

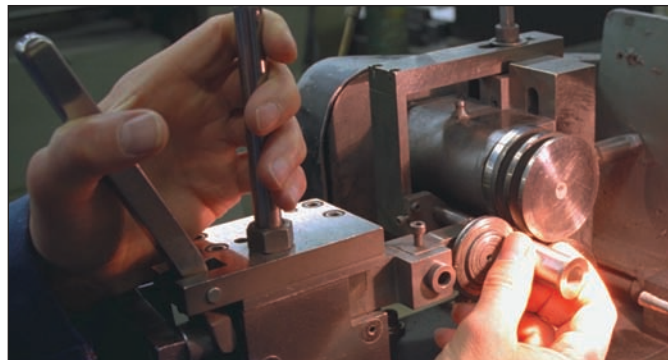
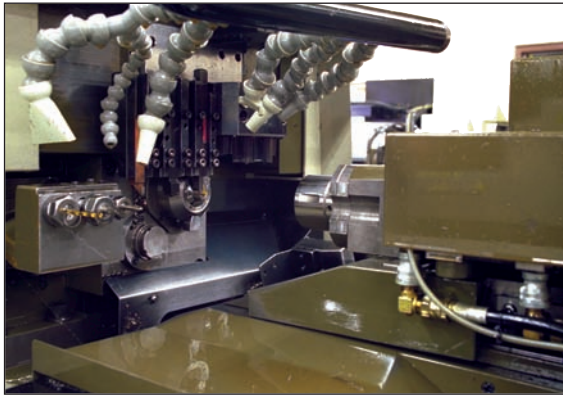
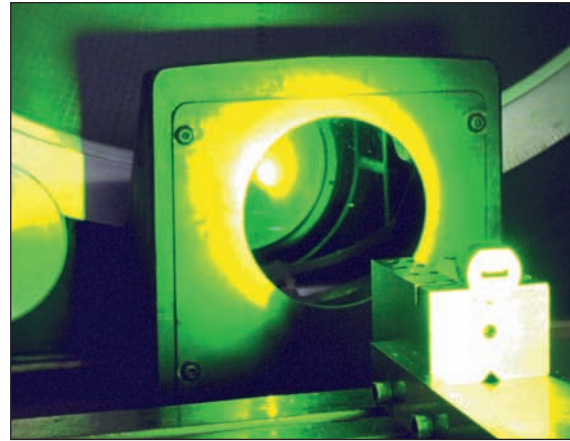
# Selective Basic Ball Lock

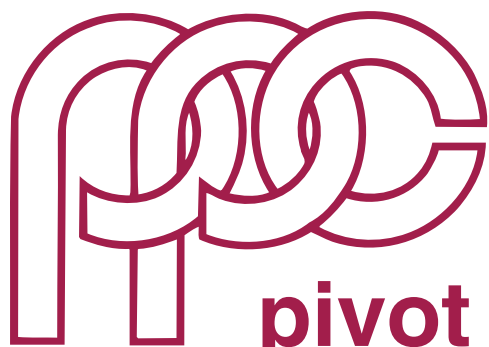
Catalog 4000M



**pivot punch corporation**

*January 2004*





**pivot punch corporation**

# **SELECTIVE SERIES METRIC**

MULTIPLE POINT LENGTH PRECISION  
PUNCHES AND DIE COMPONENTS

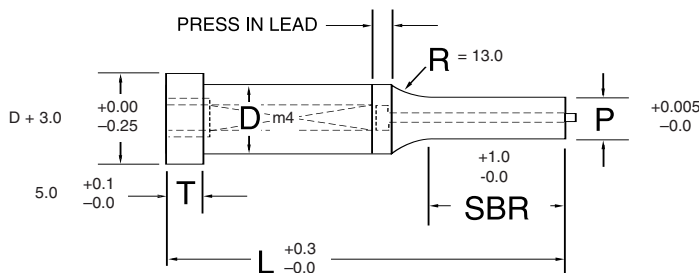
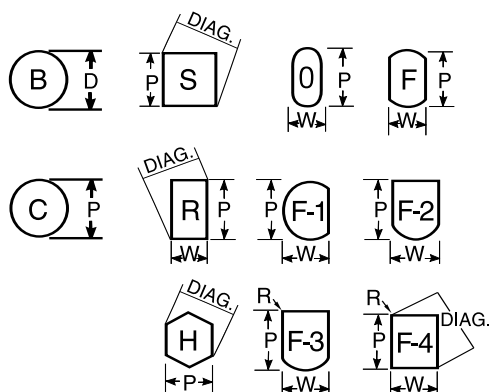
# *SELECTIVE CATALOG INDEX*

## **METRIC**

			<b>Page#</b>
<b>SMS ( )</b>	Solid Punch	<b>M2</b>	5
<b>SME ( )</b>	Ejector Punch	<b>M2</b>	6
<b>SPP</b>	Pilot Punch	<b>M2</b>	7
<b>SLNP</b>	Long Nose Positive Pick Up Pilots	<b>M2</b>	8
<b>MDG ( )</b>	Headless	<b>M2</b>	8
<b>MHG ( )</b>	Headed	<b>M2</b>	9



SME( )



Selective

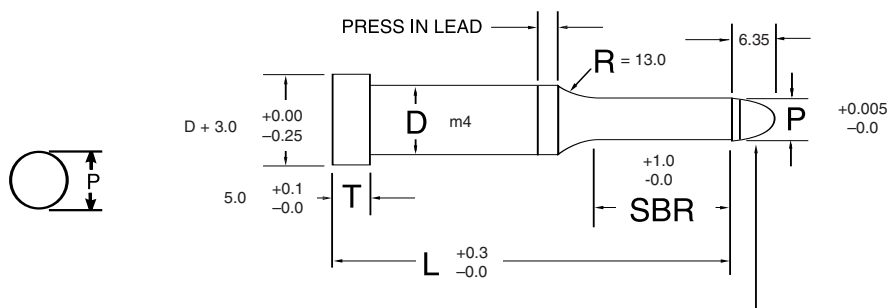
Round & Shape	+0.005 -0.0	T.I.R. = 0.008
---------------	----------------	----------------

D	SBR	Round Range P	Shape Min. W Max. DIAG.	Length = L									
				40.0	45.0	50.0	56.0	60.0	63.0	71.0	80.0	90.0	100.0
05	8.0	1.60- 4.99	1.60- 5.00	4008	4508	5008	5608	6008	6308	7108	8008	9008	10008
06		2.40- 5.99	2.40- 6.00										
05	13.0	1.60- 4.99	1.60- 5.00										
06		2.40- 5.99	2.40- 6.00										
08		3.20- 7.99	3.20- 8.00										
10		4.50- 9.99	4.50-10.00										
13		6.00-12.99	6.00-13.00		4513	5013	5613	6013	6313	7113	8013	9013	10013
16		8.00-15.99	7.20-16.00										
20		9.50-19.99	8.00-20.00										
25		12.00-24.99	9.00-25.00										
32	16.00-31.99	10.00-32.00											
05	19.0	1.60- 4.99	1.60-5.00										
06		2.40- 5.99	2.40- 6.00										
08		3.20- 7.99	3.20- 8.00										
10		4.50- 9.99	4.50-10.00										
13		6.00-12.99	6.00-13.00		4519	5019	5619	6019	6319	7119	8019	9019	10019
16		8.00-15.99	7.20-16.00										
20		9.50-19.99	8.00-20.00										
25		12.00-24.99	9.00-25.00										
32	16.00-31.99	10.00-32.00											
06	25.0	2.40- 5.99	2.40- 6.00										
08		3.20- 7.99	3.20- 8.00										
10		4.50- 9.99	4.50-10.00										
13		6.00-12.99	6.00-13.00										
16		8.00-15.99	7.20-16.00			5625	6025	6325	7125	8025	9025	10025	
20		9.50-19.99	8.00-20.00										
25		12.00-24.99	9.00-25.00										
32	16.00-31.99	10.00-32.00											

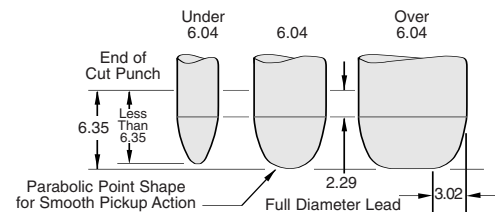
**HOW TO ORDER**

TYPE	SHAPE	DIA. CODE	LENGTH	SBR	"P"	"W"
SME	R	08	50	19	5.60	4.35

**PILOTS**



Parabolic Point Shape for Smooth Pickup Action



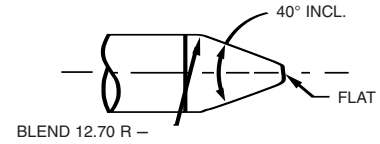
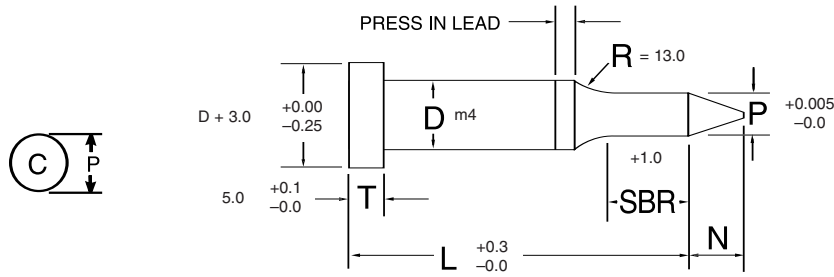
Selective

Round & Shape	+0.005 -0.0	T.I.R. = 0.008
---------------	----------------	----------------

D	SBR	Round Range P	Length = L										
			42.0	47.0	52.0	58.0	62.0	65.0	72.0	73.0	82.0	92.0	102.0
05	10.0	1.55- 5.00											
06		1.55- 6.00											
08		1.95- 8.00	4210	4710	5210	5810	6210	6510	7210	7310	8210	9210	10210
10		2.35-10.00											
05	15.0	1.55- 5.00											
06		1.55- 6.00											
08		2.35- 8.00											
10		3.15-10.00											
13		4.95-13.00		4715	5215	5815	6215	6515	7215	7315	8215	9215	10215
16		7.95-16.00											
20		9.95-20.00											
25		11.95-25.00											
32	15.95-32.00												
05	21.0	1.55- 5.00											
06		1.55- 6.00											
08		2.35-8.00											
10		3.15-10.00											
13		4.95-13.00		4721	5221	5821	6221	6521	7221	7321	8221	9221	10221
16		7.95-16.00											
20		9.95-20.00											
25		11.95-25.00											
32	15.95-32.00												
05	27.0	2.45- 5.00											
06		2.45- 6.00											
08		2.45-8.00											
10		3.15-10.00											
13		4.95-13.00				5827	6227	6527	7227	7327	8227	9227	10227
16		7.95-16.00											
20		9.95-20.00											
25		11.95-25.00											
32	15.95-32.00												

**HOW TO ORDER**

TYPE	DIA. CODE	"L" LENGTH	SBR	"P"
SPP	13	62	15	5.50



Selective

Round +0.005  
 - 0.0 T.I.R. = 0.008

D	SBR	Round Range P	Max. N	Length = L										
				62.0	65.0	72.0	73.0	82.0	92.0	102.0	112.0	127.0	142.0	
10	21.0	4.85-10.00	8.0											
13		6.30-13.00	10.0											
16		9.95-16.00	15.0	6221	6521	7221	7321	8221	9221	10221	11221	12721	14221	
20		13.60-20.00	20.0											
25		17.25-25.00	25.0											
32		20.85-32.00	30.0											
10	27.0	4.85-10.00	8.0											
13		6.30-13.00	10.0											
16		9.95-16.00	15.0	6227	6527	7227	7327	8227	9227	10227	11227	12727	14227	
20		13.60-20.00	20.0											
25		17.25-25.00	25.0											
32		20.85-32.00	30.0											
32	32.0	20.85-32.00	30.0			7232	7332	8232	9232	10232	11732	12732	14232	

**HOW TO ORDER**

TYPE      DIA.      LENGTH      SBR      "P"  
 SLNP    16        82        21        15.0

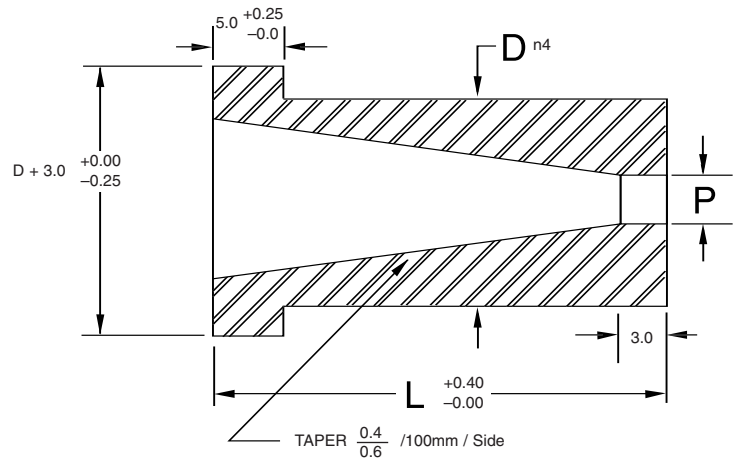
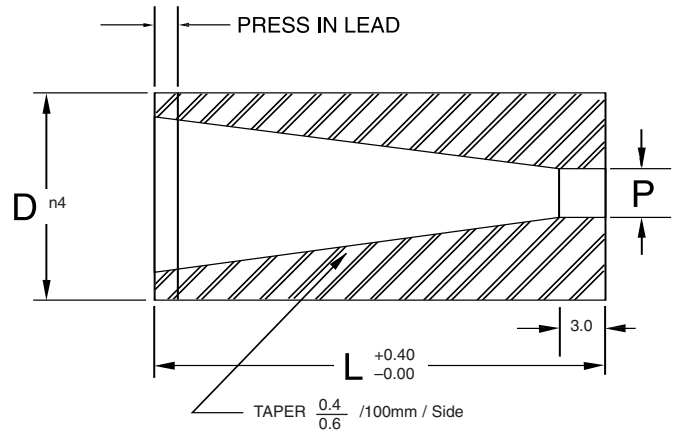
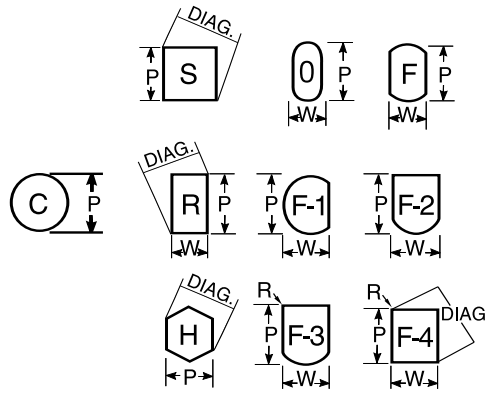


PIVOT PUNCH CORPORATION / SELECTIVE SERIES  
**HEADLESS & HEADED DIE BUTTONS**

ROUND I.D.  
 Ground Taper Relief  
 M-2 High Speed Steel  
 RC 60-62

SHAPED I.D.  
 Wire-Cut Taper Relief  
 M-2 High Speed Steel  
 RC 60-62

**MDG( )**  
**HEADLESS**  
**MHG( )**



**Selective**

Round & Shape	+0.005 - 0.0	T.I.R. = 0.008
---------------	-----------------	----------------

D	Round Range P	Shape Min. W Max. DIAG.	Length = L								
			13.0	16.0	20.0	22.0	25.0	28.0	30.0	32.0	35.0
6.0	1.60-3.20	1.30-3.20	X	X	X	X	X	X	X	X	
8.0	2.40-5.40	1.30-5.40	X	X	X	X	X	X	X	X	X
10.0	3.20-6.80	1.30-6.80	X	X	X	X	X	X	X	X	X
13.0	5.40-8.80	1.90-8.80	X	X	X	X	X	X	X	X	X
16.0	7.40-10.80	1.90-10.80			X	X	X	X	X	X	X
20.0	9.50-13.60	1.90-13.60			X	X	X	X	X	X	X
25.0	12.00-17.00	1.90-17.00			X	X	X	X	X	X	X
32.0	16.00-22.00	1.90-22.00			X	X	X	X	X	X	X
40.0	18.00-27.00	1.90-27.00			X	X	X	X	X	X	X

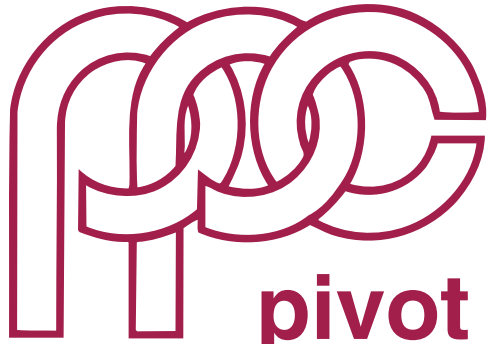
**HOW TO ORDER**

TYPE	DIA. CODE	LENGTH	"P"
MDGC	16	25	8.20

**HOW TO ORDER**

TYPE	DIA. CODE	LENGTH	"P"
MHGC	16	25	8.20





**pivot punch corporation**

**Basic**

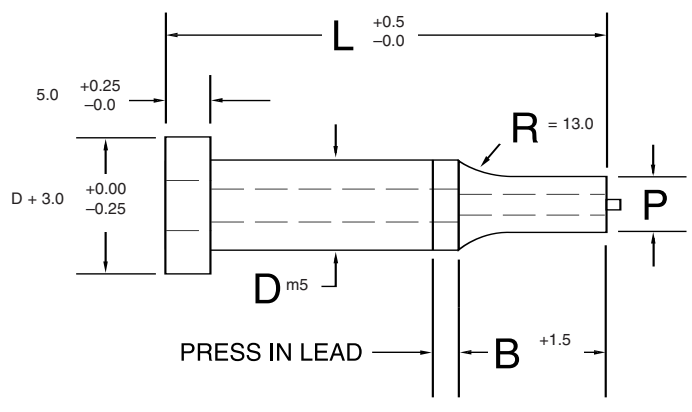
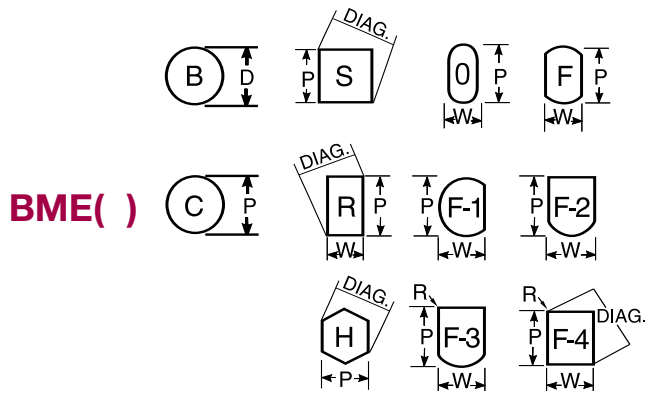
**BASIC  
SERIES  
METRIC**

# *BASIC SERIES CATALOG*

## **METRIC**

			<b>Page#</b>
<b>BMS ( )</b>	Solid Punch	<b>M2</b>	13
<b>BME ( )</b>	Ejector Punch	<b>M2</b>	14
<b>BPP</b>	Pilot Punch	<b>M2</b>	15
<b>BLNP</b>	Long Nose Positive Pick Up Pilots	<b>M2</b>	16
<b>MDG ( )</b>	Headless Die Buttons	<b>M2</b>	17
<b>MHG ( )</b>	Headed Die Buttons	<b>M2</b>	17





**Basic**

Round P	+0.01	T.I.R. = 0.01
Shape P,W	- 0.00	
Shape P,W	±0.01	T.I.R. = 0.02

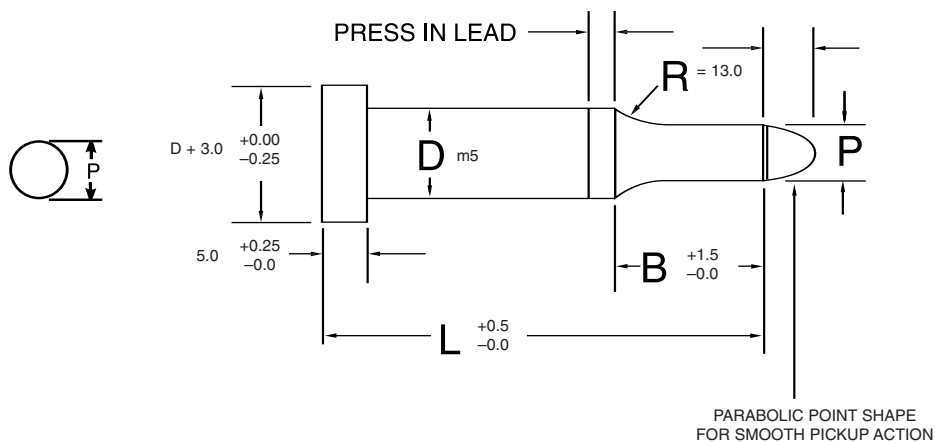
Shank D	Point Length "B"			Min P	Range P	Min. W	Min. Max W P/G	Length = L												
	STD S	Alternate A						40	50	56	60	63	70	71	80	90	100			
	05	16	20						1.3	1.60-5.00	1.6	1.60-4.97	X	X	X	X	X	X	X	
06	16	20		2.0	2.50-6.00	2.5	2.50-5.97	X	X	X	X	X	X	X	X					
08	20	25		3.0	3.00-8.00	3.0	3.00-7.97	X	X	X	X	X	X	X	X					
10	20	25		4.0	4.50-10.00	4.0	4.50-9.97		X	X	X	X	X	X	X		X	X		
13	20	25		4.0	6.00-13.00	4.0	6.00-12.97		X	X	X	X	X	X	X		X	X	X	
16	25	32		6.0	8.00-16.00	6.0	6.30-15.97		X	X	X	X	X	X	X		X	X	X	
20	25	32		6.0	12.00-20.00	6.0	8.00-19.97			X	X	X	X	X	X		X	X	X	
25	25	32		8.0	16.00-25.00	6.0	10.00-24.97			X	X	X	X	X	X		X	X	X	
32	32	38		10.0	24.00-32.00	6.0	12.50-31.97					X	X	X	X		X	X	X	

P,W Increments = 0.01

L=40, Max B=13  
 L=50, Max B=25

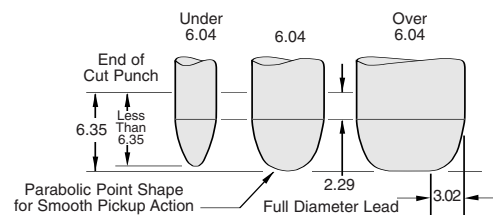
**HOW TO ORDER**

TYPE	SHAPE	DIA. CODE	"L"	B	"P"	"W"
BME	0	08	50	S	5.60	4.35



Basic

Round P	+0.01 -0.00	T.I.R. = 0.01
---------	----------------	---------------



Shank D	Point Length "B"		Min P	Range P	Length = L										
	STD S	Alternate A			40	50	56	60	63	70	71	80	90	100	
05	16	20	1.9	1.90-5.00	X	X	X	X	X	X	X	X	X	X	X
06	16	20	1.9	1.90-6.00	X	X	X	X	X	X	X	X	X	X	X
08	20	25	2.4	2.40-8.00	X	X	X	X	X	X	X	X	X	X	X
10	20	25	2.4	3.90-10.00		X	X	X	X	X	X	X	X	X	X
13	20	25	3.2	4.90-13.00		X	X	X	X	X	X	X	X	X	X
16	25	32	6.0	7.90-16.00		X	X	X	X	X	X	X	X	X	X
20	25	32	7.6	11.90-20.00			X	X	X	X	X	X	X	X	X
25	25	32	10.0	15.90-25.00				X	X	X	X	X	X	X	X
32	32	38	10.0	23.90-32.00						X	X	X	X	X	X

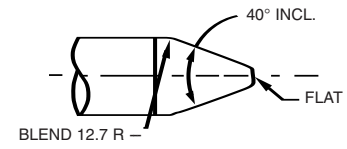
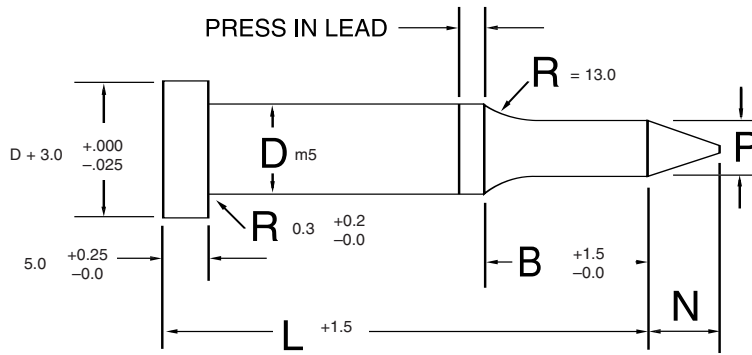
P,W Increments = 0.01

L=40, Max B=13  
L=50, Max B=25

**HOW TO ORDER**

TYPE	DIA. CODE	"L"	B	"P"
BPP	13	80	S	6.80

**BLNP**



**Basic**

Round P	+0.01 -0.00	T.I.R. = 0.01
---------	----------------	---------------

Shank D	STD S	Alternate A	Point Length "B"			Length = L							
			Min P	Range P	Max N	63	71	80	90	100	110	125	140
10	20	25	2.1	4.70-10.00	8.0	X	X	X	X	X	X		
13	20	25	3.2	4.90-13.00	10.0	X	X	X	X	X	X	X	
16	25	32	5.0	7.90-16.00	15.0		X	X	X	X	X	X	X
20	25	32	6.0	11.90-20.00	20.0		X	X	X	X	X	X	X
25	25	32	8.0	15.90-25.00	25.0		X	X	X	X	X	X	X
32	32	38	10.0	23.90-32.00	30.0			X	X	X	X	X	X

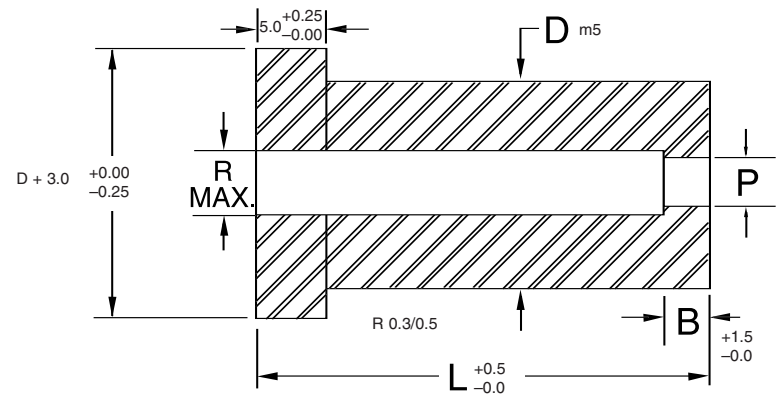
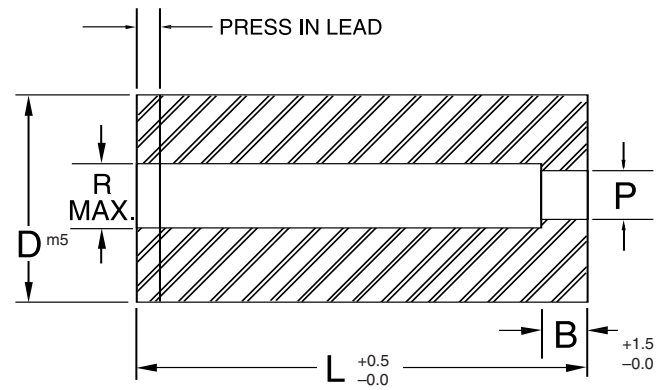
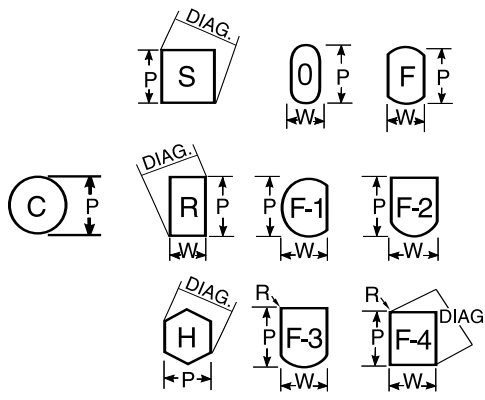
Under 4.7P pilot nose is 1.5P. P,W Increments = 0.01

**HOW TO ORDER**

TYPE	DIA. CODE	"L"	B	"P"
BLNP	13	100	S	11.50



**MD( )**  
**HEADLESS**  
**MH( )**



**Basic**

Round P	+0.01	T.I.R. = 0.01
	- 0.00	
Shape P,W	+0.02	T.I.R. = 0.02
	- 0.00	

D	B	R.Max	Range P	Min W	Max Diag.	Length = L						
						20	22	25	28	30	32	35
8.0	4.0	4.0	1.50-3.20	-	-	X	X	X	X	X	X	X
10.0	4.0	6.0	1.50-5.00	1.20-5.00	-	X	X	X	X	X	X	X
13.0	5.0	8.0	1.50-7.20	2.00-7.20	-	X	X	X	X	X	X	X
16.0	5.0	9.5	5.00-8.80	2.40-8.80	-	X	X	X	X	X	X	X
20.0	5.0	12.0	7.00-11.00	3.20-11.00	-	X	X	X	X	X	X	X
22.0	6.0	15.0	9.00-14.00	4.00-14.00	-	X	X	X	X	X	X	X
25.0	6.0	17.5	11.00-16.50	4.80-16.50	-	X	X	X	X	X	X	X
32.0	6.0	21.0	13.00-20.00	5.50-20.00	-	X	X	X	X	X	X	X
38.0	8.0	27.0	16.00-26.00	6.40-26.00	-	X	X	X	X	X	X	X

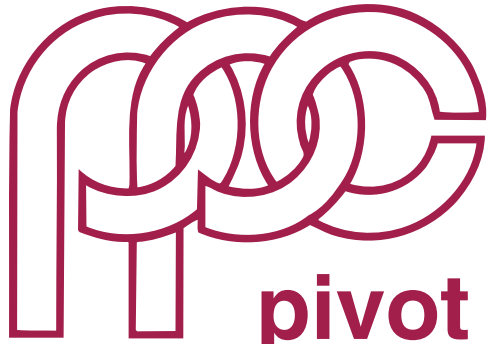
**HOW TO ORDER**

TYPE	DIA. CODE	"L"	"P"
MDC	13	25	3.50

**HOW TO ORDER**

TYPE	DIA. CODE	"L"	"P"
MHC	13	25	3.50





**pivot punch corporation**

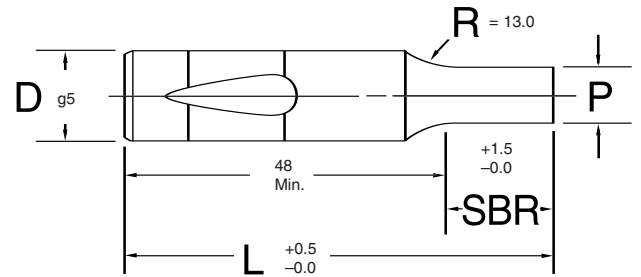
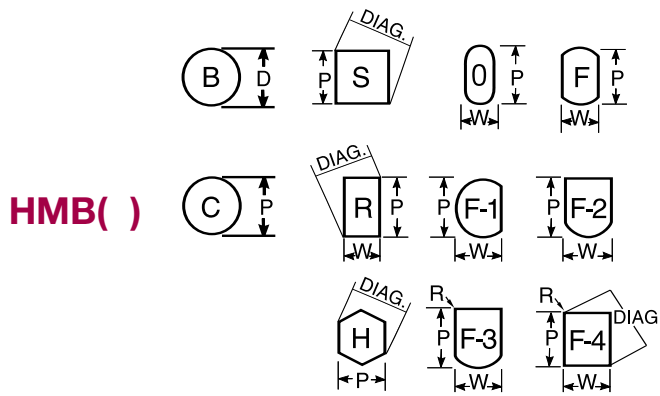
**BALL  
LOCK  
METRIC**

**Ball Lock**

# *BALL LOCK CATALOG*

## **METRIC**

			<b>Page#</b>
<b>HMB ( )</b>	Solid Punch Heavy Duty	<b>M2</b>	21
<b>LMB ( )</b>	Solid Punch Light Duty	<b>M2</b>	21
<b>HME ( )</b>	Ejector Punch Heavy Duty	<b>M2</b>	22
<b>LME ( )</b>	Ejector Punch Light Duty	<b>M2</b>	22
<b>LMN ( )</b>	Regular Pilot Light Duty	<b>M2</b>	23
<b>LML ( )</b>	Long Nose Pilot Punch Light Duty	<b>M2</b>	23
<b>HMN ( )</b>	Regular Pilot Heavy Duty	<b>M2</b>	24
<b>HML ( )</b>	Long Nose Pilot Punch Heavy Duty	<b>M2</b>	24
<b>MBC ( )</b>	Ball Lock Die Button	<b>M2</b>	25
<b>Retainers</b>	Metric Retainers available upon request		26



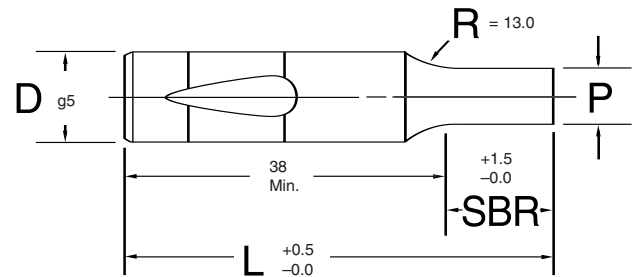
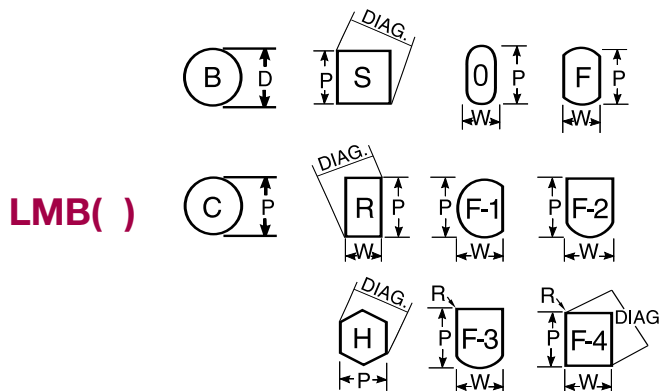
Round P	+0.01	T.I.R. = 0.01
	-0.00	
Shape P,W	±0.01	T.I.R. = 0.02

Shank D	SBR			Range "P"	Min. W	Max. Diag.	Length = L							
	ALT A	STD	ALT B				50	56	63	71	80	90	100	110
10	10	19	-	1.60-10.00	3.00-9.97	X	X	X	X	X	X	X	X	X
13	13	19	-	5.00-13.00	5.00-12.97	X	X	X	X	X	X	X	X	X
16	13	19	25	8.00-16.00	8.00-15.97			X	X	X	X	X	X	X
20	13	19	25	12.00-20.00	12.00-19.97			X	X	X	X	X	X	X
25	13	19	25	16.00-25.00	16.00-24.97			X	X	X	X	X	X	X
32	13	19	25	24.00-32.00	24.10-31.97				X	X	X	X	X	X
40	19	25	30	30.00-40.00	30.00-39.97					X	X	X	X	X

**HOW TO ORDER**

TYPE: HMBC    DIA. CODE: 10    "L": 71    SBR: S    "P": 3.5

**LIGHT DUTY SOLID PUNCH**



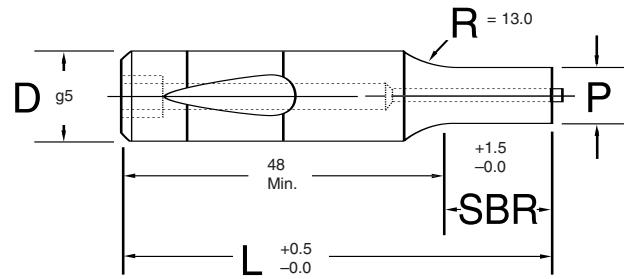
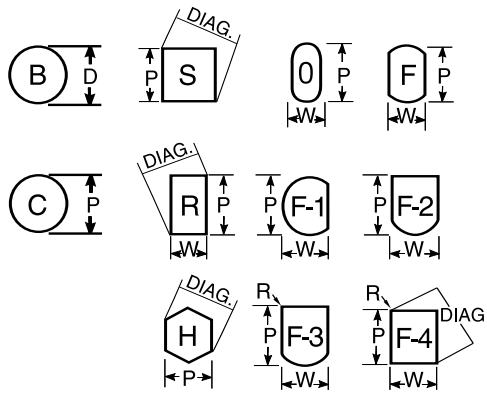
Round P	+0.01	T.I.R. = 0.01
	-0.00	
Shape P,W	±0.01	T.I.R. = 0.02

Shank D	SBR			Range "P"	Min. W	Max. Diag.	Length = L					
	ALT A	STD	ALT B				50	56	63	71	80	90
06	10	13		1.60-6.00	1.60-5.97	X	X	X	X	X	X	X
10	10	19		1.60-10.00	3.00-9.97	X	X	X	X	X	X	X
13	13	19		5.00-13.00	4.50-12.97	X	X	X	X	X	X	X
16	13	19	25	8.00-16.00	6.00-15.97			X	X	X	X	X
20	13	19	25	12.00-20.00	8.00-19.97			X	X	X	X	X
25	13	19	25	16.00-25.00	10.00-24.97			X	X	X	X	X
32	13	19	25	24.00-32.00	12.50-31.97				X	X	X	X
38	19	25	30	30.00-38.00	14.00-37.97					X	X	X

**HOW TO ORDER**

TYPE: LMBC    DIA. CODE: 13    "L": 80    SBR: A    "P": 6.5

# HEAVY DUTY EJECTOR PUNCH



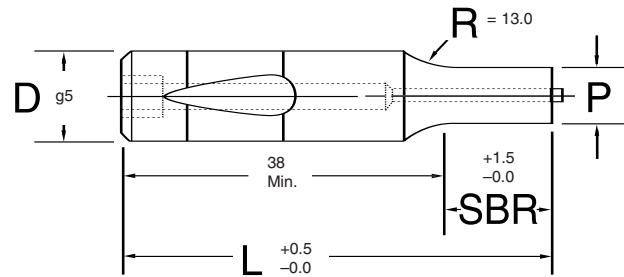
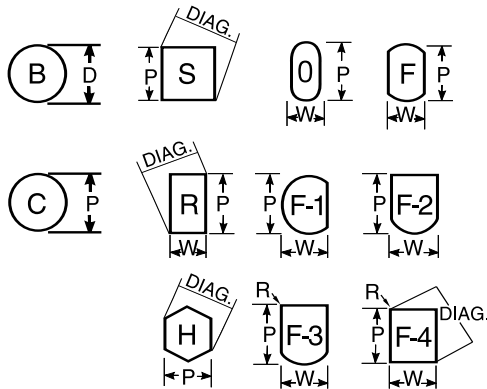
Round P	+0.01	T.I.R. = 0.01
	-0.00	
Shape P,W	±0.01	T.I.R. = 0.02

Shank D	SBR			Range "P"	Min. W	Max. Diag.	Length = L							
	ALT A	STD	ALT B				50	56	63	71	80	90	100	110
10	10	19	-	1.60-10.00	3.00-9.97	X	X	X	X	X	X	X	X	X
13	13	19	-	5.00-13.00	4.50-12.97	X	X	X	X	X	X	X	X	X
16	13	19	25	8.00-16.00	6.00-15.97			X	X	X	X	X	X	X
20	13	19	25	12.00-20.00	8.00-19.97			X	X	X	X	X	X	X
25	13	19	25	16.00-25.00	10.00-24.97			X	X	X	X	X	X	X
32	13	19	25	24.00-32.00	12.50-31.97			X	X	X	X	X	X	X
40	19	25	30	30.00-40.00	14.00-39.97				X	X	X	X	X	X

## HOW TO ORDER

TYPE DIA. CODE "L" SBR "P"  
 HMEC 13 80 S 7.0

# LIGHT DUTY EJECTOR PUNCH



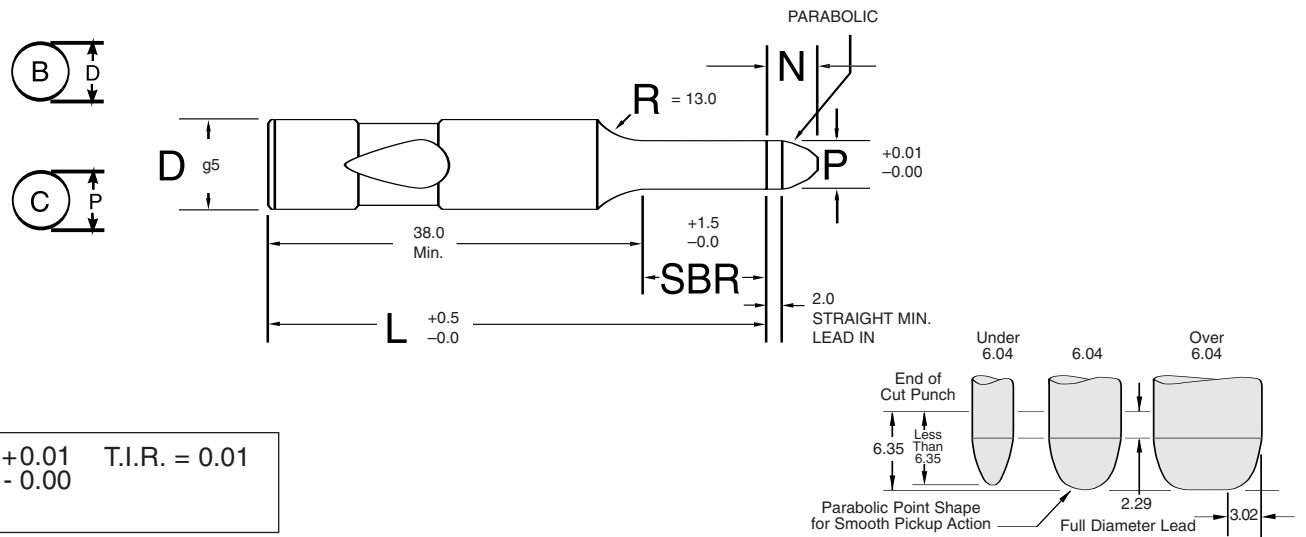
Round P	+0.01	T.I.R. = 0.01
	-0.00	
Shape P,W	±0.01	T.I.R. = 0.02

Shank D	SBR			Range "P"	Min. W	Max. Diag.	Length = L						
	ALT A	STD	ALT B				50	56	63	71	80	90	100
06	10	13	-	1.60- 6.00	1.60-5.97	X	X	X	X	X	X	X	X
10	10	19	-	1.60-10.00	3.00-9.97	X	X	X	X	X	X	X	X
13	13	19	-	5.00-13.00	4.50-12.97	X	X	X	X	X	X	X	X
16	13	19	25	8.00-16.00	6.00-15.97			X	X	X	X	X	X
20	13	19	25	12.00-20.00	8.00-19.97			X	X	X	X	X	X
25	13	19	25	16.00-25.00	10.00-24.97			X	X	X	X	X	X
32	13	19	25	24.00-32.00	12.50-31.97			X	X	X	X	X	X
38	19	25	30	30.00-38.00	14.00-37.97				X	X	X	X	X

## HOW TO ORDER

TYPE DIA. CODE "L" SBR "P"  
 LMEC 13 71 S 6.5

**LIGHT DUTY REGULAR PILOT**



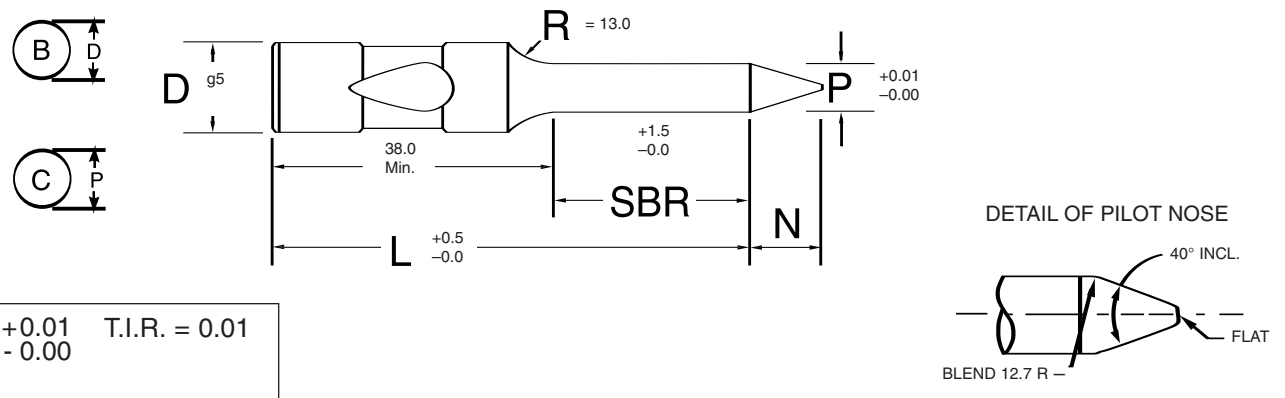
Round P +0.01 T.I.R. = 0.01  
-0.00

Shank D	SBR			Range P	Nose Length Range N	Length = L						
	ALT A	STD	ALT B			50	56	63	71	80	90	100
6.0	10	13	-	1.58-6.00	6-10	X	X	X	X	X	X	X
10.0	10	19	-	1.58-10.00	6-10	X	X	X	X	X	X	X
13.0	13	19	-	4.98-13.00	6-10	X	X	X	X	X	X	X
16.0	13	19	25	7.98-16.00	8-10			X	X	X	X	X
20.0	13	19	25	11.98-20.00	8-10			X	X	X	X	X
25.0	13	19	25	15.98-25.00	8-10			X	X	X	X	X
32.0	13	19	25	23.98-32.00	9-10				X	X	X	X
38.0	19	25	30	29.98-38.00	10					X	X	X

**HOW TO ORDER**

TYPE DIA. CODE "L" SBR "P"  
LMNC 16 80 S 9.0

**LIGHT DUTY LONG NOSE PILOT**



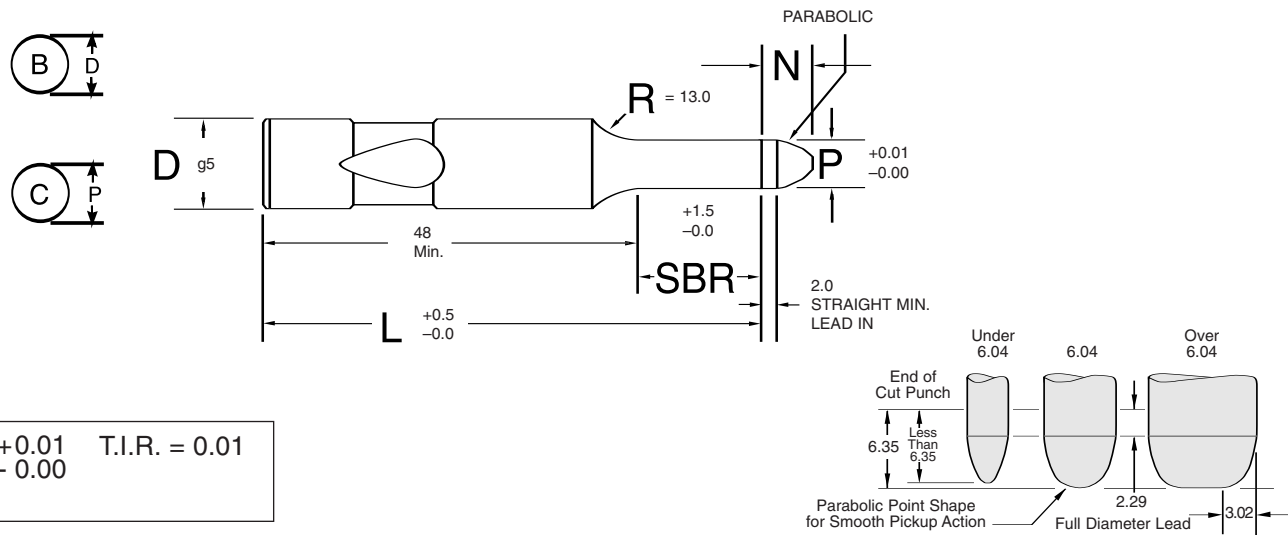
Round P +0.01 T.I.R. = 0.01  
-0.00

Shank D	SBR		Range P	Max N	Length = L					
	ALT A	STD			71	80	90	100	110	125
10.0	32	19	5.90-10.00	8.0	X	X	X	X	X	X
13.0	32	19	9.90-13.00	10.0	X	X	X	X	X	X
16.0	38	25	12.90-16.00	15.0	X	X	X	X	X	X
20.0	38	25	15.90-20.00	20.0	X	X	X	X	X	X
25.0	38	25	19.90-25.00	25.0	X	X	X	X	X	X
32.0	38	25	24.90-32.00	30.0		X	X	X	X	X
38.0	45	30	31.90-38.00	35.0		X	X	X	X	X

**HOW TO ORDER**

TYPE DIA. CODE "L" SBR "P"  
LMLC 13 80 A 8.5

# HEAVY DUTY REGULAR PILOT



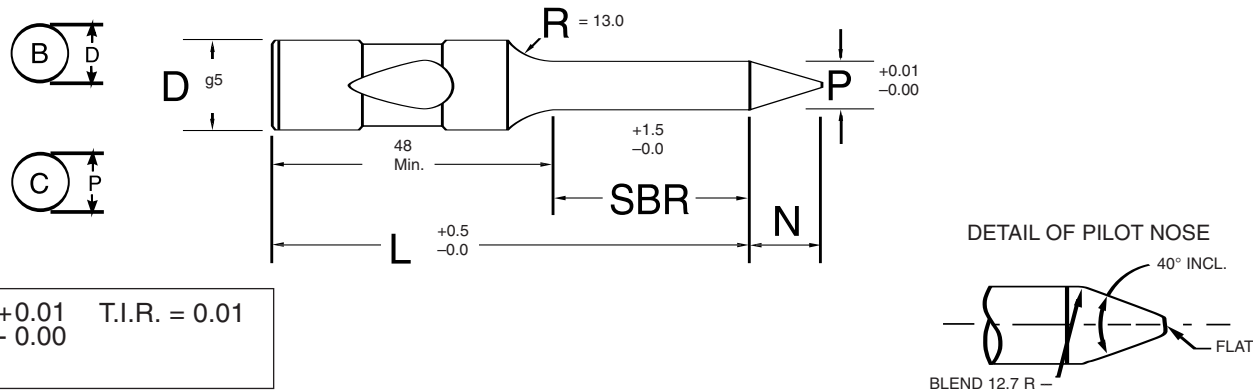
Round P	+0.01	T.I.R. = 0.01
	-0.00	

Shank D	SBR			Range "P"	Nose Length RANGE "N"	Length = L					
	ALT A	STD	ALT B			71	80	90	100	110	125
10.0	10	19	-	1.58-10.00	8-10	X	X	X	X	X	X
13.0	13	19	-	4.98-13.00	8-15	X	X	X	X	X	X
16.0	13	19	25	7.98-16.00	8-15	X	X	X	X	X	X
20.0	13	19	25	11.98-20.00	8-15	X	X	X	X	X	X
25.0	13	19	25	15.98-25.00	9-15	X	X	X	X	X	X
32.0	13	19	25	23.98-32.00	9-15	X	X	X	X	X	X
40.0	19	25	30	29.98-40.00	10-15						

## HOW TO ORDER

TYPE      DIA.      " L"      SBR      "P"  
 HMNC    16      90      B      10.00

# HEAVY DUTY LONG NOSE PILOT



Round P	+0.01	T.I.R. = 0.01
	-0.00	

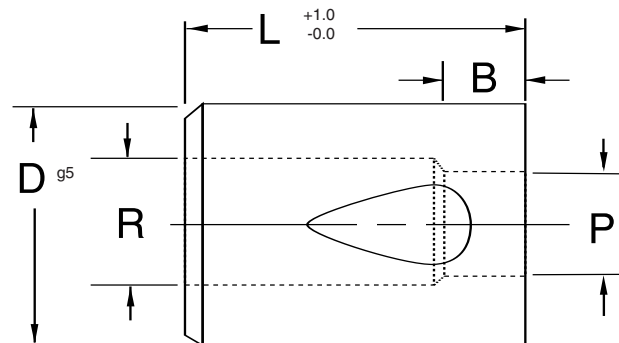
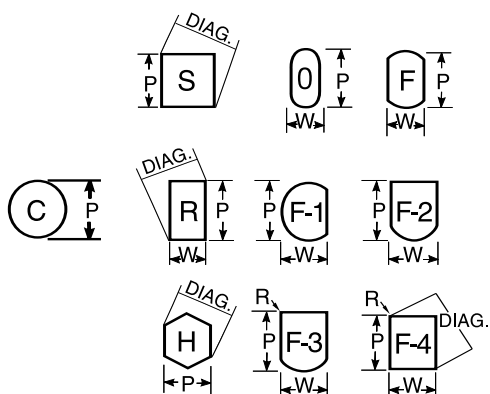
Shank D	SBR		Range "P"	Max N	Length = L					
	ALT A	STD			71	80	90	100	110	125
10.0	32	19	5.90-10.00	8.0	X	X	X	X	X	X
13.0	32	19	9.90-13.00	10.0	X	X	X	X	X	X
16.0	38	25	12.90-16.00	15.0	X	X	X	X	X	X
20.0	38	25	15.90-20.00	20.0	X	X	X	X	X	X
25.0	38	25	19.90-25.00	25.0	X	X	X	X	X	X
32.0	38	25	24.90-32.00	30.0		X	X	X	X	X
40.0	45	30	31.90-40.00	40.0		X	X	X	X	X

## HOW TO ORDER

TYPE      DIA.      " L"      SBR      "P"  
 HMLC    13      80      A      6.0



**DIE BUTTON**



**Basic**

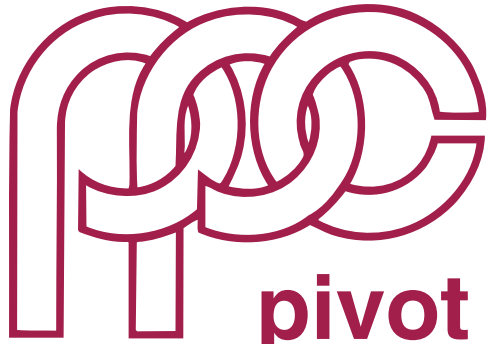
Round P	+0.01	T.I.R. = 0.01
	- 0.00	
Shape P,W	±0.01	T.I.R. = 0.02

Body Dia D	Min B	Max R	Range P	Min W	Max Diag.	L 32
13	4	5.8	1.50-5.00	1.20-5.00		X
16	5	8.0	3.20-7.20	2.00-7.20		X
20	5	11.9	4.00-11.00	2.40-11.00		X
25	6	16.0	8.00-15.00	4.00-15.00		X
32	6	20.0	11.00-19.00	4.80-19.00		X
38	8	27.0	16.50-26.00	6.40-26.00		X

**HOW TO ORDER**

QUANTITY	TYPE	DIA. CODE	" L"	"P"
10	MBC	20	32	10.0

**METRIC RETAINERS  
AVAILABLE UPON REQUEST**



**pivot punch corporation**

**CATALOG  
INFORMATION  
METRIC**

**Catalog Information**

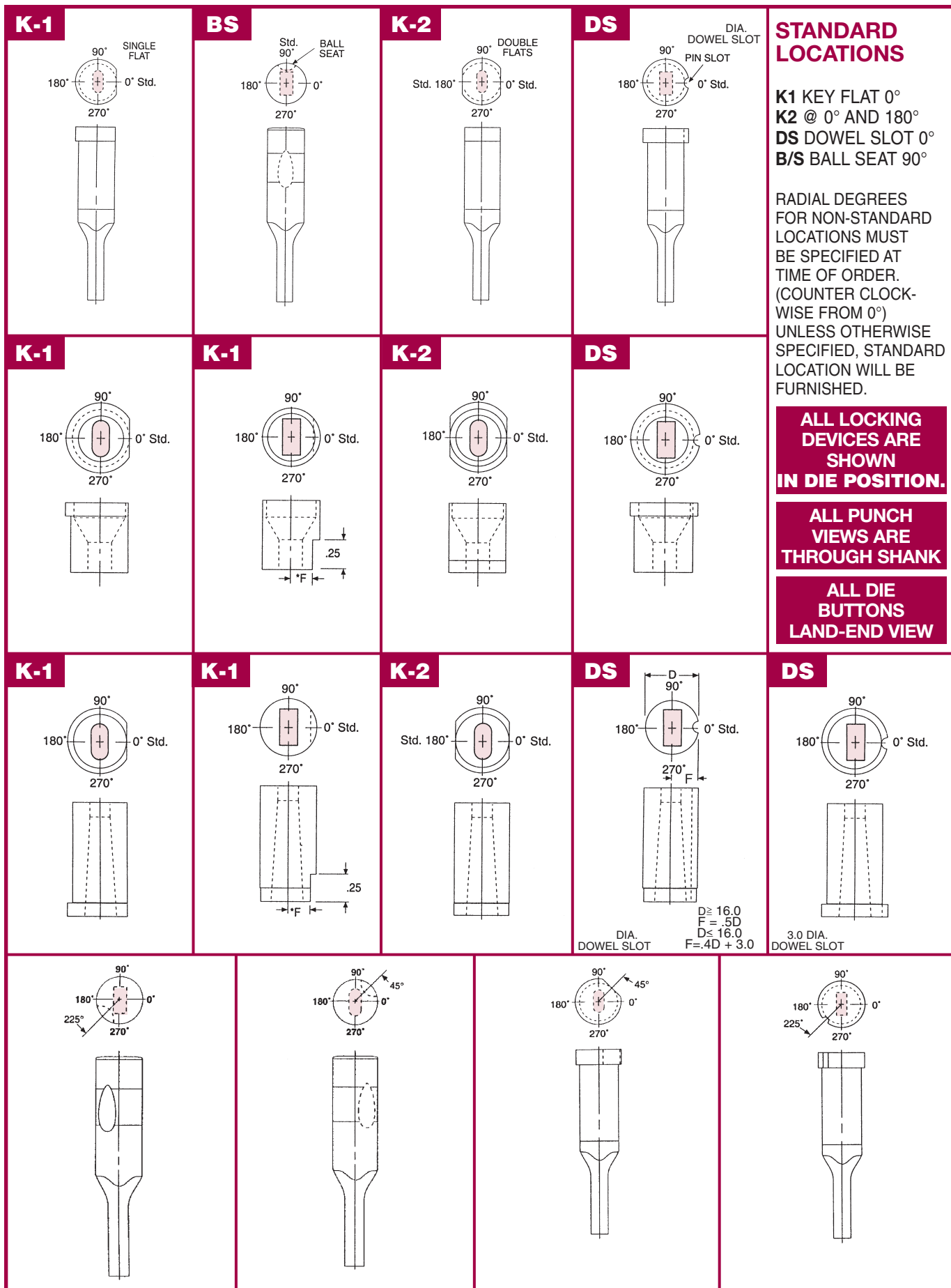
# *CATALOG INFORMATION INDEX*

## **METRIC**

	<b>Page#</b>
<b>Locking Devices</b>	29, 30
<b>42 Additional Form Shapes</b>	31
<b>Standard Alterations</b>	32, 33, 34
<b>Ejector Data &amp; Ejectors Kits</b>	35

**LOCKING DEVICES**

90°



180°

0°

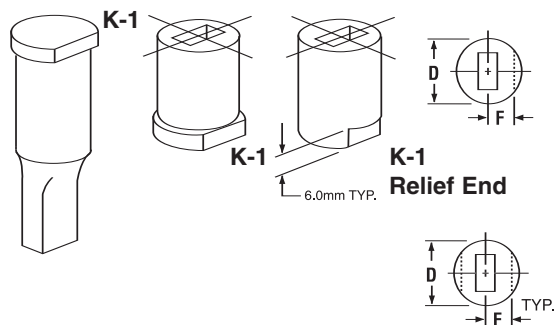
270°

**ALL LOCKING DEVICES ARE SHOWN  
IN DIE POSITION.**

**ALL PUNCH  
VIEWS ARE THROUGH SHANK**

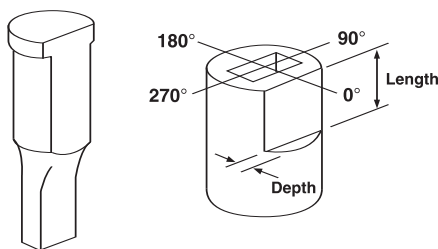
**ALL DIE BUTTONS LAND-END VIEW**

## Flats



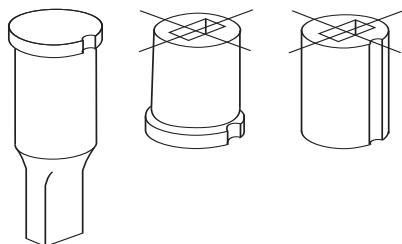
**F Dimension (.5D on Headed Products)  
Headless Die Buttons**

Body Dia.	6.0	8.0	10.0	13.0	16.0	20.0
F	2.6	3.5	4.3	5.6	6.9	8.7
Body Dia.	25.0	32.0	38.0	40.0		
F	10.8	13.8	16.5	17.4		



**Note: depth of flat is taken from shank,  
not the head on punches.**

## Dowel Slots



## Standard and Alternate Locations

Definitions:

**Standard Location** is at 0°.

**Alternate Location** is 90°, 180° or 270°.

Alternate Locations are available at no additional charge.

### Single Flats: K-1

Locking Devices	Punches	Die Button
K-1	On Head	Relief End

**Order Example:**

K-1 - 90°

### Double Flats:

Locking Devices	Punches	Die Button
K-2	On Head	Relief End

**Order Example:**

K-2 - 90°

**Second Flat is always parallel to the first flat.**

### Additional Flats

Code*	Depth	Length
K-5	1.5	13.0
K-6	1.5	16.0
K-7	1.5	20.0
K-8	1.5	Full Length

**Land End Shown**

**Relief End Optional**

### Dowel Slots: DS

Locking Devices	Dowel Dia.
DS	3.0

**Order Example:**

DS - 180°

## Custom Locations

Definition:

**Custom Location** is *any angle other than:* 0°, 90°, 180° or 270°.

### Single Flats: K-3

Locking Devices	Punches	Die Button
K-3	On Head	Relief End

**Order Example:**

K-3 - 150°

### Double Flats:

Locking Devices	Punches	Die Button
K-4	On Head	Relief End

**Order Example:**

K-4 - 150°

**Second Flat is always parallel to the first flat.**

### Additional Flats

Code*	Depth	Length
K-9	1.5	13.0
K-10	1.5	16.0
K-11	1.5	20.0
K-12	1.5	Full Length

**Land End Shown**

**Relief End Optional**

### Dowel Slots: CDS

Locking Devices	Dowel Dia.
CDS	3.0

**Order Example:**

CDS - 150°

### Ball Seat: CBS

**Order Example:**

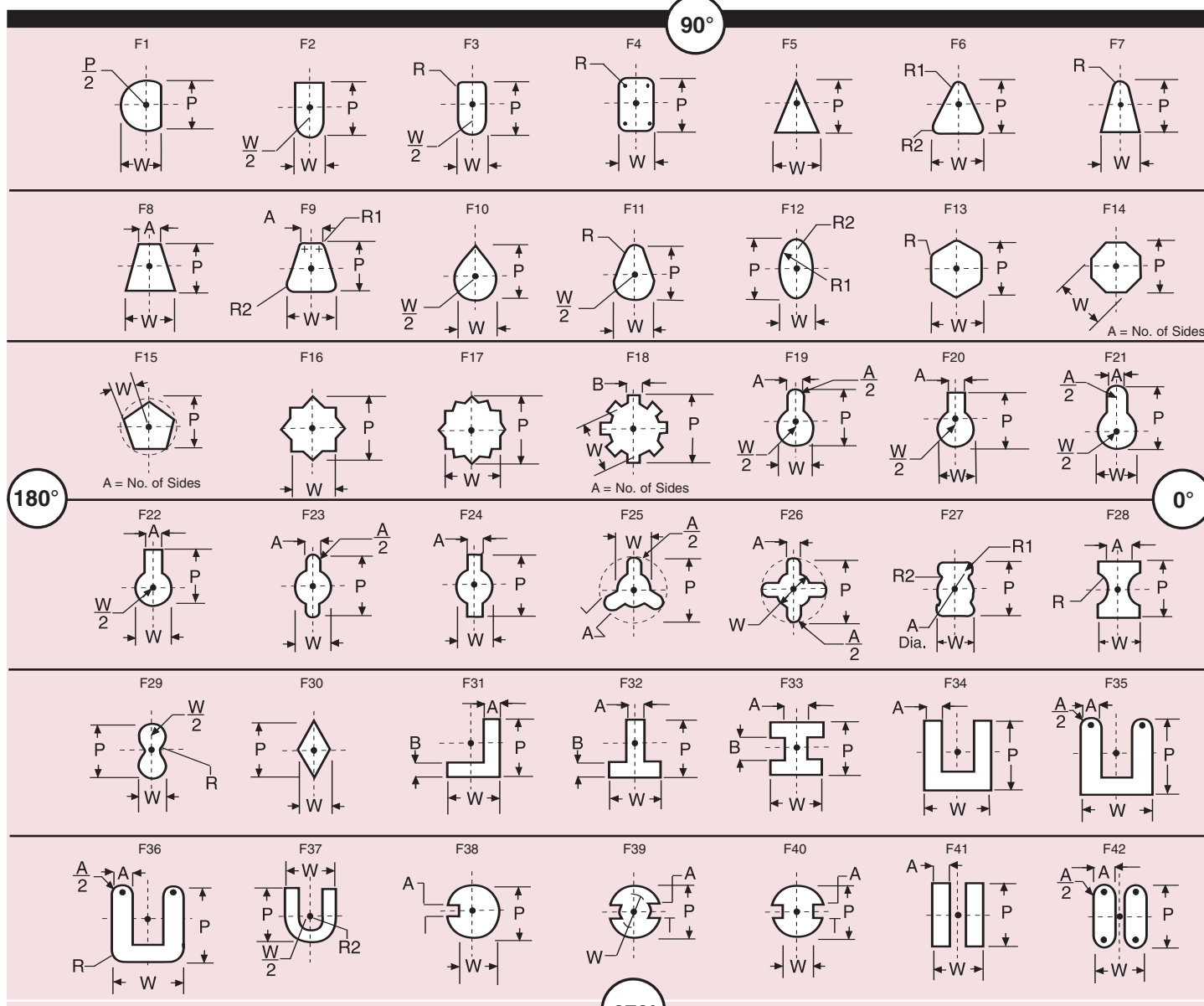
CBS - 110°

# 42 additional form shapes

FOR PUNCHES: View through shank.  
FOR DIES: View of land end.

**AVAILABLE IN ALL CLASSIFICATIONS SHOWN IN THIS CATALOG –  
M2 High Speed Steel**

This easy to use table, designed to provide 42 additional form shapes without the need for special drawings, has been prepared for your ordering convenience. Pivot is also prepared to furnish other special shapes not shown, as required. When ordering shapes, other than shown below, submit twice size (or larger) drawing of point or hole and indicate sizes, tolerance required and relationship to shank or body centerlines and flats or dowels.



**NOTES PERTAINING TO TABLE**

- 90° Location is found at 12 o'clock on vertical center line.
- Punch and Die Corner Radius – inside (both) 0.076 to 0.20; outside (both) SHARP.
- Additional Order Coding – P = largest shape dimension, W = small shape dimension, R = radius (when only one radius is required), R1 = first radius when more than one is required, R2 = second radius when more than one is required, A,B,C, etc. additional dimensions.
- Center line on drawings indicate center line of body diameter.
- For standard method of keying punches, die buttons and guide bushings, see page 29 & 30.
- Standard Ball Lock Location – Ball on "W" or 90° – See page 29.
- Standard Dowel (DS) or Single Flat (K1) location is at 0° Degrees.

**HOW TO ORDER**

TYPE	SHAPE	DIA. CODE	"L"	B	"P"	"W"	"A"
BME	F19	08	50	S	5.60	4.35	3.18

## STANDARD ALTERATIONS

### Standard Alterations Solid Punch

Standard alterations are the ranges beyond those sizes listed in the catalog which can be manufactured for a slight additional charge.

**SP, SW** P & W Dimensions Smaller than Standard  
**SB SBR** Point Length Longer than Standard

Point Length	8	13	19	25	30	35	40	8	13	19	25	30	35	
D	Min. P (Rounds)							Min. W (Shapes)						
04	.8	1.1	1.3	1.9	2.5	-	-	1.3	1.6	1.6	2.4	2.8	-	
05	1.0	1.3	1.3	1.9	2.5	-	-	1.3	1.6	1.6	2.4	3.0	-	
06	1.3	1.6	1.6	2.0	2.5	-	-	1.3	1.6	1.6	2.4	3.0	-	
08	1.6	1.6	1.6	2.4	2.5	3.2	-	1.6	2.4	2.4	2.4	3.2	4.0	
10	1.6	1.6	1.6	2.5	3.2	3.2	6.0	2.0	2.4	2.8	3.2	3.2	4.0	
13	-	3.2	3.2	3.2	4.0	6.0	-	-	3.2	3.2	3.2	3.6	4.5	
16	-	6.0	6.0	6.0	6.0	6.0	6.0	-	6.0	6.0	6.0	6.0	6.0	
20	-	6.0	6.0	6.0	7.6	7.6	7.6	-	6.0	6.0	6.0	6.0	6.0	
25	-	8.0	8.0	8.0	10.0	10.0	10.0	-	6.0	6.0	6.0	6.0	6.0	
32	-	10.0	10.0	10.0	10.0	10.0	10.0	-	6.0	6.0	6.0	6.0	6.0	

**SBL** - Point Length 38.13 - 41.28 Solid Punches Only

**SRL** - Point Length 44.45 - 50.8 Solid Punches Only

**SD** **Reduced Shank Diameter**  
 Head diameter does not change with body diameter.

Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
Min. SD	2.5	3.5	4.5	6.5	8.5	11.5	14.5	18.5	23.5	30.5

**SL** **Overall Length Shortened (25.4 min.)**  
 Stock removal from point end which shortens B length. To maintain "B" specify "SB"

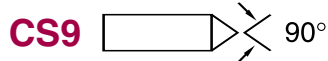
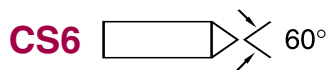
**PLL** **Precision Overall Length**  
 Same as SL except overall length is held to ±0.02.

**ST** **Thinner Head than Standard**  
 Stock removal from head end which shortens overall length.

**PTT** **Precision Head Thickness**  
 Same as ST except head thickness tolerance is held to ±0.01

**SH** **Reduced Head Diameter**  
 Minimum head diameter equals D + 0.00 - 0.03

**SLD** **Longer Lead on Punches**



**TONDRA® (1.27 min.)**  
 A unique wear-resistant surface treatment for M-2 steel.

### Standard Alterations Ejector Punches

Standard alterations are the ranges beyond those sizes listed in the catalog which can be manufactured for a slight additional charge.

**SP, SW** P & W Dimensions Smaller than Standard  
**SB** Point Length Longer than Standard

Point Length	8	13	19	25	30	35	40	8	13	19	25	30	35	
D	Min. P (Rounds)							Min. W (Shapes)						
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
05	2.0	2.0	2.0	2.4	2.5	-	-	2.0	2.0	2.0	2.4	3.0	-	
06	3.0	3.0	3.0	3.0	3.0	3.2	-	3.0	3.0	3.0	3.0	4.0	4.0	
08	4.0	4.0	4.0	4.0	4.0	4.0	6.0	4.0	4.0	4.0	4.0	4.0	4.5	
10	-	4.0	4.0	4.0	4.0	4.0	6.0	-	4.0	4.0	4.0	4.0	4.5	
13	-	3.2	3.2	3.2	3.2	4.0	6.0	-	6.0	6.0	6.0	6.0	6.0	
16	-	6.0	6.0	6.0	6.0	6.0	6.0	-	6.0	6.0	6.0	6.0	6.0	
20	-	6.0	6.0	6.0	7.6	7.6	7.6	-	6.0	6.0	6.0	6.0	6.0	
25	-	8.0	8.0	8.0	10.0	10.0	10.0	-	6.0	6.0	6.0	6.0	6.0	
32	-	10.0	10.0	10.0	10.0	10.0	10.0	-	7.2	7.2	7.2	7.2	7.2	

**SD** **Reduced Shank Diameter**  
 Head diameter does not change with body diameter.

Shank Dia.	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
Min. SD	4.4	5.0	6.8	8.8	11.5	14.5	18.5	23.5	30.5

**SL** **Overall Length Shortened (25.4 min.)**  
 Stock removal from point end which shortens B length. To maintain "B" specify "SB"

**PLL** **Precision Overall Length**  
 Same as SL except overall length is held to ±0.02.

**ST** **Thinner Head than Standard**  
 Stock removal from head end which shortens overall length.

**PTT** **Precision Head Thickness**  
 Same as ST except head thickness tolerance is held to ±0.01

**SH** **Reduced Head Diameter**  
 Minimum head diameter equals D + 0.00 - 0.03

**STN** **Titanium Nitride**  
 coating for extra wear.  
 For M-2 steel.



## STANDARD ALTERATIONS

### Standard Alterations Pilot Punch

Standard alterations are the ranges beyond those sizes listed in the catalog which can be manufactured for a slight additional charge.

**SP** P Dimensions Smaller than Standard **SB SBR** Point Length Longer than Standard

Point Length	10	15	MAX 21	SBR 27	32	37	42
Code	Min. P (Rounds)						
04	1.55	1.55	1.55	1.85	2.45	-	-
05	1.55	1.55	1.55	1.85	2.45	-	-
06	1.55	1.55	1.55	1.95	2.45	-	-
08	1.55	1.55	1.55	2.35	2.45	3.15	
10	1.55	1.55	1.55	2.45	3.15	3.15	5.95
13	-	3.15	3.15	3.15	3.15	3.95	5.95
16	-	5.95	5.95	5.95	5.95	5.95	5.95
20	-	5.95	5.95	5.95	7.55	7.55	7.55
25	-	7.95	7.95	7.95	9.95	9.95	9.95
25	-	9.95	9.95	9.95	9.95	9.95	9.95

**SBL** - Point Length 38.13 - 41.28

**SRL** - Point Length 44.45 - 50.8

**SD** **Reduced Shank Diameter**  
Head diameter does not change with body diameter.

Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
Min. SD	2.5	3.5	4.5	6.5	8.5	11.5	14.5	18.5	23.5	30.5

**SL** **Overall Length Shortened (25.4 min.)**  
Stock removal from point end which shortens B length. To maintain "B" specify "SB"

**ST** **Thinner Head than Standard**  
Stock removal from head end which shortens overall length.

**PTT** **Precision Head Thickness**  
Same as ST except head thickness tolerance is held to ±0.01

**SH** **Reduced Head Diameter**  
Minimum head diameter equals D + 0.00 - 0.03

**SLD** **Longer Lead on Punches**

### Standard Alterations Long Nose Pilot

Standard alterations are the ranges beyond those sizes listed in the catalog which can be manufactured for a slight additional charge.

**SP** P Dimensions Smaller than Standard **SB** Point Length Longer than Standard

Point Length	10	15	21	27	32	37	42
D	Min. P (Rounds)						
10	2.10	2.10	2.10	2.10	3.15	3.15	5.95
13	-	3.15	3.15	3.15	3.15	3.95	5.95
16	-	5.95	5.95	5.95	5.95	5.95	5.95
20	-	5.95	5.95	5.95	7.55	7.55	7.55
25	-	7.95	7.95	7.95	9.95	9.95	9.95
32	-	9.95	9.95	9.95	9.95	9.95	9.95

All SP point diameter decrease Nose Length "N".

**SD** **Reduced Shank Diameter**  
Head diameter does not change with body diameter.

Shank Dia.	10.0	13.0	16.0	20.0	25.0	32.0
Min. SD	8.5	11.5	14.5	18.5	23.5	30.5

**SL** **Overall Length Shortened (25.4 min.)**  
Stock removal from point end which shortens B length. To maintain "B" specify "SB"

**ST** **Thinner Head than Standard**  
Stock removal from head end which shortens overall length.

**PTT** **Precision Head Thickness**  
Same as ST except head thickness tolerance is held to ±0.01

**SH** **Reduced Head Diameter**  
Minimum head diameter equals D + 0.00 - 0.03

**TONDRA® (1.27 min.)**  
A unique wear-resistant surface treatment for M-2 steel.

**STN** Titanium Nitride coating for extra wear. For M-2 steel.

## Standard Alterations Die Buttons

Standard alterations are the ranges beyond those sizes listed in the catalog which can be manufactured for a slight additional charge.

### P & W Dimensions Longer than Standard

**SP, SW**

Body Code	Max P/G
5.0	3.20
6.0	4.00
8.0	6.20
10.0	7.70
13.0	10.40
16.0	12.80
20.0	16.00
25.0	20.00
32.0	25.60
40.0	32.00

### Land Length Shorter or Longer than Standard

**SB**

Rounds	
Hole Range	Max SB
0.800 - 1.600	3.2
1.601 - 2.400	5.0
2.401 - 4.000	6.0
4.001 - 6.000	8.0
6.001 - 8.000	9.5
8.001 - 10.000	11.0
10.001 - Over	13.0

**Reduced Body Dia.**  
 Head dia. does not change with body reduction.

**SD**

Body Code	Min SD	Max DIAG.
5.0	3.500	.72D
6.0	5.000	.75D
8.0	6.500	.77D
10.0	8.500	.80D
13.0	11.500	.80D
16.0	14.500	.80D
20.0	18.500	.80D
25.0	23.000	.80D
32.0	30.000	.80D
40.0	38.000	.80D

**SL Overall Length Shortened**  
 Min. overall length: Headless = 6.0mm  
 Headed = 6.0mm + T

**PLL Precision Overall Length**  
 Same as SL except overall length is held to  $\pm 0.02$

**ST Thinner Head than Standard**  
 Stock removal from head and end which shortens overall length.

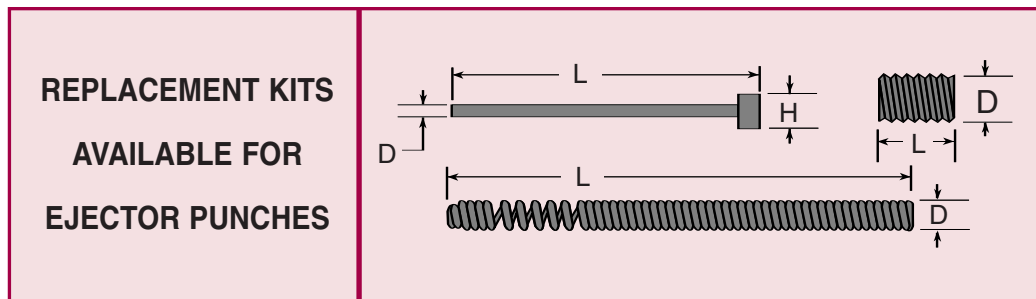
**PTT Precision Head Thickness**  
 Same as ST except head thickness tolerance is held to  $\pm 0.01$

**SH Reduced Head Diameter**  
 Minimum head diameter equals  $D + 0.00 - 0.03$

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## EJECTOR DATA & EJECTOR KITS



	PIN SIZE			PIN HOLE	SPRING SIZE		SPRING HOLE	TAP SIZE	
	D	L	H		D	L		D	L
ME-2	.50	50.8	1.82	.64	2.38	76.0	2.69	5-40	3.18
ME-3	.75	50.8	1.82	.89	3.18	83.0	3.66	8-32	3.18
ME-4	1.00	50.8	1.82	1.14	3.18	83.0	3.66	8-32	3.18
ME-6	1.50	50.8	2.77	1.65	3.18	83.0	3.66	8-32	3.18
ME-9	2.30	50.8	4.75	2.41	4.76	83.0	5.41	1/4-20	4.76
ME-12	3.05	50.8	4.75	3.18	4.76	83.0	5.41	1/4-20	4.76

SELECTIVE		BASIC	
O.D.	PIN SIZE	O.D.	PIN SIZE
5.0	.50	5.0	.50
6.0	.75	6.0	.75
8.0	1.00	8.0	1.00
10.0	1.50	10.0	1.50
13.0	1.50	13.0	1.50
16.0	2.30	16.0	2.30
20.0	2.30	20.0	2.30
25.0	2.30	25.0	2.30
32.0	3.05	32.0	3.05

BALL LOCK			
LIGHT DUTY		HEAVY DUTY	
O.D.	PIN SIZE	O.D.	PIN SIZE
6.0	.50 (1.60-2.10)	NA	NA
6.0	.75 (over 2.10)		
10.0	1.0	10.0	1.00
13.0	1.50	13.0	1.50
16.0	1.50	16.0	1.50
20.0	2.30	20.0	2.30
25.0	2.30	25.0	2.30
32.0	2.30	32.0	2.30
38.0	2.30	40.0	2.30





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