

PRESS FIT

Quality

Punches

Punches heavy duty

Pick-up Pilots

Pilots

Guide Bushings

Retainers



Global leader in
providing fabrication
and stamping solutions

www.daytonprogress.com

PUNCHES

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PUNCHES, PUNCHES HEAVY DUTY, PUNCH BLANKS, CLOSE SPACE PUNCHES

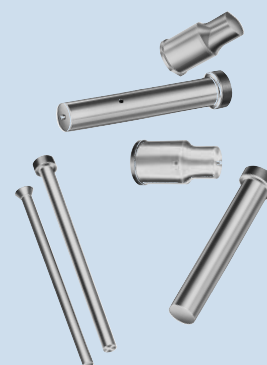
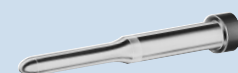
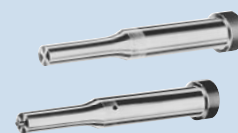
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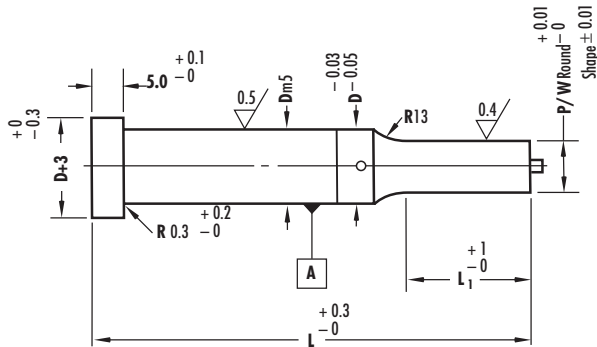
MISCELLANEOUS

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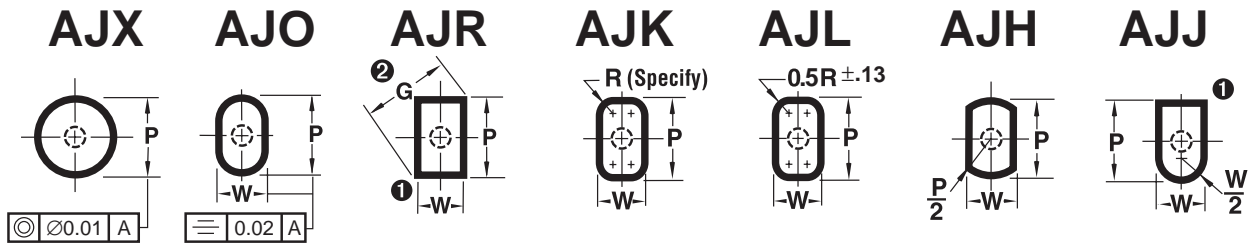
JEKTOLE® HEADED PUNCHES TYPE AJ_

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020 Jektole®

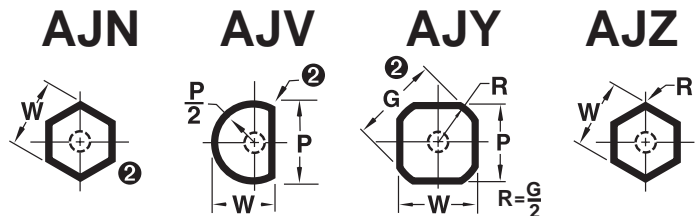
Steel: A2 (Standard), M2 and PS – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix filler when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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



Shank D	Point Length L ₁		Type & D	Range P	Type & D	Min. W	Max. P/G	L												Jektole® Pin
	Std.	Alt.						AJX	AJ_	40	50	56	60	63	70	71	80	90	100	
05	13	19	AJX05	1.60- 4.95	AJ_05	1.60- 4.95		•	•	•	•	•	•	•	•	•	•	J2M		
06	13	19	AJX06	2.40- 5.95	AJ_06	2.40- 5.95		•	•	•	•	•	•	•	•	•	•	J3M		
08	19	25	AJX08	3.20- 7.95	AJ_08	3.20- 7.95		•	•	•	•	•	•	•	•	•	•	J4M		
10	19	25	AJX10	4.50- 9.95	AJ_10	4.50- 9.95		•	•	•	•	•	•	•	•	•	•	J6M		
13	19	25	AJX13	6.00-12.95	AJ_13	6.00-12.95		•	•	•	•	•	•	•	•	•	•	J6M		
16	19	25	AJX16	8.00-15.95	AJ_16	8.00-15.95		•	•	•	•	•	•	•	•	•	•	J9M		
20	19	25	AJX20	10.00-19.95	AJ_20	10.00-19.95		•	•	•	•	•	•	•	•	•	•	J9M		
25	19	25	AJX25	12.00-24.95	AJ_25	12.00-24.95		•	•	•	•	•	•	•	•	•	•	J9M		
32	25	30	AJX32	16.00-31.95	AJ_32	16.00-31.95		•	•	•	•	•	•	•	•	•	•	J12M		
40	25	30	AJX40	20.00-39.95	AJ_40	8.00-39.95		•	•	•	•	•	•	•	•	•	•	J12M		
45	25	30	AJX45	25.00-44.95	AJ_45	9.00-44.95		•	•	•	•	•	•	•	•	•	•	J12M		
50	25	30	AJX50	30.00-49.95	AJ_50	10.00-49.95		•	•	•	•	•	•	•	•	•	•	J12M		
56	25	30	AJX56	35.00-55.95	AJ_56	11.00-55.95		•	•	•	•	•	•	•	•	•	•	J12M		
63	25	30	AJX63	40.00-62.95	AJ_62	12.00-62.95		•	•	•	•	•	•	•	•	•	•	J12M		

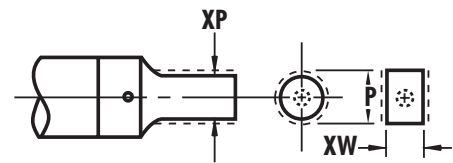
Standard Alterations for AJ Punches

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

L ₁ Max. ▶	XBR							XBB	XBR							XBB
	8	13	19	25	30	35	40		8	13	19	25	30	35	40	
D	Minimum P (Rounds)								Minimum W (Shapes)							
04	0.8	1.1	1.3	1.9	2.5	–	–		1.3	1.6	1.6	2.4	2.8	–	–	
05	1.3	1.3	1.5	2.4	–	–	–		1.6	1.6	1.6	2.4	–	–	–	
06	2.0	2.0	2.0	2.4	2.5	–	–		2.0	2.0	2.0	2.4	3.0	–	–	
08	3.0	3.0	3.0	3.0	3.0	3.2	–		3.0	3.0	3.0	3.0	4.0	4.0	–	
10	4.0	4.0	4.0	4.0	4.0	4.0	6.0		4.0	4.0	4.0	4.0	4.0	4.5	6.0	
13	–	4.0	4.0	4.0	4.0	4.0	6.0		–	4.0	4.0	4.0	4.0	4.5	6.0	
16	–	6.0	6.0	6.0	6.0	6.0	6.0		–	6.0	6.0	6.0	6.0	6.0	6.0	
20	–	6.0	6.0	6.0	7.6	7.6	7.6		–	6.0	6.0	6.0	6.0	6.0	6.0	
25	–	8.0	8.0	8.0	10.0	10.0	10.0		–	6.0	6.0	6.0	6.0	6.0	6.0	
32	–	10.0	10.0	10.0	10.0	10.0	10.0		–	7.2	6.0	7.2	7.2	7.2	7.2	

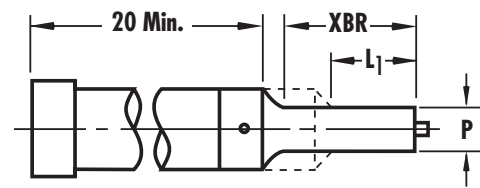
XP, XW

P & W dimensions smaller than standard



XBR

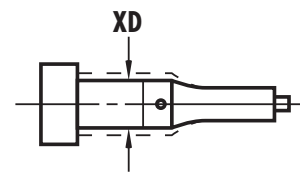
Pointh Length longer than standard
Specify XBR or XBB and length (see chart)



XD

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

Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0	40.0	45.0	50.0	63.0
Min. XD	2.5	4.4	4.5	6.8	8.8	11.5	14.5	18.5	23.5	30.5	38.5	43.5	48.5	61.5



XK

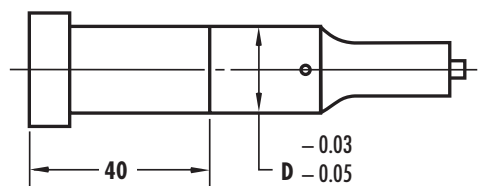
No Side Hole
for air ejection. No cost. Components not supplied.

XJ

Smaller Jektole® Components
See Page 6.1.1.

XLD

Alternate Lead Length
The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank through the holder.



XN

DayTride®
a unique wear resistant surface treatment. For M2 and PS only.

XNT

DAYTIN®
Titanium Nitride coating for extra wear.
For M2 and PS only.

XNM

An exclusive PVD solidlubricant coating.
It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2 and PS.

XCN

TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 and PS only.

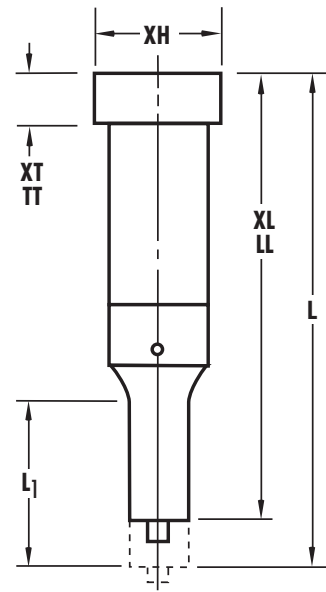
XL Overall Length shortened (25 min.)
Stock removal from point end which shortens point length. To maintain point length specify „XBR“.

LL Precision Overall Length
Same as XL except overall length is held ± 0.02 .

XT Head thinner than standard
Stock removal from head end which shortens overall length.

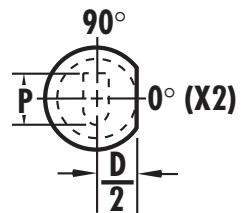
TT Precision Head Thickness
Same as XT except Head thickness tolerance is held to ± 0.01 .

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



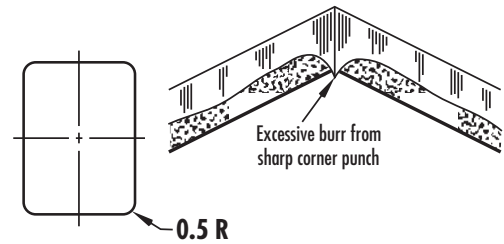
KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 6.4.1.



A new shape for Longer Life

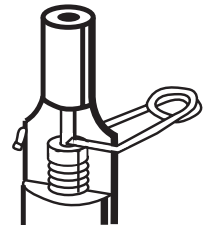
DAYTON'S new standard shape with a constant corner radius of 0.5R puts the clearance where it's needed to prevent rapid wear and unacceptable burrs commonly generated with sharp corners. This reduces maintenance time and the risk of edge breaking during operation. The "L" Long Life punch will reduce maintenance costs while increasing production runs by reducing corner wear.



A DAYTON Difference JEKTOLE®

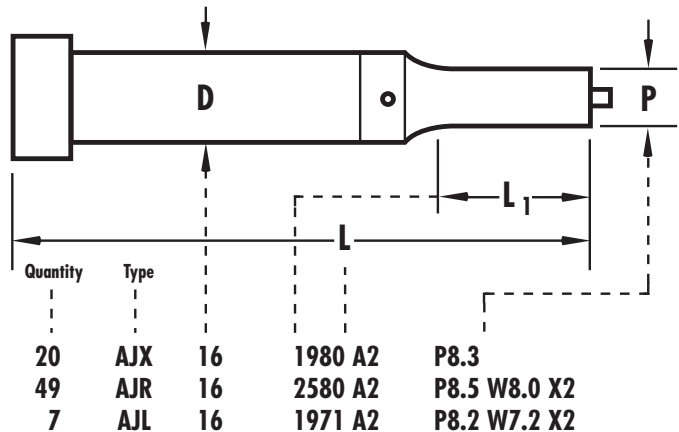
The "Triple Your Production" Punch
Retractable Slug Ejector.

Pat. No. 2.917.960 and 3.255.654



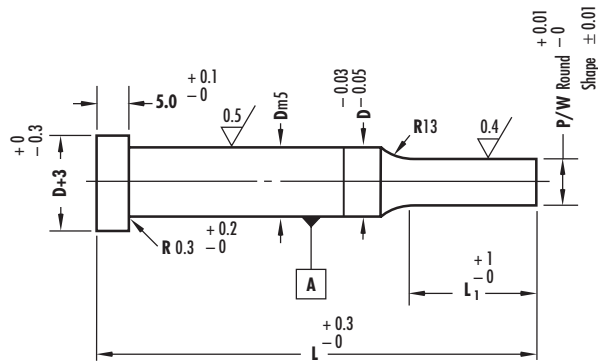
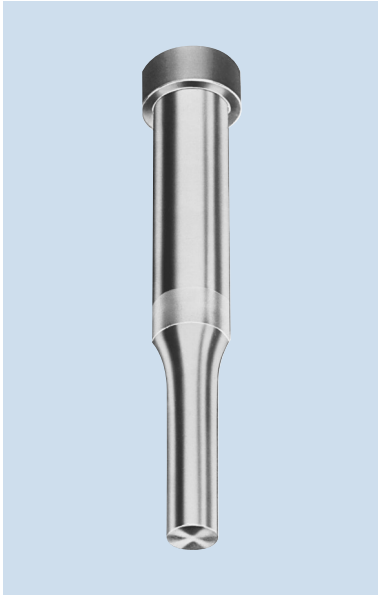
How to order:

Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
P or P&W Dimensions
Standard Alterations



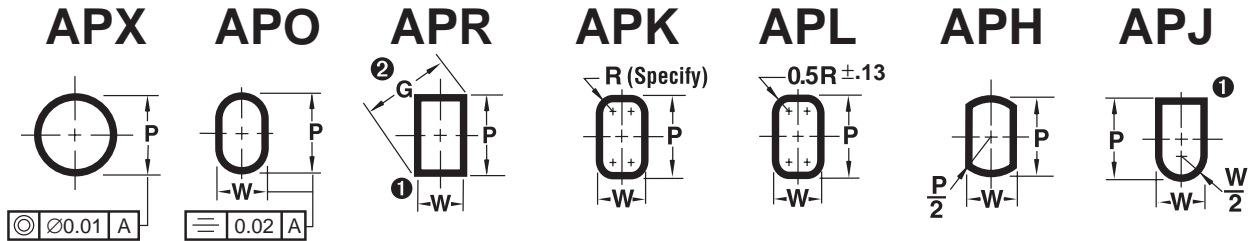
REGULAR HEADED PUNCHES TYPE AP_

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020 Regular

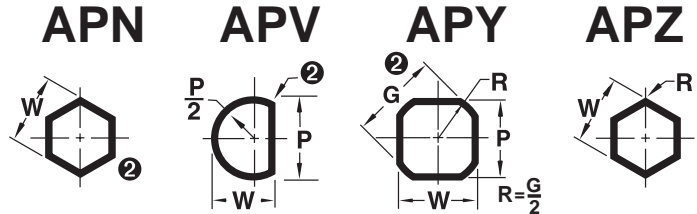
Steel: A2, M2 and PS – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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



Shank D	Point Length L ₁		Type & D APX	Range P	Type & D AP_	Min. W	Max. P/G	L											
	Std.	Alt.						40	50	56	60	63	70	71	80	90	100		
04	8	13	APX04	1.60- 3.95	AP_04	1.60- 3.95		•	•	•	•	•	•	•	•	•			
05	13	19	APX05	1.60- 4.95	AP_05	1.60- 4.95		•	•	•	•	•	•	•	•	•			
06	13	19	APX06	1.60- 5.95	AP_06	1.60- 5.95		•	•	•	•	•	•	•	•	•			
08	19	25	APX08	2.50- 7.95	AP_08	2.50- 7.95			•	•	•	•	•	•	•	•	•		
10	19	25	APX10	3.20- 9.95	AP_10	3.20- 9.95			•	•	•	•	•	•	•	•	•		
13	19	25	APX13	5.00-12.95	AP_13	4.50-12.95				•	•	•	•	•	•	•	•		
16	19	25	APX16	8.00-15.95	AP_16	6.00-15.95					•	•	•	•	•	•	•	•	
20	19	25	APX20	10.00-19.95	AP_20	8.00-19.95					•	•	•	•	•	•	•	•	
25	19	25	APX25	12.00-24.95	AP_25	9.00-24.95					•	•	•	•	•	•	•	•	
32	35	30	APX32	16.00-31.95	AP_32	10.00-31.95						•	•	•	•	•	•	•	
40	25	30	APX40	20.00-39.95	AP_40	8.00-39.95							•	•	•	•	•	•	
45	25	30	APX45	25.00-44.95	AP_45	9.00-44.95								•	•	•	•	•	
50	25	30	APX50	30.00-49.95	AP_50	10.00-49.95									•	•	•	•	
56	25	30	APX56	35.00-55.95	AP_56	11.00-55.95										•	•	•	
63	25	30	APX63	40.00-62.95	AP_63	12.00-62.95											•	•	

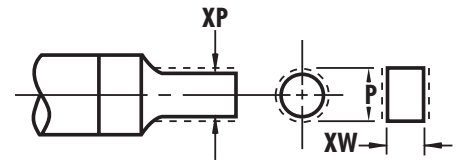
Standard Alterations for AP Punches

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

L ₁ Max. ▶	XBR							XBB	XBR							XBB
	8	13	19	25	30	35	40		8	13	19	25	30	35	40	
D	Minimum P (Rounds)								Minimum W (Shapes)							
04	0.8	1.1	1.3	1.9	2.5	–	–		1.3	1.6	1.6	2.4	2.8	–	–	
05	1.3	1.3	1.5	2.4	–	–	–		1.6	1.6	1.6	2.4	–	–	–	
06	2.0	2.0	2.0	2.4	2.5	–	–		2.0	2.0	2.0	2.4	3.0	–	–	
08	3.0	3.0	3.0	3.0	3.0	3.2	–		3.0	3.0	3.0	3.0	4.0	4.0	–	
10	4.0	4.0	4.0	4.0	4.0	4.0	6.0		4.0	4.0	4.0	4.0	4.0	4.5	6.0	
13	–	4.0	4.0	4.0	4.0	4.0	6.0		–	4.0	4.0	4.0	4.0	4.5	6.0	
16	–	6.0	6.0	6.0	6.0	6.0	6.0		–	6.0	6.0	6.0	6.0	6.0	6.0	
20	–	6.0	6.0	6.0	7.6	7.6	7.6		–	6.0	6.0	6.0	6.0	6.0	6.0	
25	–	8.0	8.0	8.0	10.0	10.0	10.0		–	6.0	6.0	6.0	6.0	6.0	6.0	
32	–	10.0	10.0	10.0	10.0	10.0	10.0		–	7.2	6.0	7.2	7.2	7.2	7.2	

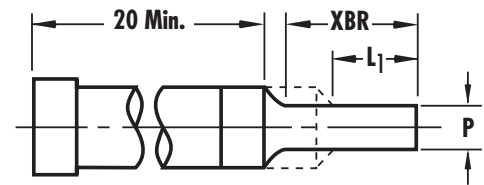
XP, XW

P & W dimensions smaller than standard



XBR

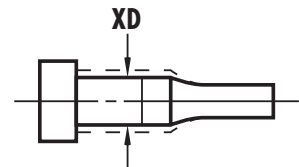
Pointh Length longer than standard
Specify XBR or XBB and length (see chart)



XD

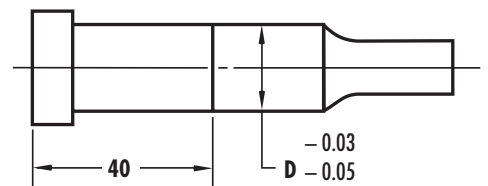
Reduced Shank Diameter
Head Diameter does not change with body diameter.

Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0	40.0	45.0	50.0	63.0
Min. XD	2.5	4.4	4.5	6.8	8.8	11.5	14.5	18.5	23.5	30.5	38.5	43.5	48.5	61.5



XLD

Alternate Lead Length
The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank trough the holder.



XN

DayTride®
a unique wear resistant surface treatment. For M2 and PS only.

XNT

DAYTIN®
Titanium Nitride coating for extra wear.
For M2 and PS only.

XNM

An exclusive PVD solidlubricant coating.
It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2 and PS.

XCN

TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 and PS only.

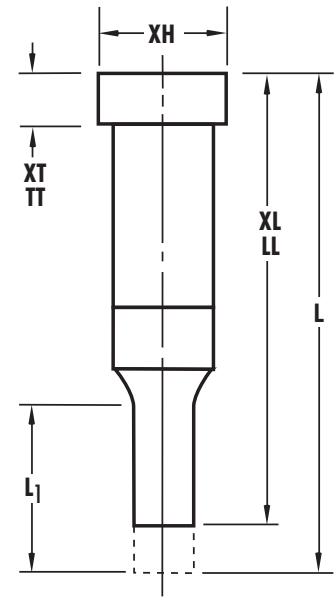
XL Overall Length shortened (25 min.)
Stock removal from point end which shortens point length. To maintain point length specify „XBR“.

LL Precision Overall Length
Same as XL except overall length is held ± 0.02 .

XT Head thinner than standard
Stock removal from head end which shortens overall length.

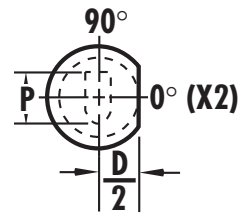
TT Precision Head Thickness
Same as XT except Head thickness tolerance is held to ± 0.01 .

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



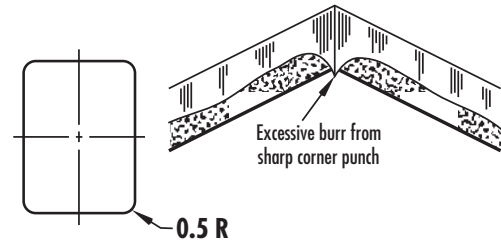
KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 6.4.1.



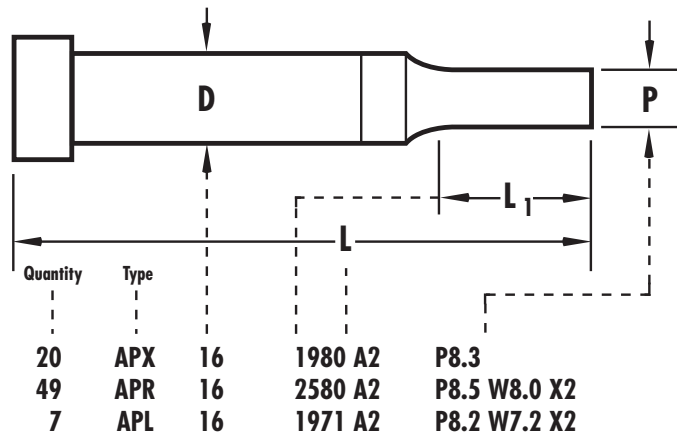
A new shape for Longer Life

DAYTON'S new standard shape with a constant corner radius of 0.5R puts the clearance where it's needed to prevent rapid wear and unacceptable burrs commonly generated with sharp corners. This reduces maintenance time and the risk of edge breaking during operation. The "L" Long Life punch will reduce maintenance costs while increasing production runs by reducing corner wear.



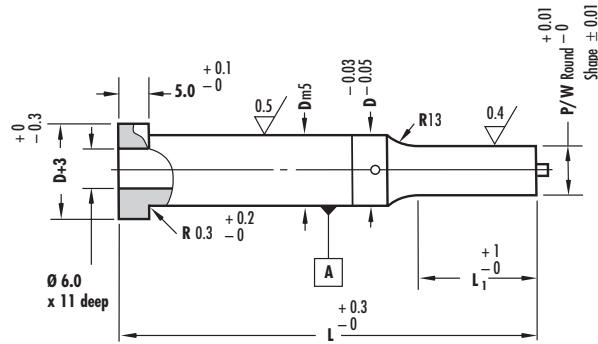
How to order:

Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
P or P&W Dimensions
Standard Alterations



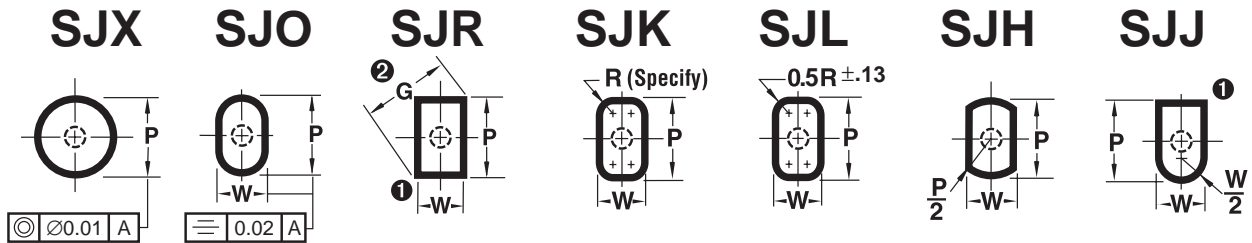
JEKTOLE® CENTER DOWEL HEADED PUNCHES TYPE SJ_

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



ISO 8020 Jektole®

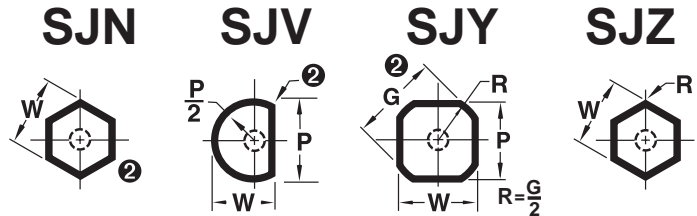
Steel: A2 and M2 – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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



Shank D	Point Length L ₁		Type & D SJX	Range P	Type & D SJ_	Min. W	Max. P/G	L				Jektole® Pin
	Std.	Alt.						71	80	90	100	
10	19	25	SJX 10	4.50 - 9.95	SJ_10	4.50 - 9.95	•	•	•	•	J6M	
13	19	25	SJX 13	6.00 - 12.95	SJ_13	6.00 - 12.95	•	•	•	•	J6M	
16	19	25	SJX 16	8.00 - 15.95	SJ_16	7.20 - 15.95	•	•	•	•	J9M	
20	19	25	SJX 20	10.00 - 19.95	SJ_20	8.00 - 19.95	•	•	•	•	J9M	
25	19	25	SJX 25	12.00 - 24.95	SJ_25	9.00 - 24.95	•	•	•	•	J9M	
32	25	30	SJX 32	16.00 - 31.95	SJ_32	10.00 - 31.95	•	•	•	•	J12M	

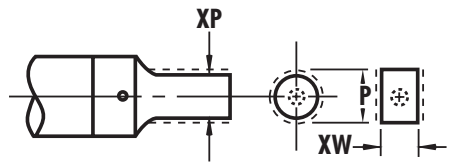
Standard Alterations for SJ Center Dowel Punches

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

L ₁ Max. ▶	XBR							XBB	XBR							XBB	Jektol® Pin						
	8	13	19	25	30	35	40	8	13	19	25	30	35	40	8	13		19	25	30	35	40	
D	Minimum P (Rounds)								Minimum W (Shapes)														
10	4.0	4.0	4.0	4.0	4.0	4.0	6.0	1.3	1.6	1.6	2.4	2.8	—	—									J6M
13	—	4.0	4.0	4.0	4.0	4.0	6.0	1.6	1.6	1.6	2.4	—	—	—									J6M
16	—	6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0	2.0	2.4	3.0	—	—									J9M
20	—	6.0	6.0	6.0	7.6	7.6	7.6	3.0	3.0	3.0	3.0	4.0	4.0	—									J9M
25	—	8.0	8.0	8.0	10.0	10.0	10.0	4.0	4.0	4.0	4.0	4.0	4.5	6.0									J9M
32	—	10.0	10.0	10.0	10.0	10.0	10.0	—	4.0	4.0	4.0	4.0	4.5	6.0									J9M

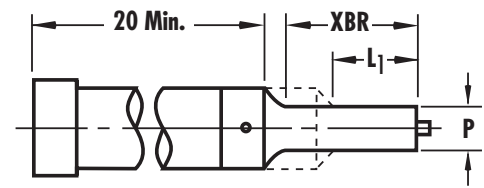
XP, XW

P & W dimensions smaller than standard



XBR

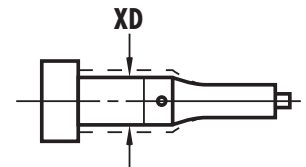
Point Length longer than standard
Specify XBR or XBB and length (see chart)



XD

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

Shank Dia.	10.0	13.0	16.0	20.0	25.0	32.0	40.0	45.0	50.0	63.0
Min. XD	—	11.5	14.5	18.5	23.5	30.5	38.5	43.5	48.5	61.5



XK

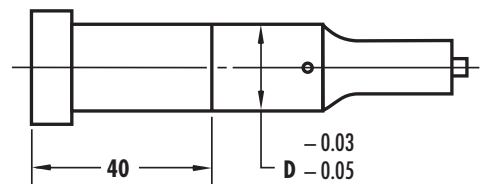
No Side Hole
for air ejection. No cost. Components not supplied.

XJ

Smaller Jektol® Components
See page 6.1.1.

XLD

Alternate Lead Length
The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank through the holder.



XN

DayTride®
a unique wear resistant surface treatment. For M2 only.

XNT

DAYTIN®
Titanium Nitride coating for extra wear.
For M2 only.

XNM

An exclusive PVD solidlubricant coating.
It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2.

XCN

TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 only.

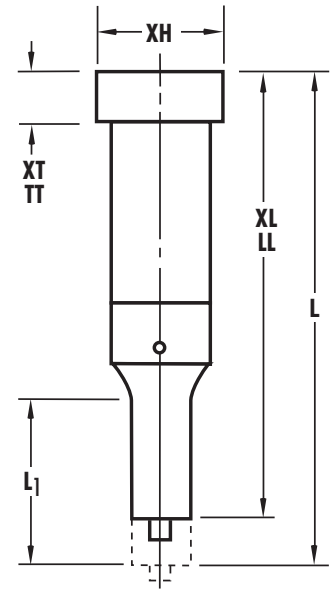
XL Overall Length shortened (25 min.)
Stock removal from point end which shortens point length. To maintain point length specify „XBR“.

LL Precision Overall Length
Same as XL except overall length is held ± 0.02 .

XT Head thinner than standard
Stock removal from head end which shortens overall length.

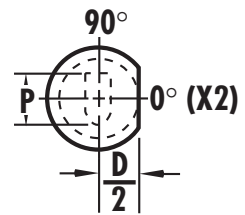
TT Precision Head Thickness
Same as XT except Head thickness tolerance is held to ± 0.01 .

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



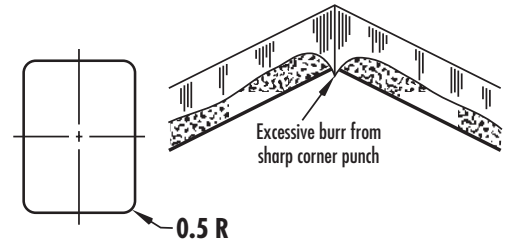
KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 6.4.1.



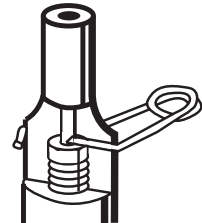
A new shape for Longer Life

DAYTON'S new standard shape with a constant corner radius of 0.5R puts the clearance where it's needed to prevent rapid wear and unacceptable burrs commonly generated with sharp corners. This reduces maintenance time and the risk of edge breaking during operation. The "L" Long Life punch will reduce maintenance costs while increasing production runs by reducing corner wear.



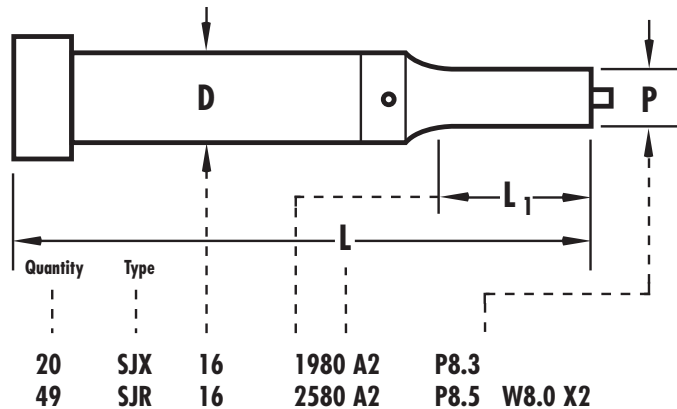
A DAYTON Difference JEKTOLE®
The "Triple Your Production" Punch
Retractable Slug Ejector.

Pat. No. 2.917.960 and 3.255.654



How to order:

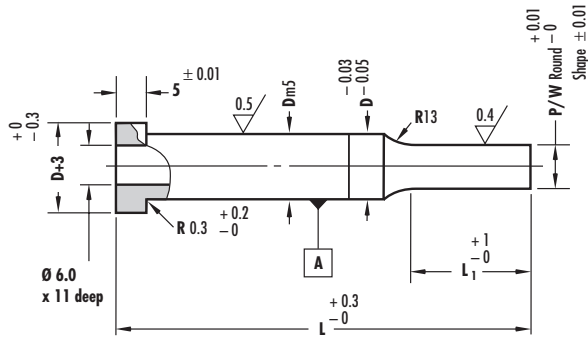
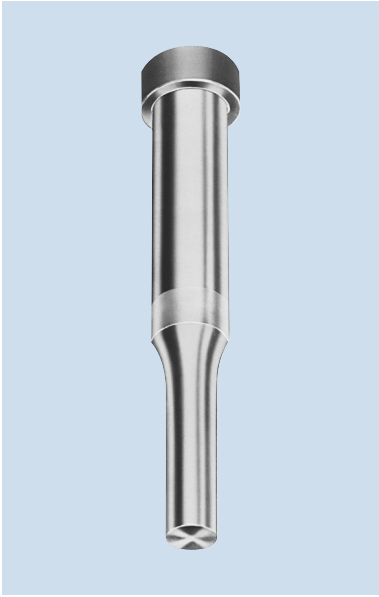
Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
P or P&W Dimensions
Standard Alterations



NOTES

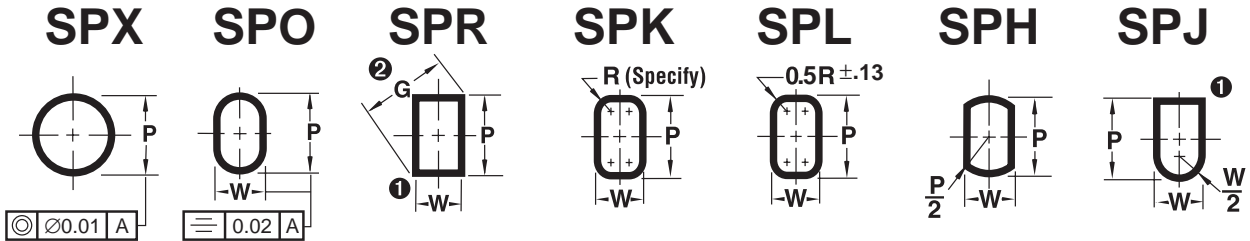
REGULAR CENTER DOWEL HEADED PUNCHES TYPE SP_

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



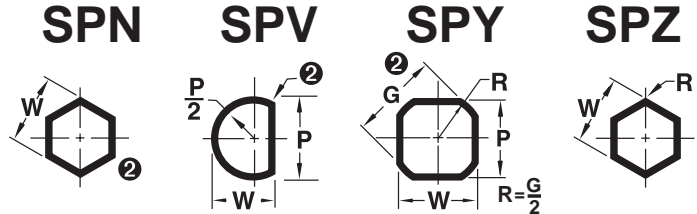
ISO 8020 Regular

Steel: A2 and M2 – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.
 $G = \sqrt{P^2 + W^2}$



Shank D	Point Length L ₁		Type & D SPX	Range P	Type & D SP_	Min. W	Max. P/G	L			
	Std.	Alt.						71	80	90	100
10	19	25	SPX 10	4.50 - 9.95	SP_10	4.50 - 9.95	•	•	•	•	
13	19	25	SPX 13	6.00 - 12.95	SP_13	6.00 - 12.95	•	•	•	•	
16	19	25	SPX 16	8.00 - 15.95	SP_16	7.20 - 15.95	•	•	•	•	
20	19	25	SPX 20	10.00 - 19.95	SP_20	8.00 - 19.95	•	•	•	•	
25	19	25	SPX 25	12.00 - 24.95	SP_25	9.00 - 24.95	•	•	•	•	
32	25	30	SPX 32	16.00 - 31.95	SP_32	10.00 - 31.95	•	•	•	•	

Tapped Dowel Ø 6 x 25 Included

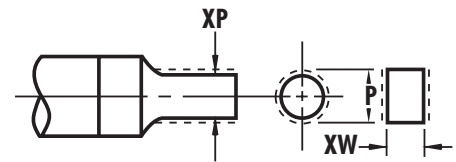
Standard Alterations for SP Center Dowel Punches

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

L ₁ Max. ▶	XBR							XBB	XBR							XBB						
	8	13	19	25	30	35	40	8	13	19	25	30	35	40	8	13	19	25	30	35	40	
D	Minimum P (Rounds)								Minimum W (Shapes)													
10	4.0	4.0	4.0	4.0	4.0	4.0	6.0	1.3	1.6	1.6	2.4	2.8	—	—								
13	—	4.0	4.0	4.0	4.0	4.0	6.0	1.6	1.6	1.6	2.4	—	—	—								
16	—	6.0	6.0	6.0	6.0	6.0	6.0	2.0	2.0	2.0	2.4	3.0	—	—								
20	—	6.0	6.0	6.0	7.6	7.6	7.6	3.0	3.0	3.0	3.0	4.0	4.0	—								
25	—	8.0	8.0	8.0	10.0	10.0	10.0	4.0	4.0	4.0	4.0	4.0	4.5	6.0								
32	—	10.0	10.0	10.0	10.0	10.0	10.0	—	4.0	4.0	4.0	4.0	4.5	6.0								

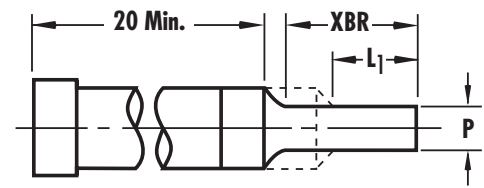
XP, XW

P & W dimensions smaller than standard



XBR

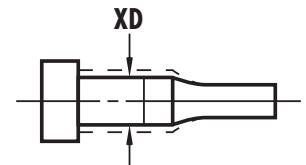
Pointh Length longer than standard
Specify XBR or XBB and length (see chart)



XD

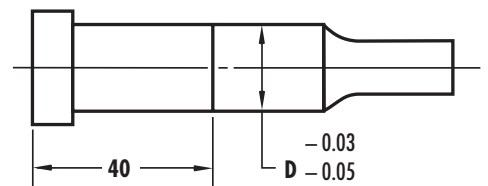
Reduced Shank Diameter
Head Diameter does not change with body diameter.

Shank Dia.	10.0	13.0	16.0	20.0	25.0	32.0	40.0	45.0	50.0	63.0
Min. XD	—	11.5	14.5	18.5	23.5	30.5	38.5	43.5	48.5	61.5



XLD

Alternate Lead Length
The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank trough the holder.



XN

DayTride®
a unique wear resistant surface treatment. For M2 only.

XNT

DAYTIN®
Titanium Nitride coating for extra wear. For M2 only.

XNM

An exclusive PVD solidlubricant coating.
It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2.

XCN

TICN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 only.

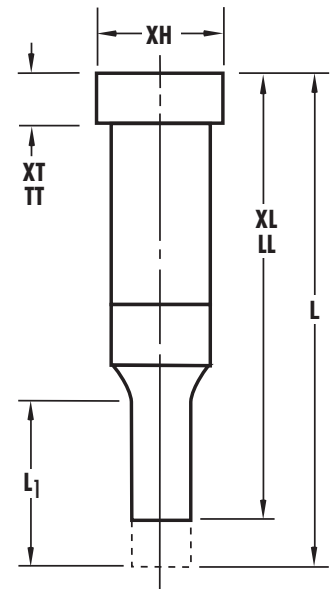
XL Overall Length shortened (25 min.)
Stock removal from point end which shortens point length. To maintain point length specify „XBR“.

LL Precision Overall Length
Same as XL except overall length is held ± 0.02 .

XT Head thinner than standard
Stock removal from head end which shortens overall length.

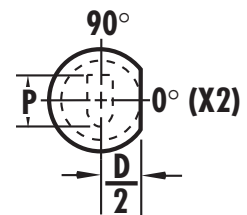
TT Precision Head Thickness
Same as XT except Head thickness tolerance is held to ± 0.01 .

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



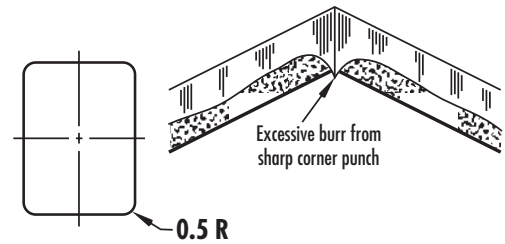
KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 6.4.1.



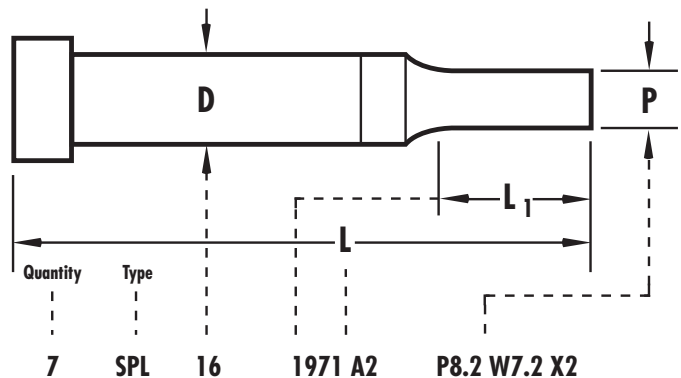
A new shape for Longer Life

DAYTON'S new standard shape with a constant corner radius of 0.5R puts the clearance where it's needed to prevent rapid wear and unacceptable burrs commonly generated with sharp corners. This reduces maintenance time and the risk of edge breaking during operation. The "L" Long Life punch will reduce maintenance costs while increasing production runs by reducing corner wear.



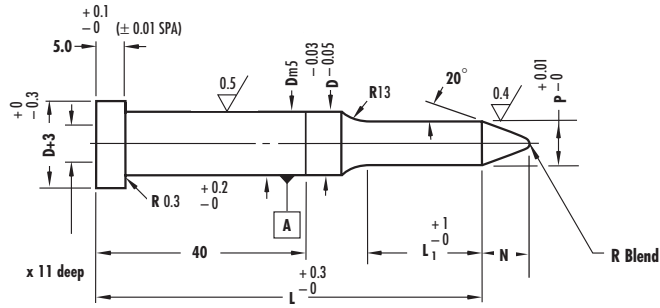
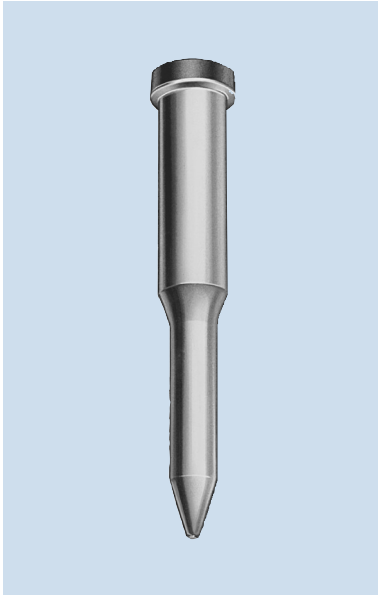
How to order:

Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
P or P&W Dimensions
Standard Alterations



REGULAR POSITIVE PICK-UP HEADED PILOTS TYPE APA

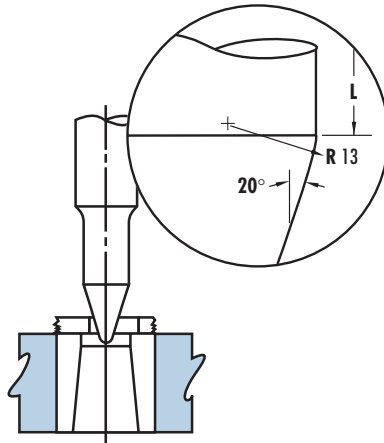
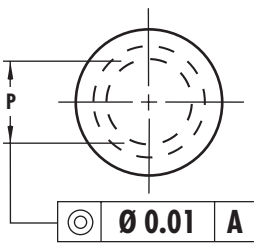
Material	HRC
M2 (HSS)	60-63
Head	40-55



Without center dowel, Regular

Steel: M2 – please specify when ordering

APA



Greater Positioning – move stock further than conventional pilots

Shank D	Point Length L ₁		Type & D APA	Range P	Nose Length N	L								
	Std.	Alt.				65	72	73	82	92	102	112	127	142
10	21	27	APA 10	4.85 - 10.00	8	•	•	•	•	•	•	•		
13	21	27	APA 13	6.30 - 13.00	10	•	•	•	•	•	•	•	•	
16	21	27	APA 16	9.95 - 16.00	15		•	•	•	•	•	•	•	•
20	21	27	APA 20	13.60 - 20.00	20		•	•	•	•	•	•	•	•
25	21	27	APA 25	17.25 - 25.00	25		•	•	•	•	•	•	•	•
32	27	32	APA 32	20.85 - 32.00	30			•	•	•	•	•	•	•

When P = D Shank tolerance applies to full length

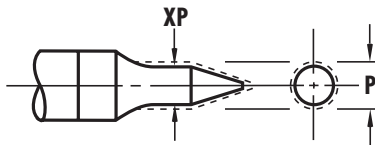
Standard Alterations for APA Positive Pick-Up Pilots

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

L ₁ Max.	APA	XBR					XBB	X3B		
		15	21	27	32	37	42	50	60	70
D	Minimum P									
04	1.55	1.55	1.85	2.45	—	—	—	—	—	—
05	1.55	1.55	1.85	2.45	—	—	—	—	—	—
06	1.55	1.55	1.95	2.45	2.95	—	—	—	—	—
08	1.55	1.55	2.35	2.45	3.15	5.95	—	—	—	—
10	1.55	1.55	2.45	3.15	3.15	5.95	5.95	5.95	7.95	—
13	3.15	3.15	3.15	3.15	3.95	5.95	5.95	5.95	7.95	—
16	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	7.95	—
20	5.95	5.95	5.95	7.55	7.55	7.55	7.55	7.55	7.95	—
25	7.95	7.95	7.95	9.95	9.95	9.95	9.95	9.95	9.95	—
32	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	—

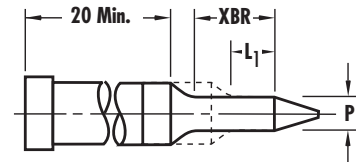
XP

P Smaller than Standard



XBR

Point Length longer than standard

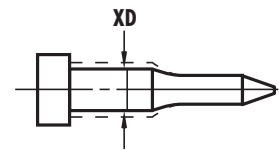


XD

Reduced Shank Diameter

Head Diameter does not change with body diameter.

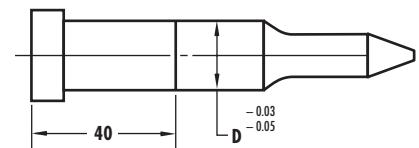
Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
Min. XD	—	3.5	4.5	6.5	8.5	11.5	14.5	18.5	23.5	30.5



XLD

Alternate Lead Length

The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank through the holder.



XNT

DAYTIN®

Titanium Nitride coating for extra wear. For M2 only.

XN

DayTride®

a unique wear resistant surface treatment. For M2 only.

XNM

An exclusive PVD solidlubricant coating.

It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2.

XCN

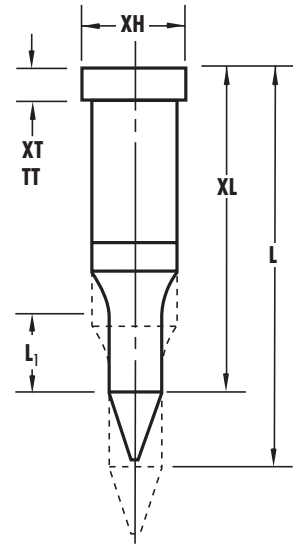
TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 only.

XL Overall Length shortened (25 min.)
Stock removal from point end standard L_1
length maintained on APA only.

XT Head thinner than standard
Stock removal from head end which
shortens overall length.

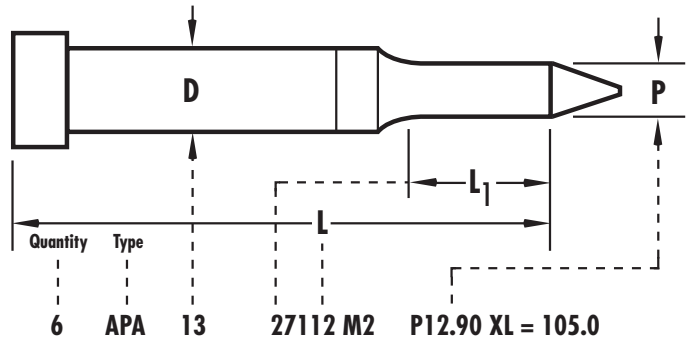
TT Precision Head Thickness
Same as XT except head thickness
tolerance is held to ± 0.01 .

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



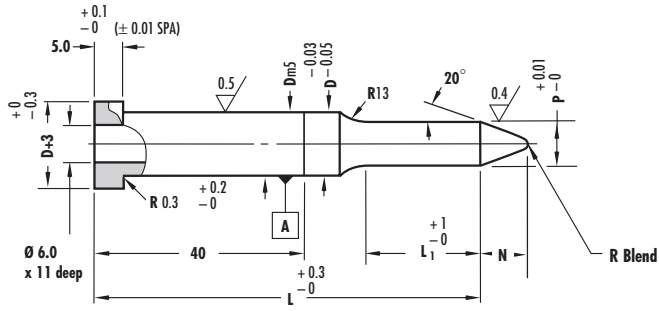
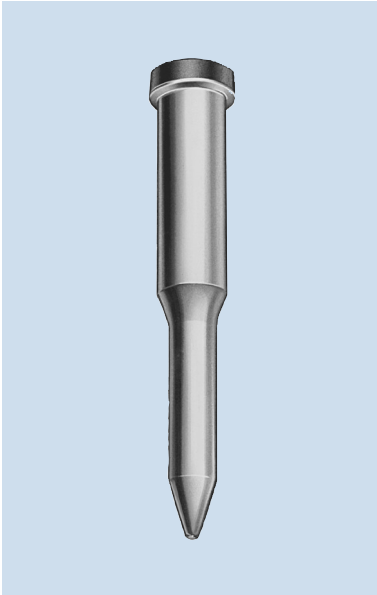
How to order:

- Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
P or P&W Dimensions
Standard Alterations



CENTER DOWEL POSITIVE PICK-UP HEADED PILOTS TYPE SPA

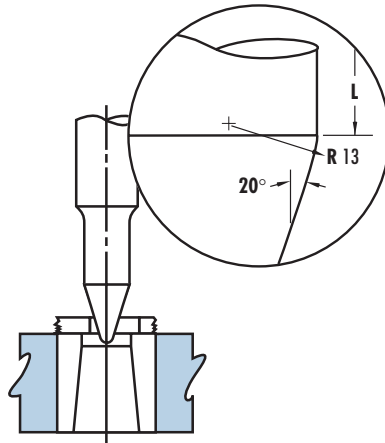
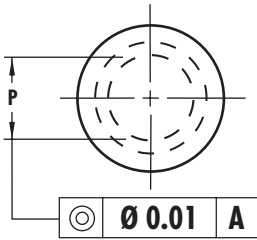
Material	HRC
M2 (HSS)	60-63
Head	40-55



With center dowel

Steel: M2 – please specify when ordering

SPA



Greater Positioning – move stock further than conventional pilots

Shank D	Point Length L ₁		Type & D SPA	Range P	Nose Length N	L								
	Std.	Alt.				65	72	73	82	92	102	112	127	142
10	21	27	SPA 10	4.85 - 10.00	8	•	•	•	•	•	•	•		
13	21	27	SPA 13	6.30 - 13.00	10	•	•	•	•	•	•	•	•	
16	21	27	SPA 16	9.95 - 16.00	15		•	•	•	•	•	•	•	•
20	21	27	SPA 20	13.60 - 20.00	20		•	•	•	•	•	•	•	•
25	21	27	SPA 25	17.25 - 25.00	25		•	•	•	•	•	•	•	•
32	27	32	SPA 32	20.85 - 32.00	30			•	•	•	•	•	•	•

When P = D Shank tolerance applies to full length

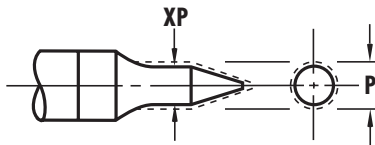
Standard Alterations for SPA Positive Pick-Up Pilots

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

L ₁ Max.	SPA	XBR					XBB	X3B		
		15	21	27	32	37	42	50	60	70
D	Minimum P									
04	1.55	1.55	1.85	2.45	—	—	—	—	—	—
05	1.55	1.55	1.85	2.45	—	—	—	—	—	—
06	1.55	1.55	1.95	2.45	2.95	—	—	—	—	—
08	1.55	1.55	2.35	2.45	3.15	5.95	—	—	—	—
10	1.55	1.55	2.45	3.15	3.15	5.95	5.95	5.95	7.95	—
13	3.15	3.15	3.15	3.15	3.95	5.95	5.95	5.95	7.95	—
16	5.95	5.95	5.95	5.95	5.95	5.95	5.95	5.95	7.95	—
20	5.95	5.95	5.95	7.55	7.55	7.55	7.55	7.55	7.95	—
25	7.95	7.95	7.95	9.95	9.95	9.95	9.95	9.95	9.95	—
32	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	9.95	—

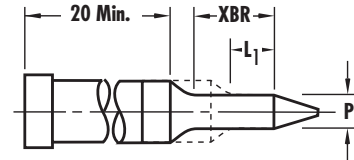
XP

P Smaller than Standard



XBR

Point Length longer than standard

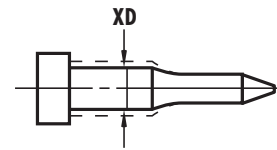


XD

Reduced Shank Diameter

Head Diameter does not change with body diameter.

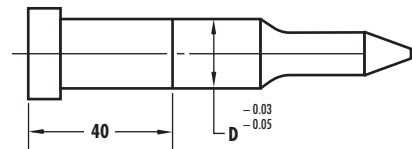
Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
Min. XD	—	3.5	4.5	6.5	8.5	11.5	14.5	18.5	23.5	30.5



XLD

Alternate Lead Length

The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank through the holder.



XNT

DAYTIN®

Titanium Nitride coating for extra wear. For M2 only.

XN

DayTride®

a unique wear resistant surface treatment. For M2 only.

XNM

An exclusive PVD solidlubricant coating.

It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2.

XCN

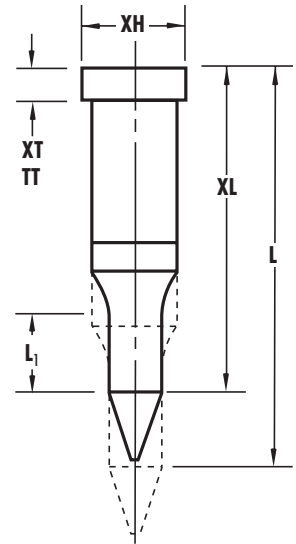
TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 only.

XL Overall Length shortened (25 min.)
Stock removal from point end standard L_1
length maintained on SPA only.

XT Head thinner than standard
Stock removal from head end which
shortens overall length.

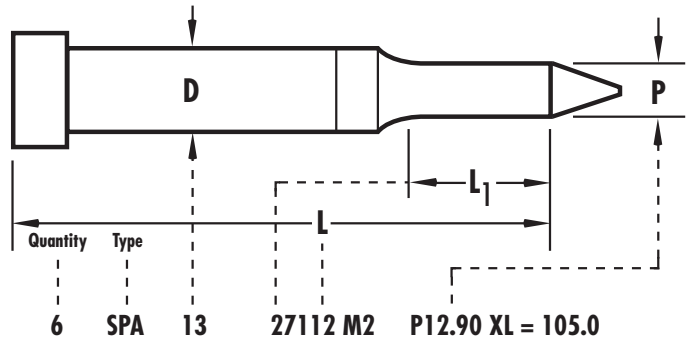
TT Precision Head Thickness
Same as XT except head thickness
tolerance is held to ± 0.01 .

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



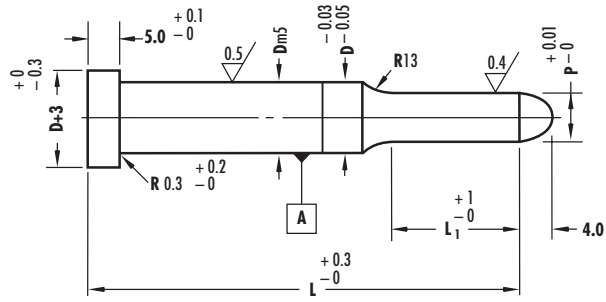
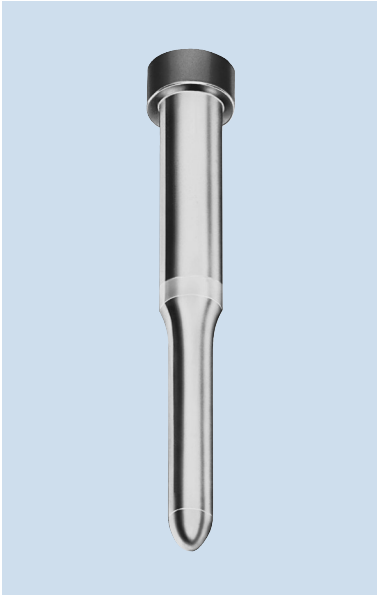
How to order:

- Specify: Quantity
- Type
- Shank Diameter
- Point & Overall Length
- Steel
- P Dimension
- Standard Alterations



HEADED PILOTS TYPE APT

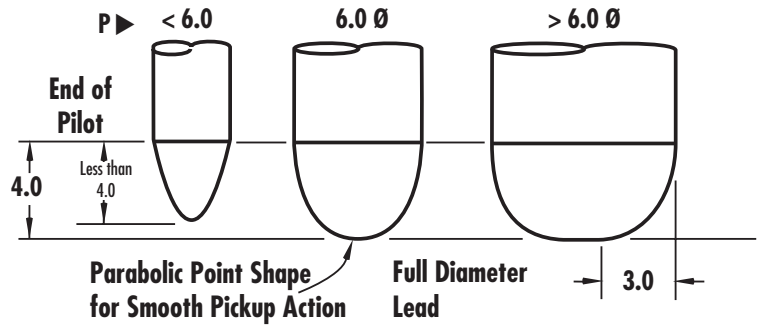
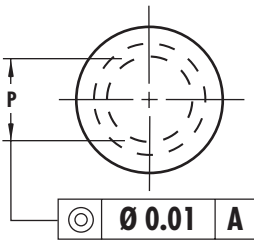
Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020

Steel: A2 (Standard), M2 and PS – please specify when ordering

APT



Shank D	Point Length L ₁		Type & D APT	Range P	L										
	Std.	Alt.			42	52	58	62	65	72	73	82	92	102	
04	21	27	APT 04	1.55 - 4.00	•	•	•	•	•	•	•	•			
05	21	27	APT 05	1.55 - 5.00	•	•	•	•	•	•	•	•			
06	21	27	APT 06	1.55 - 6.00	•	•	•	•	•	•	•	•	•	•	
08	21	27	APT 08	2.45 - 8.00		•	•	•	•	•	•	•	•	•	•
10	21	27	APT 10	3.15 - 10.00		•	•	•	•	•	•	•	•	•	•
13	27	32	APT 13	4.95 - 13.00		•	•	•	•	•	•	•	•	•	•
16	27	32	APT 16	7.95 - 16.00		•	•	•	•	•	•	•	•	•	•
20	27	32	APT 20	9.95 - 20.00			•	•	•	•	•	•	•	•	•
25	27	32	APT 25	11.95 - 25.00			•	•	•	•	•	•	•	•	•
32	27	32	APT 32	15.95 - 32.00				•	•	•	•	•	•	•	•

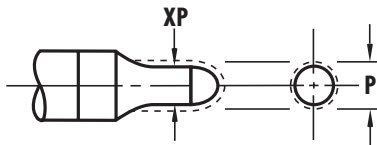
Standard Alterations for APT Pilots

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

L ₁ Max. ▶	APT	XBR					XBB
		15	21	27	32	37	42
D		Minimum P					
04		1.55	1.55	1.85	2.45	–	–
05		1.55	1.55	1.85	2.45	–	–
06		1.55	1.55	1.95	2.45	2.95	–
08		1.55	1.55	2.35	2.45	3.15	5.95
10		1.55	1.55	2.45	3.15	3.15	5.95
13		3.15	3.15	3.15	3.15	3.95	5.95
16		5.95	5.95	5.95	5.95	5.95	5.95
20		5.95	5.95	5.95	7.55	7.55	7.55
25		7.95	7.95	7.95	9.95	9.95	9.95
32		9.95	9.95	9.95	9.95	9.95	9.95

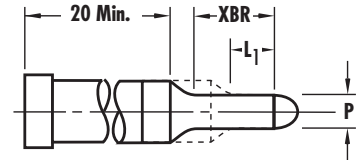
XP

P Smaller than Standard



XBR

Pointh Length longer than standard

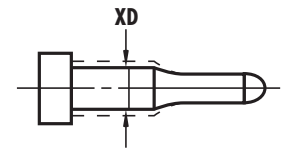


XD

Reduced Shank Diameter

Head Diameter does not change with body diameter.

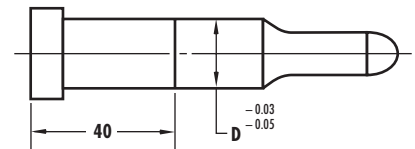
Shank Dia.	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
Min. XD	–	3.5	4.5	6.5	8.5	11.5	14.5	18.5	23.5	30.5



XLD

Alternate Lead Length

The XLD alteration fixes the punch shank length at 40 measured from the punch head. This eliminates pressing the entire shank through the holder.



XNT

DAYTIN®

Titanium Nitride coating for extra wear. For M2 and PS only.

XN

DayTride®

a unique wear resistant surface treatment. For M2 and PS only.

XNM

An exclusive PVD solidlubricant coating.

It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on M2 and PS.

XCN

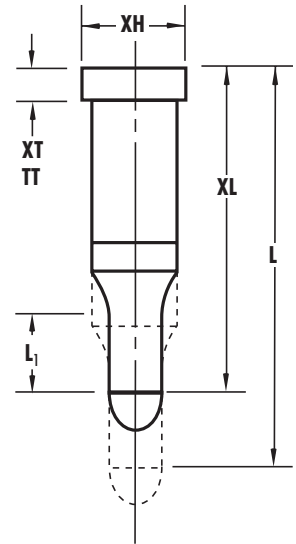
TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For M2 and PS only.

XL Overall Length shortened (25 min.)
Stock removal from point end standard L_1
length maintained on APA and SPA only.

XT Head thinner than standard
Stock removal from head end which
shortens overall length.

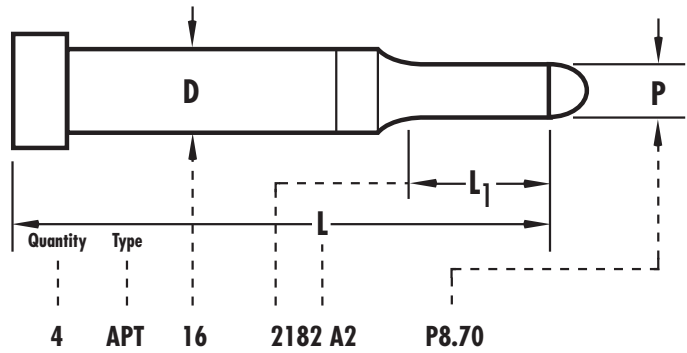
TT Precision Head Thickness
Same as XT except head thickness
tolerance is held to ± 0.01 .

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



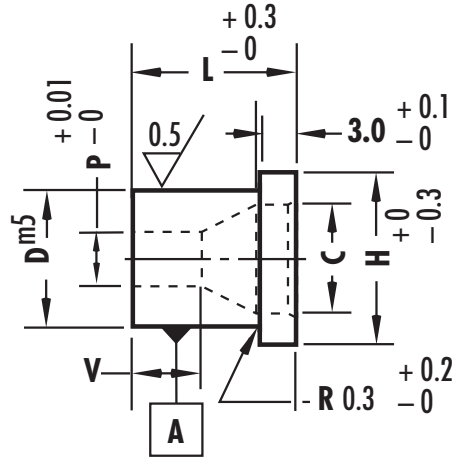
How to order:

Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
P Dimension
Standard Alterations



HEADED GUIDE BUSHINGS TYPE AE_

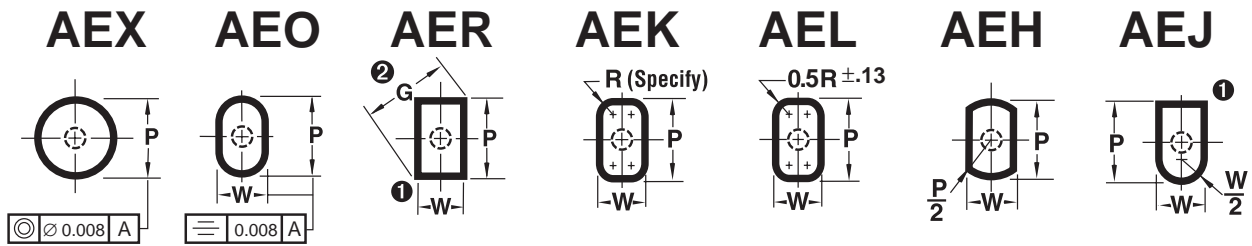
Material	HRC
A2 (HWS)	60-63
Head	40-55



P	V
0.800-1.700	2P
1.701-2.400	P + 1.7
2.401-3.200	0.82P + 2.1

Head up

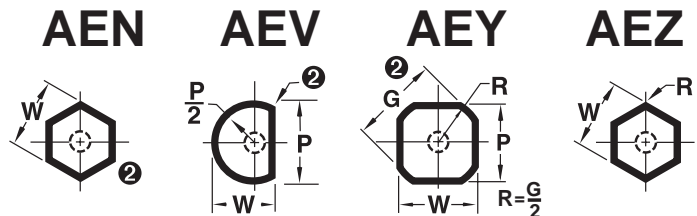
Steel: A2 – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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

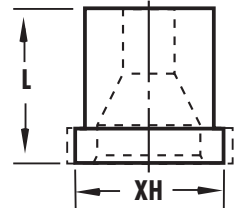


Type	Body		Round Range P	Shape		C' Bore Dia. C	L			
	D	H		Min. W	Max. P/G		8.0	10.0	13.0	16.0
AE_	5.0	8.0	1.60-3.20	1.30-3.20	3.6	•	•	•	•	
AE_	6.0	9.0	1.60-3.90	1.30-3.90	4.6		•	•	•	
AE_	8.0	11.0	2.40-5.40	1.30-5.40	6.6		•	•	•	
AE_	10.0	13.0	3.20-6.80	1.30-6.80	8.2		•	•	•	
AE_	13.0	16.0	5.40-8.80	1.90-8.80	11.4			•	•	
AE_	16.0	19.0	7.40-10.80	1.90-10.80	Full Taper				•	

Standard Alteration for AE_ Guide Bushings

XH

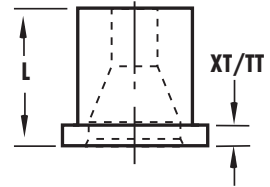
Reduced Head Diameter Minimum head diameter equals $D + 0.00, - 0.03$.



**XT,
TT**

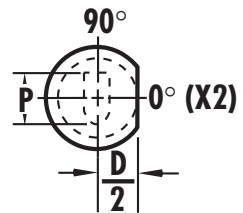
Thinner Head than standard Stock removal from head end which shortens overall length.

Precision Head Thickness Same as XT except head thickness tolerance is held to ± 0.01 .



KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 2.1.1 in the Die Buttons catalogue.

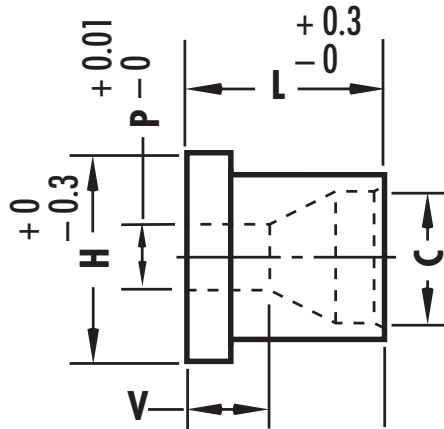


How to Order:

Specify: Quantity	4
Type	AEX
Shank & Length Codes	06 13
P or P&W Dimensions	P2.0
Standard Alterations	XH 7.0

HEADED GUIDE BUSHINGS TYPE AF_

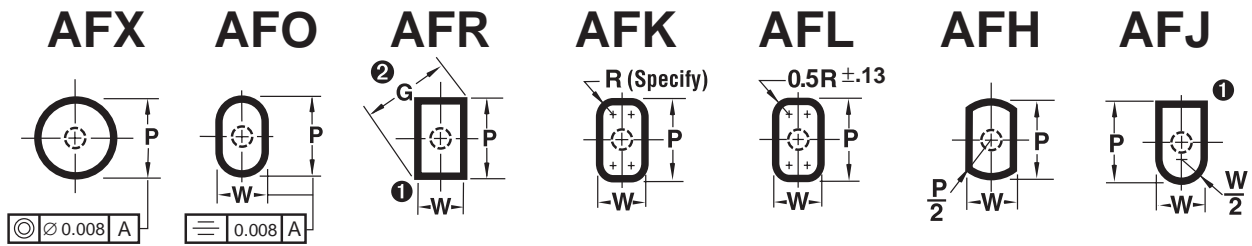
Material	HRC
A2 (HWS)	60-63
Head	40-55



P	V
0.800-1.700	2P
1.701-2.400	P + 1.7
2.401-3.200	0.82P + 2.1

Head down

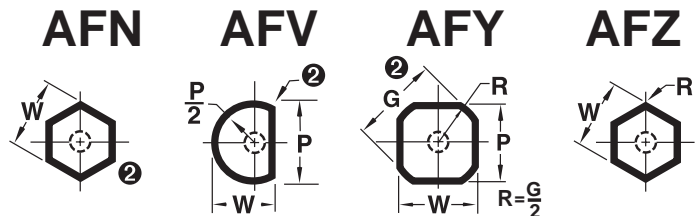
Steel: A2 – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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

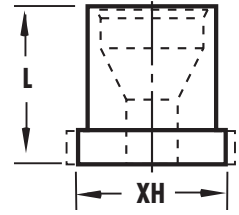


Type	Body		Round Range P	Shape		C' Bore Dia C	L			
	D	H		Min. W	Max. P/G		8.0	10.0	13.0	16.0
AF_	5.0	8.0	1.60-3.20	1.30-3.20	3.6	•	•	•		
AF_	6.0	9.0	1.60-3.90	1.30-3.90	4.6		•	•	•	
AF_	8.0	11.0	2.40-5.40	1.30-5.40	6.6		•	•	•	
AF_	10.0	13.0	3.20-6.80	1.30-6.80	8.2		•	•	•	
AF_	13.0	16.0	5.40-8.80	1.90-8.80	11.4			•	•	
AF_	16.0	19.0	7.40-10.80	1.90-10.80	Full Taper				•	

Standard Alteration for AF₋ Guide Bushings

XH

Reduced Head Diameter Minimum head diameter equals $D + 0.00, - 0.03$.

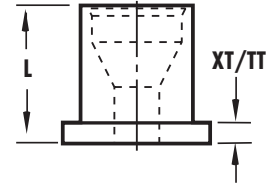


XT,

Thinner Head than standard Stock removal from head end which shortens overall length.

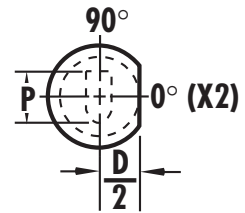
TT

Precision Head Thickness Same as XT except head thickness tolerance is held to ± 0.01 .



KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 2.1.1 in the Die Buttons catalogue.

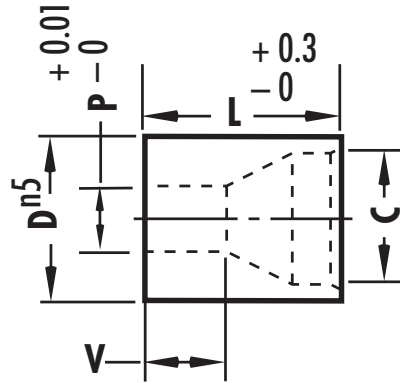


How to Order:

Specify: Quantity	2
Type	AFO
Shank & Length Codes	10 10
P or P&W Dimensions	P 3.5 W 2.9
Standard Alterations	XP 7.0

HEADLESS GUIDE BUSHINGS TYPE AG_

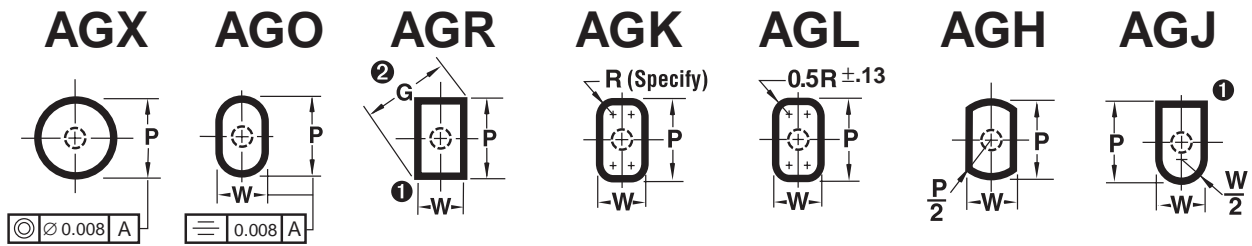
Material	HRC
A2 (HWS)	60-63
Head	40-55



P	V
0.800-1.700	2P
1.701-2.400	P + 1.7
2.401-3.200	0.82P + 2.1

Headless

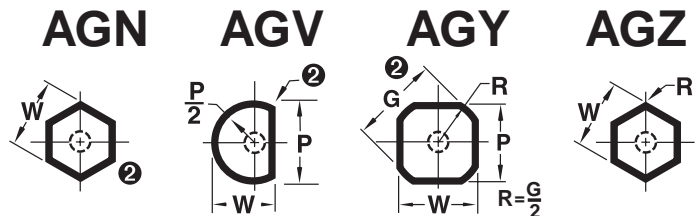
Steel: A2 – please specify when ordering



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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

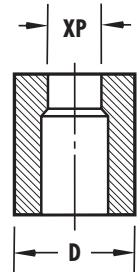


Type	Body D	Round Range P	Shape		C' Bore Dia. C	L			
			Min. W	Max. P/G		8.0	10.0	13.0	16.0
AG_	5.0	1.60-3.20	1.30-3.20		3.6	•	•	•	
AG_	6.0	1.60-3.90	1.30-3.90		4.6	•	•	•	•
AG_	8.0	2.40-5.40	1.30-5.40		6.6	•	•	•	•
AG_	10.0	3.20-6.80	1.30-6.80		8.2		•	•	•
AG_	13.0	5.40-8.80	1.90-8.80		11.4			•	•
AG_	16.0	7.40-10.80	1.90-10.80		Full Taper				•

Standard Alteration for **AG**_ Guide Bushings

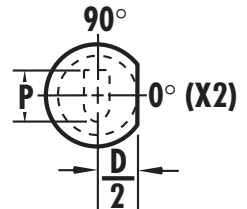
XP

P & W Dimensions Smaller than standard



KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 2.1.1 in the Die Buttons catalogue.

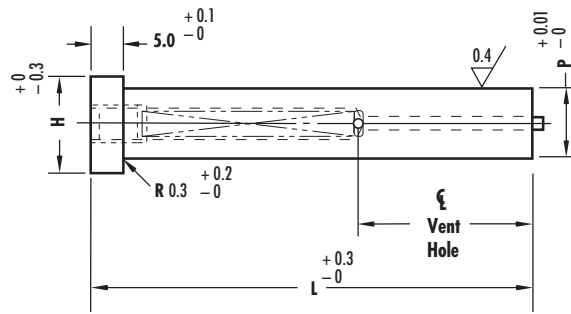


How to Order:

Specify:	Quantity	4
	Type	AGK
	Shank & Length Codes	16 16
	P or P&W Dimensions	P6.6 W6.1
	Standard Alterations	R1.0

JEKTOLE® STRAIGHT HEADED PUNCHES TYPE AYX

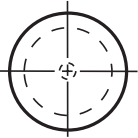
Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



Jektole® Shank Diameter 0.01 stepped.

Steel: **A2 (Standard) and M2 – please specify when ordering**

AYX



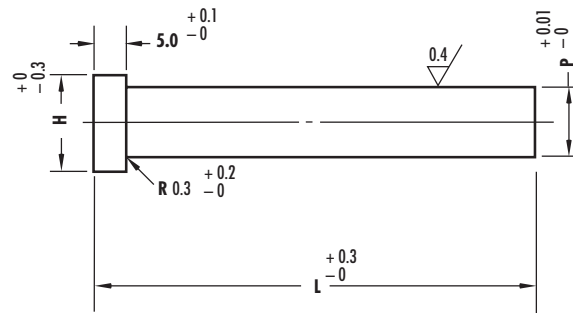
Type	Range P	H	ϕ Vent Hole	L							Jektole® Pin	
				50	56	60	63	70	71	80		90
AYX	5.00-6.00	9.0	14.0	•	•							J2M
AYX	6.01-8.00	11.0	21.3	•	•	•	•	•	•	•		J3M
AYX	8.01-10.00	13.0	22.5	•	•	•	•	•	•	•	•	J4M
AYX	10.01-13.00	16.0	22.5	•	•							J6M
AYX	10.01-13.00	16.0	27.9			•	•	•	•	•	•	J6M
AYX	13.01-16.00	19.0	22.5	•	•							J9M
AYX	13.01-16.00	19.0	27.9			•	•	•	•	•	•	J9M

How to order:

Specify:	Quantity	18
	Type	AYX
	L	63
	P	P7.0
	Steel	A2

REGULAR STRAIGHT HEADED PUNCHES TYPE AUX

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



Without Jektol® Shank Diameter 0.01 stepped.

Steel: A2 (Standard) and M2 – please specify when ordering

AUX



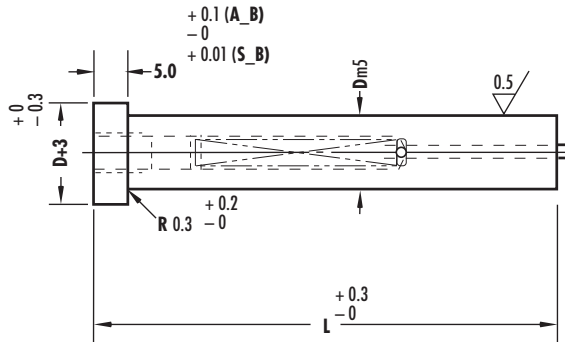
Type	Range P	H	L									
			50	56	60	63	70	71	80	90	100	
AUX	3.00-4.00	7.0	•	•	•	•	•	•	•	•	•	•
AUX	4.01-5.00	8.0	•	•	•	•	•	•	•	•	•	•
AUX	5.01-6.00	9.0	•	•	•	•	•	•	•	•	•	•
AUX	6.01-8.00	11.0	•	•	•	•	•	•	•	•	•	•
AUX	8.01-10.00	13.0	•	•	•	•	•	•	•	•	•	•
AUX	10.01-13.00	16.0	•	•	•	•	•	•	•	•	•	•
AUX	13.01-16.00	19.0	•	•	•	•	•	•	•	•	•	•

How to order:

Specify:	Quantity	18
	Type	AUX
	L	63
	P	P7.0
	Steel	A2

JEKTOLE® PUNCH BLANKS TYPE AJB

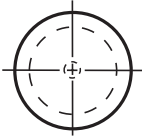
Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020, Jektole®

Steel: A2 (Standard), M2 and PS – please specify when ordering

AJB



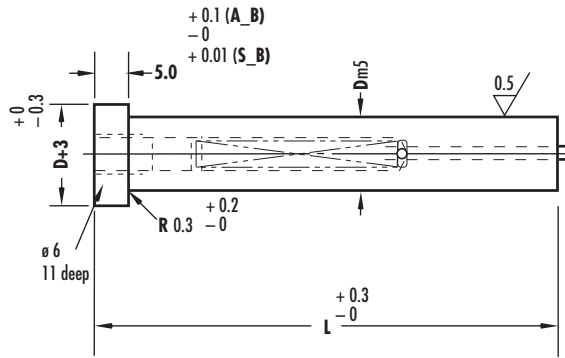
Shank D	Cat. No. AJB	L										Jektole® Pin	
		40	50	56	60	63	70	71	80	90	100		
04	—	•	•	•	•	•	•	•	•				—
05	AJB 05	•	•	•	•	•	•	•	•				J2M
06	AJB 06	•	•	•	•	•	•	•	•	•	•		J3M
08	AJB 08		•	•	•	•	•	•	•	•	•	•	J4M
10	AJB 10		•	•	•	•	•	•	•	•	•	•	J6M
13	AJB 13		•	•	•	•	•	•	•	•	•	•	J6M
16	AJB 16		•	•	•	•	•	•	•	•	•	•	J9M
20	AJB 20			•	•	•	•	•	•	•	•	•	J9M
25	AJB 25			•	•	•	•	•	•	•	•	•	J9M
32	AJB 32				•	•	•	•	•	•	•	•	J12M

How to order:

Specify:	Quantity	10
	Type	AJB
	L	80
	D	13
	Steel	M2

JEKTOLE® CENTER DOWEL HEADED PUNCH BLANKS TYPE SJB

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020, Jektol®, with Center Dowel

Steel: A2 (Standard), M2 and PS – please specify when ordering

SJB



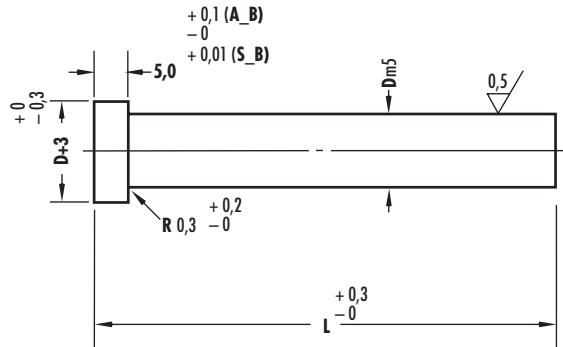
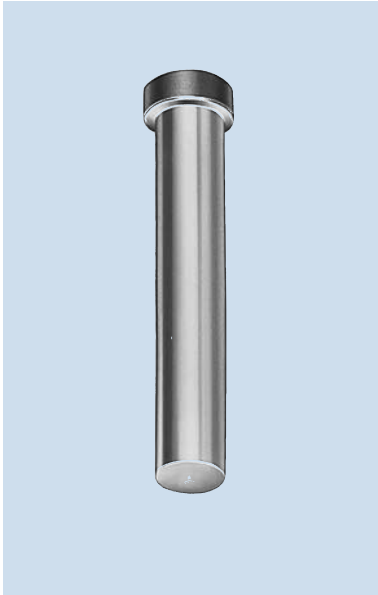
Shank D	Cat. No. SJB	L				Jektol® Pin
		71	80	90	100	
10	SJB 10	•	•	•	•	J6M
13	SJB 13	•	•	•	•	J6M
16	SJB 16	•	•	•	•	J9M
20	SJB 20	•	•	•	•	J9M
25	SJB 25	•	•	•	•	J9M
32	SJB 32	•	•	•	•	J9M

How to order:

Specify:	Quantity	10
	Type	SJB
	L	80
	D	13
	Steel	PS

REGULAR HEADED PUNCH BLANKS TYPE APB

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020, Regular

Steel: A2 (Standard), M2 and PS – please specify when ordering

APB



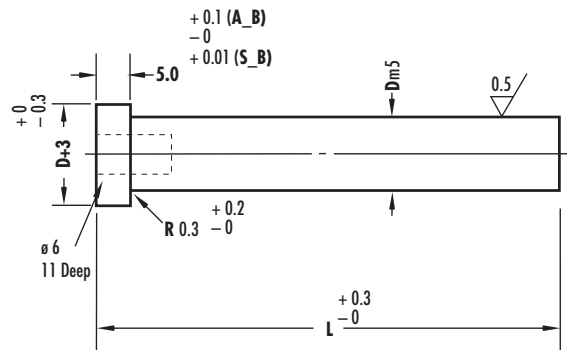
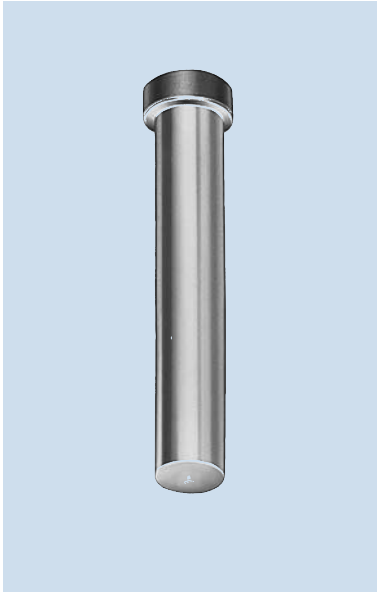
Shank D	Cat. No. APB	L										
		40	50	56	60	63	70	71	80	90	100	
04	APB 04	•	•	•	•	•	•	•	•	•		
05	APB 05	•	•	•	•	•	•	•	•	•		
06	APB 06	•	•	•	•	•	•	•	•	•	•	•
08	APB 08		•	•	•	•	•	•	•	•	•	•
10	APB 10		•	•	•	•	•	•	•	•	•	•
13	APB 13		•	•	•	•	•	•	•	•	•	•
16	APB 16		•	•	•	•	•	•	•	•	•	•
20	APB 20			•	•	•	•	•	•	•	•	•
25	APB 25			•	•	•	•	•	•	•	•	•
32	APB 32				•	•	•	•	•	•	•	•

How to order:

Specify:	Quantity	10
	Type	APB
	L	80
	D	13
	Steel	A2

REGULAR CENTER DOWEL HEADED PUNCH BLANKS TYPE SPB

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
PS (PS4)	63-65
Head	40-55



ISO 8020, Regular, with Center Dowel

Steel: A2 (Standard), M2 and PS – please specify when ordering

SPB



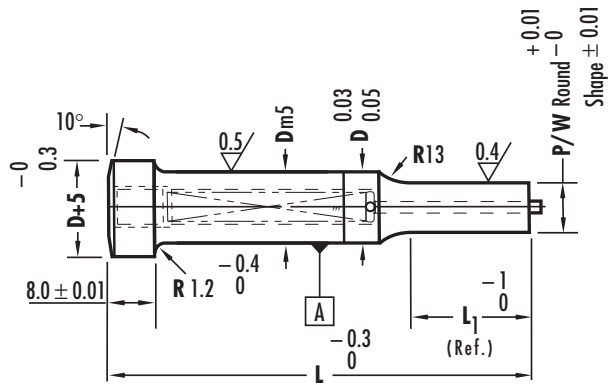
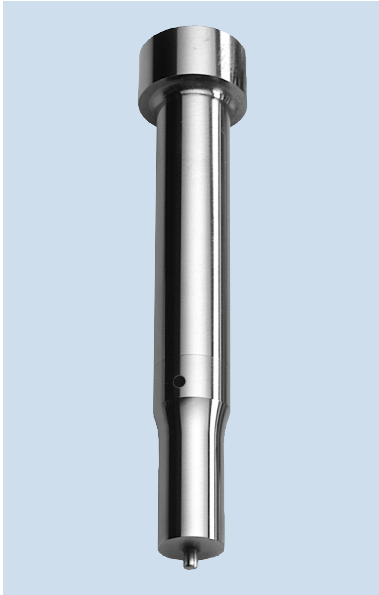
Shank D	Cat. No. SPB	L			
		71	80	90	100
10	SPB 10	•	•	•	•
13	SPB 13	•	•	•	•
16	SPB 16	•	•	•	•
20	SPB 20	•	•	•	•
25	SPB 25	•	•	•	•
32	SPB 32	•	•	•	•

How to order:

Specify:	Quantity	10
	Type	SPB
	L	80
	D	13
	Steel	M2

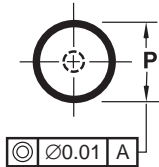
TUFF PUNCH™ HEAVY DUTY HEADED PUNCH TYPE AJ_F JEKTOLE®

Material	HRC
PS (PS4)	63-65
Head	40-55

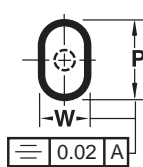


Material Steel: PS

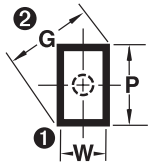
AJXF



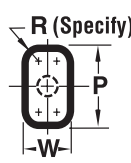
AJOF



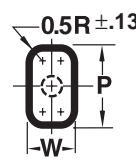
AJRF



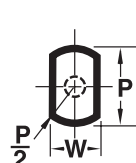
AJKF



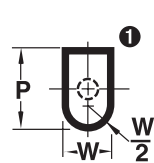
AJLF



AJHF



AJJF



1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

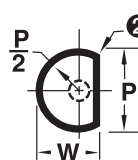
2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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

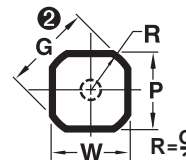
AJNF



AJVF



AJYF



AJZF



How to order

6	AJXF	16	1980	P8.3
12	AJRF	16	2580	P8.5. W8.0
10	AJLF	16	1990	P8.2. W7.2
Qty.	Type	D Code	L	P (or P&W) Dimension

How to order: AJXF 16 1980 PS P8.3

Surface Treatments See page 4.6.5.

Standard Alterations See page 4.6.3 for additional ordering instructions.

Shank D	Point Length L ₁		Type & D	Range	Type & D	Min. W	Max. P/G	L						Jektol® Group
	Std.	Alt.						AJXF	P	AJ_F	50	60	70	
08	13	19	AJXF 08	4.00 - 7.99	AJ_F 08	4.00 - 8.00		•	•	•	•	•	•	J4M
10	13	19	AJXF 10	5.00 - 9.99	AJ_F 10	5.00-10.00		•	•	•	•	•	•	J6M
13	13	19	AJXF 13	6.00 - 12.99	AJ_F 13	6.00-13.00		•	•	•	•	•	•	J6M
16	19	25	AJXF 16	10.00 - 15.99	AJ_F 16	6.00-16.00		•	•	•	•	•	•	J9M
20	19	25	AJXF 20	13.00 - 19.99	AJ_F 20	6.00-20.00		•	•	•	•	•	•	J9M
25	19	25	AJXF 25	18.00 - 24.99	AJ_F 25	6.00-25.00		•	•	•	•	•	•	J9M

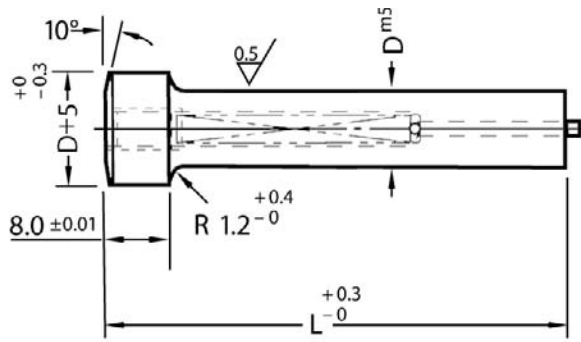
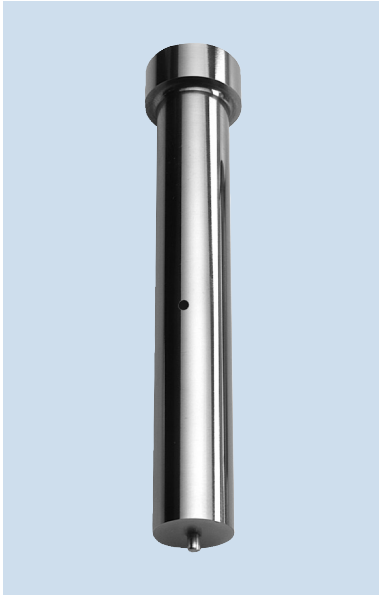
When L=50, L₁ is 8.0

Alternate point length not available



TUFF PUNCH™ HEAVY DUTY STRAIGHT HEADED PUNCH TYPE AJBF JEKTOLE®

Material	HRC
PS (PS4)	63-65
Head	40-55



Jektol[®] side hole position allows alternate point lengths shown on AJ_F above.

Material
Steel: PS

AJBF



How to order			
9	AJBF	20	80
Qty.	Type	D Code	L

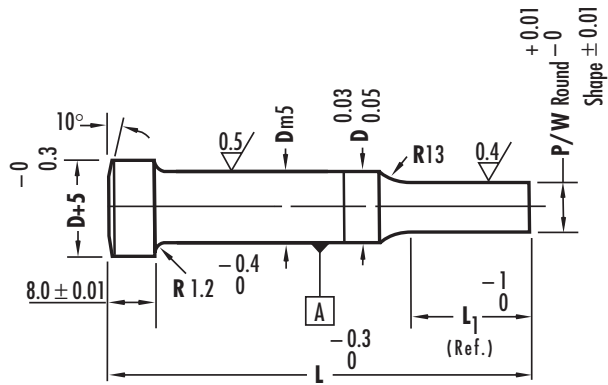
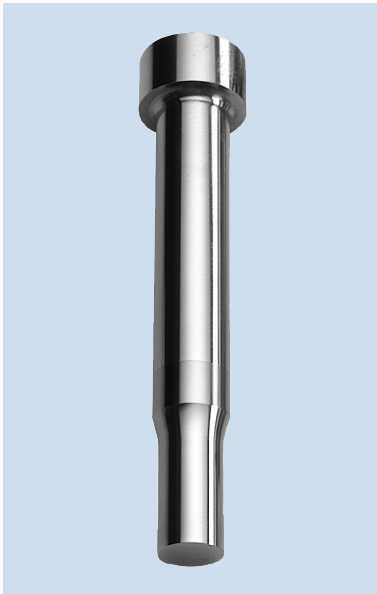
Standard Alterations
See page 4.6.3 for additional ordering instructions.

Shank D	Catalog Number	L						Jektol [®] Group
		50	60	70	80	90	100	
08	AJBF 08	•	•	•	•	•	•	J4M
10	AJBF 10	•	•	•	•	•	•	J6M
13	AJBF 13	•	•	•	•	•	•	J6M
16	AJBF 16	•	•	•	•	•	•	J9M
20	AJBF 20		•	•	•	•	•	J9M
25	AJBF 25		•	•	•	•	•	J9M



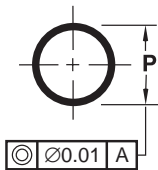
TUFF PUNCH™ REGULAR HEAVY DUTY HEADED PUNCH TYPE AP_F

Material	HRC
PS (PS4)	63-65
Head	40-55

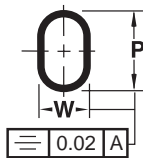


Material Steel: PS

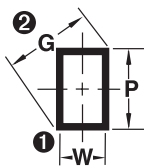
APXF



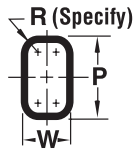
APOF



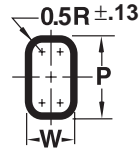
APRF



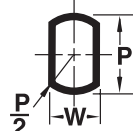
APKF



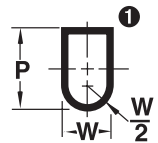
APLF



APHF



APJF

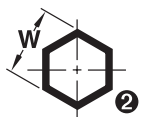


1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

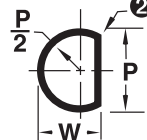
2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown.

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

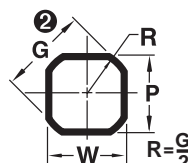
APNF



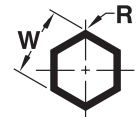
APVF



APYF



APZF



How to order

6	APXF	16	1980	P8.3
12	APRF	16	2580	P8.5. W8.0
10	APLF	16	1970	P8.2. W7.2
Qty.	Type	D Code	L	P (or P&W) Dimension

How to order: AJXF 16 1980 PS P8.3

Surface Treatments See page 4.6.5.

Standard Alterations See page 4.6.3 for additional ordering instructions.

Shank D	Point Length L ₁		Type & D APXF	Range P	Type & D AJ_F	Min. W	Max. P/G	L					
	Std.	Alt.						50	60	70	80	90	100
08	13	19	APXF 08	3.00 - 7.99	AP_F 08	3.00 - 8.00	•	•	•	•	•	•	
10	13	19	APXF 10	3.00 - 9.99	AP_F 10	3.00-10.00	•	•	•	•	•	•	
13	13	19	APXF 13	6.00 - 12.99	AP_F 13	3.00-13.00	•	•	•	•	•	•	
16	19	25	APXF 16	10.00 - 15.99	AP_F 16	4.00-16.00	•	•	•	•	•	•	
20	19	25	APXF 20	13.00 - 19.99	AP_F 20	5.00-20.00	•	•	•	•	•	•	
25	19	25	APXF 25	18.00 - 24.99	AP_F 25	6.00-25.00	•	•	•	•	•	•	

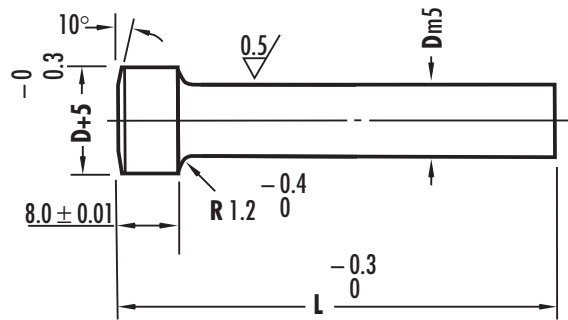
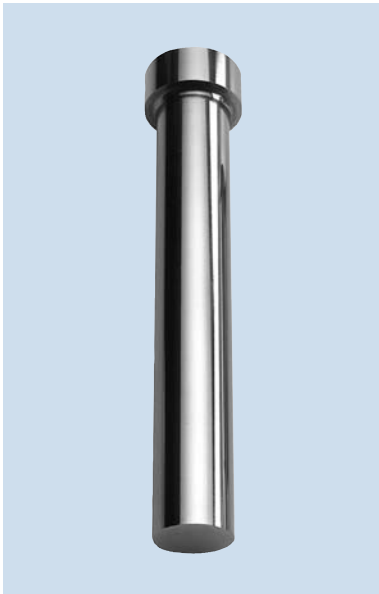
When L=50, L₁ is 8.0

Alternate point length not available



TUFF PUNCH™ REGULAR HEAVY DUTY STRAIGHT HEADED PUNCH TYPE APBF

Material	HRC
PS (PS4)	63-65
Head	40-55



Material
Steel: PS

APBF



Shank D	Catalog Number	L					
		50	60	70	80	90	100
08	APBF 08	•	•	•	•	•	•
10	APBF 10	•	•	•	•	•	•
13	APBF 13	•	•	•	•	•	•
16	APBF 16	•	•	•	•	•	•
20	APBF 20		•	•	•	•	•
25	APBF 25		•	•	•	•	•

How to order: APBF 20 80

Standard Alterations

See page 4.6.3 for additional ordering instructions.



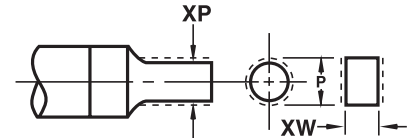
Standard Alterations for Jektole[®], Regular and Punch Blanks Heavy Duty

L ₁ Max.		8	13	19	25	30	35	40	Jektole [®]
D Code	Typee	Minimum P (Rounds)							Group
08	AJXF	3.0	3.0	3.0	4.0	5.0	—	—	J4M
	APXF	1.5	1.5	1.5	2.0	2.0	2.0	4.0	
10	AJXF	4.0	4.0	4.0	4.0	5.0	5.0	—	J6M
	APXF	1.5	1.5	1.5	2.0	2.0	2.0	4.0	
13	AJXF	4.0	4.0	4.0	4.0	5.0	5.0	—	J6M
	APXF	3.0	3.0	3.0	3.0	3.0	3.0	4.0	
16	AJXF	6.0	6.0	6.0	6.0	6.0	6.0	—	J9M
	APXF	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
20	AJXF	6.0	6.0	6.0	6.0	6.0	6.0	—	J9M
	APXF	6.0	6.0	6.0	6.0	6.5	6.5	6.5	
25	AJXF	8.0	8.0	8.0	8.0	8.0	8.0	—	J9M
	APXF	8.0	8.0	8.0	8.0	9.0	9.0	9.0	

L ₁ Max.		8	13	19	25	30	35	40	Jektole [®]
D Code	Typee	Minimum W (Shapes)							Group
08	AJ_F	3.0	3.0	3.0	4.0	4.0	—	—	J4M
	AP_F	1.5	1.5	3.0	3.0	4.0	5.0	—	
10	AJ_F	4.0	4.0	4.0	4.0	4.0	5.0	—	J6M
	AP_F	1.25	1.5	3.0	3.0	4.0	5.0	—	
13	AJ_F	4.0	4.0	4.0	4.0	4.0	5.0	—	J6M
	AP_F	1.5	1.5	3.0	3.0	4.0	5.0	—	
16	AJ_F	6.0	6.0	6.0	6.0	6.0	6.0	—	J9M
	AP_F	2.0	2.0	3.0	3.5	5.0	6.0	—	
20	AJ_F	6.0	6.0	6.0	6.0	6.0	6.0	—	J9M
	AP_F	2.5	2.5	3.0	3.5	5.0	6.0	—	
25	AJ_F	6.0	6.0	6.0	6.0	6.0	6.0	—	J9M
	AP_F	3.0	3.0	3.0	3.5	5.0	6.0	—	

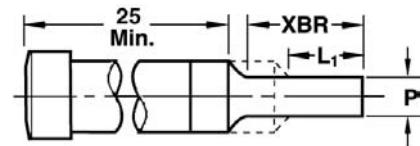
XP, XW

P & W Dimensions
Smaller than Standard



XBR

(Straight before Radius)
It is recommend that point length be kept as short as possible for optimum strength.



XL

Overall Length shortened (25 min.)
Stock removal from point end which shortens L₁ length.

XK

No side hole
For air ejection. No cost.

LL

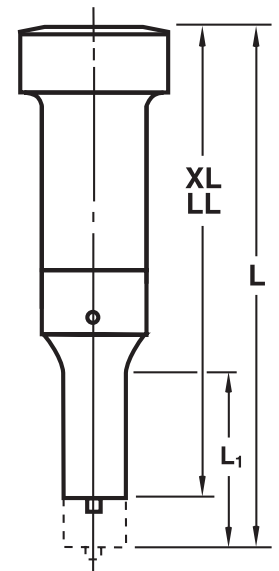
Precision Overall Length
Same as XL except overall length is held to ± 0.02.

XJ

Smaller Jektole[®] Components

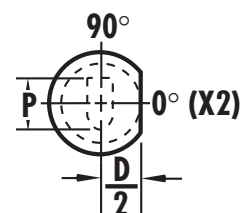
XS

Shear angles
See information at right.



KEY FLATS

The standard location for a key flat is parallel to the P dimension.
For additional information see page 6.4.1.



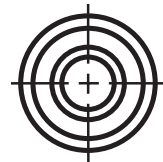
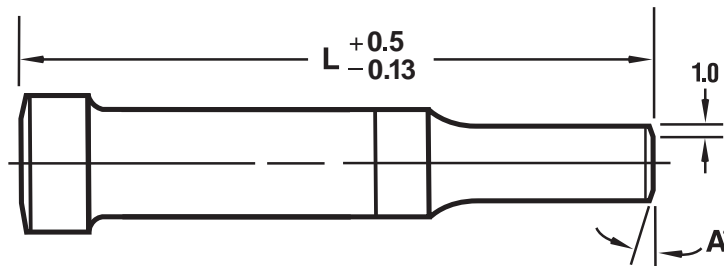
Standard Alteration Shear Angles XS Heavy Duty

TuffPunch® products are available in common shear angle configurations for all standard shapes. Shear angles are also available for classified shapes as special orders. Shear angles are available in any angle. Specify angle in whole degrees. If half degree is necessary, specify as a decimal, e.g., 8.5°. (Tolerance on all angles is ±15 minutes.) Use the chart below to determine the product designation, then simply add the alteration code shown next to the drawings, along with the angle desired. Example: APXF 16-90-80 P8.3 XS20 A5°.

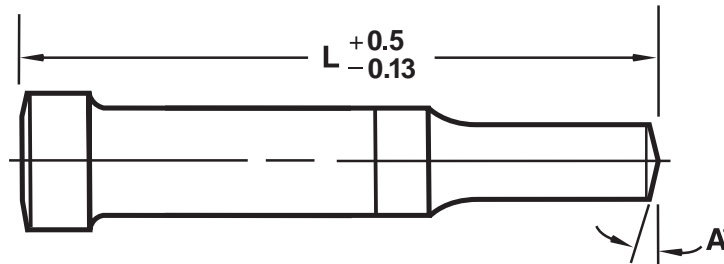
For round punches only

Views are reflected view

XS20
Chamfer

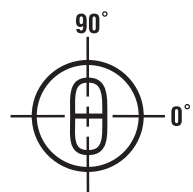
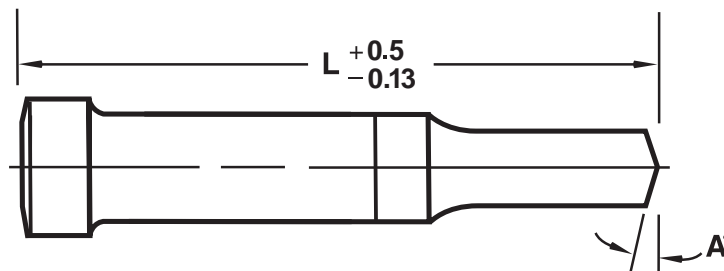


XS21
Conical

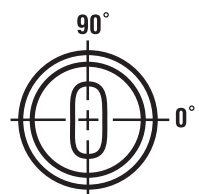
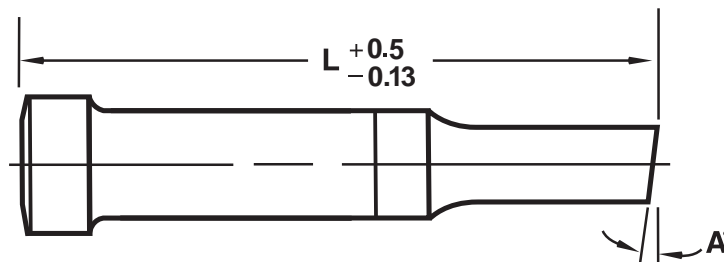


For round and shape punches

XS22
Double Shear



XS23
Single Shear



PRODUCT APPLICATION

Dayton® Progress Press Fit Heavy Duty Punches and Punch Blanks are commercial quality products manufactured with thicker, larger, and 10° angled diameter heads, and are designed to reduce punch load and significantly lower failure rates when using heavy gauge and high tensile material. Press Fit Heavy Duty products are well-suited for high-demand industries where frequency and heavier-than-normal impact punching activity occurs and where optimum performance is required.

Dayton's® Press Fit Heavy Duty product line includes: Dayton® Jektol® Punches; Regular Punches; and Punch Blanks. Both standard sizes and standard alterations are shown in this catalog.

UNIQUE HEAD DESIGN

All Dayton® PressFit Heavy Duty products are designed with a 10° angled head with a diameter equal to the shank diameter. This design allows the perforating forces to travel up from the shank and completely through the head. This eliminates the lateral shock waves that would otherwise put stress on the outer edge of the head, resulting in frequent failures – especially in heavy-duty applications.

In addition, Dayton® Press Fit Heavy Duty products are available in common shear angle configurations to reduce punch load and minimize the risk of slug pulling. Shear angle configurations include: chamfer; conical; double shear; and single shear. For more information, see "Standard Alterations" on p. 4.6.3.

CRYOGENIC TREATMENT STANDARD

DayKool™ (XCR) – a cryogenic steel conditioning process used primarily with hard, thick materials to improve strength, toughness, and dimensional stability – is standard on all Dayton Press Fit Heavy Duty products. The DayKool™ process utilizes a liquid nitrogen vapor to cool the steel to -184° C, which creates metallurgical changes in the structure that disperse carbides throughout the metal. The result: increased wear resistance (finely dispersed carbides provide more evenly distributed wear); less sharpening time; no loss of resistance after sharpening; longer die runs; and less downtime.

SURFACE TREATMENTS

XNT DAYTIN®
Titanium Nitride coating for extra wear. For PS only.

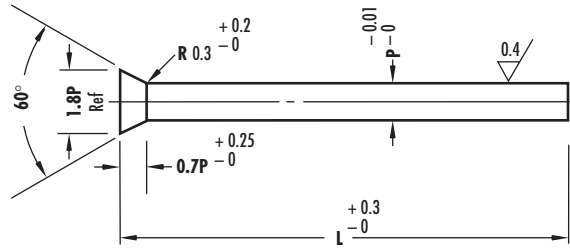
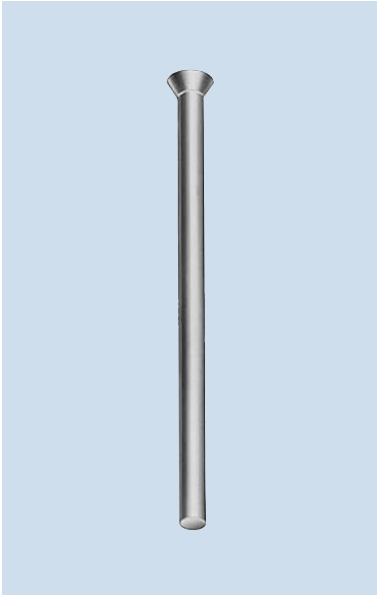
XN DayTride®
a unique wear resistant surface treatment.
For PS only.

XNM An exclusive PVD solidlubricant coating.
It provides a combination of lubricity and wear resistance not available from other PVD or CVD techniques. Produces a coefficient of friction lower than other coatings. Available on PS.

XCN TiCN® PVD coating provides ultra hardness (harder than carbide) and superior abrasive wear resistance. For PS only.

CLOSE SPACE PUNCHES TYPE AWX

Material	HRC
M2 (HSS)	60-63
Head	40-55



Only M2

Steel: M2 – please specify when ordering

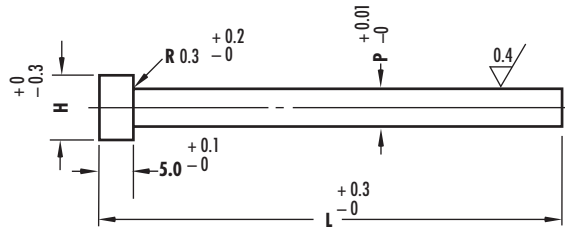
Range P	L										
	40	45	50	56	60	63	70	71	80	90	100
0.80-1.60	•	•	•	•	•	•	•	•	•	•	•
1.61-2.00	•	•	•	•	•	•	•	•	•	•	•
2.01-3.00	•	•	•	•	•	•	•	•	•	•	•
3.01-4.00	•	•	•	•	•	•	•	•	•	•	•
4.01-5.00	•	•	•	•	•	•	•	•	•	•	•
5.01-6.00	•	•	•	•	•	•	•	•	•	•	•
6.01-7.00	•	•	•	•	•	•	•	•	•	•	•

How to order:

Specify:	Quantity	10
	Type	AWX
	L	71
	P	P2.5
	Steel	M2

CLOSE SPACE PUNCHES TYPE AXX

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



Steel: A2 and M2 – please specify when ordering

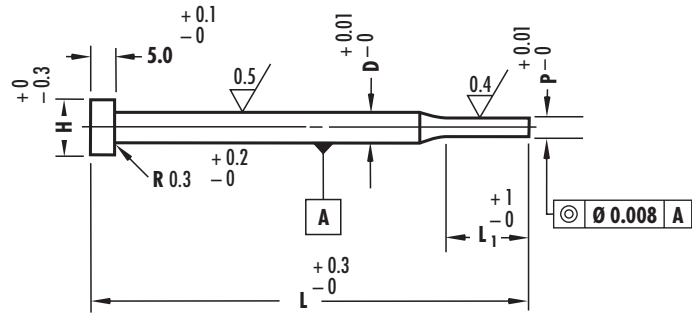
Range P	L											AXX H	
	40	45	50	56	60	63	70	71	80	90	100		
0.80-1.60	•	•	•	•	•	•	•	•	•	•	•	•	3
1.61-2.00	•	•	•	•	•	•	•	•	•	•	•	•	4
2.01-3.00	•	•	•	•	•	•	•	•	•	•	•	•	5
3.01-4.00	•	•	•	•	•	•	•	•	•	•	•	•	6
4.01-5.00	•	•	•	•	•	•	•	•	•	•	•	•	7
5.01-6.00	•	•	•	•	•	•	•	•	•	•	•	•	8
6.01-7.00	•	•	•	•	•	•	•	•	•	•	•	•	9

How to order:

Specify:	Quantity	25
	Type	AXX
	L	80
	P	P3.5
	Steel	M2

CLOSE SPACE PUNCHES TYPE ACX

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



Pointed Punches. Only A2 or M2.

Steel: A2 and M2 – please specify when ordering

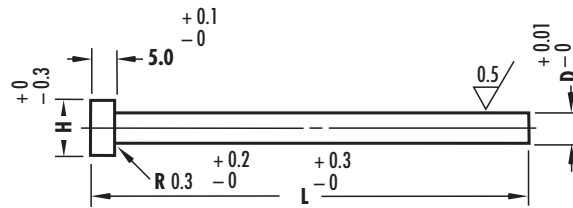
Type	Body Ø D	Head Dia. H	Point Length L1	ACX Range P	L											
					40	45	50	56	60	63	70	71	80	90	100	
ACX	2.0	4.0	5.0	0.81-2.00	•	•	•	•	•	•	•	•	•	•	•	•
ACX	3.0	5.0	7.0	2.01-3.00	•	•	•	•	•	•	•	•	•	•	•	•
ACX	4.0	6.0	8.0	2.01-3.00	•	•	•	•	•	•	•	•	•	•	•	•
ACX	5.0	7.0	8.0	4.01-5.00	•	•	•	•	•	•	•	•	•	•	•	•
ACX	6.0	8.0	8.0	5.01-6.00	•	•	•	•	•	•	•	•	•	•	•	•
ACX	7.0	9.0	8.0	6.01-7.00	•	•	•	•	•	•	•	•	•	•	•	•

How to order:

Specify:	Quantity	25
	Type	ACX
	D	5.0
	L	70
	P	P3.5
	Steel	M2

CLOSE SPACE PUNCHES TYPE ACB

Material	HRC
A2 (HWS)	60-63
M2 (HSS)	60-63
Head	40-55



Punch Blanks. Only A2 or M2.

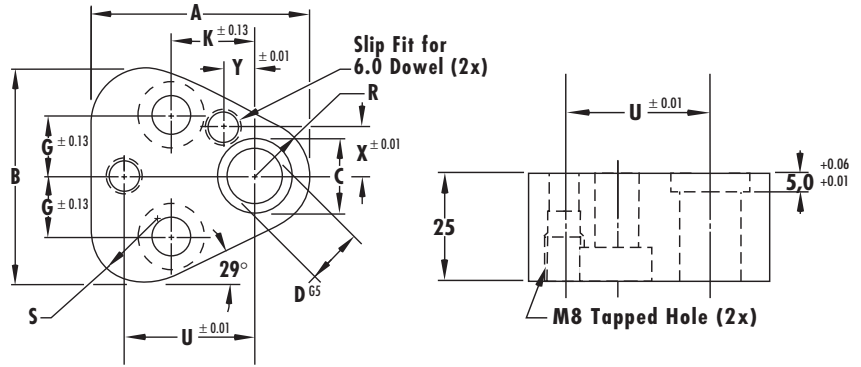
Steel: A2 and M2 – please specify when ordering

Type	Body Ø D	Head Dia. H	Point Length L1	L										
				40	45	50	56	60	63	70	71	80	90	100
ACB	2.0	4.0	5.0	•	•	•	•	•	•	•	•	•	•	•
ACB	3.0	5.0	7.0	•	•	•	•	•	•	•	•	•	•	•
ACB	4.0	6.0	8.0	•	•	•	•	•	•	•	•	•	•	•
ACB	5.0	7.0	8.0	•	•	•	•	•	•	•	•	•	•	•
ACB	6.0	8.0	8.0	•	•	•	•	•	•	•	•	•	•	•
ACB	7.0	9.0	8.0	•	•	•	•	•	•	•	•	•	•	•

How to order:

Specify:	Quantity	20
	Type	ACB
	L	56
	D	3.0
	Steel	M2

HEADED PUNCH RETAINERS TRUE LOCATION TYPE ART



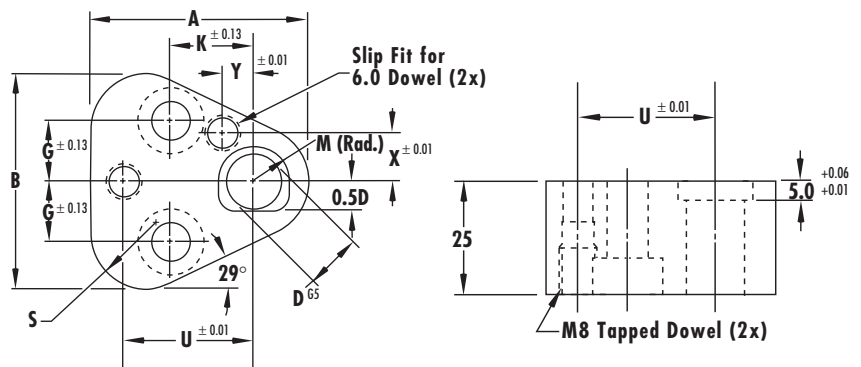
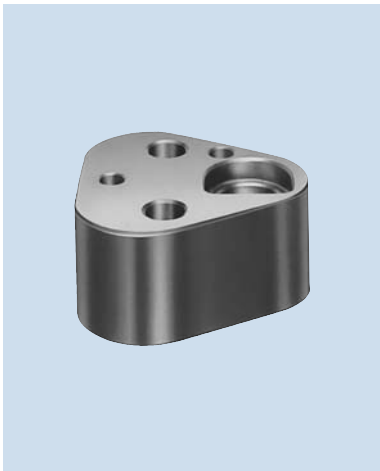
ISO 8020 round

Retainer includes: 2 Threaded dowels, 2 Screws

Catalog No.	Type	Code	D	A	B	C	G	K	R	S	U	X	Y	Screw Size
ART	10		10.00	44.5	43.7	14.0	11.1	19.0	9.5	12.0	26.925	9.0	7.5	M8
ART	13		13.00	50.8	50.0	17.0	14.3	19.0	12.7	15.2	29.970	12.0	6.5	M8
ART	16		16.00	54.0	53.2	20.0	15.9	19.0	14.3	16.8	31.750	13.5	6.0	M8
ART	20		20.00	60.3	59.5	24.0	17.5	19.0	17.5	20.0	33.530	16.5	5.0	M10
ART	25		25.00	69.9	69.1	29.0	19.8	23.8	22.2	24.7	40.640	22.0	7.0	M12
ART	32		32.00	69.9	69.1	36.0	19.8	23.8	22.2	24.7	40.640	22.0	7.0	M12

*Note: For precision tolerance (± 0.01) specify XY at end of catalog number. Example ART13 XY

HEADED PUNCH RETAINERS TRUE LOCATION TYPE ARTS



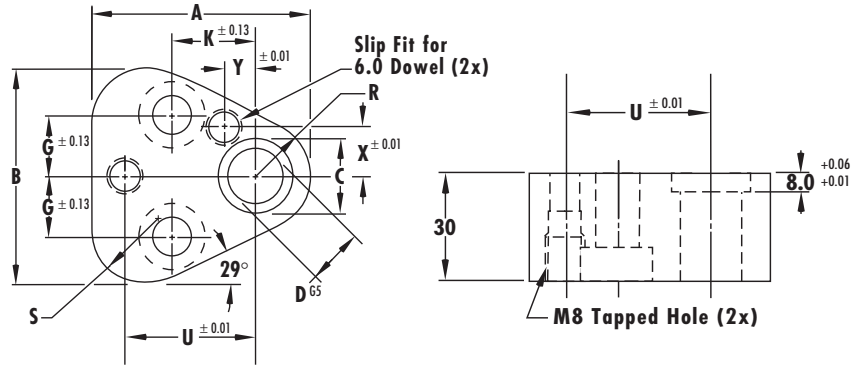
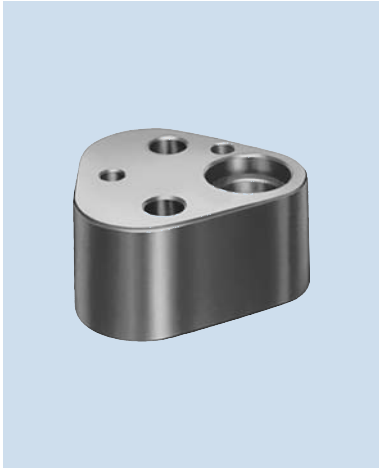
ISO 8020 form

Retainer includes: 2 Threaded dowels, 2 Screws

Katalog	Type	Code	D	A	B	G	K	M	R	S	U	X	Y	Screw Size
ARTS	10		10.00	44.5	43.7	11.1	19.0	7.0	9.5	12.0	26.925	9.0	7.5	M8
ARTS	13		13.00	50.8	50.0	14.3	19.0	8.5	12.7	15.2	29.970	12.0	6.5	M8
ARTS	16		16.00	54.0	53.2	15.9	19.0	10.0	14.3	16.8	31.750	13.5	6.0	M8
ARTS	20		20.00	60.3	59.5	17.5	19.0	12.0	17.5	20.0	33.530	16.5	5.0	M10
ARTS	25		25.00	69.9	69.1	19.8	23.8	14.5	22.2	24.7	40.640	22.0	7.0	M12
ARTS	32		32.00	69.9	69.1	19.8	23.8	18.0	22.2	24.7	40.640	22.0	7.0	M12

*Note: For precision tolerance (± 0.01) specify XY at end of catalog number. Example ARTS13 XY

HEADED PUNCH RETAINERS TRUE LOCATION TYPE ARTF



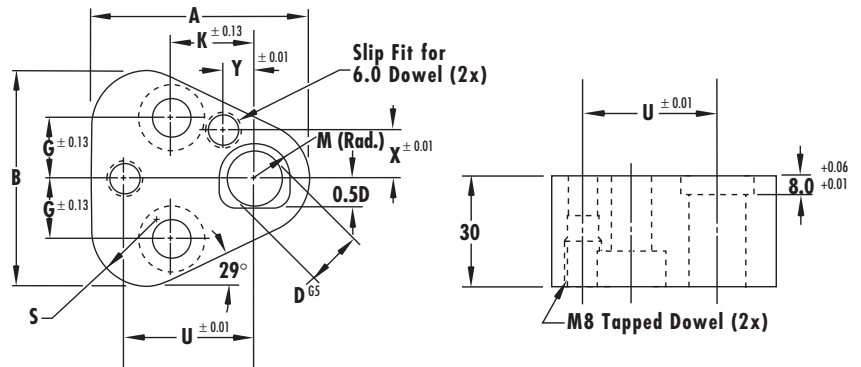
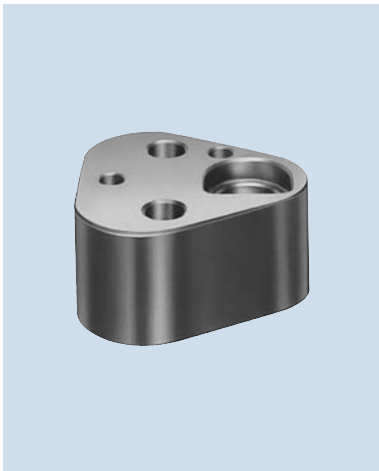
Round

Retainer includes: 2 Threaded dowels, 2 Screws

Catalog No.		D	A	B	C	G	K	R	S	U	X	Y	Screw Size
Type	Code												
ARTF	10	10,00	44,5	43,7	15,5	11,1	19,0	9,5	12,0	26,925	9,0	7,5	M8
ARTF	13	13,00	50,8	50,0	18,5	14,3	19,0	12,7	15,2	29,970	12,0	6,5	M8
ARTF	16	16,00	54,0	53,2	21,5	15,9	19,0	14,3	16,8	31,750	13,5	6,0	M8
ARTF	20	20,00	60,3	59,5	25,5	17,5	19,0	17,5	20,0	33,530	16,5	5,0	M10
ARTF	25	25,00	69,9	69,1	30,5	19,8	23,8	22,2	24,7	40,640	22,0	7,0	M12

*Note: For precision tolerance (± 0.01) specify XY at end of catalog number. Example ARTF13 XY

HEADED PUNCH RETAINERS TRUE LOCATION TYPE ARTFS



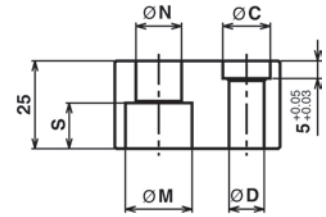
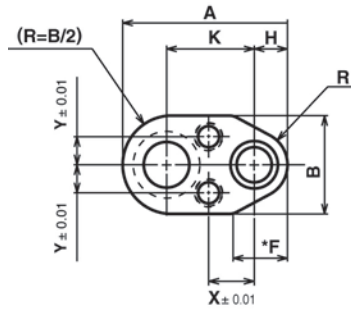
Form

Retainer includes: 2 Threaded dowels, 2 Screws

Katalog		D	A	B	G	K	M	R	S	U	X	Y	Screw Size
Type	Code												
ARTFS	10	10,00	44,5	43,7	11,1	19,0	7,75	9,5	12,0	26,925	9,0	7,5	M8
ARTFS	13	13,00	50,8	50,0	14,3	19,0	9,25	12,7	15,2	29,970	12,0	6,5	M8
ARTFS	16	16,00	54,0	53,2	15,9	19,0	10,75	14,3	16,8	31,750	13,5	6,0	M8
ARTFS	20	20,00	60,3	59,5	17,5	19,0	12,75	17,5	20,0	33,530	16,5	5,0	M10
ARTFS	25	25,00	69,9	69,1	19,8	23,8	15,25	22,2	24,7	40,640	22,0	7,0	M12

*Note: For precision tolerance (± 0.01) specify XY at end of catalog number. Example ARTFS13 XY

HEADED PUNCH RETAINERS TYPE ORT (25 mm)



For Round Punches

Retainer sets include:

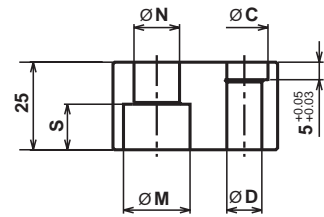
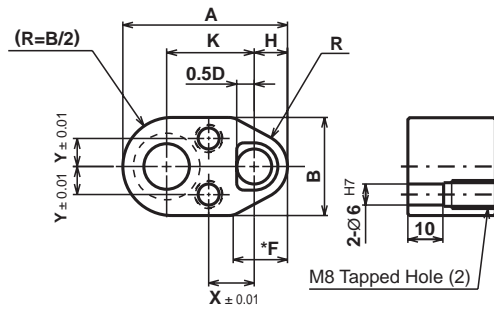
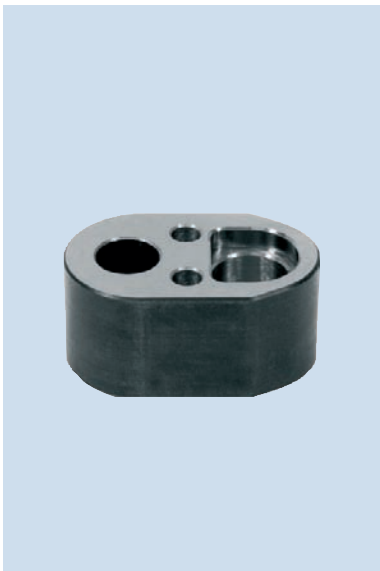
Threaded Dowels 6x20 2pcs
Cap Screws M12x40 or M16x45 1pcs

How to order:

Specify: Quantity **6**
Catalog No. **ORT10**

Catalog No.		D	A	B	H	F	K	C	M	N	S	R	X	Y	Screw Size
Type	Code														
ORT	10	10.014/10.005	47	28	9.5	15.5	25.0	13.5	19.0	13.0	13.0	9.5	13.0	8.0	M12x40
ORT	13	13.017/13.006	50	28	12.5	12.5	25.0	16.5	19.0	13.0	13.0	12.5	13.0	8.0	
ORT	16	16.017/16.006	52	32	14.0	14.0	25.0	19.5	19.0	13.0	13.0	14.0	13.0	8.0	
ORT	20	20.020/20.007	55	35	17.5	—	25.0	23.5	19.0	13.0	13.0	17.5	14.0	11.0	
ORT	25	25.020/20.007	73	44	22.0	—	35.0	28.5	25.0	17.0	10.0	22.0	20.0	15.0	M16x45
ORT	32	32.025/32.009	73	50	22.0	22.0	35.0	35.5	25.0	17.0	10.0	22.0	20.0	15.0	

HEADED PUNCH RETAINERS TYPE ORTS (25 mm)



For Shaped Punches with Center Location Locking Devices

Retainer sets include:

Threaded Dowels 6x20 2pcs
Cap Screws M12x40 or M16x45 1pcs

How to order:

Specify: Quantity **6**
Catalog No. **ORTS25**

Catalog No.		D	A	B	H	F	K	C	M	N	S	R	X	Y	Screw Size
Type	Code														
ORTS	10	10.014/10.005	47	28	9.5	15.5	25.0	13.5	19.0	13.0	13.0	9.5	13.0	8.0	M12x40
ORTS	13	13.017/13.006	50	28	12.5	12.5	25.0	16.5	19.0	13.0	13.0	12.5	13.0	8.0	
ORTS	16	16.017/16.006	52	32	14.0	14.0	25.0	19.5	19.0	13.0	13.0	14.0	13.0	8.0	
ORTS	20	20.020/20.007	55	35	17.5	—	25.0	23.5	19.0	13.0	13.0	17.5	14.0	11.0	
ORTS	25	25.020/20.007	73	44	22.0	—	35.0	28.5	25.0	17.0	10.0	22.0	20.0	15.0	M16x45
ORTS	32	32.025/32.009	73	50	22.0	22.0	35.0	35.5	25.0	17.0	10.0	22.0	20.0	15.0	

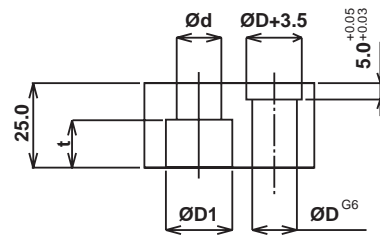
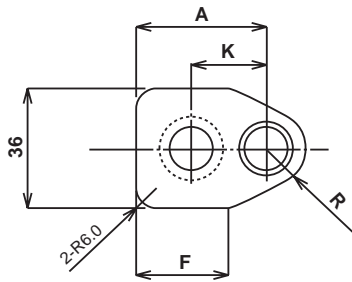
HEADED PUNCH RETAINERS TYPE ERTX (25 mm)



For Round Punches

Retainer sets include:

Cap Screws M12x40 or M16x40 1pcs



Catalog No.		D	K	A	F	R	D1	d	t	Screw Size
Type	Code									
ERTX	10	10.014/10.005	22	38	27	11.5	19	13	13	M12x40
ERTX	13	13.017/13.006	22	38	27	11.5	19	13	13	
ERTX	16	16.017/16.006	26	45	34	14.0	25	17	17	M16x40

How to order:

Specify: Quantity **6**
 Catalog No. **ERTX13**

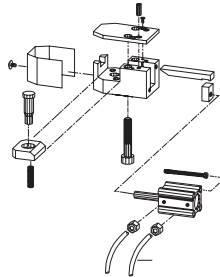
CHANGE RETAINERS TYPE ARA

Engage or disengage punches in seconds

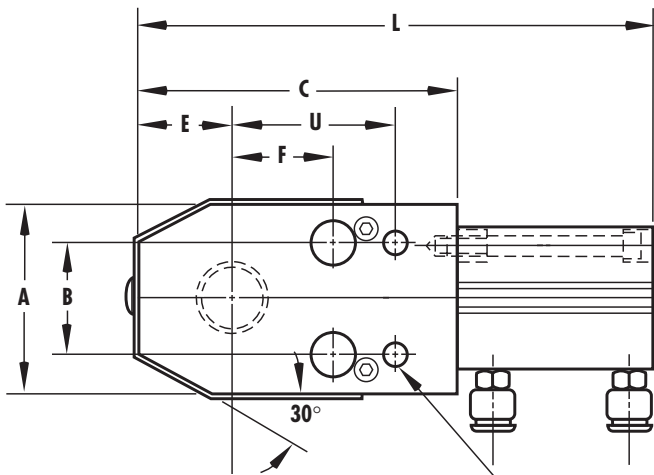
Change retainers are used where different hole patterns are required. Various hole patterns can be accomplished without the need for multiple dies. Different parts, such as right and left hand can be run in one die.

Changing hole patterns takes only minutes, sometimes only seconds. A bar holding the punch in position is released to allow the punch to retract up far enough to avoid contact with the material.

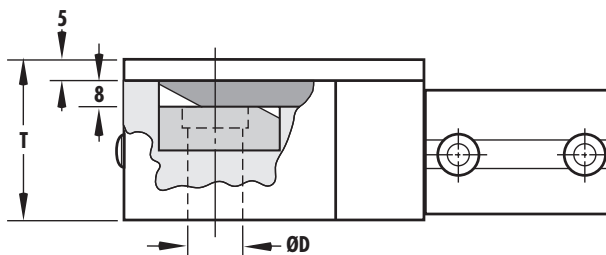
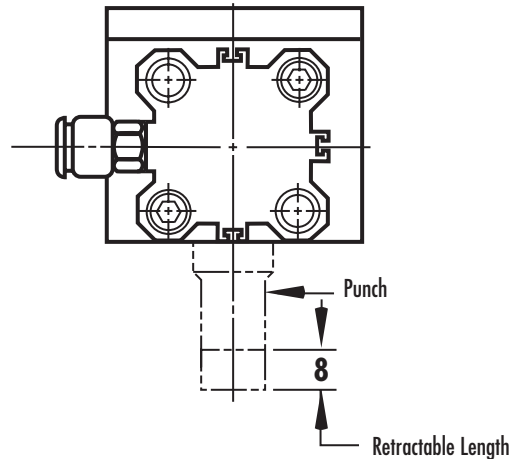
Change Retainer includes all necessary screws and dowels, air cylinder and fittings. $\varnothing 6$ tubing for air supply is not included but can be ordered separately.



With pneumatic control for Headed Punches ISO 8020 round.



Dowel Hole
(D=10~25) 2- $\varnothing 5.8$
(D=32.40) 2- $\varnothing 7.8$



Air cylinder can be removed and remounted 90° or 180° from location shown.

Recommended air pressure is
65 – 75 PSI (450–520 kPa/cm²)
Min. pressure: 45 PSI (315 kPa/cm²)
Max. pressure: 145 PSI (1000 kPa/cm²)

Catalog No.	Round	D	L	A	B	C	E	F	H	T	Screw Size
ARA 10				46							M8
ARA 13			128	49	30	73	18	25	45	41	M10
ARA 16											M10
ARA 20			155	58	38	90	23	29	45	45	M10
ARA 25			155	58	38	90	23	29	45	45	M10
ARA 32			208	80	56	125	33	38	55	60	M12
ARA 40			208	80	56	125	33	38	55	60	M12

How to order:

Specify: Quantity

Catalog No.

6

ARA16

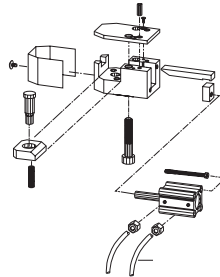
CHANGE RETAINERS TYPE ARAS

Engage or disengage punches in seconds

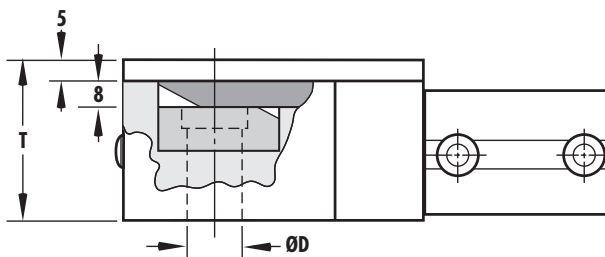
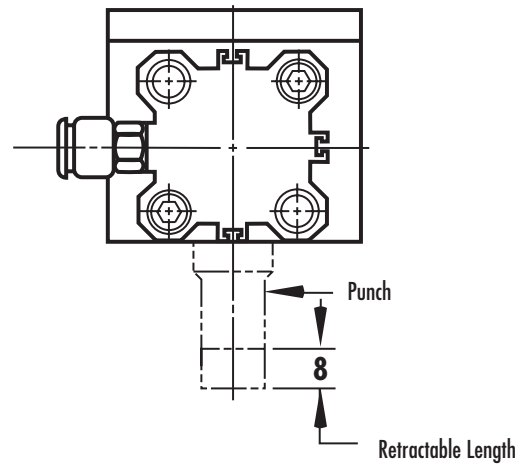
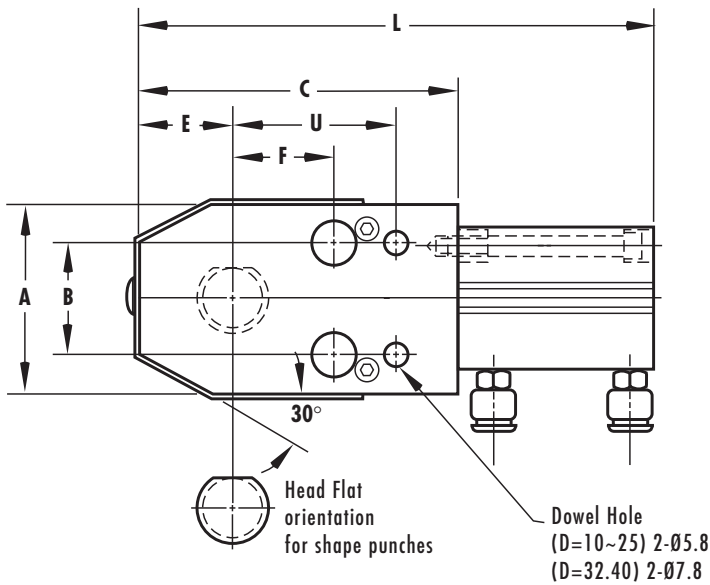
Change retainers are used where different hole patterns are required. Various hole patterns can be accomplished without the need for multiple dies. Different parts, such as right and left hand can be run in one die.

Changing hole patterns takes only minutes, sometimes only seconds. A bar holding the punch in position is released to allow the punch to retract up far enough to avoid contact with the material.

Change Retainer includes all necessary screws and dowels, air cylinder and fittings. Ø6 tubing for air supply is not included but can be ordered separately.



With pneumatic control for Headed Punches ISO 8020 form.



Air cylinder can be removed and remounted 90° or 180° from location shown.

Recommended air pressure is
65 – 75 PSI (450–520 kPa/cm2)
Min. pressure: 45 PSI (315 kPa/cm2)
Max. pressure: 145 PSI (1000 kPa/cm2)

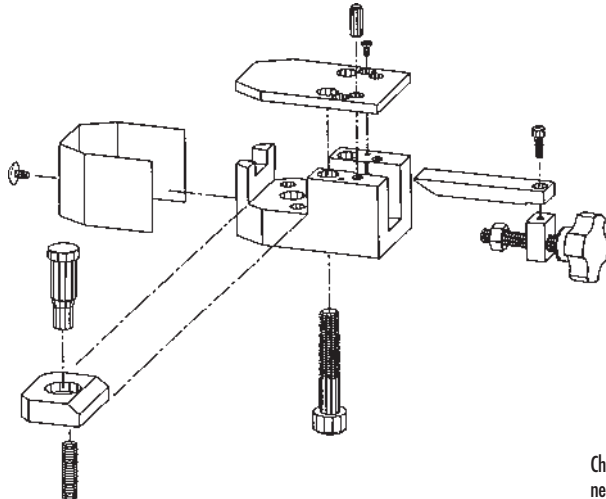
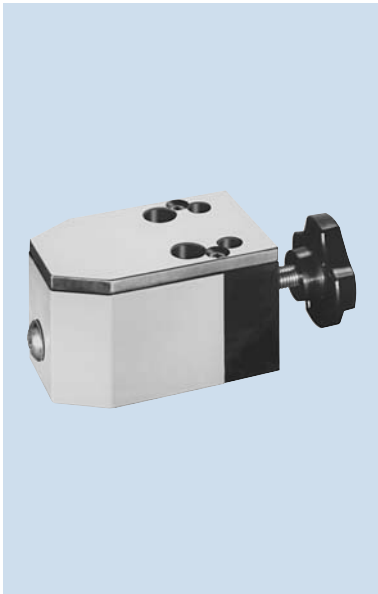
Catalog No.	Round	D	L	A	B	C	E	F	H	T	Screw Size
ARAS 10				46							M8
ARAS 13			128	49	30	73	18	25	45	41	M10
ARAS 16											M10
ARAS 20			155	58	38	90	23	29	45	45	M10
ARAS 25			155	58	38	90	23	29	45	45	M10
ARAS 32			208	80	56	125	33	38	55	60	M12
ARAS 40			208	80	56	125	33	38	55	60	M12

How to order:

Specify: Quantity **6**
Catalog No. **ARAS16**

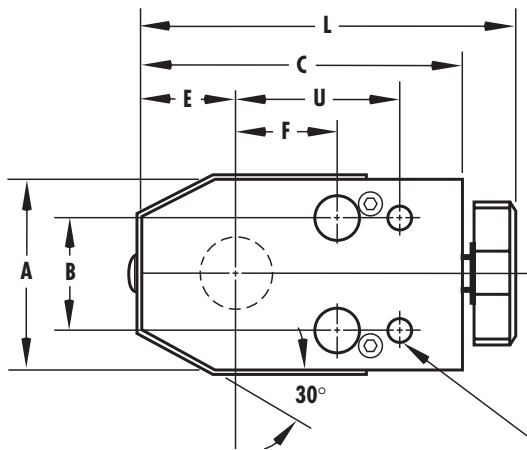


CHANGE RETAINERS TYPE ARC

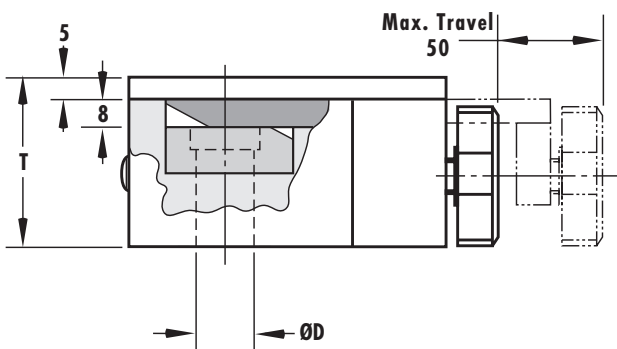
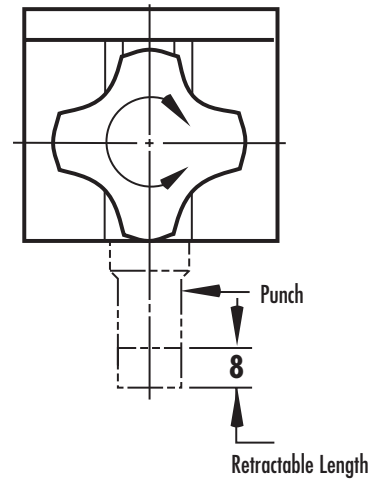


Change Retainer includes all necessary screws and dowels

With manual control for Headed Punches ISO 8020 round.



Dowel Hole
(D=10~25) 2-Ø5.8
(D=32.40) 2-Ø7.8

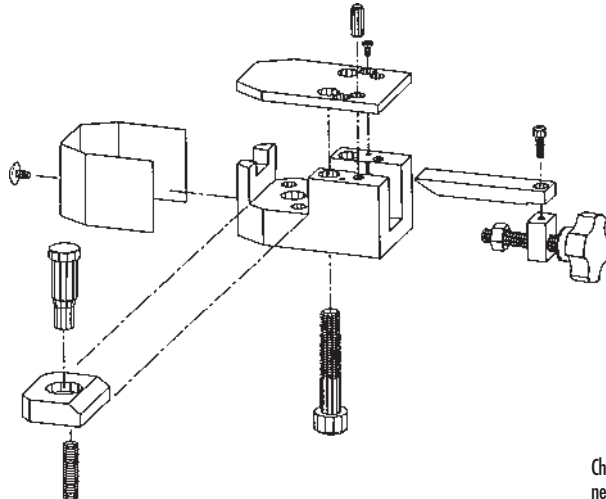
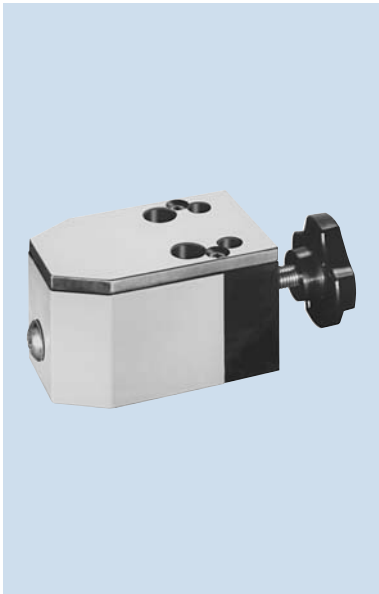


Catalog No.	Round	D	L	A	B	C	E	F	H	T	Screw Size
ARC 10		10		46							M8
ARC 13		13	99	49	30	73	18	25	45	41	M10
ARC 16		16									M10
ARC 20		20	115	58	38	90	23	29	45	45	M10
ARC 25		25	115	58	38	90	23	29	45	45	M10
ARC 32		32	150	80	56	125	33	38	55	60	M12
ARC 40		40	150	80	56	125	33	38	55	60	M12

How to order:
Specify: Quantity
Catalog No.

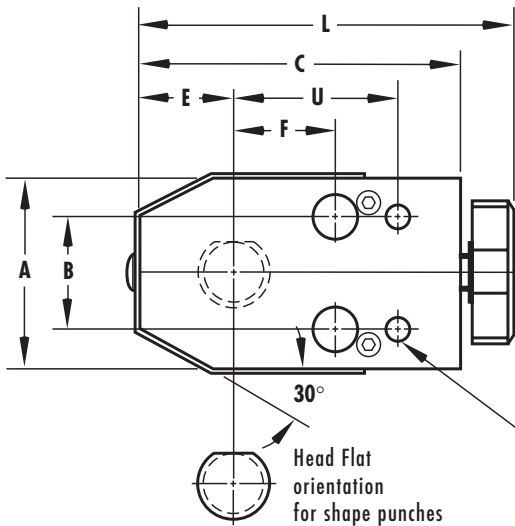
12
ARC 20

CHANGE RETAINERS TYPE ARCS

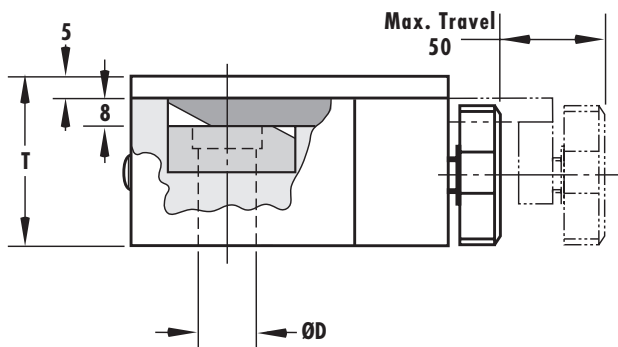
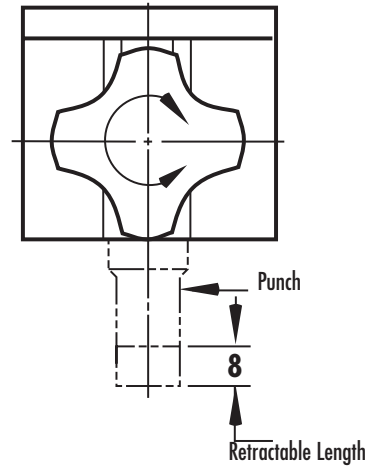


Change Retainer includes all necessary screws and dowels

With manual control for Headed Punches ISO 8020 form.



Dowel Hole
(D=10~25) 2-Ø5.8
(D=32.40) 2-Ø7.8



Catalog No.	Form	D	L	A	B	C	E	F	H	T	Screw Size
ARCS 10		10		46							M8
ARCS 13		13	99	49	30	73	18	25	45	41	M10
ARCS 16		16									M10
ARCS 20		20	115	58	38	90	23	29	45	45	M10
ARCS 25		25	115	58	38	90	23	29	45	45	M10
ARCS 32		32	150	80	56	125	33	38	55	60	M12
ARCS 40		40	150	80	56	125	33	38	55	60	M12

How to order:

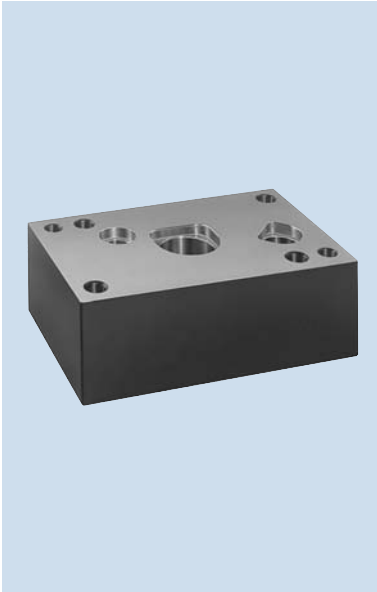
Specify: Quantity
Catalog No.

12
ARCS 20

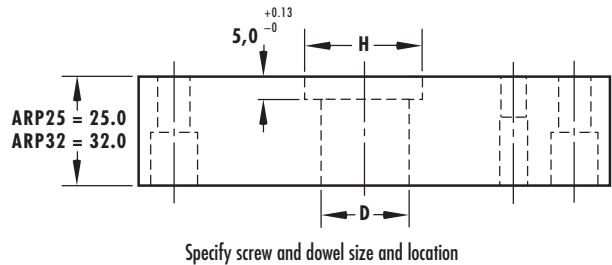
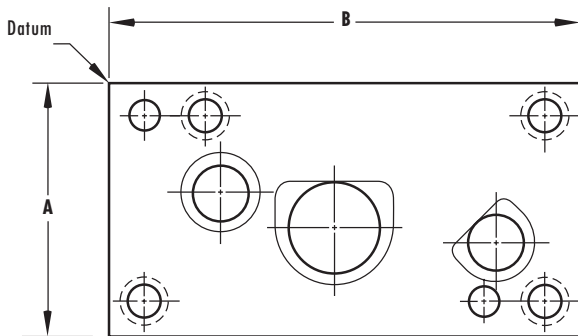


MULTI-LOCATION™ RETAINERS TYPE ARP

Dayton's Multi-Location™ Retainers provide a simple, cost-effective solution when multiple holes are required in a small area. They eliminate the need for special details, cutting both design and build time.



For Headed Punches ISO 8020



Note:
Looking at retainer from punch head side.

Punch Hole Sizes

D	4.0	5.0	6.0	8.0	10.0	13.0	16.0	20.0	25.0	32.0
H	8.0	9.0	10.0	12.0	14.0	17.0	20.0	24.0	29.0	36.0
Ø Dowel	3	4	5	6	8	10	12	13	16	
Tapped Hole	M5	M6	M8	M8	M10	M12	M16	M16	M20	

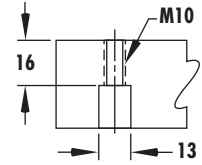
Hole Locations from Datum

Dowel Holes	±0.01
Screw Holes	±0.13
Component Holes	±0.01

Type	A	B											
		60	70	80	90	100	125	150	175	200	225	250	300
ARP	50	5060	5070	5080	5090	50100	50125	50150	50175	50200	50225	50250	50300
	60	6060	6070	6080	6090	60100	60125	60150	60175	60200	60225	60250	60300
	70		7070	7080	7090	70100	70125	70150	70175	70200	70225	70250	70300
	80			8080	8090	80100	80125	80150	80175	80200	80225	80250	80300
	100					100100	100125	100150	100175	100200	100225	100250	100300
	125						125125	125150	125175	125200	125225	125250	125300
	150							150150	150175	150200	150225	150250	150300
	200								200175	200200	200225	200250	200300

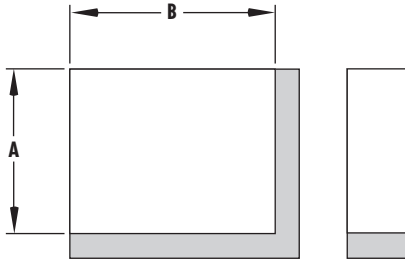
Alterations for ARP Multi-Location™ Retainers

Standard Jackscrew Hole Jackscrews make it easier to pull retainer off the dowels.



Special Size

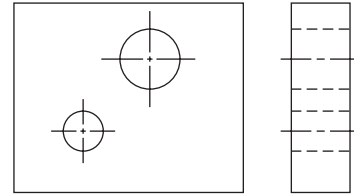
For a custom size, we can remove any amount of material from the side(s) of the retainer. Edges are sawcut ± 0.8 .



Clearance Holes

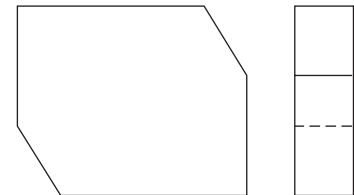
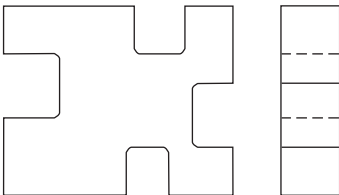
Holes are drilled through the retainer unless otherwise specified.

Customer wish
Location ± 0.3
Diameter ± 0.4
-0



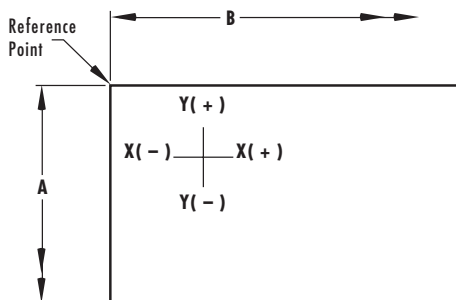
Notches and Angles

Drawings needed. Tolerance ± 0.8 mm.



How to order:

Furnish the necessary information as indicated below. order forms for Multi-Location™ Retainers are available upon request.



Retainer	Catalog No.	Special Size				
ARP 32	70200	A	B			
Multi-Location™ Retainers						
Hole No.	Component		Location		Locking Device	
	Type	Sizes	X Axis	Y Axis	Location	Type
1	Dowel	10.0 Slip Fit	13.0	-13.0	-	-
2	S.H.C.S.	M 10	35.0	-13.0	-	-
3	AJR	16	53.5	-35.5	90°	X2
4	Clear	Ø33	108.0	-27.0	-	-
5	Jackscrew	STD.	25.0	-25.0	-	-

You must specify all dimension from datum.

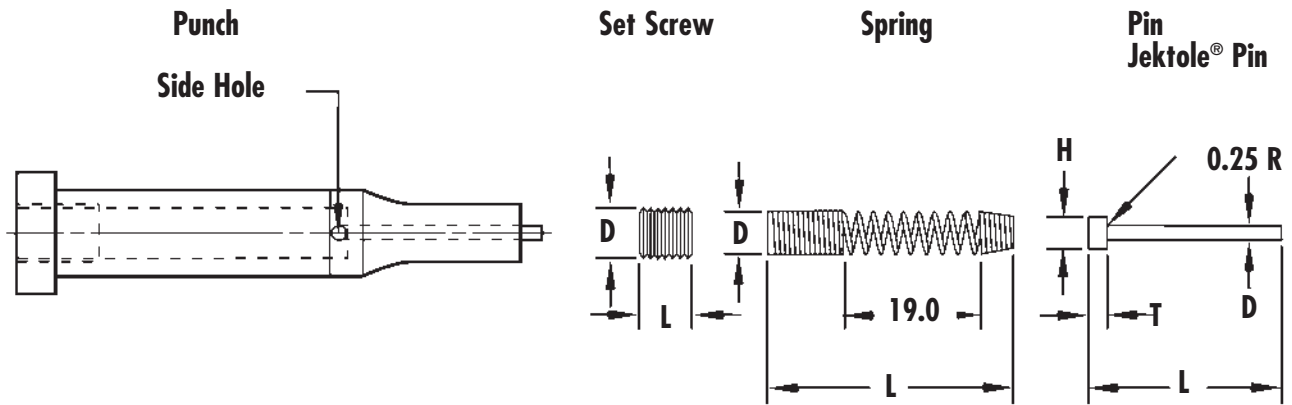


Jektrole® in Production

- Requires less press tonnage
- Reduces pressure required to strip the punch... which in turn reduces punch wear
- Produces minimal burr
- Doubles (and often triples) piece output per grind
- Reduces total punch costs

Jektrole® in Maintenance

- Keeper Key – holds pin in retracted position
- Eliminates the need for disassembly before grinding
- Maintains proper pin extension
- Reduces downtime for re-grinding



Universal Jektrole® Components

Ejector Pins		J2M	J3M	J4M	J6M	J9M	J12M
Overall Length	L	28.0	35.0	49.4	49.4	56.5	56.5
Pin Diameter	D	0.43	0.68	1.04	1.47	2.26	3.05
Head Diameter	H	1.2	1.8	2.4	3.0	4.0	4.8
Head Thickness	T	0.8	1.2	1.6	1.6	2.4	2.4

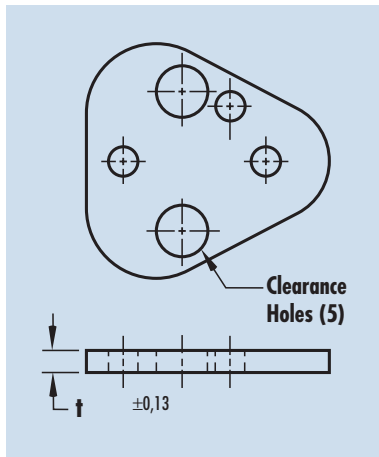
Springs		J2M	J3M	J4M	J6M	J9M	J12M
Outside Diameter	D	2.1	2.4	3.3	4.3	5.0	7.0
Free Length	L	60.3	60.3	81.0	76.2	68.9	65.1

Screws		J2M	J3M	J4M	J6M	J9M	J12M
Screw Size	D	M2.6	M3	M4	M5	M6	M8
Screw	L	5.0	5.0	5.0	5.0	6.0	6.0

Jektrole® Design Limits

Dimensions		J2M	J3M	J4M	J6M	J9M	J12M
Min. Shank Dia.	D	4.4	5.0	6.8	8.8	10.4	14.0
Min. Point Dia.	P	1.3	2.0	3.0	4.0	6.0	7.2
Max. Point Length		32	38	41	41	41	41
Max. Shank Length	S	87	87	84	84	84	70

SHIM PLATES/BACKING PLATES

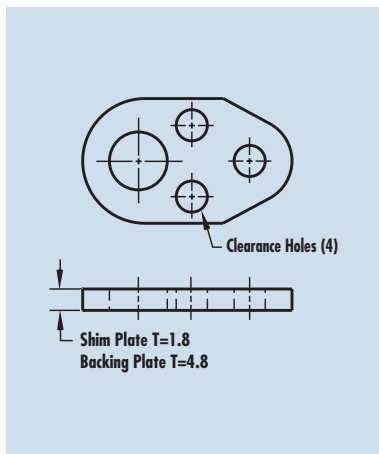


Retainer	D	Shim Plate t=1.8 (soft)	Backing Plate t=4.8 (HRC55)
ARTF/ARTFS	10	URSP 1018	URBP 1048
ARTF/ARTFS	13	URSP 1318	URBP 1348
ARTF/ARTFS	16	URSP 1618	URBP 1648
ARTF/ARTFS	20	URSP 2018	URBP 2048
ARTF/ARTFS	25	URSP 2518	URBP 2548

Retainer	D	Shim Plate t=1.8 (soft)	Backing Plate t=4.8 (HRC55)
ART/ARTS	10	URSP 1018	URBP 1048
ART/ARTS	13	URSP 1318	URBP 1348
ART/ARTS	16	URSP 1618	URBP 1648
ART/ARTS	20	URSP 2018	URBP 2048
ART/ARTS	25	URSP 2518	URBP 2548
ART/ARTS	32	URSP 3218	URBP 3248

How to order:

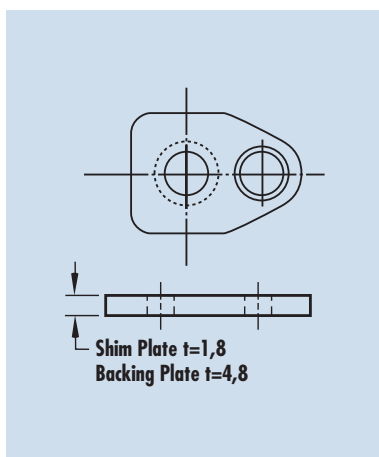
Specify: Quantity **10 10 10**
Catalog No. **ART10 URSP1018 URBP1048**



Retainer	D	Shim Plate t=1.8 (soft)	Backing Plate t=4.8 (HRC55)
ORT/ORTS	10	ORSP 1018	ORBP 1048
ORT/ORTS	13	ORSP 1318	ORBP 1348
ORT/ORTS	16	ORSP 1618	ORBP 1648
ORT/ORTS	20	ORSP 2018	ORBP 2048
ORT/ORTS	25	ORSP 2518	ORBP 2548
ORT/ORTS	32	ORSP 3218	ORBP 3248

How to order:

Specify: Quantity **6 6**
Catalog No. **ORSP1018 ORBP1048**



Retainer	D	Shim Plate t=1.8 (soft)	Backing Plate t=4.8 (HRC55)
ERTX	10	ERSP 1018	ERBP 1048
ERTX	13	ERSP 1318	ERBP 1348
ERTX	16	ERSP 1618	ERBP 1648

How to order:

Specify: Quantity **6 6**
Catalog No. **ERSP1618 ERBP1648**

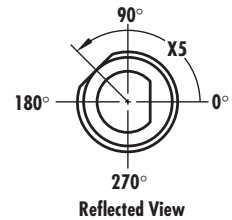
CLASSIFIED SHAPES

Views

Views are Reflected View of Punch and Guide, Plan View of Matrix see opposite column.

Orientation and Locking

The Locking Device orientation is standard at 0°.



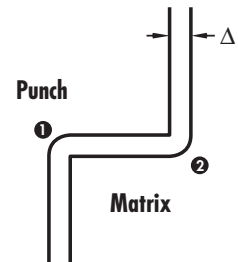
Clearance

Fillets matched with sharp corners reduces the clearance per side Δ . If the clearance is 0.04 Δ or less, Dayton will break sharp corners when the punches and/or guides and matrixes are ordered together. This reduces assembly time and the risk of edge breaking during operation.

Notes ① and ② – Fillets and Sharp Corners

Normal grinding methods produce:

- ① 0.2 max fillet on the punch matching corner sharp on the matrix.
- ② 0.2 max fillet on the matrix matching corner sharp on the punch.



Shape Center

Shapes are centered on punch shanks as shown.

Shapes in guide bushings and matrixes are also centered as shown with the exception of shapes C22 and C34. Due to clearance, the P dimension on these shapes will not be centered.

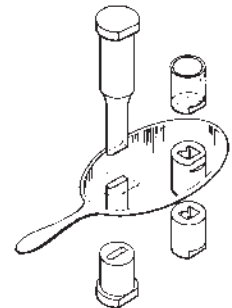
Corner Dimensions

Dimensions should be to the theoretical sharp corners for shapes C22, C24, C25, C34, C61 and C88. Some reduction of these dimensions will result from fitting the punch and matrix under conditions where clearance is 0.04 or less per side.

Reflected View – Punches and Guides

The Reflected View is used for Punches and Guides. It is the view as seen in a mirror held below a punch or guide in its operating position. It is the same as a Plan View from the head end, in which the point shape is shown dotted except a Reflected View is shown with solid lines. The Reflected View simplifies design and eliminates confusion. Shapes on the part print, strip layout, punch, matrix and guide are the same basic view. Orientation for locking devices is the same position on all components.

Note: Must identify as REFLECTED VIEW on punch drawing.



CLASSIFIED SHAPES

Orientation & Locking

X2 Standard Locations

The standard location of key flats is at 0°. Alternate locations of 90°, 180° or 270° can be specified at no extra cost (against clockwise). Additional information on page 6.4.1.

X5 Alternate Locations

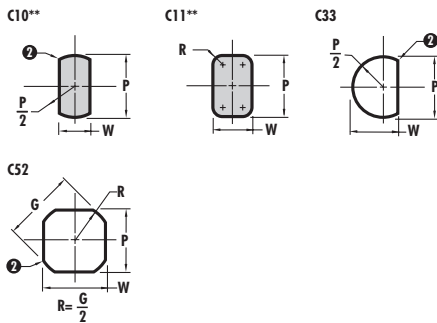
Custom locations of key flats can be specified as X5 and degree from 0°. The specification of the degree number is against clockwise.

Simplified Specifications

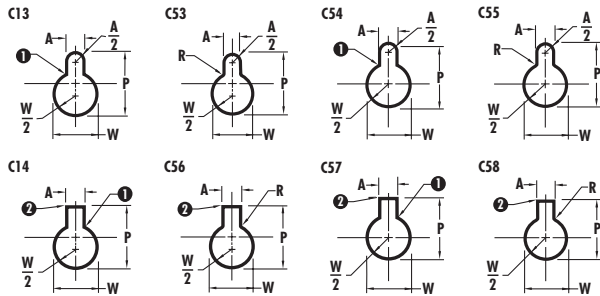
83 Common Shapes – No Detailing Required

90°

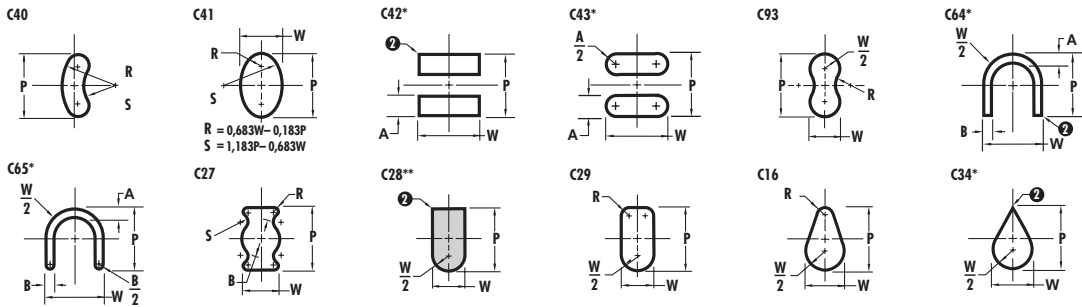
Flatted Rounds



Mono Lobes



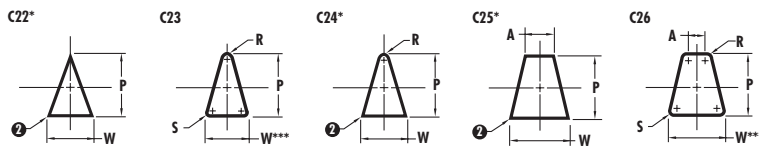
Miscellaneous



180°

0°

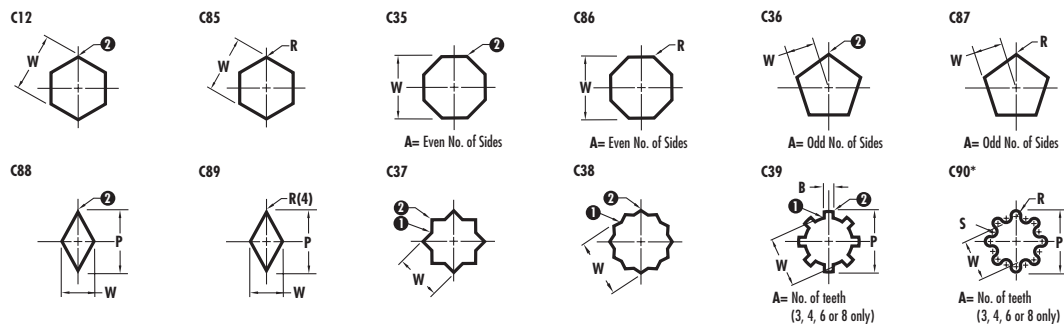
Triangles/Trapezoids



** Now a standard shape.

*** Tangential

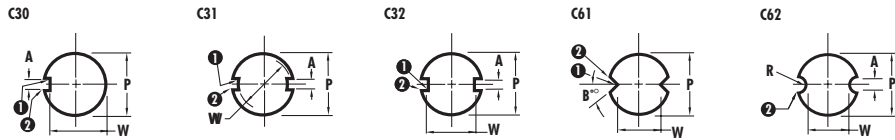
Polygons



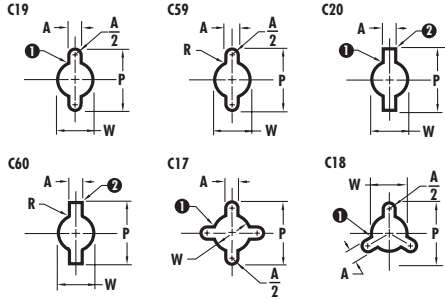
270°

90°

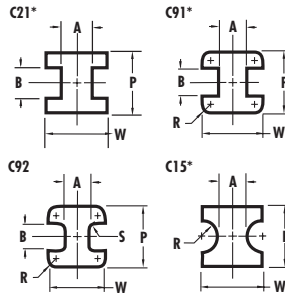
Keys



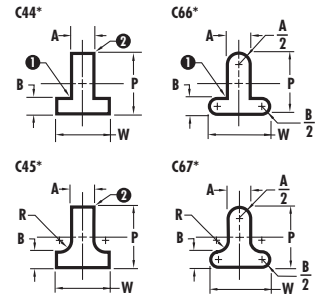
Multi Lobes



Duo Tees

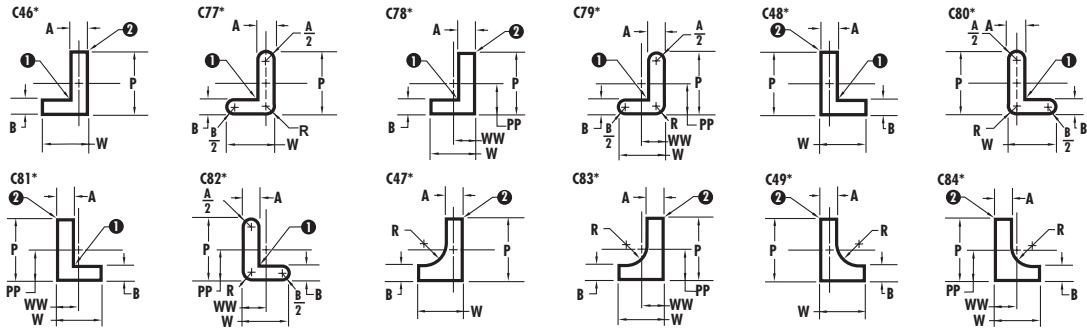


T's



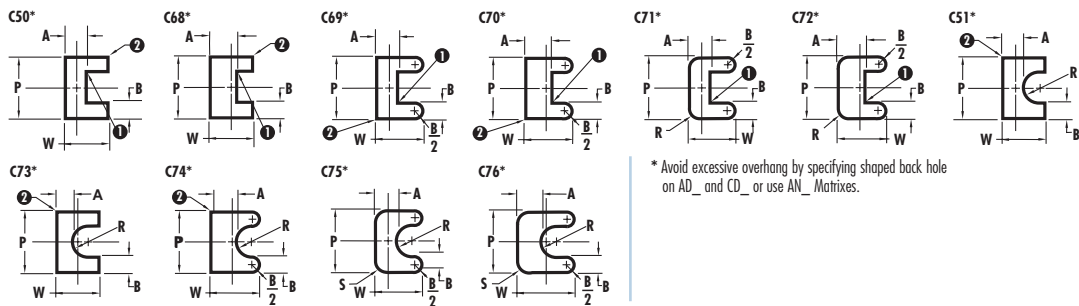
L's

180°



0°

U's



* Avoid excessive overhang by specifying shaped back hole on AD_ and CD_ or use AN_ Matrixes.

270°

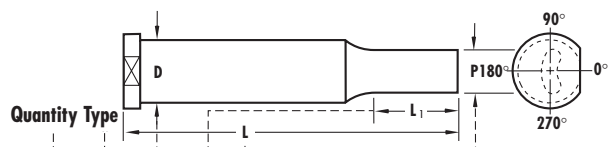
1 Sharp corners are typical. To assure proper clearance, Dayton will provide standard broken corners if matrix is ordered with punch to eliminate interference with matrix fillet when total clearance is 0.08 or less.

2 Check your P&W dimensions to be sure the diagonal G does not exceed the max. shown. If G exceeds the max.

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

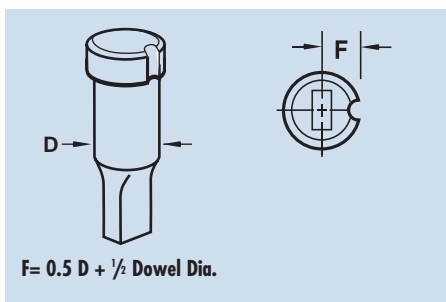
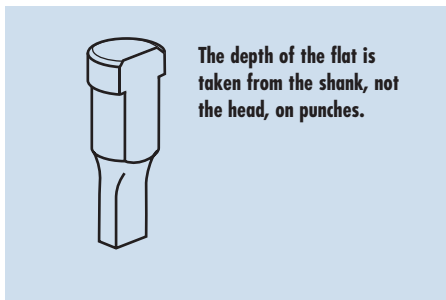
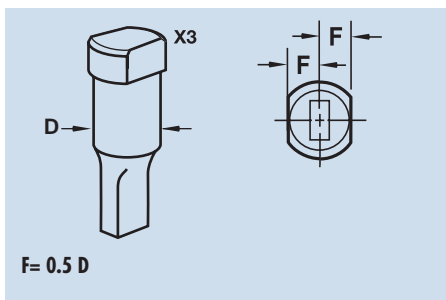
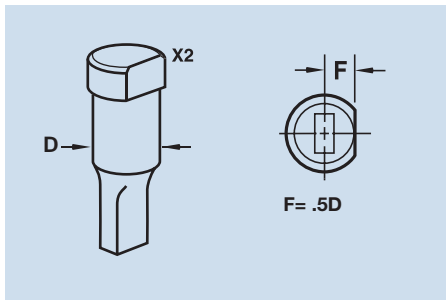
How to order:

- Specify: Quantity
Type
Shank Diameter
Point & Overall Length
Steel
Standard Alterations
P or P&W Dimensions



10 APC 20 1990 M2 C40 P16 R35 S28 X2

LOCKING DEVICES



Definitions:

Standard Location is at 0°.

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

Alternate Locations are available at no additional charge.

Custom Location

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

Flächen

	Single Flats X2	Single Flats X5
Locking Devices:	X2	X5
Punch	Top	Top

How to order:

X2 – 90°

X5 – 135°

	Double Flats X3	Double Flats X6
Locking Devices:	X3	X6
Punch	Top	Top

How to order:

X3 – 90°

X6 – 135°

Second Flat is always parallel to the first flat.

Additional Flats

Code	Depth	Length	Code	Depth	Length
X81	1.5	13	X91	1.5	13
X82	1.5	16	X92	1.5	16
X83	1.5	20	X93	1.5	20
X84	1.5	Full Length	X94	1.5	Full Length
X85	2.5	13	X95	2.5	13
X86	2.5	16	X96	2.5	16
X87	2.5	20	X97	2.5	20
X88	2.5	Full Length	X98	2.5	Full Length
X89	Specify Dimensions		X99	Specify Dimensions	

Dowel Slots

	Dowel Slots X0, X4, X41, X43				Dowel Slots X1, X7, X71, X73			
Locking Devices:	X0	X4	X41	X43	X0	X4	X41	X43
Dowel Dia.	3.0	3.0	4.0	6.0	3.0	3.0	4.0	6.0

How to order:

X0 – 180°

X71 – 135°

Dowel Slot F Dimension

Body Ø		08	10	13	16-25	32-71
X0/X1	F	0.5D	0.5D	0.5D	0.5D	0.5D
X4/X7	F	4.7	5.5	6.7	0.5D	0.5D
X41/X71	F	5.2	6.0	7.2	0.5D	0.5D
X43/X73	F	6.2	7.0	8.2	0.5D+1.0	0.5D

How to order:

5 ADO 40 30 P16.00 W6.40 X2
9 ADR 100 35 P75.00 W50.00 X83

Key Flats vs. Dowel Slots

Maximum hole dimension in matrixes were designed with key flats in mind. There are instances where, if using a dowel slot, the dowel hole could break into the relief. For this reason there are two ways to specify the location of the dowel. X0 (standard/alternate location) and X1 (custom location) are located .5D from centerline.

However, when hole dimensions are approaching the high limit of "P" X4 (standard/alternate location) or X7 (custom location) may be specified. This relocates the dowel outward to assure no interference between the dowel and relief.

NOTES

