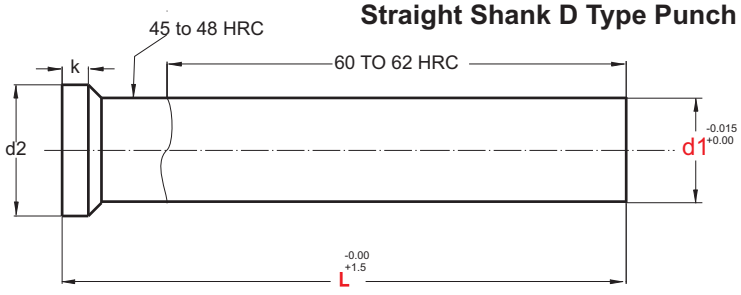
Punches & Die Buttons

NOTES

Piercing Punches Type D

Reference Standard - IS 4296 / DIN 9861 Type D

Straight Shank D Type Punch

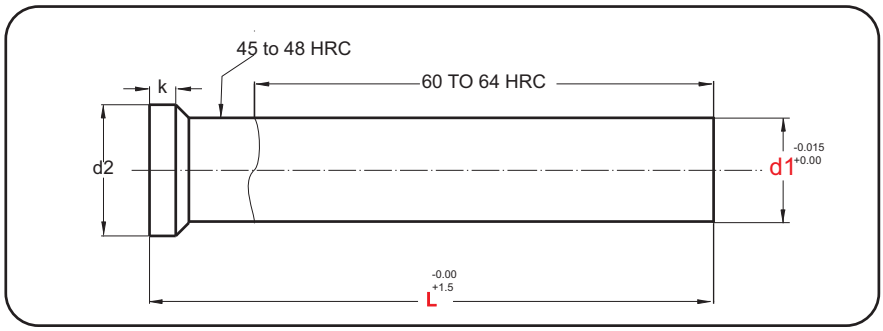


Material :- High Speed Steel (HSS) Grade M2 / HcHCr Grade D2 (for sizes above 12mm)
Hardness :- 60 - 62 HRC
Head Hardness :- 45 - 48 HRC

d1 (-0.015)	d2 (-0.1)	L +1.5					K + 0.2
Increment of 0.1		50	70	80	90	100	
0.5	0.9	*	*				
0.55	1.0	*	*				
0.6	1.1	*	*				0.2
0.7	1.3	*	*				
0.8	1.4	*	*				
0.9	1.6	*	*				0.4
1.0-1.1	1.8	*	*	*			
1.2-1.3	2.0	*	*	*			
1.4-1.5	2.2	*	*	*			
1.6-1.7	2.5	*	*	*	*		
1.8-1.9	2.8	*	*	*	*		
2	3.0	*	*	*	*	*	
2.1-2.2	3.2		*	*	*	*	
2.3-2.5	3.5		*	*	*	*	0.5
2.6-2.9	4.0		*	*	*	*	
3.0-3.4	4.5		*	*	*	*	
3.5-3.9	5.0		*	*	*	*	
4.0-4.4	5.5		*	*	*	*	
4.5-4.9	6.0		*	*	*	*	
5.0-5.4	6.5		*	*	*	*	
5.5-5.9	7.0		*	*	*	*	
6.0-6.4	8.0		*	*	*	*	
6.5-7.4	9.0		*	*	*	*	
7.5-8.4	10		*	*	*	*	1
8.5-9.4	11		*	*	*	*	
9.5-10.4	12		*	*	*	*	
10.5-11.4	13		*	*	*	*	
11.5-12.4	14		*	*	*	*	
12.5-13.4	15		*	*	*	*	
13.5-14.4	16		*	*	*	*	1.5
14.5-15.4	17		*	*	*	*	
15.5-16.4	18		*	*	*	*	
16.5-17.4	19		*	*	*	*	
17.5-18.4	20		*	*	*	*	
18.5-19.4	21		*	*	*	*	
19.5-20.0	22		*	*	*	*	

Order Type :- Punch (Type) Dia (d1) X Length (L)
Example : - Punch (D) Dia 8 X 80

Piercing Punches Heavy Duty (Type H)

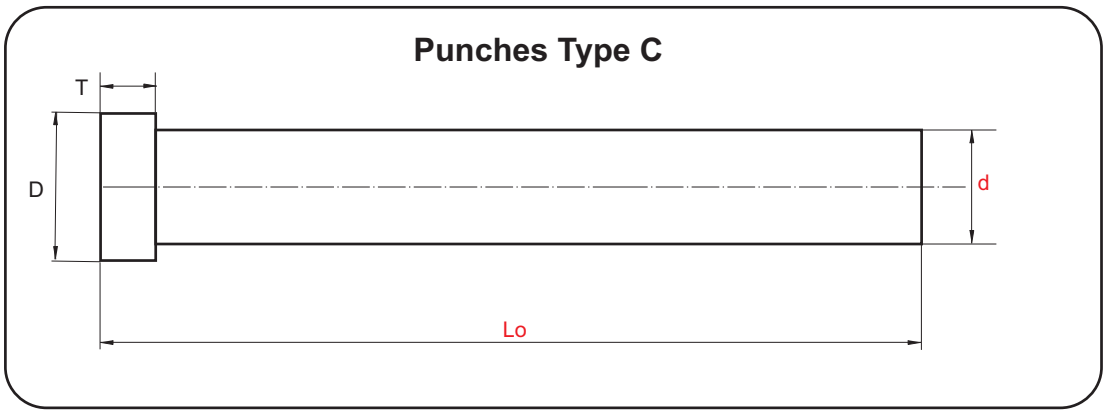


Material :- High Speed Steel (HSS) Grade M2 / HcHCr Grade D2 (for sizes above 12mm)
Hardness :- 60 - 62 HRC
Head Hardness :- 45 - 48 HRC
Note : This punches are to be used where sheet thickness are higher.

d1 (-0.015)	d2 (-0.1)	L +1.5					K + 0.2
Increment of 0.1		50	70	80	90	100	
4.0-4.4	5.5		*	*			2.5
4.5-4.9	6.0		*	*			
5.0-5.4	6.5		*	*			
5.5-5.9	7.0		*	*			4
6.0-6.4	8.0		*	*			
6.5-7.4	9.0		*	*			
7.5-8.4	10		*	*	*	*	5
8.5-9.4	11		*	*	*	*	
9.5-10.4	12		*	*	*	*	
10.5-11.4	13		*	*	*	*	
11.5-12.4	14		*	*	*	*	
12.5-13.4	15		*	*	*	*	
13.5-14.4	16		*	*	*	*	
14.5-15.4	17		*	*	*	*	
15.5-16.4	18		*	*	*	*	
16.5-17.4	19		*	*	*	*	
17.5-18.4	20		*	*	*	*	
18.5-19.4	21		*	*	*	*	
19.5-20.0	22		*	*	*	*	

Order Type :- Punch (Type) Dia (d1) X Length (L)
Example : - Punch (H) Dia 8 X 80

Piercing Punches Type C



Material :- High Speed Steel (HSS) Grade M2 / HcHCr Grade D2 (for sizes above 12mm)
Hardness :- 60 - 62 HRC

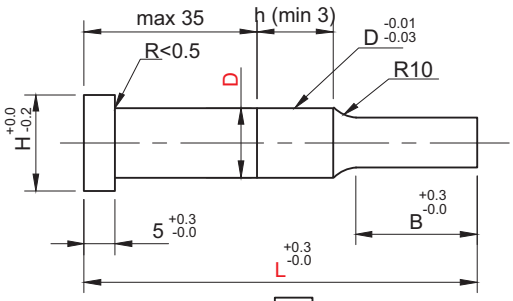
d (-0.01)	D (-0.1)	Lo (+ 2.0)					T
		50	60	70	80	100	
3-3.9	5	*	*	*	*	*	5
4-4.9	7	*	*	*	*	*	5
5-5.9	8		*	*	*	*	5
6-6.9	9		*	*	*	*	5
8-8.9	11		*	*	*	*	5
10-11.9	13		*	*	*	*	5
12-12.9	15		*	*	*	*	5
13	16		*	*	*	*	5
16	19			*	*	*	5
20	23			*	*	*	5
25	28			*	*	*	5

Heavy Load Punches

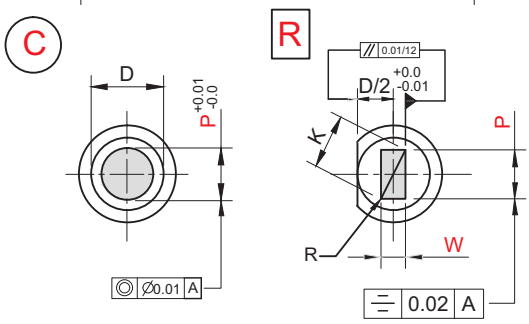
d (-0.01)	D (-0.1)	Lo (+ 2.0)					T
		60	70	80	100	125	
5	8	*	*	*	*		8
6	9	*	*	*	*		8
8	11	*	*	*	*	*	8
10	13	*	*	*	*	*	8
12	15	*	*	*	*	*	8
13	16	*	*	*	*	*	8
16	19		*	*	*	*	8
20	23		*	*	*	*	8
25	28		*	*	*	*	8

Order Type :- Punch (type) Dia d X Length (Lo) (Normal / Heavy)
Example :- Punch (C) 8 X 70 (Heavy)

Piercing Punch (PCC)



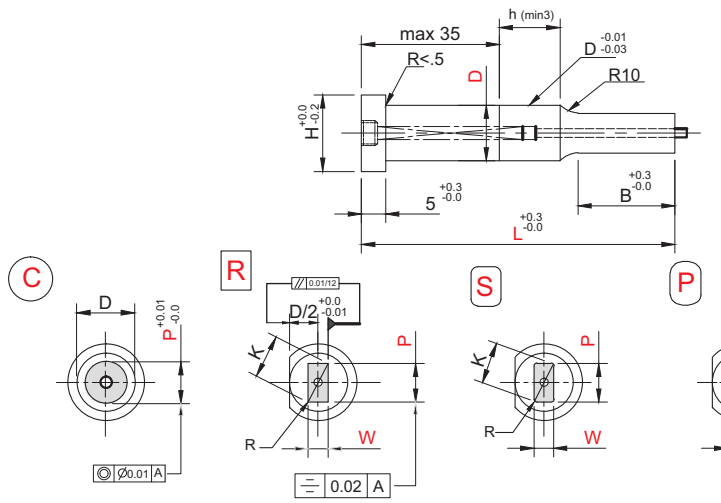
Material :- HCHCr (D)
High Speed Steel (H)
Powder Metallurgy (PM)
Hardness :- 60-62HRC



Type	Tip Shape	Tip Length	D	L	0.01 mm increments C min. P max	R S P G P. K max	R S P G P. W min	R R	B	H
PCC	C R S P G	S	3	40 50 60 70 80 90 100	1.00 ~2.99			0.15<R<W/2	8	5
			4	40 50 60 70 80 90 100	1.00 ~3.99	3.97	1			7
			5	40 50 60 70 80 90 100	2.00 ~4.99	4.97	1.2			8
			6	40 50 60 70 80 90 100	2.00 ~5.99	5.97	1.5			9
			8	40 50 60 70 80 90 100	3.00 ~7.99	7.97	2		13	11
			10	40 50 60 70 80 90 100	3.00 ~9.99	9.97	2.5			13
			12	70 80 90 100	5.00 ~11.99	-				15
			13	40 50 60 70 80 90 100	6.00 ~12.99	12.97	3			16
			16	40 50 60 70 80 90 100	10.00 ~15.99	15.97	4		19	19
			20	40 50 60 70 80 90 100	13.00 ~19.99	19.97	5			23
			25	40 50 60 70 80 90 100	18.00 ~24.99	24.97	6			28
		L	3	50 60 70 80 90 100	1.00 ~2.99				13	5
			4	50 60 70 80 90 100	1.00 ~3.99	3.97	2			7
			5	50 60 70 80 90 100	2.00 ~4.99	4.97	2			8
			6	50 60 70 80 90 100	2.00 ~5.99	5.97	2			9
			8	50 60 70 80 90 100	3.00 ~7.99	7.97	2.5		19	11
			10	50 60 70 80 90 100	3.00 ~9.99	9.97	2.5			13
			13	50 60 70 80 90 100	6.00 ~12.99	12.97	3			16
			16	60 70 80 90 100	10.00 ~15.99	15.97	4		25	19
			20	60 70 80 90 100	13.00 ~19.99	19.97	5			23
			25	60 70 80 90 100	18.00 ~24.99	24.97	6			28
		X	3	50 60 70 80 90 100	1.20 ~3.99				19	5
			4	50 60 70 80 90 100	1.20 ~2.99	3.97	2			7
			5	60 70 80 90 100	2.00 ~4.99	4.97	3.5		25	8
			6	60 70 80 90 100	2.00 ~5.99	5.97	3.5			9
			8	60 70 80 90 100	3.00 ~7.99	7.97	5		30	11
			10	60 70 80 90 100	3.00 ~9.99	9.97	5			13
			13	60 70 80 90 100	6.00 ~12.99	12.97	5			16
			16	70 80 90 100	10.00 ~15.99				40	19
			20	70 80 90 100	13.00 ~19.99					23
			25	70 80 90 100	18.00 ~24.99					28

Order Type :- Code (Material) X Tip Shape X Tip Length X D X L X P.W
Example :- PCC (D) X P X L X 20 X 100 X 10 X 5

Ejector Punch (PJCL)



Material :- HCHCr (D)
High Speed Steel (H)
Powder Metallurgy (PM)
Hardness :- 60-62HRC

Type	Tip Shape	Tip Length	D	L	0.01 mm increments				B	H
					C	R S P G		R		
					min. P max.	P. K max.	P. W min	R		
PJCL	C R S P G	S	4	40 50 60 70 80	1.00 ~3.99	3.97	1	0.15<R<W/2	8	7
			5	40 50 60 70 80	2.00 ~4.99	4.97	2			8
			6	40 50 60 70 80	2.00 ~5.99	5.97	2			9
			8	40 50 60 70 80 90 100	3.00 ~7.99	7.97	3		13	11
			10	40 50 60 70 80 90 100	3.00 ~9.99	9.97	3			13
			13	40 50 60 70 80 90 100	6.00 ~12.99	12.97	6			16
			16	40 50 60 70 80 90 100	10.00 ~15.99	15.97	6		19	19
			20	40 50 60 70 80 90 100	13.00 ~19.99	19.97	6			23
			25	40 50 60 70 80 90 100	18.00 ~24.99	24.97	6			28
		L	4	50 60 70 80	1.00 ~3.99	3.97	2		13	7
			5	50 60 70 80	2.00 ~4.99	4.97	2			8
			6	50 60 70 80	2.00 ~5.99	5.97	2			9
			8	50 60 70 80 90 100	3.00 ~7.99	7.97	3		19	11
			10	50 60 70 80 90 100	3.00 ~9.99	9.97	3			13
			13	50 60 70 80 90 100	6.00 ~12.99	12.97	6			16
			16	60 70 80 90 100	10.00 ~15.99	15.97	6		25	19
			20	60 70 80 90 100	13.00 ~19.99	19.97	6			23
			25	60 70 80 90 100	18.00 ~24.99	24.97	6			28
		X	5	60 70 80	2.00 ~4.99	4.97	3.5		25	8
			6	60 70 80	2.00 ~5.99	5.97	3.5			9
			8	70 80 90 100	3.00 ~7.99	7.97	5		30	11
			10	70 80 90 100	3.00 ~9.99	9.97	6			13
			13	70 80 90 100	6.00 ~12.99	12.97	6			16
			16	80 90 100	10.00 ~15.99	-			40	19
			20	80 90 100	13.00 ~19.99					23
			25	80 90 100	18.00 ~24.99					28

Order Type :- Code (Material) X Tip Shape X Tip Length X D X L X P.W
Example :- PJCL (D) X C X S X 20 X 100 X 6

Coated Punch

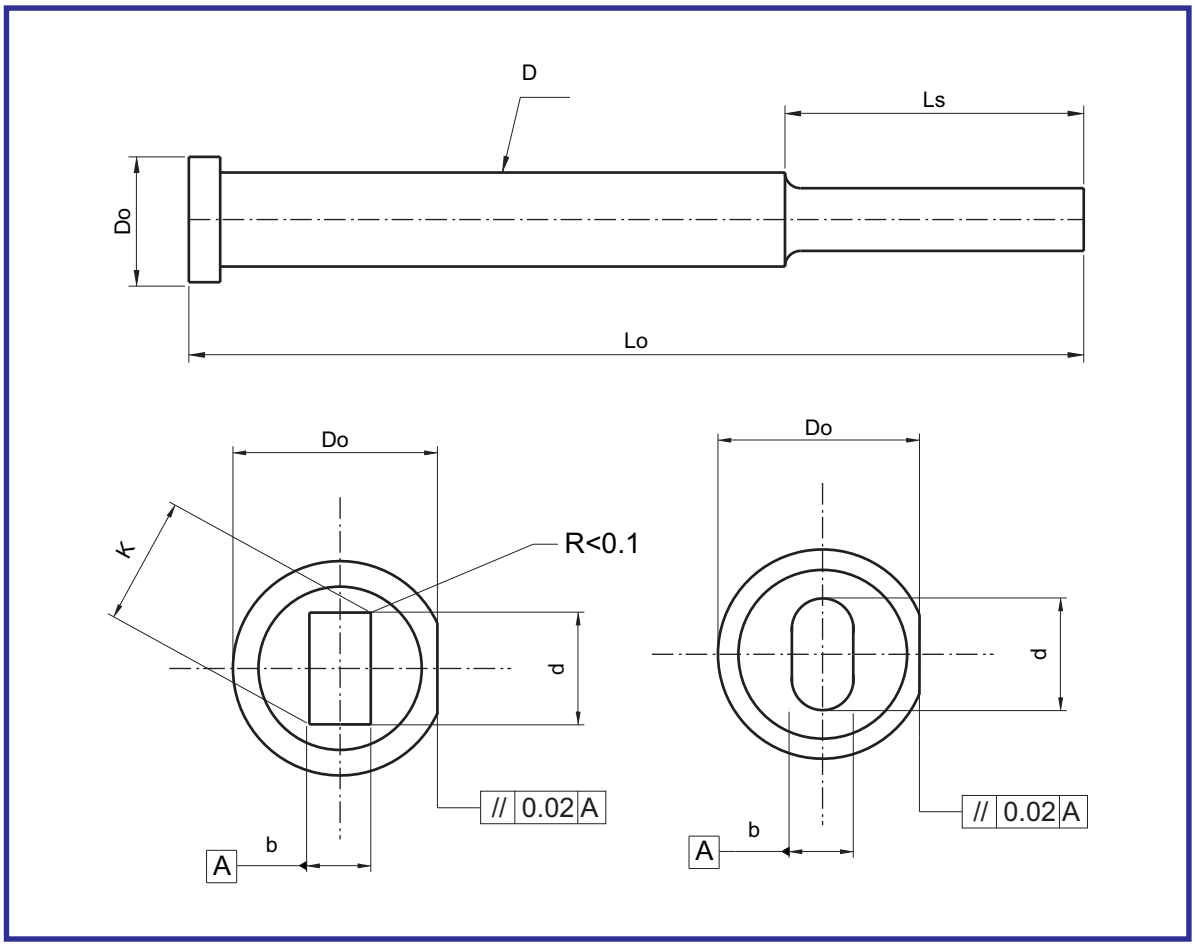
Coating on the Punches & Dies is carried by Physical Vapor Deposition (PVD) process. The thin Layer of hard carbide is form on the surface (Ex:-TiN Layer). Which have a very high wear resistance & also assist for reducing the coefficient of friction. This makes the difference into life of the material. Following Properties are achieved –

- High Surface Hardness.
- Wear Resistance
- Toughness
- Low Coefficient of friction
- Galling resistance.
- Corrosion resistance.

Due to Incurring of mention properties.
We can achieve the following advantages:-

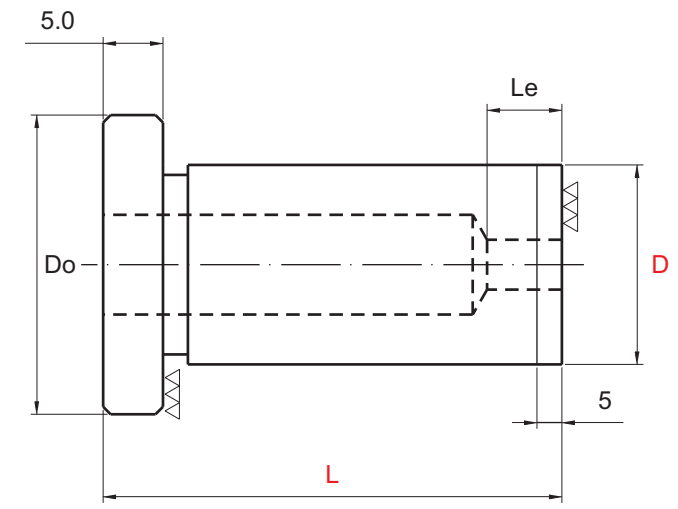
- Longer Tool Life
- Improved Part Quality
- Reduced Lubrication Usage
- Reduced Downtime
- Reduced Tool maintenance
- Reduced Cold Welding.

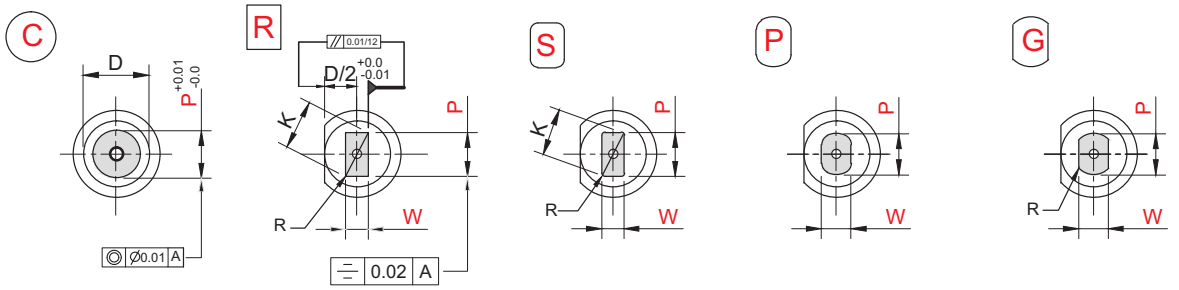
Customized Punch



Note : Profile Punches as per drawing can be manufactured

Die Button Table Head Type (PDBH)



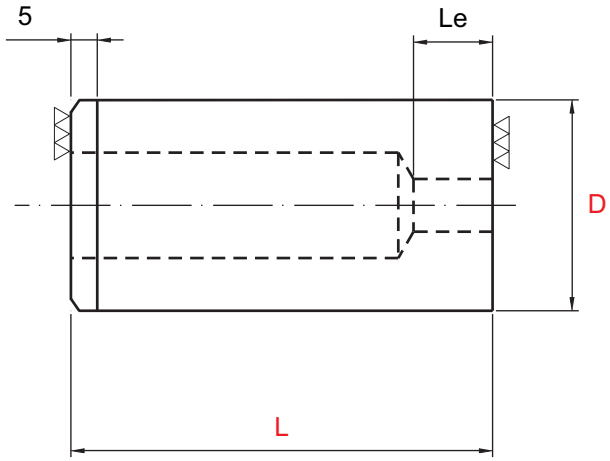


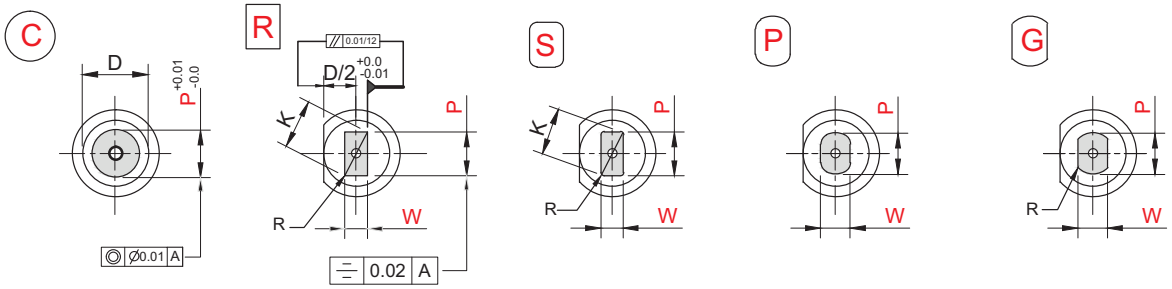
Material :- High Speed Steel (Grade M2)/ HcHcr (Grade D2)
Hardness :- 60-62 Hrc

Size	Code	Type	D	d	d - K	d - b	L					Do	Le	
Tolerance			m5	+ 0.02(max)	max	min	+0.5(max)						-0.2 (max)	
	PDBH	C,R,S,P,G	6	1.50 - 3.00	3.00	2.00	16	20	25	30	35		9	3
			8	1.50 - 4.00	4.00	2.00	16	20	25	30	35	40	11	4
			10	2.00 - 6.00	6.00	2.00	16	20	25	30	35	40	13	6
			13	3.00 - 8.00	8.00	2.00	16	20	25	30	35	40	16	8
			16	5.00 - 10.00	10.00	3.00	16	20	25	30	35	40	19	8
			20	7.00 - 12.00	12.00	3.00	16	20	25	30	35	40	23	8
			22	8.00 - 14.00	14.00	3.00	16	20	25	30	35	40	25	8
			25	10.00 - 16.00	16.00	3.00	16	20	25	30	35	40	28	8
			32	15.00 - 20.00	20.00	4.00	16	20	25	30	35	40	35	8
			38	19.00 - 26.00	26.00	5.00	16	20	25	30	35	40	41	8
			45	25.00 - 35.00	35.00	6.00		20	25	30	35	40	48	8
			50	33.00 - 40.00	40.00	7.00		20	25	30	35	40	53	8
			56	38.00 - 45.00	45.00	8.00		20	25	30	35	40	59	8

Order Type :- Code X Type X Dia D - d - (K/b) X Length L
Example :- PDBH X R X 16 - 8 - (8.94) X 35

Die Button Table Headless Type (PDB)



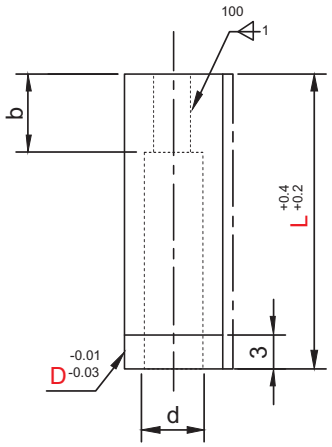


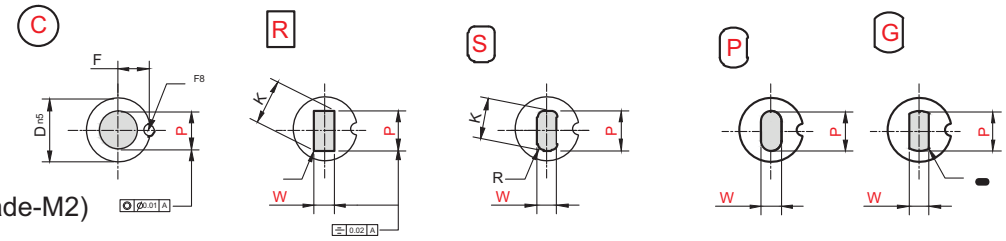
Material :- High Speed Steel (Grade M2)/ HcHcr (Grade D2)
Hardness :- 60-62 Hrc

Size	Code	Type	D	d	d - K	d - b	L						Le
Tolerance			m5	+ 0.02(max)	**max**	**min**	+0.5(max)						
	PDB	C,R,P,S,G	6	1.50 - 3.00	3.00	2.00	16	20	25	30	35		3
			8	1.50 - 4.00	4.00	2.00	16	20	25	30	35	40	4
			10	2.00 - 6.00	6.00	2.00	16	20	25	30	35	40	6
			13	3.00 - 8.00	8.00	2.00	16	20	25	30	35	40	8
			16	5.00 - 10.00	10.00	3.00	16	20	25	30	35	40	8
			20	7.00 - 12.00	12.00	3.00	16	20	25	30	35	40	8
			22	8.00 - 14.00	14.00	3.00	16	20	25	30	35	40	8
			25	10.00 - 16.00	16.00	3.00	16	20	25	30	35	40	8
			32	15.00 - 20.00	20.00	4.00	16	20	25	30	35	40	8
			38	19.00 - 26.00	26.00	5.00	16	20	25	30	35	40	8
			45	25.00 - 35.00	35.00	6.00		20	25	30	35	40	8
			50	33.00 - 40.00	40.00	7.00		20	25	30	35	40	8
			56	38.00 - 45.00	45.00	8.00		20	25	30	35	40	8

Order Type :- Code X Type X Dia D - d - (K/b) X Length L
Example :- PDB X R X 16 - 8 - (8.94) X 35

Die Button Dowel Hole (PDBD)





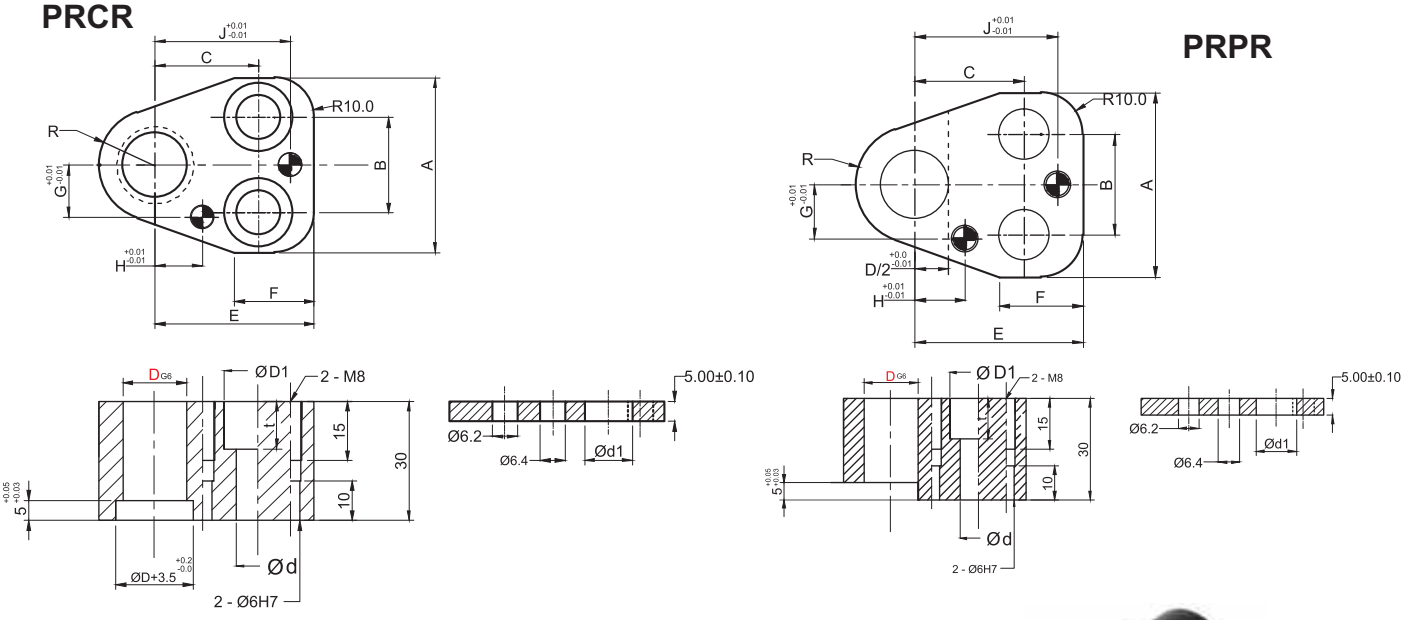
Material :- HCHCr/HSS(Grade-M2)
Hardness :- 60-62HRC

Dm5		Type	D	L	0.01 mm increments					0.005 mm increments	b	d	f
					C	R S P G		R	MT (workpiece material thickness)	C (clearance)			
					min. P max.	P. K max	P. W min	R					
10	(+0.016) (+0.010)	C R S P G	10	16 20 22 25 28 30 32 35	2.00 ~6.00	6	2	0.15<R<W/2	MT>0.5	C>0.06	6	6.4	6
13	(+0.020) (+0.012)		13	16 20 22 25 28 30 32 35	3.00 ~8.00	8	2				8	8.4	7.5
16			16	16 20 22 25 28 30 32 35	5.00 ~ 10.00	10	2					10.6	8
20	(+0.024) (+0.015)		20	16 20 22 25 28 30 32 35	7.00 ~ 12.00	12	3					12.6	10
22			22	16 20 22 25 28 30 32 35	8.00 ~ 14.00	14	3					14.6	11
25			25	16 20 22 25 28 30 32 35	10.00 ~ 16.00	16	3					16.6	12.5

Order Type :- Code X Type X D X L X P.W
Example :- PDBD X S X 20 X 35 X 3

Punch Retainer (PRCR / PRPR)

PRCR



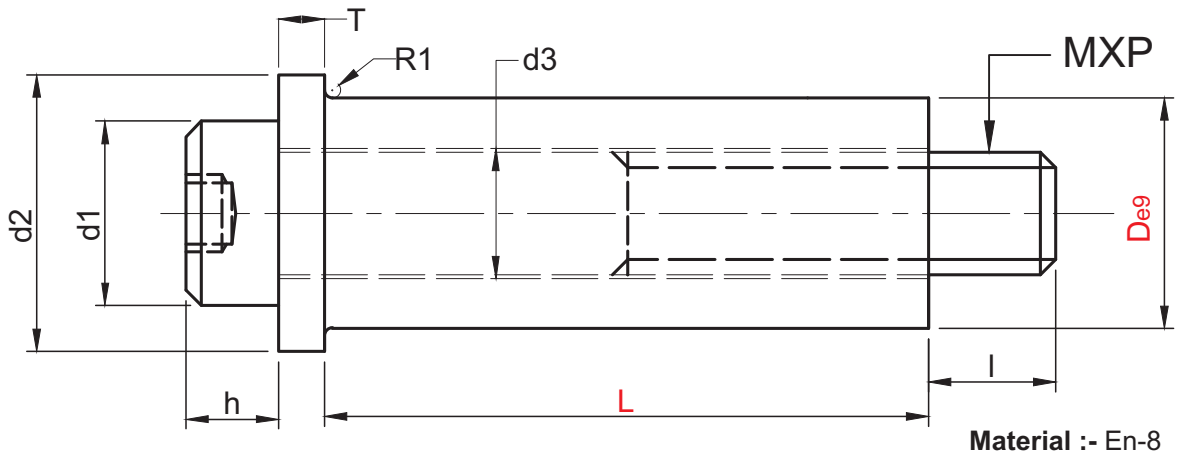
PRPR

Material:- 1)Punch Retainer-En-8, 2)Back Up Plate-WPS
Hardness:- 1)Punch Retainer- NA, 2)Back Up Plate- 56-60HRC

Type	D	Dg6	A	B	C	E	F	G	H	J	R	D1	d	t	d1
PRCR PRPR	10	(+0.014) (+0.005)	37	20	21	35	20	10	9	29	9.5	14	9	10	10
	13	(+0.017) (+0.006)	43	26	23	38		13	11	32	12				
	16		44	24	26	40			12	34	14	17	11	12	12
	20	(+0.020) (+0.007)	48	28	27	42		16	14	36	17				
	25		50	30	30	46		18	17	39	19.5				

Order Type :- Code x D
Example :- PRCR X 20

Spool Retainer (PSRS)



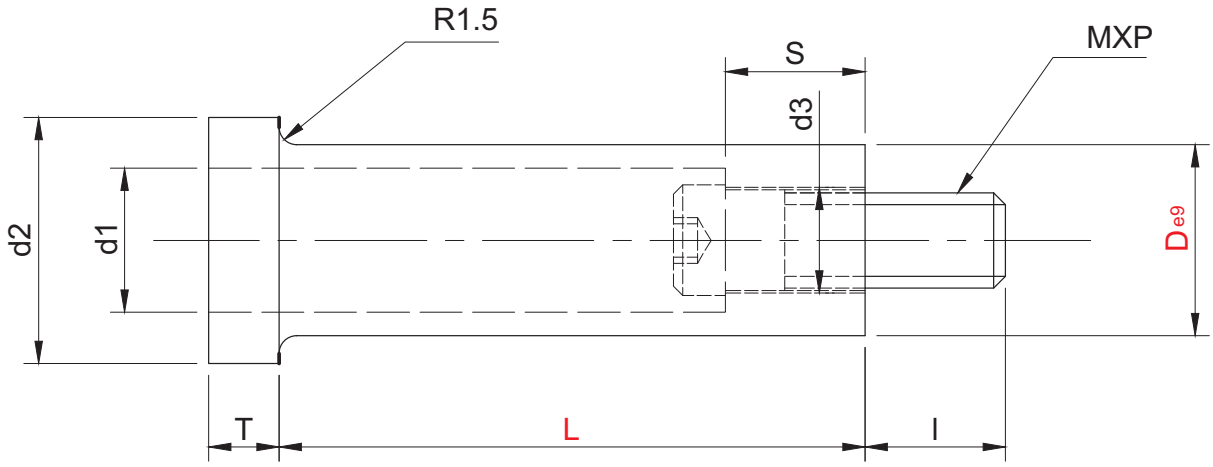
Material :- En-8
Hardness :- 38-42HRC
Surface Treatment :- Blackodised

De9		d1	d2	d3	MxP	h	T	l
10	(-0.025) (-0.061)	10	15	6.3	6x1.0	6	5	10
13	(-0.032) (-0.075)	13	18	8.4	8x1.25	8	5	15
16		16	24	10.6	10x1.5	10	8	22
20	(-0.040) (-0.092)	18	28	12.6	12x1.75	12	10	20
25		24	36	16.8	16x2.0	16	13	27
32	(-0.050) (-0.112)	30	45	20.8	20x2.5	20	16	34

Type	D	L
PSRS	10	10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100
	13	15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120
	16	20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180
	20	30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180
	25	40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 200
	32	60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 200

Order Type :- Code X D X L
Example :- PSRS X 16 X 50

Spool Retainer (PSRZ)



Material :- En-8
Hardness :- 38-42HRC
Surface Treatment :- Blackodised

Type	De9		d1	d2	d3	MXP	Provided bolt	T	S	l	D	L
PSRZ	20	(-0.040) (-0.092)	15	26	9	8X1.25	CB 8 - 35	6	20	15	20	40 50 60 70 80 90
	24		18	33	11	10X1.5	CB 10 - 45	6	25	20	24	50 60 70 80 90 100
	28		20	37	13	12X1.75	CB 12 - 50	8	30	20	28	50 60 70 80 90 100 110
	35	(-0.050) (-0.112)	26	47	17	16X2.0	CB 16 - 60	8	35	25	35	60 70 80 90 100 110 120 130
	44		32	57	21	20X2.5	CB 20 - 70	8	40	30	44	70 80 90 100 110 120 130

Order Type :- Code X D X L
Example :- PSRZ X 20 X 50