

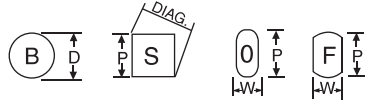
PUNCH & DIE COMPONENTS

SELECTIVE SERIES		
	1	SOLID PUNCHES
	2	EJECTOR PUNCHES
	3	SOLID WHIPSLEEVE PUNCHES
	4	EJECTOR WHIPSLEEVE PUNCHES
	5	PILOTS
	6	HIGH SPEED LONG NOSE PILOTS
	7	PRESS FIT DIE BUTTONS
	8	PRECISION PERFORATORS - BLANK & POINTED
BASIC SERIES		
	9	SOLID PUNCHES
	10	WHIPSLEEVE SOLID & EJECTOR PUNCHES
	11	REGULAR PILOTS / LONG NOSE PILOT
	12	DIE BUTTONS HEADLESS / HEADED
	13	WIRE & CONVENTIONAL EDM DIE BUTTONS
	14	COUNTERSINK PUNCHES
	15	PERFORATORS
BALL LOCK	16	EJECTOR PUNCH - HEAVY DUTY
	16	SOLID PUNCH - HEAVY DUTY
	17	EJECTOR PUNCH - LIGHT DUTY
	17	SOLID PUNCH - LIGHT DUTY
	18	WHIPSLEEVE EJECTOR PUNCH - HEAVY DUTY
	18	WHIPSLEEVE SOLID PUNCH - HEAVY DUTY
	19	WHIPSLEEVE EJECTOR PUNCH - LIGHT DUTY
	19	WHIPSLEEVE SOLID PUNCH - LIGHT DUTY
	20	LONG NOSE PILOT - LIGHT & HEAVY DUTY
	21	REGULAR PILOTS - LIGHT & HEAVY DUTY
	22	KNOB STYLE PUNCHES - HEAVY DUTY
	23	KNOB STYLE PUNCHES - LIGHT DUTY
	24	DIE BUTTONS
CATALOG INFORMATION		
	25	LOCKING DEVICES
	27	ADDITIONAL FORM SHAPES
URAFLEX		
	30	URAFLEX
	32	NYLON STRIPPERS
	35	SPRINGS
	39	ENGINEERING DATA
	40	SHEET, SLABS, BARS & RODS

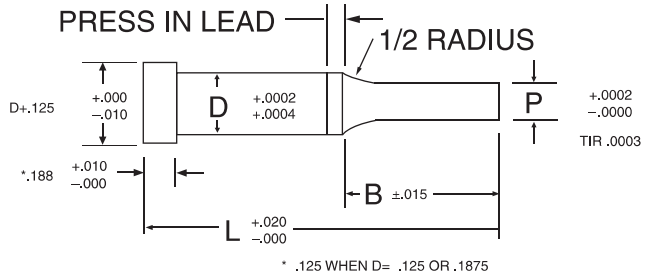
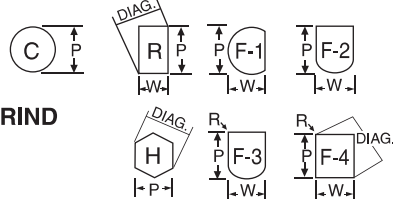
PIVOT PUNCH CORPORATION / SELECTIVE SERIES
SOLID PUNCHES

STEEL: M2 R/C 60-62
 HEADS DRAWN R/C 40-55

H()P
 M-2 STEEL



Y()P
 M-2 STRAIGHT GRIND



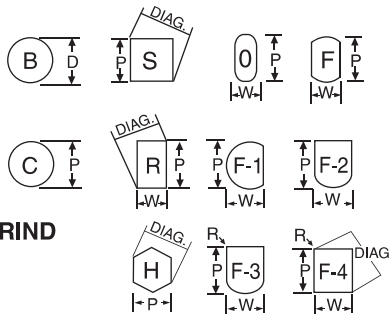
Shank		Point Length B	Round		Shape			Overall Length L													
D	Code		Min SP	Range P	Min SW	Min W	Max Diag	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00		
.1250	12	.50	.031	.031-.1250	.062	.062	.1250														
.1875	18		.042	.046-.1875	.062	.062	.1875														
.2500	25		.062	.062-.2500	.062	.062	.2500	1102	1202	1302	2002	2102	2202	2302	3002	3102	3202	3302	3402	4002	
.3125	31		.062	.093-.3125	.062	.062	.093-.3125														
.3750	37		.062	.125-.3750	.080	.080	.125-.3750														
.1250	12	.75	.042	.062-.1250	.062	.062	.1250														
.1875	18		.042	.062-.1875	.062	.062	.1875														
.2500	25		.062	.062-.2500	.062	.062	.2500														
.3125	31		.062	.093-.3125	.062	.062	.093-.3125														
.3750	37		.062	.125-.3750	.080	.080	.125-.3750														
.4375	43		.093	.187-.4375	.109	.109	.187-.4375														
.5000	50		.125	.225-.5000	.125	.125	.187-.5000														
.6250	62		.235	.310-.6250	.235	.235	.250-.6250														
.7500	75		.300	.390-.7500	.235	.235	.312-.7500														
.8750	87		.355	.440-.8750	.300	.300	.343-.8750														
1.000	100	.400	.485-1.000	.235	.235	.375-1.000															
.1250	12	1.00	.058	.062-.1250	.032	.032	.1250														
.1875	18		.058	.062-.1875	.062	.062	.1875														
.2500	25		.062	.062-.2500	.062	.062	.2500														
.3125	31		.062	.093-.3125	.093	.093	.3125														
.3750	37		.062	.125-.3750	.109	.109	.125-.3750														
.4375	43		.093	.187-.4375	.109	.109	.187-.4375														
.5000	50		.125	.225-.5000	.125	.125	.187-.5000														
.6250	62		.235	.310-.6250	.235	.235	.250-.6250														
.7500	75		.300	.390-.7500	.235	.235	.312-.7500														
.8750	87		.355	.440-.8750	.300	.300	.343-.8750														
1.000	100	.400	.485-1.000	.235	.235	.375-1.000															
.1250	12	1.25	.075	.093-.1250	.093	.093	.1250														
.1875	18		.075	.093-.1875	.093	.093	.1875														
.2500	25		.080	.093-.2500	.093	.093	.2500														
.3125	31		.093	.093-.3125	.093	.093	.3125														
.3750	37		.093	.125-.3750	.125	.125	.3750														
.4375	43		.093	.187-.4375	.141	.141	.187-.4375														
.5000	50		.125	.225-.5000	.141	.141	.187-.5000														
.6250	62		.234	.310-.6250	.235	.235	.250-.6250														
.7500	75		.300	.390-.7500	.235	.235	.312-.7500														
.8750	87		.355	.440-.8750	.300	.300	.343-.8750														
1.000	100	.400	.485-1.000	.235	.235	.375-1.000															
.1875	18	1.50	.093	.125-.1875	.125	.125	.1875														
.2500	25		.093	.125-.2500	.125	.125	.2500														
.3125	31		.093	.125-.3125	.125	.125	.3125														
.3750	37		.125	.125-.3750	.125	.125	.3750														
.4375	43		.125	.187-.4375	.172	.172	.187-.4375														
.5000	50		.125	.225-.5000	.172	.172	.187-.5000														
.6250	62		.234	.310-.6250	.235	.235	.250-.6250														
.7500	75		.300	.390-.7500	.235	.235	.312-.7500														
.8750	87		.355	.440-.8750	.300	.300	.343-.8750														
1.000	100		.400	.485-1.000	.235	.235	.375-1.000														

HOW TO ORDER STEEL SHAPE PUNCH BODY OVERALL POINT
 DIA. CODE LENGTH LENGTH "P"
H C P 37 22 10 X .250

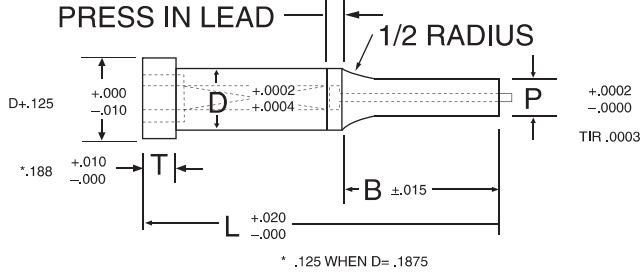
**PIVOT PUNCH CORPORATION / SELECTIVE SERIES
EJECTOR PUNCHES**

STEEL: M2 R/C 60-62
HEADS DRAWN R/C 40-55

H()E
M-2 STEEL



Y()E
M-2 STRAIGHT GRIND



Shank		Point Length B	Round		Shape			Overall Length L											
D	Code		Min SP	Range P	Min SW	Min W	Max Diag	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
.1875	18	.50	.050	.062-.1875	.062	.062-.1875													
.2500	25		.080	.093-.2500	.080	.093-.2500	1102	1202	1302	2002	2102	2202	2302	3002					
.3125	31		.115	.125-.3125	.115	.125-.3125										3102	3202		
.3750	37		.158	.087-.3750	.158	.187-.3750												3302	
.1875	18	.75	.050	.062-.1875	.062	.062-.1875													
.2500	25		.080	.093-.2500	.080	.093-.2500													
.3125	31		.115	.125-.3125	.115	.125-.3125													
.3750	37		.158	.187-.3750	.158	.187-.3750													
.4375	43		.158	.187-.4375	.158	.187-.4375		1203	1303	2003	2103	2203	2303	3003	3103	3203	3303	4003	
.5000	50		.158	.225-.5000	.158	.250-.5000													
.6250	62		.235	.310-.6250	.235	.282-.6250													
.7500	75		.300	.390-.7500	.235	.312-.7500													
.8750	87		.355	.440-.8750	.300	.343-.8750													
1.000	100		.400	.485-1.000	.235	.375-1.0000													
.1875	18	1.00	.058	.062-.1875	.093	.093-.1875													
.2500	25		.080	.093-.2500	.093	.093-.2500													
.3125	31		.115	.125-.3125	.115	.125-.3125													
.3750	37		.158	.187-.3750	.158	.187-.3750													
.4375	43		.158	.187-.4375	.158	.187-.4375			1310	2010	2110	2210	2310	3010	3110	3210	3310	4010	
.5000	50		.158	.225-.5000	.158	.250-.5000													
.6250	62		.235	.310-.6250	.235	.282-.6250													
.7500	75		.300	.390-.7500	.235	.312-.7500													
.8750	87		.355	.440-.8750	.300	.343-.8750													
1.000	100		.400	.485-1.000	.235	.375-1.0000													
.2500	25	1.25	.080	.093-.2500	.093	.093-.2500													
.3125	31		.115	.125-.3125	.115	.125-.3125													
.3750	37		.158	.187-.3750	.158	.187-.3750													
.4375	43		.158	.187-.4375	.158	.187-.4375													
.5000	50		.158	.225-.5000	.158	.250-.5000				2011	2111	2211	2311	3011	3111	3211	3311	4011	
.6250	62		.235	.310-.6250	.235	.282-.6250													
.7500	75		.300	.390-.7500	.235	.312-.7500													
.8750	87		.355	.440-.8750	.300	.343-.8750													
1.000	100		.400	.485-1.000	.235	.375-1.0000													
.3125	31		1.50	.115	.125-.3125	.115	.125-.3125												
.3750	37	.158		.187-.3750	.158	.187-.3750													
.4375	43	.158		.187-.4375	.158	.187-.3750													
.5000	50	.158		.225-.5000	.158	.250-.5000													
.6250	62	.235		.310-.6250	.235	.282-.6250													
.7500	75	.300		.390-.7500	.235	.312-.7500													
.8750	87	.355		.440-.8750	.300	.343-.8750													
1.000	100	.400		.485-1.000	.235	.375-1.0000													

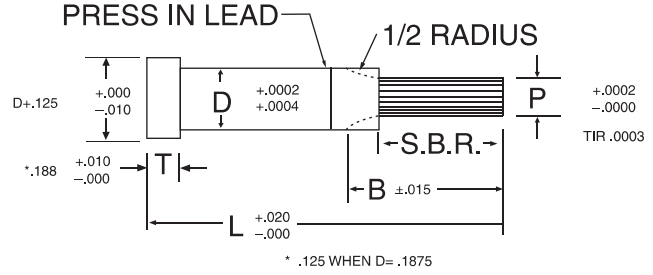
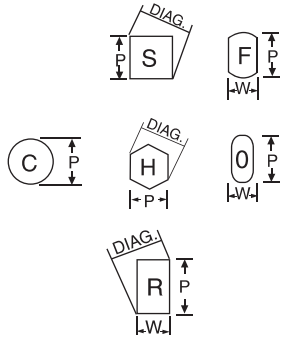
HOW TO ORDER STEEL SHAPE PUNCH BODY DIA. OVERALL LENGTH POINT LENGTH "P" "W"

H O E 37 22 10 X .250 X .125

PIVOT PUNCH CORPORATION / SELECTIVE SERIES
SOLID WHIPSLEEVE PUNCHES

STEEL: M2 R/C 60/62
 HEADS DRAWN R/C 40-55

X()P
M-2 STEEL



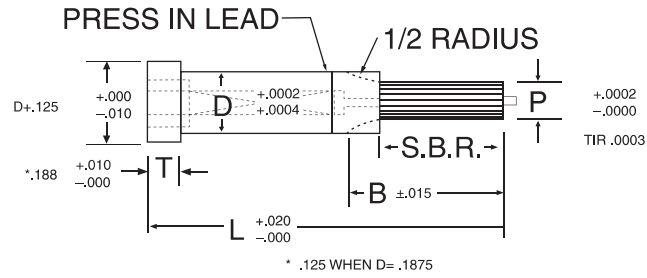
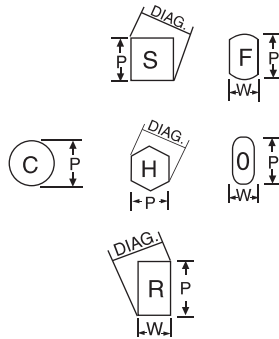
Shank		Point Length B	Round		Shape			Overall Length L								
D	Code		Min SP	Range P	Min SW	Min W	Max Diag	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50
.50																
.1875	18	.50	.042	.046-.109	.062	.062	.109	1202								
.2500	25		.062	.062-.125	.062	.062	.125		1302							
.3125	31		.062	.093-.172	.062	.093	.172			2002	2102	2202				
.3750	37		.062	.125-.218	.080	.125	.218									
.75																
.1875	18	.75	.042	.062-.109	.062	.062	.109									
.2500	25		.062	.062-.125	.062	.062	.125									
.3125	31		.062	.093-.172	.062	.093	.172		1303							
.3750	37		.062	.125-.218	.080	.125	.218			2003						
.4375	43		.093	.187-.250	.109	.187	.250									
.5000	50		.125	.225-.297	.125	.187	.297				2103	2203	2303			
.6250	62		.235	.310-.375	.235	.250	.375							3003	3103	
.7500	75		.300	.390-.500	.235	.312	.500									
1.000	100		.400	.485-.687	.235	.375	.687									
1.00																
.1875	18	1.00	.058	.062-.109	.062	.062	.109									
.2500	25		.062	.062-.125	.062	.062	.125									
.3125	31		.062	.093-.172	.093	.093	.172									
.3750	37		.062	.125-.218	.109	.125	.218									
.4375	43		.093	.187-.250	.109	.187	.250									
.5000	50		.125	.225-.297	.125	.187	.297			2010	2110	2210	2310	3010		
.6250	62		.235	.310-.375	.235	.250	.375								3110	3210
.7500	75		.300	.390-.500	.235	.312	.500									
1.000	100		.400	.485-.687	.235	.375	.687									
1.25																
.1875	18	1.25	.075	.062-.109	.093	.093	.109									
.2500	25		.080	.093-.125	.093	.093	.125									
.3125	31		.093	.093-.172	.093	.093	.172									
.3750	37		.093	.125-.218	.125	.125	.218									
.4375	43		.093	.187-.250	.141	.187	.250									
.5000	50		.125	.225-.297	.141	.187	.297									
.6250	62		.234	.310-.375	.235	.250	.375									
.7500	75		.300	.390-.500	.235	.312	.500									
1.000	100		.400	.485-.687	.235	.375	.687									
1.50																
.3125	31	1.50	.093	.125-.172	.125	.125	.172									
.3750	37		.125	.125-.218	.125	.125	.218									
.4375	43		.125	.187-.250	.172	.187	.250									
.5000	50		.125	.225-.297	.172	.187	.297									
.6250	62		.235	.310-.375	.235	.250	.375				2212	2312	3012	3112	3212	
.7500	75		.300	.390-.500	.235	.312	.500									
1.000	100		.400	.485-.687	.235	.375	.687									

HOW TO ORDER STEEL SHAPE PUNCH BODY OVERALL POINT "P"
 X C P 37 22 10 .187

**PIVOT PUNCH CORPORATION / SELECTIVE SERIES
EJECTOR WHIPSLEEVE PUNCHES**

STEEL: M2 R/C 60/62
HEADS DRAWN R/C 40-55

X () E
M-2 STEEL



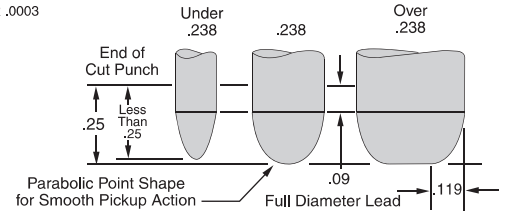
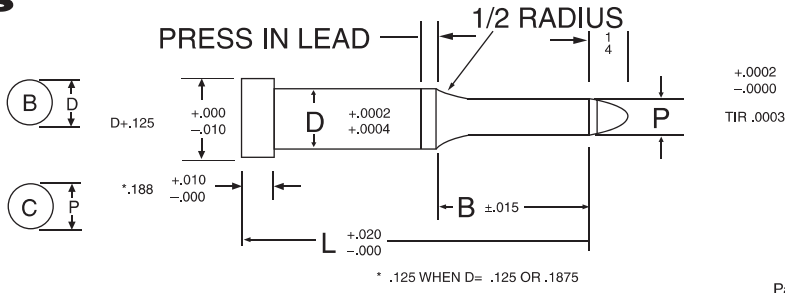
Shank		Point Length B	Round		Shape		Overall Length L									
D	Code		Min SP	Range P	Min SW	Min Max W Diag	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	
.1875	18	.50	.042	.046-.109	.062	.062-.109										
.2500	25		.062	.062-.125	.062	.062-.125	1202									
.3125	31		.062	.093-.172	.062	.093-.172		1302	2002	2102	2202					
.3750	37		.062	.125-.218	.080	.125-.218										
.1875	18	.75	.042	.062-.109	.062	.062-.109										
.2500	25		.062	.062-.125	.062	.062-.125		1303								
.3125	31		.062	.093-.172	.062	.093-.172										
.3750	37		.062	.125-.218	.080	.125-.218			2003							
.4375	43		.093	.187-.250	.109	.187-.250				2103	2203	2303				
.5000	50		.125	.225-.297	.125	.187-.297							3003	3103		
.6250	62		.235	.310-.375	.235	.250-.375										
.7500	75		.300	.390-.500	.235	.312-.500										
1.000	100	.400	.485-.687	.235	.375-.687											
.2500	25	1.00	.062	.062-.125	.062	.062-.125										
.3125	31		.062	.093-.172	.093	.093-.172										
.3750	37		.062	.125-.218	.109	.125-.218		2010								
.4375	43		.093	.187-.250	.109	.187-.250										
.5000	50		.125	.225-.297	.125	.187-.297			2110	2210	2310	3010				
.6250	62		.235	.310-.375	.235	.250-.375								3110	3210	
.7500	75		.300	.390-.500	.235	.312-.500										
1.000	100		.400	.485-.687	.235	.375-.687										
.3125	31	1.25	.093	.093-.172	.093	.093-.172										
.3750	37		.093	.125-.218	.125	.125-.218										
.4375	43		.093	.187-.250	.141	.187-.250										
.5000	50		.125	.225-.297	.141	.187-.297										
.6250	62		.234	.310-.375	.235	.250-.375										
.7500	75		.300	.390-.500	.235	.312-.500										
1.000	100		.400	.485-.687	.235	.375-.587										

HOW TO ORDER TYPE SHAPE PUNCH DIA. BODY CODE OVERALL LENGTH POINT LENGTH "P"

X C E 37 22 10 .187

PILOTS

H() N
M-2 STEEL



Shank		Point	Round		Overall Length L												
D	Code	Length B	Min SP	Range P	1.25	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	
.1250	12	.50	.050	.061-.1250													
.1875	18		.050	.061-.1875													
.2500	25		.061	.061-.2500	1102	1202	1302	2002	2102	2202	2302	3002					
.3125	31		.061	.092-.3125										3102	3202		
.3750	37		.061	.124-.3750												3302	4002
.1250	12	.75	.050	.061-.1250													
.1875	18		.050	.061-.1875													
.2500	25		.061	.061-.2500													
.3125	31		.061	.092-.3125													
.3750	37		.061	.124-.3750													
.4375	43		.092	.186-.4375		1203	1303	2003	2103	2203	2303	3003					
.5000	50		.124	.224-.5000													
.6250	62		.234	.309-.6250													
.7500	75		.299	.389-.7500													
.8750	87		.354	.439-.8750													
1.0000	100	.399	.484-1.0000														
.1250	12	1.00	.057	.061-.1250													
.1875	18		.057	.061-.1875													
.2500	25		.061	.061-.2500													
.3125	31		.061	.092-.3125													
.3750	37		.061	.124-.3750													
.4375	43		.092	.186-.4375			1310	2010	2110	2210	2310	3010					
.5000	50		.124	.224-.5000													
.6250	62		.234	.309-.6250													
.7500	75		.299	.389-.7500													
.8750	87		.354	.439-.8750													
1.0000	100	.399	.484-1.0000														
.1250	12	1.25	.074	.092-.1250													
.1875	18		.074	.092-.1875													
.2500	25		.079	.092-.2500													
.3125	31		.092	.092-.3125													
.3750	37		.092	.124-.3750													
.4375	43		.092	.186-.4375				2011	2111	2211	2311	3011					
.5000	50		.124	.224-.5000													
.6250	62		.234	.309-.6250													
.7500	75		.299	.389-.7500													
.8750	87		.354	.439-.8750													
1.0000	100	.399	.484-1.0000														
.1875	18	1.50	.092	.124-.1875													
.2500	25		.092	.124-.2500													
.3125	31		.092	.124-.3125													
.3750	37		.124	.124-.3750													
.4375	43		.124	.186-.4375													
.5000	50		.124	.224-.5000					2112	2212	2312	3012					
.6250	62		.234	.309-.6250													
.7500	75		.299	.389-.7500													
.8750	87		.354	.439-.8750													
1.0000	100		.399	.484-1.0000													

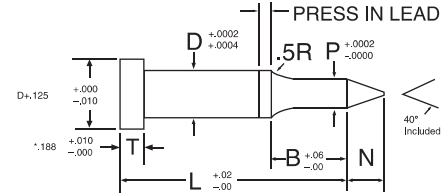
HOW TO ORDER STEEL SHAPE PUNCH BODY DIA. CODE "L" LENGTH POINT LENGTH "P"
H C P 37 22 10 X .250

**PIVOT PUNCH CORPORATION / SELECTIVE SERIES
HIGH SPEED LONG NOSE PILOTS**

STEEL: M2 R/C 60/62
HEADS DRAWN TO R/C 40-55

Positive Pick Up Pilots

**HLN()
M-2 STEEL ONLY**

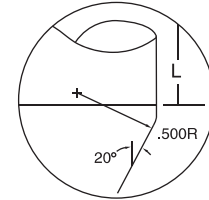


UNDER .186 SP PILOT NOSE IS 1.5P

P-Tolerance +.0002
-.0000

P to D + .0003 T.I.R.

When P = D Tolerance is +.0002
+.0004



Shank		Point Length B	Round			Length L													
D	Code		Min SP	Range P	MAX N	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50	
.3750	37	.75	.092	.186-.3750	.37														
.4375	43		.092	.186-.4375	.43														
.5000	50		.124	.224-.5000	.50	2203	2303	3003	3103	3203	3303	4003	4103	4203	4303	5003	5103	5203	
.6250	62		.234	.309-.6250	.62														
.7500	75		.299	.389-.7500	.75														
.8750	87	1.00	.354	.439-.875	.87														
1.000	100		.399	.484-1.000	1.00														
.3750	37		.092	.186-.3750	.37														
.4375	43		.092	.186-.4375	.43														
.5000	50		.124	.224-.5000	.50	2210	2310	3010	3110	3210	3310	4010	4110	4210	4310	5010	5110	5210	
.6250	62	.234	.309-.6250	.62															
.7500	75	.299	.389-.7500	.75															
.8750	87	.354	.439-.875	.87															
1.000	100	.399	.484-1.000	1.00															
.3750	37	1.25	.092	.186-.3750	.37														
.4375	43		.092	.186-.4375	.43														
.5000	50		.124	.224-.5000	.50	2210	2311	3011	3111	3211	3311	4011	4111	4211	4311	5011	5111	5211	
.6250	62		.234	.309-.7500	.62														
.7500	75		.299	.389-.7500	.75														
.8750	87	.354	.439-.875	.87															
1.000	100	.399	.484-1.000	1.00															

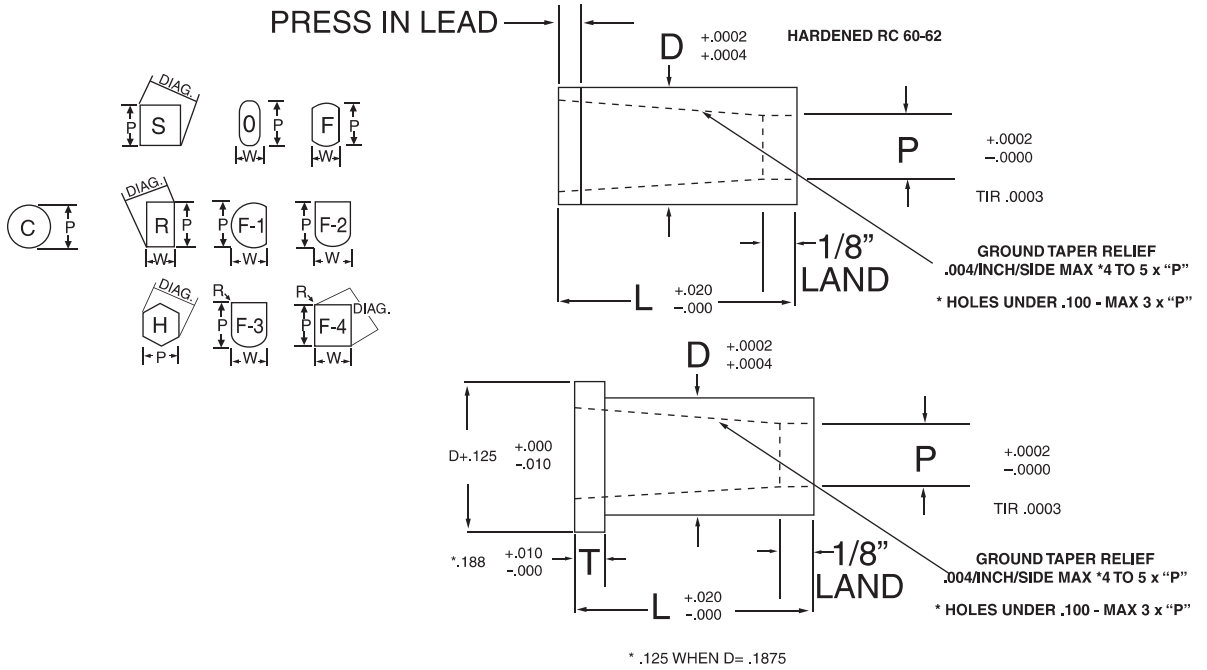
HOW TO ORDER HIGH SPEED LONG NOSE PILOT BODY DIA. CODE OVERALL LENGTH POINT LENGTH "P"
HLNC 50 32 10 X .374

**PIVOT PUNCH CORPORATION / SELECTIVE SERIES
PRESS FIT DIE BUTTONS**

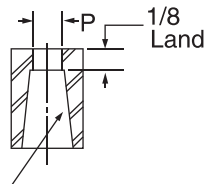
STEEL: M2 R/C 60/62
HEADS DRAWN R/C 40-55

HCD
H () DW
HEADLESS
M-2 STEEL

HCH
H () HW
HEADED
M-2 STEEL

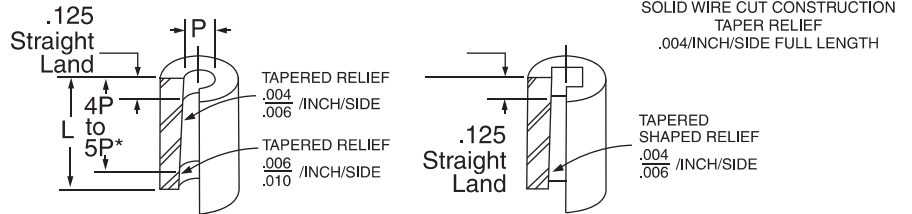


WHEN P < .100



STEPPED TAPER RELIEF-.006-.010/INCH/SIDE

WHEN P > .100



SHAPES
SOLID WIRE CUT CONSTRUCTION
TAPER RELIEF
.004/INCH/SIDE FULL LENGTH

TAPERED
SHAPED RELIEF
.004 /INCH/SIDE
.006

Shank		Round	Shape	Overall Length L								
D	Code	Range P	Min. Max. W. DIAG.	.500	.625	.75	.87	1.00	1.12	1.25	1.37	1.50
.1875	18	.038-.130	.050-.130									
.2500	25	.050-.170	.050-.170									
.3125	31	.062-.212	.050-.212	50	62	75	87	100	112			
.3750	37	.075-.255	.050-.255							125	137	150
.4375	43	.130-.297	.075-.297									
.5000	50	.150-.344	.075-.344	50	62	75	87	100	112	125	137	150
.6250	62	.188-.425	.075-.425									
.7500	75	.225-.510	.075-.510									
.8750	87	.300-.595	.075-.595									
1.000	100	.400-.680	.075-.680									
1.250	125	.500-.850	.075-.850			75	87	100	112	125	137	150

HOW TO ORDER

STEEL SHAPE HEAD OVERALL
DIE BODY DIA. LENGTH "P"
H C H 100 - 112 X .625

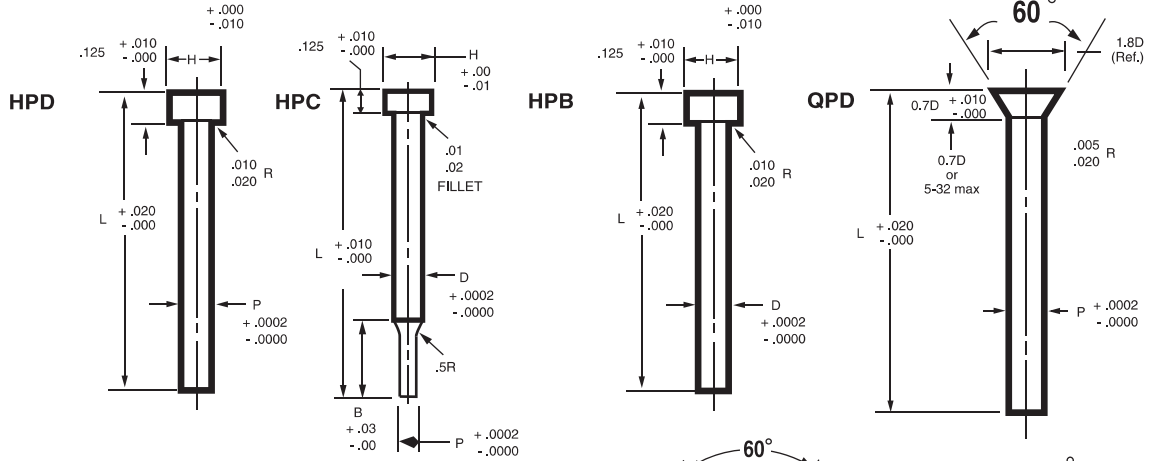
HOW TO ORDER

STEEL SHAPE PRESS FIT DIE WIRE BODY DIA. OVERALL LENGTH "P" "W"
H F D W 100 - 112 X .437 X .187

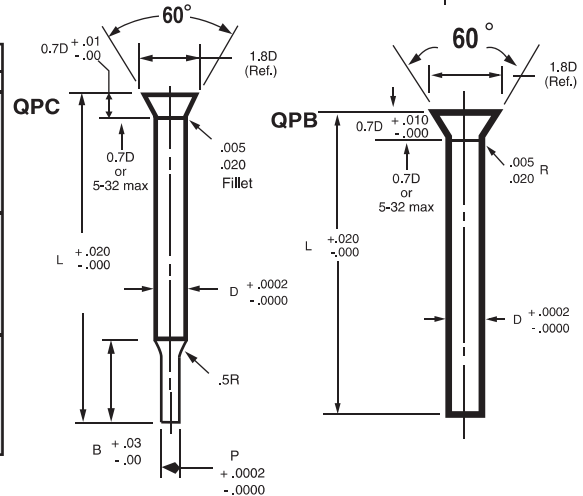
PIVOT PUNCH CORPORATION / SELECTIVE SERIES
PRECISION PERFORATORS BLANK & POINTED

STEEL: M2 R/C 60-63
 HEADS DRAWN TO R/C 40-50 (HPD)
 (QPD)

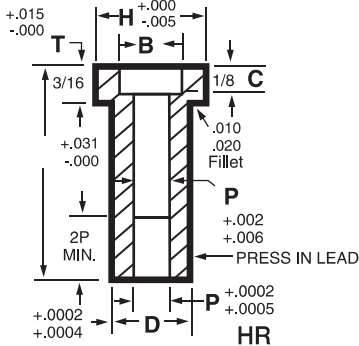
HEAD TYPE
 HPD
 HPC
 HPB
QUILL TYPE
 QPD
 QPC
 QPB



Shank	Head Dia. H	Point Length B	Range P	Overall Length L						
				D	Code	1.50	1.75	2.00	2.25	2.50
Straight Punches										
HPD QPD	N/A	N/A	.0300-.0630 .0631-.0940 .0941-.1250 .1251-.1570 .1571-.1880 .1881-.2190 .2191-.2500	150	175	200	225	250		
Regular Punches										
HPC QPC	.0625 .0938 .1250 .1562 .1875 .2188 .2500	06 09 12 15 18 21 25	.125 .160 .190 .220 .250 .282 .313	.19 .25 .31 .31 .31 .31	.0310-.0624 .0626-.0937 .0939-.1249 .1251-.1561 .1563-.1874 .1876-.2187 .2189-.2499	150	175	200	225	250
Punch Blanks										
HPB QPB	.0625 .0938 .1250 .1562 .1875 .2188 .2500	06 09 12 15 18 21 25	.125 .160 .190 .220 .250 .282 .313	N/A						



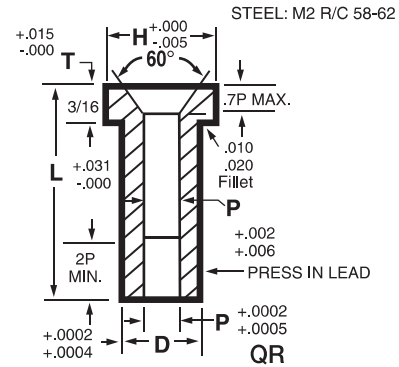
PRECISION RETAINERS



precision retainers

SERIES
HR
 M2 STEEL
 R/C 58-62

SERIES
QR
 M2 STEEL
 R/C 58-62



STEEL: M2 R/C 58-62

CAT. NO.	D	H	B	P	3/4	1	1 1/4	1 1/2	1 3/4	CAT. NO.	D	H	P
HR-18	3/16	5/16	9/64	.0625	X	X	X			QR-18	3/16	5/16	.0625
HR-25	1/4	3/8	11/64	.0938	X	X	X			QR-25	1/4	3/8	.0938
HR-31	5/16	7/16	13/64	.1250	X	X	X	X	X	QR-31	5/16	7/16	.1250
HR-37	3/8	1/2	15/64	.1562	X	X	X	X	X	QR-37	3/8	1/2	.1562
HR-43	7/16	9/16	17/64	.1875	X	X	X	X	X	QR-43	7/16	9/16	.1875
HR-50	1/2	5/8	19/64	.2178	X	X	X	X	X	QR-50	1/2	5/8	.2178
HR-62	5/8	3/4	21/64	.2500	X	X	X	X	X	QR-62	5/8	3/4	.2500

HOW TO ORDER
 CAT. NO. **QR-37**
 OVERALL LENGTH **1**
 "P" **.1562**

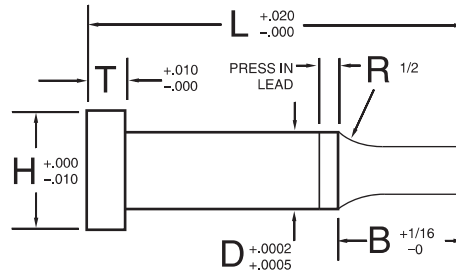
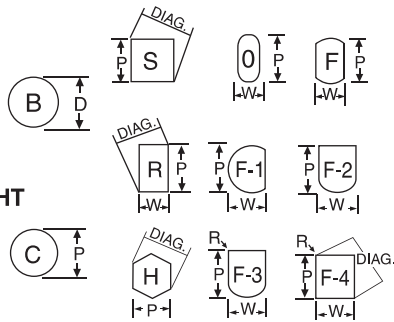
SOLID PUNCHES

STEEL: M2 R/C 60-62

HEADS DRAWN TO R/C 40-55

HS ()
M-2 STEEL

YS ()
M-2 STRAIGHT GRIND



ROUND

+0.005
-.0000
T•I•R
.0005

SHAPE

±.0005
T•I•R
.001

Shank		Head Dim.		Point Length B					Round		Shape		Overall Length L									
D	Code	H	T	NAPMA S	Alternate B C D E				Min. SP	Range P	Min. SW	Min. Max. W DIAG.	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00	
.1875	18	.312	.125	.43	.75				.042	.062-.1875	.062	.062-.1875	X	X	X	X	X					
.2500	25	.375	.125	.50	.75				.062	.062-.2500	.062	.062-.2500	X	X	X	X	X					
.3125	31	.438	.125	.56	.75	1.00*			.062	.093-.3125	.062	.093-.3125	X	X	X	X	X	X	X			
.3750	37	.500	.188	.62	.75	1.00	1.25**		.062	.125-.3750	.080	.125-.3750		X	X	X	X	X	X	X		
.4375	43	.562	.188	.62	.75	1.00	1.25		.093	.187-.4375	.080	.187-.4375		X	X	X	X	X	X	X		
.5000	50	.625	.188	.81		1.00	1.25		.125	.187-.5000	.125	.187-.5000			X	X	X	X	X	X	X	
.6250	62	.750	.250	.93			1.25	1.50***	.235	.375-.6250	.235	.250-.6250		X	X	X	X	X	X	X		
.7500	75	.875	.250	1.06			1.25	1.50	.300	.500-.7500	.235	.312-.7500			X	X	X	X	X	X	X	
.8750	87	1.000	.250	1.12				1.50	.350	.562-.8750	.235	.343-.8750			X	X	X	X	X	X	X	
1.0000	100	1.125	.250	1.25				1.50	.400	.687-1.0000	.235	.375-1.0000				X	X	X	X	X	X	

*NOT AVAILABLE ON 1.50 OVERALL LENGTH
**NOT AVAILABLE ON 1.75 OVERALL LENGTH

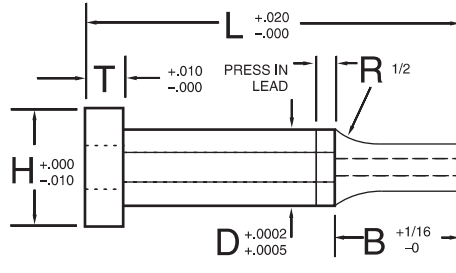
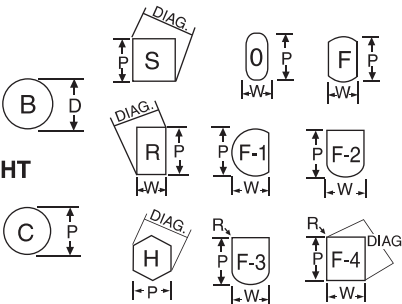
MIN. SP, SW, APPLIES TO S POINT LENGTH
***NOT AVAILABLE ON 2.00 OVERALL LENGTH

HOW TO ORDER TYPE **HSC** D **37** L **2.5** B **S** P **.250**

EJECTOR PUNCHES

HE ()
M-2 STEEL

YE ()
M-2 STRAIGHT GRIND



ROUND

+0.005
-.0000
T•I•R
.0005

SHAPE

±.0005
T•I•R
.001

Shank		Head Dim.		Point Length B					Round		Shape		Overall Length L									
D	Code	H	T	NAPMA S	Alternate B C D E				Min. SP	Range P	Min. SW	Min. Max. W DIAG.	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00	
.1875	18	.312	.125	.43	.75				.050	.062-.1875	.062	.062-.1875	X	X	X	X	X					
.2500	25	.375	.125	.50	.75				.080	.093-.2500	.080	.093-.2500	X	X	X	X	X					
.3125	31	.438	.125	.56	.75	1.00*			.115	.125-.3125	.115	.125-.3125	X	X	X	X	X	X	X			
.3750	37	.500	.188	.62	.75	1.00			.158	.187-.3750	.158	.187-.3750		X	X	X	X	X	X	X		
.4375	43	.562	.188	.62	.75	1.00	1.25		.158	.187-.4375	.158	.187-.4375		X	X	X	X	X	X	X		
.5000	50	.625	.188	.81		1.00			.158	.250-.5000	.158	.187-.5000			X	X	X	X	X	X	X	
.6250	62	.750	.250	.93			1.25		.235	.375-.6250	.235	.250-.6250		X	X	X	X	X	X	X		
.7500	75	.875	.250	1.06			1.25		.300	.500-.7500	.235	.312-.7500			X	X	X	X	X	X	X	
.8750	87	1.000	.250	1.25				1.50	.350	.562-.8750	.235	.343-.8750			X	X	X	X	X	X	X	
1.0000	100	1.125	.250	1.25				1.50	.400	.687-1.0000	.235	.375-1.0000				X	X	X	X	X	X	

*NOT AVAILABLE ON 1.50 OVERALL LENGTH

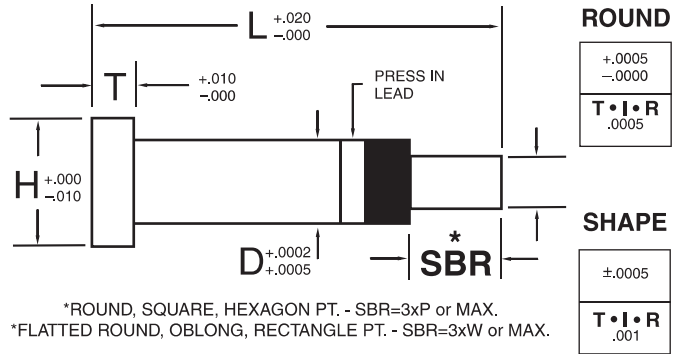
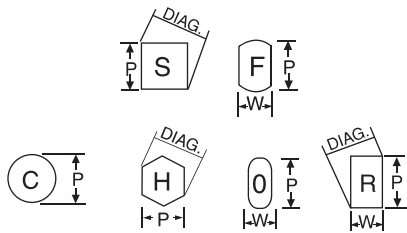
MIN. SP, SW, APPLIES TO S POINT LENGTH

HOW TO ORDER TYPE **HEC** D **50** L **3** B **C** P **.375**

PIVOT PUNCH CORPORATION / BASIC SERIES
WHIPSLEEVE SOLID PUNCHES

STEEL: M2 R/C 60-62
 HEADS DRAWN TO R/C 40-55

XS ()
 M-2 STEEL



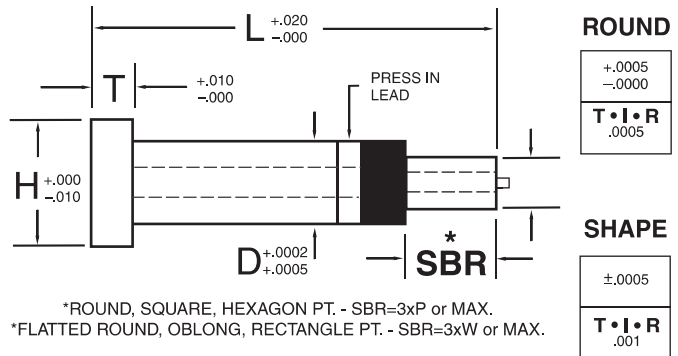
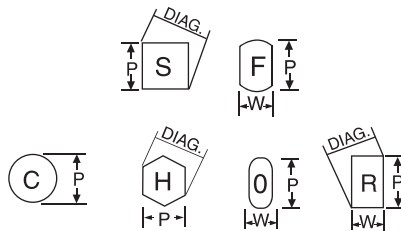
*ROUND, SQUARE, HEXAGON PT. - SBR=3xP or MAX.
 *FLATTED ROUND, OBLONG, RECTANGLE PT. - SBR=3xW or MAX.

Shank		Head Dim.		Round		Shape		Overall Length L							
D	Code	H	T	Max. SBR	Range P	Min. W	Max. DIAG.	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
.1875	18	.312	.125	.31	.060-.109	.060-.109		X	X	X	X				
.2500	25	.375	.125	.37	.060-.125	.060-.125		X	X	X	X				
.3125	31	.438	.125	.50	.062-.172	.060-.172		X	X	X	X	X	X		
.3750	37	.500	.188	.56	.093-.218	.093-.218		X	X	X	X	X	X		
.5000	50	.625	.188	.62	.125-.297	.125-.297			X	X	X	X	X	X	
.6250	62	.750	.250	.62	.203-.375	.203-.375			X	X	X	X	X	X	
.7500	75	.875	.250	.75	.281-.500	.281-.500				X	X	X	X	X	X
1.0000	100	1.125	.250	.87	.468-.687	.437-.687					X	X	X	X	X

HOW TO ORDER TYPE D L P
XSC 37 2.25 .187

WHIPSLEEVE EJECTOR PUNCHES

XE ()
 M-2 STEEL



*ROUND, SQUARE, HEXAGON PT. - SBR=3xP or MAX.
 *FLATTED ROUND, OBLONG, RECTANGLE PT. - SBR=3xW or MAX.

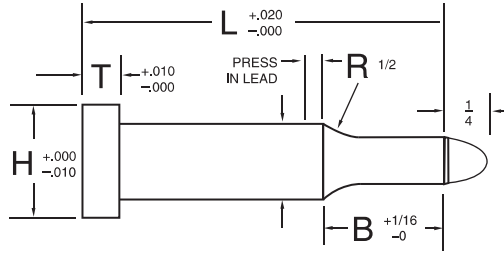
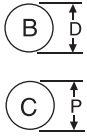
Shank		Head Dim.		Round		Shape		Overall Length L							
D	Code	H	T	Max. SBR	Range P	Min. W	Max. DIAG.	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00
.1875	18	.312	.125	.31	.060-.109	.060-.109		X	X	X	X				
.2500	25	.375	.125	.37	.090-.125	.090-.125		X	X	X	X				
.3125	31	.438	.125	.50	.115-.172	.115-.172		X	X	X	X	X	X		
.3750	37	.500	.188	.56	.165-.218	.165-.218		X	X	X	X	X	X		
.5000	50	.625	.188	.62	.165-.297	.165-.297			X	X	X	X	X	X	
.6250	62	.750	.250	.62	.235-.375	.235-.375			X	X	X	X	X	X	
.7500	75	.875	.250	.75	.281-.500	.281-.500				X	X	X	X	X	X
1.0000	100	1.125	.250	.87	.437-.687	.437-.687					X	X	X	X	X

HOW TO ORDER TYPE D L P
XEC 50 2.5 .250

**PIVOT PUNCH CORPORATION / BASIC SERIES
REGULAR PILOTS**

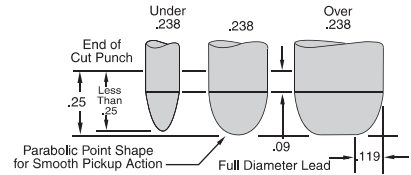
STEEL: M2 R/C 60-62
HEADS DRAWN TO R/C 40-55

**HN()
M-2 STEEL**



ROUND

+0.005
-0.000
T • I • R
.0005



Shank		Head Dim.		Point Length B					Round		Length L									
D	Code	H	T	NAPMA		Alternate			Min. SP	Range P	1.50	1.75	2.00	2.25	2.50	2.75	3.00	3.50	4.00	
				S	B	C	D	E												
.1875	18	.312	.125	.43	.75				.041	.061-.1875	X	X	X	X	X					
.2500	25	.375	.125	.50	.75				.061	.092-.2500	X	X	X	X	X					
.3125	31	.438	.125	.56	.75	1.00*			.061	.092-.3125					X	X				
.3750	37	.500	.188	.62	.75	1.00	1.25**		.061	.124-.3750		X	X	X	X	X	X			
.4375	43	.562	.188	.625	.75	1.00	1.25		.092	.187-.4375		X	X	X	X	X	X			
.5000	50	.625	.188	.81		1.00	1.25		.124	.186-.5000			X	X	X	X	X	X		
.6250	62	.750	.250	.93			1.25	1.50***	.234	.374-.6250			X	X	X	X	X	X		
.7500	75	.875	.250	1.06			1.25	1.50	.299	.499-.7500				X	X	X	X	X	X	
.875	87	1.000	.250	1.25				1.50	.349	.561-.8750				X	X	X	X	X	X	
1.0000	100	1.125	.250	1.25				1.50	.399	.686-1.0000					X	X	X	X	X	

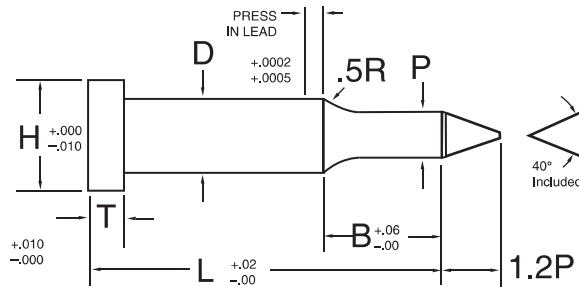
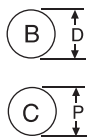
*NOT AVAILABLE ON 1.50 OVERALL LENGTH MIN. SP APPLIES TO S POINT LENGTH
**NOT AVAILABLE ON 1.75 OVERALL LENGTH
***NOT AVAILABLE ON 2.00 OVERALL LENGTH

HOW TO ORDER TYPE D L B P
HNC 37 3 C .250

LONG NOSE PILOT

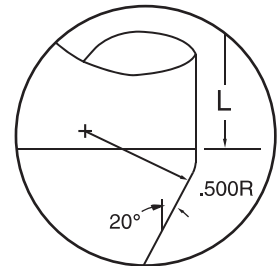
STEEL: M2 R/C 60-62
HEADS DRAWN TO R/C 40-55

**HLN()
M-2 STEEL**



ROUND

+0.005
-0.000
T • I • R
.0005



UNDER .186 SP PILOT NOSE IS 1.5P

Shank		Head Dim.		Round			Overall Length L													
D	Code	H	T	Std.	Min.	Range	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	4.75	5.00	5.25	5.50	
				B	SP	P														
.3750	37	.500	.188	.62	.092	.186-.375	X	X	X	X	X	X	X							
.4375	43	.562	.188	.625	.092	.186-.4375	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.5000	50	.625	.188	.81	.124	.249-.500	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.6250	62	.750	.250	.94	.234	.311-.625	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.7500	75	.875	.250	1.06	.299	.436-.750	X	X	X	X	X	X	X	X	X	X	X	X	X	X
.8750	87	1.00	.250	1.25	.399	.561-.875			X	X	X	X	X	X	X	X	X	X	X	X
1.0000	100	1.125	.250	1.25	.399	.749-.875			X	X	X	X	X	X	X	X	X	X	X	X

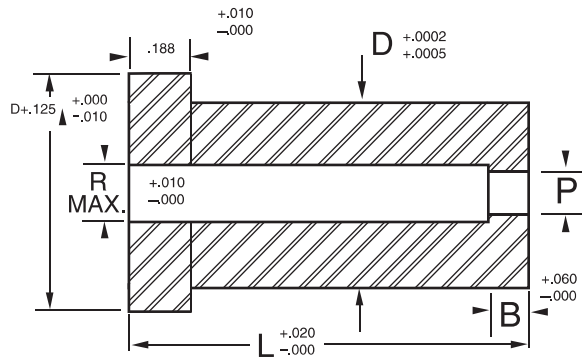
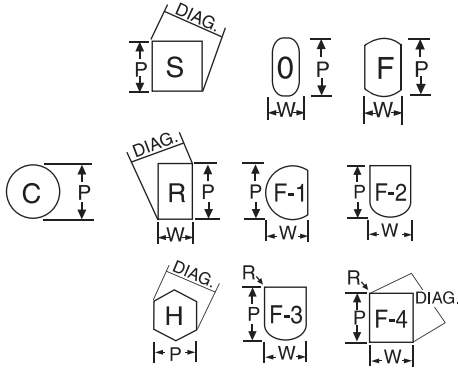
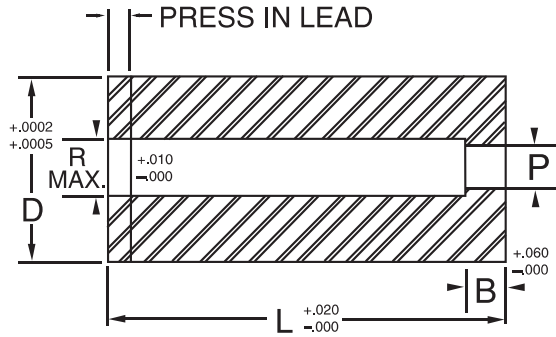
*UNDER .186 SP PILOT NOSE IS 1.5P

HOW TO ORDER TYPE D L P
HLNC 50 4 .375

PIVOT PUNCH CORPORATION / BASIC SERIES
DIE BUTTONS HEADLESS/HEADED

STEEL: M2 R/C 60-62

HD()
 HEADLESS M-2
HH()
 HEADED M-2

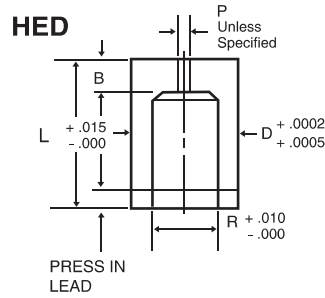


Shank		Round			Shape		Overall Length L							
D	Code	Min. B	Max. R	Range P	Min. W	Max. DIAG.	3/4	7/8	15/16**	1	1 1/8	1 1/4	1 3/8	1 1/2
.2500	2	.156	.156	.064-.125	-	-	X	X	X	X	X	X	X	
.3750	3	.156	.228	.064-.195	.048-.195		X	X	X	X	X	X	X	X
.5000	4	.156	.312	.064-.285	.064-.285		X	X	X	X	X	X	X	X
.6250	5	.187	.391	.136-.365	.095-.365		X	X	X	X	X	X	X	X
.7500	6	.187	.468	.136-.435	.118-.435		X	X	X	X	X	X	X	X
.8750	7	.187	.578	.276-.545	.127-.545		X	X	X	X	X	X	X	X
1.0000	8	.250	.687	.356-.675	.158-.655		X	X	X	X	X	X	X	X
1.2500	9	.250	.812	.500-.800	.189-.780		X	X	X	X	X	X	X	X
1.5000	10	.250	1.062	.616-1.050	.252-1.035		X	X	X	X	X	X	X	X

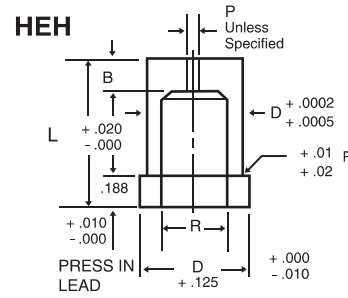
HOW TO ORDER TYPE D L P
HDC 4 1.0 .187

WIRE & CONVENTIONAL EDM DIE BUTTONS

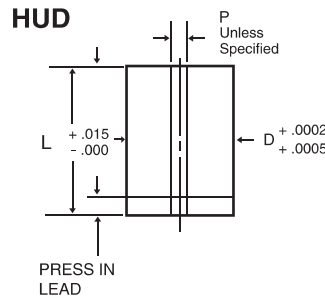
HED



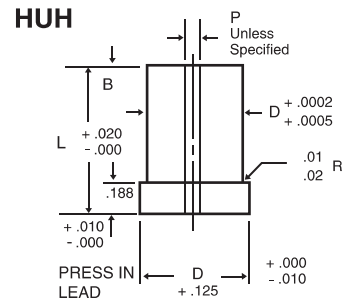
HEH



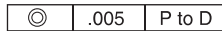
HUD



HUH



Round P ± .005



Body		HUD/HUH	HED/HEH			Overall Length L							
D	Code	P	P	Max. B	R	3/4	7/8	15/16**	1	1 1/18	1 1/4	1 3/8	1 1/2
.2500	2	.031	-	-	-	X	X	X	X	X	X	X	
.3750	3	.031	.032	.25	.228	X	X	X	X	X	X	X	X
.5000	4	.062	.032	.25	.312	X	X	X	X	X	X	X	X
.6250	5	.062	.093	.25	.391	X	X	X	X	X	X	X	X
.7500	6	.062	.093	.31	.468	X	X	X	X	X	X	X	X
.8750	7	.062	.093	.31	.578	X	X	X	X	X	X	X	X
1.0000	8	.062	.093	.31	.703	X	X	X	X	X	X	X	X
1.2500	9	.062	.125	.37	.828	X	X	X	X	X	X	X	X
1.5000	10	.062	.125	.37	1.094	X	X	X	X	X	X	X	X

**HEADLESS ONLY

HOW TO ORDER

TYPE D L
HUD 4 1

**HUD
HUH**

These blanks are provided with small straight through hole. They are commonly used for wire and vertical EDM operations. There are basically two advantages to this type of blank:

1. In wire cutting, a taper relief can be cut instead of a round straight relief.
2. In conventional EDM applications you can "tailor" the size of the relief to the shape you are cutting.

**HED
HEH**

These blanks are used with conventional type EDM machines. The "P" hole is used for flushing away particles of steel. Relief hole (R) provides for slug removal.

**PIVOT PUNCH CORPORATION / BASIC SERIES
COUNTERSINK PUNCHES**

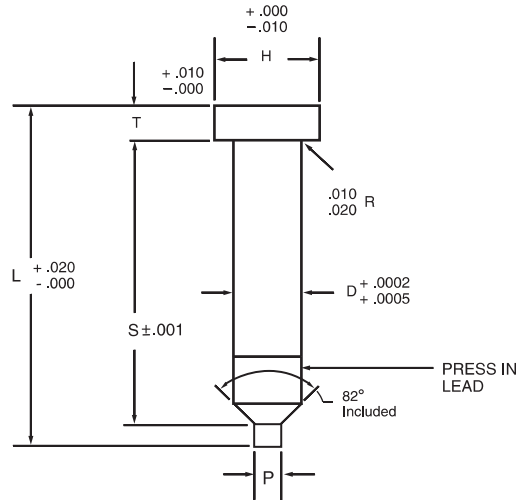
STEEL: M2 R/C 60-62
HEADS DRAWN TO R/C 40-55

**HSK
M-2 HSS**

Precision Countersink Punches have an accurate ($\pm .001$ ") length from under the head to the bottom of the countersink for precise timing of the die.

ROUND

+ .0005 - .0000
T • I • R .0005



NOTE:
"S" LENGTH UNDER HEAD
TO BOTTOM ANGLE.

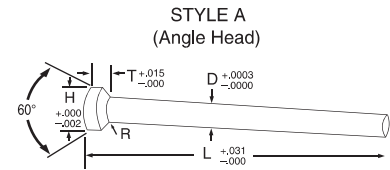
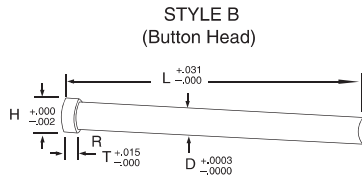
Shank		Head Dim.		S	Range P	Overall Length L									
D	Code	H	T			1 1/2	1 3/4	2	2 1/4	2 1/2	2 3/4	3	3 1/2	4	
.2500	25	.375	.125	Specify in .001" increments	.050-.125	X	X	X	X	X					
.3125	31	.438	.125		.076-.140	X	X	X	X	X	X				
.3750	37	.500	.188		.090-.187		X	X	X	X	X	X			
.5000	50	.625	.188		.141-.250			X	X	X	X	X	X		
.6250	62	.750	.250		.200-.281			X	X	X	X	X	X	X	
.7500	75	.875	.250		.264-.359				X	X	X	X	X	X	X
1.0000	100	1.125	.250		.374-.500					X	X	X	X	X	X

HOW TO ORDER TYPE D L P S
HSK 37 3 .215 2.400

PIVOT PUNCH CORPORATION / BASIC SERIES
PERFORATORS

SPECIFY STYLE "A" OR "B"
 "B" FURNISHED IF NOT SPECIFIED

- P**
M-2 Steel Cylindrically Ground
- YP**
M-2 Steel Straight Ground
- PN**
M-2 Steel Pilot Nose



OVERALL LENGTH SHOWN
 INCLUDES PILOT NOSE

R/C 60-62
 HEADS DRAWN TO R/C 40-55

DIMENSIONS				OVERALL LENGTHS AVAILABLE (L)							Cylindrically Ground	Straight Ground	Pilot Nose	
CODE NO.	BODY DIAMETER D .001 Increments	HEAD		Any length shown (X) in each given body diameter and within point range shown "one price" Minimum Lengths P - YP - PN							ORDER P	ORDER YP	ORDER PN	
		THICKNESS T	DIAMETER H											
				2	2¼	2½	2¾	3	3½	4	CAT. NO.	CAT. NO.	CAT. NO.	LEAD
1	.030-.040	3/32	.070		X						P-1	YP-1	PN-1	3/32
2	.041-.055	3/32	.085			X					P-2	YP-2	PN-2	3/32
* 3	.056-.070	3/32	.100				X				P-3	YP-3	PN-3	3/32
4	.071-.085	3/32	.115				X				P-4	YP-4	PN-4	3/32
* 5	.086-.100	3/32	.130					X			P-5	YP-5	PN-5	5/32
6	.101-.115	3/32	.145					X			P-6	YP-6	PN-6	5/32
7	.116-.130	3/32	.160					X			P-7	YP-7	PN-7	5/32
8	.131-.145	3/32	.175					X			P-8	YP-8	PN-8	5/32
* 9	.146-.160	3/32	.190					X			P-9	YP-9	PN-9	5/32
10	.161-.175	1/8	.205					X			P-10	YP-10	PN-10	5/32
* 11	.176-.190	1/8	.220					X			P-11	YP-11	PN-11	7/32
12	.191-.205	1/8	.235					X			P-12	YP-12	PN-12	7/32
* 13	.206-.220	1/8	.250					X			P-13	YP-13	PN-13	7/32
14	.221-.235	1/8	.265					X			P-14	YP-14	PN-14	7/32
15	.236-.250	1/8	.280					X			P-15	YP-15	PN-15	7/32
16	.251-.265	1/8	.295						X		P-16	YP-16	PN-16	9/32
17	.266-.280	1/8	.310						X		P-17	YP-17	PN-17	9/32
* 18	.281-.295	1/8	.325						X		P-18	YP-18	PN-18	9/32
19	.296-.310	1/8	.340						X		P-19	YP-19	PN-19	9/32
* 20	.311-.312	3/16	.355						X		P-20	YP-20	PN-20	9/32
21	.313-.325	3/16	.355						X		P-21	YP-21	PN-21	9/32
22	.326-.340	3/16	.370							X	P-22	YP-22	PN-22	9/32
* 23	.341-.355	3/16	.385							X	P-23	YP-23	PN-23	9/32
24	.356-.370	3/16	.400							X	P-24	YP-24	PN-24	9/32
25	.371-.385	3/16	.415							X	P-25	YP-25	PN-25	9/32

* Fractional sizes of 1/16 - 3/32 - 5/32 - 3/16 - 7/32 - 9/32 - 11/32 available at no extra charge.

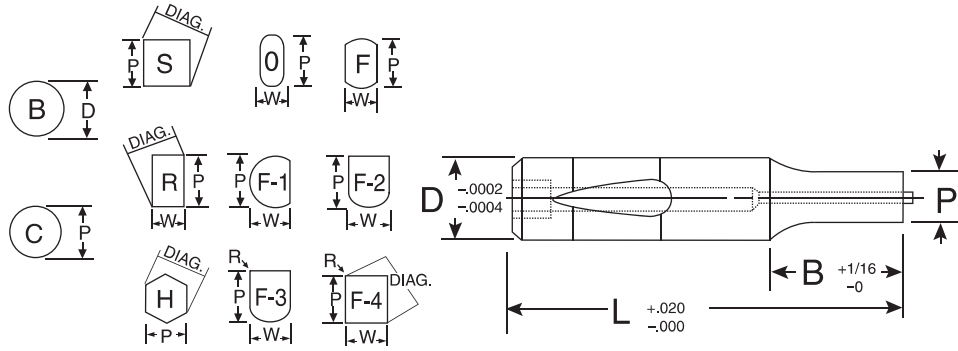
HOW TO ORDER

Cyl. grd. -	Cat. No.	Overall Length	"D"	Style
Pilot Nose -	P-12	2	x .197	Style (A)
	PN-12	2-1/4	x .197	Style (A)

PIVOT PUNCH CORPORATION / BALL LOCK
EJECTOR PUNCH / HEAVY DUTY

M2 R/C 60-62
 PM3 R/C 58-60

HE()
 M-2
YE()
 M-2 STRAIGHT
 GRIND



ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±0.0005
T•I•R
.001

** NOTE ON BLANKS NOMINAL SIZE -0.0002
 -0.0004

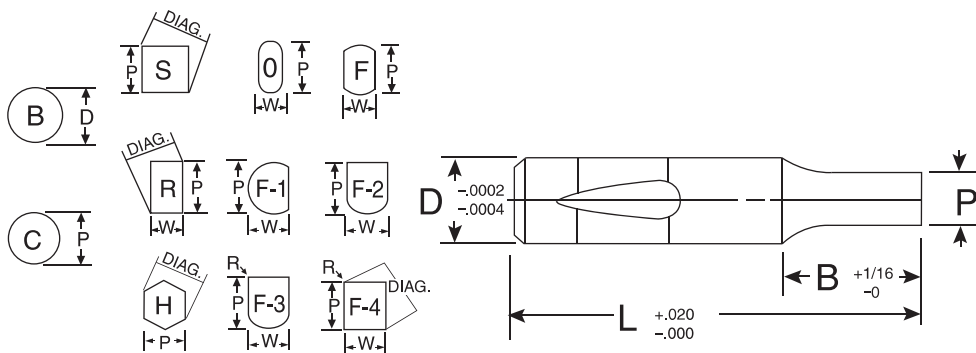
Shank		Point Length B				Round		Shape		Overall Length L										
D	Code	NAPMA		Alternate		Min. SP	Range P**	Min. SW	Min. Max. W DIAG.	*	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	5.00
		S	B	C	D															
.375	113	.625	.75	1.00		.062	.125-.375	.062	.125-.374	X	X	X	X	X	X	X	X			
.500	114	.812	.75	1.00	1.25	.158	.187-.500	.158	.187-.499	X	X	X	X	X	X	X	X	X	X	X
.625	115	.937	.75	1.00	1.25	.158	.312-.625	.158	.250-.624	X	X	X	X	X	X	X	X	X	X	X
.750	116	1.062	.75	1.00	1.25	.235	.437-.750	.235	.312-.749	X	X	X	X	X	X	X	X	X	X	X
.875	117	1.187	.75	1.00	1.25	.300	.625-.875	.235	.375-.874		X	X	X	X	X	X	X	X	X	X
1.000	118	1.250	.75	1.00	1.25	.350	.750-1.000	.235	.437-.999			X	X	X	X	X	X	X	X	X
1.250	119	1.437	.75	1.00	1.25	.450	1.000-1.250	.235	.500-1.249			X	X	X	X	X	X	X	X	X

*NOT AVAILABLE IN "D" POINT LENGTH ONLY

HOW TO ORDER TYPE **HEC** D **114** L **3.5** B **C** P **.250**

SOLID PUNCH / HEAVY DUTY

HB()
 M-2
YB()
 M-2 STRAIGHT
 GRIND



ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±0.0005
T•I•R
.001

** NOTE ON BLANKS NOMINAL SIZE -0.0002
 -0.0004

Shank		Point Length B				Round		Shape		Overall Length L										
D	Code	NAPMA		Alternate		Min. SP	Range P**	Min. SW	Min. Max. W DIAG.	*	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	5.00
		S	B	C	D															
.375	113	.625	.75	1.00		.062	.25-.375	.062	.125-.374	X	X	X	X	X	X	X	X			
.500	114	.812	.75	1.00	1.25	.158	.187-.500	.158	.187-.499	X	X	X	X	X	X	X	X	X	X	X
.625	115	.937	.75	1.00	1.25	.158	.312-.625	.158	.250-.624	X	X	X	X	X	X	X	X	X	X	X
.750	116	1.062	.75	1.00	1.25	.235	.437-.750	.235	.312-.749	X	X	X	X	X	X	X	X	X	X	X
.875	117	1.187	.75	1.00	1.25	.300	.625-.875	.235	.375-.874		X	X	X	X	X	X	X	X	X	X
1.000	118	1.250	.75	1.00	1.25	.350	.750-1.000	.235	.437-.999			X	X	X	X	X	X	X	X	X
1.250	119	1.437	.75	1.00	1.25	.450	1.000-1.250	.235	.500-1.249			X	X	X	X	X	X	X	X	X

*NOT AVAILABLE IN "D" POINT LENGTH ONLY

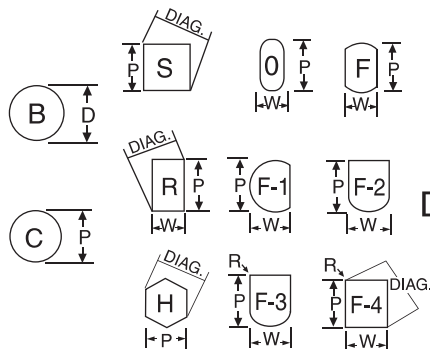
HOW TO ORDER TYPE **HBC** D **115** L **4** B **C** P **.500**

PIVOT PUNCH CORPORATION / BALL LOCK
EJECTOR PUNCH / LIGHT DUTY

STEEL: M2 R/C 60-62

HE()
M-2

YE()
M-2 STRAIGHT GRIND

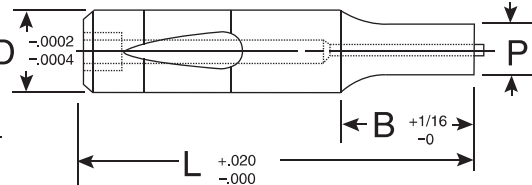


ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±.0005
T•I•R
.001



** NOTE ON BLANKS NOMINAL SIZE -0.0002 to -0.0004

Shank		Point Length B			Round		Shape		Overall Length L								
D	Code	NAPMA		Alternate	Min. SP	Range P**	Min. SW	Min. Max. W DIAG.	*2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
		S	B	C													
.250	102	.500	.750		.050	.062-.250	.050	.062-.249	X	X	X	X	X	X	X		
.375	103	.625	.750	1.00	.115	.125-.375	.115	.125-.374	X	X	X	X	X	X	X	X	X
.500	104	.750	.750	1.00	.158	.187-.500	.158	.187-.499	X	X	X	X	X	X	X	X	X
.625	105	.875	.750	1.00	.158	.312-.625	.158	.250-.624		X	X	X	X	X	X	X	X
.750	106	.937	.750	1.00	.235	.437-.750	.235	.312-.749		X	X	X	X	X	X	X	X
.875	107	.937	.750	1.00	.300	.625-.875	.235	.375-.874		X	X	X	X	X	X	X	X
1.000	108	.937	.750	1.00	.250	.750-1.000	.235	.437-.999		X	X	X	X	X	X	X	X

*AVAILABLE IN "S" POINT LENGTH ONLY

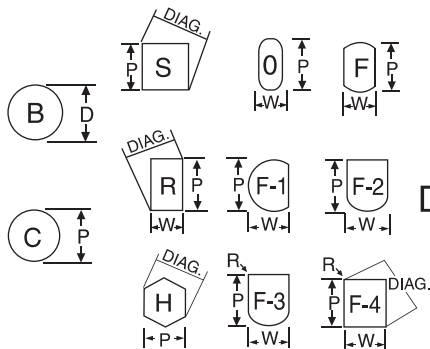
HOW TO ORDER

TYPE **HEC** D **104** L **3** B **S** P **.200**

SOLID PUNCH / LIGHT DUTY

HB()
M-2

YB()
M-2 STRAIGHT GRIND

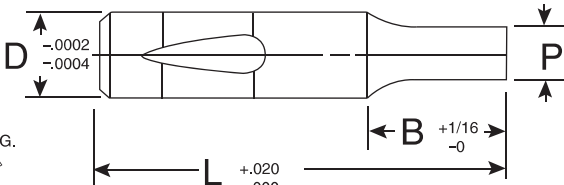


ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±.0005
T•I•R
.001



** NOTE ON BLANKS NOMINAL SIZE -0.0002 to -0.0004

Shank		Point Length B			Round		Shape		Overall Length L								
D	Code	NAPMA		Alternate	Min. SP	Range P**	Min. SW	Min. Max. W DIAG.	*2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00
		S	B	C													
.250	102	.500	.750		.050	.062-.250	.050	.062-.249	X	X	X	X	X	X	X		
.375	103	.625	.750	1.00	.115	.125-.375	.115	.125-.374	X	X	X	X	X	X	X	X	X
.500	104	.750	.750	1.00	.158	.187-.500	.158	.187-.499	X	X	X	X	X	X	X	X	X
.625	105	.875	.750	1.00	.158	.312-.625	.158	.250-.624		X	X	X	X	X	X	X	X
.750	106	.937	.750	1.00	.235	.437-.750	.235	.312-.749		X	X	X	X	X	X	X	X
.875	107	.937	.750	1.00	.300	.625-.875	.235	.375-.874		X	X	X	X	X	X	X	X
1.000	108	.937	.750	1.00	.250	.750-1.000	.235	.437-.999		X	X	X	X	X	X	X	X

*AVAILABLE IN "S" POINT LENGTH ONLY

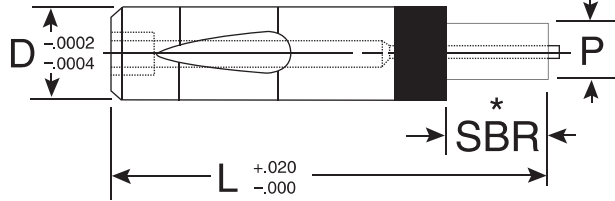
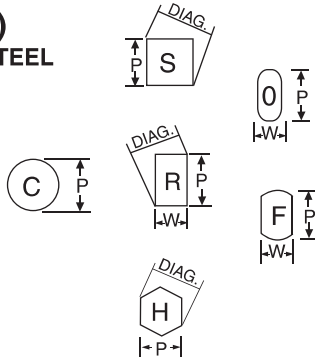
HOW TO ORDER

TYPE **YBO** D **103** L **3** B **B** P **.187** W **.135**

PIVOT PUNCH CORPORATION / BALL LOCK
WHIPSLEEVE EJECTOR PUNCH
HEAVY DUTY

STEEL: M2 R/C 60-62

XE()
M-2 STEEL



ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±0.0005
T•I•R
.001

*SQUARE, HEXAGON PT. - SBR=3xP or MAX.
 FLATTED ROUND, OBLONG, RECTANGLE PT. - SBR= 3xW or MAX.

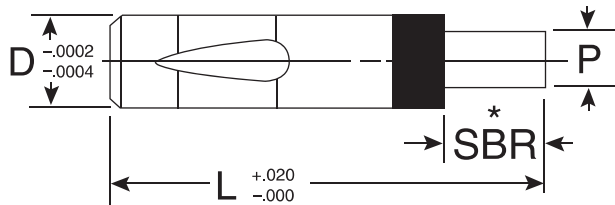
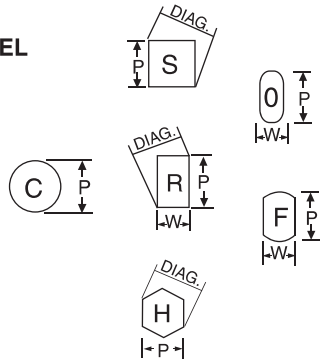
Shank		MAX SBR	Round	Shape	Overall Length L					
D	Code		Range P	Min. Max. W DIAG.	2.50	2.75	3.00	3.50	3.75	4.00
.375	113	.62	.093-.218	.093-.218	X	X	X	X	X	X
.500	114	.62	.165-.297	.165-.297	X	X	X	X	X	X
.625	115	.62	.203-.375	.203-.375	X	X	X	X	X	X
.750	116	.75	.281-.500	.281-.500			X	X	X	X
.875	117	.75	.390-.625	.312-.625			X	X	X	X
1.000	118	.87	.468-.687	.437-.687			X	X	X	X
1.250	119	1.00	.687-.937	.500-.937			X	X	X	X

HOW TO ORDER

TYPE **XEC** D **114** L **3** P **.187**

WHIPSLEEVE SOLID PUNCH
HEAVY DUTY

XB()
M-2 STEEL



ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±0.0005
T•I•R
.001

*SQUARE, HEXAGON PT. - SBR=3xP or MAX.
 FLATTED ROUND, OBLONG, RECTANGLE PT. - SBR= 3xW or MAX.

Shank		MAX SBR	Round	Shape	Overall Length L					
D	Code		Range P	Min. Max. W DIAG.	2.50	2.75	3.00	3.50	3.75	4.00
.375	113	.62	.093-.218	.093-.218	X	X	X	X	X	X
.500	114	.62	.125-.297	.125-.297	X	X	X	X	X	X
.625	115	.62	.203-.375	.203-.375	X	X	X	X	X	X
.750	116	.75	.281-.500	.281-.500			X	X	X	X
.875	117	.75	.390-.625	.312-.625			X	X	X	X
1.000	118	.87	.468-.687	.437-.687			X	X	X	X
1.250	119	1.00	.687-.937	.500-.937			X	X	X	X

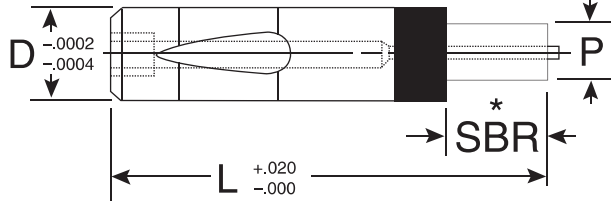
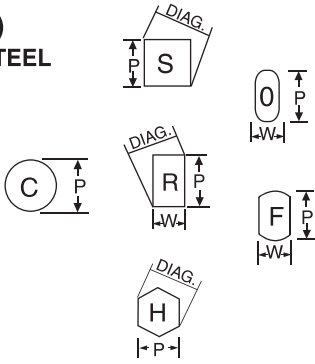
HOW TO ORDER

TYPE **XBC** D **114** L **3** P **.250**

PIVOT PUNCH CORPORATION / BALL LOCK
WHIPSLEEVE EJECTOR PUNCH
LIGHT DUTY

STEEL: M2 R/C 60-62

XE()
M-2 STEEL



ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±.0005
T•I•R
.001

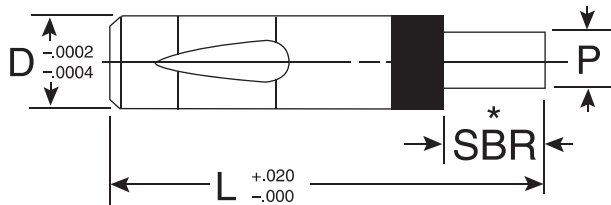
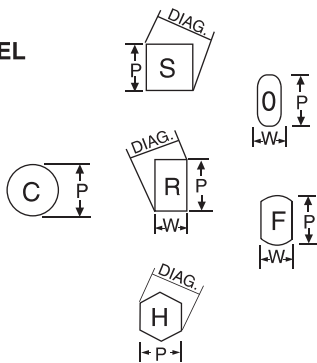
*ROUND, SQUARE, HEXAGON PT. - SBR=3xP or MAX.
 FLATTED ROUND, OBLONG, RECTANGLE PT. - SBR= 3xW or MAX.

Shank		MAX	Round	Shape	Overall Length L					
D	Code		Range P	Min. Max. W DIAG.	2.00	2.25	2.50	2.75	3.00	3.50
.250	102	.37	.060-.125	.060-.125	X	X	X	X	X	
.375	103	.56	.115-.218	.115-.218	X	X	X	X	X	X
.500	104	.62	.165-.297	.165-.297	X	X	X	X	X	X
.625	105	.62	.203-.375	.203-.375			X	X	X	X
.750	106	.75	.281-.500	.281-.500			X	X	X	X
.875	107	.75	.390-.625	.312-.625			X	X	X	X
1.000	108	.87	.468-.687	.437-.687				X	X	X

HOW TO ORDER TYPE **XEC** D **104** L **3** P **.187**

WHIPSLEEVE SOLID PUNCH
LIGHT DUTY

XB()
M-2 STEEL



ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±.0005
T•I•R
.001

*ROUND, SQUARE, HEXAGON PT. - SBR=3xP or MAX.
 FLATTED ROUND, OBLONG, RECTANGLE PT. - SBR= 3xW or MAX.

Shank		MAX	Round	Shape	Overall Length L					
D	Code		Range P	Min. Max. W DIAG.	2.00	2.25	2.50	2.75	3.00	3.50
.250	102	.37	.060-.125	.060-.125	X	X	X	X	X	
.375	103	.56	.093-.218	.193-.218	X	X	X	X	X	X
.500	104	.62	.125-.297	.125-.297	X	X	X	X	X	X
.625	105	.62	.203-.375	.203-.375			X	X	X	X
.750	106	.75	.281-.500	.281-.500			X	X	X	X
.875	107	.75	.390-.625	.312-.625			X	X	X	X
1.000	108	.87	.468-.687	.437-.687				X	X	X

HOW TO ORDER TYPE **XBC** D **104** L **3** P **.187**

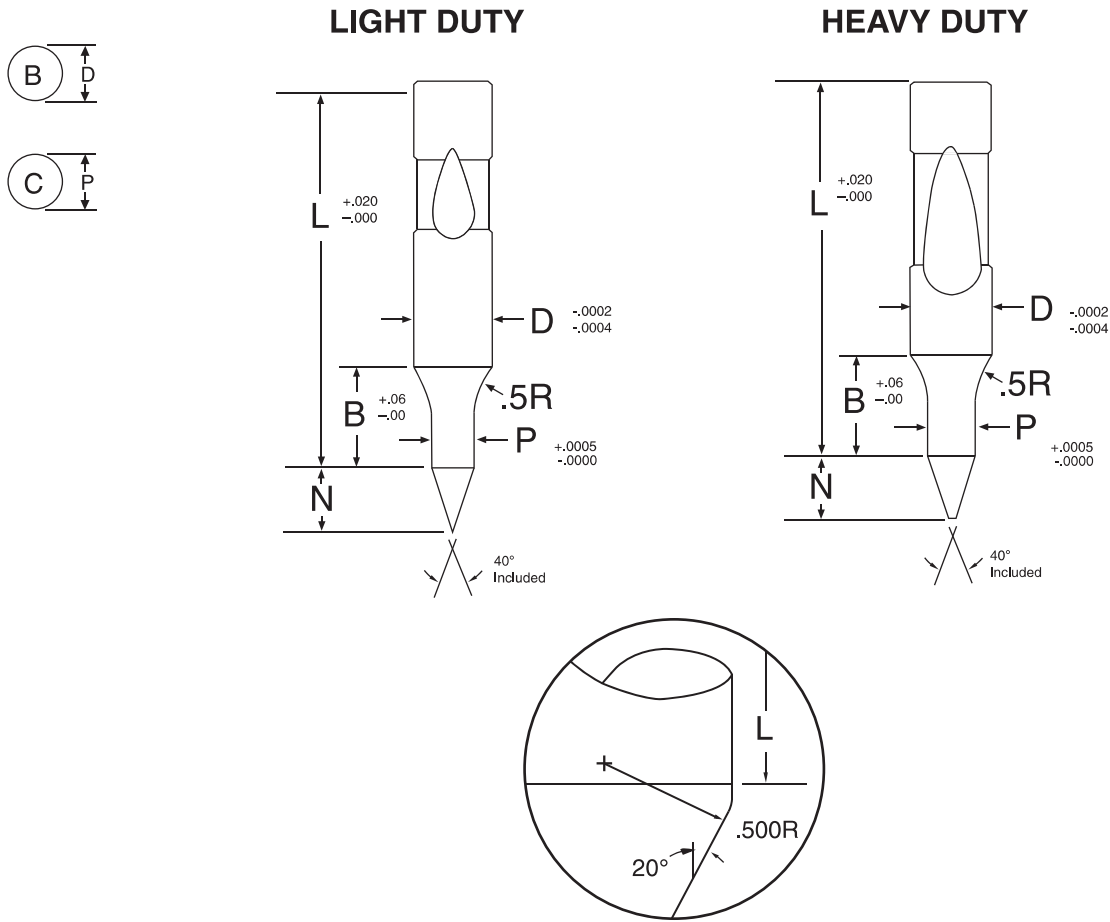
PIVOT PUNCH CORPORATION / BALL LOCK
LONG NOSE PILOT
LIGHT DUTY & HEAVY DUTY

STEEL: M2 R/C 60-62

HLN()
M-2 STEEL

Positive Pick Up Pilots

Concentricity: .0005 T.I.R



	Shank		Point Length B	Round Range P	Max N	Length L											
	D	Code				2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.50	4.75	5.00	5.25	5.50
LIGHT DUTY	HLN()	103	.375	.62	.186-.375	.37	X	X	X	X	X	X					
	HLN()	104	.500	.81	.249-.500	.50	X	X	X	X	X	X	X	X	X	X	X
	HLN()	105	.625	.93	.311-.625	.62	X	X	X	X	X	X	X	X	X	X	X
	HLN()	106	.750	1.06	.436-.750	.75	X	X	X	X	X	X	X	X	X	X	X
	HLN()	107	.875	1.18	.624-.875	.87	X	X	X	X	X	X	X	X	X	X	X
HLN()	108	1.000	1.25	.749-1.000	1.00	X	X	X	X	X	X	X	X	X	X	X	
HEAVY DUTY	HLN()	113	.375	.62	.186-.375	.37	X	X	X	X	X	X					
	HLN()	114	.500	.81	.249-.500	.50	X	X	X	X	X	X	X	X	X	X	X
	HLN()	115	.625	.93	.311-.625	.62	X	X	X	X	X	X	X	X	X	X	X
	HLN()	116	.750	1.06	.436-.750	.75	X	X	X	X	X	X	X	X	X	X	X
	HLN()	117	.875	1.18	.624-.875	.87		X	X	X	X	X	X	X	X	X	X
	HLN()	118	1.000	1.25	.749-1.000	1.00		X	X	X	X	X	X	X	X	X	X
HLN()	119	1.250	1.44	.999-1.250	1.25		X	X	X	X	X	X	X	X	X	X	

HOW TO ORDER TYPE D L P
HLNC 104 3 .250

PIVOT PUNCH CORPORATION / BALL LOCK
REGULAR PILOTS / LIGHT DUTY

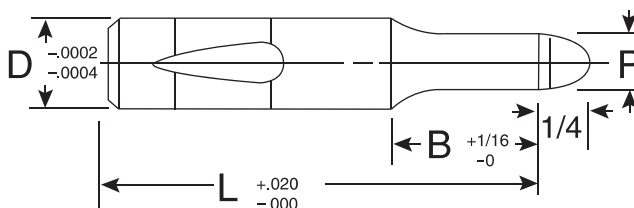
STEEL: M2 R/C 60-62

HN()
 M-2 STEEL

ROUND

+ .0005
 - .0000

T • I • R
 .0005



** NOTE ON BLANKS NOMINAL SIZE - .0002
 - .0004

Shank		Point Length B			Round		Length L									
D	Code	NAPMA	Alternate		Min. SP	Range P**	2.00	2.25	2.50	2.75	3.00	3.25	3.50	3.75	4.00	
		S	B	C												
.250	102	.500	.750		.050	.062-.250	X	X	X	X	X	X	X			
.375	103	.625	.750	1.00	.061	.125-.375	X	X	X	X	X	X	X	X	X	
.500	104	.750	.750	1.00	.092	.187-.500	X	X	X	X	X	X	X	X	X	
.625	105	.875	.750	1.00	.124	.312-.625		X	X	X	X	X	X	X	X	
.750	106	.937	.750	1.00	.234	.437-.750		X	X	X	X	X	X	X	X	
.875	107	.937	.750	1.00	.299	.625-.875		X	X	X	X	X	X	X	X	
1.000	108	.937	.750	1.00	.349	.750-1.000		X	X	X	X	X	X	X	X	

HOW TO ORDER

TYPE D L B P
HNC 104 3 S .250

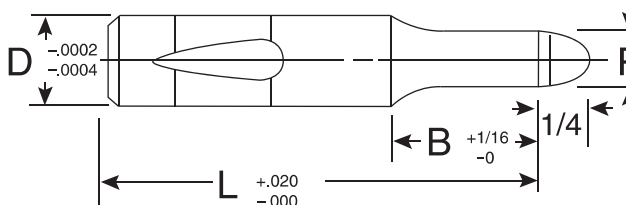
REGULAR PILOTS / HEAVY DUTY

HN()
 M-2 STEEL

ROUND

+ .0005
 - .0000

T • I • R
 .0005

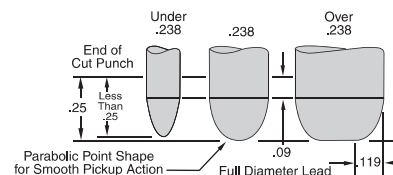


** NOTE ON BLANKS NOMINAL SIZE - .0002
 - .0004

Shank		Point Length B				Round		Length L									
D	Code	NAPMA	Alternate			Min. SP	Range P**	2.50	2.75	3.00	3.25	3.50	3.75	4.00	4.25	4.50	5.00
		S	B	C	D												
.375	113	.625	.750	1.00		.061	.092-.375	X	X	X	X	X	X	X			
.500	114	.812	.750	1.00	1.25	.092	.186-.500	X	X	X	X	X	X	X	X	X	X
.625	115	.937	.750	1.00	1.25	.124	.311-.625	X	X	X	X	X	X	X	X	X	X
.750	116	1.062	.750	1.00	1.25	.234	.436-.750		X	X	X	X	X	X	X	X	X
.875	117	1.187	.750	1.00	1.25	.299	.624-.875		X	X	X	X	X	X	X	X	X
1.000	118	1.250	.750	1.00	1.25	.349	.749-1.000			X	X	X	X	X	X	X	X
1.250	119	1.437	.750	1.00	1.25	.449	.999-1.250			X	X	X	X	X	X	X	X

HOW TO ORDER

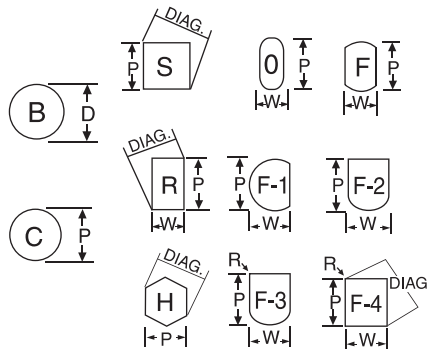
TYPE D L B P
HNC 114 4 C .250



**KNOB STYLE PUNCHES
HEAVY DUTY**

**HKN ()
(SOLID)
M-2 STEEL**

**HKE ()
(EJECTOR)
M-2 STEEL**

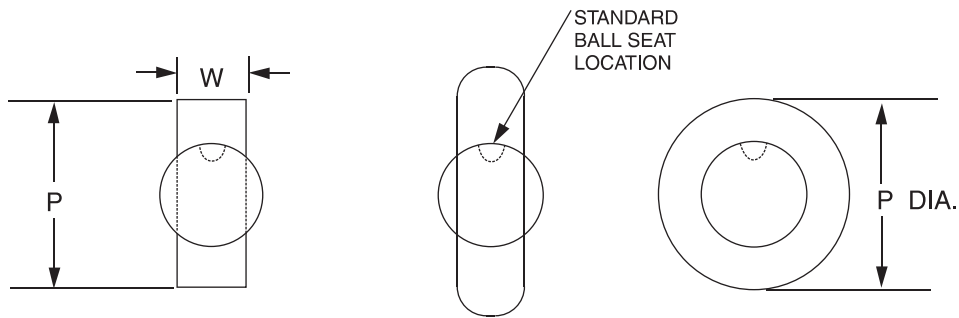
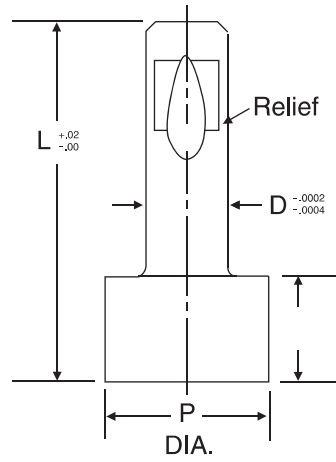
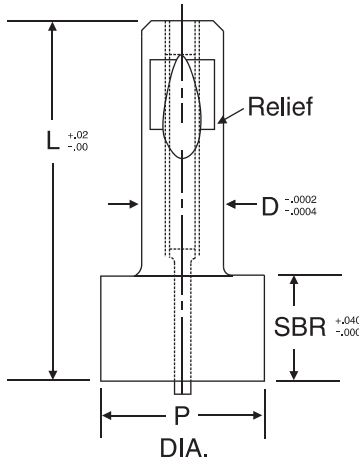


ROUND

+0.0005
-.0000
T•I•R
.0005

SHAPE

±0.0005
T•I•R
.001



VIEW THROUGH SHANK

Shank		SBR	Round	Shape	Overall Length L			
D	Code		Range P	Min. W	Max. DIAG.	2.50	3.00	3.50
.500	114	.75	.501-1.250	.188-1.250	X	X	X	X
.625	115	.88	.626-1.500	.250-1.500	X	X	X	X
.750	116	.94	.751-1.500	.312-1.500	X	X	X	X
.875	117	.94	.876-1.750	.375-1.750	X	X	X	X
1.000	118	.94	1.001-1.750	.437-1.750	X	X	X	X
1.250	119	1.25	1.251-2.000	.500-2.000		X	X	X

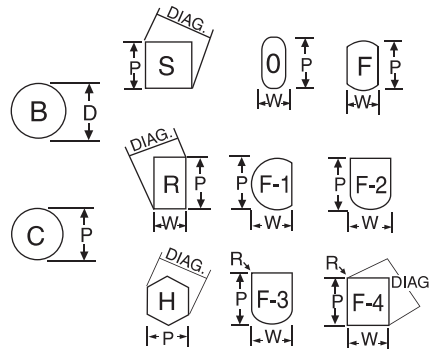
HOW TO ORDER TYPE D L P
HKNC 115 4.00 1.125

PIVOT PUNCH CORPORATION / BALL LOCK
KNOB STYLE PUNCHES
LIGHT DUTY

STEEL: M2 R/C 60-62

LKN()
 (SOLID)
 M-2 STEEL

LKE()
 (EJECTOR)
 M-2 STEEL

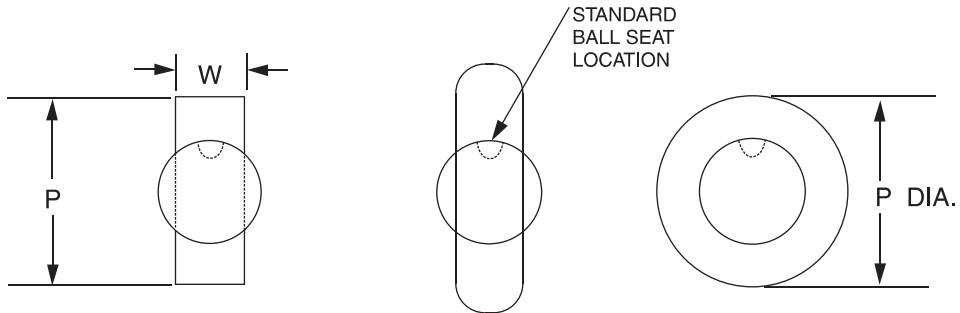
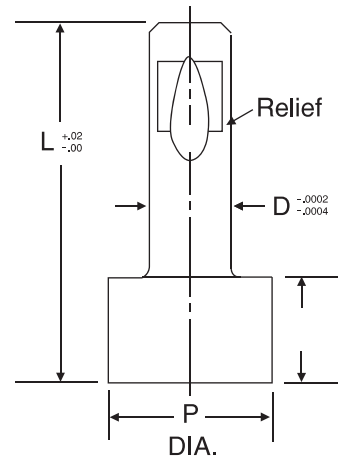
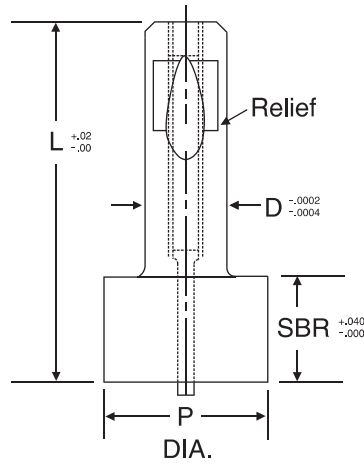


ROUND

+0.0005
-0.0000
T•I•R
.0005

SHAPE

±0.0005
T•I•R
.001

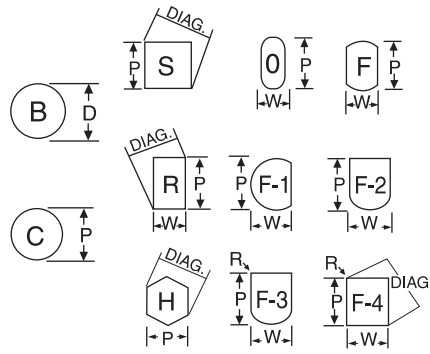


VIEW THROUGH SHANK

Shank		SBR	Round	Shape	Overall Length L			
D	Code		Range P	Min. W	Max. DIAG.	2.50	3.00	3.50
.500	104	.75	.501-1.250	.188-1.250	X	X	X	X
.625	105	.88	.626-1.500	.250-1.500	X	X	X	X
.750	106	.94	.751-1.500	.312-1.500	X	X	X	X
.875	107	.94	.876-1.750	.375-1.750	X	X	X	X
1.000	108	.94	1.001-1.750	.437-1.750	X	X	X	X

HOW TO ORDER TYPE D L P
LKNC 105 3.50 1.250

HR()
M-2 STEEL

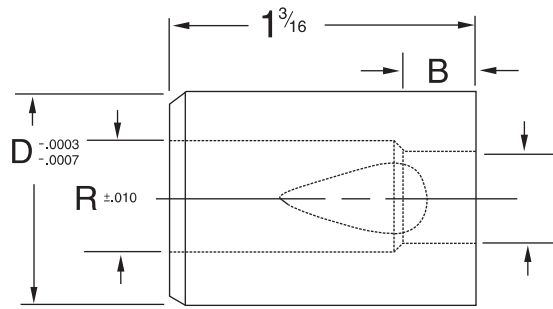


ROUND

+ .0005
- .0000
T • I • R
.0005

SHAPE

±.0005
T • I • R
.001



Shank		Min. B	Max. R	Round	Shape	
D	Code			Range P	Min. W	Max. DIAG.
.5000	4	.156	.228	.064-.195	.048-.195	
.6250	5	.187	.312	.126-.285	.064-.285	
.7500	6	.187	.375	.196-.345	.095-.345	
.8750	7	.187	.468	.286-.435	.127-.435	
1.0000	8	.250	.578	.346-.545	.158-.545	
1.2500	9	.250	.687	.436-.655	.189-.655	
1.5000	10	.250	.812	.546-.780	.220-.780	
1.7500	11	.312	1.062	.656-1.035	.252-1.035	

HOW TO ORDER

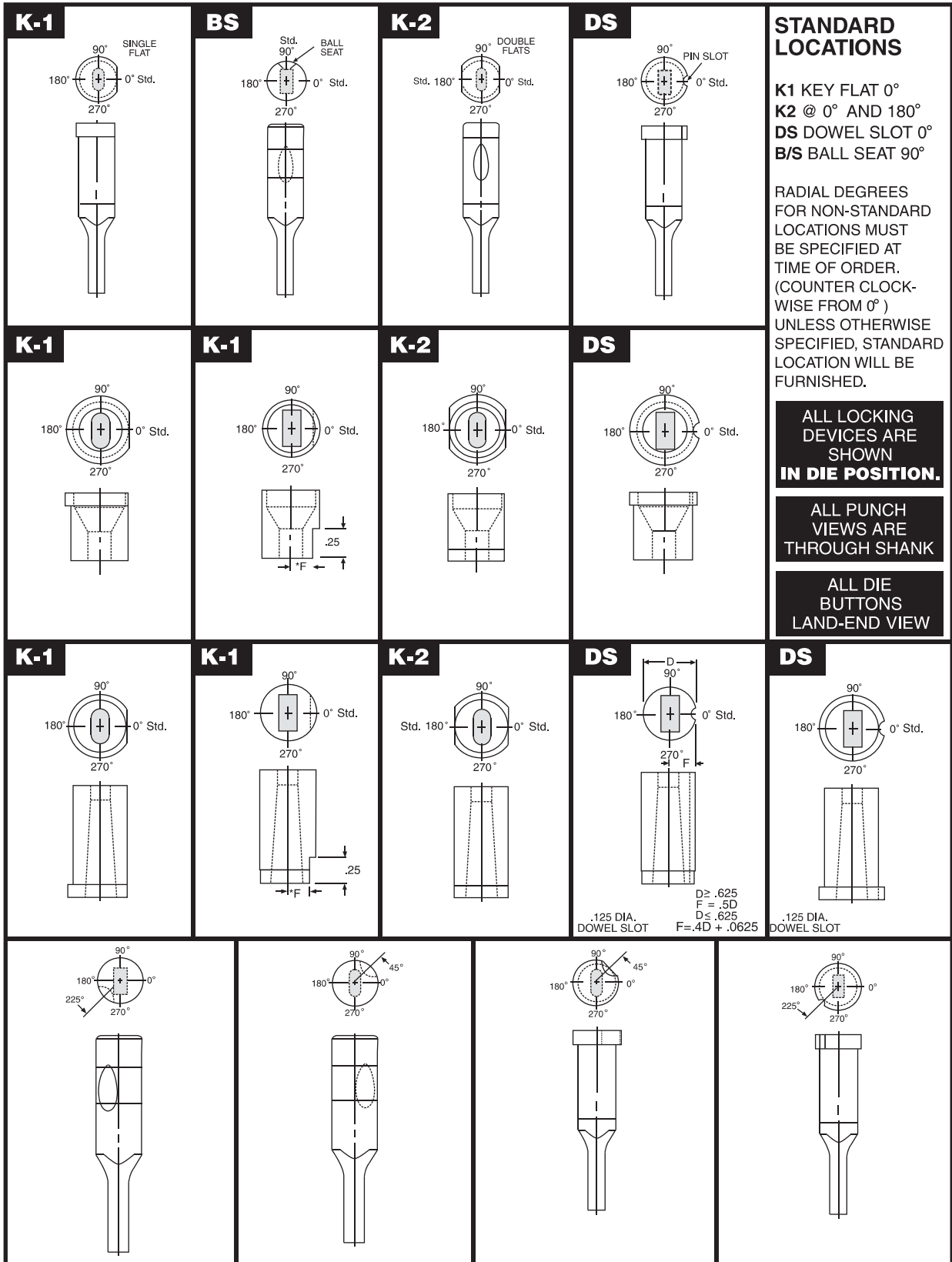
TYPE D P
HRC 5 .187

LOCKING DEVICES

90°

180°

0°



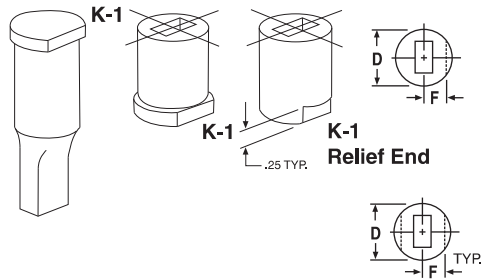
270°

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

**ALL PUNCH
VIEWS ARE THROUGH SHANK**

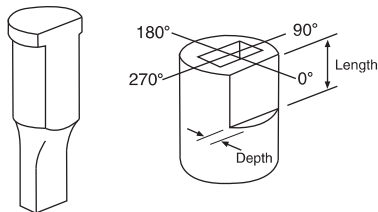
ALL DIE BUTTONS LAND-END VIEW

Flats



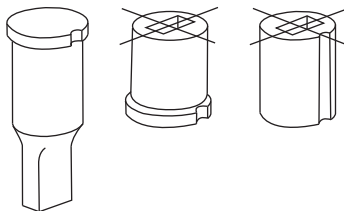
**F Dimensions (.5D on Headed Products)
Headless Die Buttons & Guide Bushing Only**

Body Dia.	18	25	31	37	43	50
F	.080	.110	.135	.165	.190	.220
Body Dia.	62	75	87	100	125	150
F	.270	.325	.380	.435	.540	.650
Body Dia.	175	200	225	250	275	
F	.775	.900	1.025	1.150	1.275	



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

Dowel Slots



Standard and Alternate Locations

Definitions:
Standard Location is at 0°.
Alternate Location is 90°, 180° or 270°.
 Alternate Locations are available at no additional charge.

Single Flats: K-1

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

Order Example:
K-1 - 90°.

Double Flats: K-3

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

Order Example:
K-2 - 90°.
Second Flat is always parallel to the first flat.

Additional Flats

Code*	Depth	Depth
K-5	.060	.500
K-6	.060	.625
K-7	.060	.750
K-8	.060	Full Length

Land End Shown
Relief End Optional

Dowel Slots: DS

Locking Devices	Dowel Dia.
DS	.125

Order Example:
DS - 180°.

Custom Locations

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

Single Flats: K-3

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

Order Example:
K-3 - 150°.

Double Flats:

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

Order Example:
K-4 - 150°.
Second Flat is always parallel to the first flat.

Additional Flats

Code*	Depth	Depth
K-9	.060	.500
K-10	.060	.625
K-11	.060	.750
K-12	.060	Full Length

Land End Shown
Relief End Optional

Dowel Slots: CDS

Locking Devices	Dowel Dia.
CDS	.125

Order Example:
CDS - 150°.

Ball Seat: CBS

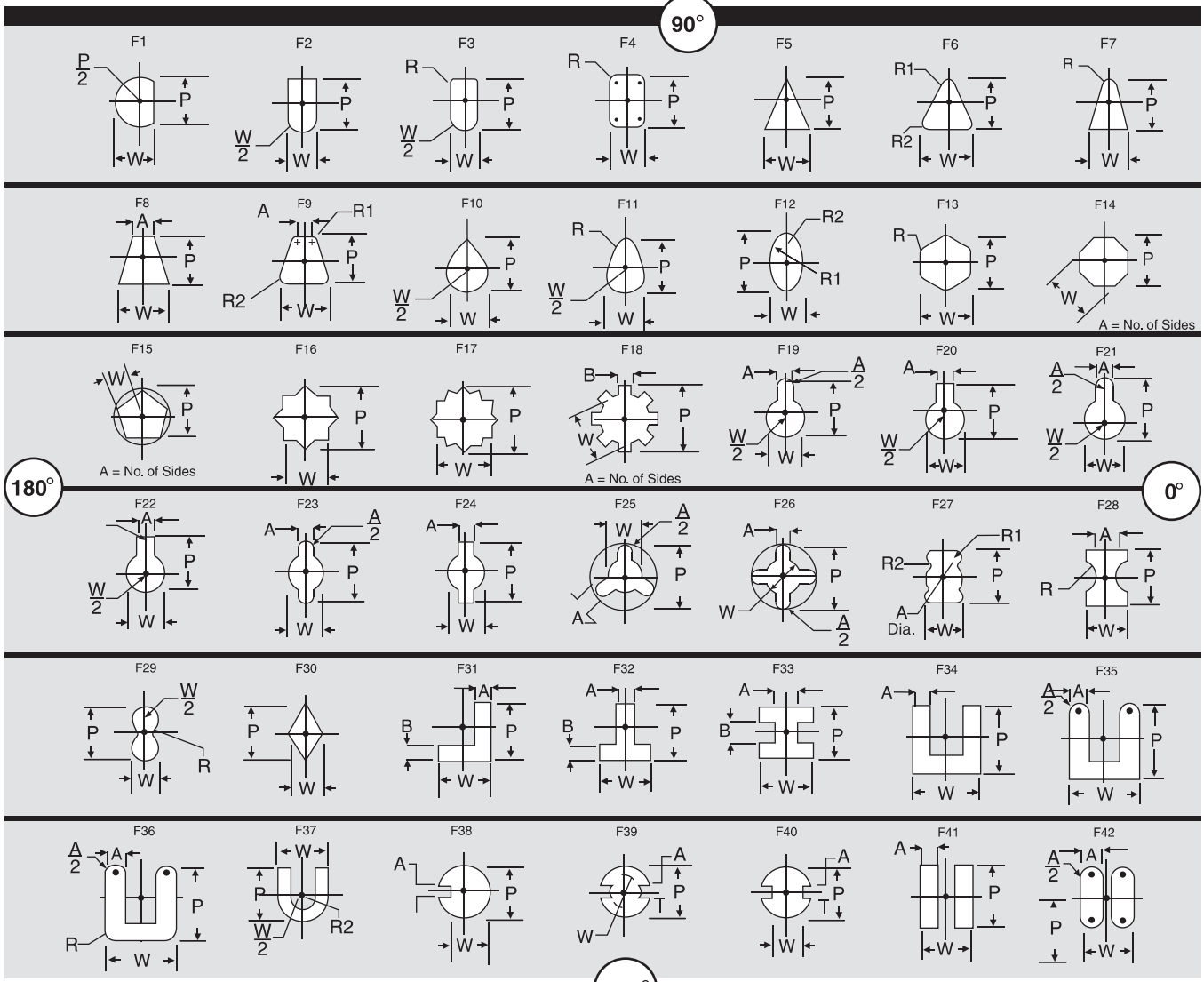
Order Example:
CBS - 110°.

42 additional form shapes

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

AVAILABLE IN ALL CLASSIFICATIONS SHOWN IN THIS CATALOG -
M2 High Speed Steel, Straight Ground or Whipsleeve

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



NOTES PERTAINING TO TABLE

- 90° Location is found at 12 o'clock on vertical center line.
- Punch and Die Corner Radius - inside (both) .003 to .008; outside (both) SHARP.
- Additional Order Coding - P = largest shape dimension, W = small shape dimension.
 R = radius (when only one radius is required), R1 = first radius when more than one is required, R2 = second radius when more than one is required, A,B,C, etc. additional dimensions.
- Center line on drawings indicate center line of body diameter.
- For standard method of keying punches, die buttons and guide bushings, see page 50.
- Standard Ball Lock Location - Ball on "W" or 90° - See Page 50.
- Standard Dowel (DS) or Single Flat (K1) location is at 0° Degrees.

HOW TO ORDER

Steel	Punch	Shape	Body Dia. Code	Overall Length	P	W	A
H	S	F20	50	X 2-1/2	X .437	X .312	X .125

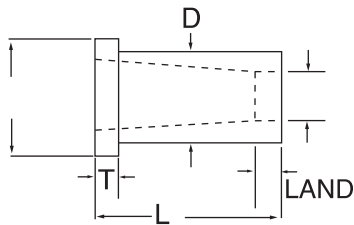
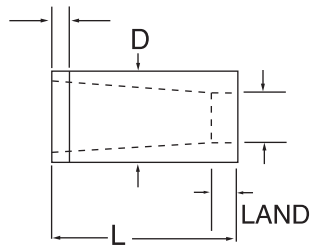
DIE BUTTONS

CUSTOMER _____

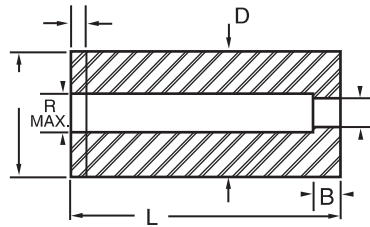
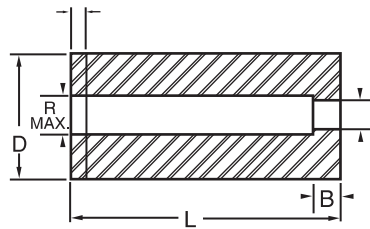
DEALER _____

QUAN. _____ MATL. _____ RC _____

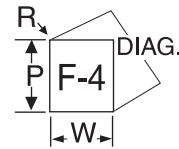
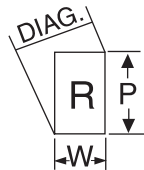
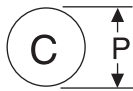
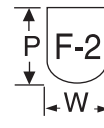
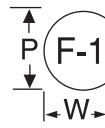
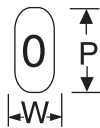
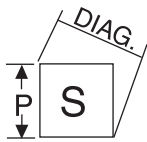
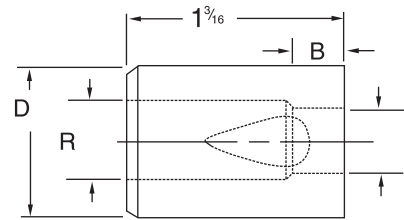
SELECTIVE



BASIC



BALL LOCK





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 716-625-8000 Fax: 800-622-3227
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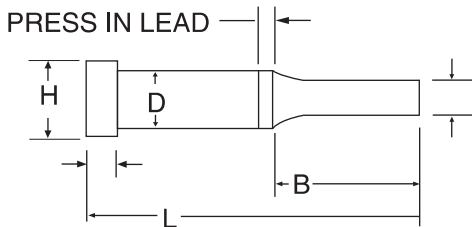
pivot punch corporation

PUNCHES

CUSTOMER _____

DEALER _____

QUAN. _____ MATL. _____ RC _____

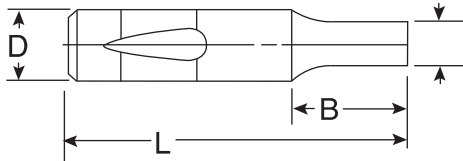
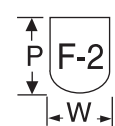
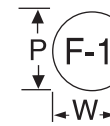
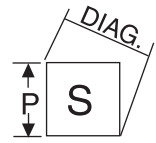
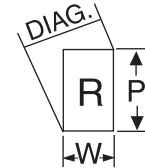
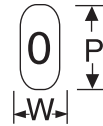


SOLID

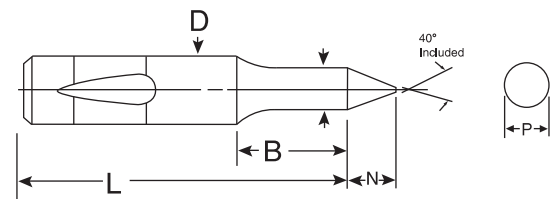
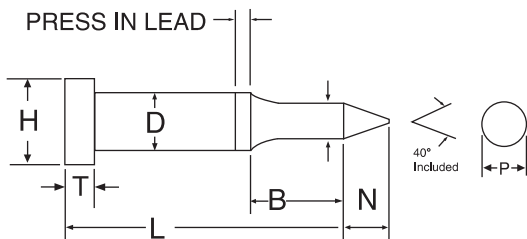
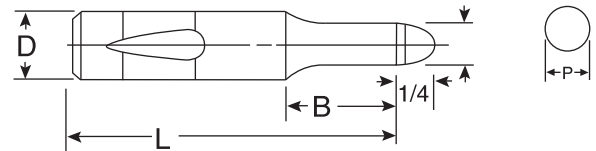
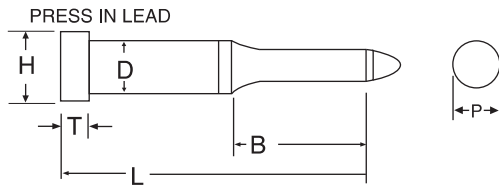
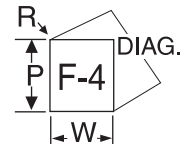
EJECTOR

SOLID

EJECTOR



LIGHT DUTY HEAVY DUTY



LIGHT DUTY HEAVY DUTY



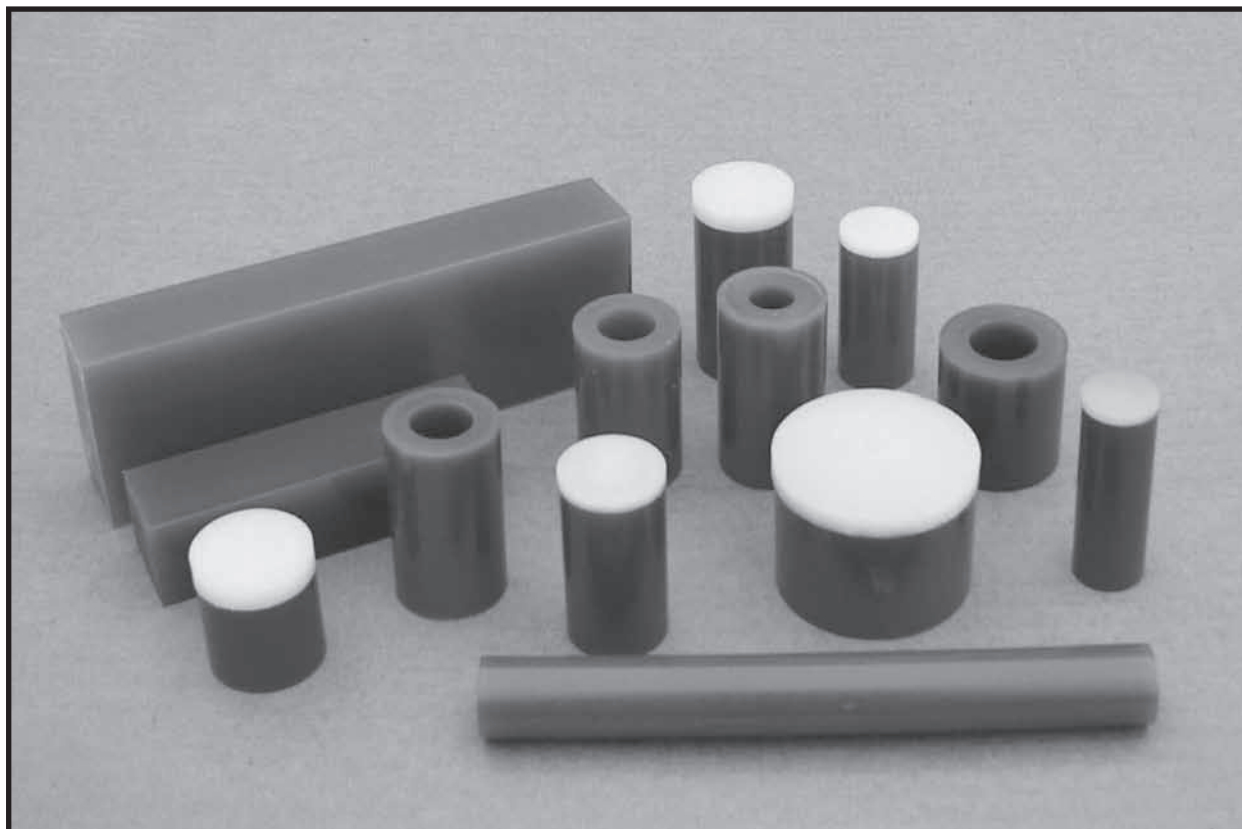
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On the cutting edge of industry...

pivot punch corporation

Nomar™

Uraflex®

Engineering and Selection Guide



NOMAR™

URAFLEX®



pivot punch corporation

PIVOT SPECIAL FORMULA NOMAR™-URAFLEX®

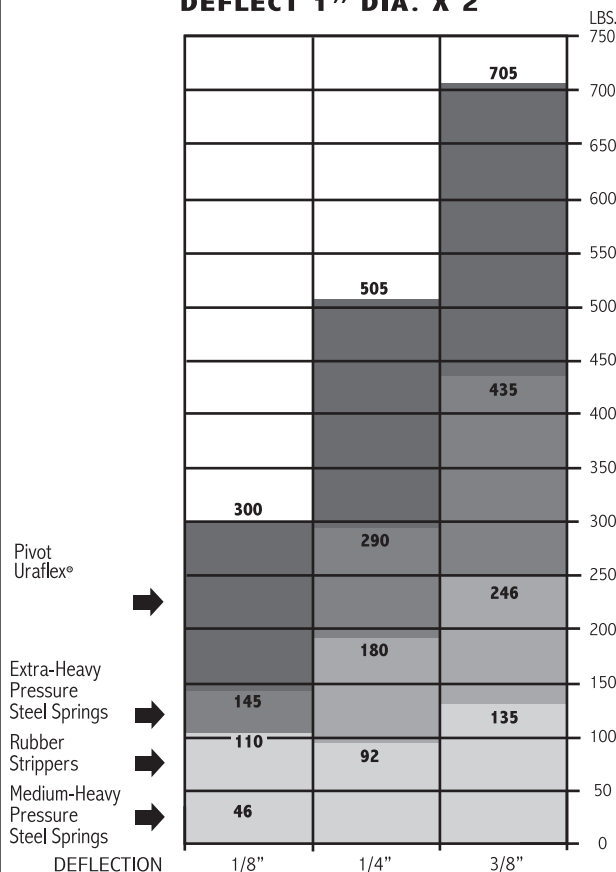
Attains extra-heavy tooling benefits unheard of (until now)!

URAFLEX®, a revolutionary new urethane compound, combines the advantages of metals and non-metals with the elasticity of rubber and surpasses many physical properties of conventional urethanes ... adding new factors for better tooling than ever before.

Similar to hydraulic fluid in terms of displacement, it can be moved under pressure and dampens shock, - allowing for an equal amount of volume for displacement. Because of its exceptional strength and toughness, Special Formula URAFLEX® has a comparatively phenomenal load-bearing capacity in tons of force and is particularly adaptable to extra heavy duty work without rupturing or permanent deformation. When pressure is released, miracle URAFLEX® with its excellent memory qualities, returns to its original shape, retains its original physical properties and resists abuse under extremely long periods of use. Unlike rubber, it is unaffected by oil, grease, and most chemicals and solvents.

Here is how **SOLID ROD URAFLEX®**
Out-performs Rubber Strippers and
Steel Springs!

**LOAD POUNDS REQUIRED TO
DEFLECT 1" DIA. X 2**



Applications

Among its applications in the metalworking field are pressure pads, die pads, stripping pads, forming blocks, draw dies, embossing dies, bulging Punches, shredders, cylinder forming rolls, strippers and stripper springs. Pivot's Nomar™ Stripper, (See Page 4) combining a URAFLEX® tube with a thermo-bonded nylon bearing end cap that can be pierced to any shape, provides a stripper that will out-perform and outlive conventional strippers on difficult jobs by at least 300%. Consequently, URAFLEX® offers entirely new challenges to the die designer.

Features of Uraflex®

1. Extra Tough, Extra Durable
2. Extreme Load Bearing Capacity
3. Combines Hardness and Resilience
4. Resists Abrasion Wear
5. Resists Oil, Chemicals, Solvents
6. Will Not Mar Metal Surfaces
7. Easy to Design In and Install
8. Safer-No Flying Spring Fragments
9. Quiet-Operating at Lower Noise Tolerance Level

How tough can you get?

Pivot Extra-Heavy Duty URAFLEX® reaches proportions of deflection and advantages practically unheard of until now. For example, tonnage factors required to deflect solid rod URAFLEX® are much greater than those of metal springs (see charts). URAFLEX® returns to shape better, costs less and is safer to use because there is no danger of injury due to flying fragments as in the case of broken springs.

Uraflex® Physical Properties

Uraflex	U6040	U8030	U9025	U9520	U7505
Color	Natural	Natural	Green	Green	Natural
Durometer	60A	80A	90A	95A	75D
Maximum Deflection	40%	30%	25%	20%	5%
Tensile	4575 psi	5800 psi	7000 psi	6500 psi	8000 psi

NOTE: All values in this publication are based on tests as free standing cylinders or sections with ends unattached. Confinement of any portion of the diameter or periphery, or bonding of ends to restrict lateral movement will substantially increase these values. Conversely, lubrication of ends will assist lateral movement, and will tend to reduce these values.

PIVOT NOMAR™-URAFLEX® NYLON STRIPPERS

Tough-Durable

Thermo-bonding of the hard nylon end cap to the Uraflex® tube results in a closed-end stripper with maximum bond strength, impact resistance and load-bearing capacity with minimum expansion. The hard nylon end cap assures better guidance in its "custom-fitted" guide hole and resists metal pick-up or abrasion over long periods of use.

Resilient, Non-Compressing

Under pressure, Uraflex® tubes flow and displace, dampening the shock. When the pressure is released the "Miracle" Uraflex®, with its excellent memory qualities, returns to its original shape.

This excellent resilience without brittleness provides for extensive and constantly repetitive deformation without deteriora-

tion and offers many times the wear life of rubber strippers.

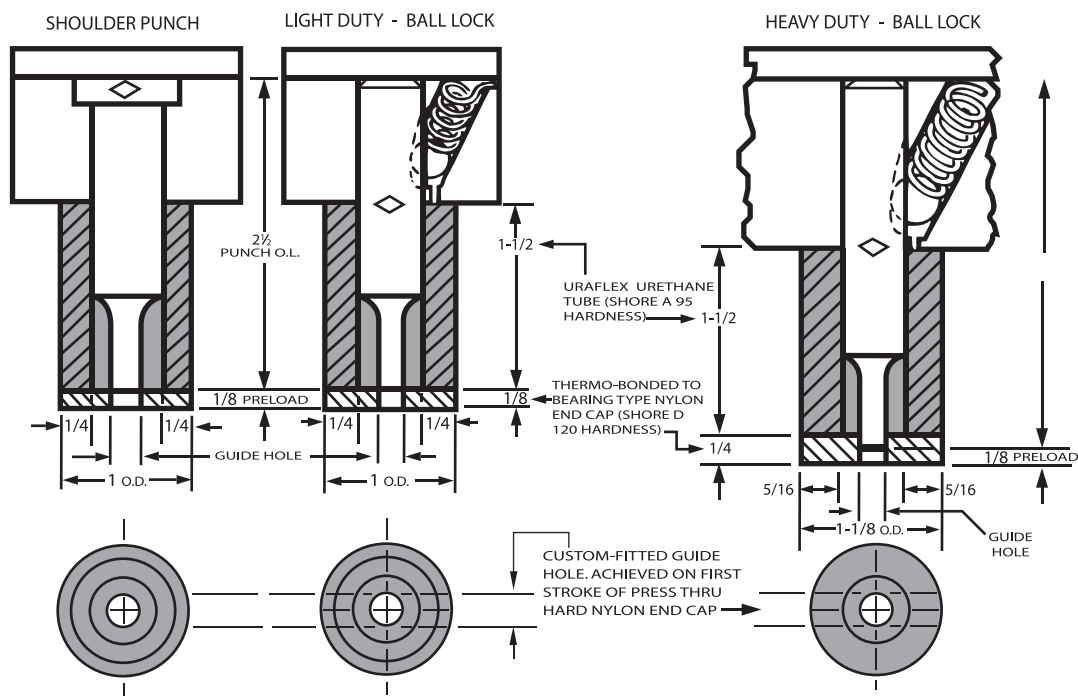
Uraflex®, being a synthetic elastomer, develops a permanent deflection of 4% to 5% of its overall stroke height after several thousand cycles. This set then remains constant thru the life of the item.

Easy to Install, -Practical

Just push the Nomar™ Stripper over any cylindrically ground, Straight-Ground or Whipsleaved shoulder or ball lock punch. The first stroke of the press (without material stock) pierces a custom-fitted guide hole in the hard nylon end cap. The end cap provides a 1/8" preload when used with standard ball lock punches and retainers.

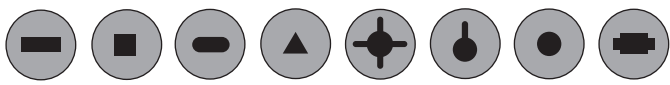
Nomar™ Strippers prevent marring, denting, scratching or gouging painted, galvanized or soft metal surfaces and are available in a wide selection of sizes.

TYPICAL APPLICATIONS - 1/2" SHANK DIAMETER PUNCHES



For special thickness retainers or special length Punches, the Uraflex® portion of the Nomar™ stripper can be machined to a shorter length to provide for preload or can be ordered to custom length.

"NOMAR™ Strippers provide guide holes for any punch shape



PIVOT NOMAR[™] URAFLEX[®] NYLON STRIPPERS

Pivot Nomar[™] Strippers provide a completely closed end stripper which can be pierced or machined to match any punch shape. The nylon bearing material end cap offers a harder wear surface than the urethane body while retaining the advantages of its non-marring characteristics.

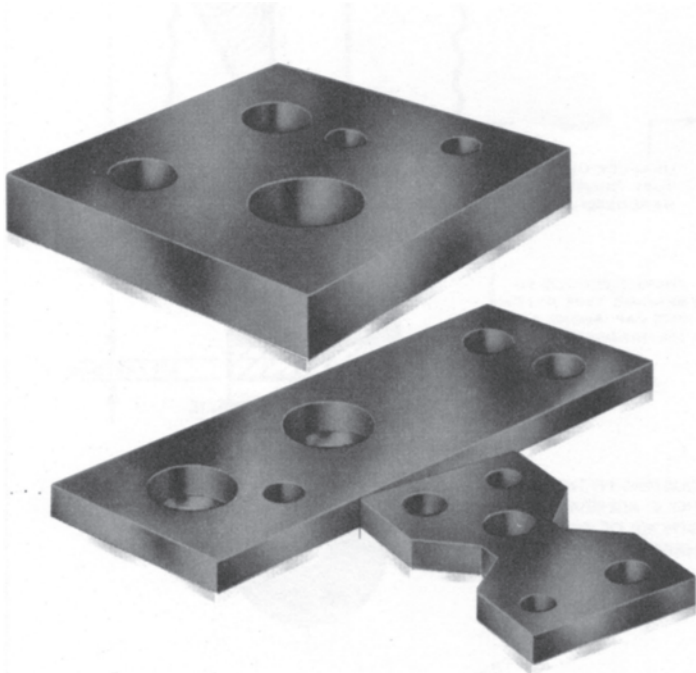
NOMAR[™] URAFLEX[®] NYLON STRIPPERS provide a built-in press fit for all types of standard punch shanks.

Light Duty Nomar[™] Strippers are recommended for stock up to 1/8" thick. Heavy Duty NOMAR[™] Strippers are for greater stripping and holding for stock to 1/4" thick. Extra Heavy Duty Nomar[™] Strippers are for the ultimate in holding and stripping pressures and for stock thicknesses as great as 1/2" thick. See deflection chart for stripping pressures required and proper selection for maximum stripping power when tough to work materials are used.

Special Nomar[™] Strippers-any size, and shape or thickness

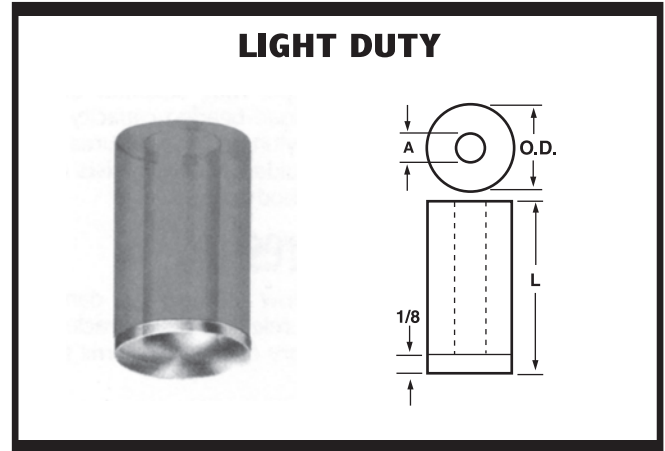
Uraflex[®] and Nomar[™] Nylon are available in various sizes, thicknesses and durometers including a variety of OD's and ID's. They can be thermo-bonded to almost any configuration or combination by our experienced custom finishing department.

Send prints for price and delivery.



Custom Strippers are bounded only by the limits of imaginative engineering. Pivot Nomar[™] Uraflex[®] is available in almost any length, width or thickness with durometer ranges from 60A to 75D. Design suggestions for custom strippers may be found on page 12.

Uraflex[®] or Nomar[™] Nylon faces are mounted on steel stripper plates for lower noise level plus non-marring protection.

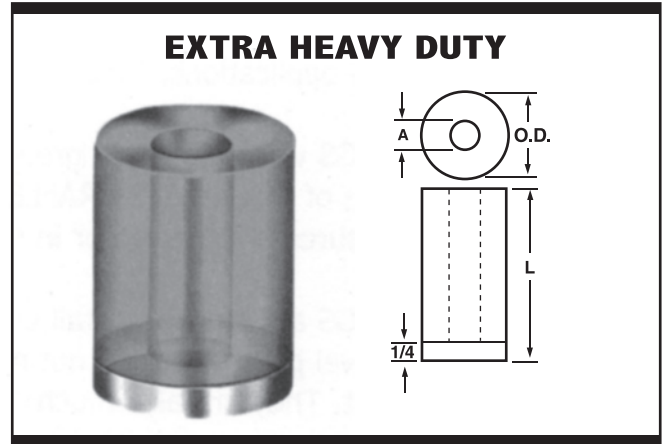
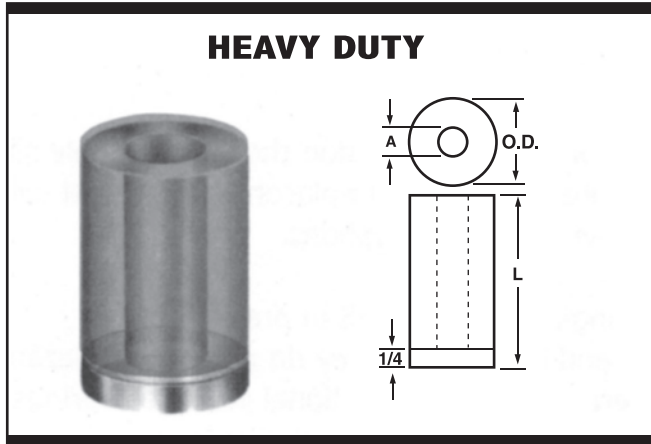


CATALOG NUMBER	FITS PUNCH SHANK (A)	OUT-SIDE DIA. (O.D.)	LENGTH (L)	LOAD POUNDS REQUIRED TO DEFLECT**		
				1/8"	1/4"	3/8"
LN18	3/16	11/16	1-3/8	220	330	N.R.
	3/16	11/16	1-5/8	220	295	360
LN25	1/4	3/4	1-3/8	250	375	N.R.
	1/4	3/4	1-5/8	230	385	41
	1/4	3/4	1-7/8	210	305	385
	1/4	3/4	2-1/8	200	285	360
LN31	5/16	13/16	1-3/8	280	425	N.R.
	5/16	13/16	1-5/8	255	380	460
	5/16	13/16	1-7/8	235	345	435
	5/16	13/16	2-1/8	225	320	405
LN37	3/8	7/8	1-3/8	315	470	N.R.
	3/8	7/8	1-5/8	285	420	510
	3/8	7/8	1-7/8	260	385	480
	3/8	7/8	2-1/8	250	350	450
LN50	1/2	1	1-3/8	375	565	N.R.
	1/2	1	1-5/8	340	505	615
	1/2	1	1-7/8	310	460	575
	1/2	1	2-1/8	295	425	540
LN62	5/8	1-1/8	1-3/8	440	660	N.R.
	5/8	1-1/8	1-5/8	400	590	715
	5/8	1-1/8	1-7/8	365	535	675
	5/8	1-1/8	2-1/8	345	500	630
LN75	3/4	1-3/8	1-5/8	605	890	1085
	3/4	1-3/8	1-7/8	555	815	1020
	3/4	1-3/8	2-1/8	525	755	960
	3/4	1-3/8	2-3/8	495	705	890
LN87	3/4	1-3/8	2-5/8	475	665	835
	3/4	1-3/8	2-7/8	435	630	790
	3/4	1-3/8	3-1/8	390	605	755
	7/8	1-5/8	1-5/8	855	1260	1530
	7/8	1-5/8	1-7/8	780	1150	1445
	7/8	1-5/8	2-1/8	745	1065	1355
	7/8	1-5/8	2-3/8	700	995	1260
LN100	7/8	1-5/8	2-5/8	670	940	1180
	7/8	1-5/8	2-7/8	610	890	1010
	7/8	1-5/8	3-1/8	550	550	1065
	1	1-3/4	1-5/8	940	1385	1685
	1	1-3/4	1-7/8	860	1265	1590
	1	1-3/4	2-1/8	820	1175	1490
	1	1-3/4	2-3/8	770	1095	1385

WHEN ORDERING PLEASE SPECIFY:

1. QUANTITY
 2. CATALOG NUMBER* 3. AND LENGTH
- LIGHT DUTY EXAMPLE: 5 (QUANTITY)-LN62 1-7/8
 HEAVY DUTY EXAMPLE: 8 (QUANTITY)-HN75 2
 EXTRA HEAVY DUTY EXAMPLE: 6 (QUANTITY)-XHN87 1-3/4

Available in Light Duty, Heavy Duty and Extra-Heavy Duty Types



CATALOG NUMBER	FITS PUNCH SHANK (A)	OUT-SIDE DIA. (O.D.)	LENGTH (L)	LOAD POUNDS REQUIRED TO DEFLECT**		
				1/8"	1/4"	3/8"
HN50	1/2	1-1/8	1-1/4	580	830	N.R.
	1/2	1-1/8	1-1/2	510	765	N.R.
	1/2	1-1/8	1-3/4	465	680	830
	1/2	1-1/8	2	425	620	780
	1/2	1-1/8	2-1/4	405	580	735
HN62	5/8	1-1/4	1-1/4	665	955	N.R.
	5/8	1-1/4	1-1/2	585	885	N.R.
	5/8	1-1/4	1-3/4	535	785	955
	5/8	1-1/4	2	490	720	900
	5/8	1-1/4	2-1/4	465	665	845
HN75	3/4	1-1/2	1-1/2	855	1265	1085
	3/4	1-1/2	1-3/4	770	1135	1380
	3/4	1-1/2	2	700	1035	1300
	3/4	1-1/2	2-1/4	670	960	1220
	3/4	1-1/2	2-1/2	630	895	1135
	3/4	1-1/2	2-3/4	605	845	1065
	3/4	1-1/2	3	550	800	1000
HN87	7/8	1-3/4	1-1/2	1165	1725	N.R.
	7/8	1-3/4	1-3/4	1045	1540	1875
	7/8	1-3/4	2	955	1405	1770
	7/8	1-3/4	2-1/4	910	1310	1660
	7/8	1-3/4	2-1/2	855	1220	1540
	7/8	1-3/4	2-3/4	820	1150	1445
	7/8	1-3/4	3	750	1090	1360
HN100	1	2	1-1/2	1520	N.R.	N.R.
	1	2	1-3/4	1365	N.R.	N.R.
	1	2	2	1450	1840	N.R.
	1	2	2-1/4	1190	1710	N.R.
	1	2	2-1/2	1120	1590	N.R.
	1	2	2-3/4	1070	1500	1890
	1	2	3	980	1425	1780

CATALOG NUMBER	FITS PUNCH SHANK (A)	OUT-SIDE DIA. (O.D.)	LENGTH (L)	LOAD POUNDS REQUIRED TO DEFLECT**		
				1/8"	1/4"	3/8"
XHN50	1/2	1-1/4	1-1/4	750	1070	N.R.
	1/2	1-1/4	1-1/2	655	990	N.R.
	1/2	1-1/4	1-3/4	600	880	1070
	1/2	1-1/4	2	545	805	1010
	1/2	1-1/4	2-1/4	520	745	950
XHN62	5/8	1-1/2	1-1/4	1210	1735	N.R.
	5/8	1-1/2	1-1/2	1065	1600	N.R.
	5/8	1-1/2	1-3/4	970	1425	1735
	5/8	1-1/2	2	885	1300	1635
	5/8	1-1/2	2-1/4	845	1210	1535
XHN75	3/4	1-3/4	1-1/2	1265	1875	N.R.
	3/4	1-3/4	1-3/4	1140	1680	2045
	3/4	1-3/4	2	1040	1530	1925
	3/4	1-3/4	2-1/4	990	1425	1805
	3/4	1-3/4	2-1/2	935	1325	1680
	3/4	1-3/4	2-3/4	895	1250	1575
	3/4	1-3/4	3	815	1190	1485
XHN87	7/8	2	1-1/2	1640	N.R.	N.R.
	7/8	2	1-3/4	1475	N.R.	N.R.
	7/8	2	2	1345	1980	N.R.
	7/8	2	2-1/4	1285	1840	N.R.
	7/8	2	2-1/2	1205	1715	N.R.
	7/8	2	2-3/4	1155	1620	2035
	7/8	2	3	1055	1535	1920
XHN100	1	2-1/4	1-1/2	2060	N.R.	N.R.
	1	2-1/4	1-3/4	1850	N.R.	N.R.
	1	2-1/4	2	1690	2490	N.R.
	1	2-1/4	2-1/4	1610	2315	N.R.
	1	2-1/4	2-1/2	1515	2155	N.R.
	1	2-1/4	2-3/4	1450	2030	2560
	1	2-1/4	3	1325	1930	2410
XHN125	1-1/4	2-1/2	2	1950	2870	N.R.
	1-1/4	2-1/2	2-1/4	1860	2670	N.R.
	1-1/4	2-1/2	2-1/2	1750	2485	N.R.
	1-1/4	2-1/2	2-3/4	1675	2345	2955
	1-1/4	2-1/2	3	1530	2225	2780
XHN150	1-1/2	2-3/4	2	2210	3255	N.R.
	1-1/2	2-3/4	2-1/4	2105	3025	N.R.
	1-1/2	2-3/4	2-1/2	1980	2816	N.R.
	1-1/2	2-3/4	2-3/4	1900	2660	3345
	1-1/2	2-3/4	3	1730	2525	3150

ALL CATALOG - NOMAR™ STRIPPERS PAGES 4 & 5 AND URAFLEX® SPRINGS PAGES 7, 8 & 9 ARE SUPPLIED IN U9520 WHICH IS 95 SHORE A DUROMETER. OTHER DUROMETERS AVAILABLE, PRICES ON REQUEST. SEE PHYSICAL PROPERTIES CHART PAGE 2.

NOTE: Since Pivot Nomar™ are noncompressible, their diameter at the mid-section will expand in direct proportion to the percentage of deflection. For example, if a HN 62-2 stripper is deflected 10% (.200") its diameter at the midsection will be increased by 10% from 1.250" to 1.375". Allowance for this expansion must be made in order to prevent punch distortion or breakage.

NOTE: All values in this publication are based on tests as free standing cylinders or sections with ends unattached. Confinement of any portion of the diameter or periphery, or bonding of ends to restrict lateral movement will substantially increase these values. Conversely, lubrication of ends will assist lateral movement, and will tend to reduce these values.

PIVOT URAFLEX® SPRINGS

PIVOT URAFLEX® SPRINGS may be used for dies, strippers, shedders and a variety of mechanical spring and vibration dampening applications.

PIVOT URAFLEX® SPRINGS will yield much greater pressures for a given deflection than comparably sized steel coil spring. Because of this, PIVOT URAFLEX® SPRINGS are an excellent replacement for steel coil springs where high pressures are desired or in situations involving space limitations.

PIVOT URAFLEX® SPRINGS are easy to install or replace. Springs provide a built in press fit for all standard punches or dowel pins. They will not mar material, and if fractured they do not pose a hazard to operator or equipment. They are also much quieter in operation than conventional steel coil springs.

Since URAFLEX® SPRINGS are non-compressible, their diameter at the midsection will expand in direct proportion to the percentage of deflection. For example, if a 2" long x 1" O.D. spring is deflected 20% (.400") its diameter at the midsection will be increased by 20% to 1.200". It is important to allow for this expansion in design.

Heat buildup can lead to the premature breakdown of URAFLEX® SPRINGS. Higher percentages of deflection and faster operating speeds will yield greater heat buildup. Heat buildup should not be allowed to occur to the point where the spring is uncomfortably hot to the touch. For optimum spring life, the following operating speeds and deflection are recommended for 95A durometer URAFLEX® SPRINGS:

200 strokes per hour or less - up to 25% deflection 700 strokes per hour or less - up to 20% deflection

12,000 strokes per hour or less - up to 15% deflection

However, springs with outside diameters of 2" or greater should never be deflected more than 15%.

NOTE: All values in this publication are based on tests as free standing cylinders or sections with ends unattached. Confinement of any portion of the diameter or periphery, or bonding of ends to restrict lateral movement will substantially increase these values. Conversely, lubrication of ends will assist lateral movement, and will tend to reduce these values.

WHEN ORDERING PLEASE SPECIFY:

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2. CATALOG NUMBER*
3. AND LENGTH

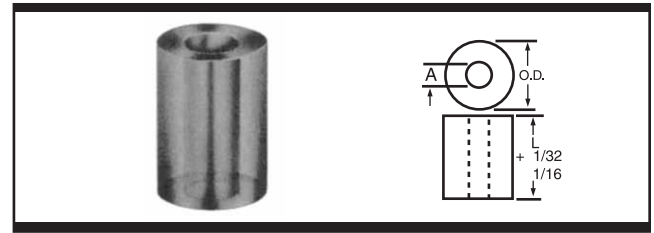
LIGHT DUTY EXAMPLE: 6(QUANTITY)-LU37 1-5/8

HEAVY DUTY EXAMPLE: 4(QUANTITY)-HU75 2-1/4

EXTRA HEAVY DUTY EXAMPLE: 8(QUANTITY)-XHU87 1-3/4

Light Duty Uraflex® Springs

95A DUROMETER



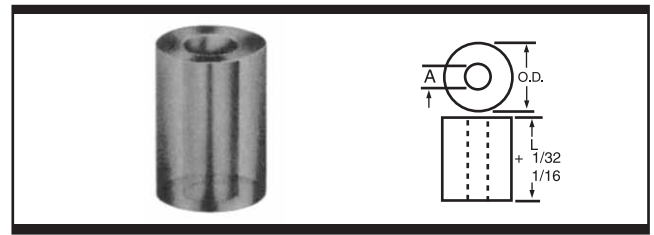
LU SERIES

OUTSIDE DIA. (O.D.)	FITS PUNCH SHANK (A)	LENGTH (L)	CATALOG NUMBER	LOAD LBS REQD. TO DEFLECT			LOAD POUNDS REQUIRED TO DEFLECT									
							5%		10%		15%		20%		25%	
				1/8"	1/4"	3/8"	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.
11/16	3/16	1-1/4	LU18 x 1-1/4	220	330	N.R.	155	.0625	220	.1250	275	.1875	330	.2500	355	.3125
		1-1/2	LU18 x 1-1/2	200	295	360		.0750		.1500		.2250		.3000		.3750
		12-1/2	LU18 x 12-1/2													
3/4	1/4	1-1/4	LU25 x 1-1/4	250	375	N.R.	180	.0625	250	.1250	315	.1875	375	.2500	410	.3125
		1-1/2	LU25 x 1-1/2	230	335	410		.0750		.1500		.2250		.3000		.3750
		1-3/4	LU25 x 1-3/4	210	305	385		.0875		.1750		.2625		.3500		.4375
		2	LU25 x 2	200	285	360		.1000		.2000		.3000		.4000		.5000
		12-1/2	LU25 x 12-1/2													
13/16	5/16	1-1/4	LU31 x 1-1/4	280	425	N.R.	200	.0625	280	.1250	355	.1875	425	.2500	460	.3125
		1-1/2	LU31 x 1-1/2	255	380	460		.0750		.1500		.2250		.3000		.3750
		1-3/4	LU31 x 1-3/4	235	345	435		.0875		.1750		.2625		.3500		.4375
		2	LU31 x 2	225	320	405		.1000		.2000		.3000		.4000		.5000
		12-1/2	W31 x 12-1/2													
7/8	3/8	1-1/4	LU37 x 1-1/4	315	470	N.R.	225	.0625	315	.1250	395	.1875	470	.2500	510	.3125
		1-1/2	LU37 x 1-1/2	285	420	510		.0750		.1500		.2250		.3000		.3750
		1-3/4	LU37 x 1-3/4	260	385	480		.0875		.1750		.2625		.3500		.4375
		2	LU37 x 2	250	355	450		.1000		.2000		.3000		.4000		.5000
		12-1/2	LU37 x 12-1/2													
1	1/2	1-1/4	LU50 x 1-1/4	375	565	N.R.	270	.0625	375	.1250	470	.1875	565	.2500	615	.3125
		1-1/2	LU50 x 1-1/2	340	505	615		.0875		.1500		.2250		.3000		.3750
		1-3/4	LU50 x 1-3/4	295	435	540		.1000		.1750		.2625		.3500		.4375
		2	LU50 x 2	280	400	505		.1125		.2000		.3000		.4000		.5000
		2-1/4	LU50 x 2-1/4							.2250		.3375		.4500		.5625
		12-1/2	LU50 x 12-1/2													
1-1/8	5/8	1-1/4	LU62 x 1-1/4	440	660	N.R.	315	.0625	440	.1250	550	.1875	660	.2500	715	.3125
		1-1/2	LU62 x 1-1/2	400	590	715		.0750		.1500		.2250		.3000		.3750
		1-3/4	LU62 x 1-3/4	365	535	675		.0875		.1750		.2625		.3500		.4375
		2	LU62 x 2	345	500	630		.1000		.2000		.3000		.4000		.5000
		2-1/4	LU62 x 2-1/4	325	465	590		.1125		.2250		.3375		.4500		.5625
		12-1/2	LU62 x 12-1/2													
1-3/8	3/4	1-1/2	LU75 x 1-1/2	605	890	1085	475	.0750	665	.1500	835	.2250	1000	.3000	1085	.3750
		1-3/4	LU75 x 1-3/4	555	815	1020		.0875		.1750		.2625		.3500		.4375
		2	LU75 x 2	525	760	955		.1000		.2000		.3000		.4000		.5000
		2-1/4	LU75 x 2-1/4	495	705	890		.1125		.2250		.3375		.4500		.5625
		2-1/2	LU75 x 2-1/2	475	665	835		.1250		.2500		.3750		.5000		.6250
		2-3/4	LU75 x 2-3/4	435	630	790		.1375		.2750		.4125		.5500		.6875
		3	LU75 x 3	390	605	755		.1500		.3000		.4500		.6000		.7500
		12-1/2	LU75 x 12-1/2													
1-5/8	7/8	1-1/2	LU87 x 1-1/2	855	1260	1530	670	.0750	940	.1500	1180	.2250	1410	.3000	1530	.3750
		1-3/4	LU87 x 1-3/4	780	1150	1445		.0875		.1750		.2625		.3500		.4375
		2	LU87 x 2	745	1065	1355		.1000		.2000		.3000		.4000		.5000
		2-1/4	LU87 x 2-1/4	700	995	1260		.1125		.2250		.3375		.4500		.5625
		2-1/2	LU87 x 2-1/2	670	940	1180		.1250		.2500		.3750		.5000		.6250
		2-3/4	LU87 x 2-3/4	610	890	1110		.1375		.2750		.4125		.5500		.6875
		3	LU87 x 3	550	855	1065		.1500		.3000		.4500		.6000		.7500
		12-1/2	LU87 x 12-1/2													
1-3/4	1	1-1/2	LU100 x 1-1/2	940	1385	1680	735	.0750	1030	.1500	1300	.2250	1555	.3000	1685	.3750
		1-3/4	LU100 x 1-3/4	860	1265	1590		.0875		.1750		.2625		.3500		.4375
		2	LU100 x 2	820	1175	1490		.1000		.2000		.3000		.4000		.5000
		2-1/4	LU100 x 2-1/4	770	1095	1385		.1125		.2250		.3375		.4500		.5625
		2-1/2	LU100 x 2-1/2	735	1030	1300		.1250		.2500		.3750		.5000		.6250
		2-3/4	LU100 x 2-3/4	670	980	1225		.1375		.2750		.4125		.5500		.6875
		3	LU100 x 3	605	940	1175		.1500		.3000		.4500		.6000		.7500
		12-1/2	LU100 x 12-1/2													

N.R. = NOT RECOMMENDED

Heavy Duty Uraflex® Springs

95A DUROMETER



HU SERIES

OUTSIDE DIA. (O.D.)	FITS PUNCH SHANK (A)	LENGTH (L)	CATALOG NUMBER	LOAD LBS REQD. TO DEFLECT			LOAD POUNDS REQUIRED TO DEFLECT									
				1/8"	1/4"	3/8"	5%		10%		15%		20%		25%	
							LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.
1-1/8	1/2	1-1/4	HU50 x 1-1/4	510	765	N.R.		.0625		.1250		.1875		.2500		.3125
		1-1/2	HU50 x 1-1/2	465	680	830	365	.0750	510	.1500	640	.2250	765	.3000	830	.3750
		1-3/4	HU50 x 1-3/4	425	620	780		.0875		.1750		.2625		.3500		.4375
		2	HU50 x 2	405	580	735		.1000		.2000		.3000		.4000		.5000
		2-1/4	HU50 x 2-1/4	380	540	680		.1125		.2250		.3375		.4500		.5625
		12-1/2	HU50 x 12-1/2													
1-1/4	5/8	1-1/4	HU62 x 1-1/4	585	885	N.R.		.0625		.1250		.1875		.2500		.3125
		1-1/2	HU62 x 1-1/2	535	785	955	420	.0750	585	.1500	740	.2250	885	.3000	955	.3750
		1-3/4	HU62 x 1-3/4	490	720	900		.0875		.1750		.2625		.3500		.4375
		2	HU62 x 2	464	665	845		.1000		.2000		.3000		.4000		.5000
		2-1/4	HU62 x 2-1/4	435	620	785		.1125		.2250		.3375		.4500		.5625
		12-1/2	HU62 x 12-1/2													
1-1/2	3/4	1-1/2	HU75 x 1-1/2	770	1135	1380		.0750		.1500		.2250		.3000		.3750
		1-3/4	HU75 x 1-3/4	700	1035	1300		.0875		.1750		.2625		.3500		.4375
		2	HU75 x 2	670	960	1220		.1000		.2000		.3000		.4000		.5000
		2-1/4	HU75 x 2-1/4	630	895	1135	605	.1125	845	.2250	1065	.3375	1270	.4500	1380	.5625
		2-1/2	HU75 x 2-1/2	605	845	1065		.1250		.2500		.3750		.5000		.6250
		2-3/4	HU75 x 2-3/4	550	800	1000		.1375		.2750		.4125		.5500		.6875
		3	HU75 x 3	495	770	960		.1500		.3000		.4500		.6000	.7500	
		12-1/2	HU75 x 12-1/2													
1-3/4	7/8	1-1/2	HU87 x 1-1/2	1045	1540	1875		.0750		.1500		.2250		.3000		.3750
		1-3/4	HU87 x 1-3/4	955	1405	1770		.0875		.1750		.2625		.3500		.4375
		2	HU87 x 2	910	1310	1660	820	.1000	1150	.2000	1445	.3000	1730	.4000	1875	.5000
		2-1/4	HU87 x 2-1/4	855	1220	1540		.1125		.2250		.3375		.4500		.5625
		2-1/2	HU87 x 2-1/2	820	1150	1445		.1250		.2500		.3750		.5000		.6250
		2-3/4	HU87 x 2-3/4	750	1090	1360		.1375		.2750		.4125		.5500		.6875
		3	HU87 x 3	675	1045	1310		.1500		.3000		.4500		.6000	.7500	
		12-1/2	HU87 x 12-1/2													
2	1	1-1/2	HU100 x 1-1/2	1365	N.R.	N.R.		.0750		.1500		.2250		.3000		.3750
		1-3/4	HU100 x 1-3/4	1450	1840	N.R.	1070	.0875	1500	.1750	1890	.2625	N.R.	.3500	N.R.	.4375
		2	HU100 x 2	1190	1710	N.R.		.1000		.2000		.3000		.4000		.5000
		2-1/4	HU100 x 2-1/4	1120	1590	N.R.		.1125		.2250		.3375		.4500		.5625
		2-1/2	HU100 x 2-1/2	1070	1500	2560		.1250		.2500		.3750		.5000		.6250
		2-3/4	HU100 x 2-3/4	980	1425	2410		.1375		.2750		.4125		.5500		.6875
		3	HU100 x 3	885	1365	2315		.1500		.3000		.4500		.6000		.7500
		12-1/2	HU100 x 12-1/2													

N.R. = NOT RECOMMENDED

NOTE: All values in this publication are based on tests as free standing cylinders or sections with ends unattached. Confinement of any portion of the diameter or periphery, or bonding of ends to restrict lateral movement will substantially increase these values. Conversely, lubrication of ends will assist lateral movement, and will tend to reduce these values.

WHEN ORDERING PLEASE SPECIFY:

1. QUANTITY
2. CATALOG NUMBER*
3. AND LENGTH

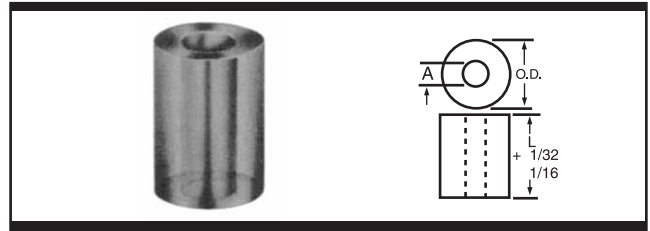
LIGHT DUTY EXAMPLE: 6(QUANTITY)-LU37 1-5/8

HEAVY DUTY EXAMPLE: 4(QUANTITY)-HU75 2-1/4

EXTRA HEAVY DUTY EXAMPLE: 8(QUANTITY)-XHU87 1-3/4

Extra-Heavy Duty Uraflex® Springs

95A DUROMETER



XHU SERIES

OUTSIDE DIA. (O.D.)	FITS PUNCH SHANK (A)	LENGTH (L)	CATALOG NUMBER	LOAD LBS REQD. TO DEFLECT			LOAD POUNDS REQUIRED TO DEFLECT									
							5%		10%		15%		20%		25%	
				1/8"	1/4"	3/8"	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.	LOAD LBS	LENGTH OF DEFL.
1-1/4	1/2	1-1/4	XHU50 x 1-1/4	655	990	N.R.	470	.0625	655	.1250	825	.1875	990	.2500	1070	.3125
		1-1/2	XHU50 x 1-1/2	600	880	1070		.0750		.1500		.2250		.3000		
		1-3/4	XHU50 x 1-3/4	545	805	1010		.0875		.1750		.2625		.3500		
		2	XHU50 x 2	520	745	950		.1000		.2000		.3000		.4000		
		2-1/4	XHU50 x 2-1/4	490	695	880		.1125		.2250		.3375		.4500		
12-1/2	XHU50 x 12-1/2															
1-1/2	5/8	1-1/4	XHU62 x 1-1/4	1065	1600	N.R.	760	.0625	1063	.1250	1340	.1875	1600	.2500	1735	.3125
		1-1/2	XHU62 x 1-1/2	970	1425	1735		.0750		.1500		.2250		.3000		
		1-3/4	XHU62 x 1-3/4	885	1300	1635		.0875		.1750		.2625		.3500		
		2	XHU62 x 2	845	1210	1535		.1000		.2000		.3000		.4000		
		2-1/4	XHU62 x 2-1/4	795	1125	1725		.1125		.2250		.3375		.4500		
12-1/2	XHU62 x 12-1/2															
1-3/4	3/4	1-1/2	XHU75 x 1-1/2	1140	1680	2045	895	.0750	1250	.1500	1575	.2250	1885	.3000	2045	.3750
		1-3/4	XHU75 x 1-3/4	1040	1530	1925		.0875		.1750		.2625		.3500		
		2	XHU75 x 2	990	1425	1805		.1000		.2000		.3000		.4000		
		2-1/4	XHU75 x 2-1/4	935	1325	1680		.1125		.2250		.3375		.4500		
		2-1/2	XHU75 x 2-1/2	895	1250	1575		.1250		.2500		.3750		.5000		
		2-3/4	XHU75 x 2-3/4	815	1190	1485		.1375		.2750		.4125		.5500		
		3	XHU75 x 3	735	1140	1425		.1500		.3000		.4500		.6000		
		12-1/2	XHU75 x 12-1/2													
2	7/8	1-1/2	XHU87 x 1-1/2	1475	N.R.	N.R.	1155	.0750	1620	.1500	2035	.2250	N.R.	N.R.	N.R.	N.R.
		1-3/4	XHU87 x 1-3/4	1345	1980	N.R.		.0875		.1750		.2625				
		2	XHU87 x 2	1285	1840	N.R.		.1000		.2000		.3000				
		2-1/4	XHU87 x 2-1/4	1205	1715	N.R.		.1125		.2250		.3375				
		2-1/2	XHU87 x 2-1/2	1155	1620	2035		.1250		.2500		.3750				
		2-3/4	XHU87 x 2-3/4	1055	1535	1920		.1375		.2750		.4125				
		3	XHU87 x 3	955	1475	1840		.1500		.3000		.4500				
12-1/2	XHU87 x 12-1/2															
2-1/4	1	1-1/2	XHU100 x 1-1/2	1850	N.R.	N.R.	1450	.0750	2030	.1500	2560	.2250	N.R.	N.R.	N.R.	N.R.
		1-3/4	XHU100 x 1-3/4	1690	2490	N.R.		.0875		.1750		.2625				
		2	XHU100 x 2	1610	2315	N.R.		.1000		.2000		.3000				
		2-1/4	XHU100 x 2-1/4	1515	2155	N.R.		.1125		.2250		.3375				
		2-1/2	XHU100 x 2-1/2	1450	2030	2560		.1250		.2500		.3750				
		2-3/4	XHU100 x 2-3/4	1325	1930	2410		.1375		.2750		.4125				
		3	XHU100 x 3	1195	1850	2315		.1500		.3000		.4500				
12-1/2	XHU100 x 12-1/2															
2-1/2	1-1/4	2	XHU125 x 2	1860	2670	N.R.	1675	.1000	2345	.2000	3095	.3000	N.R.	N.R.	N.R.	N.R.
		2-1/4	XHU125 x 2-1/4	1750	2485	N.R.		.1125		.2250		.3375				
		2-1/2	XHU125 x 2-1/2	1675	2345	2955		.1250		.2500		.3750				
		2-3/4	XHU125 x 2-3/4	1530	2225	5780		.1375		.2750		.4125				
		3	XHU125 x 3	1380	2135	2670		.1500		.3000		.4500				
12-1/2	XHU125 x 12-1/2															
2-3/4	1-1/2	2	XHU150 x 2	2105	3025	N.R.	1900	.1000	2660	.2000	3345	.3000	N.R.	N.R.	N.R.	N.R.
		2-1/4	XHU150 x 2-1/4	1980	2816	N.R.		.1125		.2250		.3375				
		2-1/2	XHU150 x 2-1/2	1900	2660	3345		.1250		.2500		.3750				
		2-3/4	XHU150 x 2-3/4	1730	2525	3150		.1375		.2750		.4125				
		3	XHU150 x 3	1565	2420	3025		.1500		.3000		.4500				
12-1/2	XHU150 x 12-1/2															

N.R. = NOT RECOMMENDED

Engineering Data - 90A URAFLEX®

PIVOT URAFLEX® 90A bars, slabs, sheet and rods:

L = Length W = Width r = radius h = height d = diameter

1) Find Area (A)

a) for solid rectangles or squares $A = L \times W$

b) for solid rounds $A = 3.1416 \times r^2$

2) Find shape factor (S.F.) $L \times W$

a) for solid sheets, slabs or bars $S.F. = \frac{L \times W}{2h(L + W)}$

b) for solid rods $S.F. = \frac{d}{4h}$

3) Find p.s.i. or deflection from graph

a) interpolate for in between shape factors

b) for shape factors less than 0.5 use 0.5 line

4) Convert p.s.i. to load pounds

a) load pounds = p.s.i. x area

b) this is total force required to deflect a given distance

5) Example: How much pressure will be required to deflect a 6" x 6" x 1" slab by .150"?

$A = 6 \times 6 = 36$

- Since .150 is 15% of 1", find 115% on graph below

$S.F. = \frac{6 \times 6}{2(1)(6+6)} = 1.5$

- Since 1.5 shape factor is half way between 1.0 and 2.0 lines on the graph the p.s.i. value for 15% is 1220.

- Multiply p.s.i. times area to get load pounds = 43,920

Load lbs. = 1220 x 36 = 43,920-Multiply p.s.i. times area to get load pounds = 43,920

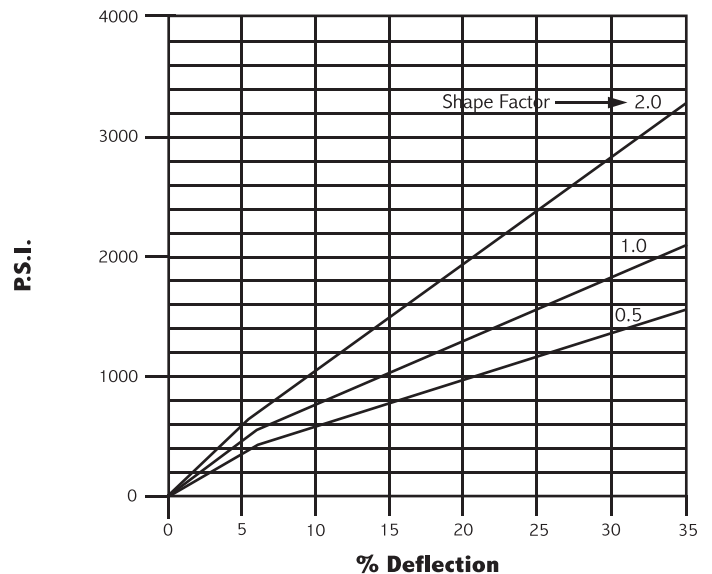
URAFLEX® SHEET, SLAB, BAR, ROD SAMPLE PRESSURES 90A DUROMETER

SIZE	Load Pounds Required to Deflect		
	1/8"	1/4"	3/8"
1/4" dia x 1/2" height	55	N.R.	N.R.
3/8" dia x 3/4" height	90	165	N.R.
1/2" dia x 1" height	125	225	N.R.
5/8" dia x 1 1/4" height	165	290	455
3/4" dia x 1 1/2" height	210	360	510
7/8" dia x 1-3/4" height	245	425	600
1" dia x 2" height	300	505	705
1-1/8" dia x 2 1/4" height	350	585	795
1-1/4" dia x 2-1/2" height	380	665	910
1-1/2" dia x 3" height	510	815	1130
2" dia x 3" height	910	1445	2010
3" dia x 3" height	2050	3250	3620
4" dia x 3" height	3645	5780	7070
6" dia x 3" height	8200	13005	18095
1" wide x 12" long x 1" height	7560	12900	N.R.
2" wide x 2" long x 3" height	7200	11400	15000
2" wide x 12" long x 2" height	9600	15120	21600
6" wide x 12" long x 2" height	36500	61200	86400
6" wide x 6" long x 1" height	37800	70200	N.R.
12" wide x 12" long x 1-1/2" height	120960	230400	338400
18" wide x 18" long x 3" height	145800	270540	405000

N.R.= NOT RECOMMENDED

NOTE: All values in this publication are based on tests as free standing cylinders or sections with ends unattached. Confinement of any portion of the diameter or periphery, or bonding of ends to restrict lateral movement will substantially increase these values. Conversely, lubrication of ends will assist lateral movement, and will tend to reduce these values.

90A DUROMETER URAFLEX®



For optimum life, the following operating speeds and deflections are recommended for 90A Durometer Uraflex® bars, slabs, sheet and rods:

Up to 200 strokes per hour - up to 25% deflection

Up to 700 strokes per hour - up to 20% deflection

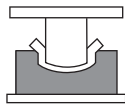
Up to 12,000 strokes per hour - up to 15% deflection

PIVOT SOLID URAFLEX® Sheet, Slabs, Bars, and Rods

Cataloged standard sizes in 90 Shore A Durometer, Uraflex® is available from stock for most all needs. With extreme load-bearing capacity and abrasion resistance, Uraflex® also has excellent resilience and memory qualities and returns to its original shape with minimal deterioration under many extensive and repetitive deformations. It is unaffected by oil, grease and most chemicals and solvents.

PIVOT URAFLEX® offers more than 3 times the wear life characteristics of natural rubber. Will not mar, scratch, dent or gouge most painted, galvanized or soft metal surfaces. Ideal for pressure pads, forming blocks, stripping pads, draw dies, embossing dies, bulging punches, strippers, springs or shedders.

Pivot URAFLEX® forms any angle, adapts to practically any shape and is easy to install for a wide range of metalworking and stamping operations



URAFLEX® helps to eliminate wrinkles caused by drawing "in the air".

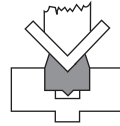
URAFLEX® is also available in the full range of hardnesses for that SPECIAL JOB.

Uraflex® Solid Bars

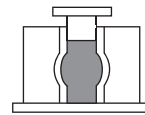
Bars may be used in press brake tooling, as pressure pads or as a replacement for long rows of steel springs.

Uraflex® Solid Rods

Rods of miracle Uraflex® are incomparable in bulging operations roll forming and as individual springs.

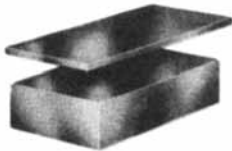


URAFLEX® produces better definition and sharper bends.



Mar-free tubular and even con volute forms can be bulged with long-lasting URAFLEX®

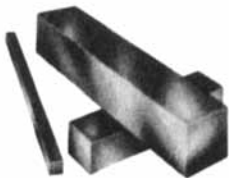
URAFLEX® SOLID SHEETS AND SLABS



WIDTH & LENGTH	THICKNESS PER PRICE														
	1/8"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	
6 x 6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6 x 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6 x 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
6 x 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12 x 12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12 x 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
12 x 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18 x 18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
18 x 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
24 x 24	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

PRICES ON REQUEST

URAFLEX® SOLID BARS



SIZE	LENGTH PER PIECE				
	6"	12"	24"	36"	48"
1 x 1	X	X	X	X	X
1 x 2	X	X	X	X	X
1 x 3	X	X	X	X	X
1 x 4	X	X	X	X	X
2 x 2	X	X	X	X	X
2 x 3	X	X	X	X	X
2 x 4	X	X	X	X	X
3 x 3	X	X	X	X	X
3 x 4	X	X	X	X	X
4 x 4	X	X	X	X	X

URAFLEX® SOLID RODS



DIA. INCHES	LENGTH PER PIECE			
	3"	6"	12"	24"
1/4	X	X	X	
3/8	X	X	X	
1/2	X	X	X	X
5/8	X	X	X	X
3/4	X	X	X	X
7/8	X	X	X	X
1	X	X	X	X
1-1/8	X	X	X	X
1-1/4	X	X	X	X
1-1/2	X	X	X	X
2	X	X	X	X
2-1/2	X	X	X	X
3	X	X	X	X
4	X	X	X	X
6	X	X	X	X

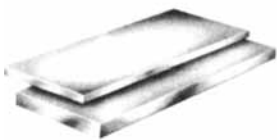
WHEN ORDERING PLEASE SPECIFY:
 1. QUANTITY 2. PIVOT URAFLEX®
 3. THICKNESS OR DIAMETER 4. LENGTH

Also available in U6040 — U8030 — U9520 — U7505 "Prices on Request."
 See Physical Properties chart page 2.

Also available: PIVOT NOMAR™ Nylon for custom in-plant manufacturing

The New Approach in Stripper Engineering

Facing new or existing steel strippers with wear resistant non-marring Nomar™ nylon will reduce noise level, protect most painted surfaces or soft materials, guide punch points, and minimize stock deformation by stripping closer to the punch point. The inherent elasticity of Nomar® Nylon assures superior holding power without marring or scratching. Custom guide holes can be machined or punched through the nylon face. It can be attached to steel with screws or it can be thermo-bonded to steel or Uraflex® with urabond adhesive.



THICKNESS	LENGTH PER PIECE						
	1"	2"	3"	4"	6"	8"	10"
1/8"	X	X	X	X	X	—	—
1/4"	X	X	X	X	X	X	X