Gmond-Hardmetal

http://www.gmond-hardmetal.com

Cold Heading Dies

1)Grade and its application

牌号 Grade	晶粒度 Grain Size (um)	密度 Density (g/ cm^3) ±0.1	硬度 Hardness (HRA)±0.5	抗弯强度 Transverse Rupture Strength (N/ mm^2)	国际牌号 ISO Code	使用性能及用途介绍 Application
GM11	1.4~1.8	14.4	88.5	2420	K40	Forming or stamping dies for metal and non-metallic powders
GM15	1.4~1.8	14.0	87.5	2500	K40~K50	it is suitable to make punching ,stamping and forging tools under heavy stress condition
GM20	1.4~1.8	13.5	85.5	2800	K50	It is suitable to make stamping dies for watch parts,spring plates of musical instruments,batters jars,small sized steel balls,screws and caps
GM16C	2.5~6.0	13.9	2750	85.5	K40~K50	Suitable to make common forging dies with good impact resistance
GM18C	2.5~6.0	13.7	2800	84.5	K40~K50	Suitable to make impact resistance forging dies,hot-press forging dies and rollers
GM20C	2.5~6.0	13.5	2850	83.5	K50	Suitable for make general dies with good wear and impact resistance
GM22C	2.5~6.0	13.3	2900	83	K50	Suitable for making general forging dies and nut forming dies with good wear and impact resistance.
GM25C	2.5~6.0	13.1	2950	82.5	K50	Suitable to make stainless steel bolt header dies and rollers

2)Size and tolerance for the cold heading dies

a)Tolerance for the inner diameter of the heading dies blanks

Nominal Inner Dia (MM)	Normal Length(mm)			
	≤18	>18~30	>30~50	>50
≤6	0 -0.45	0 -0.55	0 -0.65	-
>6~10	0 -0.5	0 -0.6	0 -0.7	0 -0.8
>10~14	0 -0.55	0 -0.7	0 -0.8	0 -0.9
>14~18	0 -0.6	0 -0.8	0 -0.9	0 -1.0
>18~24	0 -0.65	0 -0.9	0 -1.0	0 -1.1
>24	0 -0.7	0 -1.0	0 -1.1	0 -1.2

b)Tolerance for the outer diameter of the cold heading dies blanks

Nominal Inner Dia (MM)	Normal Length(mm)			
	≤18	>18~30	>30~45	>45~60
≤18	±0.5	±0.6	±0.65	±0.8
>18~30	±0.6	±0.65	±0.7	±0.9
>30~45	±0.7	±0.7	±0.8	±1.0
>45~60	-	±0.9	±1.0	±1.1

c)Tolerance for the height of cold heading dies blanks

Dimension(mm)	≤10	>10~18	>18~30	>30~45	>45~60
Tolerance（MM)	+0.5 +1.1	+0.5 +1.4	+0.5 +1.7	+0.5 +1.85	+0.5 +2.2

d)Tolerance for the conicity of cold heading dies blanks

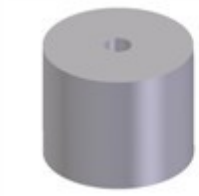
The ratio of blanks'length to its outer diameter	Tolerance
≤1.5：1	Not beyond of 1/2 sum of absolute value of outer diameter allowable tolerance
>1.5:1~2.5:1	Not beyond of 2/3sum of absolute value of outer diameter allowable tolerance
>2.5:1	Not beyond of the sum of absolute value of outer diameter allowable tolerance

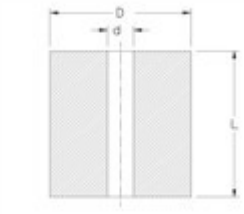
3)Cold heading dies types and its function

Types	Function
Type BD	Heading die blanks for making standard bolts
Type BF	Heading die blanks for making hexagonal nuts
Type BC	Heading die blanks with sink
Type BS	Heading die blanks for reducing diameter of nuts
Type BR	Cold Punching Die Blanks for batteries
Type BP	Combination headig die blanks for making hexagonal nuts

4)Cold Heading Dies

Type BD Heading die blanks for making standard bolts





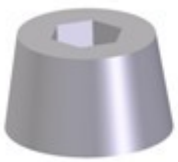
Type	Dimension(mm)	Range of applications

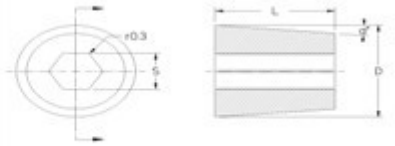
	d	D	L	
BD0710	0.7	10	12.0～20.0	M1
BD1010	1.0	10	12.0～20.0	M1.5～M2
BD1013	1.0	13	15.0～40.0	M1.5～M2
BD1213	1.2	13	15.0～40.0	M1.5～M2
BD1510	1.5	10	12.0～25.0	M2
BD1516	1.5	16	15.0～45.0	M2
BD1813	1.8	13	12.0～35.0	M2.5
BD1816	1.8	16	20.0～45.0	M2.5
BD2020	2.0	20	20.0～60.0	M2.5
BD2026	2.0	26	20.0～50.0	M2.5
BD2116	2.1	16	15.0～30.0	M3
BD2125	2.1	25	25.0～50.0	M3
BD2316	2.3	16	15.0～45.0	M3
BD2522	2.5	22	20.0～60.0	M3
BD2813	2.8	13	15.0～30.0	M4
BD2816	2.8	16	25.0～40.0	M4
BD2818	2.8	18	20.0～50.0	M4
BD2820	2.8	20	20.0～50.0	M4
BD2822	2.8	22	20.0～50.0	M4
BD3025	3.0	25	20.0～40.0	M4
BD3035	3.0	35	20.0～60.0	M4
BD3045	3.0	45	20.0～70.0	M4
BD3216	3.2	16	15.0～45.0	M4
BD3218	3.2	18	15.0～50.0	M4
BD3616	3.6	16	20.0～50.0	M5
BD3618	3.6	18	20.0～60.0	M5
BD3822	3.8	22	20.0～40.0	M5
BD3830	3.8	30	50.0～60.0	M5
BD4030	4.0	30	20.0～60.0	M5
BD4622	4.6	22	20.0～60.0	M6
BD5422	5.4	22	20.0～60.0	M6
BD6030	6.0	30	20.0～60.0	M8
BD6044	6.0	44	20.0～110.0	M8
BD6232	6.2	32	20.0～40.0	M8
BD6425	6.4	25	20.0～50.0	M8
BD7048	7.0	48	20.0～70.0	M10
BD7050	7.0	5.0	20.0～100.0	M10
BD7230	7.2	30	20.0～50.0	M10
BD7531	7.5	31	20.0～50.0	M10
BD8030	8.0	30	25.0～60.0	M10
BD8040	8.0	40	25.0～40.0	M10

BD8230	8.2	30	25.0～60.0	M10
BD8435	8.4	35	25.0～60.0	M10
BD9030	9.0	30	20.0～60.0	M12
BD9035	9.0	35	20.0～60.0	M12
BD9230	9.2	30	20.0～60.0	M12
BD10030	10.0	30	30.0～60.0	M12
BD10035	10.0	35	20.0～60.0	M12
BD10050	10.0	50	20.0～60.0	M12
BD11540	11.5	40	30.0～50.0	M12
BD11840	11.8	40	20.0～60.0	M12
BD12022	12.0	22	20.0～35.0	M12
BD12030	12.0	30	20.0～60.0	M12
BD12040	12.0	40	20.0～60.0	M12
BD12045	12.0	45	20.0～60.0	M12
BD13040	13.0	40	20.0～60.0	M14
BD13050	13.0	50	20.0～40.0	M14
BD13840	13.8	40	25.0～35.0	M16
BD13845	13.8	45	25.0～35.0	M16
BD14045	14.0	45	25.0～70.0	M18
BD15040	15.0	45	30.0～60.0	M18
BD15045	15.0	40	30.0～70.0	M18
BD16040	16.0	40	30.0～60.0	M18
BD16440	16.4	40	25.0～60.0	M20
BD16445	16.4	45	25.0～60.0	M20
BD17045	17.0	45	25.0～30.0	M20
BD17540	17.5	40	25.0～60.0	M20
BD17645	17.6	45	25.0～60.0	M20
BD19045	19.0	45	25.0～60.0	M22
BD20050	200	50	25.0～60.0	M22
BD22050	22.0	50.2	25.0～40.0	M24
BD22055	22.0	55	25.0～40.0	M24
BD22570	22.5	70	25.0～50.0	M24
BD23570	23.5	70	25.0～40.0	M25
BD23050	23.0	50	50.0～90.0	M25
BD25050	25.0	50	30.0～40.0	M27
BD25050	25.0	50.2	30.0～30.0	M27
BD26060	26.0	60.2	30.0～40.0	M28
BD27065	27.0	65	20.0～40.0	M30
BD28570	28.5	70	20.0～40.0	M32
BD29570	29.5	70	30.0～50.0	M34
BD30060	30.0	60	20.0～40.0	M34
BD30575	30.5	75	30.0～60.0	M34

BD31570	31.5	70	20.0～50.0	M36
BD33065	33.0	65	20.0～40.0	M38
BD33070	33.0	70	20.0～40.0	M38
BD33075	33.0	75	20.0～40.0	M38
BD35075	35.0	75	20.0～40.0	M40
BD37585	37.5	85	30.0～40.0	M42
BD38080	38.0	80	30.0～50.0	M42
BD42085	42.0	85	30.0～50.0	M46
BD45100	45.0	100	500.0～90.0	M50
BD47585	47.5	85	30.0～50.0	M52
BD50095	50.0	95	40.0～60.0	M54
BD52090	52.0	90	40.0～60.0	M56
BD600100	60.0	100	40.0～60.0	M64
BD615100	61.5	100	20.0～40.0	M66
BD720120	72.0	120	40.0～60.0	M76
BD800130	80.0	130	40.0～60.0	M84
BD850140	85.0	140	40.0～60.0	M90

Cold heading die blanks for making hexagonal nuts

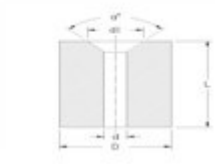




Type	Dimension				Type	Dimension			
	S	D	L	α°		S	D	L	α°
BF2612	2.6	12	8～12	—	BF12028	12.0	28	18	5-7
BF3316	3.3	16	8～12	—	BF12132	12.1	32	8～22	—
BF3412	3.4	12	8～12	—	BF13236	13.2	36	20～34	—
BF4316	4.3	16	8～12	—	BF13728	13.7	28	12	5-7
BF4416	4.4	16	10～14	—	BF14036	14.0	36	25	5-7
BF4816	4.8	16	12～16	—	BF15040	15.0	40	22～34	—
BF4820	4.8	20	12～16	—	BF16734	16.7	34	12	5-7
BF6120	6.1	20	5	5-7	BF17039	17.0	39	30	5-7
BF6320	6.3	20	14～18	—	BF17044	17.0	44	26～34	—
BF7220	7.2	20	6	5-7	BF17936	17.9	36	13.5	5-7
BF7224	7.2	24	14～18	—	BF19044	19.0	44	18.5	5-7
BF7328	7.3	28	14～22	—	BF19952	19.9	52	34～38	—
BF8920	8.9	20	7	5-7	BF20543	20.5	43	16.5	5-7
BF9022	9.0	22	8	5-7	BF22458	22.4	58	20.5	5-7
BF9126	9.1	26	16	5-7	BF22858	22.8	58	36～44	—

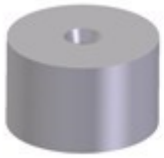
BF9230	9.2	30	14～18	—	BF22863	22.8	63	44.5	5-7
BF9328	9.3	28	14～22	—	BF22944	22.9	44	17.0	5-7
BF11236	11.2	36	20～34	—	BF28172	28.1	72	45～55	—
BF11732	11.7	32	19	5-7	BF28759	28.7	59	24.0	5-7

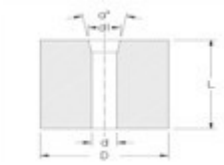
Cold heading die blanks with sink



Type	Dimension(mm)					Type	Dimension(mm)				
	d	D	L	d1	α°		d	D	L	d1	α°
BC281330	2.8	13	30	7	90	BC643030	6.4	30	30	15	90
BC381630	3.8	16	30	8.5		BC643055	6.4	30	55	15	
BC381640	3.8	16	40	8.5		BC823655	8.2	36	55	18	
BC382250	3.8	22	50	8.5		BC1004055	10	40	55	22※	
BC461630	4.6	16	30	10.5		BC1184555	11.8	45	55	25	
BC462250	4.6	22	50	10.5		BC1386060	13.8	60	60	29	

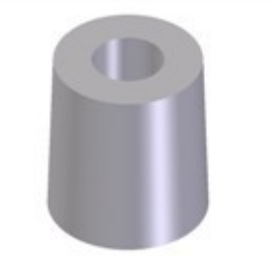
Cold heading die blanks for reducing diameter of nuts

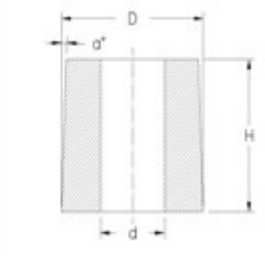




Type	Dimension(mm)					Type	Dimension(mm)				
	d	D	L	d1	α°		d	D	L	d1	α°
BS2114	2.1	14	15～30	2.5	20	BS8430	8.4	30	25～54	9.3	20
BS2116	2.1	16	15～30	2.5		BS10030	10.0	30	14～20	11.4	
BS3114	3.1	14	15～30	3.5		BS10228	10.2	28	25～54	11.4	
BS3116	3.1	16	15～30	3.5		BS10230	10.2	30	25～54	11.4	
BS3914	3.9	14	15～35	4.5		BS11940	11.9	40	30～40	13.2	
BS3916	3.9	16	15～35	4.5		BS12040	12.0	40	14～20	13.4	
BS4516	4.5	16	10～20	5.9		BS14040	14.0	40	14～40	15.4	
BS4716	4.7	16	15～35	5.4		BS17545	17.5	45	20～54	19.3	
BS4718	4.7	18	20～35	5.4		BS19545	19.5	45	20～30	21.25	
BS6520	6.5	20	20～42	7.2		BS21050	21.0	50	20～30	22.75	
BS6522	6.5	22	10～42	7.9		BS24060	24.0	60	25～30	25.75	
BS8030	8.0	30	10～20	9.4		BS26560	26.5	60	25～30	28.63	12
BS8426	8.4	26	25～54	9.3		BS32070	32.0	70	25～30	34.13	

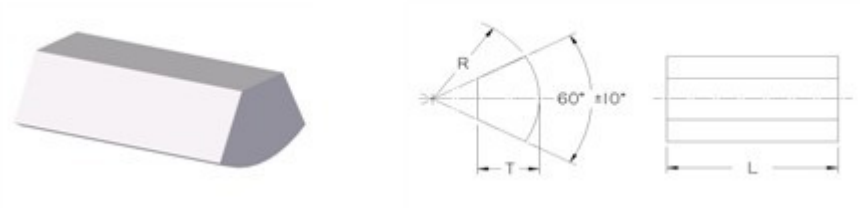
Cold punching die blanks for batteries





Type	Dimension(mm)			
	d	D	H	α°
BR902022	9.0	20	22	1°30′
BR942022	9.4	20	22	
BR1042120	10.4	21	20	
BR1222520	12.2	25	20	
BR1253022	12.5	30	22	
BR1302520	13.0	25	20	
BR1303022	13.0	30	22	
BR1883622	18.8	36	22	
BR1923622	19.2	36	22	
BR1943220	19.4	32	20	
BR2204022	22.0	40	22	
BR2253820	22.5	38	20	
BR2254022	22.5	40	22	
BR2354022	23.5	40	22	
BR2393820	23.9	38	20	
BR2424022	24.2	40	22	
BR2884720	28.8	47	20	
BR3084720	30.8	47	20	
BR3124622	31.2	46	22	
BR3184720	31.8	47	20	

Combination cold heading die blanks for making hexagonal nuts



Type	Dimension(mm)			Type	Dimension(mm)		
	R	T	L		R	T	L
BP1100621	11.0	6	21	BP2501432	25.0	14.0	32
BP1100721	11.0	7	21	BP2601223	26.0	12.5	23
BP1300621	13.0	6.5	21	BP2601237	26.0	12.0	37
BP1500820	15.0	8	20	BP2751436	27.5	14.0	36
BP1601220	16.0	12	20	BP2801132	28.0	11.0	23
BP1800921	18.0	9	21	BP2801323	28.0	13.0	23
BP1801021	18.0	10	21	BP2801143	28.0	11.0	43
BP1800929	18.0	9	29	BP2801343	28.0	13.0	43
BP1801029	18.0	10	29	BP2901835	29.0	18.0	35
BP2001028	20.0	10.5	28	BP3001442	30.0	14.0	42
BP2001128	20.0	11.5	28	BP3001542	30.0	15.0	42
BP2251328	22.5	13.0	28	BP3101347	31.0	13.0	47
BP2251428	22.5	14.0	28	BP3251446	32.5	14.5	46
BP2301121	23.0	11.0	21	BP3301226	33.0	12.5	26
BP2301221	23.0	12.5	21	BP3301251	33.0	12.5	51
BP2301133	23.0	11.0	33	BP3601326	36.0	13.0	26
BP2301233	23.0	12.5	33	BP3601358	36.0	13.0	56
BP2501332	25.0	13.0	32				