SECTION H

PUNCHES

Page Index

PORTER PRECISION PRODUCTS INDEX

HEAD TYPE PUNCHES

BAL-LOK AND HEADLESS PUNCHES

PERFORATORS, HOLDERS, AND SUPPORT SLEEVES

DIE BUTTONS

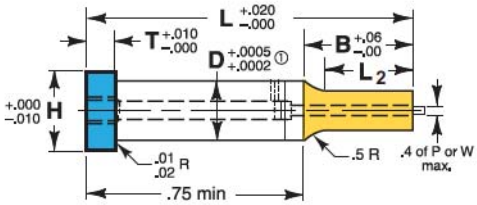
ADDITIONAL ITEMS AND INFORMATION

Phone Toll Free: (877)438-7657 Fax: (814)438-8146

www.toolingcomponentsinc.com email: sales@toolcompinc.com

Tooling Components, Inc.

PORTER Standard Headed Retrakto Punches (R-)

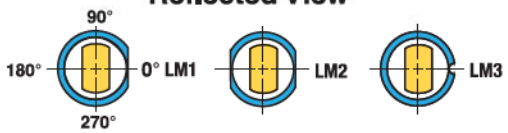


Ordering Example:

Qty	Steel	Type	D	B		L		P
13	M2	RC	50	S	x	3.00	x	.470

For additional standard forms and configurations see pages 32 and 33.

Reflected View



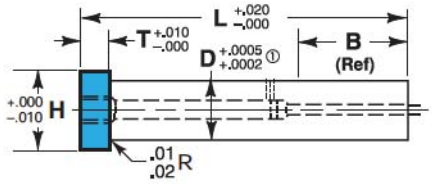
Optional Locating Methods See Page 38 for details and options.

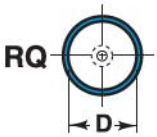
Shank D	Shank Code No.	Head H	Head T	Point Length B Standard S	Alternates B(.75)	Alternates C(1.0)	Alternates D(1.25)	Alternates E(1.5)	Lengths L in .25" Increments	Point Round Range P	Point Shape Min W	Point Shape Max P/G	Replacement Retrakto Kit*
.1875	18	.312	.125	.437	●				1.50 thru 2.50	.062 – .1874	.062	.1875	K2I
.2500	25	.375	.125	.500	●				1.50 thru 2.50	.093 – .2499	.093	.2500	K3I
.3125	31	.437	.125	.562	●	●			1.50 thru 3.00	.125 – .3124	.125	.3125	K4I
.3750	37	.500	.188	.625	●	●			1.75 thru 3.00	.187 – .3749	.187	.3750	K6I
.4375	43	.562	.188	.750	●	●			2.00 thru 3.50	.187 – .4374	.187	.4375	K6I
.5000	50	.625	.188	.812	●	●			2.00 thru 3.50	.250 – .4999	.187	.5000	K6I
.6250	62	.750	.250	.937	●	●	●		2.00 thru 3.50	.375 – .6249	.250	.6250	K9I
.7500	75	.875	.250	1.062	●	●	●		2.25 thru 4.00	.500 – .7499	.312	.7500	K9I
.8750	87	1.000	.250	1.125	●	●	●	●	2.50 thru 4.00	.594 – .8749	.312	.8750	K9I
1.0000	100	1.125	.250	1.250	●	●	●	●	2.50 thru 4.00	.687 – .9999	.312	1.0000	K9I
1.2500	125 ①	1.375	.250	1.375	●	●	●	●	2.50 thru 4.00	.700 – 1.2499	.312	1.2500	K12I
1.5000	150 ①	1.625	.250	1.375	●	●	●	●	2.50 thru 3.75	.750 – 1.4999	.312	1.5000	K12I
1.7500	175 ①	1.875	.250	1.375	●	●	●	●	2.50 thru 3.75	1.000 – 1.7499	.350	1.7500	K12I
2.0000	200 ①	2.125	.250	1.375	●	●	●	●	2.50 thru 3.75	1.188 – 1.9999	.400	2.0000	K12I
2.2500	225 ①	2.375	.250	1.375	●	●	●	●	2.50 thru 3.75	1.375 – 2.2499	.450	2.2500	K12I
2.5000	250 ①	2.625	.250	1.375	●	●	●	●	2.50 thru 3.75	1.625 – 2.4999	.500	2.5000	K12I

*Alternate Retrakto Kits available see page 36 for details.
Retrakto Punches .1875 and 1.25 and larger = No side hole.

All Lengths in Light Blue Panel have Hot Forged Heads for added strength and toughness.

PORTER Standard Retrakto Punch Blanks (RQ)





Ordering Example:

Qty	Steel	Type	D	B		L
13	M2	RQ	37	C	x	3.00

Steel: A2, M2 Rc 60-63

Heads Rc 40-55 (1"Ø and smaller and L ≥ 2")

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

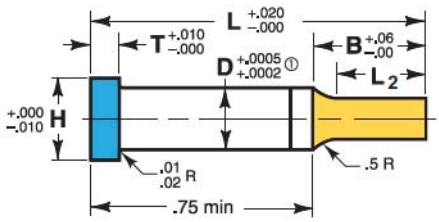
Manufactured to ANSI and NAPMA Standards where applicable.

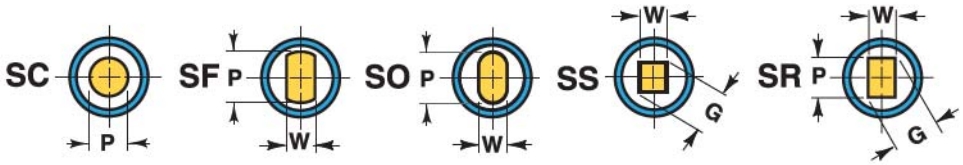
① D Tol = +.0006 +.0002

Back Draft .001/inch L_2 max.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

PORTER Standard Headed Punches (S-)



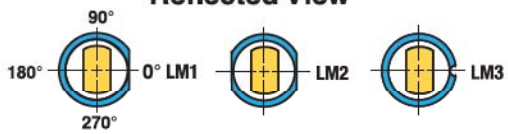


Ordering Example:

Qty	Steel	Type	D		B		L		P
13	M2	SC	50		S	x	3.00	x	.470

For additional standard forms and configurations see pages 32 and 33.

Reflected View



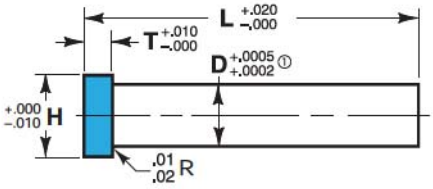
Optional Locating Methods See Page 38 for details and options.

Shank D*	Shank Code No.	Head H	Head T	Point Length B Standard S	Alternates B(.75)	Alternates C(1.0)	Alternates D(1.25)	Alternates E(1.5)	Lengths L in .25" Increments	Point Round Range P	Point Shape Min W	Point Shape Max P/G
.1250	12	.250	.125	.437	●				1.50 thru 3.25	.062 – .1249	.062	.1250
.1875	18	.312	.125	.437	●				1.50 thru 4.00	.062 – .1874	.062	.1875
.2500	25	.375	.125	.500	●				1.50 thru 5.00	.062 – .2499	.062	.2500
.3125	31	.437	.125	.562	●	●			1.50 thru 5.00	.093 – .3124	.093	.3125
.3750	37	.500	.188	.625	●	●			1.75 thru 6.00	.125 – .3749	.125	.3750
.4375	43	.562	.188	.750	●	●			2.00 thru 4.25	.187 – .4374	.187	.4375
.5000	50	.625	.188	.812	●	●			2.00 thru 6.00	.250 – .4999	.187	.5000
.6250	62	.750	.250	.937	●	●	●		2.00 thru 6.00	.375 – .6249	.250	.6250
.7500	75	.875	.250	1.062	●	●	●		2.00 thru 6.00	.500 – .7499	.312	.7500
.8750	87	1.000	.250	1.125	●	●	●	●	2.00 thru 6.00	.562 – .8749	.312	.8750
1.0000	100	1.125	.250	1.250	●	●	●	●	2.25 thru 6.00	.625 – .9999	.312	1.0000
1.1250	112	1.250	.250	1.375	●	●	●	●	2.25 thru 4.00	.625 – 1.1249	.312	1.1250
1.2500	125 ①	1.375	.250	1.375	●	●	●	●	2.25 thru 5.00	.625 – 1.2499	.312	1.2500
1.3750	137 ①	1.500	.250	1.375	●	●	●	●	2.25 thru 4.00	.719 – 1.3749	.312	1.3750
1.5000	150 ①	1.625	.250	1.375	●	●	●	●	2.25 thru 4.00	.750 – 1.4999	.312	1.5000
1.6250	162 ①	1.750	.250	1.375	●	●	●	●	2.25 thru 4.00	.875 – 1.6249	.350	1.6250
1.7500	175 ①	1.875	.250	1.375	●	●	●	●	2.25 thru 4.00	1.000 – 1.7499	.350	1.7500
2.0000	200 ①	2.125	.250	1.375	●	●	●	●	2.25 thru 4.00	1.188 – 1.9999	.400	2.0000
2.2500	225 ①	2.375	.250	1.375	●	●	●	●	2.25 thru 4.00	1.375 – 2.2499	.450	2.2500
2.5000	250 ①	2.625	.250	1.375	●	●	●	●	2.25 thru 4.00	1.625 – 2.4999	.500	2.5000

*D Ø > 1.000 M-2 (HSS) Steel only. Many longer than standard "L" are in stock. Please request quote for these items.

All Lengths under 4.50 in Light Blue Panel have Hot Forged Heads for added strength and toughness.

PORTER Standard Head Punch Blanks (SQ)



Ordering Example:

Qty	Steel	Type	D		L
13	M2	SQ	25	x	2.00

Steel: A2 L ≤ 4", M2 Rc 60-63
Heads Rc 40-55 (1"Ø and smaller and L ≥ 2")

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

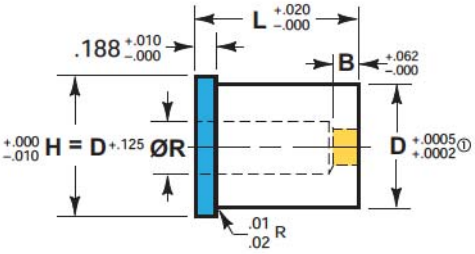
Manufactured to ANSI and NAPMA Standards where applicable.

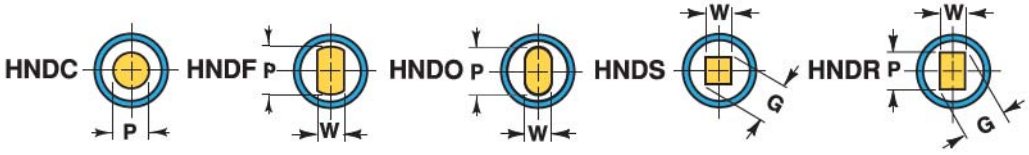
① D Tol = +.0006 +.0002

Back Draft .001/inch L_2 max.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

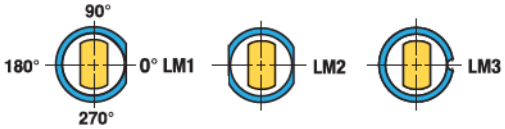
PORTER Standard Headed Die Button (HND-)





Ordering Example:

Qty	Steel	Type	D	L	P
4	M2	HNDC	75 x	1.25 x	.390



Optional Locating Methods See Page 38 for details and options.

Steel: M2 Rc 60-63

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W +.001 -.000	◎	.001	P,W to D

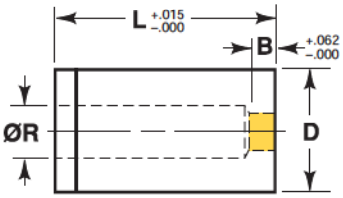
Manufactured to ANSI and NAPMA Standards where applicable.

① D Tol = +.0006 +.0002

Body D**	Code No.	Min. B*	Max. R	Lengths L (ND) Headless & (HND–) Headed									Round ID	Shape ID	
				.75	.87	.93	1.00	1.125	1.188	1.250	1.375	1.500	Range P	Min. W	Max. P/G
.2500	25	.156	.156	●	●	N	●	●	N	●			.064 – .125	–	–
.3125	31	.156	.195	N	N	N	N	N	N	N			.064 – .155	–	–
.3750	37	.156	.228	●	●	N	●	●	N	●	N	●	.064 – .195	.048	.195
.5000	50	.156	.312	●	●	N	●	●	N	●	N	●	.064 – .285	.064	.285
.6250	62	.187	.391	●	●	N	●	●	N	●	N	●	.136 – .365	.095	.365
.7500	75	.187	.468	●	●	N	●	●	N	●	N	●	.136 – .435	.135	.435
.8750	87	.187	.578	●	●	N	●	●	N	●	N	●	.276 – .545	.135	.545
1.0000	100	.250	.703	●	●	N	●	●	N	●	N	●	.356 – .675	.135	.675
1.2500	125	.250	.828	●	●	N	●	●	N	●	N	●	.500 – .800	.189	.800
1.5000	150	.250	1.094	●	●	N	●	●	N	●	N	●	.616 – 1.050	.252	1.050
1.7500	175 ①	.312	1.438			N	N	N	N	N	N	N	.750 – 1.408	.252	1.408
2.0000	200 ①	.312	1.630			N	N	N	N	N	N	N	.875 – 1.600	.252	1.600
2.2500	225 ①	.312	1.830			N	N	N	N	N	N	N	1.000 – 1.800	.314	1.800
2.5000	250 ①	.312	2.030			N	N	N	N	N	N	N	1.125 – 2.000	.377	2.000

**D Ø > 1.500 M-2 (HSS) Steel only. * Alternate "B" lengths available see page 16 (Taper Relief Dies). N = ND only. ● Available Both HND & ND

PORTER Standard Headless Die Button (ND-)



Ordering Example:

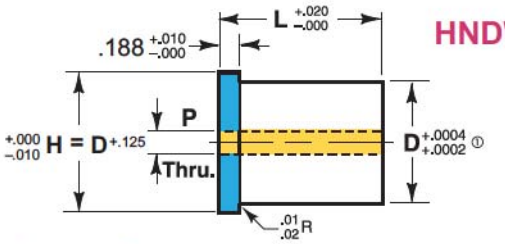
Qty	Steel	Type	D	L	W	P	Locate
6	M2	NDO	100 x	1.25 x	.305 x	.605	LM1

Optional Locating Methods See Page 38 for details and options.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

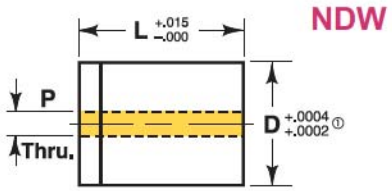
For additional standard forms and configurations see pages 32 and 33.

PORTER Wire EDM Die Blanks-I.D. thru no relief

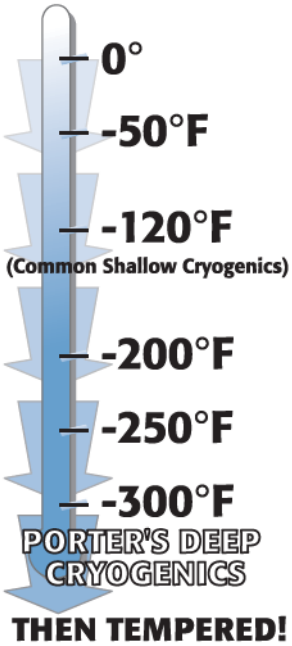


Ordering Example: Qty Steel Type D L
4 M2 HNDW 75 x 1.25

Steel: M2 Rc 60-63
PM4 Rc 63-65
TOLERANCES
ØP ±.005 | ◎ | .005 | P to D
① Ø D TOLERANCE +.0006 +.0002



Ordering Example: Qty Steel Type D L
6 PM4 NDW 50 x 1.00

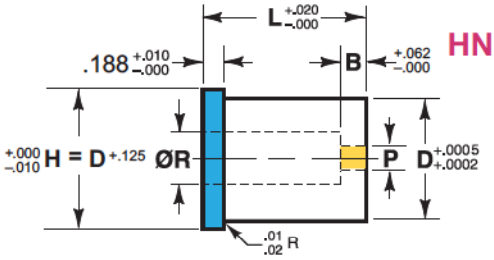


All Porter Wire Blanks are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability
See page 42 for more details.

Body		Lengths L										Thru Hole Size P
Code	D	.50	.62	.75	.87	.93	1.00	1.125	1.250	1.375	1.500	
*18	.1875	●	●	●	●	●	●	●	●			.043
25	.2500	●	●	●	●	●	●	●	●			.043
31	.3125	●	●	●	●	●	●	●	●			.043
37	.3750	●	●	●	●	●	●	●	●	●	●	.043 or .093
43	.4375	●	●	●	●	●	●	●	●	●	●	.043 or .093
50	.5000	●	●	●	●	●	●	●	●	●	●	.043 or .093
62	.6250			●	●	●	●	●	●	●	●	.043 or .125
75	.7500			●	●	●	●	●	●	●	●	.043 or .125
87	.8750			●	●	●	●	●	●	●	●	.043 or .125
100	1.0000			●	●	●	●	●	●	●	●	.125
125	1.2500			●	●	●	●	●	●	●	●	.125
150	1.5000			●	●	●	●	●	●	●	●	.125
175	1.7500①						●		●		●	.125
200	2.0000①						●		●		●	125
225	2.2250①						●		●		●	.125
250	2.5000①						●		●		●	.125
275	2.7500①						●		●		●	.125
300	3.0000①						●		●		●	.125

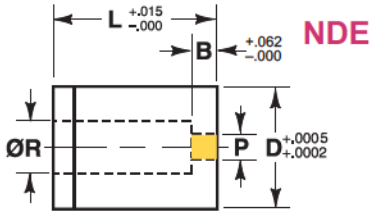
*Head thickness .125 =These sizes available in M2 (HSS) only. ● Available HNDW & NDW

PORTER EDM Die Blanks-I.D. Flush hole, round step relief



Ordering Example: Qty Steel Type D L
4 M2 HNDE 75 x 1.25

Steel: M2 Rc 60-63
TOLERANCES
ØP ±.005 | ◎ | .005 | P to D



Ordering Example: Qty Steel Type D L
6 M2 NDE 50 x 1.00

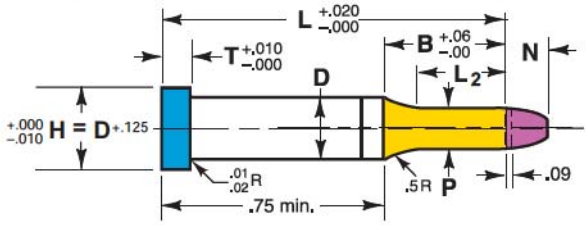
Body		Lengths L								Flush Hole		Relief
Code	D	.75	.875	.937	1.00	1.125	1.250	1.375	1.500	P	B	R
37	.3750	●	●	N	●	●	●	N	●	.043	.156	.228
50	.5000	●	●	N	●	●	●	N	●	.043	.156	.312
62	.6250	●	●	N	●	●	●	N	●	.078	.187	.391
75	.7500	●	●	N	●	●	●	N	●	.093	.250	.468
87	.8750	●	●	N	●	●	●	N	●	.093	.250	.578
100	1.0000	●	●	N	●	●	●	N	●	.125	.250	.703
125	1.2500	●	●	N	●	●	●	N	●	.125	.250	.828
150	1.5000	●	●	N	●	●	●	N	●	.125	.312	1.094

N = NDE only. ● Available HNDE & NDE

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

PORTER Standard Headed Pilots

Regular Parabolic Pilot–SP Type



B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B		L		P
6	A2	SP	62	S	x	3.00	x	.500

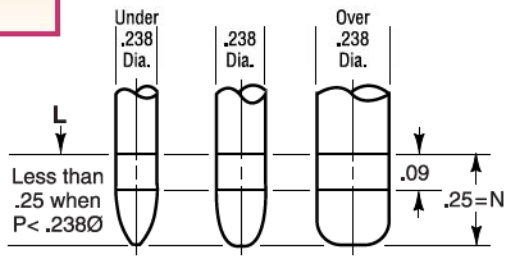
Steel: A2 L ≤ 4" OAL
M2 Rc 60-63
Heads Rc 40-55 (1" Ø and smaller and L ≥ 2")

TOLERANCES

Round P +.0005 –.0000 | ◎ .0005 P to D

Manufactured to ANSI and NAPMA Standards where applicable.

Headless Punch Pilots are also available.
To order call out:
Regular Pilot = HRP
Locator Pilot = HLP
Angular Pilot = HAP
All standard ranges and tolerances apply.

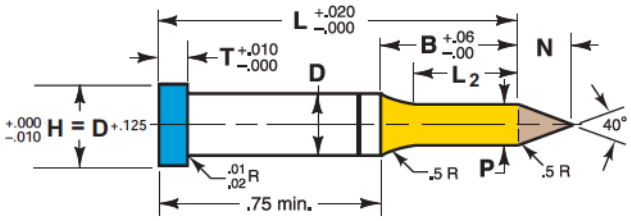


Standard Precision Regular Pilot

Pilot Type	D +.0005 +.0002	Point Length B: Std. S	Alternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Range P +.0005 -.0000	N	T
SP18	.1875	.437	●				1.50 thru 3.75	.061 – .1875	.250	.125
SP25	.2500	.500	●				1.50 thru 4.00	.061 – .2500	.250	.125
SP31	.3125	.562	●	●			1.50 thru 4.00	.092 – .3125	.250	.125
SP37	.3750	.625	●	●			1.75 thru 4.50	.124 – .3750	.250	.187
SP50	.5000	.812	●	●			2.00 thru 4.50	.249 – .5000	.250	.187
SP62	.6250	.937	●	●	●		2.00 thru 4.50	.374 – .6250	.250	.250
SP75	.7500	1.062	●	●	●		2.25 thru 4.50	.499 – .7500	.250	.250
SP87	.8750	1.125	●	●	●	●	2.50 thru 4.00	.561 – .8750	.250	.250
SP100	1.0000	1.250	●	●	●	●	2.50 thru 4.50	.624 –1.0000	.250	.250
SP125	1.2500	1.375		●	●	●	2.50 thru 4.50	.624 –1.2500	.250	.250

All Lengths under 4.50 OAL in Light Blue Panel have Hot Forged Heads for added strength and toughness.

Angular Pilot–SAP Type

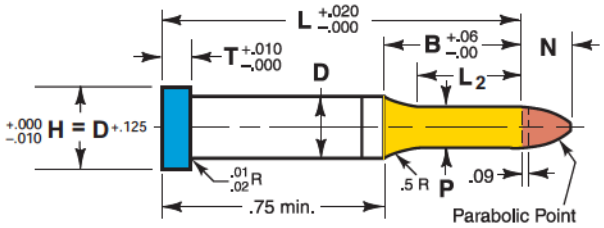


B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B		L		P
4	M2	SAP	50	C	x	3.00	x	.436

Long Parabolic Locator Pilot–SLP Type



B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B		L		P
9	M2	SLP	50	D	x	3.00	x	.436

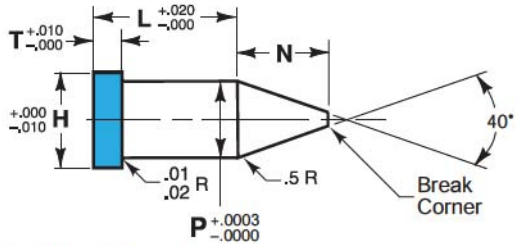
Pilot Type	D +.0005 +.0002	Point Length B: Std. S	Alternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Range P +.0005 -.0000	N MAX	T	Pilot Type
SAP18	.1875	.437	●				2.25 thru 3.50	.061 – .1875	.187	.125	SLP18
SAP25	.2500	.500	●				2.25 thru 3.50	.061 – .2500	.250	.125	SLP25
SAP31	.3125	.562	●	●			2.50 thru 4.00	.092 – .3125	.312	.125	SLP31
SAP37	.3750	.625	●	●			2.50 thru 4.25	.124 – .3750	.375	.187	SLP37
SAP50	.5000	.812	●	●	●		2.50 thru 5.50	.249 – .5000	.500	.187	SLP50
SAP62	.6250	.937	●	●	●	●	2.50 thru 5.25	.374 – .6250	.625	.250	SLP62
SAP75	.7500	1.062	●	●	●	●	2.50 thru 5.25	.436 – .7500	.750	.250	SLP75
SAP87	.8750	1.125	●	●	●	●	3.00 thru 5.00	.561 – .8750	.875	.250	SLP87
SAP100	1.0000	1.250	●	●	●	●	3.00 thru 5.00	.624 –1.0000	1.000	.250	SLP100
SAP125	1.2500	1.375		●	●	●	3.00 thru 4.75	.624 –1.2500	1.250	.250	SLP125

All Lengths under 4.50 OAL in Light Blue Panel have Hot Forged Heads for added strength and toughness.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

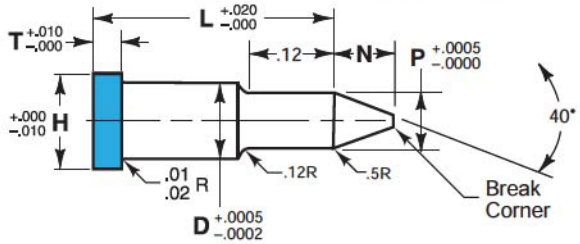
PORTER Sur-Align Pilots

Sur–Align Straight (SAPQ)



Sur-Align Pilots prevent movement. Reduce standard pilot deflection by mounting Sur-Align in your guide stripper plate.

Sur–Align Nibbed (SAPN)



Ordering Example:

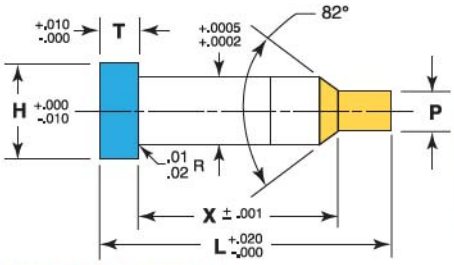
Qty	Steel	Type	D Code	L	P Dim.	Alt.
10	A2	SAPQ		0.87	0.270	RL.725
20	M2	SAPN	75	1.37	0.630	

Steel: A2, M2 Rc 60-63
◎ .0005 P to D

Type	Range P	Max N	Head T	Head H	Lengths L 0.625	0.750	0.875	1.000	1.125	1.250	1.375	Shank Type	Shank D	Shank Code	Min P	Range P	Max N
SAPQ	.1865-.2500	.25	.125	.375	●	●	●	●	●	●	●	SAPN 25	.2500	25	.092	.1650-.2499	.25
SAPQ	.2501-.3125	.31	.125	.438	●	●	●	●	●	●	●	SAPN 31	.3125	31	.092	.2100-.3124	.31
SAPQ	.3126-.3750	.37	.188	.500	●	●	●	●	●	●	●	SAPN 37	.3750	37	.092	.2550-.3749	.37
SAPQ	.3751-.4375	.43	.188	.562	●	●	●	●	●	●	●	SAPN 43	.4375	43	.092	.3000-.4374	.43
SAPQ	.4376-.5000	.50	.188	.625	●	●	●	●	●	●	●	SAPN 50	.5000	50	.124	.3450-.4999	.50
SAPQ	.5001-.6250	.62	.250	.750	●	●	●	●	●	●	●	SAPN 62	.6250	62	.234	.4400-.6249	.62
SAPQ	.6251-.7500	.75	.250	.875		●	●	●	●	●	●	SAPN 75	.7500	75	.299	.5300-.7499	.75
SAPQ	.7501-.8750	.87	.250	1.000		●	●	●	●	●	●	SAPN 87	.8750	87	.349	.6200-.8749	.87
SAPQ	.8751-1.000	1.00	.250	1.125		●	●	●	●	●	●	SAPN 100	1.0000	100	.399	.7100-.9999	1.00

Any overall length within catalog range no extra cost Specify"RL" plus length.

PORTER Standard Precision Headed (SCS)



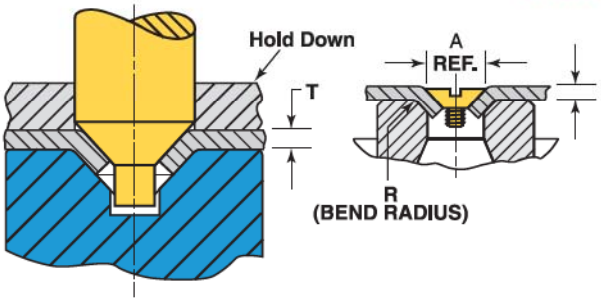
Steel: A2, M2 Rc 60-63
Heads Drawn Rc 40-55
P +.0005 -.0000 ◎ .001 P to D

Catalog Number	ØD	L in .25" Increments	P +.0005 -.0000 Range	X	H	T
SCS–25	.2500	1.50–2.50	.050 –.125	Specify in .001 Increments.	.37	.125
SCS–31	.3125	1.50–2.75	.076 –.140		.43	.125
SCS–37	.3750	1.75–3.00	.090 –.187		.50	.187
SCS–50	.5000	2.00–3.50	.140 –.250		.62	.187
SCS–62	.6250	2.00–3.50	.200 –.281		.75	.250
SCS–75	.7500	2.25–4.00	.264 –.359		.87	.250
SCS–100	1.0000	2.50–4.00	.374 –.500		1.12	.250

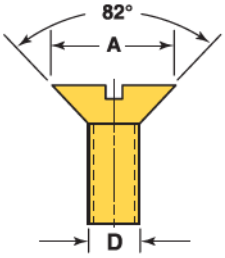
Ordering Example:

Qty	Steel	Cat No.	x	L	x	P	x =
6 ea.	M2	SCS 50	x	3.0	x	.250	x = 2.625

Countersink Punches



"C" = Co/Sink to theoretical sharp corner
"T" = Material Thickness
"A" = Screw Head Diameter
FORMULA TO CALCULATE "C"
.9T + A = C*
*This will result in an approximate flush screw mount.

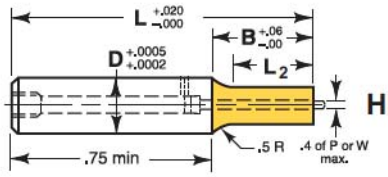


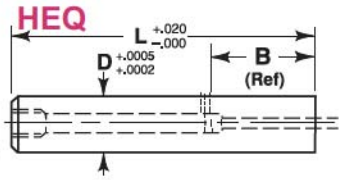
Nominal Screw Size	A Max.	D
0	.138	.060
1	.168	.073
2	.197	.086
3	.226	.099
4	.255	.112
5	.281	.125
6	.307	.138
8	.359	.164
10	.411	.190
12	.463	.216
.25	.531	.250
.3125	.656	.312
.375	.781	.375

To produce best results with countersink punches, we recommend this method. As an additional feature, the stripper plate may be made of urethane or of a steel plate faced with urethane. As the urethane is compressed, it will flow along the angle of the countersink punch keeping the perforated and formed material flat and distortion free.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

PORTER Standard Headless Retrakto Punches & Blanks





Ordering Example:

Qty	Steel	Type	D	B	L	P
13	M2	HEC	37	C x	3.00 x	.250

Optional Locating Methods for details and options see page 38.

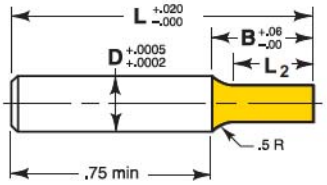
Ordering Example:

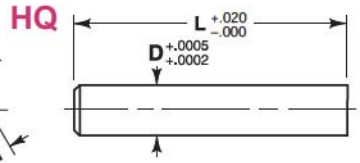
Qty	Steel	Type	D	B	L
13	M2	HEQ	50	D x	2.50

Shank D	Shank Code No.	Point Length B Standard S	Alternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Point Round Range P	Shape Min W	Max P/G	Replacement Retrakto Kit*
.1875	18	.437	●				1.50 thru 2.50	.062 –.1874	.062	.1875	K2I
.2500	25	.500	●				1.50 thru 2.50	.093 –.2499	.093	.2500	K3I
.3125	31	.562	●	●			1.50 thru 3.00	.125 –.3124	.125	.3125	K4I
.3750	37	.625	●	●			1.75 thru 3.00	.187 –.3749	.187	.3750	K6I
.4375	43	.750	●	●			2.00 thru 3.50	.187 –.4374	.187	.4375	K6I
.5000	50	.812	●	●			2.00 thru 3.50	.250 –.4999	.187	.5000	K6I
.6250	62	.937	●	●	●		2.00 thru 3.50	.375 –.6249	.250	.6250	K9I
.7500	75	1.062	●	●	●		2.25 thru 4.00	.500 –.7499	.312	.7500	K9I
.8750	87	1.125	●	●	●	●	2.50 thru 4.00	.594 –.8749	.375	.8750	K9I
1.0000	100	1.250	●	●	●	●	2.50 thru 4.00	.687 –.9999	.375	1.0000	K9I

*Retrakto Kits available see page 36 for details.

PORTER Standard Headless Punches & Blanks





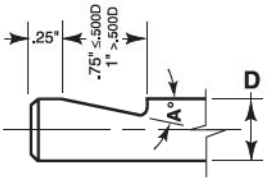
Ordering Example:

Qty	Steel	Type	D	B	L	P
13	M2	HC	25	B x	2.00 x	.187

Ordering Example:

Qty	Steel	Type	D	L
13	M2	HQ	62 x	3.00

Shank D	Shank Code No.	Point Length B Standard S	Alternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Point Round Range P	Shape Min W	Max P/G
.1250	12	.437	●				1.50 thru 3.25	.062 –.1249	.062	.1250
.1875	18	.437	●				1.50 thru 2.50	.062 –.1874	.062	.1875
.2500	25	.500	●				1.50 thru 2.50	.080 –.2499	.093	.2500
.3125	31	.562	●	●			1.50 thru 3.00	.115 –.3124	.125	.3125
.3750	37	.625	●	●			1.75 thru 3.00	.158 –.3749	.187	.3750
.5000	50	.812	●	●			2.00 thru 3.50	.250 –.4999	.187	.5000
.6250	62	.937	●	●	●		2.00 thru 3.50	.375 –.6249	.250	.6250
.7500	75	1.062	●	●	●		2.25 thru 4.00	.500 –.7499	.312	.7500
.8750	87	1.125	●	●	●	●	2.50 thru 4.00	.594 –.8749	.375	.8750
1.0000	100	1.250	●	●	●	●	2.50 thru 4.00	.687 –.9999	.375	1.0000



STD LM-7	
D	A°
.25 .31 .37	5°
.50	7.5°
.62 – 2.50	10°

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

Steel: M2 Rc 60-63

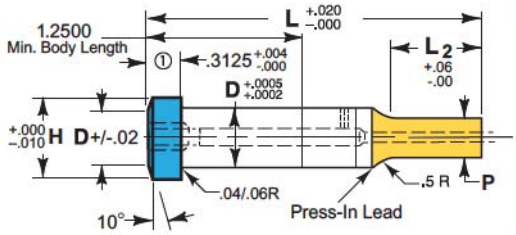
TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Back Draft .001/inch L_2 max.

For Shape and Form Headless Punches **Specify LM7** relation to shape.
Standard location is at 0°.
Alternate angles are available **Specify LM7-12°.**

PORTER Xtreme Retrakto Punches (XR-)

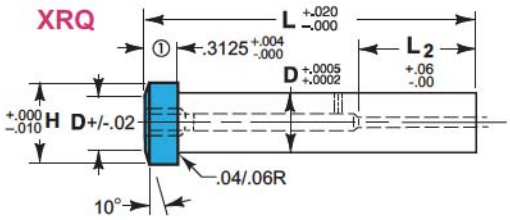


Steel: PM4 Rc 60-63
Heads Rc 40-55

TOLERANCES

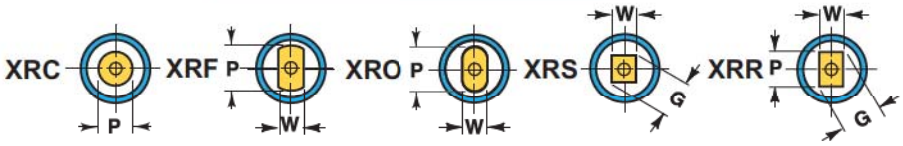
Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Back Draft .001/inch L_2 max.

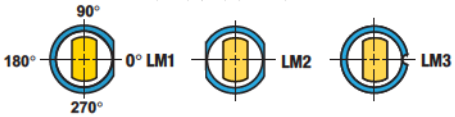


Ordering Example:

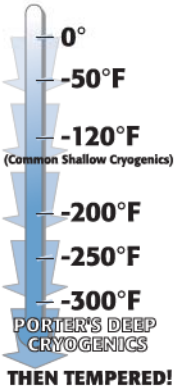
Qty	Type	L_2L		P
8	XRC	1.00/3.00	x	.662



Reflected View



Optional Locating Methods See Page 38 for details and options.



THEN TEMPERED!

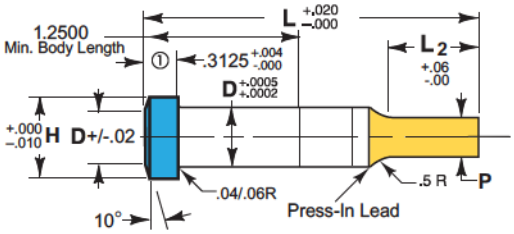
All Porter Xtreme Punches are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability

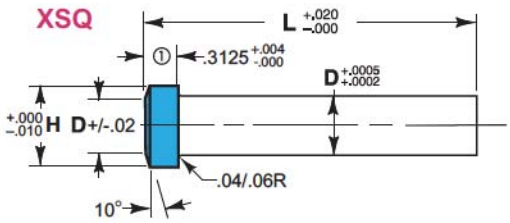
See page 42 for more details.

Shank D	Shank Code No.	Head H	Point Length L_2 Alternates (.50)	(75)	(1.00)	Lengths L in .25" Increments	Point Round Min P	Round Range P	Shape Min W	Shape Max P/G	Replacement Retrakto Kit*
.3750	37	.562	●	●	●	2.25 thru 4.00	.158	.158 –.3749	.158	.3750	K6I
.4375	43	.625	●	●	●	2.25 thru 4.00	.158	.187 –.4374	.187	.4375	K6I
.5000	50	.687	●	●	●	2.25 thru 4.00	.158	.250 –.4999	.187	.5000	K6I
.6250	62	.812	●	●	●	2.50 thru 4.00	.235	.375 –.6249	.250	.6250	K9I
.7500	75	.937	●	●	●	2.50 thru 4.00	.300	.500 –.7499	.312	.7500	K9I
.8750	87	1.062	●	●	●	2.50 thru 4.00	.400	.562 –.8749	.312	.8750	K9I
1.0000	100	1.187	●	●	●	2.50 thru 4.00	.400	.625 –.9999	.375	1.0000	K9I

① +.0005 -.0005 Add PRT to order call out. *Retrakto kits available see page 36 for details.

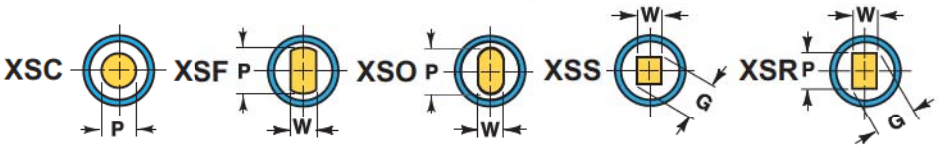
PORTER Xtreme Standard Punches (XS-)





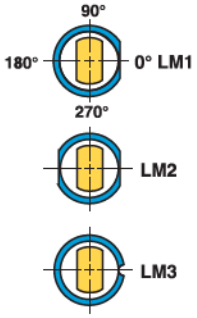
Ordering Example:

Qty	Type	L_2L		P
8	XSC	.50/250	x	.447



Shank D	Shank Code No.	Head H	Point Length L_2 Alternates (.50)	(75)	(1.00)	Lengths L in .25" Increments	Point Round Min P	Round Range P	Shape Min W	Shape Max P/G
.3750	37	.562	●	●	●	2.25 thru 4.00	.158	.158 –.3749	.158	.3750
.4375	43	.625	●	●	●	2.25 thru 4.00	.158	.187 –.4374	.187	.4375
.5000	50	.687	●	●	●	2.25 thru 4.00	.158	.250 – 4999	.187	.5000
.6250	62	.812	●	●	●	2.50 thru 4.00	.235	.375 –.6249	.250	.6250
.7500	75	.937	●	●	●	2.50 thru 4.00	.300	.500 –.7499	.312	.7500
.8750	87	1.062	●	●	●	2.50 thru 4.00	.400	.562 –.8749	.312	.8750
1.0000	100	1.187	●	●	●	2.50 thru 4.00	.400	.625 –.9999	.375	1.0000

Reflected View



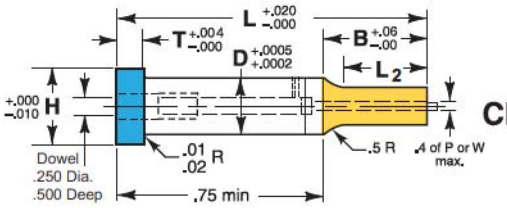
Optional Locating Methods See Page 38 for details and options.

① +.0005 -.0005 Add PRT to order call out.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

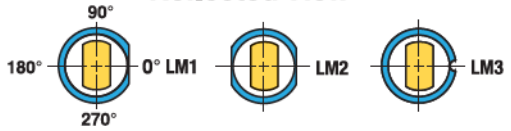
PORTER Standard Center Dowel Retrakto Punches (CDR-)



Ordering Example:

Qty	Steel	Type	D	B		L		P
13	M2	CDRC	50	S	x	3.25	x	.375

Reflected View



Optional **L**ocating **M**ethods See Page 38 for details and options.

Steel: M2 Rc 60-63
Heads Rc 40-55

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Manufactured to ANSI and NAPMA Standards where applicable.

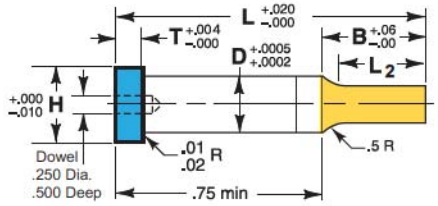
Back Draft .001/inch L_2 max.

Shank D	Shank Code No.	Head H	Head T	Point Length B Standard S	Alternates B(.75)	Alternates C(1.0)	Alternates D(1.25)	Alternates E(1.5)	Lengths L in .25" Increments	Point Round Range P	Point Shape Min W	Point Shape Max P/G	Replacement Retrakto Kit*
.3750	37	.500	.188	.625	●	●			2.00 thru 4.00	.145 – .3749	.145	.3750	K6I
.5000	50	.625	.188	.812	●	●			2.00 thru 4.00	.250 – .4999	.187	.5000	K6I
.6250	62	.750	.250	.937	●	●	●		2.25 thru 4.00	.375 – .6249	.250	.6250	K9I
.7500	75	.875	.250	1.062	●	●	●		2.25 thru 4.00	.500 – .7499	.312	.7500	K9I
1.0000	100	1.125	.250	1.250	●	●	●	●	2.50 thru 4.00	.667 – .9999	.375	1.0000	K9I

*Retrakto kits available see page 36 for details.

All Lengths in Light Blue Panel have Hot Forged Heads for added strength and toughness.

PORTER Standard Center Dowel Punches (CDS-)



Ordering Example:

Qty	Steel	Type	D	B		L		P
6	M2	CDSC	75	D	x	2.75	x	.625

D	Code No.	Head H	Head T	Standard S	Alternates B(.75)	Alternates C(1.0)	Alternates D(1.25)	Alternates E(1.5)	Lengths L in .25" Increments	Round Range P	Shape Min W	Shape Max P/G
.3750	37	.500	.188	.625	●	●			2.00 thru 4.00	.125 – .3749	.125	.3750
.5000	50	.625	.188	.812	●	●			2.00 thru 4.00	.250 – .4999	.187	.5000
.6250	62	.750	.250	.937	●	●	●		2.25 thru 4.00	.375 – .6249	.250	.6250
.7500	75	.875	.250	1.062	●	●	●		2.25 thru 4.00	.500 – .7499	.312	.7500
1.0000	100	1.125	.250	1.250	●	●	●	●	2.50 thru 4.00	.667 – .9999	.375	1.0000

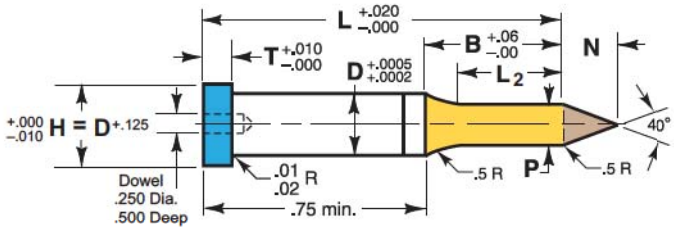
All Lengths in Light Blue Panel have Hot Forged Heads for added strength and toughness.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

PORTER Standard Center Dowel Pilot Punches (CDSAP)

Center Dowel Angular Pilot–CDSAP Type



B & L Lengths do not include Pilot Tip N

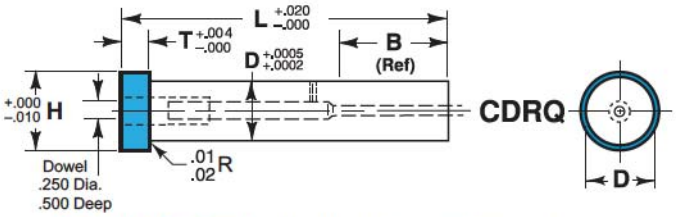
Steel: M2 Rc 60-63
Heads Rc 40-55
P +.0005 -.0000 | ◎ | .0005 | P to D

Ordering Example: Qty Steel Type D B L P
12 M2 CDSAP 62 B x 3.00 x .562

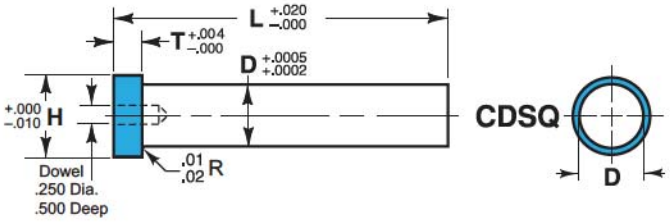
Pilot Type	D	Std. S	Alternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Range P +.0005 -.0000	N MAX	T
CDSAP37	.3750	.625	●	●			2.50 thru 4.25	.124 – .3750	.375	.187
CDSAP50	.5000	.812	●	●			2.50 thru 5.50	.249 – .5000	.500	.187
CDSAP62	.6250	.937	●	●	●		2.50 thru 5.25	.374 – .6250	.625	.250
CDSAP75	.7500	1.062	●	●	●		2.50 thru 5.25	.499 – .7500	.750	.250
CDSAP100	1.0000	1.250	●	●	●	●	3.00 thru 5.00	.666 –1.0000	1.000	.250

All Lengths under 4.50 OAL in Light Blue Panel have Hot Forged Heads for added strength and toughness.

PORTER Standard Center Dowel Blank Punches



Ordering Example: Qty Steel Type D B L
6 M2 CDRQ 37 D x 2.75



Ordering Example: Qty Steel Type D L
6 M2 CDSQ 37 2.75

D	Code No.	Head H	T	Standard S	Alternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Retrakto Pin
.3750	37	.500	.188	.625	●	●			2.00 thru 4.00	K6I
.5000	50	.625	.188	.812	●	●			2.00 thru 4.00	K6I
.6250	62	.750	.250	.937	●	●			2.25 thru 4.00	K9I
.7500	75	.875	.250	1.062	●	●	●		2.25 thru 4.00	K9I
1.0000	100	1.125	.250	1.250	●	●	●	●	2.50 thru 4.00	K9I

Many longer than standard "L" are in stock. Please contact factory.

All Lengths under 4.50 OAL in Light Blue Panel have Hot Forged Heads for added strength and toughness.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. *See page 37.*

PORTER Ultra Precision Headed Retrakto Punch (PR-)

Ordering Example:

Qty	Steel	Type	D		B		L		P
6	PM4	PRC	50		C	x	3.00	x	.470

Steel: A2, M2 Rc 60-63
PM4, Rc 63-65
D Ø > 1.000 M2 (HSS) Steel only
Heads Rc 40-55 (1" Ø and smaller and L ≥ 2")

TOLERANCES

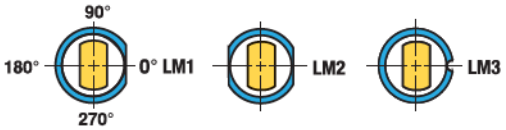
D ≤ 1.50 P,W $^{+.0002}_{-.0000}$ | ◎ .0003 P,W to D

D > 1.50 P,W $^{+.0004}_{-.0000}$ | ◎ .0004 P,W to D

① D Tol = $^{+.0006}_{+.0002}$

Manufactured to ANSI and NAPMA Standards where applicable.

Reflected View



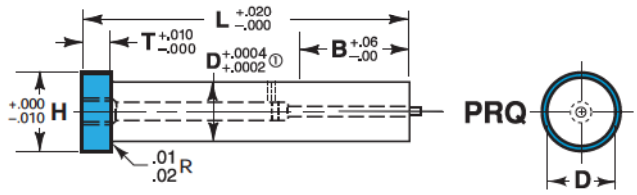
Optional Locating Methods See Page 38 for details and options.

Shank D	Shank Code No.	Head H	Head T	Point Length B A(.50)	B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Point Round Range P	Point Shape Min W	Point Shape Max P/G	Replacement Retrakto Kit*
.1875	18	.312	.125	●	●	●			1.25 thru 3.00	.062 – .1874	.093	.1875	K2I
.2500	25	.375	.188	●	●	●	●		1.25 thru 3.00	.093 – .2499	.093	.2500	K3I
.3125	31	.437	.188	●	●	●	●	●	1.25 thru 4.00	.125 – .3124	.125	.3125	K4I
.3750	37	.500	.188	●	●	●	●	●	1.25 thru 4.00	.187 – .3749	.187	.3750	K6I
.4375	43	.562	.188		●	●	●	●	1.50 thru 4.00	.187 – .4374	.187	.4375	K6I
.5000	50	.625	.188		●	●	●	●	1.50 thru 4.00	.225 – .4999	.250	.5000	K6I
.6250	62	.750	.188		●	●	●	●	1.50 thru 4.00	.310 – .6249	.282	.6250	K9I
.7500	75	.875	.188		●	●	●	●	1.50 thru 4.00	.390 – .7499	.312	.7500	K9I
1.0000	100	1.125	.188		●	●	●	●	2.25 thru 3.25	.485 – .9999	.375	1.0000	K9I
1.2500	125 ①	1.375	.188				●	●	2.25 thru 3.25	.625 –1.2499	.375	1.2500	K12I
1.5000	150 ①	1.625	.188				●	●	2.25 thru 3.25	.750 –1.4999	.375	1.5000	K12I
1.7500	175 ①	1.875	.188				●	●	2.25 thru 3.25	1.000 –1.7499	.375	1.7500	K12I
2.0000	200 ①	2.125	.188				●	●	2.25 thru 3.25	1.188 –1.9999	.425	2.0000	K12I

*Retrakto Kits available see page 36 for details.
Retrakto Punches .1875 and 1.25 and larger = No side hole.

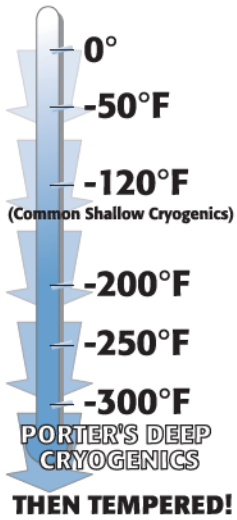
All Lengths in Light Blue Panel have Hot Forged Heads for added strength and toughness.

PORTER Ultra Precision Headed Retrakto Punch Blank (PRQ)



Ordering Example:

Qty	Steel	Type	D		L
7	PM4	PRQ	37	x	3.00

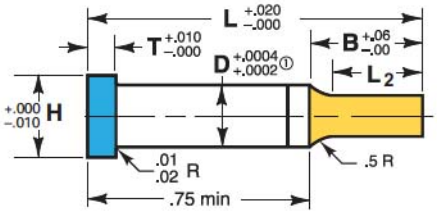


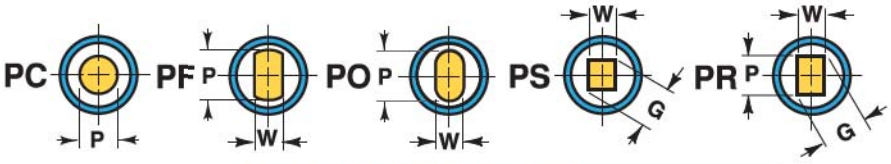
All Porter Ultra Precision Punches up to 1" Dia. are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability
See page 42 for more details.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

PORTER Ultra Precision Headed Punch (P-)





Ordering Example:

Qty	Steel	Type	D		B		L		P
6	M2	PC	50		A	x	3.25	x	.375

Reflected View

Optional Locating Methods See Page 38 for details and options.

Steel: A2 L ≤ 4", M2 Rc 60-63
PM4, Rc 63-65 L ≤ 4"
Heads Rc 40-55 (1" Ø and smaller and L ≥ 2")

TOLERANCES

D ≤ 1.50 P,W $^{+.0002}_{-.0000}$ | ◎ .0003 P,W to D

D > 1.50 P,W $^{+.0004}_{-.0000}$ | ◎ .0004 P,W to D

① D Tol = $^{+.0006}_{+.0002}$

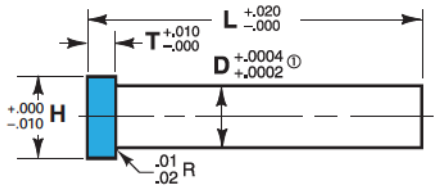
Manufactured to ANSI and NAPMA Standards where applicable.

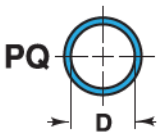
Shank		Head		Point Length B					Lengths L	Point Round	Point Shape	
D*	Code No.	H	T	A(.50)	B(.75)	C(1.0)	D(1.25)	E(1.5)	in .25" Increments	Range P	Min W	Max P/G
.1250	12	.250	.125	•	•	•	•		1.25 thru 3.25	.062 – .1249	.062	.1250
.1875	18	.312	.125	•	•	•	•	•	1.25 thru 4.00	.062 – .1874	.062	.1875
.2500	25	.375	.188	•	•	•	•	•	1.25 thru 4.00	.062 – .2499	.062	.2500
.3125	31	.437	.188	•	•	•	•	•	1.25 thru 4.25	.093 – .3124	.093	.3125
.3750	37	.500	.188	•	•	•	•	•	1.50 thru 6.00	.125 – .3749	.125	.3750
.4375	43	.562	.188	•	•	•	•	•	1.50 thru 4.25	.187 – .4374	.187	.4375
.5000	50	.625	.188		•	•	•	•	1.50 thru 6.00	.225 – .4999	.187	.5000
.6250	62	.750	.188		•	•	•	•	1.50 thru 5.00	.310 – .6249	.250	.6250
.7500	75	.875	.188		•	•	•	•	1.50 thru 5.00	.390 – .7499	.312	.7500
1.0000	100	1.125	.188		•	•	•	•	1.50 thru 4.25	.485 – .9999	.375	1.0000
1.2500	125 ①	1.375	.188		•	•	•	•	1.50 thru 4.25	.625 –1.2490	.500	1.2500
1.3750	137 ①	1.500	.188			•	•	•	2.25 thru 4.00	.719 –1.3740	.516	1.3750
1.5000	150 ①	1.625	.188			•	•	•	2.25 thru 4.00	.750 –1.4990	.563	1.5000
1.6250	162 ①	1.750	.188			•	•	•	2.25 thru 4.00	.875 –1.6240	.609	1.6250
1.7500	175 ①	1.875	.188			•	•	•	2.25 thru 4.00	1.000 –1.7490	.656	1.7500
2.0000	200 ①	2.125	.188			•	•	•	2.25 thru 4.00	1.188 –1.9990	.750	2.0000

* D Ø > 1.000 M-2 (HSS) Steel only. Many longer than standard "L" are in stock. Request quote for these items.
P below .060 Ø available B=1.00 max W below .093 Ø available B=1.00 max
P below .050 Ø available B=.75 max W below .060 Ø available B=.75 max

All Lengths under 4.50 in Light Blue Panel have Hot Forged Heads for added strength and toughness.

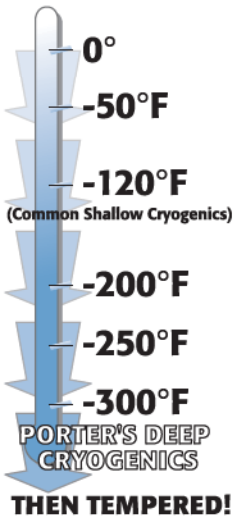
PORTER Ultra Precision Headed Punch Blank (PQ)





Ordering Example:

Qty	Steel	Type	D		L
6	M2	PQ	50	x	3.00

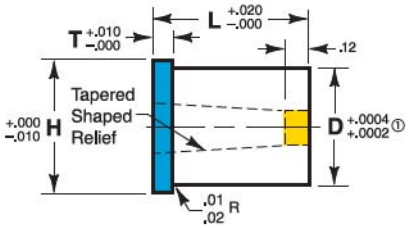


All Porter Ultra Precision Punches up to 1" Dia. are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability
See page 42 for more details.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

PORTER Ultra Precision Headed Die Button (HPD-)



Ordering Example:

Qty	Steel	Type	D		L		P
6	PM4	HPDC	75	x	1.25	x	.380

Optional Locating Methods See Page 38 for details and options.

Steel: M2 Rc 60-63
PM4, Rc 63-65

TOLERANCES

D ≤ 1.50 P,W +.0002 -.0000	◎	.0003	P,W to D
D > 1.50 P,W +.0004 -.0000	◎	.0004	P,W to D

Manufactured to ANSI and NAPMA Standards where applicable.

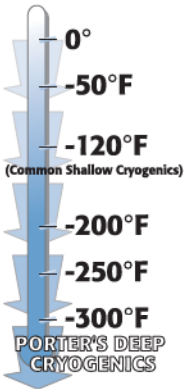
① D Tol = +.0006 +.0002

0.5 Degree taper relief per side

Porter also offers HDT and DT style die buttons to standard precision tolerances. Any Diameter can be furnished with P +.0005/-.0000 and TIR of .0005 in round configurations. Any Shaped ID can be furnished with P,W of +.001/-.000 and TIR of .001. These standard tolerance items are furnished with a slug relief of 1 degree taper per side.

Shank		Head		Lengths L										Round ID	Shape ID	
D**	Code No.	H	T	.500	.625	.750	.875	.9375	1.000	1.125	1.250	1.375	1.500	Range P	Min W	Max P/G
.1875	18	.312	.125	●	●	●	●	●	●	●				.050 – .130	.050	.130
.2500	25	.375	.188	●	●	●	●	●	●	●	●			.050 – .170	.050	.170
.3125	31	.437	.188	●	●	●	●	●	●	●	●			.062 – .212	.050	.212
.3750	37	.500	.188	●	●	●	●	●	●	●	●	●	●	.075 – .255	.050	.255
.4375	43	.562	.188	●	●	●	●	●	●	●	●	●	●	.130 – .297	.075	.297
.5000	50	.625	.188	●	●	●	●	●	●	●	●	●	●	.150 – .344	.075	.344
.6250	62	.750	.188			●	●	●	●	●	●	●	●	.188 – .425	.075	.425
.7500	75	.875.	.188			●	●	●	●	●	●	●	●	.225 – .510	.075	.510
.8750	87	1.000	.188			●	●	●	●	●	●	●	●	.300 – .595	.075	.595
1.0000	100	1.125	.188			●	●	●	●	●	●	●	●	.400 – .680	.135	.680
1.2500	125	1.375	.188			●	●	●	●	●	●	●	●	.500 – .850	.135	.850
1.5000	150	1.625	.188			●	●	●	●	●	●	●	●	.600 – 1.050	.135	1.050
1.7500	175①	1.875	.188			●			●		●	●	●	.750 – 1.400	.135	1.400
2.0000	200①	2.125	.188			●			●		●	●	●	.875 – 1.600	.135	1.600
2.2500	225①	2.375	.188			●			●		●	●	●	1.000 – 1.800	.135	1.800
2.5000	250①	2.625	.188			●			●		●	●	●	1.125 – 2.000	.135	2.000
2.7500	275①	2.875	.188			●			●		●	●	●	1.250 – 2.200	.135	2.200
3.0000	300①	3.125	.188			●			●		●	●	●	1.375 – 2.450	.135	2.450

**D Ø > 1.500 M2 (HSS) Steel only. NOTE–Standard .125 thick land is supplied, alternate lands are available, call out "AB" and land desired (Ex "AB-.062").

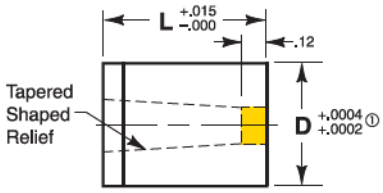


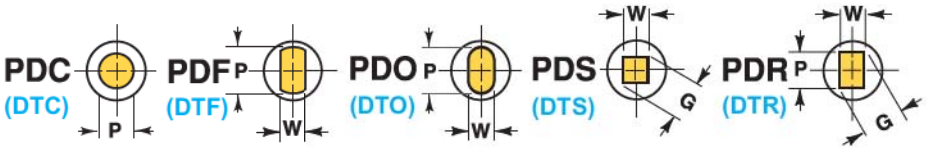
THEN TEMPERED!

All Porter Ultra Precision die buttons are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability

See page 42 for more details.

PORTER Ultra Precision Headless Die Button (PD-)





Ordering Example:

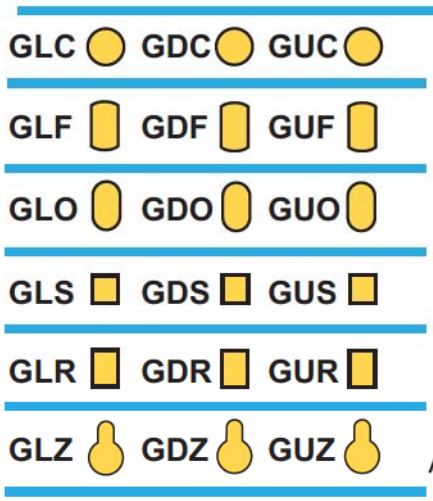
Qty	Steel	Type	D		L		W		P	Locate
3	PM4	PDO	43	x	1	x	.097	x	.191	LM1

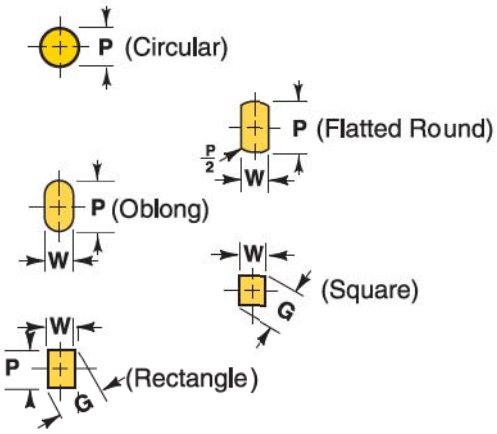
Optional Locating Methods See Page 38 for details and options.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

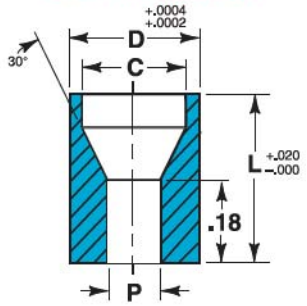
PORTER Steel Guide Bushings



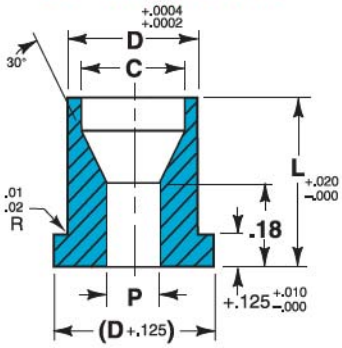


Additional Standard Forms (Z) See pages 32 and 33.

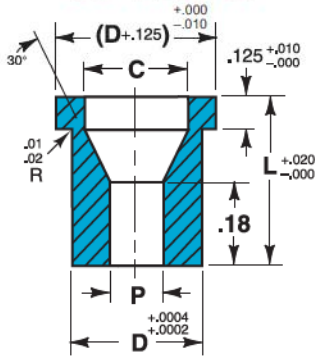
GL–HEADLESS



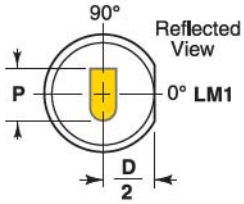
GD–HEAD-DOWN



GU–HEAD-UP



Body ØD	Code No.	Length L .37	.50	.62	Circular ID Range P	Shape ID Min. W	Max.P/G	Ø C	Match Punch Shank Ø
.2500	25	•	•	•	.062 – .125	.062	.125	.140	.125
.3125	31	•	•	•	.062 – .188	.062	.188	.202	.187
.3750	37	•	•	•	.062 – .250	.062	.250	.265	.250
.4375	43	•	•	•	.093 – .313	.093	.313	.327	.312
.5000	50		•	•	.125 – .375	.125	.375	.390	.375
.6250	62		•	•	.187 – .438	.187	.438	.452	.437
.7500	75		•	•	.187 – .500	.187	.500	.515	.500
.8750	87			•	.310 – .625	.250	.625	.640	.625
1.0000	100			•	.390 – .750	.312	.750	.765	.750



- Locating flats and dowels, see page 38.
- Alterations, see page 37.
- Guide Bushing I.D. should be at least .0005 larger than the punch point that it is used with.

Ordering Example:

Headless 4 ea. GLC 50 x .62 x .298
Head-Down 4 ea. GDO 62 x .50 x .187 x .327 LM1
Head-Up 4 ea. GUS 50 x .50 x .250 LM2

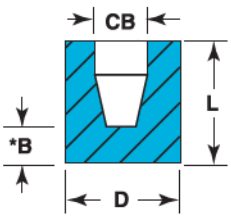
P & W TOLERANCE +.0004 -.0000

◎ .0003 P,W to D

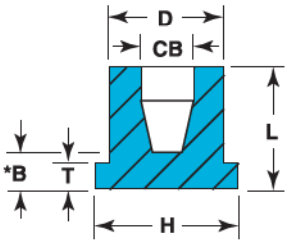
Steel: M2 Rc 60-63
Manufactured to ANSI and NAPMA Standards where applicable.

PORTER Urethane Stripper Guides

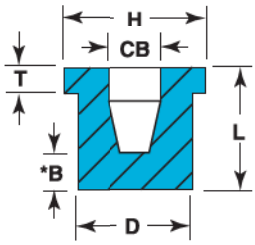
HL HEADLESS



HD HEAD DOWN



HU HEAD UP



Ordering Example:

6 ea. HL 50 x .50
6 ea. HD 31 x .62
8 ea. HU 62 x .50

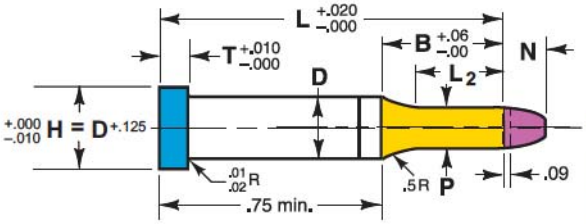
Headless	Head Down	Head Up	D +.007 +.003	L ±.005		P/W Range	H +.000 -.010	CB	T ±.005
HL-31	HD-31	HU-31	.312	.50	.62	.031 – .187	.4375	.203	.125
HL-37	HD-37	HU-37	.375	.50	.62	.031 – .250	.5000	.265	.125
HL-50	HD-50	HU-50	.500	.50	.62	.093 – .312	.6250	.328	.125
HL-62	HD-62	HU-62	.625	.50	.62	.125 – .375	.7500	.390	.125

* The counterbore "CB" is so constructed that the land length equals 1.5 x P.

For Round and Shaped Punches

- **Eliminate Vibration**
- **Will not wear or gall punch**
- **Will not distort alignment because the punch shears its own bore.**

PORTER Ultra Precision Headed Pilots



B & L Lengths do not include Pilot Tip N

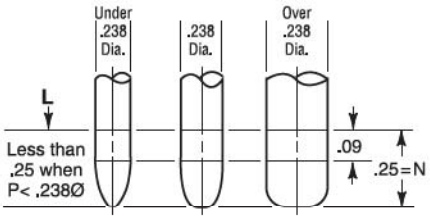
Ordering Example:

Qty	Steel	Type	D	B		L		P
5	PM4	PP	50	C	x	2.50	x	.374

Steel: A2 L ≤ 4" OAL, M2 Rc 60-63
PM4 L ≤ 4" OAL, Rc 63-65
Heads Rc 40-55 (1" Ø and smaller and L ≥ 2")

P +.0002 -.0000 | ◎ .0003 P to D

Manufactured to ANSI and NAPMA Standards where applicable.

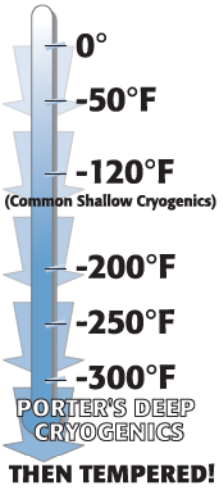


Ultra Precision Regular Pilot

Pilot Type	D +.0004 +.0002	Point Length B Alternates A(.50)	B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Range P +.0002 -.0000	N	T
PP12	.1250	●	●	●	●		1.25 thru 3.00	.061 – .1250	.250	.125
PP18	.1875	●	●	●	●		1.25 thru 3.75	.061 – .1875	.250	.125
PP25	.2500	●	●	●	●		1.25 thru 3.75	.061 – .2500	.250	.188
PP31	.3125	●	●	●	●		1.25 thru 4.00	.092 – .3125	.250	.188
PP37	.3750	●	●	●	●		1.50 thru 4.50	.124 – .3750	.250	.188
PP43	.4375		●	●	●		1.50 thru 4.00	.186 – .4375	.250	.188
PP50	.5000		●	●	●		1.50 thru 4.50	.224 – .5000	.250	.188
PP62	.6250		●	●	●		1.50 thru 4.50	.309 – .6250	.250	.188
PP75	.7500		●	●	●	●	1.50 thru 4.50	.389 – .7500	.250	.188
PP100	1.0000		●	●	●	●	1.50 thru 4.50	.484 – 1.0000	.250	.188

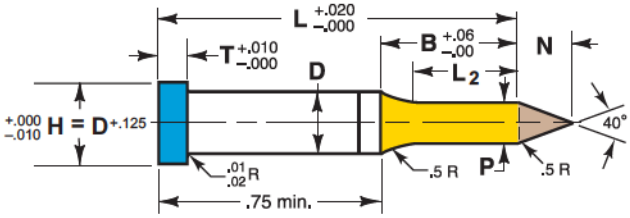
P below .060 Ø available B=1.00 max
P below .050 Ø available B=.75 max

All Lengths under 4.50 OAL in Light Blue Panel have Hot Forged Heads for added strength and toughness.



All Porter Ultra Precision Pilots are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability
See page 42 for more details.

Ultra Precision Angular Pilot-PAP Type

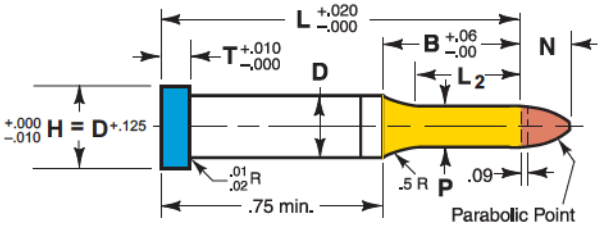


B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B		L		P
13	M2	PAP	18	D	x	3.00	x	.155

Long Parabolic Locator Pilot–PLP Type



B & L Lengths do not include Pilot Tip N

Ordering Example:

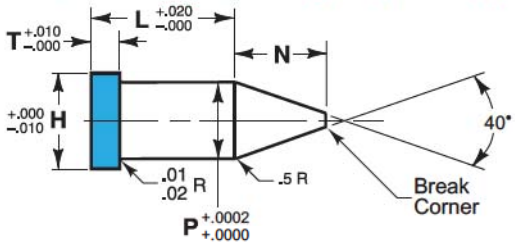
Qty	Steel	Type	D	B		L		P
5	M2	PLP	75	B	x	2.25	x	.686

Pilot Type	D +.0004 +.0002	Point Length BAlternates B(.75)	C(1.0)	D(1.25)	E(1.5)	Lengths L in .25" Increments	Range P +.0002 -.0000	N MAX	T	Pilot Type
PAP18	.1875	●	●	●		2.25 thru 3.50	.061 – .1875	.187	.125	PLP18
PAP25	.2500	●	●	●		2.25 thru 3.50	.061 – .2500	.250	.188	PLP25
PAP31	.3125	●	●	●		2.25 thru 4.00	.092 – .3125	.312	.188	PLP31
PAP37	.3750	●	●	●		2.25 thru 4.00	.124 – .3750	.375	.188	PLP37
PAP43	.4375	●	●	●		2.25 thru 4.25	.186 – .4375	.437	.188	PLP43
PAP50	.5000	●	●	●		2.25 thru 5.50	.224 – .5000	.500	.188	PLP50
PAP62	.6250	●	●	●		2.25 thru 5.25	.309 – .6250	.625	.188	PLP62
PAP75	.7500	●	●	●	●	2.25 thru 5.25	.389 – .7500	.750	.188	PLP75
PAP100	1.0000	●	●	●	●	3.00 thru 5.00	.484 – 1.0000	1.000	.188	PLP100

All Lengths under 4.50 OAL in Light Blue Panel have Hot Forged Heads for added strength and toughness.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

Sur–Align Straight (PAPQ)



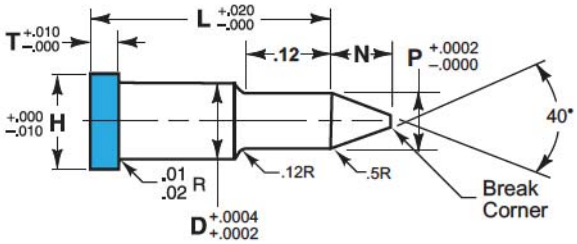
Ordering Example:

Qty	Steel	Type	LP Dim.	Alt.
10	M2	PAPQ	0.87	.270 RL.725

Steel: A2, M2 Rc 60-63
PM4 Rc 63-65
◎ .0003 P to D

Type	Range P	Max N	Head T	Head H	Lengths L 0.625	0.750	0.875	1.000	1.125	1.250	1.375
PAPQ	.1865–.2500	.25	.188	.375	●	●	●	●	●	●	●
PAPQ	.2501–.3125	.31	.188	.438	●	●	●	●	●	●	●
PAPQ	.3126–.3750	.37	.188	.500	●	●	●	●	●	●	●
PAPQ	.3751–.4375	.43	.188	.562	●	●	●	●	●	●	●
PAPQ	.4376–.5000	.50	.188	.625	●	●	●	●	●	●	●
PAPQ	.5001–.6250	.62	.188	.750	●	●	●	●	●	●	●
PAPQ	.6251–.7500	.75	.188	.875		●	●	●	●	●	●
PAPQ	.7501–.8750	.87	.188	1.000		●	●	●	●	●	●
PAPQ	.8751–1.000	1.00	.188	1.125		●	●	●	●	●	●

Sur–Align Nibbed (PAPN)



Ordering Example:

Qty	Steel	Type	D Code	L	P Dim.
20	PM4	PAPN	75	1.37	.630

Steel: A2, M2 Rc 60-63
PM4 Rc 63-65
◎ .0003 P to D

Type	Shank D	Code	Min P	Range P	Max N	Head T	Head H	Lengths L 0.625	0.750	0.875	1.000	1.125	1.250	1.375
PAPN 25	.2500	25	.092	.165 –.2499	.25.	.188	.375	●	●	●	●	●	●	●
PAPN 31	.3125	31	.092	.210 –.3124	.31	.188	.438	●	●	●	●	●	●	●
PAPN 37	.3750	37	.092	.255 –.3749	.37	.188	.500	●	●	●	●	●	●	●
PAPN 43	.4375	43	.092	.300 –.4374	.43	.188	.562	●	●	●	●	●	●	●
PAPN 50	.5000	50	.124	.345 –.4999	.50	.188	.625	●	●	●	●	●	●	●
PAPN 62	.6250	62	.234	.440 –.6249	.62	.188	.750	●	●	●	●	●	●	●
PAPN 75	.7500	75	.299	.530 –.7499	.75	.188	.875		●	●	●	●	●	●
PAPN 87	.8750	87	.349	.620 –.8749	.87	.188	1.000		●	●	●	●	●	●
PAPN 100	1.0000	100	.399	.710 –.9999	1.00	.188	1.250		●	●	●	●	●	●

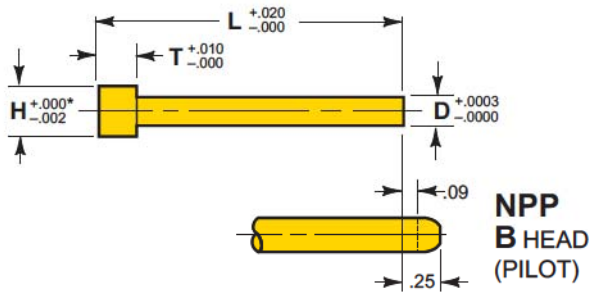
Porter Ultra Precision Sur-Align Pilots (whether straight or nibbed) allow the die designer/builder to pilot in a much shorter area. By using Sur-Align Pilots in a guided stripper, much less deflection will occur and the overall die life will be improved.

If additional wear ability is desired Porter offers various coatings to provide additional lubricity and life.

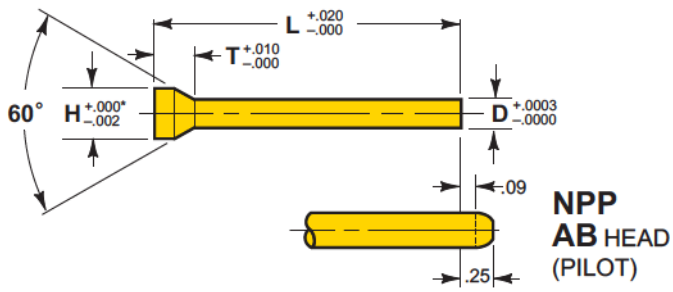
PORTER HP & NPP Type Perforators

.001 increment shank diameters ZeroTemp (Deep Cryogenic) Treated

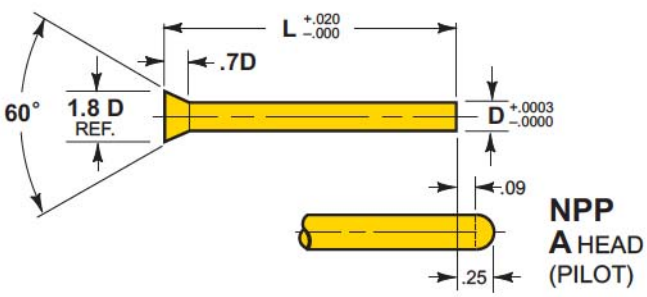
HP PIN B HEAD



HP PIN AB HEAD



HP PIN A HEAD

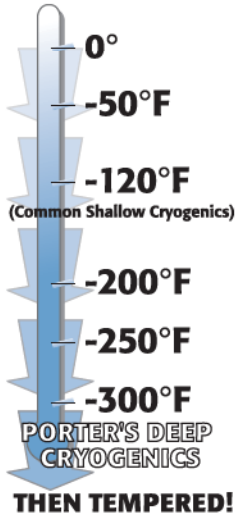


Catalog Code	Size No.	L in .25" Increments	D .001 Increments	T	H
HP Straight Pin / NPP Radius Pilot Tip / NAP Angled Pilot Tip **	1/0	1.25 – 1.50	.025 – .0290	.093	.060
	1	1.25 – 2.00	.030 – .0400	.093	.070
	2	1.50 – 2.50	.041 – .0550	.093	.085
	3	1.50 – 2.50	.056 – .0700	.093	.100
	4	1.50 – 2.50	.071 – .0850	.093	.115
	5	1.50 – 2.75	.086 – .1000	.093	.130
	6	1.50 – 2.75	.101 – .1150	.093	.145
	7	1.50 – 2.75	.116 – .1300	.093	.160
	8	1.50 – 2.75	.131 – .1450	.093	.175
	9	1.50 – 2.75	.146 – .1600	.093	.190
	10	1.50 – 3.00	.161 – .1750	.125	.205
	11	1.50 – 3.00	.176 – .1900	.125	.220
	12	1.50 – 3.00	.191 – .2050	.125	.235
	13	1.50 – 3.00	.206 – .2200	.125	.250
	14	1.50 – 3.00	.221 – .2350	.125	.265
	15	1.50 – 3.00	.236 – .2500	.125	.280
	16	1.75 – 3.50	.251 – .2650	.125	.295
	17	1.75 – 3.50	.266 – .2800	.125	.310
	18	1.75 – 3.50	.281 – .2950	.125	.325
	19	1.75 – 3.50	.296 – .3100	.125	.340
	20	1.75 – 3.50	.311 – .3250	.187	.355
	21	2.00 – 4.00	.326 – .3400	.187	.370
	22	2.00 – 4.00	.341 – .3550	.187	.385
	23	2.00 – 4.00	.356 – .3700	.187	.400
	24	2.00 – 4.00	.371 – .3850	.187	.415
Size #26 and larger "B" style head*					
	26	2.25 – 4.00	.376 – .4375	.187	.563
	27	2.25 – 4.00	.438 – .5000	.187	.625
	28	2.25 – 4.00	.501 – .5620	.187	.687
	29	2.25 – 4.00	.563 – .6250	.187	.750
	30	2.25 – 4.50	.626 – .7190	.250	.844
	31	2.25 – 4.50	.720 – .8120	.250	.937
	32	2.25 – 5.00	.813 – .9060	.250	1.031
	33	2.25 – 5.00	.907 –1.0000	.250	1.125
	34	2.25 – 5.50	1.001 –1.1250	.250	1.250
	35	2.25 – 5.50	1.126 –1.2500	.250	1.375
	36	2.25 – 5.50	1.251 –1.4380	.250	1.563
	37	2.25 – 5.50	1.439 –1.6250	.250	1.750

Ordering Example:

Qty.	Style	Size	L	D	Head Style
12	HP	10	x 2.50 x	.175	AB
12	NPP	10	x 2.50 x	.175	AB

M2 Rc 60-63
Heads Drawn Rc 40-55
ZeroTemp Treated



All Porter Perforators up to #24 are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability

See page 42 for more details.

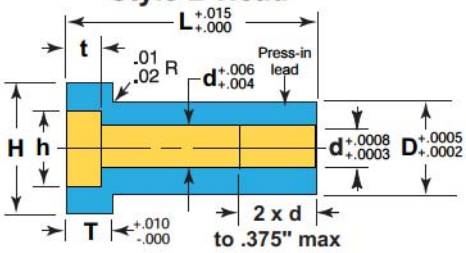
* **H** Diameter $^{+.000}_{-.010}$ Sizes # 26 thru # 37

- All perfs are head drawn for additional toughness.
- Pilot tip is not included in the **"L"** length of **"NPP" & "NAP"** pilots.
- Perforators (up to # 24) are ZeroTemp treated (See page 42) giving you the toughest M2 steel perforator for your money.
- Porter angle style heads **(A & AB)** can greatly reduce head popping due to elimination of relatively sharp corners present in 90° angle heads.
- Vertical lapped perforators are available; call out **"VL"** in description.
- Nitrogenic Treatment and Titanium Nitride coatings are available for increased wear resistance, see page 42.

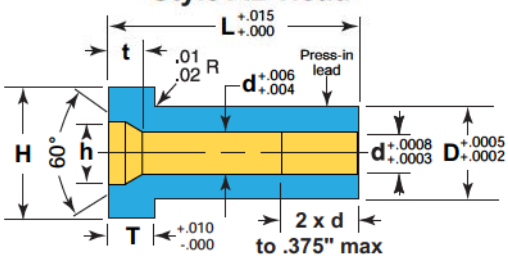
** 40° angled tip pilot also available, call out "NAP"

PORTER CQ Perforator Holders

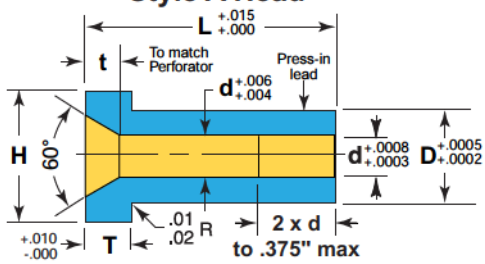
Style B Head



Style AB Head



Style A Head



TOLERANCE
Steel: D2, Rc 59-62

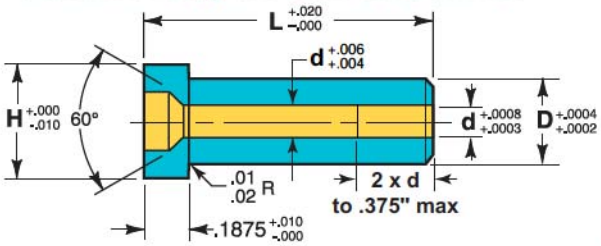
Catalog No.	D	Lengths L in .25" Increments	d .001 increments	h	t	H	T
CQ–30	.1875	.75 – 1.25	.040 – .060	Punch head diameter +.015	.094	.250	.187
CQ–31	.2500	.75 – 1.50	.060 – .126		.094	.375	.187
CQ–32	.3125	.75 – 2.00	.080 – .160		.094	.437	.187
CQ–33	.3750	1.00 – 2.25	.161 – .218		.125	.500	.187
CQ–34	.4375	1.00 – 2.25	.200 – .250		.125	.562	.187
CQ–35	.5000	1.00 – 2.25	.218 – .310		.125	.625	.187
CQ–35	.5000	1.00 – 2.25	.311 – .325		.187	.625	.187
CQ–36	.6250	1.00 – 2.25	.326 – .385		.187	.750	.187
CQ–37	.8750	1.75 – 2.50	.376 – .500		.187	1.125	.187
CQ–38	1.125	2.00 – 2.50	.501 – .625		.187	1.375	.187
CQ–39	1.3750	2.50 – 3.00	.626 – .812		.250	1.625	.187
CQ–40	1.7500	2.75 – 3.25	.813 – 1.000		.250	2.000	.187
CQ–41	2.2500	3.00 – 3.50	1.001 – 1.250		.250	2.500	.187
CQ–42	2.8750	3.00 – 3.50	1.251 – 1.625		.250	3.250	.187

Ordering Example:

Qty.	Cat. No.	L		d	Head Style
6	CQ32	x 1.50	x	.100	AB

PORTER Support Quill Series

Standard Support Quill SSQ Series

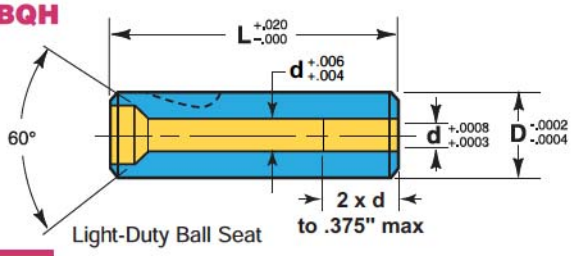


Ordering Example:

Qty.	Cat. No.	x	L	Head Style
6	SSQ53	x	1.50	AB

TOLERANCE
Steel: A2, RC59-62
d to D TIR: .0003 Max. Perf.

BQH



Ordering Example:

Qty.	Cat. No.	x	L	Head Style
6	BQH53	x	1.75	AB

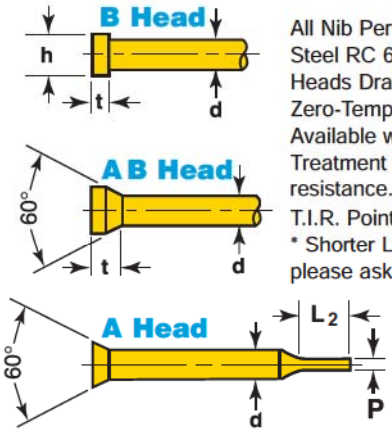
Catalog Number	D	Length L in .25" Increment	Perf d	H	To Match AB Perf #
SSQ–50	.1875	.75 – 1.25	.062	.250	NO-LN0
SSQ–51	.2500	.75 – 1.50	.078	.375	N1-LN1
SSQ–52	.2500	1.00 – 1.75	.093	.375	N2-LN2
SSQ–53	.3125	1.00 – 1.75	.125	.437	N3-LN3
SSQ–54	.3125	1.00 – 1.75	.156	.437	N4-LN4
SSQ–55	.3750	1.00 – 1.75	.187	.500	N5-LN5
SSQ–56	.3750	1.25 – 1.75	.218	.500	N6-LN6
SSQ–57	.4375	1.25 – 1.75	.250	.562	N7-LN7
SSQ–58	.5000	1.25 – 1.75	.312	.625	N8-LN8
SSQ–59	.6250	1.25 – 1.75	.375	.750	N9-LN9
SSQ–60	.8750	1.25 – 1.75	.438	1.125	N10-LN10
SSQ–61	.8750	1.25 – 1.75	.500	1.125	N11-LN11

Catalog Number	Holder ØD	Length L		Perf d	To Match AB Perf #
BQH–50	.3750	1.25	1.75	.062	NO-LN0
BQH–51	.3750	1.25	1.75	.078	N1-LN1
BQH–52	.3750	1.25	1.75	.093	N2-LN2
BQH–53	.3750	1.25	1.75	.125	N3-LN3
BQH–54	.5000	1.25	1.75	.156	N4-LN4
BQH–55	.5000	1.25	2.00	.187	N5-LN5
BQH–56	.5000	1.25	2.00	.218	N6-LN6
BQH–57	.6250	1.25	2.00	.250	N7-LN7
BQH–58	.8750	1.25	2.00	.312	N8-LN8
BQH–59	.8750	1.25	2.00	.375	N9-LN9

Designed
- to hold N and LN type perforators, will also fit HP type.
- with thicker wall at tear-drop washout for extra strength.
- to fit all standard light duty retainers.

PORTER Perforators and Support Sleeves

N & LN Series

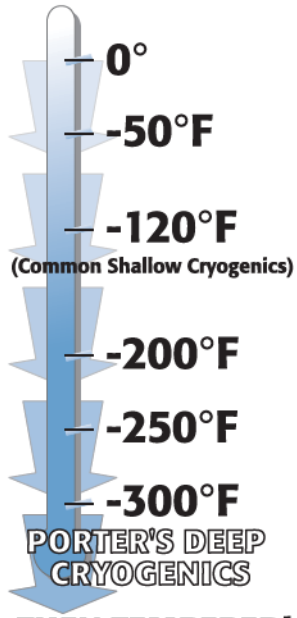


All Nib Perforators are M-2 Steel RC 60-63
Heads Drawn RC 40-55
Zero-Temp (Deep-Cryogenic) Available with Nitrogenic Treatment for added wear resistance.
T.I.R. Point to body .0003
* Shorter Lengths are available, please ask for quote.

Ordering Example:

Qty.	Cat. No.	x	L	x	ØP	Head Style
12	N5	x	2.0	x	.145	AB
16	LN5	x	2.5	x	.145	AB

Catalog No.	N L_2	d	h	t	L in .25" increments	P +.0003 +.0000	LN L_2	Catalog Number
N-0	.125	.062	.100	.093	1.50 to 2.50	.031 – .044	.250	LN-0
						.045 – .061	.312	
N-1	.156	.078	.115	.093	1.50 to 2.50	.045 – .061	.312	LN-1
						.062 – .077	.437	
N-2	.187	.093	.130	.093	1.50 to 2.75	.060 – .074	.437	LN-2
						.075 – .092	.500	
N-3	.250	.125	.160	.093	1.50 to 2.75	.075 – .124	.562	LN-3
N-4	.312	.156	.190	.093	1.50 to 2.75	.093 – .155	.750	LN-4
N-5	.437	.187	.220	.125	1.75 to 3.00	.109 – .186	.875	LN-5
N-6	.468	.218	.250	.125	1.75 to 3.00	.125 – .217	1.000	LN-6
N-7	.500	.250	.280	.125	2.00 to 3.00	.150 – .249	1.125	LN-7
N-8	.562	.312	.355	.187	2.00 to 3.50	.187– .311	1.187	LN-8
N-9	.687	.375	.415	.187	2.00 to 4.00	.255 – .374	1.312	LN-9
N-10	.687	.438	.563	.187	2.50 to 4.00	.262 – .437	1.312	LN-10
N-11	.687	.500	.625	.187	2.50 to 4.00	.300 – .499	1.312	LN-11
N-12	.687	.562	.687	.187	2.50 to 4.00	.337 – .561	1.312	LN-12
N-13	.687	.625	.750	.187	2.50 to 4.00	.375 – .624	1.312	LN-13
N-14	.750	.719	.814	.250	2.50 to 4.50	.415 – .718	1.437	LN-14
N-15	.750	.812	.937	.250	2.50 to 4.50	.487 – .811	1.437	LN-15
N-16	.812	.906	1.031	.250	2.50 to 5.00	.544 – .905	1.562	LN-16
N-17	.812	1.000	1.125	.250	2.50 to 5.00	.600 – .999	1.562	LN-17
N-18	.875	1.125	1.250	.250	2.50 to 5.50	.675 –1.124	1.687	LN-18
N-19	.875	1.250	1.375	.250	2.50 to 5.50	.750 –1.249	1.687	LN-19
N-20	.937	1.438	1.563	.250	2.75 to 6.00	.863 –1.437	1.812	LN-20
N-21	.937	1.625	1.750	.250	2.75 to 6.00	.975 –1.624	1.812	LN-21



THEN TEMPERED!

All Porter Perforators are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability

See page 42 for more details.

CSS Punch Support Sleeve and CSP Perforators

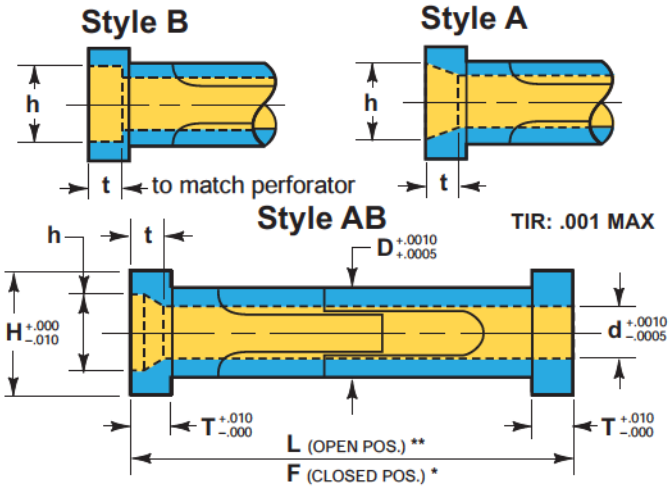
Material:
Sleeve – stress proof material
Perforator – M2 Rc 60-63 heads drawn
ZeroTemp (Deep Cryogenic) treated

When Ordering Sleeve Specify:

Qty.	Cat. No.	x	d	Style
6	CSS2	x	.110	AB

When Ordering Perforator Specify:

Qty.	Cat. No.	x	d	Style
18	CSP2	x	.110	AB

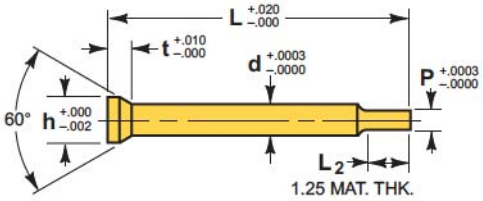


Catalog No. Sleeve	Catalog No. Perf.	d .001 increment	h	t	D	H	T	L**	F*	K***
CSS–3/0	CSP–3/0	.025 –.029	Punch head diameter +.015	.094	.1562	.218	.094	1.187	1.06	.12
CSS–2/0	CSP–2/0	.030 –.034		.094	.1875	.250	.094	1.312	1.18	.12
CSS–1/0	CSP–1/0	.035 –.039		.094	.1875	.250	.094	1.312	1.18	.12
CSS–0	CSP–0	.040 –.062		.094	.1875	.250	.094	1.500	1.31	.18
CSS–1	CSP–1	.063 –.093		.094	.2500	.375	.125	2.000	1.75	.25
CSS–2	CSP–2	.094 –.160		.094	.3125	.437	.125	2.125	1.75	.37
CSS–3	CSP–3	.161 –.218		.125	.3750	.500	.125	2.125	1.75	.37
CSS–4	CSP–4	.189 –.250		.125	.4375	.562	.125	2.500	2.00	.50
CSS–5	CSP–5	.251 –.310		.125	.5000	.625	.187	2.750	2.25	.50
		.311 –.325		.187						
CSS–6	CSP–6	.326 –.385		.187	.6250	.750	.187	3.125	2.37	.75

*Minimum closed length **Also length of perforator ***Length of stroke

PORTER P-200 Perforators and PSS-200 Support Sleeves

P–200 Perforator Style AB



Hardness RC 60-63 Zero-Temp® Treatment
Heads RC 40-55

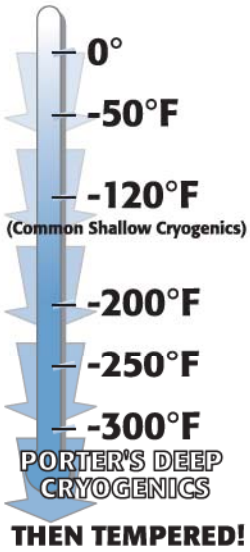
When Ordering Perforator Specify:

Qty.	Cat. No.	x	P	L2
6	P202	x	.075	.25

Call out SBR required or advise Material Thickness.

P to d TIR: .0003 Max.

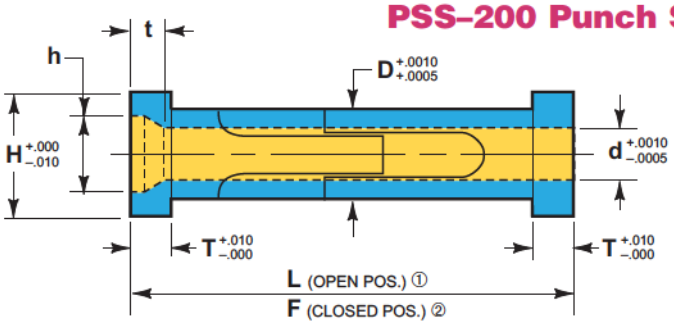
Cat. No.	d	L	P	h	t
P-200	.062	1.50	.043-.061	.100	.093
P-201	.078	2.00	.054-.077	.115	.093
P-202	.093	2.00	.062-.092	.130	.093
P-203	.125	2.12	.087-.124	.160	.093
P-204	.156	2.12	.109-.155	.190	.093
P-205	.187	2.12	.125-.186	.220	.125
P-206	.218	2.12	.153-.217	.250	.125
P-207	.250	2.50	.175-.249	.280	.125
P-208	.312	2.75	.218-.311	.355	.187
P-209	.375	3.12	.265-.374	.415	.187
P-210	.438	3.56	.307-.437	.563	.187
P-211	.500	3.56	.350-.499	.625	.187



All Porter Perforators are "Deep Cryogenically" treated for
1. Wear
2. Toughness
3. Dimensional Stability

See page 42 for more details.

PSS–200 Punch Support Sleeve



Designed to hold P-200 Style Perforators.
① L = Perforator length also
② F = Minimum closed position
③ K = Length of stroke

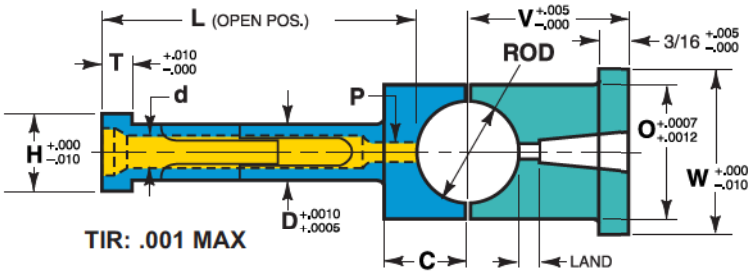
When Ordering Sleeve Specify:

Qty.	Cat. No.
3	PSS202

Sleeve = Stress Proof Material TIR: .001 Max.

Cat. No.	D	L①	F②	K③	H	T	d
PSS-200	.1875	1.50	1.31	.19	.250	.093	.062
PSS-201	.2500	2.00	1.75	.25	.375	.125	.078
PSS-202	.2500	2.00	1.75	.25	.375	.125	.093
PSS-203	.3125	2.12	1.75	.37	.437	.125	.125
PSS-204	.3125	2.12	1.75	.37	.437	.125	.156
PSS-205	.3750	2.12	1.75	.37	.500	.125	.187
PSS-206	.3750	2.12	1.75	.37	.500	.125	.218
PSS-207	.4375	2.50	2.00	.50	.562	.125	.250
PSS-208	.5000	2.75	2.25	.50	.625	.187	.312
PSS-209	.6250	3.12	2.37	.75	.750	.187	.375
PSS-210	.8750	3.56	2.81	.75	1.125	.250	.438
PSS-211	.8750	3.56	2.81	.75	1.125	.250	.500

PORTER Series 90 Rod Piercing Support Sleeves, Perforators & Die Buttons



When Ordering Sleeve Specify:

Qty.	Cat. No.	Style Head
6	RSS90	AB

When Ordering Perforator Specify:

Qty.	Cat. No.	x	P	x	R	Style Head
6	RSP90	x	.051	x	.0625	AB

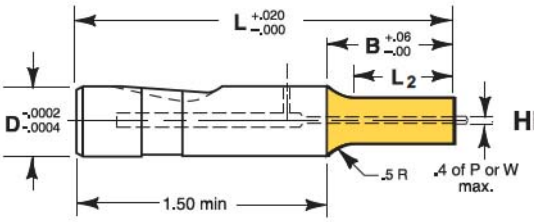
When Ordering Die Button Specify:

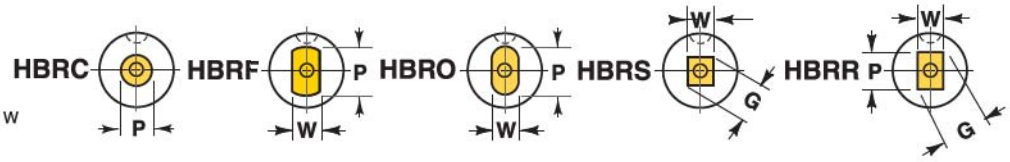
Qty.	Cat. No.	V	P
6	RSD90	.875	.063

Catalog Number	P	d	D	H	T	O RSS/RSD	C	L ①	K ③	ROD Ø	V	W
RSS-90	.043-.056	.062	.1875	.250	.093	.2500	T + Radius of Rod	1.500	.187	To be specified by customer. Diameter of Rod	Die Button Length	O + .125
RSS-91	.054-.070	.078	.2500	.375	.125	.3750		2.000	.250			
RSS-92	.062-.083	.093	.2500	.375	.125	.3750		2.000	.250			
RSS-93	.081-.113	.125	.3125	.437	.125	.4375		2.125	.375			
RSS-94	.109-.140	.156	.3125	.437	.125	.5625		2.125	.375			
RSS-95	.125-.168	.187	.3750	.500	.125	.6875		2.187	.437			
RSS-96	.153-.196	.218	.3750	.500	.125	.8125		2.187	.437			
RSS-97	.175-.225	.250	.4375	.562	.125	.9375		2.500	.500			
RSS-98	.218-.281	.312	.5000	.625	.187	1.1250		2.875	.625			
RSS-99	.265-.343	.375	.6250	.750	.187	1.3750		3.125	.750			

RSS Sleeve Set consist of the two piece intermeshing sleeve. RSP (Perforator) and RSD (Die Button) must be ordered separately when needed.
① L= Perforator Length also
③ K= Length of stroke

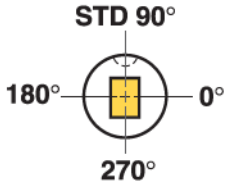
PORTER Heavy Duty Bal-Lok Retrakto Punch (HBR-)





Ordering Example:

Qty	Steel	Type	D	B	L		W		P
13	M2	HBRO	75	D x	4.00	x	.500	x	.625



Standard ball seat location is at 90° using reflected view for punches. Alternate locations of 0°, 180° and 270° are available at no extra charge. Custom ball seat locations can be specified as number of degrees counterclockwise from 0° Example call out: BS 180°

Steel: M2 Rc 60-63
PM4, Rc 63-65 L ≤ 4"

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

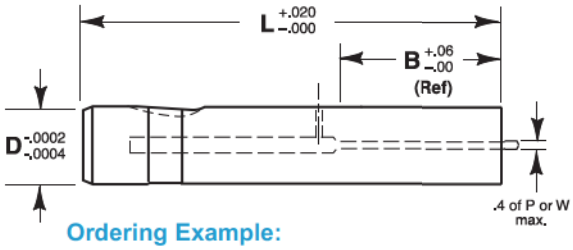
Manufactured to ANSI and NAPMA Standards where applicable.

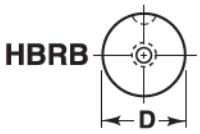
Back Draft .001/inch L_2 max.

Shank		Point Length B				Lengths	Point			Replacement
		Standard	Alternates			L in .25"	Round	Shape		Retrakto
D	Code No.	S	B(.75)	C(1.0)	D(1.25)	Increments	Range P	Min W	Max P/G	Kit*
.375	37	.625	•	•		2.50 thru 4.25	.062 – .374	.125	.374	K2I K4I
.500	50	.750	•	•	•	2.50 thru 4.25	.180 – .499	.187	.499	K6I
.625	62	.875	•	•	•	2.50 thru 4.25	.312 – .624	.250	.624	K6I
.750	75	.937	•	•	•	2.50 thru 4.25	.437 – .749	.312	.749	K9I
.875	87	.937	•	•	•	2.75 thru 4.25	.620 – .874	.375	.874	K9I
1.000	100	.937	•	•	•	3.00 thru 5.00	.750 – .999	.437	.999	K9I
1.250	125	1.000	•	•	•	3.00 thru 5.00	1.000 –1.249	.500	1.249	K12I

*Retrakto kits available see page 36 for details. Retrakto Punches 1.25 Ø = no side hole.

PORTER Heavy Duty Bal-Lok Retrakto Punch (HBRB)





Ordering Example:

Qty	Steel	Type	D	B		L
25	PM4	HBRB	50	C	x	3.50

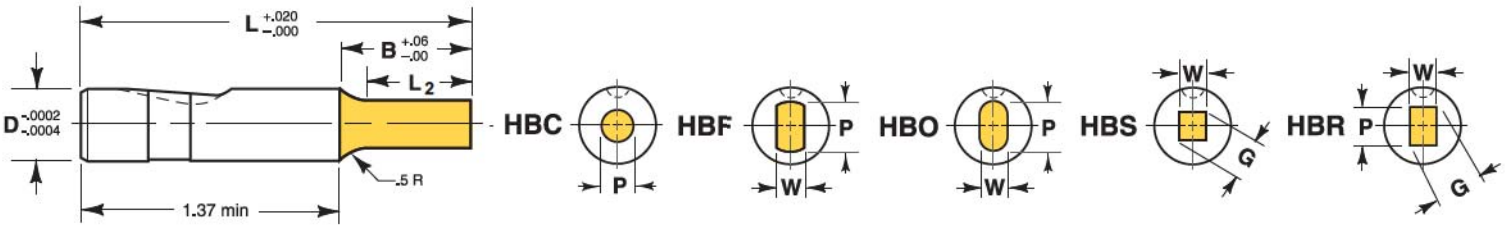
Shank		Point Length B				Lengths	Replacement
		Standard	Alternates			L in .25"	Retrakto
D	Code No.	S	B(.75)	C(1.0)	D(1.25)	Increments	Kit*
.375	37	.625	•	•		2.50 thru 4.25	K2I K4I
.500	50	.812	•	•	•	2.50 thru 5.00	K6I
.625	62	.937	•	•	•	2.50 thru 5.00	K6I
.750	75	1.062	•	•	•	2.50 thru 5.00	K9I
.875	87	1.137	•	•	•	2.75 thru 5.00	K9I
1.000	100	1.250	•	•	•	3.00 thru 5.00	K9I
1.250	125	1.437	•	•	•	3.00 thru 5.00	K12I

*Retrakto kits available see page 36 for details. Retrakto Punches 1.25 Ø = no side hole.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

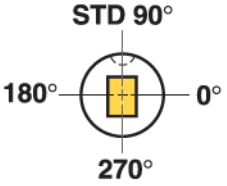
For additional standard forms and configurations see pages 32 and 33.

PORTER Heavy Duty Bal-Lok Solid Punch (HB-)



Ordering Example:

Qty	Steel	Type	D	B	L	P
10	PM4	HBC	50	B x	3.50 x	.265



Standard ball seat location is at 90° using reflected view for punches. Alternate locations of 0°, 180° and 270° are available at no extra charge. Custom ball seat locations can be specified as number of degrees counterclockwise from 0° Example call out: BS 180°

Steel: M2 Rc 60-63
PM4, Rc 63-65 L ≤ 4"

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Manufactured to ANSI and NAPMA Standards where applicable.

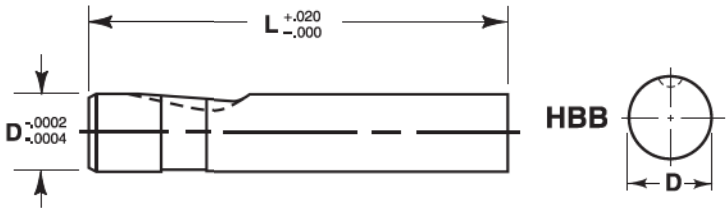
Back Draft .001/inch L_2 max.

Shank		Point Length B				Lengths L in .25" Increments	Point		
		Standard	Alternates				Round	Shape	
D	Code No.	S	B(.75)	C(1.0)	D(1.25)		Range P	Min W	Max P/G
.375	37	.625	•	•		2.50 thru 5.00	.062 – .374	.062	.374
.500	50	.912	•	•	•	2.50 thru 6.00	.187 – .499	.187	.499
.625	62	.937	•	•	•	2.50 thru 6.00	.312 – .624	.250	.624
.750	75	1.062	•	•	•	2.50 thru 6.00	.437 – .749	.312	.749
.875	87	1.187	•	•	•	2.75 tthru 6.00	.625 – .874	.375	.874
1.000	100	1.250	•	•		3.00 thru 6.00	.750 – .999	.437	.999
1.250	125	1.437	•	•	•	3.00 thru 6.00	1.000 –1.249	.500	1.249

PORTER Heavy Duty Bal-Lok Punch Blank (HBB)

Ordering Example:

Qty	Steel	Type	D	L
25	M2	HBB	62	x 4.75

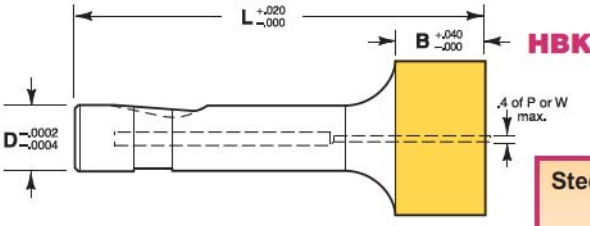


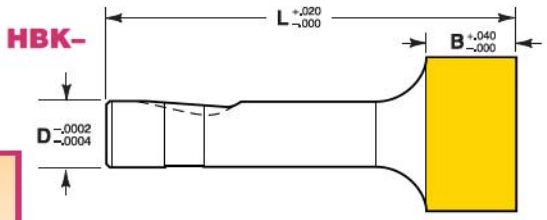
Shank		Lengths L in .25" Increments
D	Code No.	
.375	37	2.50 thru 5.00
.500	50	2.50 thru 6.00
.625	62	2.50 thru 6.00
.750	75	2.50 thru 6.00
.875	87	2.75 thru 6.00
1.000	100	3.00 thru 6.00
1.250	125	3.00 thru 6.00

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

PORTER Heavy Duty Knob Style Punches





Steel: M2 Rc 60-63

TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Ordering Example:

Qty	Steel	Type	D		L		W		P
2	M2	HBKRO	100	x	3.00	x	.650	x	1.125

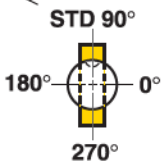
Ordering Example:

Qty	Steel	Type	D		L		P
4	M2	HBKC	62	x	3.00	x	.750

Shank D	Shank Code No.	Point Length B	Lengths L in .25" Increments							Point Round Range P	Point Shape Min W	Point Shape Max P/G	Replacement Retrakto Kit*
.375	37	.625	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.376 – 1.000	.125	1.000	K4I
.500	50	.750	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.501 – 1.250	.188	1.250	K6I
.625	62	.875	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.626 – 1.500	.250	1.500	K6I
.750	75	.937	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.751 – 1.500	.312	1.500	K9I
.875	87	.937	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.876 – 1.750	.375	1.750	K9I
1.000	100	.937	2.50	2.75	3.00	3.25	3.50	3.75	4.00	1.001 – 1.750	.437	1.750	K9I
1.250	125	1.250	2.50	2.75	3.00	3.25	3.50	3.75	4.00	1.251 – 2.000	.500	2.000	K12I

*Retrakto kits available see page 36 for details.

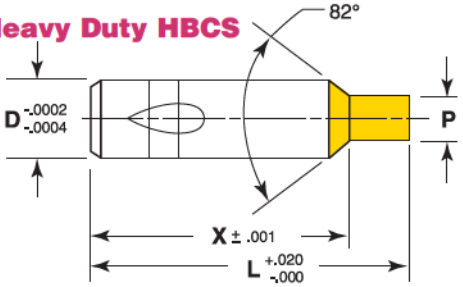
For additional standard forms and configurations see pages 32 and 33.



Standard ball seat location is at 90° using reflected view for punches. Alternate locations of 0°, 180° and 270° are available at no extra charge. Custom ball seat locations can be specified as number of degrees counterclockwise from 0°.

PORTER Bal-Lok Countersink Punches

Heavy Duty HBCS



Steel: M2 Rc 60-63

P +.0005 -.0000	◎	.001	P to D

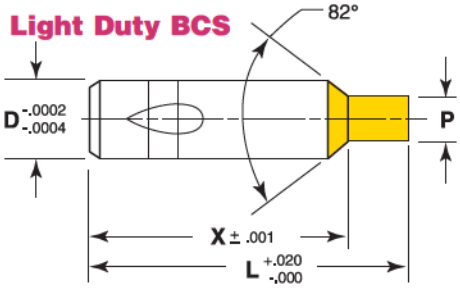
Ordering Example:

Qty	Steel	Cat No.	x	L	x	P	x	=
12	M2	HBCS50	x	3.00	x	.250	x	=2.750

Catalog Number	ØD	L in .25" Increments	P +.0005 –.0000 Range	X
HBCS–37	.375	2.00 – 3.50	.090 –.187	Specify in .001 Increments.
HBCS–50	.500	2.00 – 3.50	.140 –.250	
HBCS–62	.625	2.25 – 3.50	.203 –.281	
HBCS–75	.750	2.25 – 3.50	.265–.406	
HBCS–87	.875	2.25 – 3.50	.328 –.469	
HBCS–100	1.000	2.75 – 3.75	.374 –.500	
HBCS–125	1.250	3.00 – 3.75	.484 –.625	

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

Light Duty BCS



Ordering Example:

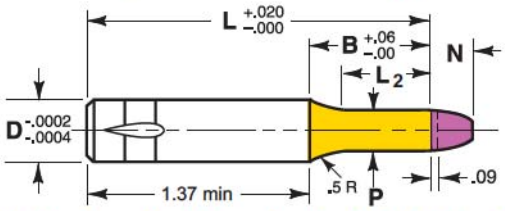
Qty	Steel	Cat No.	x	L	x	P	x	=
12	M2	BCS50	x	3.00	x	.250	x	=2.750

Catalog Number	ØD	L in .25" Increments	P +.0005 –.0000 Range	X
BCS–25	.250	2.00 – 3.25	.050 –.125	Specify in .001 Increments.
BCS–37	.375	2.00 – 3.50	.090 –.187	
BCS–50	.500	2.00 – 3.50	.140 –.250	
BCS–62	.625	2.00 – 3.50	.200 –.281	
BCS–75	.750	2.00 – 3.50	.265 –.406	

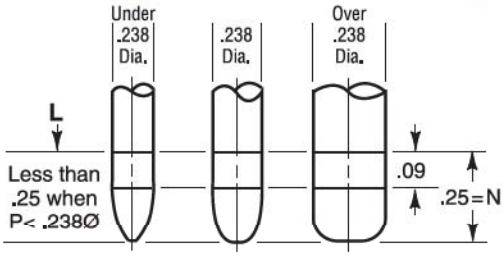
"C" = Co/Sink to theoretical sharp corner
"T" = Material Thickness
"A" = Screw Head Diameter
FORMULA TO CALCULATE "C" .9T + A = C*
*This will result in an approximate flush screw mount.

For Countersink Engineering data see page 9.

Regular Pilot–HBP Type



B & L Lengths do not include Pilot Tip N



Ordering Example:

Qty	Steel	Type	D	B	L		P
8	M2	HBP	62	C x	3.00	x	.500

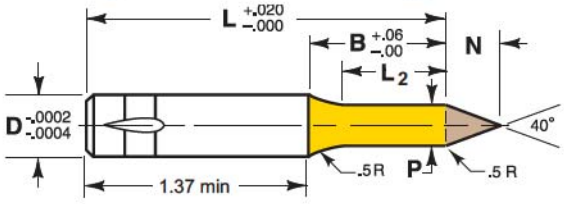
Pilot Type	Body D Ø	Point Length B: Std. S	Alternates B(.75)	C(1.0)	D(1.25)	Length L in .25" Increments	Range P	N
HBP37	.375	.62	●	●		2.50 thru 4.00	.061 – .374	.250
HBP50	.500	.75	●	●	●	2.50 thru 5.00	.186 – .499	.250
HBP62	.625	.87	●	●	●	2.50 thru 5.00	.311 – .624	.250
HBP75	.750	.94	●	●	●	2.50 thru 5.00	.436 – .749	.250
HBP87	.875	.94	●	●	●	2.75 thru 5.00	.624 – .874	.250
HBP100	1.000	.94	●	●	●	3.00 thru 5.00	.749 – .999	.250
HBP125	1.250	1.00	●	●	●	3.00 thru 5.00	.999 –1.249	.250

Steel: M2 Rc 60-63
PM4 Rc 63-65 ≤ 4" OAL

P Ø +.0005 -.0000 | ◎ | .0005 | P to D

Manufactured to ANSI and NAPMA

Angular Pilot–HBAP Type

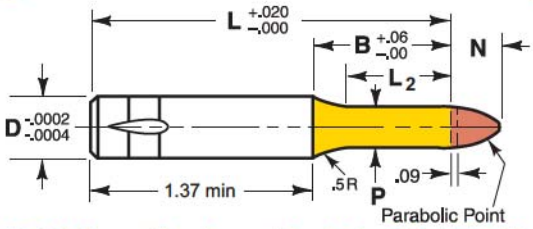


B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B	L		P
9	M2	HBAP	62	C x	3.00	x	.575

Long Parabolic Locator Pilot–HBLP Type



B & L Lengths do not include Pilot Tip N

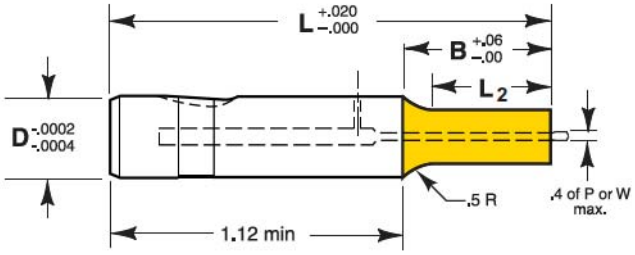
Ordering Example:

Qty	Steel	Type	D	B	L		P
10	M2	HBLP	75	S x	4.25	x	.650

Pilot Type	Body D Ø	Point Length B: Std. S	Alternates B(.75)	C(1.0)	D(1.25)	Length L in .25" Increments	Range P	N MAX	Pilot Type
HBAP37	.375	.62	●	●		2.50 thru 4.00	.186 – .374	.375	HBLP37
HBAP50	.500	.81	●	●	●	2.50 thru 5.50	.249 – .499	.500	HBLP50
HBAP62	.625	.94	●	●	●	2.50 thru 5.25	.311 – .624	.625	HBLP62
HBAP75	.750	1.06	●	●	●	2.50 thru 5.25	.436 – .749	.750	HBLP75
HBAP87	.875	1.19	●	●	●	2.75 thru 5.00	.624 – .874	.875	HBLP87
HBAP100	1.000	1.25	●	●	●	3.00 thru 5.00	.749 – .999	1.000	HBLP100
HBAP125	1.250	1.44	●	●	●	3.00 thru 4.75	1.000 –1.249	1.250	HBLP125

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

PORTER Light Duty Bal-Lok Retrakto Punch (BR-)



Steel: M2 Rc 60-63

TOLERANCES

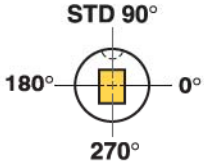
Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Manufactured to ANSI and NAPMA Standards where applicable.

Back Draft .001/inch L_2 max.

Ordering Example:

Qty	Steel	Type	D	B	L	W	P
12	M2	BRO	62	C x	3.00 x	.350 x	.600

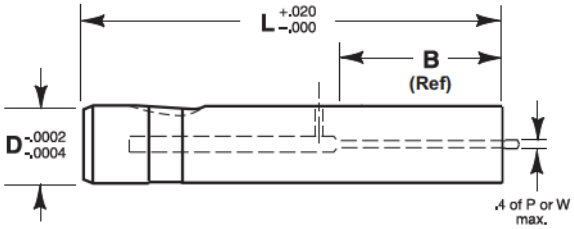


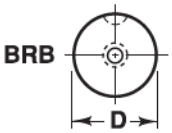
Standard ball seat location is at 90° using reflected view for punches. Alternate locations of 0°, 180° and 270° are available at no extra charge. Custom ball seat locations can be specified as number of degrees counterclockwise from 0° Example call out: BS 180°

Shank D	Shank Code No	Point Length B Standard S	Alternates B(.75)	Alternates C(1.0)	Alternates D(1.25)	Lengths L in .25" Increments	Point Round Range P	Point Shape Min W	Point Shape Max P/G	Replacement Retrakto Kit*
.250	25	.500	●			2.00 thru 3.75	.062 – .249	.062	.249	K2I
.375	37	.625	●	●		2.00 thru 4.25	.125 – .374	.125	.374	K4I
.500	50	.750	●	●	●	2.00 thru 4.25	.187 – .499	.187	.499	K6I
.625	62	.875	●	●	●	2.25 thru 4.25	.312 – .624	.250	.624	K6I
.750	75	.937	●	●	●	2.25 thru 4.25	.437 – .749	.312	.749	K9I
.875	87	.937	●	●	●	2.25 thru 4.25	.625 – .874	.375	.874	K9I
1.000	100	.937	●	●	●	2.25 thru 4.25	.750 – .999	.437	.999	K9I
1.250	125	1.000	●	●	●	2.25 thru 4.25	.875 – 1.249	.500	1.249	K12I

*Retrakto kits available see page 36 for details. Retrakto Punches 1.25 ø = no side hole.

PORTER Light Duty Bal-Lok Retrakto Punch Blank (BRB)





Ordering Example:

Qty	Steel	Type	D	B	L
25	M2	BRB	50	C x	3.50

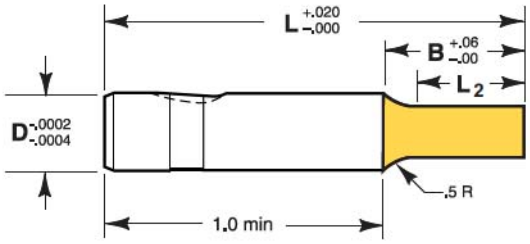
Shank D	Shank Code No	Point Length B Standard S	Alternates B(.75)	Alternates C(1.0)	Alternates D(1.25)	Lengths L in .25" Increments	Replacement Retrakto Kit*
.250	25	.500	●			2.00 thru 3.75	K2I
.375	37	.625	●	●		2.00 thru 4.25	K4I
.500	50	.750	●	●	●	2.00 thru 4.25	K6I
.625	62	.875	●	●	●	2.25 thru 4.25	K6I
.750	75	.937	●	●	●	2.25 thru 4.25	K9I
.875	87	.937	●	●	●	2.25 thru 4.25	K9I
1.000	100	.937	●	●	●	2.25 thru 4.25	K9I
1.250	125	1.000	●	●	●	2.25 thru 4.25	K12I

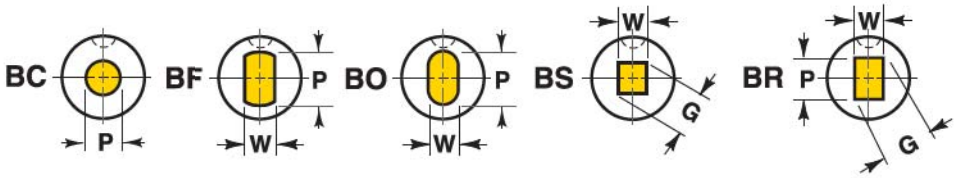
*Retrakto kits available see page 36 for details. Retrakto Punches 1.25 ø = no side hole.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

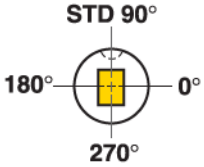
PORTER Light Duty Bal-Lok Solid Punch (B-)





Ordering Example:

Qty	Steel	Type	D	B	L	P
12	M2	BC	62	S x	3.00 x	.600



Standard ball seat location is at 90° using reflected view for punches. Alternate locations of 0°, 180° and 270° are available at no extra charge. Custom ball seat locations can be specified as number of degrees counterclockwise from 0° Example call out: BS 180°

Steel: M2 Rc 60-63

TOLERANCES

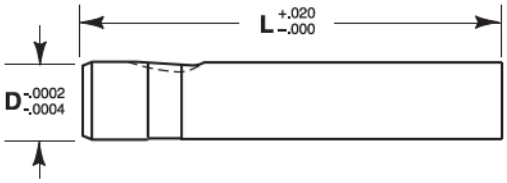
Round P $^{+.0005}_{-.0000}$	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

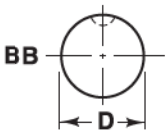
Manufactured to ANSI and NAPMA Standards where applicable.

Back Draft .001/inch L_2 max.

Shank		Point Length B				Lengths	Point		
		Standard	Alternates			L in .25"	Round	Shape	
D	Code No	S	B(.75)	C(1.0)	D(1.25)	Increments	Range P	Min W	Max P/G
.250	25	.500	●			2.00 thru 4.00	.062 – .249	.062	.249
.375	37	.625	●	●		2.00 thru 4.50	.125 – .374	.125	.374
.500	50	.750	●	●	●	2.00 thru 6.00	.187 – .499	.187	.499
.625	62	.875	●	●	●	2.25 thru 6.00	.312 – .624	.250	.624
.750	75	.937	●	●	●	2.25 thru 6.00	.437 – .749	.312	.749
.875	87	.937	●	●	●	2.25 thru 6.00	.625 – .874	.375	.874
1.000	100	.937	●	●	●	2.25 thru 6.00	.750 – .999	.437	.999
1.250	125	1.000	●	●	●	2.25 thru 4.25	.875 –1.249	.500	1.249

PORTER Light Duty Bal-Lok Punch Blank (BB)





Ordering Example:

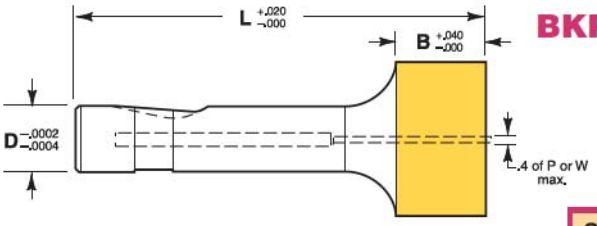
Qty	Steel	Type	D		L
25	M2	BB	62	x	4.75

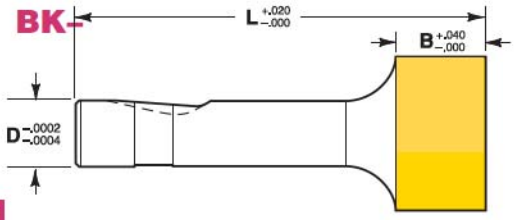
Shank		Lengths L in
D	Code No.	.25" Increments
.250	25	2.00 thru 4.00
.375	37	2.00 thru 4.50
.500	50	2.00 thru 6.00
.625	62	2.25 thru 6.00
.750	75	2.25 thru 6.00
.875	87	2.25 thru 6.00
1.000	100	2.25 thru 6.00
1.250	125	2.25 thru 4.25

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

For additional standard forms and configurations see pages 32 and 33.

PORTER Light Duty Knob Style Punches





Ordering Example:

Qty	Steel	Type	D		L		P
6	M2	BKRC	100	x	3.00	x	1.250

Steel: M2 Rc 60-63

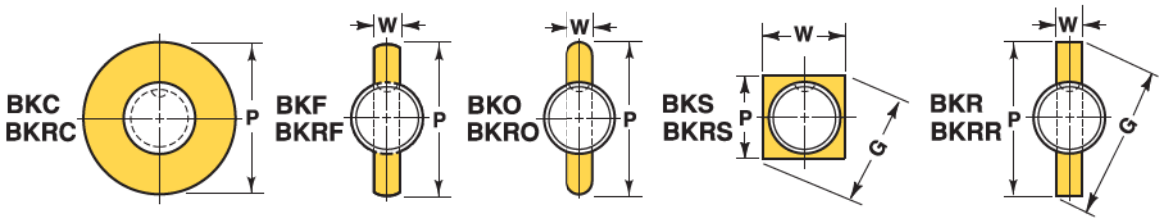
TOLERANCES

Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W ±.0005	◎	.001	P,W to D

Manufactured to ANSI and NAPMA Standards where applicable.
Back Draft .001/inch L_2 max.

Ordering Example:

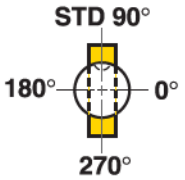
Qty	Steel	Type	D		L		W		P
3	M2	BKO	75	x	3.00	x	.600	x	.890



Shank D	Shank Code No.	Point Length B	Lengths L in .25" Increments							Point Round Range P	Point Shape Min W	Point Shape Max P/G	Replacement Retrakto Kit*
.375	37	.625	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.376 – 1.000	.125	1.000	K4I
.500	50	.750	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.501 – 1.250	.188	1.250	K6I
.625	62	.875	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.626 – 1.500	.250	1.500	K6I
.750	75	.937	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.751 – 1.500	.312	1.500	K9I
.875	87	.937	2.50	2.75	3.00	3.25	3.50	3.75	4.00	.876 – 1.750	.375	1.750	K9I
1.000	100	.937	2.50	2.75	3.00	3.25	3.50	3.75	4.00	1.001 – 1.750	.437	1.750	K9I

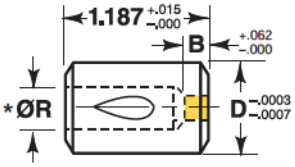
*Retrakto kits available see page 36 for details.

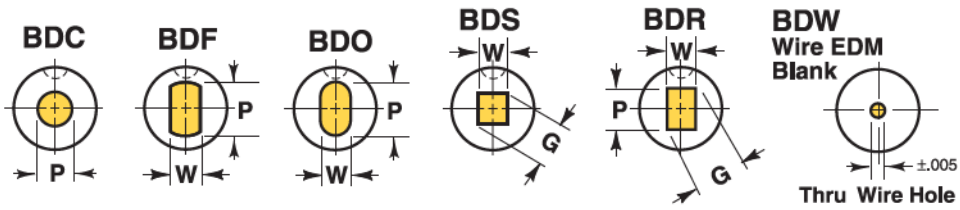
For additional standard forms and configurations see pages 32 and 33.



Standard ball seat location is at 90° using reflected view for punches. Alternate locations of 0°, 180° and 270° are available at no extra charge. Custom ball seat locations can be specified as number of degrees counter-clockwise from 0°.

PORTER Bal-Lok Die Buttons (BD-)





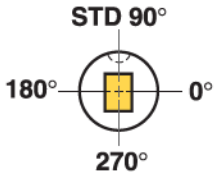
Ordering Example:

Qty	Steel	Type	Body	x	W	x	P
6	M2	BDO	75	x	.156	x	.280

***SPECIAL NOTE: Small quantities of bal-Lok die buttons may be substituted with a taper relief of 1 degree per side.**

Body Code	Body D	Min. B	Max. R	Length L	Round I.D. Range P	Shape I.D. Min. W	Shape I.D. Max. P/G	BDW Hole Size
50	.500	.156	.250	1.187	.064 – .220	.048	.220	.043
62	.625	.187	.313	1.187	.110 – .282	.064	.282	.043
75	.750	.187	.422	1.187	.125 – .391	.095	.391	.043
87	.875	.187	.547	1.187	.196 – .516	.127	.516	.043
100	1.000	.250	.688	1.187	.346 – .657	.158	.657	.125
125	1.250	.250	.844	1.187	.436 – .813	.189	.813	.125
150	1.500	.250	1.094	1.187	.545 –1.063	.220	1.063	.125
175	1.750	.312	1.297	1.187	.656 –1.262	.252	1.262	.125

Standard Ball Seat location is at 90°, alternate locations of 0°, 180° and 270° are available at no extra charge. See pages 32 and 33 for additional standard I.D. forms.



Steel: M2 Rc 60-63

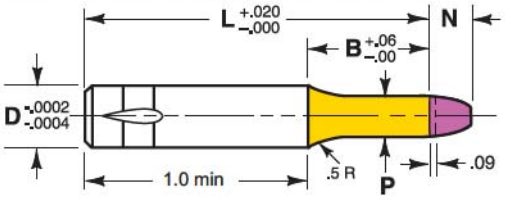
TOLERANCES

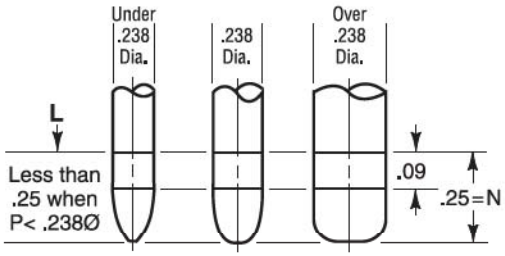
Round P +.0005 -.0000	◎	.0005	P to D
Shape P, W +.001 -.000	◎	.001	P,W to D

Manufactured to ANSI and NAPMA Standards where applicable.

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

Regular Parabolic Pilot–BP





B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B		L		P
8	M2	BP	50	S	x	2.50	x	.400

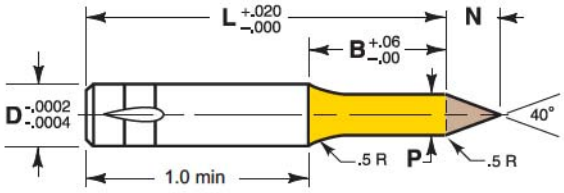
Pilot Type	Body D Ø	Point Length B: Std. S	Alternates B(.75)	C(1.0)	D(1.25)	Length L in .25" Increments	Range P	N
BP25	.250	.50	●			2.00 thru 3.50	.061 – .249	.250
BP37	.375	.63	●	●		2.00 thru 4.00	.124 – .374	.250
BP50	.500	.75	●	●		2.00 thru 4.00	.186 – .499	.250
BP62	.625	.87	●	●	●	2.00 thru 4.00	.311 – .624	.250
BP75	.750	.94	●	●	●	2.25 thru 4.00	.436 – .749	.250
BP87	.875	.94	●	●	●	2.25 thru 4.00	.624 – .874	.250
BP100	1.000	.94	●	●	●	2.25 thru 4.00	.749 – .999	.250
BP125	1.250	1.00	●	●	●	2.25 thru 4.00	.874 – 1.249	.250

Steel: M2 Rc 60-63

P +.0005 -.0000 | ◎ .0005 P to D

Manufactured to ANSI and NAPMA Standards where applicable.

Angular Pilot–BAP Type

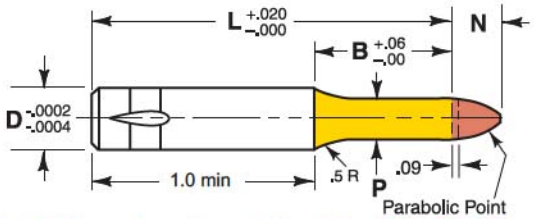


B & L Lengths do not include Pilot Tip N

Ordering Example:

Qty	Steel	Type	D	B		L		P
4	M2	BAP	87	B	x	4.00	x	.700

Long Parabolic Locator Pilot–BLP Type



B & L Lengths do not include Pilot Tip N

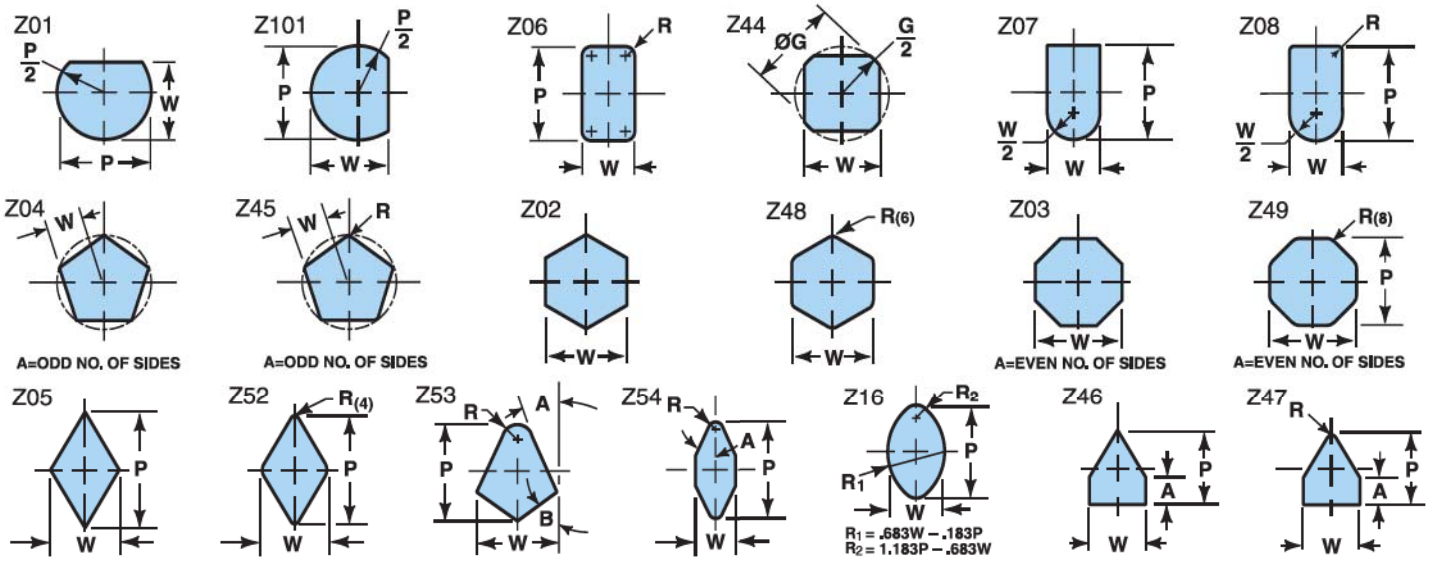
Ordering Example:

Qty	Steel	Type	D	B		L		P
12	M2	BLP	75	S	x	4.00	x	.650

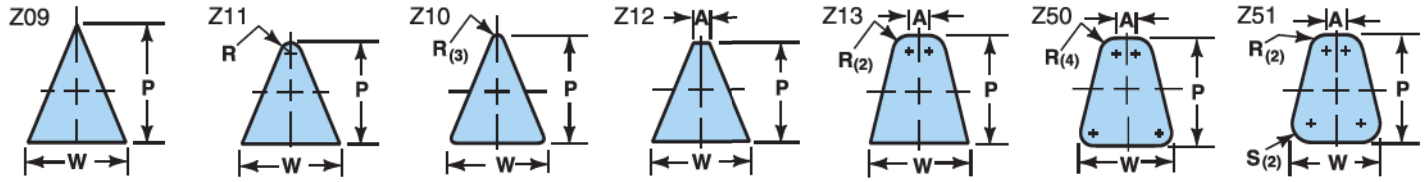
Pilot Type	Body D Ø	Point Length B: Std. S	Alternates B(.75)	C(1.0)	D(1.25)	Length L in .25" Increments	Range P	N MAX	Pilot Type
BAP37	.375	.63	●	●		2.50 thru 5.50	.186 – .374	.375	BLP37
BAP50	.500	.75	●	●	●	2.50 thru 5.50	.249 – .499	.500	BLP50
BAP62	.625	.87	●	●	●	2.50 thru 5.25	.311 – .624	.625	BLP62
BAP75	.750	.94	●	●	●	2.50 thru 5.25	.436 – .749	.750	BLP75
BAP87	.875	.94	●	●	●	2.75 thru 5.00	.624 – .874	.875	BLP87
BAP100	1.000	.94	●	●	●	3.00 thru 5.00	.749 – .999	1.000	BLP100

Standard Alterations are changes that are beyond the ranges listed in the catalog that can be altered for a minimal charge. See page 37.

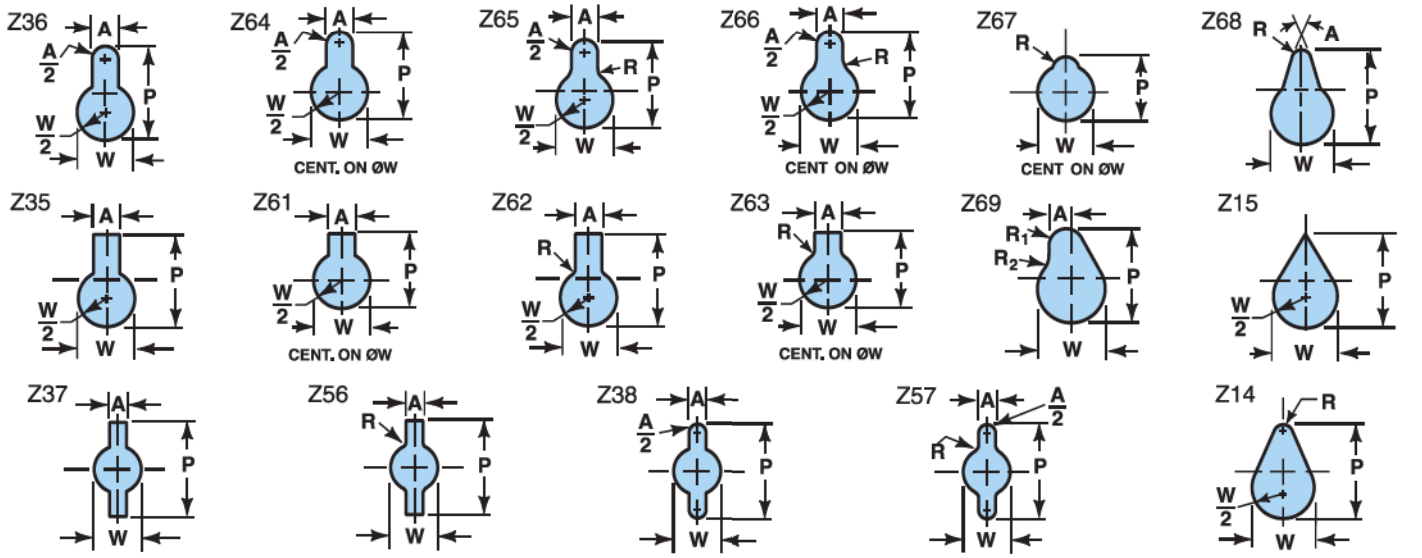
Porter Standard Forms



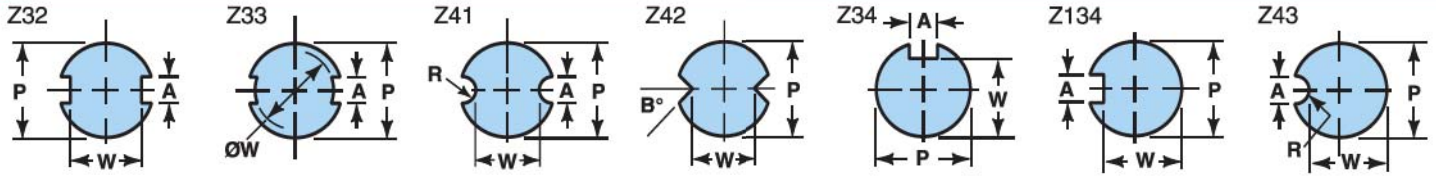
Porter Triangles & Trapezoid Forms



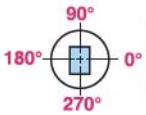
Porter Keyhole & Teardrop Forms



Porter Knock-Out Forms



In cases where clearance per side (Δ) is .0025Δ or less Porter will break the sharp corners to eliminate interference, when punches, and/or guides and dies are ordered together.



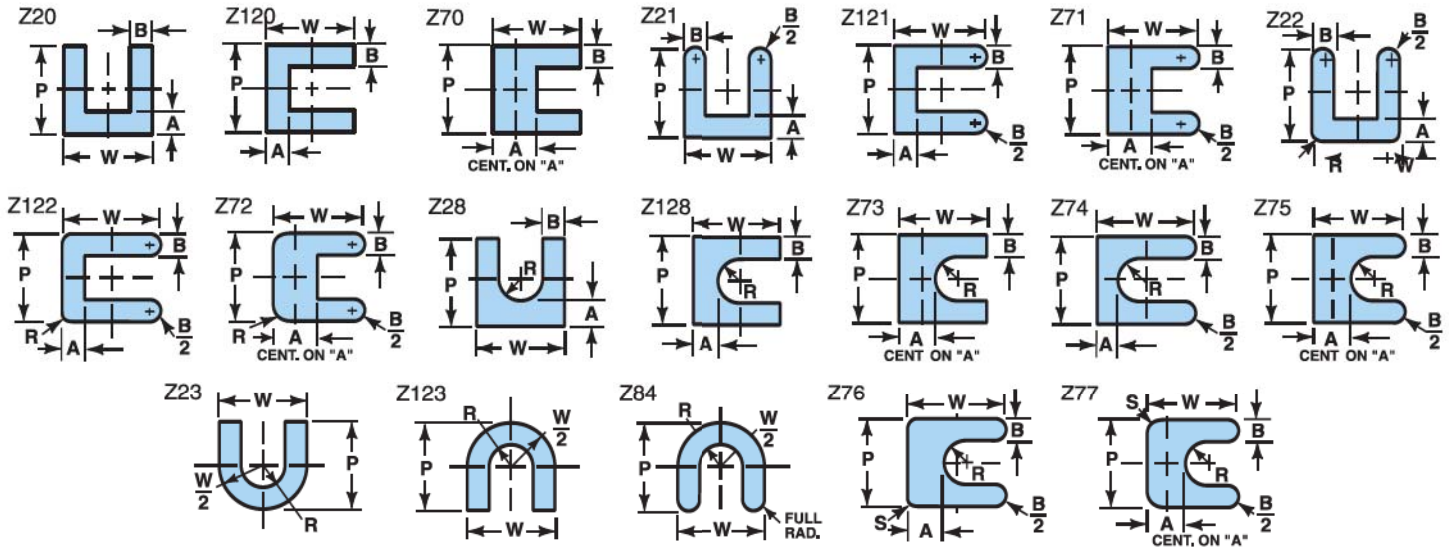
VIEWS: Shown as in-die position. This is reflected view for punch and guide, plan view (thru cutting end) of die button. *See page 39 for details.*

CENTERING: Forms are centered to the shank or body as shown. Exception being forms Z09 and Z15, will not be centered on P due to clearance.

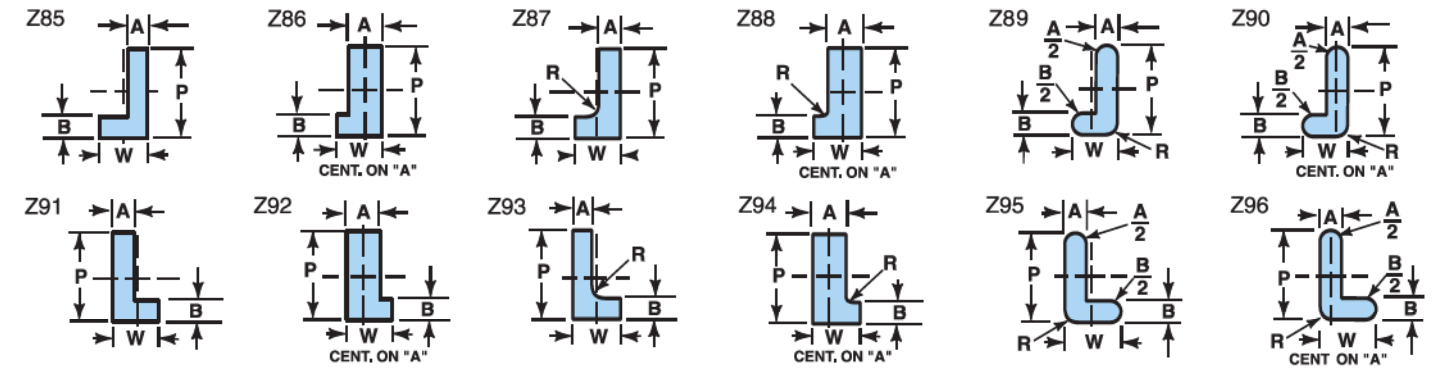
When Ordering Forms Specify:

Qty	Mat.	Style	D	B	L	Form	W	P	R	Locate
5	M2	( ) Z	37	C	2.50	Z-06	235	.300	.060	LMI

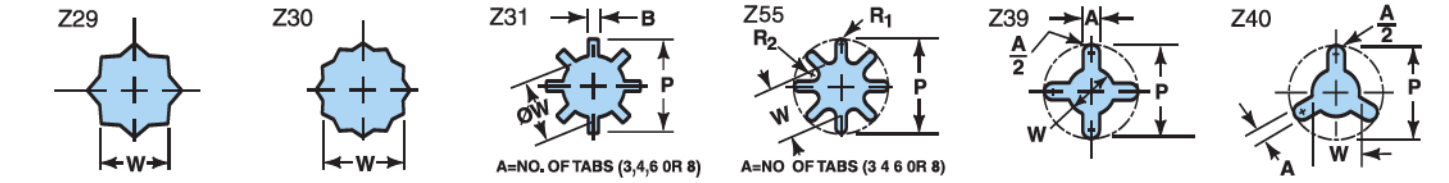
Porter U Shape Forms



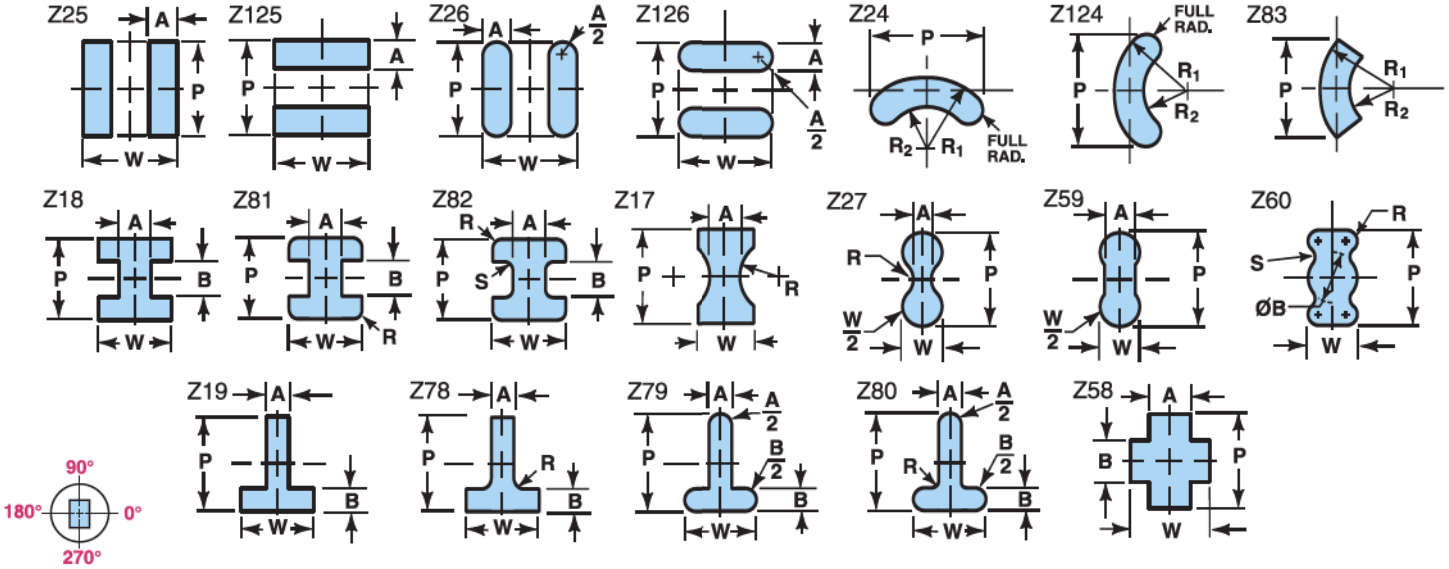
Porter L Shape Forms



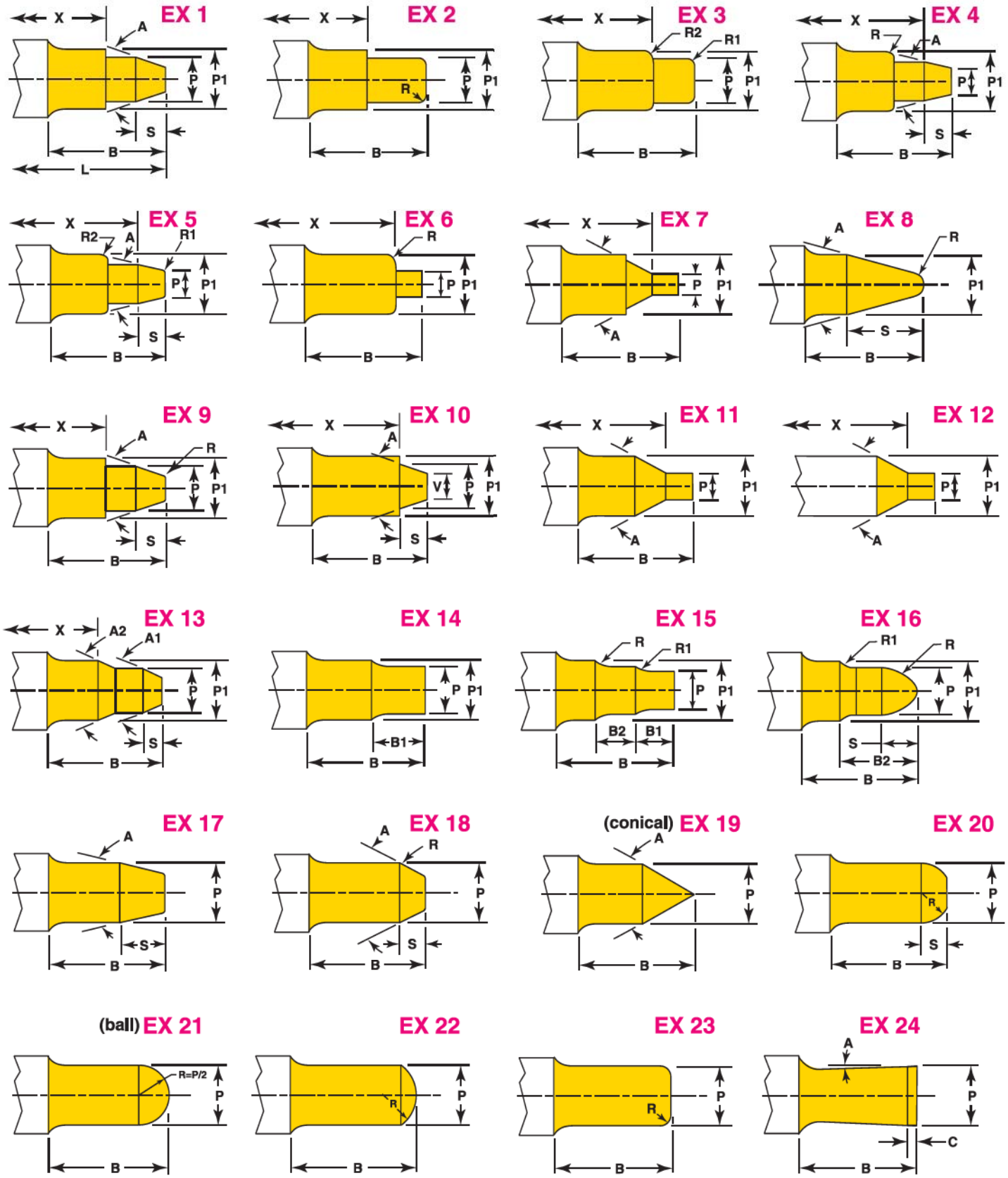
Porter Spline Shape Forms



Porter Knock-Out Forms



ORENTATION: Bal-Lok Punch and Die Button Standard Ballseat location is at 90°. For all else standard flat and dowel location is at 0°. Alternate and custom locations are also available, see orientation guidelines.

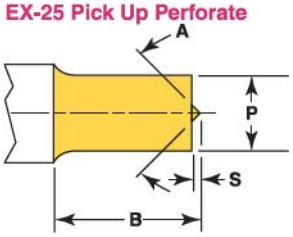


All shank to largest point diameter will be supplied with .5 radius blend unless otherwise specified. All inside corners will be supplied with .03 radius blend unless otherwise specified.

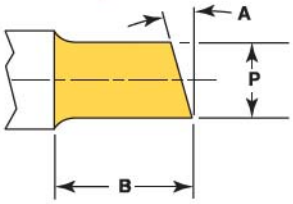
For **X** information see panel on page 35.

PORTER Additional Standard Perforate, Extrude & Miscellaneous Tips.

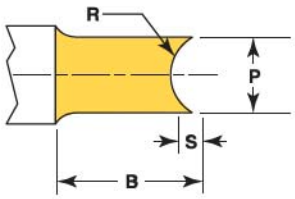
EX-25 Pick Up Perforate



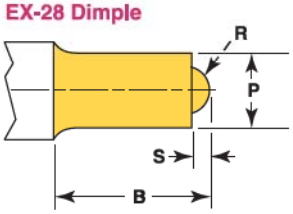
EX-26 Angle Shear



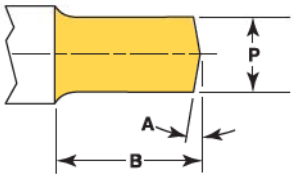
EX-27



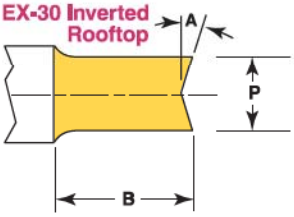
EX-28 Dimple



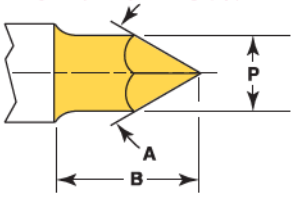
EX-29 Rooftop



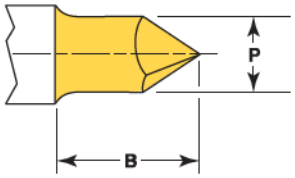
EX-30 Inverted Rooftop



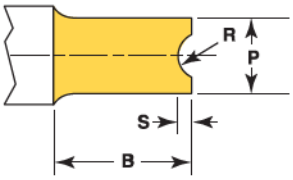
EX-31 Nail Point 4 Sided



EX-32 Nail Point 3 Sided



EX-33



Ex. 1 thru **Ex. 33** tips are available on all standard catalog range punches. (Head type, Headless and Bal-Lok Solid and Retrakto.)

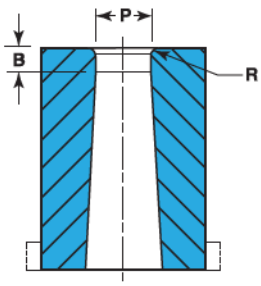
Use caution when using Retrakto type in relation to point length (P) and smallest point Ø (P). Some tips are not compatible with Retrakto use. **(Example # Ex. 31)**

X equals the distance from under the head to an often critical junction on extrude and co-sink type punches. (For Bal-Lok and Headless type punches, this **X** dimension is the distance to the shank end of the punch.) You have two tolerance options on this **X** dimension. Normal tolerance is ±.005, for those applications requiring more critical tolerances, specify **XP** and this dimension will be held to ± .001.

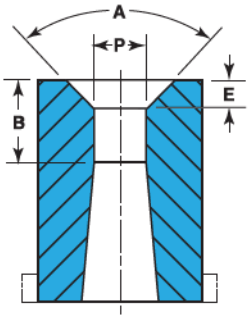
When no **B** (point length) is called out, the standard **B** for the type punch selected will be supplied. All Ultra Precision style must call out **B** length as there are more than one standard available for this style punch.

Common type of extrusion punches are shown above and can be configured on any style punch as called out by the customer. Configurations of other styles can be furnished upon receipt of customer drawings with specified tolerances.

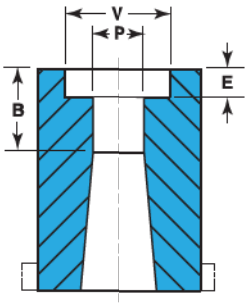
PORTER Draw-Extrude Type Die Buttons



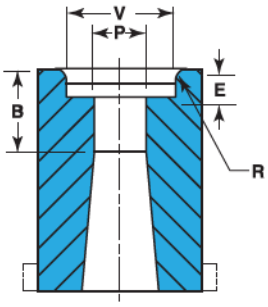
EX-40



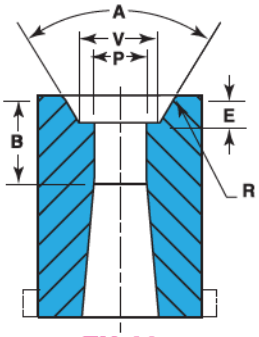
EX-41



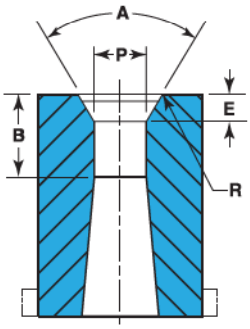
EX-42



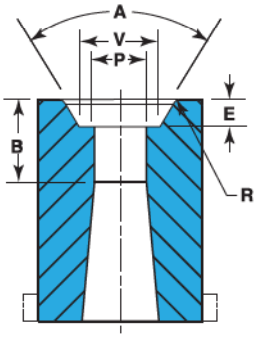
EX-43



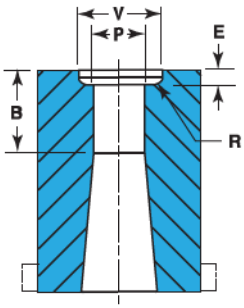
EX-44



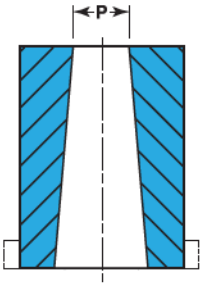
EX-45



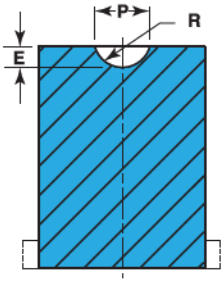
EX-46



EX-47



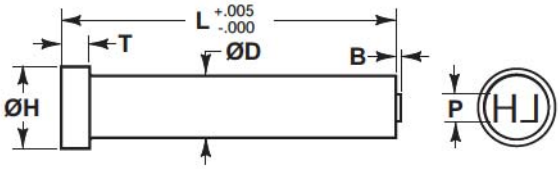
EX-48



EX-49

The above draw-extrude style die buttons can be furnished on any die button style. Tolerances on the internal configurations will be .005 unless called out by the customer to be otherwise. Standard materials used on any of these will be A2 with RC of 60-63 called out by the customer to be otherwise. Other configurations can be manufactured with tolerance drawings submitted by the customer.

PORTER Marking Punches and Custom Stamps

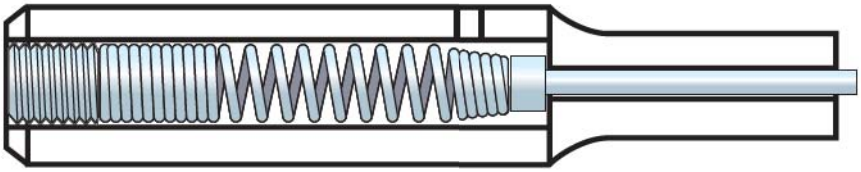


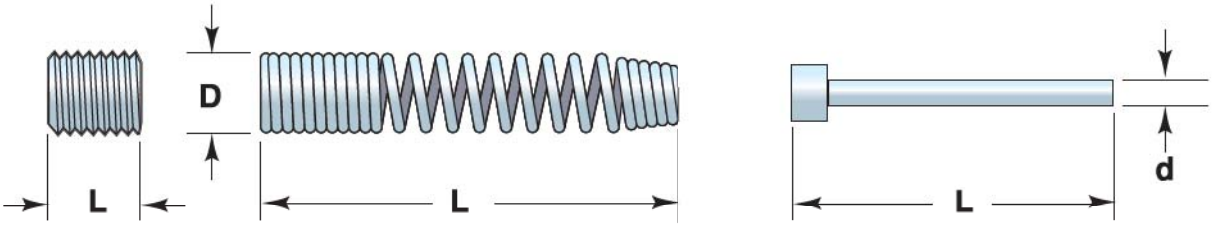
Many custom stamps and marking punches are available from Porter. Please identify punch style as part of the order. All tolerances on punch body other than (L) will be manufactured to catalog standards unless otherwise specified by the customer.

Ordering Example (Specify punch style) Drawings Required

Qty	Steel	Type	D		L		P	B
12	M-2	( )MP	50	x	3.00	x	.375	.093

PORTER Retrakto Replacement Components





Replacement Retrakto Kit	Punch Type		Set Screw	Spring			Pin			Pin Extension Length
	Headed	Bal-Lok	Size/Length	Hole-D	D	L	Hole	L	d	
K2I	18	25	3"-48 x ⅛"	.086	.081	2"	.020	1.11	.017	.03
K3I	25	N/A	5"-40 x ⅛"	.109	.104	2½"	.032	1.38	.027	.03
K4I	31	37	8"-32 x 3⁄16"	.141	.136	2⅞"	.046	1.94	.041	.06
K6I	37-50	50-62	10"-32 x ¼"	.172	.167	2⅞"	.063	1.94	.058	.06
K9I	62-100	75-100	¼"-28 x ¼"	.221	.216	3"	.094	2.22	.089	.06
K12I	125 &>	125	5⁄16"-24 x ¼"	.275	.270	3"	.125	2.22	.120	.06

Kit includes 1 each – set screw
– spring
– pin
Components available as kits or separately.

Retrakto Springs and pins are cut to length at assembly.

Alterations beyond standard ranges listed in the catalog that can be accomplished for a slight additional charge. Alterations beyond those listed consult factory.
Standard catalog tolerances are used for all alterations unless otherwise specified

RL = Reduce Length (L)
- Punches- Stock is removed from the point end, also reducing the point length (B)
- Die Buttons-Headless (Excluding Bal-Lok). Stock is removed from the Co-bore end. Head Type with Co-Bore relief. Stock is removed from the I.D. end shortening the (B).
- Taper dies "RL" will not reduce land length

PRL = Precision Reduced Length
- Same as "RL" plus "L" is held to ±.001

RD = Reduced Diameter of Shank or Body
- Max standard reduction .040 (for further reduction consult factory). "H" remains the same.

RP = Reduce "P" on Round Punches
- (See Chart for standard ranges or consult factory)

RW = Reduce "W" on Shape Punches
- (See Chart for standard ranges or consult factory)

RT = Reduce Head Thickness
- Stock removed from under the head (does not reduce "OAL")

RTL = Reduce Head Thickness
- Stock removed from the top of the head (reduces "L")

PRT = Precision Reduced Head Thickness
- Same as RT. "T" is held to $^{+.0005}_{-.0005}$

RH = Reduce Head Diameter
- Max standard reduction .062 (further reduction consult factory)

LPC = Longer Point Circular
- Solid Punches Only
- Specify "B" length up to 1.75
- Minimum body Length shown in catalog (further reduction consult factory)

LPW = Longer Point Shape
- Solid Punches Only
- Specify "B" length up to 1.75
- Minimum body Length shown in catalog (further reduction consult factory)

AP = Alter "P" on Round Dies
- Standard dies up to .020 over listed range (Greater increases require "AR")
- Taper dies (See Chart)

AW =Alter "W" on Shape Dies
- Standard dies up to .020 over listed range (Greater increases require "AR")
- Taper dies (See Chart)

AR = Alter Relief on Co-Bore Dies
- Round Relief Only

AB = Alter Land "B" Length on Die Buttons
- Reduction is from I.D. end shortening "L"

IB = Increase Land "B" on Die Buttons
- Taper Dies {P or W .050-.250 (.250) max}
- { P or W .251 and over (.500) max} [longer consult factory]
- Co-Bore Dies (consult factory)

SK = Slug Keeper
- Slug Retention System

RP-Reduce P Chart

BODY CODE	PRC RC HEC XRC CDRC	PC SC HC XSC CDSC	PLP PP PAP SLP SAP SP CDSAP	HBRC	BRC	BC HBC	HBLP HBAP HBP BLP BAP BP
12		.042					
18	.050	.042	.041				
25	.080	.062	.041		.050	.050	.050
31	.115	.062	.061				
37	.158	.062	.091	.062	.115	.050	.083
43	.158	.158	.092				
50	.158	.158	.124	.158	.158	.093	.092
62	.235	.235	.234	.158	.158	.125	.124
75	.300	.300	.299	.235	.235	.235	.234
87	.350	.350	.399	.300	.300	.300	.299
100	.400	.400	.399	.350	.350	.350	.349
125	.450	.450	.450	.450	.450	.450	.499

RW-Reduce W Chart

BODY CODE	PRO PRR PRS PRF CDRO CDRR CDRS CDRF	PO PR PO PF CDSO CDSR CDSS CDSF	RO RR RS RF XRO XRR XRS XRF	SO SR SS SF XSO XSR XSS XSF	HBRO HBRR HBRS HBRF	HBO HBR HBS HBF	BRO BRR BRS BRF	BO BR BS BF
12		.062		.062				
18	.062	.062	.062	.062				
25	.080	.062	.080	.062			.050	.040
31	.115	.062	.115	.062				
37	.158	.080	.158	.080	.062	.050	.115	.050
43	.158	.109	.158	.158				
50	.158	.125	.158	.158	.158	.093	.158	.093
62	.235	.235	.235	.235	.158	.125	.158	.125
75	.235	.235	.235	.235	.235	.235	.235	.235
87			.235	.235	.235	.235	.235	.235
100	.235	.235	.235	.235	.235	.235	.235	.235
125	.281	.250	.281	.250	.235	.235	.281	.250

AP-Alter P Chart

Inch Body Ø	MaxP/W/G
.1875	.130
.2500	.190
.3125	.240
.3750	.290
.4375	.340
.5000	.390
.6250	.500
.7500	.600
.8750	.700
1.0000	.800
1.2500	1.000
1.5000	1.200

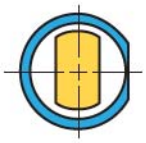
AR-Alter RØ Chart

Inch Body Ø	MaxP/W/G
.312	.255
.375	.315
.437	.355
.500	.405
.625	.520
.750	.625
.875	.730
1.000	.830
1.250	1.030
1.500	1.230

PORTER Flat Locations-Headed Punches, Die Buttons & Guide Bushings

Standard Locating Methods		
Flat		Depth
LM1	F =	.5D
LM2	F =	.5D
LM3	F =	.5D (R=.0625)
LM4	F =	.5D
LM5	F =	.5D

LM1



Flush to shank

LM2

Flush to body

LM3

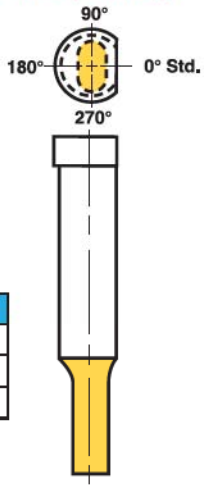
Flush to body

All above locating methods are supplied at standard location (0°) "Alternate locations 90°, 180°, and 270° are available at no extra charge"Call out (LM1@90)

Custom locations (other than 0°, 90°, 180° and 270°)
LM4= Single Flat Custom Location (LM4@45)
LM5= Double Flat Custom Location (LM5@225)
Additional variations available (consult factory or supply drawings of requirement)

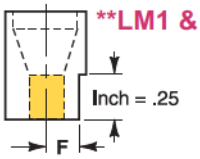
Full Length Punch Flats		
LF2	F=	.5D-.060
LF21	F=	.5D-.093
LF22	F=	Specify

LF2 (Punch)

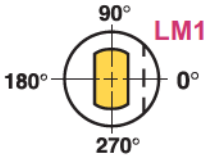


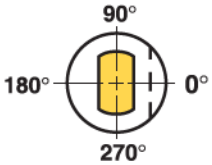
PORTER Flat Locations-Headless Die Buttons & Guide Bushings

**LM1 & LM41

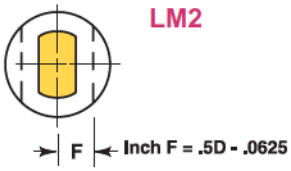


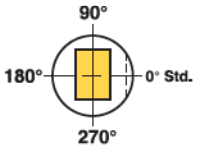
LM1 & LM41

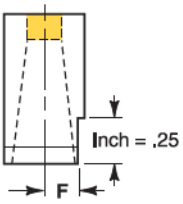




LM2





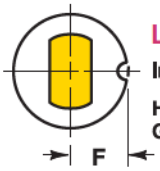


Call Out	D*	F Dimension Listing																				
		.18	.25	.31	.37	.43	.50	.62	.75	.87	1.00	1.12	1.25	1.37	1.50	1.62	1.75	2.00	2.25	2.50	2.75	3.00
LM1	F =	.5D – .0625																				
LM2	F =	.5D – .0625																				
LM4	F =	.5D – .0625																				
LM41	F =	.080	.110	.135	.165	.190	.220	.270	.325	.380	.435	.4875	.540	.5875	.650	.7125	.775	.900	1.025	1.150	1.275	1.400
LM5	F =	.5D – .0625																				

*Additional variations available (consult factory or supply drawings of requirement)
**Above flats available on Cutting end at no additional charge (Example LM1C)

Inch Dowel Slot								
Call Out	Dowel Dia.	D=	25	31	37	43	50	62-300
LM6	.125	F =	.125	.1562	.1875	.2188	.250	.5D
LM8	.125	F =	.125	.1562	.1875	.2188	.250	.5D
LM63	.125	F =	.1625	.1875	.2125	.2375	.2625	.5D
LM64	.1875	F =	.1938	.2188	.2438	.2688	.2938	.5D

Custom locations (other than 0°, 90°, 180° and 270°)
LM8= Dowel Slot Custom Location (LM8@45)



LM6

Inch = .125Ø Dowel

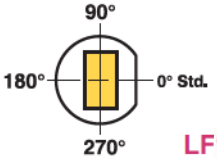
Headless Die Button Guide Bushing

F = .5D

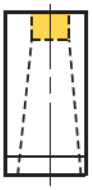
TOLERANCES ON ALL FLATS

Standard Precision +.0005 -.0000 to C/L
.001/1.000 Parallel

Ultra Precision +.0002 -.0000 to C/L
.0005/1.000 Parallel



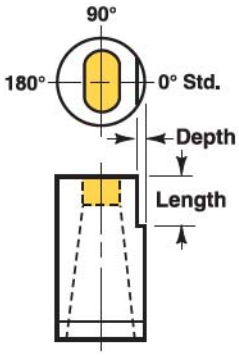
LF1 (Button)



Full Length Die Flat		
LF1	F =	.5D-.060
LF11	F =	.5D-.093
LF12	F =	Specify

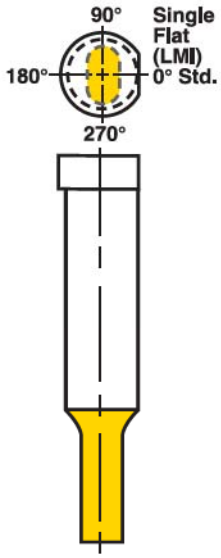
LM43, LM44, LM45, LM46, LM47, LM48, LM49
(Flat is on cutting–End)

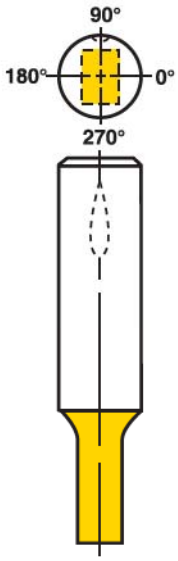
Call Out	Depth	Length
LM43	.06	.50
LM44	.06	.62
LM45	.06	.75
LM46	SPECIFY	
LM47	.093	.50
LM48	.093	.62
LM49	.093	.75



VIEWS

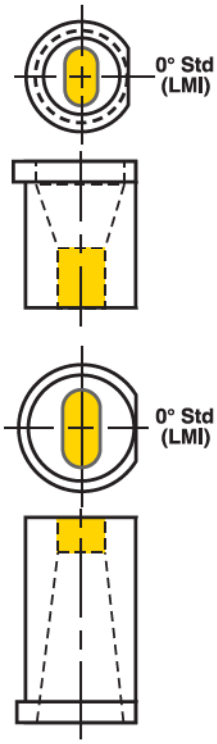
All views are shown as in die position view. This is the reflected (thru shank) view for the punch and guide, and is the plain view (thru I.D. end) for the die button (matrix). This view is consistent whether for headed and press fit items or Bal-Lok items.

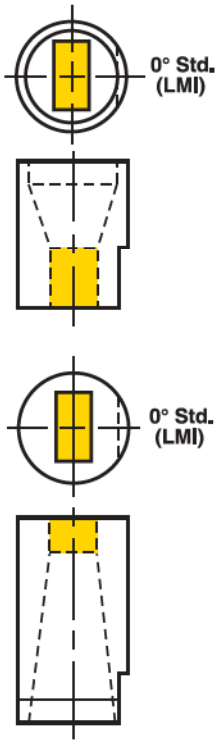




ORIENTATION

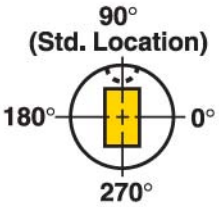
On Headed and Press Fit punches, die buttons and guide bushings the standard keying location is at 0° (on the long side of the standard shape). Custom locations are available and called out as the number of degrees counter clockwise from 0° **(Example: LM1@45°)**

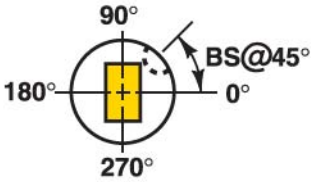




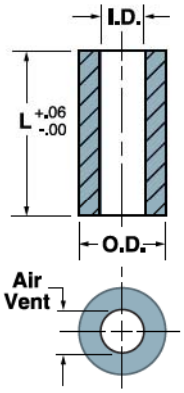
BAL-LOK Punches and Die Buttons.

The standard ball-seat keying location is at 90°, (in the end zone if looking at a football field). Custom locations are available and called out as the number of degrees counter clockwise from 0°. **(Example: BS@45°)**





Durathane
Open End Punch Strippers

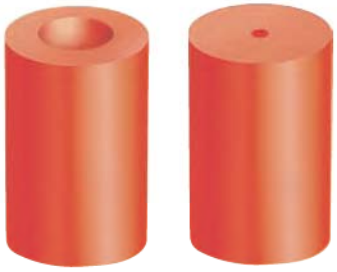


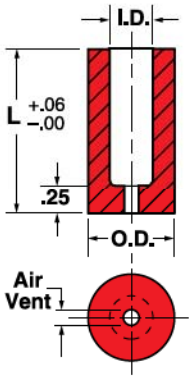
Ordering Example:

Quantity	Description
6	O-37A

All are oil and solvent resistant 95A durometer. All provide greater pressures than equal sized steel die springs. All are easy to install and dampen vibration. Pop-On's closed end gives more positive stripping and full stripping around periphery of punch point. Open end more economical.

Pop-On
Closed End Punch Strippers





Ordering Example:

Quantity	Description
7	U-62B

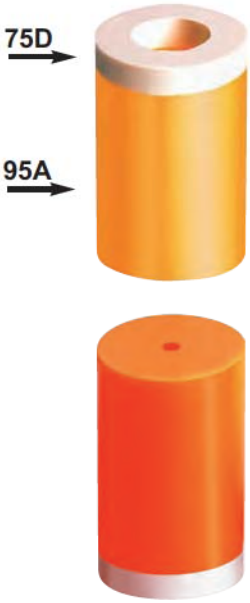
I.D. Inch	O.D. Inch	Length L Inch	Catalog Number	Approx. Stripping Pressure in Lbs. at deflection of .187	.281	.437
.187	.688	1.25	O–18	250		
		1.50	O–18A	230	350	
.250	.750	1.25	O–25	280		
		1.50	O–25A	275	465	
		1.75	O–25B	220	375	490
.312	.812	1.25	O–31	320		
		1.50	O–31A	300	450	
		1.75	O–31B	270	400	575
		2.00	O–31C	240	370	600
.375	.875	1.25	O–37	420		
		1.50	O–37A	385	625	
		1.75	O–37B	355	575	760
		2.00	O–37C	310	515	670
.500	1.000	1.25	O–50	520		
		1.50	O–50A	450	725	
		1.75	O–50B	435	680	875
		2.00	O–50C	315	510	650
.625	1.125	1.25	O–62	600		
		1.50	O–62A	520	835	
		1.75	O–62B	480	775	1000
		2.00	O–62C	440	730	935
.750	1.500	1.75	O–75B	500	800	1200
		2.00	O–75C	400	700	1100
		2.25	O–75D	350	650	1000
		2.50	O–75E	325	600	900
		2.75	O–75F	300	550	800
.875	1.750	1.75	O–87B	1500	2200	3400
		2.00	O–87C	1200	1900	2800
		2.25	O–87D	1150	1850	2400
		2.50	O–87E	900	1450	1900
		2.75	O–87F	850	1350	1800
1.000	2.000	1.75	O–100B	2000	3000	3500
		2.00	O–100C	1600	2600	3400
		2.25	O–100D	1400	2300	3200
		2.50	O–100E	1200	2000	3000
		2.75	O–100F	1000	1800	2800

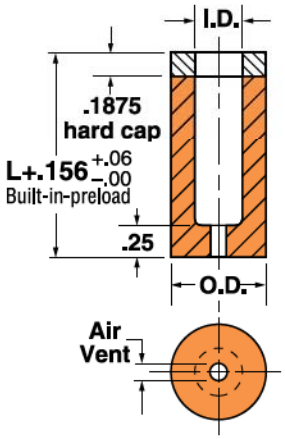
I.D. Inch	O.D. Inch	Length L Inch	Catalog Number	Approx. Stripping Pressure in Lbs. at deflection of .125	.25	.375
.187	.688	1.25	U–18	250	400	
		1.50	U–18A	230	350	
.250	.750	1.25	U–25	280	475	
		1.50	U–25A	275	465	
		1.75	U–25B	220	375	490
.312	.812	1.25	U–31	320	500	
		1.50	U–31A	300	450	
		1.75	U–31B	270	400	575
		2.00	U–31C	240	370	600
.375	.875	1.25	U–37	420	695	
		1.50	U–37A	385	625	
		1.75	U–37B	355	575	760
		2.00	U–37C	310	515	670
.500	1.000	1.25	U–50	520	790	
		1.50	U–50A	450	725	
		1.75	U–50B	435	680	875
		2.00	U–50C	315	510	650
.625	1.125	1.25	U–62	600	925	
		1.50	U–62A	520	835	
		1.75	U–62B	480	775	1000
		2.00	U–62C	440	730	935
.750	1.500	1.75	U–75B	500	800	1200
		2.00	U–75C	400	700	1100
		2.25	U–75D	350	650	1000
		2.50	U–75E	325	600	900
		2.75	U–75F	300	550	800
.875	1.750	1.75	U–87B	1500	2200	3400
		2.00	U–87C	1200	1900	2800
		2.25	U–87D	1150	1850	2400
		2.50	U–87E	900	1450	1900
		2.75	U–87F	850	1350	1800
1.000	2.000	1.75	U–100B	2000	3000	3500
		2.00	U–100C	1600	2600	3400
		2.25	U–100D	1400	2300	3200
		2.50	U–100E	1200	2000	3000
		2.75	U–100F	1000	1800	2800

HARD HAT™

Closed End Punch Strippers

I.D. Inch	O.D. Inch	Length L Inch	Catalog Number	Approx. Stripping Pressure in Lbs. at deflection of .125	.25	For Punch Length
.250	.750	1.000	UHL25100	285	475	2.00
		1.250	UHL25125	269	465	2.25
		1.500	UHL25150	245	405	2.50
.375	.875	1.000	UHL37100	450	725	2.00
		1.125	UHH37112	415	675	2.50
		1.250	UHL37125	395	640	2.25
		1.375	UHH37137	380	605	2.75
		1.500	UHL37150	360	590	2.50
		1.625	UHH37162	345	575	3.00
		1.750	UHL37175	335	565	2.75
		2.000	UHL37200	320	550	3.00
		2.125	UHH37212	300	530	3.50
.500	1.000	1.250	UHL50125	500	780	2.25
		1.375	UHH50137	460	728	2.75
		1.500	UHL50150	450	715	2.50
		1.625	UHH50162	455	686	3.00
		1.750	UHL50175	435	680	2.75
		1.875	UHH50187	385	550	3.25
		2.000	UHL50200	345	530	3.00
		2.125	UHH50212	300	465	3.50
.625	1.125	1.500	UHL62150	565	865	2.50
		1.625	UHH62162	545	835	3.00
		1.750	UHL62175	520	810	2.75
		2.000	UHL62200	455	740	3.00
		2.125	UHH62212	435	715	3.50
.750	1.500	1.625	UHH75162	730	1075	3.00
		1.750	UHL75175	540	835	2.75
		2.000	UHL75200	435	730	3.00
		2.125	UHH75212	395	690	3.50
		2.250	UHL75225	335	660	2.25
		2.500	UHL75250	315	620	3.50
.875	1.750	1.625	UHH87162	1780	2380	3.00
		1.750	UHL87175	1630	2150	2.75
		2.000	UHL87200	1490	1907	3.00
		2.125	UHH87212	1340	1790	3.50
1.000	2.000	1.750	UHL100175	1800	2955	2.75
		2.000	UHL100200	1650	2655	3.00
		2.125	UHH100212	1570	2385	3.50
		2.250	UHL100225	1370	2200	3.25
		2.500	UHL100250	1175	2000	3.50
1.250	2.250	1.625	UHH125162	1980	2840	3.00
		2.125	UHH125212	1890	2710	3.50





Ordering Example:

Quantity	Description
13	UHL37200

Ordering Example:

Quantity	Description
6	UHH50162

UHL is designed for light duty retainer

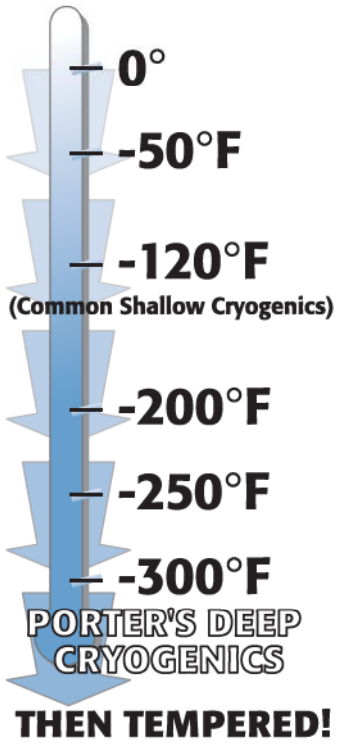
UHH is designed for heavy duty retainer

All the benefits of the Pop-On Stripper plus:

- Patented 75D Hard-Hat designed to withstand the sharp edges of standard retainers.
- Co-injection molded to blend 2 different durometers of Urethane into one homogeneous piece without adhesive or bonding agents.
- .156 preload in for positive holding pressure as the punch contacts the material.

PORTER ZT, (ZEROTEMP) Surface Treatment, & Coatings

ZEROTEMP is a Porter exclusive combination of deep cryogenics (-300F) treatment plus an additional temper during the heat- treating process. This results in internally altering the entire structure of the steel creating a dense and uniform molecular structure. ZEROTEMP is not a surface treatment! ZEROTEMP increases internal bonding while releasing internal stresses created by previous machining processes. Computer-controlled gradual cooling and warming cycles eliminate the possibility of thermal shock and prevent parts from becoming brittle.



The Benefits

ZEROTEMP process forms very fine carbide particles throughout the material and increases wear resistance.

ZEROTEMP treatment results in a tougher substrate further increasing part life through reduced impact failures.

ZEROTEMP reduces internal stresses or completely eliminates part movement during the machining process.

ZEROTEMP requires only one treatment as it is a through part molecular change and not a surface layer. The results last the life of the tool. Sharpening will NOT eliminate the benefits.

ZEROTEMP provides increased durability, tensile strength, toughness and stability. Extra life can vary from 100 to 400 percent depending on the tool type and the application.

ZEROTEMP is provided to all Porter Ultra precision punches, dies, and perforators during the blank manufacturing process. This results in no change in appearance. The secondary treatment creates a slight honey color appearance.

Porter Plus (PPC)

This Porter high end coating has been tested and proven to perform better in the high strength automotive steels used today.

A (PVD) process of placing a thin layer of this special coating (2-5 microns thick) over the working area of the punch.

Benefits

* Surface hardness of 3200 Vickers
* Dry coefficient of friction versus steel .35
* Resistant to galling and peeling
* Thermal stability up to 2000 F
* More wear resistant than TICN
* Appears blue-grey

Tin
Titanium Nitride

A (PVD) process of placing a thin coating of Titanium Nitride 1-5 microns thick over the working area of the punch.

Benefits

*Surface hardness of 80-85 RC 2300 Vickers
*Dry coefficent of friction versus steel .4
*Resistant to galling and peeling
*Thermal stability up to 1100 F
Appears gold in color

NG
Nitrogenics

Nitrogenic is a Porter exclusive "combination of ZT, followed by a nitride salt bath

Benefits

*Surface rockwell of Rc 70+
*No external layer to chip or peel since Nitrogenic is a surface treatment that penetrates approxi mately .0003 deep
*Resistant to galling
*Corrosion resistant
Appears dark grey/black in color

TICN
Titanium Carbonitrite

A (PVD) process of placing a thin coating of Titanium Nitride 1-5 microns thick over the working area of the punch.

Benefits

*Surface hardness of 90 RC+ 3000 Vickers harder than Carbide"
*Dry coefficent of friction versus steel .3
*Resistant to galling and peeling
*Thermal stability up to 750 F
*More wear resistance than TIN
Appears brown or light blue.

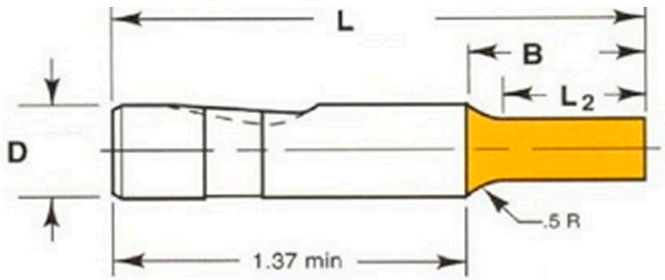
All PVD & CVD coatings are available on Porter M2 and particle steel products. Porter has an extensive background in improving punch and die insert life. Choosing the best base tool steel along with the best surface enhancement will result in more profit for your stamping operation.

Porter has the experience and working relationships to secure the best combination of the above for your needs. Please consult the factory or your salesman for help with your problem applications.

Phone Toll Free: (877)438-7657 Fax: (814)438-8146

www.toolingcomponentsinc.com email: sales@toolcompinc.com

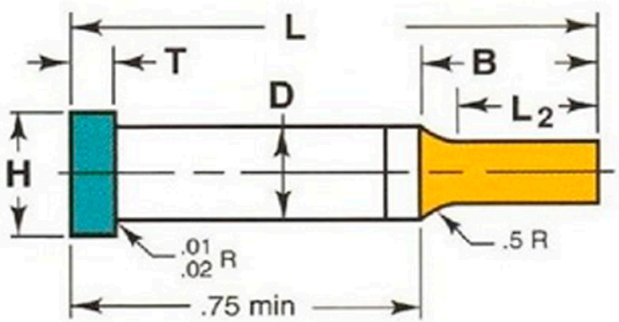
Tooling Components, Inc.



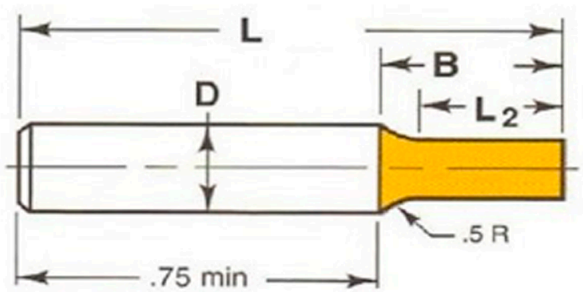
☐ HD B/L

☐ LD B/L

☐ Ejector



☐ Ejector



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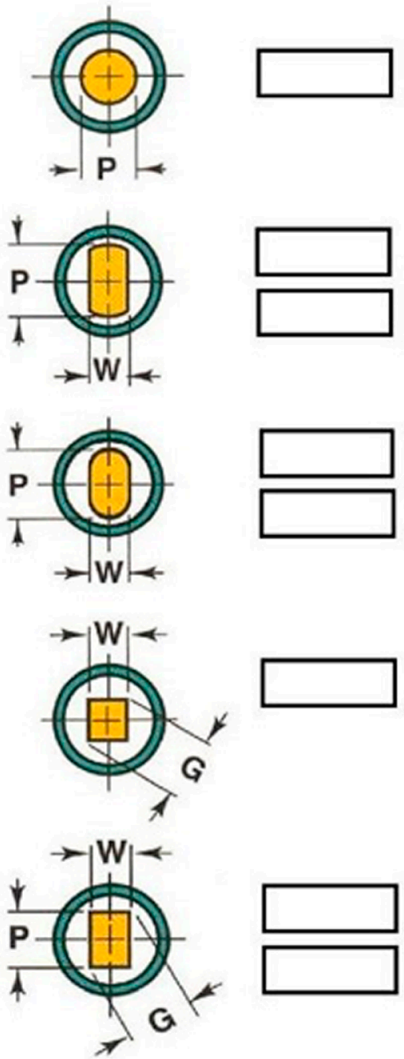

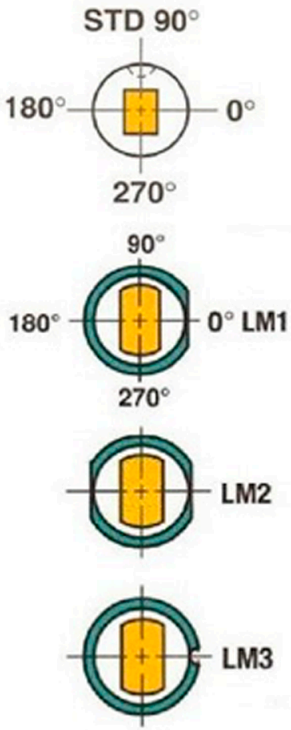

Company Name	Tool #	Part#/Det#	Description			
Body Dia "D"	Length "L"	Material	Nose Length "B" or L2	Coating	Locating Device & Location	"T" if not Std (Xtreme)

Notes and or other Alteration requests

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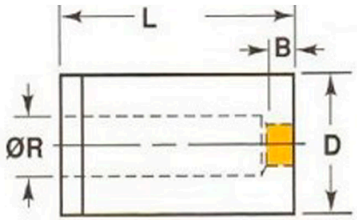
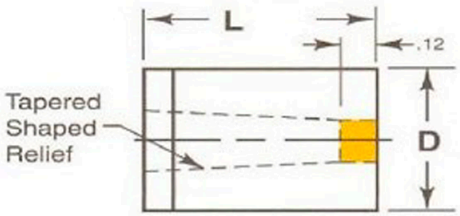
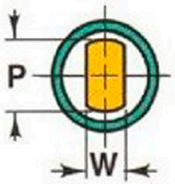


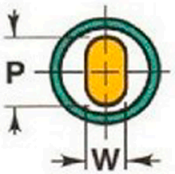
☐ **Press-fit C'Bore Relief**

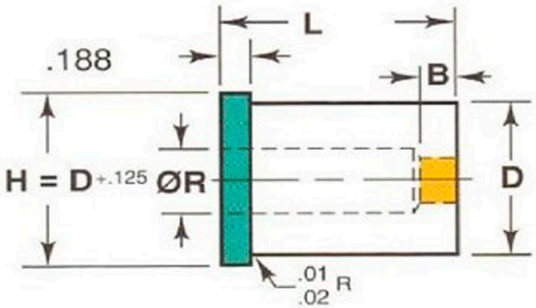


☐ **Press-Fit Tapered Relief**

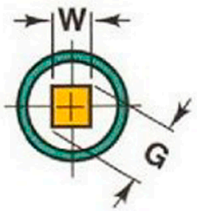
☐ **Press-Fit Precision Tolerance**

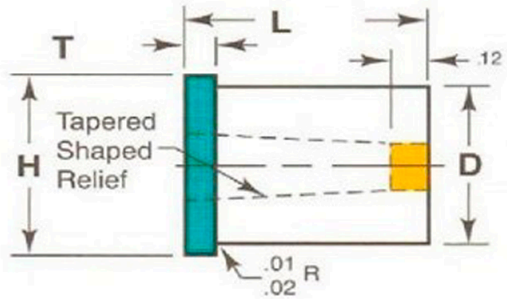






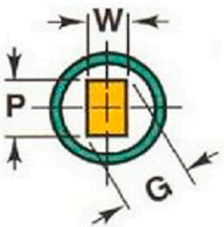
☐ **Headed C'Bore Relief**

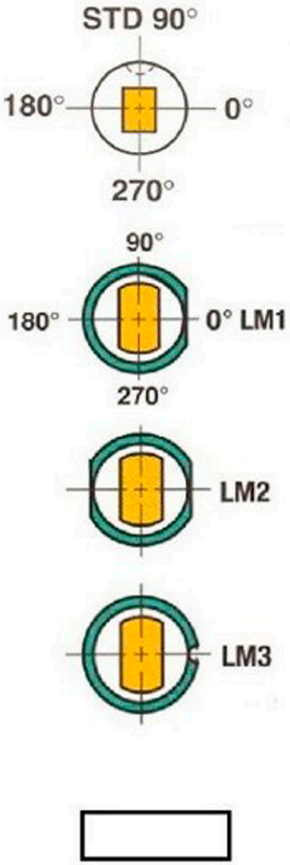




☐ **Headed Tapered Relief**

☐ **Headed Precision Tolerance**



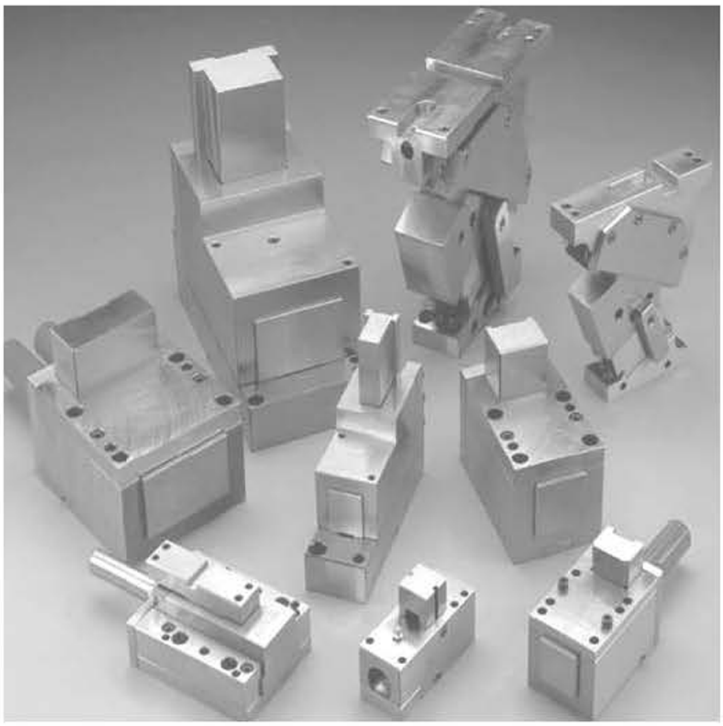


Punches use Reflective View

Company Name	Tool #	Part#/Det#	Description			
Body Dia "D"	Length "L"	Material	Nose Length "B" or L2	Coating	Locating Device & Location	"T" if not Std (Xtreme)

Notes and or other Alteration requests

CAMS



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