229
FBR0200471	23.00	1/2"	3576
FBR0200489	23.50	1/2"	3576
FBR0200490	24.00	1/2"	3636
FBR0200491	24.50	1/2"	3740
FBR0200492	25.00	1/2"	3847
FBR0200493	25.50	1/2"	4303
FBR0200472	26.00	1/2"	4303
FBR0200494	26.50	1/2"	4303
FBR0200495	27.00	1/2"	4519
FBR0200496	27.50	1/2"	4754
FBR0200473	28.00	1/2"	4877
FBR0200497	28.50	1/2"	5002
FBR0200498	29.00	1/2"	5002
FBR0200499	29.50	1/2"	5247
FBR0200500	30.00	1/2"	5247



### DRILL SET IS 5101:2002

ALL RATES ARE IN RUPEES PER CASE SET (Excl. of GST)

Material Code	Size	Price Per Case Set
FBR0200531	HSS Drills Case Set 1.0 mm to 13.0 mm ( 25 pcs)	10883
FBR0200532	HSS Drills Case Set 2.0 mm to 8.0 mm ( 13 pcs)	3065
FBR0200543	HSS Drills Case Set 1/16" to 1/4" ( 13 pcs)	2193
FBR0200545	HSS Drills Case Set 1/16" to 1/2" ( 29 pcs)	14617
FBR0202169	HSSD CASE SET M2 1.0 TO 10.0 MM 19 PCS	5836
FBR0202170	HSSD CASE SET M2 1.0 TO 5.9 MM 50 PCS	6357
FBR0202171	HSSD CASE SET M2 6.0 TO 10.0 MM 41 PCS	21425
FBR0202172	HSSD CASE SET M35 B&G 1.0 TO 10.0 MM 19 PCS	8713
FBR0202173	HSSD CASE SET M35 B&G 1.0 TO 13.0 MM 25 PCS	18832
FBR0202174	HSSD CASE SET M35 B&G 1.0 TO 5.9 MM 50 PCS	9967
FBR0202175	HSSD CASE SET M35 B&G 6.0 TO 10.0 MM 41 PCS	32269
FBR0202258	HSSD CASE SET M35 B&G 1/16" TO 1/2" (29P)	20977
FBR0202259	HSSD CASE SET M2 1/16" TO 3/8" 21 PCS	7199
FBR0202266	HSSD CASE SET M2 1.50 TO 6.50 MM 13 PCS	2479
FBR0202267	HSSD CASE SET M2 TiN 1.50 TO 6.50 MM 13 PCS	4775
FBR0202268	HSSD CASE SET M2 TiN 1.0 TO 10.0 MM 19 PCS	10264



## HSS Taper Shank Twist Drill (Full Ground Taper Shank Drill , 118° Point Angle)



**IS 5103 : 2002, DIN 345 : 1978, ISO 235 / 1 : 1980, BS 328**



ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	MT Shank No	List Price Each
	MM	INCH				
FBR0200198	8.00		75	156	1	1170
FBR0200199	8.50		75	156	1	1170
FBR0200200	9.00		81	162	1	1170
FBR0200201	9.50		81	162	1	1170
FBR0200202	9.52	3/8"	87	168	1	1170
FBR0200203	9.92	25/64"	87	168	1	1170
FBR0200204	10.00		87	168	1	1291
FBR0200205	10.32	13/32"	87	168	1	1291
FBR0200206	10.50		87	168	1	1314
FBR0200207	10.72	27/64"	94	175	1	1363
FBR0200208	11.00		94	175	1	1363
FBR0200209	11.11	7/16"	94	175	1	1363
FBR0200210	11.50		94	175	1	1408
FBR0200211	11.91	15/32"	101	182	1	1408
FBR0200116	12.00		101	182	1	1423
FBR0200212	12.50		101	182	1	1423
FBR0200118	12.70	1/2"	101	182	1	1423
FBR0200117	13.00		101	182	1	1977
FBR0200213	13.49	17/32"	108	189	1	2063
FBR0200214	13.50		108	189	1	2211
FBR0200215	13.89	35/64"	108	189	1	2211

Material Code	Size		Flute Length MM	Overall Length MM	MT Shank No	List Price Each
	MM	INCH				
FBR0200119	14.00		108	189	1	2211
FBR0200120	14.29	9/16"	114	212	2	2375
FBR0200216	14.50		114	212	2	2468
FBR0200121	15.00		114	212	2	2468
FBR0200217	15.50		120	218	2	2501
FBR0200122	15.87	5/8"	120	218	2	2501
FBR0200123	16.00		120	218	2	2577
FBR0200218	16.50		125	223	2	2737
FBR0200219	17.00		125	223	2	2737
FBR0200124	17.46	11/16"	130	228	2	2782
FBR0200220	17.50		130	228	2	2902
FBR0200125	18.00		130	228	2	3043
FBR0200221	18.50		135	233	2	3043
FBR0200126	19.00		135	233	2	3080
FBR0200127	19.05	3/4"	140	238	2	3080
FBR0200222	19.50		140	238	2	3236
FBR0200128	20.00		140	238	2	3479
FBR0200223	20.50		145	243	2	3520
FBR0200129	20.64	13/16"	145	243	2	3520
FBR0200130	21.00		145	243	2	3672
FBR0200224	21.50		150	248	2	3879

**IS 5103 : 2002, DIN 345 : 1978, ISO 235 / 1 : 1980, BS 328**



ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	MT Shank No	List Price Each
	MM	INCH				
FBR0200308	22.00		150	248	2	3950
FBR0200131	22.22	7/8"	150	248	2	3950
FBR0200309	22.50		155	253	2	4390
FBR0200225	23.00		155	253	2	4390
FBR0200226	23.50		155	276	3	5224
FBR0200132	24.00		160	281	3	5379
FBR0200227	24.50		160	281	3	5469
FBR0200133	25.00		160	281	3	5715
FBR0200134	25.40	1"	165	286	3	5790
FBR0200228	25.50		165	286	3	6294
FBR0200135	26.00		165	286	3	6364
FBR0200229	26.50		165	286	3	6817
FBR0200230	27.00		170	291	3	7202
FBR0200231	27.50		170	291	3	7227
FBR0200136	28.00		170	291	3	7901
FBR0200232	28.50		175	296	3	7925
FBR0200138	28.57	1.1/8"	175	296	3	7925
FBR0200137	29.00		175	296	3	8297
FBR0200310	29.50		175	296	3	8329
FBR0200139	30.00		175	296	3	8502
FBR0200233	30.50		180	301	3	9670

Material Code	Size		Flute Length MM	Overall Length MM	MT Shank No	List Price Each
	MM	INCH				
FBR0200234	31.00		180	301	3	10982
FBR0200235	31.50		180	301	3	11412
FBR0200312	31.75	1-1/4"	185	306	3	11634
FBR0200140	32.00		185	334	4	12494
FBR0200236	32.50		185	334	4	12494
FBR0200237	33.00		185	334	4	12794
FBR0200238	33.50		185	334	4	13234
FBR0200239	34.00		190	339	4	13480
FBR0200240	34.50		190	339	4	14765
FBR0200475	34.93	1-3/8"	190	339	4	14896
FBR0200241	35.00		190	339	4	14901
FBR0200242	35.50		190	339	4	15792
FBR0200243	36.00		195	344	4	16024
FBR0200244	36.50		195	344	4	16353
FBR0200476	36.51	1-7/16"	195	344	4	16353
FBR0200245	37.00		195	344	4	16756
FBR0200246	37.50		195	344	4	17845
FBR0200247	38.00		200	349	4	18124
FBR0200477	38.10	1-1/2"	200	349	4	18124
FBR0200248	38.50		200	349	4	18689
FBR0200249	39.00		200	349	4	19793



## HSS Taper Shank Twist Drill

(Full Ground Taper Shank Drill, 118° Point Angle)



**IS 5103 : 2002, DIN 345 : 1978, ISO 235 / 1 : 1980, BS 328**

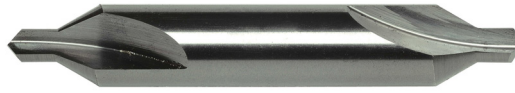


ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

ALL RATES ARE IN RUPEES PER PEICE (Excl. of GST)

Material Code	Size		Flute Length MM	Overall Length MM	MT Shank No	List Price Each
	MM	INCH				
FBR0200250	39.50		200	349	4	19793
FBR0200251	40.00		200	349	4	20302
FBR0200252	40.50		205	354	4	21462
FBR0200253	41.00		205	354	4	21462
FBR0200938	41.28	1-5/8"	205	354	4	21462
FBR0200254	41.50		205	354	4	22306
FBR0200255	42.00		205	354	4	23701
FBR0200256	43.00		210	359	4	24538
FBR0200257	44.00		210	359	4	24538
FBR0200939	44.45	1-3/4"	210	359	4	24538
FBR0200258	45.00		210	359	4	25112
FBR0200259	46.00		215	364	4	26251
FBR0200260	47.00		215	364	4	27574
FBR0200261	48.00		220	369	4	30697
FBR0200262	49.00		220	369	4	30920
FBR0200263	50.00		220	369	4	32048
FBR0200478	50.80	2"	225	374	4	33951
FBR0200922	51.00		225	412	5	44676
FBR0200921	52.00		225	412	5	44676
FBR0200923	53.00		225	412	5	58146
FBR0200533	54.00		230	417	5	58146

Material Code	Size		Flute Length MM	Overall Length MM	MT Shank No	List Price Each
	MM	INCH				
FBR0200639	55.00		230	417	5	61082
FBR0200924	56.00		230	417	5	63649
FBR0200925	57.00		235	422	5	63649
FBR0200926	58.00		235	422	5	69462
FBR0200927	59.00		235	422	5	70789
FBR0200525	60.00		235	422	5	70789
FBR0200928	61.00		240	427	5	75243
FBR0200929	62.00		240	427	5	75549
FBR0200930	63.00		240	427	5	76578
FBR0200931	64.00		245	432	5	84562
FBR0200526	65.00		245	432	5	84562
FBR0200468	66.00		245	432	5	85191
FBR0200932	67.00		245	432	5	91102
FBR0200933	68.00		250	437	5	93678
FBR0200934	69.00		250	437	5	101539
FBR0200527	70.00		250	437	5	101539
FBR0200935	71.00		250	437	5	109511
FBR0200936	72.00		255	442	5	111628
FBR0200920	73.00		255	442	5	111628
FBR0200937	74.00		255	442	5	118801
FBR0200528	75.00		255	442	5	120279



### AS PER BS 328 - PART II - 1990

ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Size	Pilot Dia	Body Dia	Pilot Length (MM)		Overall Length (MM)		List Price Each
	B.S. No	Inch	Inch	MAX	MIN	MAX	MIN	
FBR0201789	BS1	3/64	1/8	1.98	1.58	38.89	37.31	232
FBR0201790	BS2	1/16	3/16	2.38	1.98	45.22	43.68	232
FBR0201791	BS3	3/32	1/4	3.96	3.17	52.39	49.21	267
FBR0201792	BS4	1/8	5/16	4.76	3.96	58.74	55.56	399
FBR0201793	BS5	3/16	7/16	7.14	6.35	65.88	61.12	535
FBR0201794	BS6	1/4	5/8	9.52	7.93	78.58	73.82	1367
FBR0201795	BS7	5/16	3/4	11.9	10.31	91.28	86.52	1746

### TYPE A -AS PER IS 6708 - 2002

ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Pilot Dia	Body Dia	Pilot Length ( MM)		Overall Length ( MM)		List Price Each
	MM	MM	MAX	MIN	MAX	MIN	
FBR0201769	1.00	3.2	1.9	1.3	33.5	29.5	232
FBR0201770	1.25	3.2	2.2	1.6	33.5	29.5	232
FBR0201771	1.60	4.0	2.8	2.0	37.5	33.5	232
FBR0201772	2.00	5.0	3.3	2.5	42	38	232
FBR0201773	2.50	6.3	4.1	3.1	47	43	262
FBR0201774	3.15	8.0	4.9	3.9	52	48	402
FBR0201775	4.00	10.0	6.2	5.0	59	53	502
FBR0201776	5.00	12.5	7.5	6.3	66	60	844
FBR0201777	6.30	16.0	9.2	8.0	74	68	1008
FBR0201778	8.00	20.0	11.5	10.1	83	77	2276
FBR0201779	10.00	25.0	14.2	12.8	103	97	2843

### TYPE B - AS PER IS 6709 - 2002 : ISO 2540 - 1972

ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Pilot Dia	Body Dia	Pilot Length ( MM)		Overall Length ( MM)		List Price Each
	MM	MM	MAX	MIN	MAX	MIN	
FBR0201780	1.60	6.3	2.8	2.0	47	43	466
FBR0201781	2.00	8.0	3.3	2.5	52	48	656
FBR0201782	2.50	10.0	4.1	3.1	59	53	834
FBR0201783	3.15	11.2	4.9	3.9	63	57	1140
FBR0201784	4.00	14.0	6.2	5.0	70	64	1526
FBR0201785	5.00	18.0	7.5	6.8	78	72	2199
FBR0201786	6.30	20.0	9.2	8.0	83	77	2585
FBR0201787	8.00	25.0	11.5	10.1	103	97	3454
FBR0201788	10.00	31.5	14.2	12.8	128	122	4016

#### FEATURES & BENEFITS

1. Made from premium grade High Speed Steel
2. Used for producing centre holes in metal work pieces
3. Also used for work-pieces requiring machining between centres
4. Stable cutting edge
5. Superior tool life
6. Also available in HSS-E ( 5% Cobalt) material on request

# BRADMA MAGNETIC DRILLING MACHINE: **BRADMAG35**

## What is Magnetic Drill?

Magnetic Drill is a Portable drilling machine with an electromagnetic base or a permanent magnet base. It can drill hole using Annular Cutters in various materials thereby producing accurate, burr free holes

## Why to use Magnetic Drill?

Owing to its portability it can easily be carried to the work piece, instead of bringing the work piece for Drilling



Material Code	List Price Each ₹
FBR0201992	40,786

Model	BRADMAG35
Motor rated power	1100 W
No load speed	700 rpm
Rotating direction	Clockwise
Arbor bore	19.05mm (3/4") dia.
Cooling method	Internal cooling
Voltage	AC 220V~240V
Frequency range	50-60Hz
Magnet deadlift	10000 N
Max. cutting dia. (annular cutter)	35mm (1-3/8 ")
Max cutting depth	50 mm (2")
Stroke	120mm
Magnet footprint	165mm × 80mm × 43mm
Weight	10.5kg

### 3/4" ( 19.05 MM) - UNIVERSAL SHANK (ONE - TOUCH SHANK)



ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Size	Shank Dia	Cutting Depth	Overall Length	List Price
	MM	MM	MM	MM	25 MM Each
FBR0201611	12	19.05	30	63	1602
FBR0201612	13	19.05	30	63	1602
FBR0201613	14	19.05	30	63	1807
FBR0201614	15	19.05	30	63	1807
FBR0201615	16	19.05	30	63	2050
FBR0201616	17	19.05	30	63	2050
FBR0201617	18	19.05	30	63	2148
FBR0201618	19	19.05	30	63	2148
FBR0201619	20	19.05	30	63	2456
FBR0201620	21	19.05	30	63	2456
FBR0201621	22	19.05	30	63	2754
FBR0201622	23	19.05	30	63	2754
FBR0201623	24	19.05	30	63	2969
FBR0201624	25	19.05	30	63	2969
FBR0201625	26	19.05	30	63	3182
FBR0201626	27	19.05	30	63	3374
FBR0201627	28	19.05	30	63	3406
FBR0201628	29	19.05	30	63	3521
FBR0201629	30	19.05	30	63	3587
FBR0201630	31	19.05	30	63	3813
FBR0201631	32	19.05	30	63	3947
FBR0201632	33	19.05	30	63	4026
FBR0201633	34	19.05	30	63	4237
FBR0201634	35	19.05	30	63	4242
FBR0201635	36	19.05	30	63	4583
FBR0201636	37	19.05	30	63	4747
FBR0201637	38	19.05	30	63	4857
FBR0201638	39	19.05	30	63	4965
FBR0201639	40	19.05	30	63	5196
FBR0201640	41	19.05	30	63	5348
FBR0201641	42	19.05	30	63	5795

## High Speed Steel (HSS) Annular Cutter



### 3/4" ( 19.05 MM) - UNIVERSAL SHANK (ONE - TOUCH SHANK)



ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Size	Shank Dia	Cutting Depth	Overall Length	List Price
	MM	MM	MM	MM	25 MM Each
FBR0201642	43	19.05	30	63	6068
FBR0201643	44	19.05	30	63	6523
FBR0201644	45	19.05	30	63	6706
FBR0201645	46	19.05	30	63	6985
FBR0201646	47	19.05	30	63	7171
FBR0201647	48	19.05	30	63	7381
FBR0201648	49	19.05	30	63	7574
FBR0201649	50	19.05	30	63	8031

ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Size	Shank Dia	Cutting Depth	Overall Length	List Price
	MM	MM	MM	MM	50 MM Each
FBR0201650	12	19.05	55	88	2285
FBR0201651	13	19.05	55	88	1185
FBR0201652	14	19.05	55	88	2481
FBR0201653	15	19.05	55	88	2481
FBR0201654	16	19.05	55	88	2591
FBR0201655	17	19.05	55	88	2591
FBR0201656	18	19.05	55	88	2762
FBR0201657	19	19.05	55	88	2762
FBR0201658	20	19.05	55	88	3117
FBR0201659	21	19.05	55	88	3117
FBR0201660	22	19.05	55	88	3375
FBR0201661	23	19.05	55	88	3375
FBR0201662	24	19.05	55	88	3825
FBR0201663	25	19.05	55	88	3825
FBR0201664	26	19.05	55	88	3992
FBR0201665	27	19.05	55	88	4103
FBR0201666	28	19.05	55	88	4288
FBR0201667	29	19.05	55	88	4470
FBR0201668	30	19.05	55	88	4672
FBR0201669	31	19.05	55	88	4695

### 3/4" ( 19.05 MM) - UNIVERSAL SHANK (ONE - TOUCH SHANK)



ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Material Code	Size	Shank Dia	Cutting Depth	Overall Length	List Price
	MM	MM	MM	MM	50 MM Each
FBR0201670	32	19.05	55	88	4951
FBR0201671	33	19.05	55	88	5084
FBR0201672	34	19.05	55	88	5349
FBR0201673	35	19.05	55	88	5445
FBR0201674	36	19.05	55	88	5970
FBR0201675	37	19.05	55	88	6157
FBR0201676	38	19.05	55	88	6463
FBR0201677	39	19.05	55	88	6519
FBR0201678	40	19.05	55	88	7036
FBR0201679	41	19.05	55	88	7151
FBR0201680	42	19.05	55	88	7601
FBR0201681	43	19.05	55	88	7717
FBR0201682	44	19.05	55	88	8044
FBR0201683	45	19.05	55	88	8325
FBR0201684	46	19.05	55	88	8719
FBR0201685	47	19.05	55	88	9151
FBR0201686	48	19.05	55	88	9659
FBR0201687	49	19.05	55	88	9715
FBR0201688	50	19.05	55	88	10615

### MATCHING PILOT

Material Code	Size	Cutting length	List Price
	MM	MM	Each
FBR0201990	6.34 X 77	30	244
FBR0201991	6.34 X 103	55	323

#### FEATURES & BENEFITS

1. Made from premium grade High Speed Steel
2. Applicable to hole cutting & process of annular groove on various magnetic drills
3. Multi – cut geometry for ply – cutting & lower friction to reach better performance of endurance & removal of chips
4. Meets requirements of hole cutting on various materials
5. Available in One Touch Shank ( Universal shank Dia 3/4" or 19.05 mm )
6. Available from Diameter 12 MM to 50 MM & Depth of Cut 30mm max & 55mm max
7. Also available in fein shank

## Tungsten Carbide Tipped (TCT) Annular Cutter



### 3/4" ( 19.05 MM) - UNIVERSAL SHANK (ONE - TOUCH SHANK)



ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Weldon Shank	Universal Shank	Size	Shank Dia	Cutting Depth	Overall Length	List Price
Material Code (40 MM)		MM	MM	MM	MM	40 MM Each
FBR0202349	FBR0202030	11	19.05	40	74	4210
FBR0202350	FBR0202031	12	19.05	40	74	4210
FBR0202351	FBR0202032	13	19.05	40	74	4210
FBR0202352	FBR0202033	14	19.05	40	74	4210
FBR0202353	FBR0202034	15	19.05	40	74	4210
FBR0202354	FBR0202035	16	19.05	40	74	4210
FBR0202355	FBR0202036	17	19.05	40	74	4210
FBR0202356	FBR0202037	18	19.05	40	74	4252
FBR0202357	FBR0202038	19	19.05	40	74	4252
FBR0202358	FBR0202039	20	19.05	40	74	4252
FBR0202359	FBR0202040	21	19.05	40	74	4252
FBR0202360	FBR0202041	22	19.05	40	74	4252
FBR0202361	FBR0202042	23	19.05	40	74	4252
FBR0202362	FBR0202043	24	19.05	40	74	4252
FBR0202363	FBR0202044	25	19.05	40	74	4252
FBR0202364	FBR0202045	26	19.05	40	74	4681
FBR0202365	FBR0202046	27	19.05	40	74	4681
FBR0202366	FBR0202047	28	19.05	40	74	4681
FBR0202367	FBR0202048	29	19.05	40	74	4681
FBR0202368	FBR0202049	30	19.05	40	74	4681
FBR0202369	FBR0202050	31	19.05	40	74	5471
FBR0202370	FBR0202051	32	19.05	40	74	5471
FBR0202371	FBR0202052	33	19.05	40	74	5471
FBR0202372	FBR0202053	34	19.05	40	74	5471
FBR0202373	FBR0202054	35	19.05	40	74	5471
FBR0202374	FBR0202055	36	19.05	40	74	6227
FBR0202375	FBR0202056	37	19.05	40	74	6227
FBR0202376	FBR0202057	38	19.05	40	74	6227
FBR0202377	FBR0202058	39	19.05	40	74	6227
FBR0202378	FBR0202059	40	19.05	40	74	6227

ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Weldon Shank	Universal Shank	Size	Shank Dia	Cutting Depth	Overall Length	List Price
Material Code (55 MM)		MM	MM	MM	MM	55 MM Each
FBR0202319	FBR0202060	11	19.05	55	92	4631
FBR0202320	FBR0202061	12	19.05	55	92	4631
FBR0202321	FBR0202062	13	19.05	55	92	4631
FBR0202322	FBR0202063	14	19.05	55	92	4631
FBR0202323	FBR0202064	15	19.05	55	92	4631
FBR0202324	FBR0202065	16	19.05	55	92	4631
FBR0202325	FBR0202066	17	19.05	55	92	4631
FBR0202326	FBR0202067	18	19.05	55	92	4631
FBR0202327	FBR0202068	19	19.05	55	92	4631



### 3/4" ( 19.05 MM) - UNIVERSAL SHANK (ONE - TOUCH SHANK)



ALL RATES ARE IN RUPEES PER PIECE (Excl. of GST)

Weldon Shank	Universal Shank	Size	Shank Dia	Cutting Depth	Overall Length	List Price
Material Code (55 MM)		MM	MM	MM	MM	55 MM Each
FBR0202328	FBR0202069	20	19.05	55	92	4631
FBR0202329	FBR0202070	21	19.05	55	92	4781
FBR0202330	FBR0202071	22	19.05	55	92	4781
FBR0202331	FBR0202072	23	19.05	55	92	4781
FBR0202332	FBR0202073	24	19.05	55	92	4781
FBR0202333	FBR0202074	25	19.05	55	92	4781
FBR0202334	FBR0202075	26	19.05	55	92	5070
FBR0202335	FBR0202076	27	19.05	55	92	5070
FBR0202336	FBR0202077	28	19.05	55	92	5070
FBR0202337	FBR0202078	29	19.05	55	92	5070
FBR0202338	FBR0202079	30	19.05	55	92	5070
FBR0202339	FBR0202080	31	19.05	55	92	5963
FBR0202340	FBR0202081	32	19.05	55	92	5963
FBR0202341	FBR0202082	33	19.05	55	92	5963
FBR0202342	FBR0202083	34	19.05	55	92	5963
FBR0202343	FBR0202084	35	19.05	55	92	5963
FBR0202344	FBR0202085	36	19.05	55	92	6819
FBR0202345	FBR0202086	37	19.05	55	92	6819
FBR0202346	FBR0202087	38	19.05	55	92	6819
FBR0202347	FBR0202088	39	19.05	55	92	6819
FBR0202348	FBR0202089	40	19.05	55	92	6819

### MATCHING PILOT

Material Code	Size	Cutting length	List Price
	MM	MM	Each
FBR0202131	7.98 X 105	40	373
FBR0202132	7.98 X 160	55	596

### FEATURES & BENEFITS

1. Applicable to hole cutting & process of annular groove
2. Suitable on various materials
3. Premium quality carbide tips for ply – cutting & lower friction
4. Multi – Cut geometry for increases chip removal
5. Diameter 12mm to 40mm & Cutting Depths 40mm & 55mm
6. Universal shank 3/4" (19.05 mm) for various magnetic drill machines (Totem manufacturers the cutters in one touch shank which incorporated the Weldon and Nitto shank, thus widens the application of cutters
7. Operates on higher RPM than HSS tools
8. Can also be used on corroded or weathered material

### Terms and conditions

1. This price list supercedes all our previous price lists.
2. Prices are exclusive of GST rate.
3. Prices are subject to revision without prior notice.
4. All legal proceeding are subjected to Mumbai jurisdiction.

## Recommended Cutting Rotation Speed for Annular Cutter



Diameter (mm)	Mild Steel 500N/mm	Medium Carbon Steel 750N/mm	High Carbon Steel 900N/mm	Alloy tool Steel 1200 N/mm	Carbon tool Steel 1400 N/mm	Stainless Steel	Aluminium	Cast iron	Cast copper
12	663	531	345	265	186	318	1327	478	1062
13	612	490	318	245	171	294	1225	441	980
14	569	455	296	227	159	273	1137	409	910
15	531	425	276	212	149	255	1062	382	849
16	498	398	259	199	139	239	995	358	796
17	468	375	244	187	131	225	937	337	749
18	442	354	230	177	124	212	885	318	708
19	419	335	218	168	117	201	838	302	670
20	398	318	207	159	111	191	796	287	637
21	379	303	197	152	106	182	758	273	607
22	362	290	188	145	101	174	724	261	579
23	346	277	180	138	97	166	692	249	554
24	332	265	173	133	93	159	663	239	531
25	318	255	166	127	89	153	637	229	510
26	306	245	159	122	86	147	612	220	490
27	295	236	153	118	83	142	590	212	472
28	284	227	148	114	80	136	569	205	455
29	275	220	143	110	77	132	549	198	439
30	265	212	138	106	74	127	531	191	425
31	257	205	134	103	72	123	514	185	411
32	249	199	129	100	70	119	498	179	398
33	241	193	125	97	68	116	483	174	386
34	234	187	122	94	66	112	468	169	375
35	227	182	118	91	64	109	455	164	364
36	221	177	115	88	62	106	442	159	354
37	215	172	112	86	60	103	430	155	344
38	210	168	109	84	59	101	419	151	335
39	204	163	106	82	57	98	408	147	327
40	199	159	104	80	56	96	398	143	318
41	194	155	101	78	54	93	388	140	311
42	190	152	99	76	53	91	379	136	303
43	185	148	96	74	52	89	370	133	296
44	181	145	94	72	51	87	362	130	290
45	177	142	92	71	50	85	354	127	283
46	173	138	90	69	48	83	346	125	277
47	169	136	88	68	47	81	339	122	271
48	166	133	86	66	46	80	332	119	265
49	162	130	84	65	45	78	325	117	260
50	159	127	83	64	45	76	318	115	255
51	156	125	81	62	44	75	312	112	250
52	153	122	80	61	43	73	306	110	245
53	150	120	78	60	42	72	300	108	240
54	147	118	77	59	41	71	295	106	236
55	145	116	75	58	41	69	290	104	232
56	142	114	74	57	40	68	284	102	227
57	140	112	73	56	39	67	279	101	223
58	137	110	71	55	38	66	275	99	220
59	135	108	70	54	38	65	270	97	216
60	133	106	69	53	37	64	265	96	212

Diameter (mm)	Mild Steel 500N/mm	Medium Carbon Steel 750N/mm	High Carbon Steel 900N/mm	Alloy tool Steel 1200 N/mm	Carbon tool Steel 1400 N/mm	Stainless Steel	Aluminium	Cast iron	Cast copper
12	1062	982	929	796	663	531	2389	1592	929
13	980	906	857	735	612	490	2205	1470	857
14	910	842	796	682	569	455	2047	1470	796
15	849	786	743	637	531	425	1911	1274	743
16	796	736	697	597	498	398	1791	1194	697
17	749	693	656	562	468	375	1686	1124	656
18	708	655	619	531	442	354	1592	1062	619
19	670	620	587	503	419	335	1509	1006	587
20	637	589	557	478	398	318	1433	955	557
21	607	561	531	455	379	303	1365	910	531
22	579	536	507	434	362	290	1303	869	507
23	554	512	485	415	346	277	1246	831	485
24	531	491	464	398	332	265	1194	796	464
25	510	471	446	382	318	255	1146	764	446
26	490	453	429	367	306	245	1102	735	429
27	472	436	413	354	295	236	1062	708	413
28	455	421	398	341	284	227	1024	682	398
29	439	406	384	329	275	220	988	659	384
30	425	393	372	318	265	212	955	637	372
31	411	380	360	308	257	205	925	616	360
32	398	368	348	299	249	199	896	597	348
33	386	357	338	290	241	193	869	579	338
34	375	347	328	281	234	187	843	562	328
35	364	337	318	273	227	182	819	546	318
36	354	327	310	265	221	177	796	531	310
37	344	318	301	258	215	172	775	516	301
38	335	310	293	251	210	168	754	503	293
39	327	302	286	245	204	163	735	490	286
40	318	295	279	239	199	159	717	478	279
41	311	287	272	233	194	155	699	466	272
42	303	281	265	227	190	152	682	455	265
43	296	274	259	222	185	148	667	444	259
44	290	268	253	217	181	145	651	434	253
45	283	262	248	212	177	142	637	425	248
46	277	256	242	208	173	138	623	415	242
47	271	251	237	203	169	136	610	407	237
48	265	245	232	199	166	133	597	398	232
49	260	240	227	195	162	130	585	390	227
50	255	236	223	191	159	127	573	382	223
51	250	231	219	187	156	125	562	375	219
52	245	227	214	184	153	122	551	367	214
53	240	222	210	180	150	120	541	361	210
54	236	218	206	177	147	118	531	354	206
55	232	214	203	174	145	116	521	347	203
56	227	210	199	171	142	114	512	341	199
57	223	207	196	168	140	112	503	335	196
58	220	203	192	165	137	110	494	329	192
59	216	200	189	162	135	108	486	324	189
60	212	196	186	159	133	106	478	318	186

### Recommended Feed Rate for TOTEM HSS Annular Cutter & TCT Annular Cutter

Material	Feed rate (mm/r)
Mild steel	0.08-0.13
Medium carbon steel	0.08-0.13
High carbon steel	0.05-0.1
Alloy tool steel	0.05-0.1
Carbon tool steel	0.05-0.1

Material	Feed rate (mm/r)
Stainless steel	0.05-0.1
Aluminium	0.1-0.15
Cast iron	0.07-0.12
Cast copper	0.08-0.13

## Table of Cutting Speeds - Fractional Size Drills - HSS Drill



Vc (ft/min)	50	60	70	80	100
Vc (m/min)	15	18	21	24	30
Drill dia (inch)	Revolutions Per Minute (RPM)				
1/64"	12224	14656	17088	19520	24448
1/32"	6112	7328	8544	9760	12224
3/64"	4064	4896	5696	6528	8160
1/16"	3056	3664	4272	4880	6112
5/64"	2448	2928	3424	3904	4896
3/32"	2032	2448	2848	3264	4080
1/8"	1528	1832	2136	2440	3056
5/32"	1224	1464	1712	1952	2448
3/16"	1016	1224	1424	1632	2040
7/32"	872	1048	1224	1400	1744
1/4"	764	916	1068	1220	1528
5/16"	612	732	856	976	1224
3/8"	508	612	712	816	1020
7/16"	436	524	612	700	872
1/2"	382	458	534	670	764
9/16"	340	408	476	544	680
5/8"	306	366	428	488	612
11/16"	278	334	388	444	556
3/4"	254	306	356	408	510
13/16"	234	282	330	376	470
7/8"	218	262	306	350	436
15/16"	204	244	286	326	408
1"	191	229	267	305	382
1-2/8"	170	204	238	272	340
1-1/4"	153	183	214	244	306
1-1/2"	127	153	178	204	255
1-3/4"	109	131	153	175	218
2"	95	114	133	152	191
2-1/4"	85	102	119	136	170
2-1/2"	76	92	107	122	153
2-3/4"	69	83	97	111	139
3"	64	76	89	102	127
4"	48	57	67	76	95

Vc (ft/min)	50	60	70	80	100
Vc (m/min)	15	18	21	24	30
Drill dia (mm)	Revolutions Per Minute				
0.5	9695	11634	13573	15512	19390
1	4847	5817	6786	7756	9695
1.5	3237	3884	4532	5179	6474
2	2427	2912	3397	3883	4854
2.5	1941	2329	2717	3105	3882
3	1617	1940	2264	2587	3234
4	1213	1455	1698	1940	2425
5	970	1164	1359	1553	1941
6	808	970	1132	1294	1617
7	693	832	970	1109	1386
8	606	728	849	970	1213
9	539	647	755	862	1078
10	485	582	679	776	970
11	441	529	617	706	882
12	404	485	566	647	808
13	373	448	522	597	746
14	346	416	485	554	693
15	323	388	453	554	693
16	303	364	424	485	606
17	285	342	399	456	571
18	269	323	377	431	539
19	255	306	357	408	511
20	242	291	340	388	485
21	231	277	323	370	462
22	220	265	309	353	441
23	211	253	295	337	422
24	202	242	283	323	404
25	194	233	272	310	388
26	186	224	261	298	373
27	180	216	252	287	359
30	162	194	226	259	323
33	147	176	206	235	294
36	135	162	189	216	270
39	124	149	174	199	249
42	116	139	162	185	231
45	108	129	151	172	216
48	101	121	141	162	202
51	95	114	133	152	190
56	87	104	121	139	173
61	80	95	111	127	159
65	75	90	104	119	149

## Feeds for HSS Twist Drills



Drills dia inch	Feed / rev inch	Drill dia mm	Feed / Rev mm
1/16 - 3/32	.0015 - .0025	1.6 - 3.0	0.04 - 0.06
1/8 - 5/32	.002 - .004	3.0 - 4.0	0.05 - 0.10
3/16 - 7/32	.003 - .006	4.0 - 5.5	0.075 - 0.15
1/4 - 5/16	.004 - .008	5.5 - 8.0	0.10 - 0.20
3/8 - 7/16	.006 - 0.10	8.0 - 11.0	0.15 - 0.25
1/2 - 9/16	.008 - .012	11.0 - 14.5	0.20 - 0.30
5/8 - 11/16	.009 - .013	14.5 - 17.5	0.23 - 0.33
3/4 - 13/16	.010 - .014	17.5 - 20.5	0.25 - 0.36
7/8 - 15/16	.011 - .015	20.5 - 24.0	0.28 - 0.38
1 - 1.1/8	.012 - .016	24.0 - 28.5	0.30 - 0.40
1.1/4 - 1.1/2	.014 - .018	28.5 - 38.0	0.35 - 0.45
over 1.1/2	.016 - .020	over 38.0	0.40 - 0.50
1/16 - 3/32	.002 - .0035	1.6 - 3.0	0.05 - 0.09
1/8 - 5/32	.0025 - .006	3.0 - 4.0	0.06 - 0.015
3/16 - 7/32	.004 - .009	4.0 - 5.5	0.10 - 0.23
1/4 - 5/16	.005 - .012	5.5 - 8.0	0.125 - 0.30
3/8 - 7/16	.0075 - .015	8.0 - 11.0	0.19 - 0.38
1/2 - 9/16	.010 - .018	11.0 - 14.5	0.25 - 0.45
5/8 - 11/16	.011 - .020	14.5 - 17.5	0.28 - 0.50
3/4 - 13/16	.0125 - .021	17.5 - 20.5	0.31 - 0.53
7/8 - 15/16	.0135 - .022	20.5 - 24.0	0.34 - 0.56
1 - 1.1/8	.015 - .024	24.0 - 28.5	0.38 - 0.60
1.1/4 - 1.1/2	.0175 - .027	28.5 - 38.0	0.44 - 0.68
over 1.1/2	.020 - .030	over 38.0	0.50 - 0.75

**Dos & Don'ts for HSS / HSS-E Drills**

1. Adjust drilling condition according to the rigidity of machine or the work clamp state
2. Adjust drilling condition when unusual vibration, different sound occurs while cutting
3. Provide sufficient amount cutting fluid to the cutting point & in the flute
4. When the hole depth is more than 3 x D, reduce the rotation & feed by 20%
5. When the hole depth is more than 3 x D, add step seeding. The depth of step should be from 0.2 to 1.0 diameter
6. For Stainless Steel material drilling, use step feed. In step feed , return to the entrance hole
7. Adjust the drill run out to the lowest value possible
8. Ensure the correct Point Angle, Lip position & Lip Length post regrinding operation
9. Do not allow the choking of swarf

**Dos & Don'ts for Annular Cutter**

1. Different feed forms different shaped chips, which determines the chip evacuation efficiency
2. During the beginning & before the end of hole cutting, decrease feed rate by 1/3 to reduce the damage on cutter
3. Sufficient coolant supply is necessary to increase the smoothness of hole as well as the quantities of holes to be cut
4. Some materials like Cast Iron , Copper etc result in chips in powder form while cutting . Hence compressed air is recommended for cooling instead of coolant
5. Remove the chips twining around the cutter from time to time
6. When the wear width of cutting edges reaches 0.4mm , cutter should be replaced



### Steam Tempering

#### Application Benefits

01. Prevents metal to metal contact during application
02. Enables the surface of the tool to absorb lubricant
03. Increased resistance to corrosion & staining in storage

### Nitriding Treatment

#### Application Benefits

01. Used when machining abrasive materials
02. Recommended in certain deep hole drilling applications where lubrication is difficult

### Titanium Nitride ( TiN)

#### Application Benefits

01. Reduces the friction during application
02. Reduces the heat generation during application
03. Significantly increases productivity by enabling higher speeds & feeds than normal

SL No	Problems	Reasons	Remedies
1	Oversize Holes	01. Lip angles are unequal	01. Regrind the drill point to correct lip angle
		02. Lip lengths are unequal	02. Regrind the drill to maintain equal lip length
2	Buckling of the drill	Drill is deflected axially	Use of guide bush will arrest the drill deflection
3	Drill chattering	01. Drill is not cutting freely	01. Regind the drill point.
		02. The work piece is too hard to machine	02. Use drill with higher cobalt content
		03. The work piece is to high on toughness	03. Use a shorter drill
		04. There is a torsional deflection of the drill	04. Increase torsional stiffness using thicker web drill
4	Drill breaking	01. Fixture holding the work piece is not rigid	01. Use rigid fixture to hold work piece
		02. Drill not hold properly in the chuck	02. Secure drill correctly in the drill chuck.
		03. Speed & Feed are not proper	03. Refer the speed & feed recommendation
		04. Web thickness on drill is restricting flute volume	04. Web thinning is recommended
		05. Chip blocking in flutes	05. Use wood pecking system enabling chip breakage & evacuation
5	Drill breaking in deep holes	01. Chip blocking in flutes	01. Use wood pecking system enabling chip breakage & evacuation
		02. No uniform back taper	02. Check for uniform back taper
		03. Runout on the drill OD	03. Check for concentricity
6	Drill rubbing	01. Improper relief on the drill point	01. Regrind drill point with proper point relief
		02. No uniform back taper	02. Check for negative back taper on the drill body
7	High heat generation while drilling	01. Improper coolant selection	01. Water soluble coolant with correct concentration is recommended
		02. Coolant is insufficient	02. Use proper coolant flow
		03. Hard work piece	03. Select drill with correct geometry for the material
8	Poor finish of drilled hole	01. Drill not hold properly in the chuck	01. Secure drill correctly in the drill chuck.
		02. Chip blocking in flutes	02. Use proper coolant flow
		03. High feed rates	03. Refer the feed recommendation



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Waluj Aurangabad





**High Performance Cutting Tools**

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