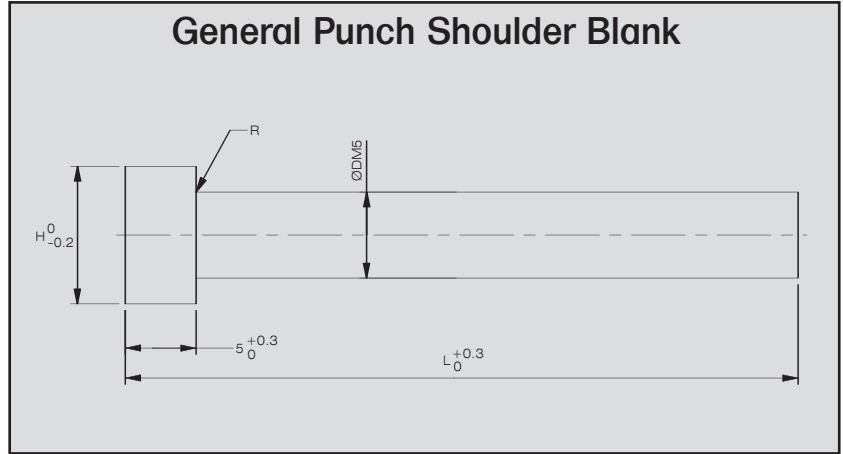
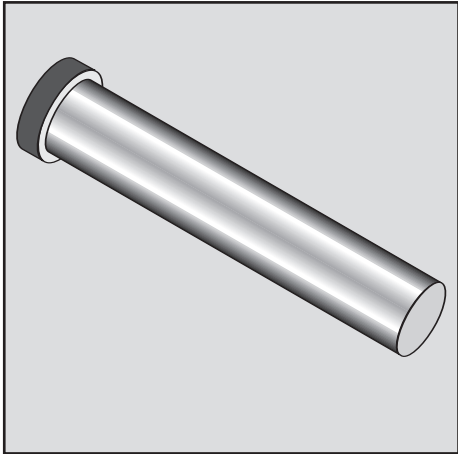


# Blank Punches



**MATERIAL**

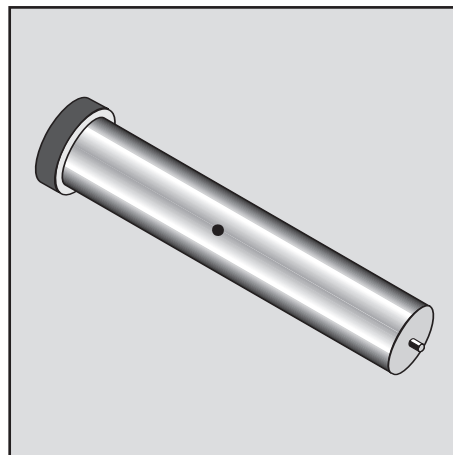
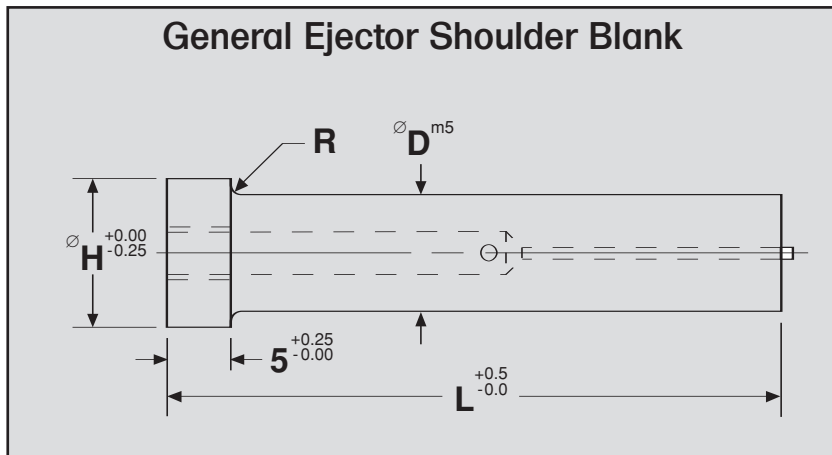
A2, R/c 59-61 double tempered (Toolsteel)  
M2, R/c 61-63 triple tempered (HSS)  
Heads drawn to Rc 40-55.

MATERIAL	D	H	OVERALL LENGTH								
			56	63	72	80	90	100	110	120	
GPSB	3	6							100		
GPSB	4	7				80			100		
GPSB	5	8	56	63	72	80			100		
GPSB	6	9	56	63	72	80	90		100		120
GPSB	8	11	56	63	72	80	90		100	110	120
GPSB	10	13	56	63	72	80	90		100	110	120
GPSB	12	15	56	63	72	80	90		100	110	120
GPSB	13	16	56	63	72	80	90		100	110	120
GPSB	16	19	56	63	72	80	90		100	110	120
GPSB	20	23	56	63	72	80	90		100	110	120
GPSB	25	28				80			100		

**Ordering Example:**

**Qty 10 - GPSB 10-80 M2**

# Shedder Punch - Blank



## MATERIAL

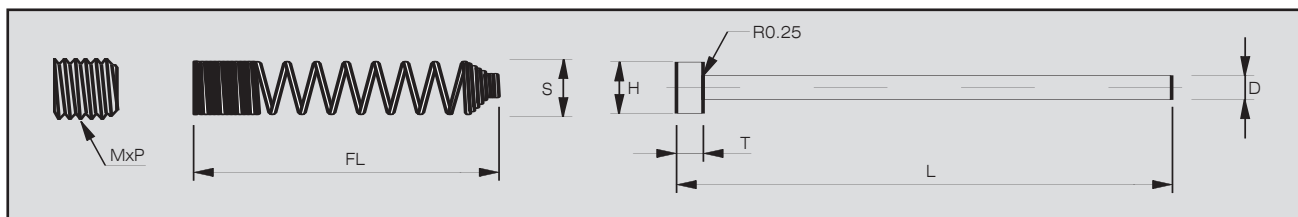
A2, R/c 59-61 double tempered (Toolsteel)  
M2, R/c 61-63 triple tempered (HSS)  
Heads drawn to Rc 40-55.

MATERIAL	D	H	OVERALL LENGTH						EJECTOR TYPE
			56	63	71	80	90	100	
GESB	5	8	56	63	71	80	90	100	E2AM
GESB	6	9	56	63	71	80	90	100	E3M
GESB	8	11	56	63	71	80	90	100	E4M
GESB	10	13	56	63	71	80	90	100	E6M
GESB	12	15	56	63	71	80	90	100	E6M
GESB	13	16	56	63	71	80	90	100	E6M
GESB	16	19	56	63	71	80	90	100	E9M
GESB	20	24	56	63	71	80	90	100	E9M

Ordering Example:

Qty 10 - GESB 10-80 M2

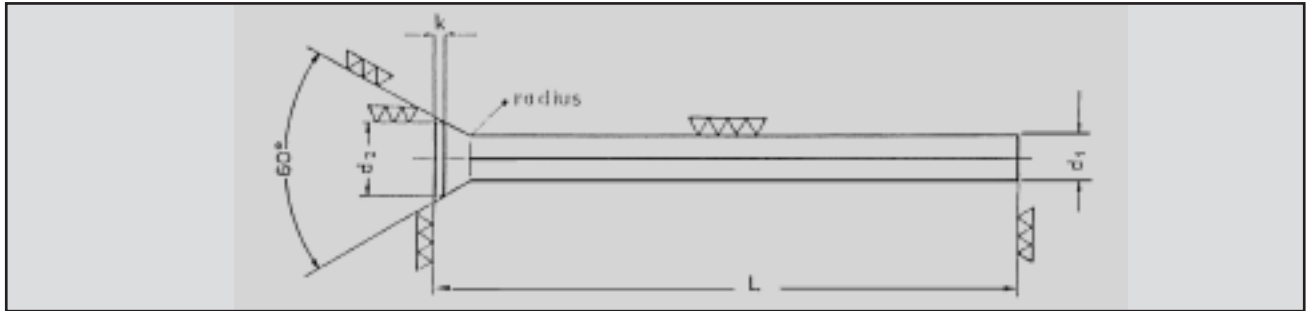
## Ejector Kit



CODE	MXP	D	L	H	T	S	FL
E2AM	M2.5xP0.45	0.51	28.2	1.2	0.79	1.95	63.5
E3M	M3xP0.5	0.69	35.0	2.0	1.19	2.54	63.5
E4M	M4xP0.7	1.04	49.3	2.4	1.58	3.35	76.2
E6M	M5xP0.8	1.47	49.3	3.2	1.58	4.14	101.6
E9M	M6xP1.0	2.26	56.4	3.9	2.38	5.03	101.6
E12M	M8xP1.0	3.00	56.4	4.7	2.38	6.60	101.6

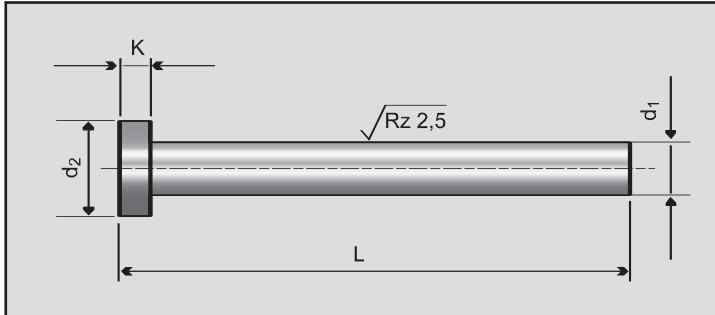
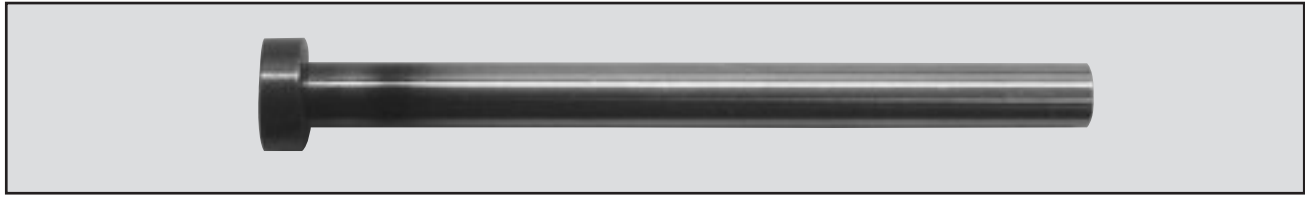
# Form D - Precision Punches with Conical Head

Materials: (HSS) M2HSS Tungsten High Speed Steel  
 Shank Hardness: 64 +/- 2 Hrc Head Hardness: 50 +/- 5 Hrc  
 (Toolsteel) D-2 Chromium (12%) Steel  
 Shank Hardness: 62 +/- 2 Hrc Head Hardness: 45 +/- 5 Hrc



d1 h6	d2 +/-0.1	k +0.2 R-3	Increments			L + 0.5			
			70 Long		Other	70	80	90	100
			R3	U-12					
0.50	0.9	0.2	0.05	0.05		◆			
0.55	1.0	0.2	0.05	0.05		◆			
0.60	1.1	0.2	0.05	0.05		◆			
0.65	1.2	0.2	0.05	0.05		◆			
0.70 - 0.75	1.3	0.2	0.05	0.05		◆			
0.80 - 0.85	1.4	0.4	0.05	0.05		◆			
0.90 - 0.95	1.6	0.4	0.05	0.05		◆			
1.00 - 1.10	1.8	0.5	0.05	0.05	0.10	◆	◆	◆	◆
1.15 - 1.30	2.0	0.5	0.05	0.05	0.10	◆	◆	◆	◆
1.35 - 1.50	2.2	0.5	0.05	0.05	0.10	◆	◆	◆	◆
1.55 - 1.70	2.5	0.5	0.05	0.05	0.10	◆	◆	◆	◆
1.75 - 1.90	2.8	0.5	0.05	0.05	0.10	◆	◆	◆	◆
1.95 - 2.00	3.0	0.5	0.05	0.05	0.10	◆	◆	◆	◆
2.05 - 2.20	3.2	0.5	0.05	0.05	0.10	◆	◆	◆	◆
2.25 - 2.50	3.5	0.5	0.05	0.05	+	◆	◆	◆	◆
2.55 - 2.95	4.0	0.5	0.05	0.05	0.25	◆	◆	◆	◆
3.00 - 3.45	4.5	0.5	0.05	0.10	+	◆	◆	◆	◆
3.50 - 3.95	5.0	0.5	0.05	0.10	0.75	◆	◆	◆	◆
4.00 - 4.45	5.5	0.5	0.05	0.10	0.75	◆	◆	◆	◆
4.50 - 4.95	6.0	0.5	0.05	0.10	0.75	◆	◆	◆	◆
5.00 - 5.45	6.5	0.5	0.05	+	0.75	◆	◆	◆	◆
5.50 - 5.95	7.0	0.5	0.05	0.25	0.75	◆	◆	◆	◆
6.0 - 6.4	8.0	0.5	0.10	+	0.75	◆	◆	◆	◆
6.5 - 7.4	9.0	1.0	0.75	0.75		◆	◆	◆	◆
7.5 - 8.4	10.0	1.0	+	0.75	0.75	◆	◆	◆	◆
8.5 - 9.4	11.0	1.0	0.25	0.75	0.75	◆	◆	◆	◆
9.5 - 10.4	12.0	1.0	+	0.75	0.75	◆	◆	◆	◆
10.5 - 11.4	13.0	1.0	0.75	0.50	0.50	◆	◆	◆	◆
11.5 - 12.4	14.0	1.0	0.75	0.50	0.50	◆	◆	◆	◆
12.5 - 13.0	15.0	1.0	0.50	0.50	0.50	◆	◆	◆	◆
13.5 - 14.0	16.0	1.0	0.50	0.50	0.50	◆	◆	◆	◆
14.5 - 15.0	17.0	1.0	0.50	0.50	0.50	◆	◆	◆	◆
15.5 - 16.0	18.0	1.0	0.50	0.50	1.0	◆	◆	◆	◆
16.5 - 17.0	19.0	1.0	0.50	0.50	1.0	◆	◆	◆	◆
17.5 - 18.0	20.0	1.0	0.50	0.50	1.0	◆	◆	◆	◆
18.5 - 19.0	21.0	1.0	0.50	0.50	1.0	◆	◆	◆	◆
19.5 - 20.0	22.0	1.0	0.50	0.50	1.0	◆	◆	◆	◆
21.0	23.0	1.0	1.0	1.0	1.0	◆	◆	◆	◆
22.0	24.0	1.0	1.0	1.0	1.0	◆	◆	◆	◆
23.0	25.0	1.0	1.0	1.0	1.0	◆	◆	◆	◆
24.0	26.0	1.0	1.0	1.0	1.0	◆	◆	◆	◆
25.0	27.0	1.0	1.0	1.0	1.0	◆	◆	◆	◆

# Through Hardened Ejector Pins - DIN



## Type: E03

Standard: **DIN1530-AH** / ISO6751

Material: 1.2067 Hardened Steel

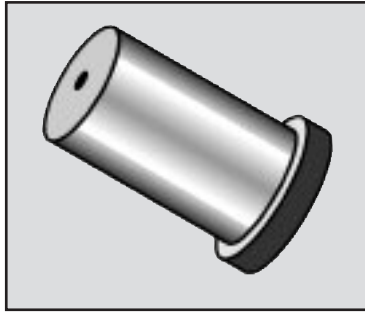
Hardness:

Head = HRC45+/-5

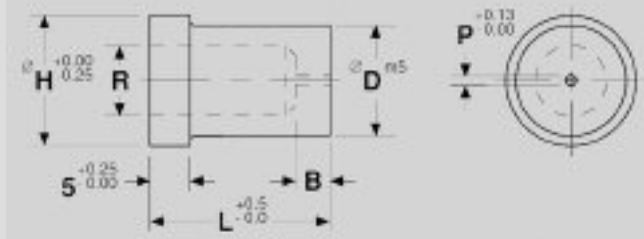
Shaft = HRC60+/-2 Through Hardened

Part Number	d1 g6	d2 0/-0.2	k 0/-0.05	L+2											
				100	125	160	200	250	315	400	500	630	800	1000	
HED15	1.5	3	1.5	•	•	•	•	•							
HED2	2.0	4	2	•	•	•	•	•	•						
HED22	2.2	4	2	•	•	•	•	•	•						
HED25	2.5	5	2	•	•	•	•	•	•						
HED27	2.7	5	2	•	•	•	•	•	•						
HED3	3.0	6	3	•	•	•	•	•	•	•					
HED32	3.2	6	3	•	•	•	•	•	•	•					
HED35	3.5	7	3	•	•	•	•	•	•	•					
HED37	3.7	7	3	•	•	•	•	•	•	•					
HED4	4.0	8	3	•	•	•	•	•	•	•	•				
HED42	4.2	8	3	•	•	•	•	•	•	•	•				
HED45	4.5	8	3	•	•	•	•	•	•	•	•				
HED5	5.0	10	3	•	•	•	•	•	•	•	•				
HED52	5.2	10	3	•	•	•	•	•	•	•	•				
HED55	5.5	10	3	•	•	•	•	•	•	•	•				
HED6	6.0	12	5	•	•	•	•	•	•	•	•	•			
HED62	6.2	12	5	•	•	•	•	•	•	•	•	•			
HED65	6.5	12	5	•	•	•	•	•	•	•	•	•			
HED7	7.0	12	5	•	•	•	•	•	•	•	•	•			
HED75	7.5	12	5	•	•	•	•	•	•	•	•	•			
HED8	8.0	14	5	•	•	•	•	•	•	•	•	•			
HED82	8.2	14	5	•	•	•	•	•	•	•	•	•			
HED85	8.5	14	5	•	•	•	•	•	•	•	•	•			
HED9	9.0	14	5	•	•	•	•	•	•	•	•	•			
HED10	10.0	16	5	•	•	•	•	•	•	•	•	•			
HED102	10.2	16	5	•	•	•	•	•	•	•	•	•			
HED105	10.5	16	5	•	•	•	•	•	•	•	•	•			
HED11	11.0	16	5	•	•	•	•	•	•	•	•	•			
HED12	12.0	20	7	•	•	•	•	•	•	•	•	•			
HED122	12.2	20	7	•	•	•	•	•	•	•	•	•			
HED125	12.5	20	7	•	•	•	•	•	•	•	•	•			
HED14	14.0	22	7	•	•	•	•	•	•	•	•	•			
HED16	16.0	22	7	•	•	•	•	•	•	•	•	•			
HED18	18.0	24	7	•	•	•	•	•	•	•	•	•			
HED20	20.0	26	8	•	•	•	•	•	•	•	•	•			
HED25	25.0	32	10		•	•	•	•	•	•	•	•			
HED32	32.0	40	10			•	•	•	•	•	•	•			

# GBSB Die Blank - Lane ISO Type



A2, R/c 60-63  
double tempered



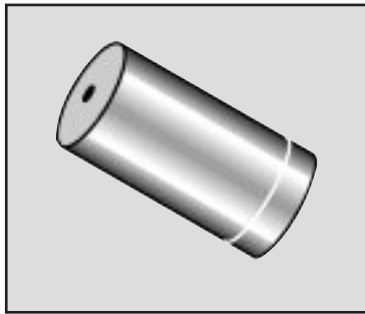
General Button Shoulder Blank

P TO D 0.13

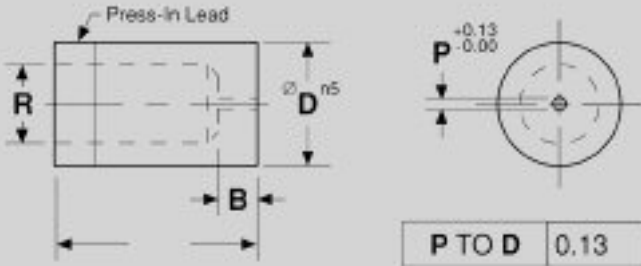
TYPE	"D"	LAND "B"	Overall Length "L"							DRILL "P"	MAX. "R"	HEAD DIA. "L"
			20	22	25	28	30	32	35			
GBSB	10	4	20	22	25	28	30	32	35	0.8	5.8	13
GBSB	13	5	20	22	25	28	30	32	35	0.8	8.0	16
GBSB	16	5	20	22	25	28	30	32	35	1.5	9.5	19
GBSB	20	5	20	22	25	28	30	32	35	2.4	11.9	24
GBSB	22	6	20	22	25	28	30	32	35	3.0	14.7	26
GBSB	25	6	20	22	25	28	30	32	35	3.0	17.4	29
GBSB	32	6	20	22	25	28	30	32	35	3.0	20.6	36
GBSB	38	8	20	22	25	28	30	32	35	3.0	27.0	42

Ordering Example: Qty 15-GBSB 16-22 A2

# GBPB Die Blank - Lane ISO Type



A2, R/c 60-63  
double tempered



General Button Press-Fit Blank

P TO D 0.13

TYPE	"D"	LAND "B"			Overall Length "L"							DRILL "P"	MAX. "R"	
					20	22	25	28	30	32	35			40
GBPB	8	4	8		20	22	25	28	30	32	35		0.8	4.0
GBPB	10	4	8		20	22	25	28	30	32	35		0.8	5.8
GBPB	13	5	8		20	22	25	28	30	32	35		0.8	8.0
GBPB	16	5	8		20	22	25	28	30	32	35		1.5	9.5
GBPB	20	5	12		20	22	25	28	30	32	35		2.4	11.9
GBPB	22	6	12		20	22	25	28	30	32	35		3.0	14.7
GBPB	25	6	12		20	22	25	28	30	32	35		3.0	17.4
GBPB	32	6	12		20	22	25	28	30	32	35		3.0	20.6
GBPB	38	8	12		20	22	25	28	30	32	35		3.0	27.0
GBPB	40	8	12	20			25	28	30	32	35		3.0	27.0
GBPB	45	8	12	20			25	28	30	32	35	40	3.0	36.0
GBPB	50	8	12	20			25	28	30	32	35	40	3.0	41.0
GBPB	56	8	12	20			25	28	30	32	35	40	3.0	46.0
GBPB	63	8	12	20			25	28	30	32	35	40	3.0	51.0
GBPB	71	8	12	20			25	28	30	32	35	40	3.0	57.0
GBPB	76	8	12	20			25	28	30	32	35	40	3.0	61.0
GBPB	85	8	12	20			25	28	30	32	35	40	3.0	67.0
GBPB	90	8	12	20			25	28	30	32	35	40	3.0	71.0
GBPR	100	8	12	20			25	28	30	32	35	40	3.0	79.0

# General Punch Shoulder

R = O = S = H =

### Key-Flats in Die Position

**K2**  
Single Flat

**K3**  
Double Flats

**K4**  
ø 3.0 Pin Slot

### GPSR

Round

### GPSO

Oblong

### GPSS

Square/rect

Diagonal "G" =  $\sqrt{P^2 + W^2}$

### GPSH

High production

$G (\sqrt{(P-1.0)^2 + (W-1.0)^2}) + 1.0$

### Ordering Example

GPSR 13-13-71-M2 P10.1

GPSO 20-19-80 M2 P18.2 W9.5 K2

A2 = R/c 59-61 double tempered  
M2 = R/c 61-63 triple tempered  
Heads drawn to Rc 40-55

Round P to D	0.01	
Shape P & W to D	0.02	

Type	D	Point Length SBR						Overall Length L						Round P min.	Shape W min.	Head Dia. H				
		8	10	13	19	25	32	50	56	63	71	80	90				100			
GPS_	4	8	10					50	56	63					0.8	0.8	7			
GPS_	5	8	10	13				50	56	63	71				1.3	1.3	8			
GPS_	6	8	10	13				50	56	63	71	80			1.4	1.4	9			
GPS_	8	8	10	13				50	56	63	71	80			1.5	1.5	11			
GPS_	10		10	13	19			50	56	63	71	80	90	100	1.9	1.9	13			
GPS_	13		10	13	19			50	56	63	71	80	90	100	3.1	3.1	16			
GPS_	16			13	19	25		50	56	63	71	80	90	100	5.7	5.7	19			
GPS_	20			13	19	25			56	63	71	80	90	100	5.7	5.7	24			
GPS_	25			13	19	25			56	63	71	80	90	100	5.7	5.7	29			
GPS_	32				19	25				63	71	80	90	100	9.9	9.9	36			
GPS_	40				19	25	32				71	80	90	100	12.0	12.0	45			
GPS_	45					25	32					80	90	100	14.0	14.0	50			
GPS_	50						25	32					80	90	100	16.0	16.0	55		
GPS_	56							25	32					80	90	100	18.0	18.0	61	
GPS_	63								25	32					80	90	100	20.0	20.0	68

# General Ejector Shoulder

R = O = S = H =

### Key-Flats in Die Position

**K2**  
Single Flat

**K3**  
Double Flats

**K4**  
ø 3.0 Pin Slot

**GESR**  
Round

**GESO**  
Oblong

**GESE**  
Square/rect

Diagonal "G" =  $\sqrt{P^2 + W^2}$

**GESH**  
High production

$G (\sqrt{(P-1.0)^2 + (W-1.0)^2}) + 1.0$

### Ordering Example

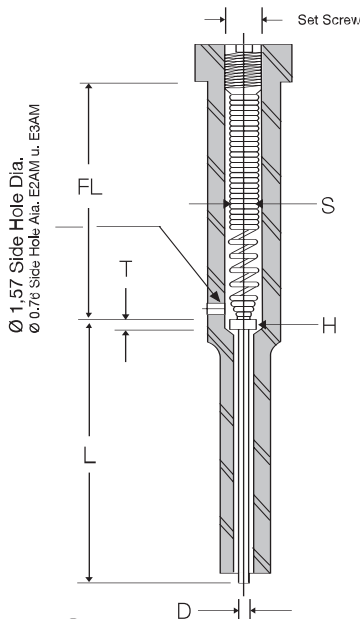
GESR 13-13-71-M2 P10.1

GESO 20-19-80 M2 P18.2 W9.5 K2

A2 = R/c 59-61 double tempered  
M2 = R/c 61-63 triple tempered  
Heads drawn to Rc 40-55

Round P to D	0.01	
Shape P & W to D	0.02	

Type	D	Point Length SBR						Overall Length L						Round P min.	Shape W min.	Head Dia H	Ejector Type
		8	10	13	19	25	32	50	56	63	71	80	90				
GES_	5	8	10	13			50	56	63	71				1.9	1.9	8	E2AM
GES_	6	8	10	13			50	56	63	71	80			2.0	2.0	9	E3M
GES_	8	8	10	13			50	56	63	71	80			2.9	2.9	11	E4M
GES_	10		10	13	19		50	56	63	71	80	90	100	4.0	4.0	13	E6M
GES_	13		10	13	19		50	56	63	71	80	90	100	4.0	4.0	16	E6M
GES_	16			13	19	25	50	56	63	71	80	90	100	5.7	5.7	19	E9M
GES_	20			13	19	25		56	63	71	80	90	100	5.7	5.7	24	E9M
GES_	25			13	19	25		56	63	71	80	90	100	5.7	5.7	29	E9M
GES_	32				19	25	32			71	80	90	100	9.9	9.9	36	E12M
GES_	40				19	25	32				80	90	100	12.0	12.0	45	E12M
GES_	45					25	32				80	90	100	14.0	14.0	50	E12M
GES_	50					25	32				80	90	100	16.0	16.0	55	E12M
GES_	56					25	32				80	90	100	18.0	18.0	61	E12M
GES_	63					25	32				80	90	100	20.0	20.0	68	E12M



## Ejector Components for GES

Ejector Catalogue Number	Pin Diameter D	Pin Overall Length L	Pin Head Thickness H	Spring Diameter S	Spring Free Length FL	Set Screw Size	Ball-Lock Punch Shank Diameter	Shoulder Punch Shank Diameter
E2AM	0.51	28.2	1.2	1.95	63.50	M2.5 x .45	6	5
E3M	0.69	35.0	2.0	2.54	63.50	M3 x .5	-	6
E4M	1.04	49.3	2.4	3.35	76.20	M4 x .7	10	8
E6M	1.47	49.3	3.2	4.14	101.60	M5 x .8	13	10 - 13
E9M	2.26	56.4	3.9	5.03	101.60	M6 x 1	16 - 25	16 - 25
E12M	3.00	56.4	4.7	6.60	101.60	M8 x 1.25	32 and up	32 and up

Pin Extensions = 0.8mm, E3M  
1.5mm, E4M, E6M, E9M E12M

Ordering Example:  
**(25) E6M Ejector Kits**

Set includes one each:  
Pin, Spring, & Set Screw.

# Die Buttons - Lane ISO Type

## General Button Shoulder

R = O = S = H =

**GBSR**  
Round

**Ordering Example**

GBSR 13-28 A2 P4.5

A2 = R/c 59-61 double tempered

P to D 0.01

Type	D	Land B	Overall Length L							Point Range P	Max. R	Head Dia. H
			20	22	25	28	30	32	35			
GBSR	10	4	20	22	25	28	30	32	35	1.5 - 5.0	5.8	13
GBSR	13	5	20	22	25	28	30	32	35	3.0 - 7.2	8.0	16
GBSR	16	5	20	22	25	28	30	32	35	5.0 - 8.8	9.5	19
GBSR	20	5	20	22	25	28	30	32	35	7.0 - 11.0	11.9	24
GBSR	22	6	20	22	25	28	30	32	35	9.0 - 13.8	14.7	26
GBSR	25	6	20	22	25	28	30	32	35	11.0 - 16.5	17.4	29
GBSR	32	6	20	22	25	28	30	32	35	13.0 - 19.8	20.6	36
GBSR	38	8	20	22	25	28	30	32	35	16.0 - 26.0	27.0	42

**GBSO**  
Oblong

**GBSS**  
Square/Rectangle

**GBSH**  
High production

P & W to D 0.02

Diagonal "G" =  $\sqrt{P^2 + W^2}$

$G = (\sqrt{(P-1.0)^2 + (W-1.0)^2}) + 1.0$

GBSO 16-20 A2 P6.9 W4.3 K2

**Key-Flats in Die Position**

**K2**  
single flat

**K3**  
double flat

**K4**  
3.0 diameter pin slot

Type	D	Land B	Overall Length L							Min. W	Min. P / G	Max. R	Head Dia. H
			20	22	25	28	30	32	35				
GBS_	10	4	20	22	25	28	30	32	35	1.2	5.0	5.8	13
GBS_	13	5	20	22	25	28	30	32	35	2.0	7.2	8.0	16
GBS_	16	5	20	22	25	28	30	32	35	2.4	8.8	9.5	19
GBS_	20	5	20	22	25	28	30	32	35	3.2	11.0	11.9	24
GBS_	22	6	20	22	25	28	30	32	35	4.0	13.8	14.7	26
GBS_	25	6	20	22	25	28	30	32	35	4.8	16.5	17.4	29
GBS_	32	6	20	22	25	28	30	32	35	5.5	19.8	20.6	36
GBS_	38	8	20	22	25	28	30	32	35	6.4	26.0	27.0	42



# Die Buttons - Lane ISO Type

## General Button Press Fit

R = O = S = H =

**GBPR**  
Round

P to D 0.01

**Ordering Example**

GBPR 13-28 A2 P4.5

A2 = R/c 59-61 double tempered

Type	D	Land B				Overall Length L						Point Range P	Max. R	
						20	22	25	28	30	32			35
GBPR	8	4	8		20	22	25	28	30	32	35		1.5 - 3.2	4.0
GBPR	10	4	8		20	22	25	28	30	32	35		1.5 - 5.0	5.8
GBPR	13	5	8		20	22	25	28	30	32	35		3.0 - 7.2	8.0
GBPR	16	5	8		20	22	25	28	30	32	35		5.0 - 8.8	9.5
GBPR	20	6	12		20	22	25	28	30	32	35		7.0 - 11.0	11.9
GBPR	22	6	12		20	22	25	28	30	32	35		9.0 - 13.8	14.7
GBPR	25	6	12		20	22	25	28	30	32	35		11.0 - 16.5	17.4
GBPR	32	8	12		20	22	25	28	30	32	35		13.0 - 19.8	20.6
GBPR	38	8	12		20	22	25	28	30	32	35		16.0 - 26.0	27.0
GBPR	40	8	12	20			25	28	30	32	35		16.0 - 26.0	27.0
GBPR	45	8	12	20			25	28	30	32	35	40	19.0 - 35.0	36.0
GBPR	50	8	12	20			25	28	30	32	35	40	22.0 - 40.0	41.0
GBPR	56	8	12	20			25	28	30	32	35	40	25.0 - 45.0	46.0
GBPR	63	8	12	20			25	28	30	32	35	40	28.0 - 51.0	51.0
GBPR	71	8	12	20			25	28	30	32	35	40	31.0 - 57.0	57.0
GBPR	76	8	12	20			25	28	30	32	35	40	39.0 - 61.0	61.0
GBPR	85	8	12	20			25	28	30	32	35	40	43.0 - 67.0	67.0
GBPR	90	8	12	20			25	28	30	32	35	40	45.0 - 71.0	71.0
GBPR	100	8	12	20			25	28	30	32	35	40	50.0 - 79.0	79.0

**GBPO**  
Oblong

**GBPS**  
Square/Rectangle

**GBPH**  
High Production

P & W to D 0.02

Diagonal "G" =  $\sqrt{P^2 + W^2}$       G =  $(\sqrt{(P - 1.0)^2 + (W - 1.0)^2}) + 1.0$

**Key-Flats in Die Position**

**K0**  
ø 3.0 Pin Slot

**K2**  
Single Flat

Type	D	Land B				Overall Length L						Min. W	Max P/G	Max. R	
						20	22	25	28	30	32				35
GBP_	10	4	8		20	22	25	28	30	32	35		1.2	5.0	5.8
GBP_	13	5	8		20	22	25	28	30	32	35		2.0	7.2	8.0
GBP_	16	5	8		20	22	25	28	30	32	35		2.4	8.8	9.5
GBP_	20	6	12		20	22	25	28	30	32	35		3.2	11.0	11.9
GBP_	22	6	12		20	22	25	28	30	32	35		4.0	13.8	14.7
GBP_	25	6	12		20	22	25	28	30	32	35		4.8	16.5	17.4
GBP_	32	8	12		20	22	25	28	30	32	35		5.5	19.8	20.6
GBP_	38	8	12		20	22	25	28	30	32	35		6.4	26.0	27.0
GBP_	40	8	12	20			25	28	30	32	35		6.4	26.0	27.0
GBP_	45	8	12	20			25	28	30	32	35	40	8.0	35.0	36.0
GBP_	50	8	12	20			25	28	30	32	35	40	9.0	40.0	41.0
GBP_	56	8	12	20			25	28	30	32	35	40	10.0	45.0	46.0
GBP_	63	8	12	20			25	28	30	32	35	40	11.0	50.0	51.0
GBP_	71	8	12	20			25	28	30	32	35	40	12.0	56.0	57.0
GBP_	76	8	12	20			25	28	30	32	35	40	15.0	60.0	61.0
GBP_	85	8	12	20			25	28	30	32	35	40	21.0	66.0	67.0
GBP_	90	8	12	20			25	28	30	32	35	40	25.0	70.0	71.0
GBP_	100	8	12	20			25	28	30	32	35	40	33.0	78.0	79.0

# Die Buttons - FIT DIN Standard

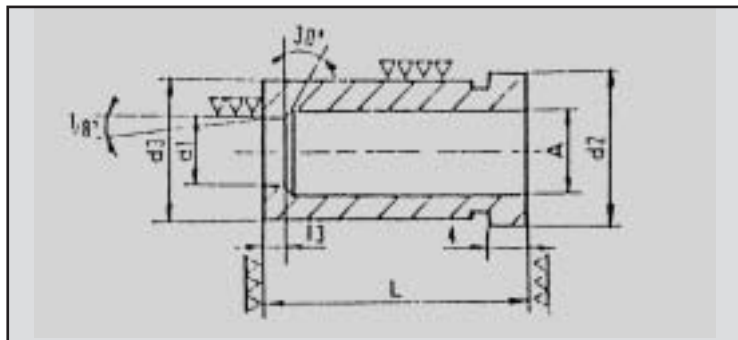
## FORM B Precision Die Inserts (Headed)

Materials: R-3 Tungsten & Cobalt (5%) High Speed Steel

Hardness: 64 +/- 2 Hrc

WS Tool Steel Alloy

Hardness: 60 +/- 2 Hrc



d1 H8	d3 k6	d2	A	l3	Increments	L	
						20	28
1.0 - 2.0	8	6.0	2.5	2	0.10	◆	
2.1 - 2.6	9	7.0	3.5	3	0.10	◆	◆
2.7 - 3.3	9	7.0	3.5	3	0.10	◆	◆
3.1 - 4.0	10	8.0	4.5	4	0.10	◆	◆
4.1 - 5.0	12	10.0	5.5	4	0.10	◆	◆
5.1 - 6.0	14	12.0	6.5	4	0.10	◆	◆
6.1 - 7.0	17	15.0	7.5	4	0.10	◆	◆
7.1 - 8.0	17	15.0	8.5	4	0.10	◆	◆
8.1 - 9.0	20	18.0	9.5	4	0.10	◆	◆
9.1 - 10.0	20	18.0	10.5	4	0.10	◆	◆
10.1 - 11.0	24	22.0	12.0	4	0.10	◆	◆
11.1 - 12	24	22.0	13.0	4	0.10	◆	◆
12.1 - 13.0	28	26.0	14.0	4	0.10	◆	◆
13.1 - 14.0	28	26.0	15.0	4	0.10	◆	◆
14.1 - 15.0	28	26.0	16.0	4	0.10	◆	◆
15.1 - 18.0	32	30.0	19.0	4	0.5		◆
18.1 - 20.0	37	35.0	23.0	4	0.5		◆
20.1 - 22.0	37	35.0	23.0	4	1.0		◆
22.1 - 26.0	42.0	44	27.0	4	1.0		◆
Special Die Inserts: 30mm Long in WS Material							
3.0 - 5.5	12.0	16	6.0	8	0.1		
3.0 - 10.0	20.0	2.4	to suit	8	0.1		
4.0 - 16.0	24.0	30	to suit	8	0.1		
5.0 - 20.0	32.0	36	to suit	8			
6.0 min	38.0	44	28.0	10			
11.0 min	44.0	50	33.0	10			

### How to order

Die Insert d1 x d3 x L x d2 Form B Material

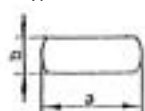
Eg: Die Insert 8.0 x 15 x 28 x 17 Form B WS

Die Insert 1.9 x 7x 20 x 9 Form B R-3

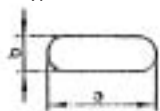
Note: The WS alloy is currently being phased out and may not be available in all sizes

### Form shapes available include:

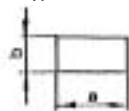
Type EKDF



Type EKDO



Type EKDR



Type EKDS



# Die Buttons - FIT DIN Standard

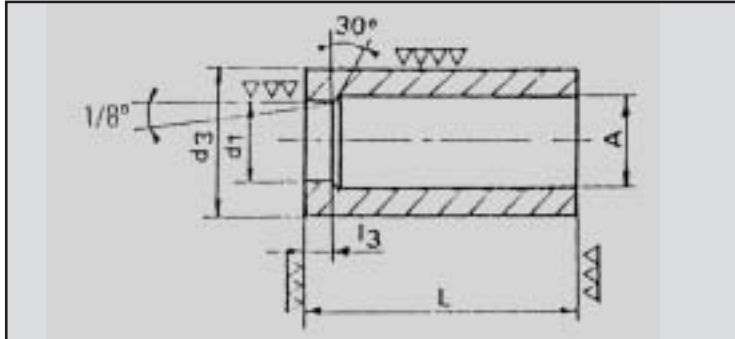
## FORM A Precision Die Inserts(Headless)

Materials : R -3Tungsten & Cobalt (5%) High Speed Steel

Hardness :64+/- 2 Hrc

WS Tool Steel Alloy

Hardness : 60 +/- 2 Hrc



d1 H8	d3 n6	A	l3	Increments	L	
					20	28
1.0 – 2.0	6.0	2.5	2	0.10	◆	
2.1 – 2.6	7.0	3.5	3	0.10	◆	◆
2.7 – 3.3	7.0	3.5	3	0.10	◆	◆
3.1 – 4.0	8.0	4.5	4	0.10	◆	◆
4.1 – 5.0	10.0	5.5	4	0.10	◆	◆
5.1 – 6.0	12.0	6.5	4	0.10	◆	◆
6.1 – 7.0	15.0	7.5	4	0.10	◆	◆
7.1 – 8.0	15.0	8.5	4	0.10	◆	◆
8.1 – 9.0	18.0	9.5	4	0.10	◆	◆
9.1 – 10.0	18.0	10.5	4	0.10	◆	◆
10.1 – 11.0	22.0	12.0	4	0.10	◆	◆
11.1 – 12	22.0	13.0	4	0.10	◆	◆
12.1 – 13.0	26.0	14.0	4	0.10	◆	◆
13.1 – 14.0	26.0	15.0	4	0.10	◆	◆
14.1 – 15.0	26.0	16.0	4	0.10	◆	◆
15.1 – 18.0	30.0	19.0	4	0.5		◆
18.1 – 20.0	35.0	23.0	4	0.5		◆
20.1 – 22.0	35.0	23.0	4	1.0		◆
22.1 – 26.0	42.0	27.0	4	1.0		◆
Special Die Inserts for Pullmax Machines in WS Material						
3.0 – 11.0	18.0	to suit	4	0.1		

### How to Order

Die Insert d1 x d3 xL Form A Material

Eg: Die Insert 5.2 x 12 x 28 Form A WS

Die Insert 2.8 x 7 x 20 Form A R-S

Note: The WS alloy is currently being phased out and may not be available in all sizes

### Form shapes available include:

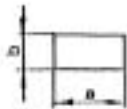
Type EDF



Type EDO



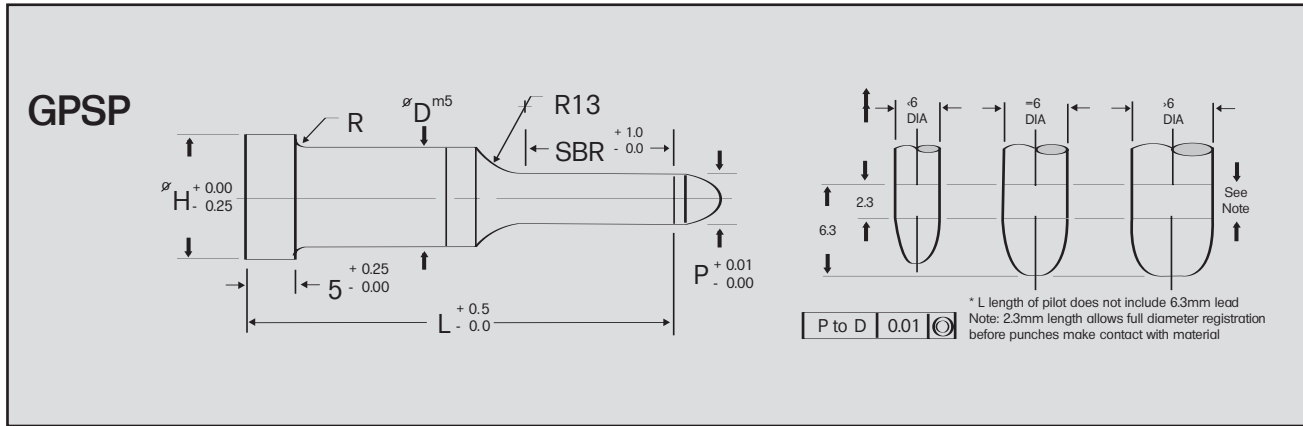
Type EDR



Type EDS



# General Punch Shoulder Parabolic Pilot



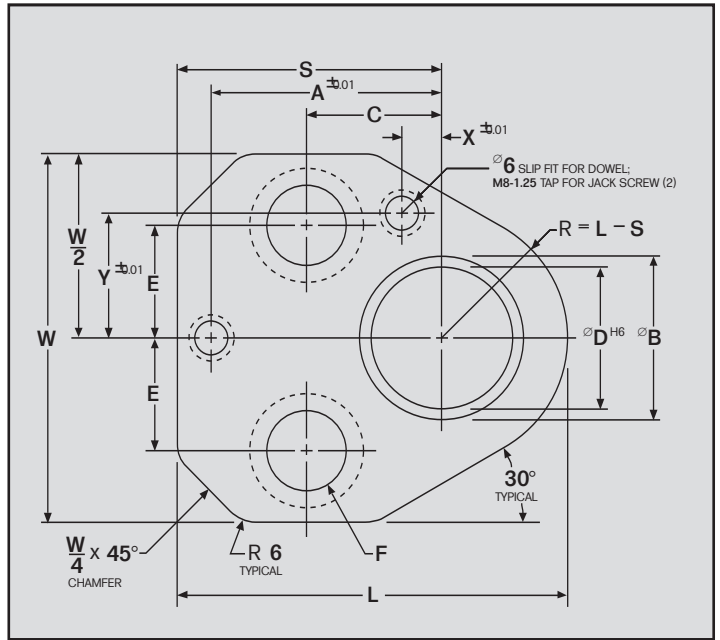
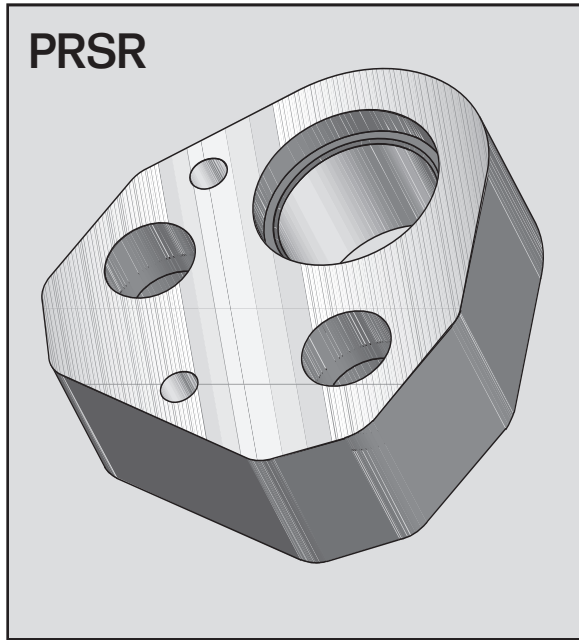
Type	D	Point Length SBR						Length L							Min. p	Head Dia. H
		8	10	13	19	25	32	50	56	63	71	80	90	100		
GPSP	5	8	10	13				50	56	63	71				1.2	8
GPSP	6	8	10	13				50	56	63	71	80			1.3	9
GPSP	8	8	10	13				50	56	63	71	80			1.4	11
GPSP	10		10	13	19			50	56	63	71	80	90	100	1.8	13
GPSP	13		10	13	19			50	56	63	71	80	90	100	3.0	16
GPSP	16			13	19	25		50	56	63	71	80	90	100	5.6	19
GPSP	20			13	19	25			56	63	71	80	90	100	5.6	24
GPSP	25			13	19	25			56	63	71	80	90	100	5.6	29
GPSP	32				19	25	32				71	80	90	100	9.8	36
GPSP	40				19	25	32					80	90	100	11.9	45

## Ordering Example

GPSP 20-13-63 M2 P18.3

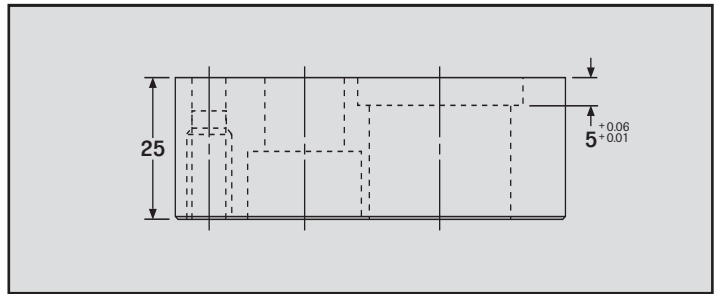
A2 = R/c 59-61 double tempered  
M2 = R/c 61-63 triple tempered  
Heads Drawn to Rc 40-55

# Peerless Retainer Shoulder



## A Speedy Solution for Round Punches and Pilots.

Dowels are finished, and retainer ready for CNC mounting. Counterbore is sized to accept shoulder/headed punches. Also, the dowel holes are tapped for easy removal in confined spaces.

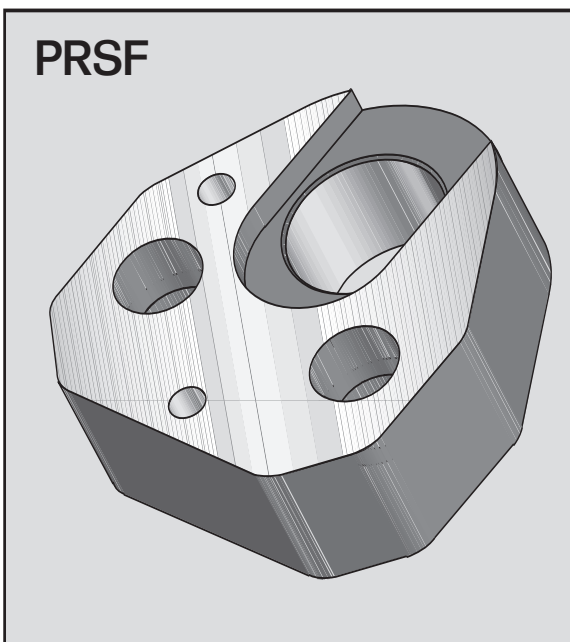
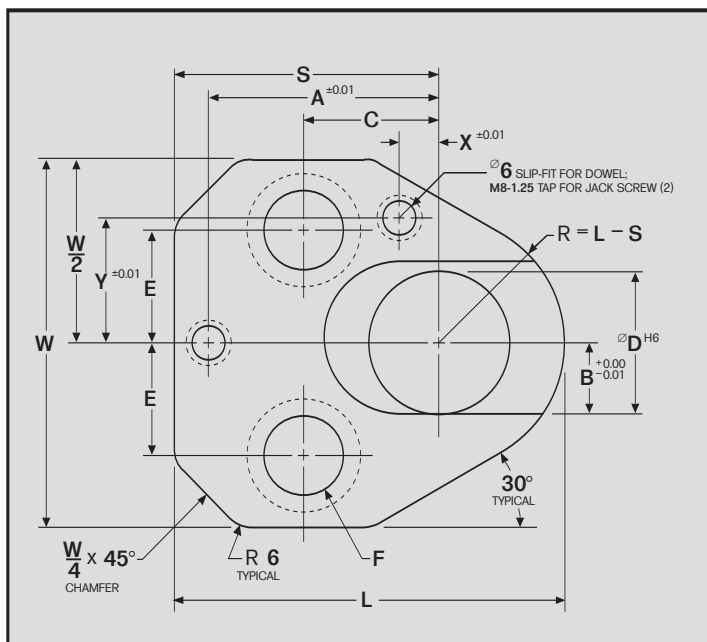


TYPE	"D"	"W"	"L"	"B"	"S"	"A"	"C"	"E"	"X"	"Y"	"F"
PRSR	10	41.0	43.5	14.0	34.0	26.924	19.05	11.12	7.5	9.0	M8
PRSR	13	48.5	49.6	17.0	37.0	29.972	19.05	14.27	6.5	12.0	M8
PRSR	16	51.7	52.7	20.0	38.6	31.750	19.05	15.87	6.0	13.5	M8
PRSR	20	56.8	59.3	24.0	41.9	33.528	19.05	17.47	5.0	16.5	M10
PRSR	25	64.5	68.9	29.0	46.7	40.640	23.82	19.84	7.0	22.0	M12
PRSR	32	64.5	68.9	36.0	46.7	40.640	23.82	19.84	7.0	22.0	M12

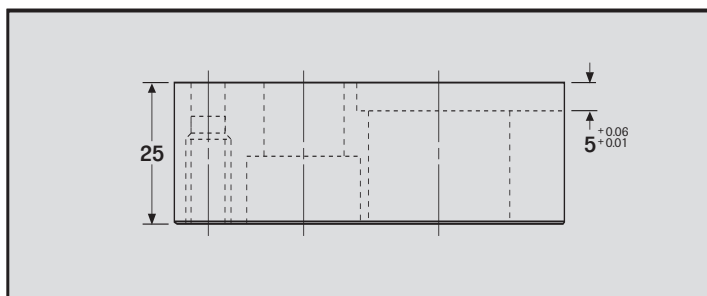
Ordering Example:  
(3) PRSR 25

Retainer set includes:  
2 Socket head cap screws.  
2 Vented and tapped dowels.

# Peerless Retainer Shoulder Form



PRSF



The Fastest, Least Expensive Way to Mount Shaped and Form-Pointed Punches.

A standard K2 key flat orients the shape inside the retainer. Just place two round dowel holes in your die shoe, and you're ready to locate complex shaped punches.

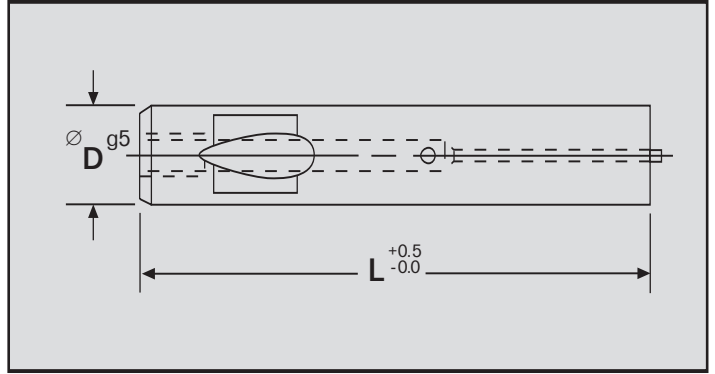
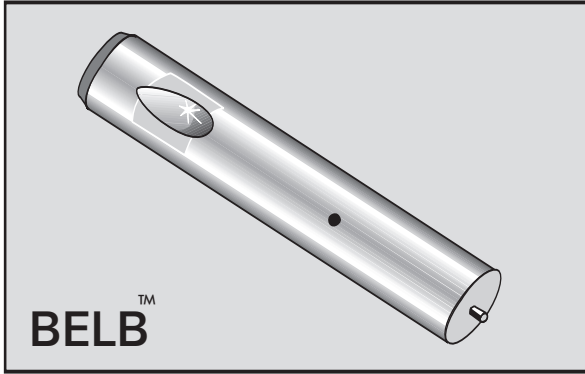
Dowels are finished, and dowel holes are slip-fit sized. Retainer is ready for CNC mounting.

TYPE	"D"	"W"	"L"	"B"	"S"	"A"	"C"	"E"	"X"	"Y"	"F"
PRSF	10	41.0	43.5	5.0	34.0	26.924	19.05	11.12	7.5	9.0	M8
PRSF	13	48.5	49.6	6.5	37.0	29.972	19.05	14.27	6.5	12.0	M8
PRSF	16	51.7	52.7	8.0	38.6	31.750	19.05	15.87	6.0	13.5	M8
PRSF	20	56.8	59.3	10.0	41.9	33.528	19.05	17.47	5.0	16.5	M10
PRSF	25	64.5	68.9	12.5	46.7	40.640	23.82	19.84	7.0	22.0	M12
PRSF	32	64.5	68.9	16.0	46.7	40.640	23.82	19.84	7.0	22.0	M12

Ordering Example:  
(2) PRSF 25

Retainer set includes:  
2 Socket head cap screws.  
2 Vented and tapped dowels.

# Ball-Lock Ejector Light Duty Blank

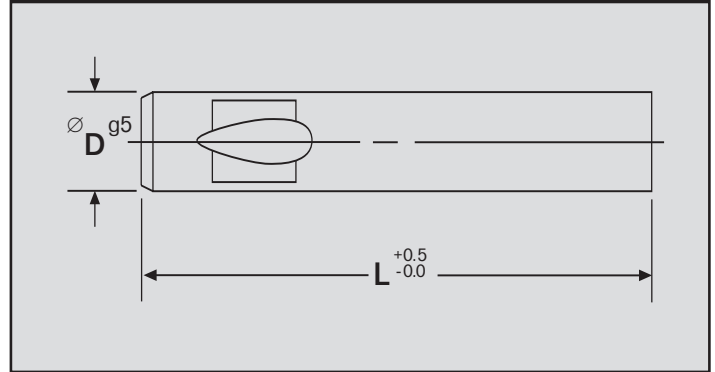
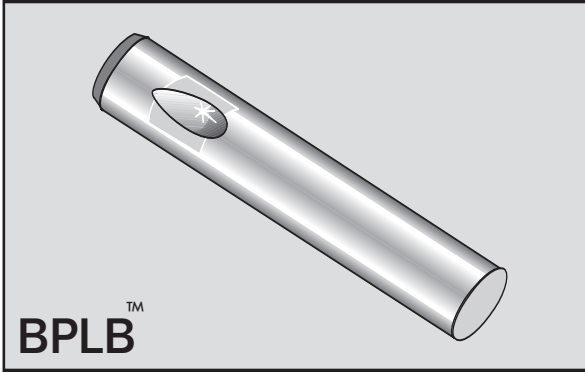


Type	"D"	Overall Length "L"							Ejector Type
		50	56	63	71	80	90	100	
BELB	6	50	56	63	71	80			E2AM
BELB	10	50	56	63	71	80	90	100	E4M
BELB	13	50	56	63	71	80	90	100	E6M
BELB	16		56	63	71	80	90	100	E9M
BELB	20		56	63	71	80	90	100	E9M
BELB	25		56	63	71	80	90	100	E9M
BELB	32				71	80	90	100	E12M
BELB	38					80	90	100	E12M

Ordering Example: (15) BELB 32-90 M2

A2, R/c 60-63 double tempered  
M2, R/c 60-63 triple tempered

# Ball-Lock Punch Light Duty Blank

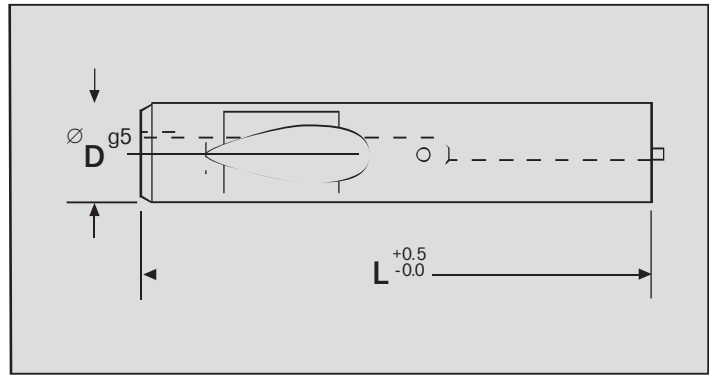
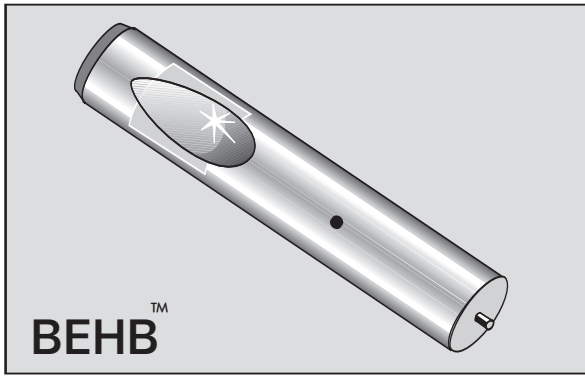


Type	"D"	Overall Length "L"												
		50	56	63	71	80	90	100	110	125	140	150	175	200
BPLB	6	50	56	63	71	80	90	100						
BPLB	10	50	56	63	71	80	90	100	110	125	140			
BPLB	13	50	56	63	71	80	90	100	110	125	140	150	175	
BPLB	16		56	63	71	80	90	100	110	125	140	150	175	
BPLB	20		56	63	71	80	90	100	110	125	140	150	175	
BPLB	25		56	63	71	80	90	100	110	125	140	150	175	
BPLB	32				71	80	90	100	110	125	140	150	175	200
BPLB	38					80	90	100	110	125	140	150	175	200

Ordering Example: (12) BPLB 32-125 M2

A2, R/c 60-63 double tempered  
M2, R/c 60-63 triple tempered

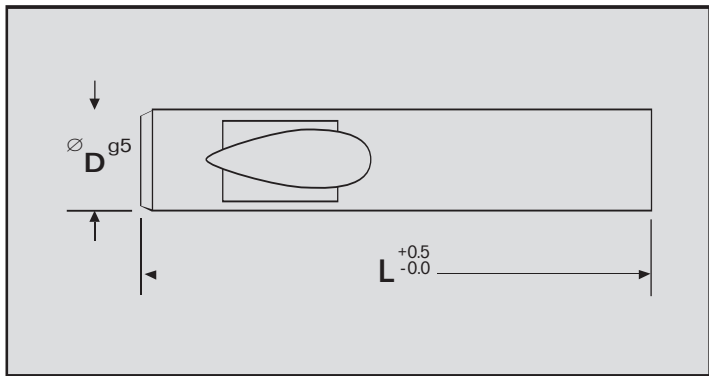
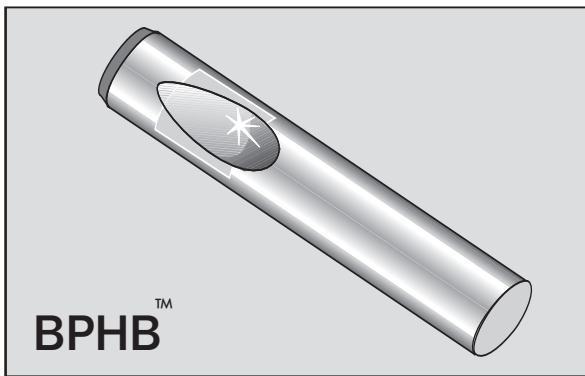
# Ball-Lock Ejector Heavy Duty Blank



Type	"D"	Overall Length "L"							Ejector Type
		63	71	80	90	100	110	125	
BEHB	10	63	71	80	90	100			E4M
BEHB	13	63	71	80	90	100	110	125	E6M
BEHB	16	63	71	80	90	100	110	125	E9M
BEHB	20	63	71	80	90	100	110	125	E9M
BEHB	25		71	80	90	100	110	125	E9M
BEHB	32		71	80	90	100	110	125	E12M
BEHB	40			80	90	100	110	125	E12M

Ordering Example: (15) BEHB 32-90 M2  
M2, R/c 60-63 triple tempered

# Ball-Lock Punch Heavy Duty Blank



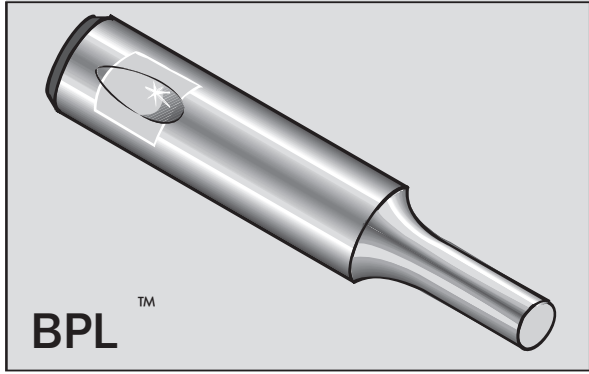
Type	"D"	Overall Length "L"										
		63	71	80	90	100	110	125	140	150	175	200
BPHB	10	63	71	80	90	100	110	125				
BPHB	13	63	71	80	90	100	110	125	140	150	175	
BPHB	16	63	71	80	90	100	110	125	140	150	175	
BPHB	20	63	71	80	90	100	110	125	140	150	175	
BPHB	25		71	80	90	100	110	125	140	150	175	200
BPHB	32		71	80	90	100	110	125	140	150	175	200
BPHB	40			80	90	100	110	125	140	150	175	200

Ordering Example: (12) BPHB 32-125 M2  
M2, R/c 60-63 triple tempered





# Ball-Lock Punch Light Duty



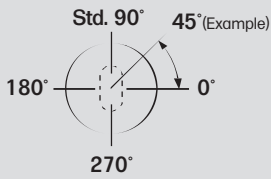
Ordering Example:  
(12) BPLR 6-13-63 M2 P4.2

Ordering Example:  
(15) BPLO 25-19-80 M2 P21.6 W12.2 BS-90

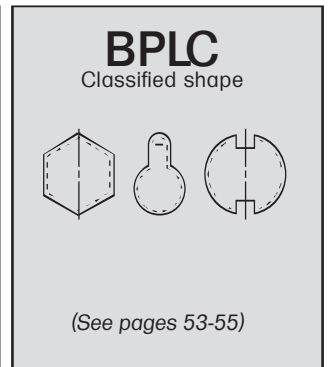
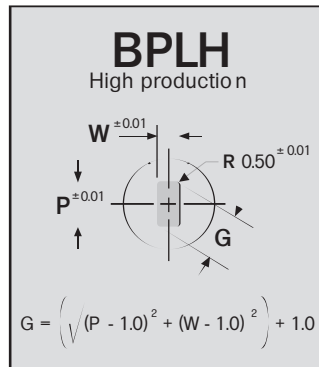
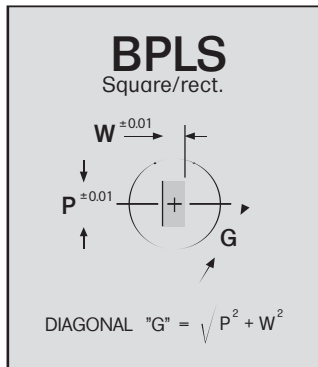
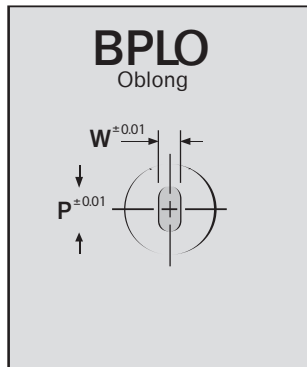
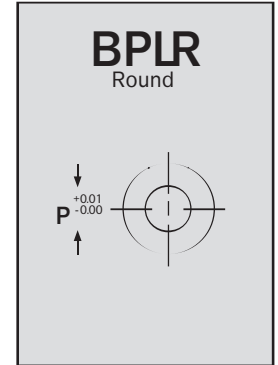
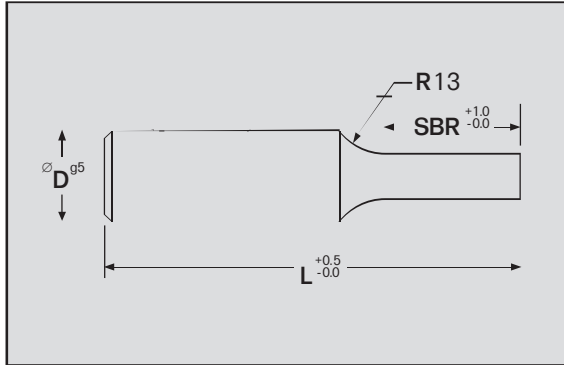
A2, R/c 60-63 double tempered  
M2, R/c 60-63 triple tempered

Round P to D	0.01	
Shape P & W to D	0.02	

Ball Seat Location shown in Die Position



Angle from 0° must be specified.  
90° IS FURNISHED IF NOT SPECIFIED.



Type	"D"	Point Length "SBR"				Overall Length "L"							Round "P" min.	Shape "W" min.
		8	13	19	25	50	56	63	71	80	90	100		
BPL_	6	8	13			50	56	63	71	80			1.4	1.4
BPL_	10		13	19		50	56	63	71	80	90	100	1.4	1.4
BPL_	13		13	19		50	56	63	71	80	90	100	4.0	4.0
BPL_	16		13	19	25		56	63	71	80	90	100	6.0	6.0
BPL_	20		13	19	25		56	63	71	80	90	100	6.0	6.0
BPL_	25		13	19	25		56	63	71	80	90	100	8.0	8.0
BPL_	32		13	19	25				71	80	90	100	10.0	10.0
BPL_	38			19	25					80	90	100	12.0	12.0

L = 50, max. SBR = 13  
L = 56, max. SBR = 19

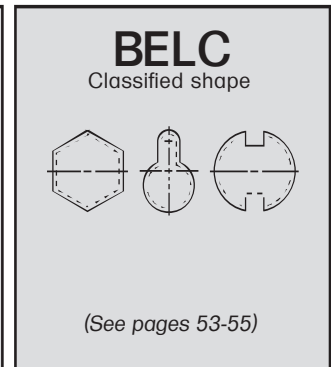
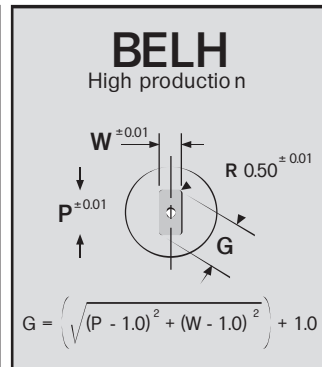
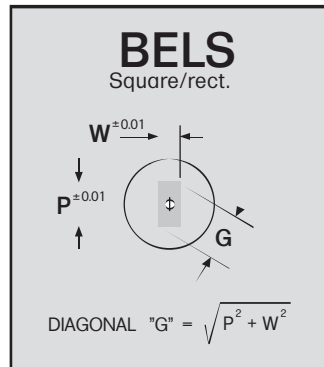
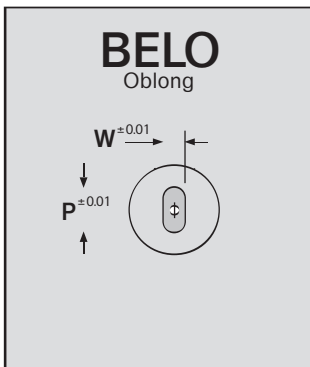
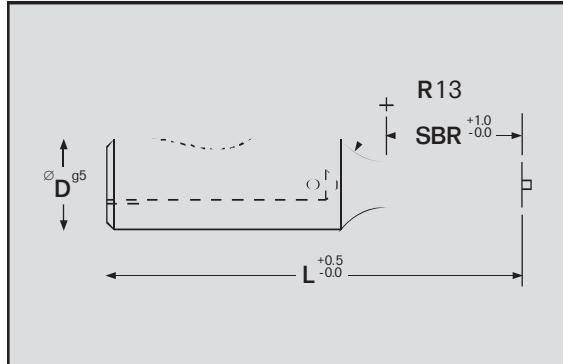
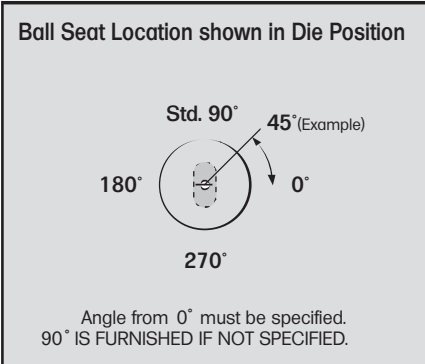
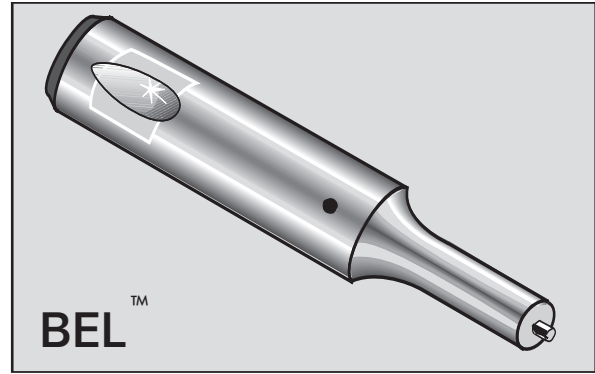
# Ball-Lock Ejector Light Duty

Ordering Example:  
(12) BELR 13-13-71 M2 P10.1

Ordering Example:  
(12) BELO 20-19-80 M2 P18.2 W9.5 BS-90°

A2, R/c 60-63 double tempered  
M2, R/c 60-63 triple tempered

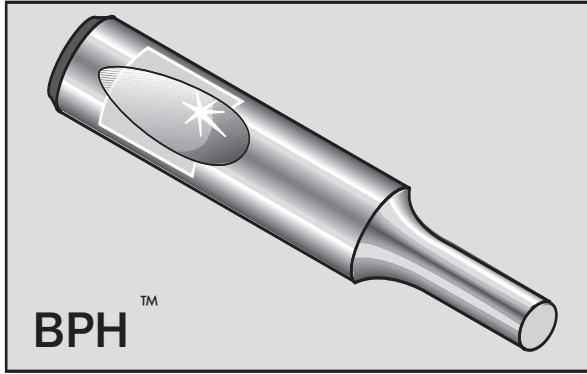
Round P to D	0.01	
Shape P & W to D	0.02	



Type	"D"	Point Length "SBR"				Overall Length "L"							Round "P" min.	Shape "W" min.	Ejector Type
		8	13	19	25	50	56	63	71	80	90	100			
BEL_	6	8	13			50	56	63	71	80			1.9	1.9	E2AM
BEL_	10		13	19		50	56	63	71	80	90	100	2.9	2.9	E4M
BEL_	13		13	19		50	56	63	71	80	90	100	4.0	4.0	E6M
BEL_	16		13	19	25		56	63	71	80	90	100	6.0	6.0	E9M
BEL_	20		13	19	25		56	63	71	80	90	100	6.0	6.0	E9M
BEL_	25		13	19	25		56	63	71	80	90	100	8.0	8.0	E9M
BEL_	32		13	19	25				71	80	90	100	10.0	10.0	E12M
BEL_	38			19	25					80	90	100	12.0	12.0	E12M

L = 50, max. SBR = 13  
L = 56, max. SBR = 19

# Ball-Lock Punch Heavy Duty



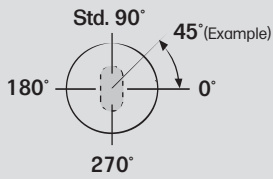
Ordering Example:  
(12) BPHR 13-13-71 M2 P10.1

Ordering Example:  
(15) BPHO 20-19-80 M2 P18.2 W9.5 BS-90°

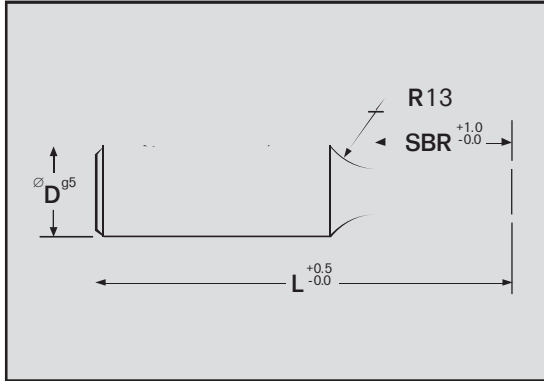
M2, R/c 60-63 triple tempered

Round P to D	0.01	
Shape P&W to D	0.02	

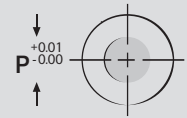
Ball Seat Location shown in Die Position



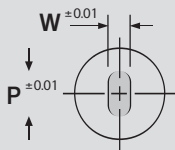
Angle from 0° must be specified.  
90° IS FURNISHED IF NOT SPECIFIED.



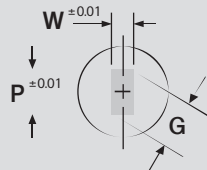
**BPHR**  
Round



**BPHO**  
Oblong

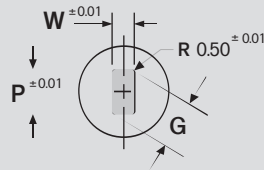


**BPHS**  
Square/rect.



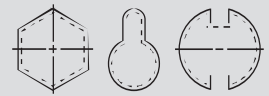
$$\text{DIAGONAL "G"} = \sqrt{P^2 + W^2}$$

**BPHH**  
High production



$$G = \left( \sqrt{(P - 1.0)^2 + (W - 1.0)^2} \right) + 1.0$$

**BPHC**  
Classified shape



(See pages 53-55)

Type	"D"	Point Length "SBR"					Overall Length "L"							Round Min. "P"	Shape Min. "W"
		10	13	19	25	32	63	71	80	90	100	110	125		
BPH_	10	10	13	19			63	71	80	90	100			1.4	1.4
BPH_	13		13	19			63	71	80	90	100	110	125	2.1	2.1
BPH_	16		13	19	25		63	71	80	90	100	110	125	5.0	5.0
BPH_	20		13	19	25		63	71	80	90	100	110	125	6.0	6.0
BPH_	25		13	19	25			71	80	90	100	110	125	8.0	8.0
BPH_	32		13	19	25			71	80	90	100	110	125	10.0	10.0
BPH_	40			19	25	32			80	90	100	110	125	12.0	12.0

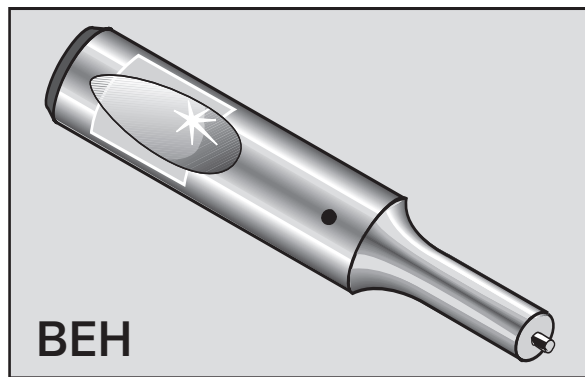
# Ball-Lock Ejector Heavy Duty

Ordering Example:  
(12) BEHR 13-13-71 M2 P10.1

Ordering Example:  
(12) BEHO 20-19-80 M2 P18.2 W9.5 BS-90°

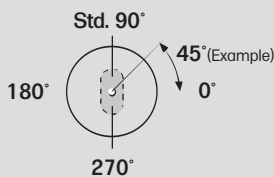
M2 R/c 60-63 triple tempered

Round P to D	0.01	
Shape P&W to D	0.02	

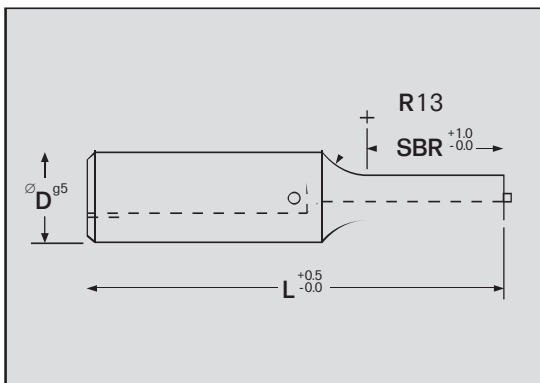


BEH

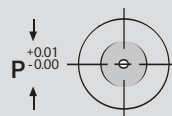
Ball Seat Location shown in Die Position



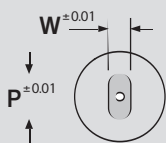
Angle from 0° must be specified.  
90° IS FURNISHED IF NOT SPECIFIED.



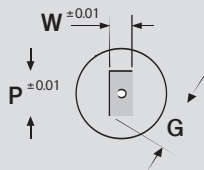
BEHR  
Round



BEHO  
Oblong

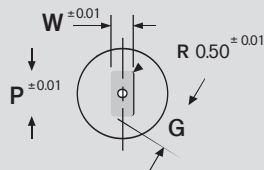


BEHS  
Square/rect



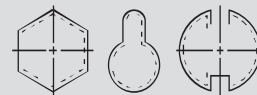
$$\text{DIAGONAL "G"} = \sqrt{P^2 + W^2}$$

BEHH  
High production



$$G = \left( \sqrt{(P - 1.0)^2 + (W - 1.0)^2} \right) + 1.0$$

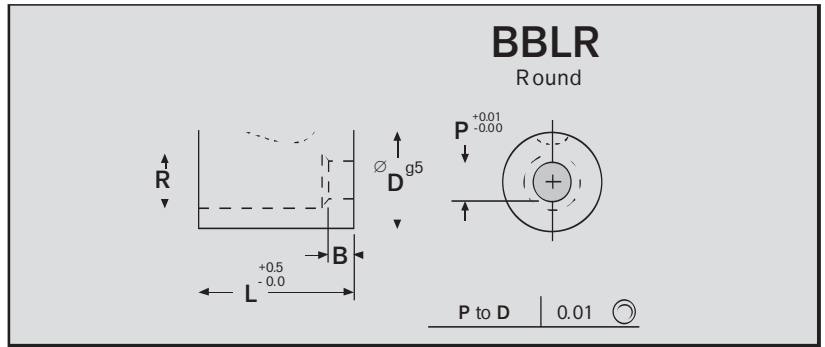
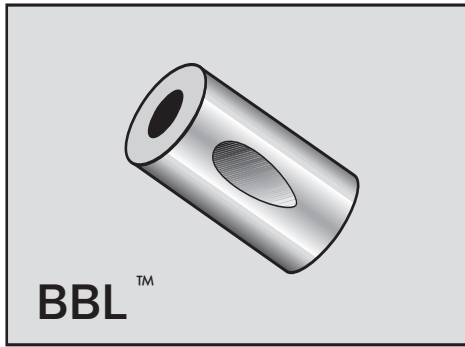
BEHC  
Classified Shape



(See pages 53-55)

Type	"D"	Point Length "SBR"					Overall Length "L"							Round Min. "P"	Shape Min. "W"	Ejector Type
		10	13	19	25	32	63	71	80	90	100	110	125			
BEH_	10	10	13	19			63	71	80	90	100	110		2.9	2.9	E4M
BEH_	13		13	19			63	71	80	90	100	110	125	4.0	4.0	E6M
BEH_	16		13	19	25		63	71	80	90	100	110	125	6.0	6.0	E9M
BEH_	20		13	19	25		63	71	80	90	100	110	125	6.0	6.0	E9M
BEH_	25		13	19	25			71	80	90	100	110	125	8.0	8.0	E9M
BEH_	32		13	19	25			71	80	90	100	110	125	10.0	10.0	E12M
BEH_	40			19	25	32			80	90	100	110	125	12.0	12.0	E12M

# Ball-Lock Button Light Duty

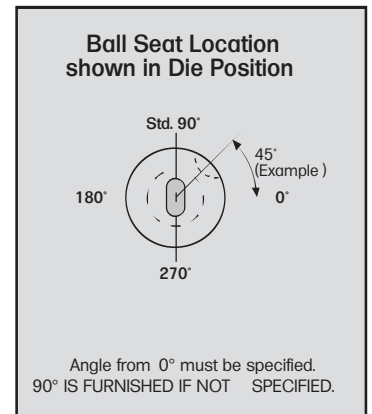
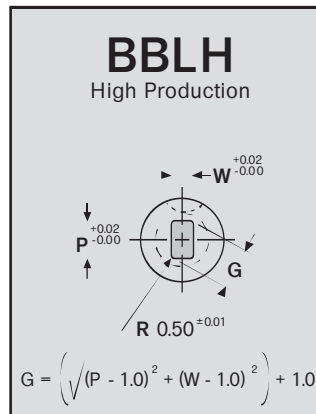
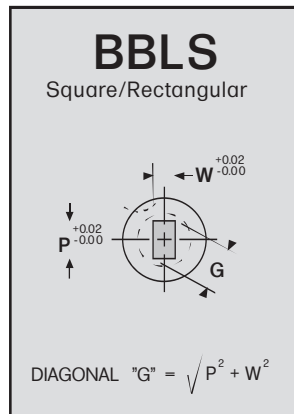
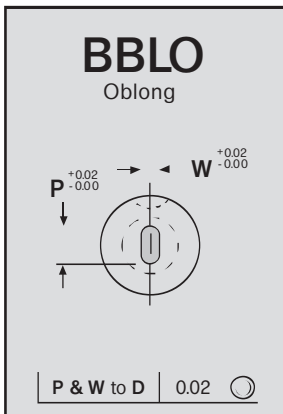


Type	"D"	Land "B"	Length "L"	Min. "P"	Max. "P"	Max. "R"
BBLR	13	4.0	32	1.5	5.0	5.8
BBLR	16	5.0	32	3.2	7.2	8.0
BBLR	20	5.0	32	4.0	11.0	11.9
BBLR	25	6.0	32	8.0	15.0	16.0
BBLR	32	6.0	32	11.0	19.0	20.0
BBLR	38	8.0	32	16.5	26.0	27.0

Ordering Example:  
(10) BBLR 20-32 A2 P9,8

Ordering Example:  
(10) BBLO 13-32 A2 P4.4 W1.3 BS-90°

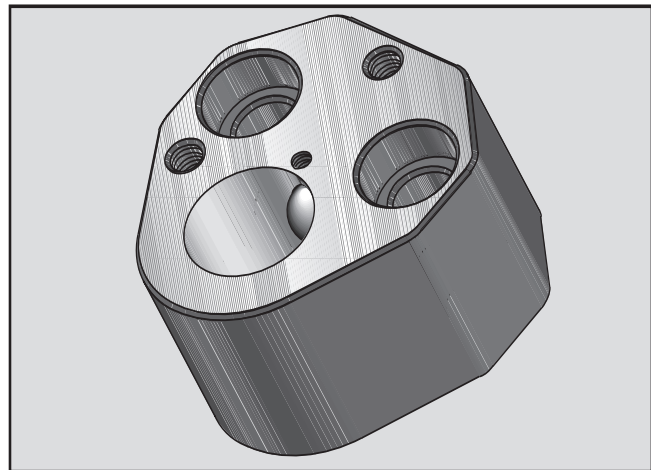
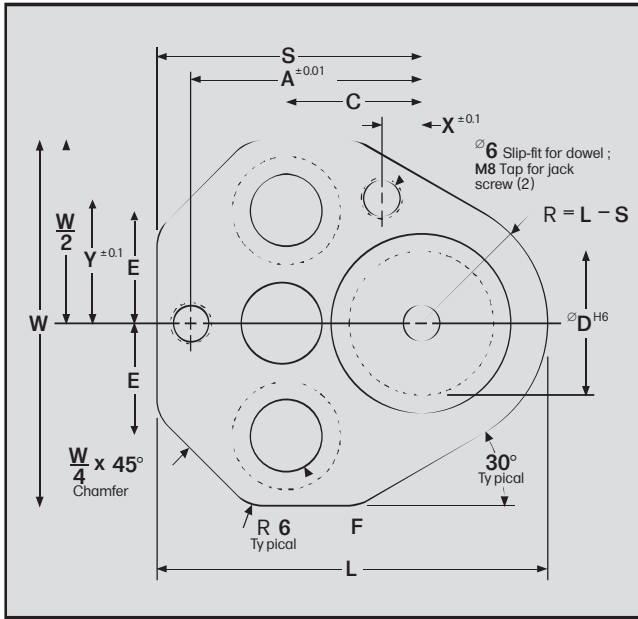
A2, R/c 60-63 double tempered



Type	"D"	Land "B"	Overall Length "L"	Min. "W"	Max. "P"/"G"	Max. "R"
BBL_	13	4.0	32	1.2	5.0	5.8
BBL_	16	5.0	32	2.0	7.2	8.0
BBL_	20	5.0	32	2.4	11.0	11.9
BBL_	25	6.0	32	4.0	15.0	16.0
BBL_	32	6.0	32	4.8	19.0	20.0
BBL_	38	8.0	32	6.4	26.0	27.0

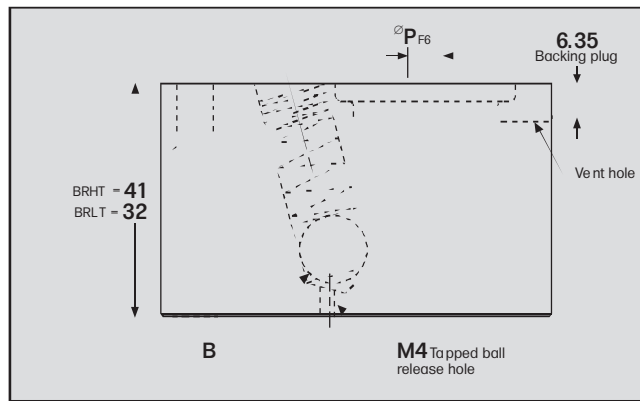
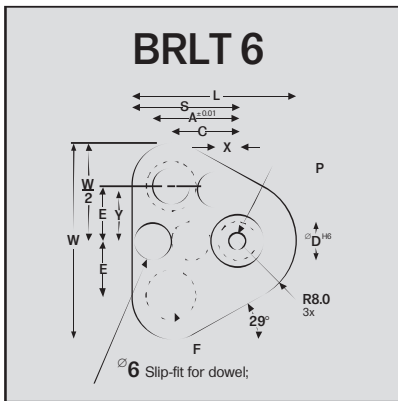
# Ball-Lock Retainer Heavy Duty Tru-Lock

## Ball-Lock Retainer Light Duty Tru-Lock



Ordering Example: (36) BRHT 25

- Retainer set includes:  
 2 Socket head cap screws  
 2 Vented and tapped dowels  
 1 Ball release set screw



### Heavy-Duty

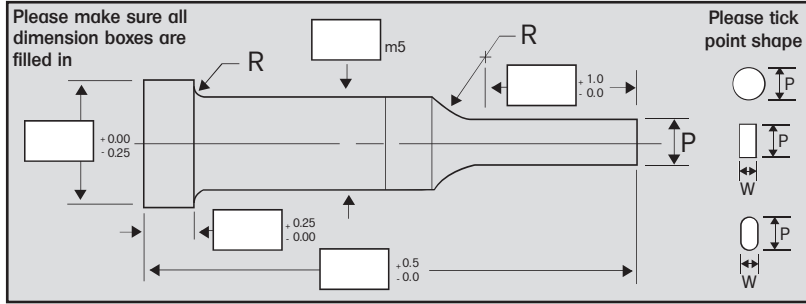
Type	"D"	"W"	"L"	"S"	"A"	"C"	"E"	"X"	"Y"	"B"	"F"
BRHT	10	41.0	43.5	34.0	26.924	19.05	11.12	7.5	9.0	10.0	M8
BRHT	13	48.5	49.6	37.0	29.972	19.05	14.27	6.5	12.0	12.0	M8
BRHT	16	51.7	52.7	38.6	31.750	19.05	15.87	6.0	13.5	12.0	M8
BRHT	20	56.8	59.3	41.9	33.528	19.05	17.47	5.0	16.5	12.0	M10
BRHT	25	64.5	68.9	46.7	40.640	23.82	19.84	7.0	22.0	12.0	M12
BRHT	32	64.5	68.9	46.7	40.640	23.82	19.84	7.0	22.0	12.0	M12
BRHT	40	72.9	76.4	50.5	43.993	27.00	24.00	10.0	26.0	12.0	M12

### Light-Duty

Type	"D"	"W"	"L"	"S"	"A"	"C"	"E"	"X"	"Y"	"B"	"P"	"F"
BRLT	6	37.5	35.0	27.0	23.000	19.00	11.10	9.0	8.0	6.0	3.0	M6
BRLT	10	41.0	43.5	34.0	26.924	19.05	11.12	7.5	9.0	8.0	6.0	M8
BRLT	13	48.5	49.6	37.0	29.972	19.05	14.27	6.5	12.0	8.0	6.0	M8
BRLT	16	51.7	52.7	38.6	31.750	19.05	15.87	6.0	13.5	8.0	6.0	M8
BRLT	20	56.8	59.3	41.9	33.528	19.05	17.47	5.0	16.5	8.0	6.0	M10
BRLT	25	64.5	68.9	46.7	40.640	23.82	19.84	7.0	22.0	8.0	6.0	M12
BRLT	32	64.5	68.9	46.7	40.640	23.82	19.84	7.0	22.0	8.0	6.0	M12
BRLT	38	72.9	76.4	50.5	43.993	27.00	24.00	10.0	26.0	8.0	6.0	M12

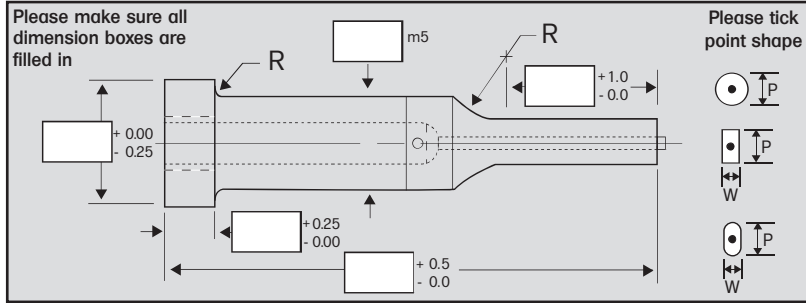
# Special Punches & Dies Made to Order

## Solid Punch



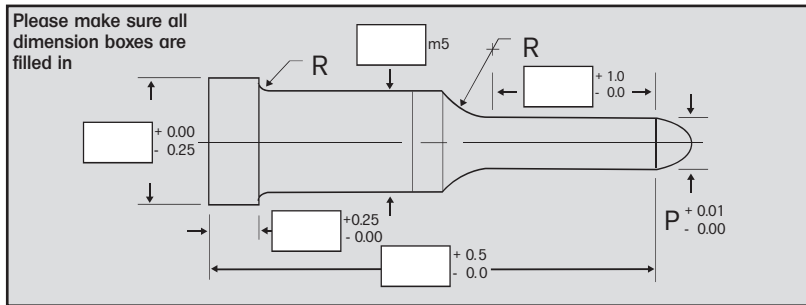
P=	W=	QTY=
P=	W=	QTY=
P=	W=	QTY=
Please tick material required below		
MAT TYPE	HSS	TOOLSTEEL

## Ejector Punch



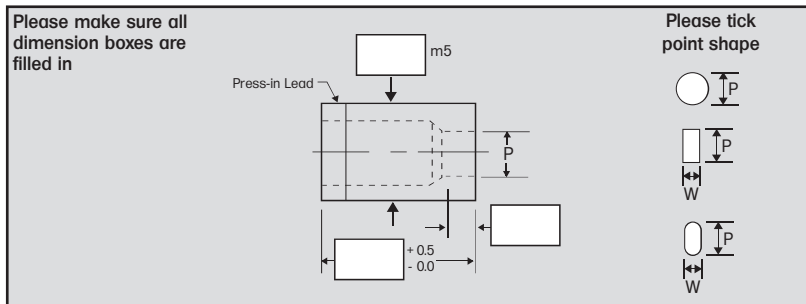
P=	W=	QTY=
P=	W=	QTY=
P=	W=	QTY=
Please tick material required below		
MAT TYPE	HSS	TOOLSTEEL

## Parabolic Pilot



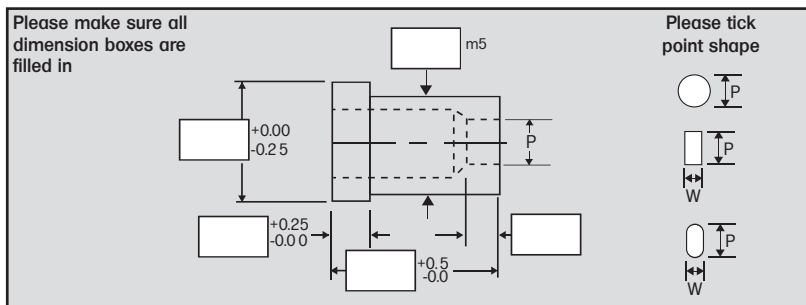
P=	QTY=
P=	QTY=
P=	QTY=
Please tick material required below	
MAT TYPE	HSS
	TOOLSTEEL

## Die Button Press Fit



P=	W=	QTY=
P=	W=	QTY=
P=	W=	QTY=
Please tick material required below		
MAT TYPE	HSS	TOOLSTEEL

## Die Button Shoulder



P=	W=	QTY=
P=	W=	QTY=
P=	W=	QTY=
Please tick material required below		
MAT TYPE	HSS	TOOLSTEEL