

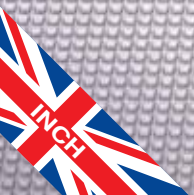


AW PRECISION LTD



Punch and Die

www.awprecision.co.uk



A Company Introduction

AW PRECISION is one of Europe's largest producers of punches, dies and Die Sets. Along with an extensive selection of Tooling Accessories, Kaller® Gas Springs, Cam Units, Urethane and Guide Elements we are your 'One-Stop' shop for all your tooling requirements.

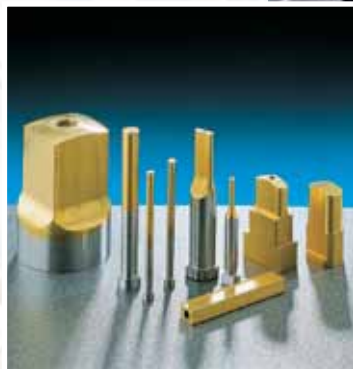
AW PRECISION can offer...

Short, consistent delivery times on most standard and non-standard products helping you to maintain a continuous level of production.

Broad range of products

AW Precision's vast product range simplifies the process of purchasing tools for the increasingly busy tool maker.

2012
Version

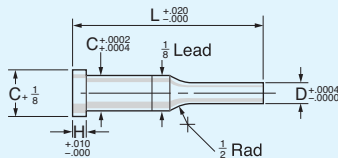


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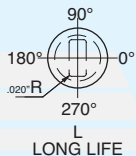
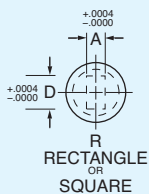
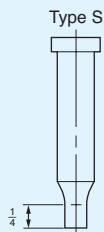
Standard Punches



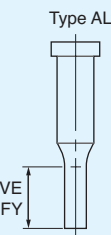
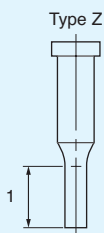
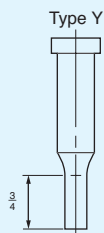
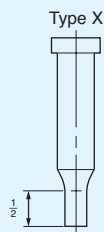
Headless Punches available

Overall length up to 5"

Any alternative dimensions to the above can be specified.



Symbol Numbers							
Round	Rect or Square	Flatted	Oval	Long Life	Shank Dia C	Head Thk. H	Min. Piercing D
T1	R1	F1	W1	L1	.125	1/8	.062
T2	R2	F2	W2	L2	.1562	1/8	.062
T3	R3	F3	W3	L3	.1875	1/8	.062
T4	R4	F4	W4	L4	.2187	1/8	.062
T5	R5	F5	W5	L5	.250	1/8	.062
T6	R6	F6	W6	L6	.2812	1/8	.094
T7	R7	F7	W7	L7	.3125	1/8	.094
T8	R8	F8	W8	L8	.375	3/16	.126
T9	R9	F9	W9	L9	.4375	3/16	.126
T10	R10	F10	W10	L10	.500	3/16	.126
T11	R11	F11	W11	L11	.5625	3/16	.156
T12	R12	F12	W12	L12	.625	3/16	.250
T13	R13	F13	W13	L13	.750	1/4	.375
T78	R78	F78	W78	L78	.875	1/4	.375
T14	R14	F14	W14	L14	1.000	1/4	.375
T15	R15	F15	W15	L15	1.125	1/4	.375
T16	R16	F16	W16	L16	1.187	1/4	.375
T17	R17	F17	W17	L17	1.250	1/4	.375
T18	R18	F18	W18	L18	1.375	1/4	.375
T19	R19	F19	W19	L19	1.500	1/4	.375



Example order:

6 off T12X .375 3 lg

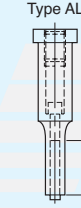
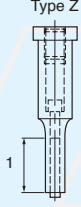
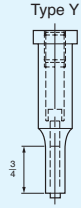
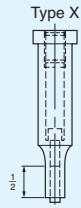
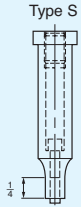
6 off W12Y .396 x .500 3 lg

Location Flats if required see page 22

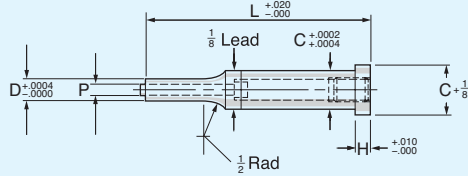
NS shapes available see pages 18, 19

ALTERNATIVE LENGTH SPECIFY

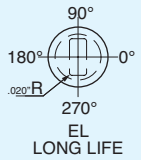
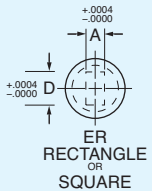
Slug Ejector Punches



Overall length up to 4"
Any alternative dimensions to the above can be specified.



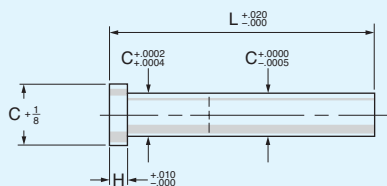
Symbol Numbers									
Round	Rect or Square	Flatted	Oval	Long Life	Shank Dia. C	Head Thk H	Pin Hole P	Min Width A/D	
ET2	ER2	EF2	EW2	EL2	.1875	1/8	.020	.062	
ET3	ER3	EF3	EW3	EL3	.1875	1/8	.040	.100	
ET4	ER4	EF4	EW4	EL4	.2187	1/8	.040	.100	
ET5	ER5	EF5	EW5	EL5	.250	1/8	.040	.100	
ET6	ER6	EF6	EW6	EL6	.2812	1/8	.040	.125	
ET7	ER7	EF7	EW7	EL7	.3125	1/8	.040	.125	
ET8	ER8	EF8	EW8	EL8	.375	3/16	.060	.187	
ET9	ER9	EF9	EW9	EL9	.4375	3/16	.060	.187	
ET10	ER10	EF10	EW10	EL10	.500	3/16	.060	.187	
ET11	ER11	EF11	EW11	EL11	.5625	3/16	.060	.187	
ET12	ER12	EF12	EW12	EL12	.625	3/16	.093	.250	
ET13	ER13	EF13	EW13	EL13	.750	1/4	.093	.250	
ET78	ER78	EF78	EW78	EL78	.875	1/4	.093	.250	
ET14	ER14	EF14	EW14	EL14	1.000	1/4	.093	.250	
ET15	ER15	EF15	EW15	EL15	1.125	1/4	.093	.250	
ET16	ER16	EF16	EW16	EL16	1.187	1/4	.093	.250	
ET17	ER17	EF17	EW17	EL17	1.250	1/4	.093	.250	
ET18	ER18	EF18	EW18	EL18	1.375	1/4	.093	.250	
ET19	ER19	EF19	EW19	EL19	1.500	1/4	.093	.250	



Example order:
2 off ER17Z .350 x 1.125 3 1/4 lg
6 off ET14S .280 2 1/2 lg
Location Flats if required see page 22
NS shapes available see pages 18, 19
Ejector components available separately

ALTERNATIVE
LENGTH SPECIFY

Punch Blanks

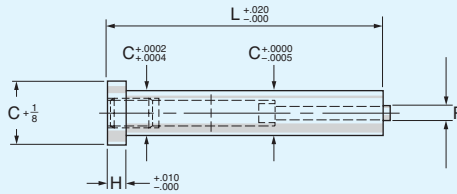


Overall lengths up to 5"
Any alternative dimensions to the above can be specified.

Symbol Numbers	Shank Dia. ϕ C	Head H
P1	.125	$1/8$
P2	.1562	$1/8$
P3	.1875	$1/8$
P4	.2187	$1/8$
P5	.250	$1/8$
P6	.2812	$1/8$
P7	.3125	$1/8$
P8	.375	$3/16$
P9	.4375	$3/16$
P10	.500	$3/16$
P11	.5625	$3/16$
P12	.625	$3/16$
P13	.750	$1/4$
P78	.875	$1/4$
P14	1.000	$1/4$
P15	1.125	$1/4$
P16	1.187	$1/4$
P17	1.250	$1/4$
P18	1.375	$1/4$
P19	1.500	$1/4$

Example order:
6 off P7 x $3\frac{1}{2}$ lg

Slug Ejector Punch Blanks



Overall length up to 4"

Any alternative dimensions to the above can be specified.

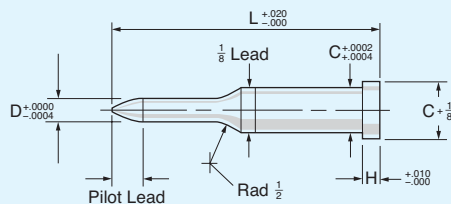
Symbol Numbers	Shank Dia. C	Head H	Pin Dia. P
PE1	.1875	$1/8$	.020
PE3	.1875	$1/8$	.040
PE5	.250	$1/8$	.040
PE6	.2812	$1/8$	.040
PE7	.3125	$1/8$	.040
PE8	.375	$3/16$	.060
PE9	.4375	$3/16$	.060
PE10	.500	$3/16$	.060
PE11	.5625	$3/16$	.060
PE12	.625	$3/16$	.093
PE13	.750	$1/4$	.093
PE78	.875	$1/4$	.093
PE14	1.000	$1/4$	.093
PE15	1.125	$1/4$	.093
PE16	1.187	$1/4$	.093
PE17	1.250	$1/4$	.093
PE18	1.375	$1/4$	.093
PE19	1.500	$1/4$	.093
PE20	1.750	$1/4$	.093

Example order:

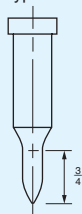
6 off PE8 x $3\frac{1}{2}$ LG

Ejector components available separately

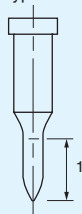
Pilot Points



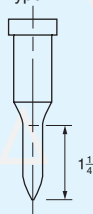
Type X



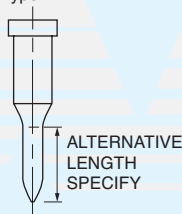
Type Y



Type Z



Type AL



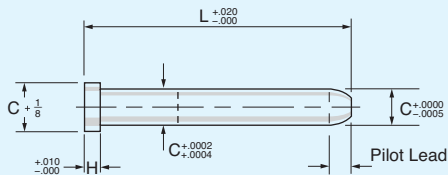
Overall lengths up to 5"
Any alternative dimensions can be specified.

Symbol Numbers	Shank Dia. C	Head H	Pilot Dia. D
TP1	.125	1/8	.090-.125
TP2	.1562	1/8	.090-.156
TP3	.1875	1/8	.090-.187
TP4	.2187	1/8	.090-.218
TP5	.250	1/8	.090-.250
TP6	.2812	1/8	.125-.281
TP7	.3125	1/8	.125-.312
TP8	.375	3/16	.125-.375
TP9	.4375	3/16	.125-.437
TP10	.500	3/16	.250-.500
TP11	.5625	3/16	.250-.562
TP12	.625	3/16	.250-.625
TP13	.750	1/4	.375-.750
TP8	.875	1/4	.625-.875
TP14	1.000	1/4	.750-1.000
TP15	1.125	1/4	.875-1.125
TP16	1.187	1/4	.875-1.187
TP17	1.250	1/4	1.000-1.250
TP18	1.375	1/4	1.125-1.375
TP19	1.500	1/4	1.250-1.500

Dia D Range	Pilot Lead
.090-.250	3/16
.251-.375	1/4
.376-.500	5/16
.501-.750	5/8
.751-1.000	1/2
1.001-1.500	5/8

Example order:
12 off TP5Y .231 3 lg

Parallel Pilots



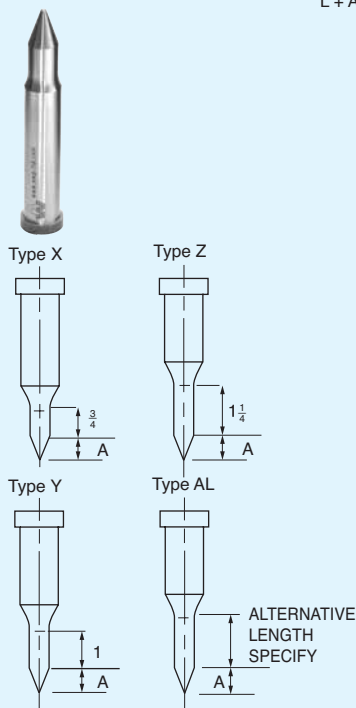
Overall lengths up to 5"
Any alternative dimensions can be specified.

Symbol Numbers	Shank Dia. C	Head H
SPP1	.125	1/8
SPP2	.1562	1/8
SPP3	.1875	1/8
SPP4	.2187	1/8
SPP5	.250	1/8
SPP6	.2812	1/8
SPP7	.3125	1/8
SPP8	.375	3/16
SPP9	.4375	3/16
SPP10	.500	3/16
SPP11	.5625	3/16
SPP12	.625	3/16
SPP13	.750	1/4
SPP78	.875	1/4
SPP14	1.000	1/4
SPP15	1.125	1/4
SPP16	1.187	1/4
SPP17	1.250	1/4
SPP18	1.375	1/4
SPP19	1.500	1/4

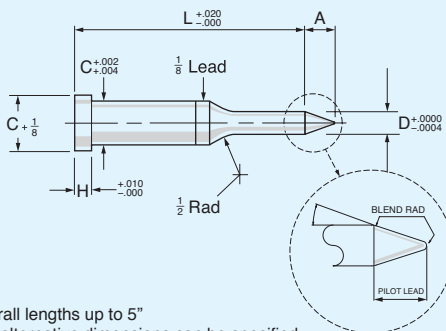
Dia C Range	Pilot Lead
.090-.250	3/16
.251-.375	1/4
.376-.500	5/16
.501-.750	3/8
.751-1.000	1/2
1.001-1.500	5/8

Example order:
3 off SPP10 x 3 lg

Angular Pilot Points



$L + A = \text{OVERALL LENGTH}$

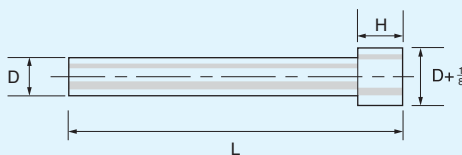


Overall lengths up to 5"
Any alternative dimensions can be specified.

Symbol Numbers	Shank Dia. C	Head H	Pilot Dia D	A
ATP8	.375	3/16	.180 - .395	.315
ATP10	.500	3/16	.235 - .510	.395
ATP12	.625	3/16	.395 - .630	.590
ATP13	.750	1/4*	.530 - .785	.787
ATP14	1.000	1/4*	.690 - .985	.985
ATP15	1.125	1/4*	.810 - 1.260	1.180

Example order:
ATP10X .300x4.000L = 4.000 + A

Solid Any Size Punches



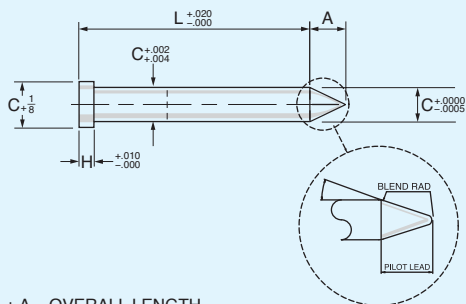
Any length up to 5" and Alternative Head Thickness readily available

AP – Imperial Sizes

Symbol Numbers	Dia D +0.0004 / -0.0000 Increments .0004	Head H
AP	.0400 – .37	1/8
AP	.3750 – .62	3/16
AP	.6255 – OVER	1/4

Example order:
For .256" dia Punch 4" long
= AP.256 x 4 lg

Angular Parallel Pilots



$L + A = \text{OVERALL LENGTH}$

Overall lengths up to 5"

Any alternative dimensions can be specified.

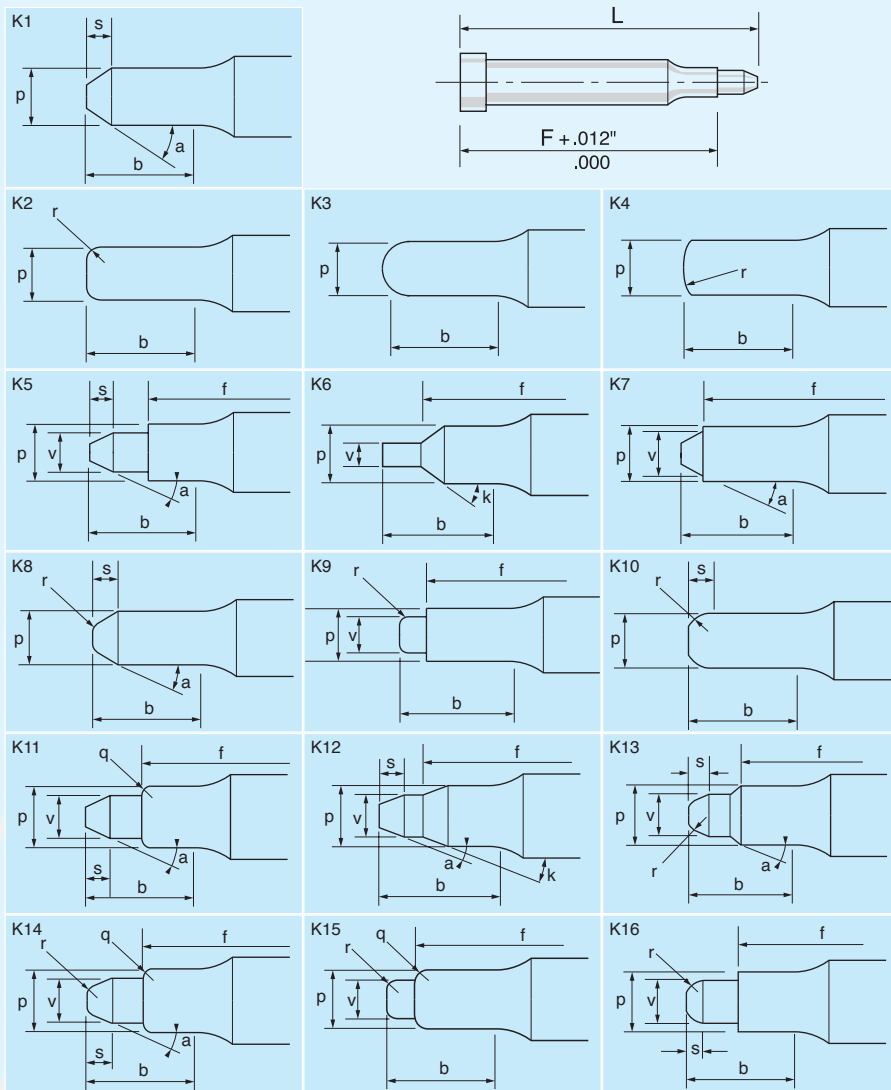


Symbol Numbers	Shank Dia. C	Head H	A
APP1	.125	$1/8$	.240
APP2	.1562	$1/8$	.240
APP3	.1875	$1/8$	.315
APP4	.2187	$1/8$	.315
APP5	.250	$1/8$	.315
APP6	.2812	$1/8$	.315
APP7	.3125	$1/8$	.315
APP8	.375	$3/16$	.315
APP9	.4375	$3/16$	.395
APP10	.500	$3/16$	.395
APP11	.5625	$3/16$	.590
APP12	.625	$3/16$	.590
APP13	.750	$1/4$	.790
APP78	.875	$1/4$	.790
APP14	1.000	$1/4$	.985
APP15	1.125	$1/4$	.985
APP16	1.187	$1/4$	1.180
APP17	1.250	$1/4$	1.180

Example order:

6 off APP4 x 2 $L = 2 + A$

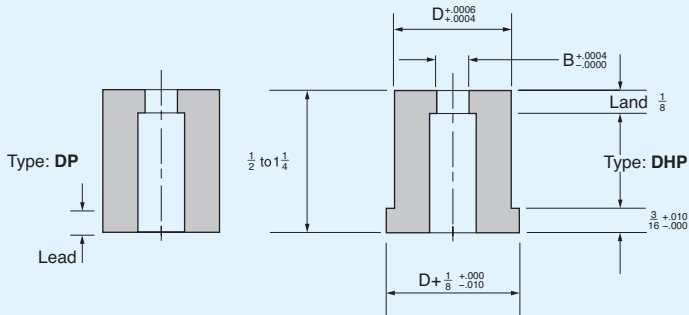
Standard Drawing Punches



To order specify:
 Symbol Numbers
 Dimensions
 Punch Blank required see page 6
 Overall Length
 Other Forms available

Example order:
 6 Off P6 K3 3.15"
 P=.228 b=.750

Die Bushes Round Parallel Recess



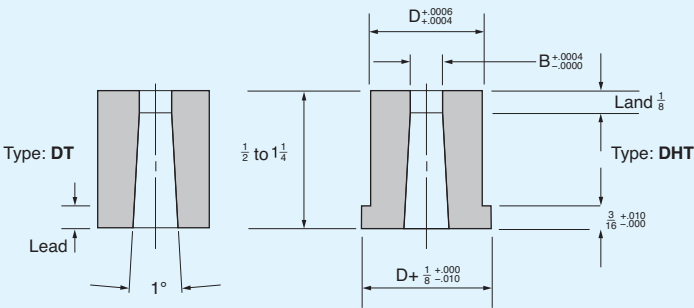
Alternative body diameter, overall length and land lengths readily available - see page 23

Symbol Numbers		Dia. D	Bore Size B
Headless	Headed		
DP1	DHP1	.1875	.062-.100
DP2	DHP2	.250	.062-.165
DP3	DHP3	.3125	.093-.200
DP4	DHP4	.375	.125-.250
DP5	DHP5	.4375	.125-.281
DP6	DHP6	.500	.125-.312
DP7	DHP7	.625	.248-.375
DP8	DHP8	.750	.375-.500
DP9	DHP9	.875	.375-.625
DP10	DHP10	1.000	.375-.750
DP11	DHP11	1.125	.375-.875
DP12	DHP12	1.250	.375-1.000
DP13	DHP13	1.375	.375-1.062
DP14	DHP14	1.500	.375-1.125
DP15	DHP15	1.625	.500-1.250
DP16	DHP16	1.750	.500-1.375
DP17	DHP17	1.875	.500-1.500
DP18	DHP18	2.000	.500-1.625

Example order:

6 off DP18 1.250 x 3/4 lg

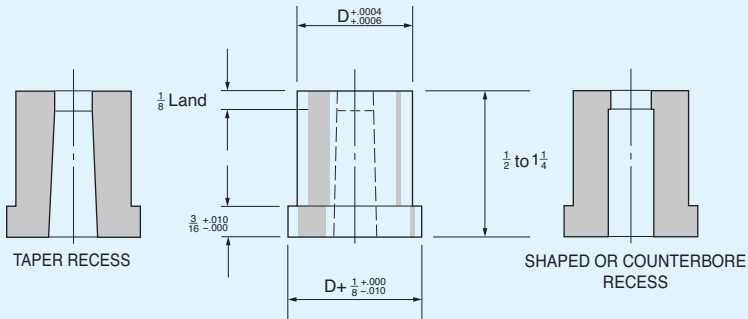
Die Bushes Round Taper Recess



Alternative body diameter, overall length and land lengths readily available - see page 23

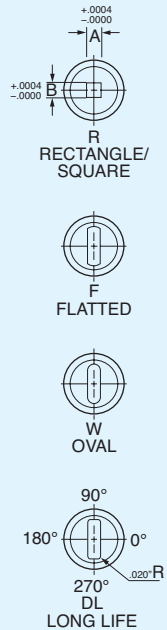
Symbol Numbers		Dia. D	Bore Size B
Headless	Headed		
DT1	DHT1	.1875	.080-.100
DT2	DHT2	.250	.080-.165
DT3	DHT3	.3125	.093-.200
DT4	DHT4	.375	.125-.250
DT5	DHT5	.4375	.125-.281
DT6	DHT6	.500	.125-.312
DT7	DHT7	.625	.248-.375
DT8	DHT8	.750	.375-.500
DT9	DHT9	.875	.375-.625
DT10	DHT10	1.000	.375-.750
DT11	DHT11	1.125	.375-.875
DT12	DHT12	1.250	.375-1.000
DT13	DHT13	1.375	.375-1.062
DT14	DHT14	1.500	.375-1.125
DT15	DHT15	1.625	.500-1.250
DT16	DHT16	1.750	.500-1.375
DT17	DHT17	1.875	.500-1.500
DT18	DHT18	2.000	.500-1.625

Example order:
12 off DHT4 .200 3/4 lg



Alternative Body diameter, overall length and land lengths readily available - see page 23

Symbol Numbers									
Headless Dies				Headed Dies				Dia. D	
Rect/Sq.	Flatted	Oval	Long Life	Rect/Sq.	Flatted	Oval	Long Life		
DR4	DF4	DW4	DL4	DHR4	DHF4	DHW4	DHL4	.375	
DR5	DF5	DW5	DL5	DHR5	DHF5	DHW5	DHL5	.4375	
DR6	DF6	DW6	DL6	DHR6	DHF6	DHW6	DHL6	.500	
DR7	DF7	DW7	DL7	DHR7	DHF7	DHW7	DHL7	.625	
DR8	DF8	DW8	DL8	DHR8	DHF8	DHW8	DHL8	.750	
DR9	DF9	DW9	DL9	DHR9	DHF9	DHW9	DHL9	.875	
DR10	DF10	DW10	DL10	DHR10	DHF10	DHW10	DHL10	1.000	
DR11	DF11	DW11	DL11	DHR11	DHF11	DHW11	DHL11	1.125	
DR12	DF12	DW12	DL12	DHR12	DHF12	DHW12	DHL12	1.250	
DR13	DF13	DW13	DL13	DHR13	DHF13	DHW13	DHL13	1.375	
DR14	DF14	DW14	DL14	DHR14	DHF14	DHW14	DHL14	1.500	
DR15	DF15	DW15	DL15	DHR15	DHF15	DHW15	DHL15	1.625	
DR16	DF16	DW16	DL16	DHR16	DHF16	DHW16	DHL16	1.750	
DR17	DF17	DW17	DL17	DHR17	DHF17	DHW17	DHL17	1.875	
DR18	DF18	DW18	DL18	DHR18	DHF18	DHW18	DHL18	2.000	



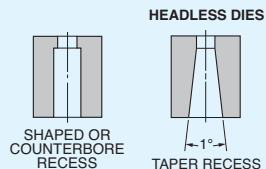
Example order:

4 off DW 10.300 x .500 1 lg
6 off DHR 15.550 x .750 1 lg

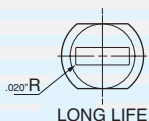
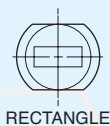
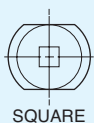
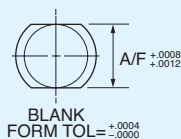
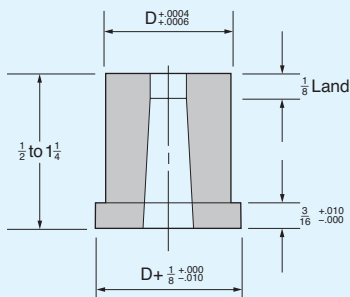
Taper Recess is supplied unless specified otherwise.

Location Flats if required see page 22

NS shapes available see pages 18, 19



Die Bushes Split



Alternative shapes, body dia, overall length and land lengths readily available - see page 22

Symbol Numbers	Dia. D
GD4	$3/8$
GD5	$7/16$
GD6	$1/2$
GD7	$5/8$
GD8	$3/4$
GD9	$7/8$
GD10	1
GD11	$1 1/8$
GD12	$1 1/4$
GD13	$1 3/8$
GD14	$1 1/2$
GD15	$1 5/8$
GD16	$1 3/4$
GD17	$1 7/8$
GD18	2

To order specify:

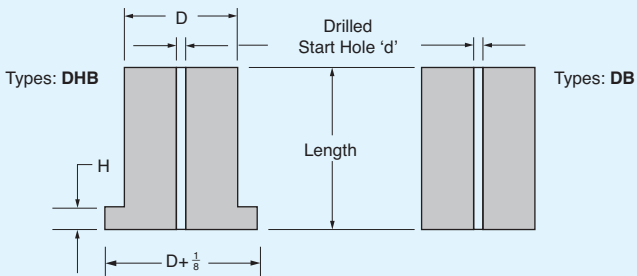
Symbol, type, shape and size and length

Note: Head Flats are Standard on Split Dies

Example order:

GD12 Oval .400 x .800 $1 1/4$ lg

EDM Die Blanks



Imperial

Head Thickness H	$\frac{3}{16}$
Length	$\frac{1}{2}$ to $1\frac{1}{4}$

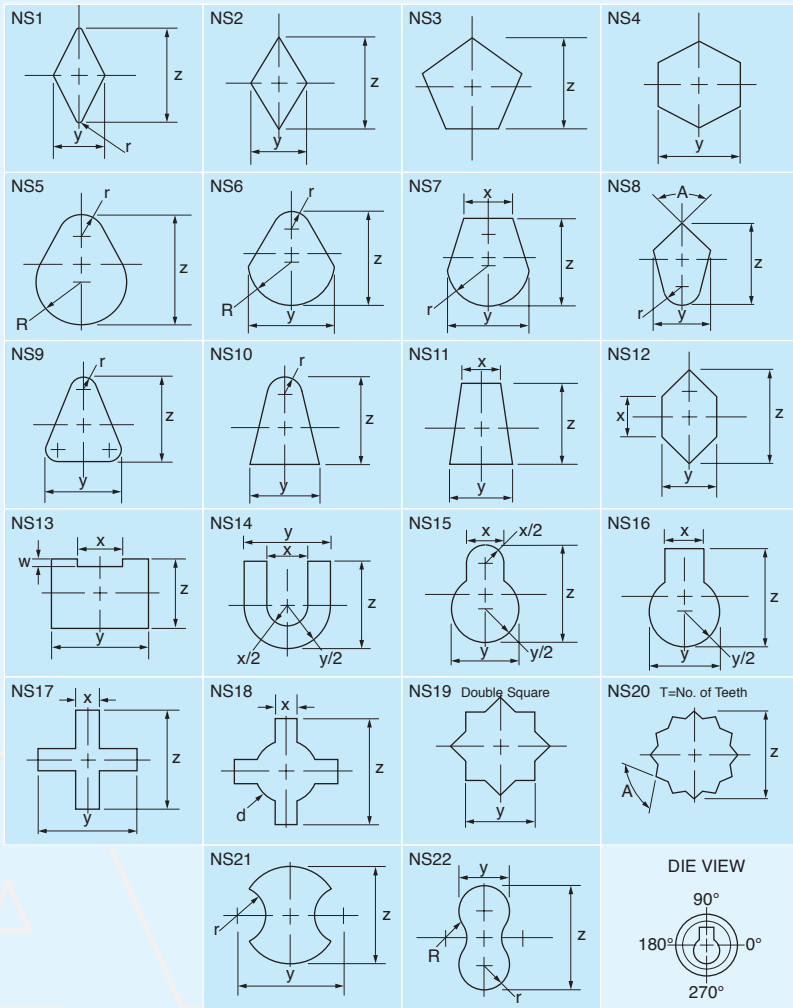
Symbol Numbers		Dia. D +.0006 +.0004	Dia. d
DB1	DHB1	.1875	0.04
DB2	DHB2	.250	
DB3	DHB3	.3125	
DB4	DHB4	.375	
DB5	DHB5	.4375	
DB6	DHB6	.500	
DB7	DHB7	.625	0.06
DB8	DHB8	.750	
DB9	DHB9	.875	
DB10	DHB10	1.000	
DB11	DHB11	1.125	
DB12	DHB12	1.250	
DB13	DHB13	1.375	0.08
DB14	DHB14	1.500	
DB15	DHB15	1.625	
DB16	DHB16	1.750	
DB17	DHB17	1.875	
DB18	DHB18	2.000	

Example order:
12 off DB17 1" lg
Alternative Body and Bore size available
Location Flats if required see pages 22

NS Non Standard Punch and Dies

Unless stated otherwise the Y and Z dimensions are equal about the centrelines of Punch or Die Body see Die and Punch view.

90°



0°

270°

To order Dies please specify in addition to form dimensions

Diameter,

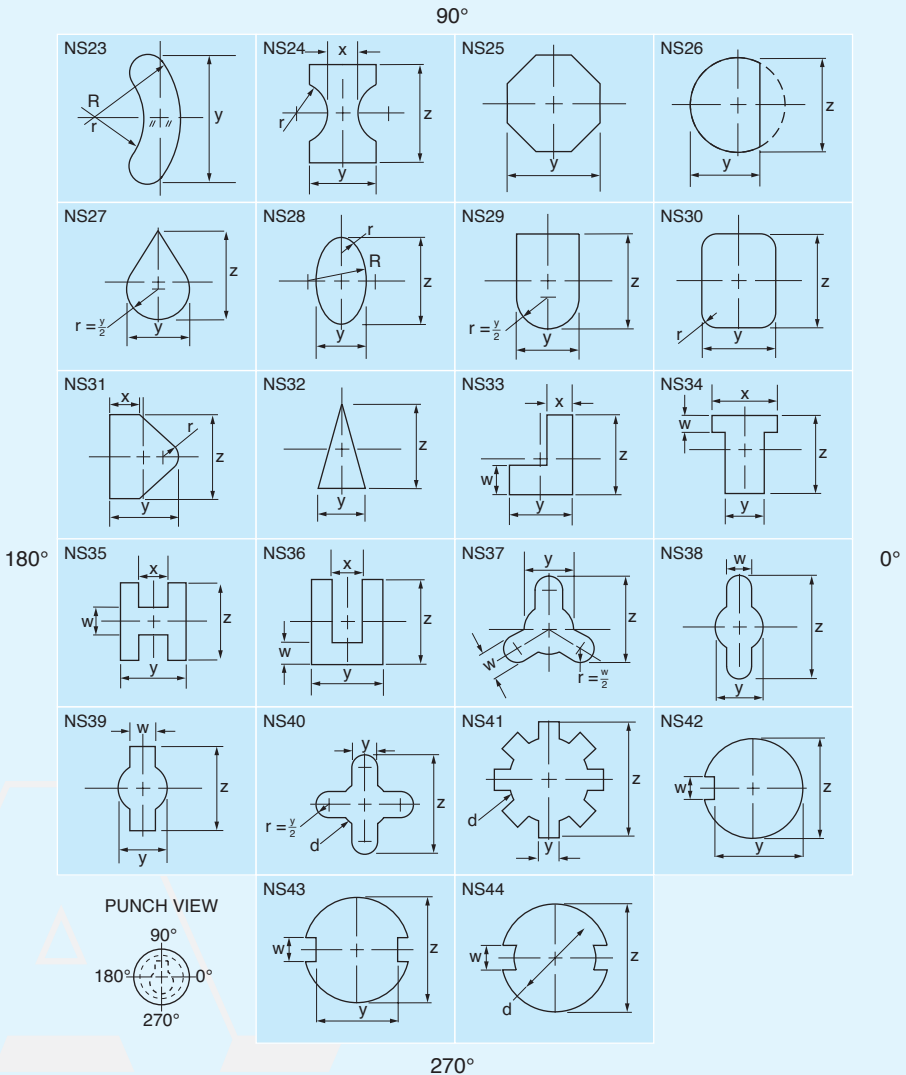
Length of Land,

Shaped, Round or Tapered Recess,

Overall Length

Location Flats Standard on split dies only, if required on solid dies please specify as shown on page 22

NS Non Standard Punch and Dies



To order Punches please specify in addition to form dimensions

Shank Diameter,

Length of form excluding radius,

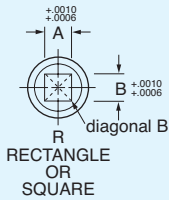
Overall Length

Location Flats if required please specify as shown on page 22

Stripper Bushes



ROUND



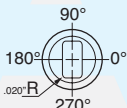
RECTANGLE
OR
SQUARE



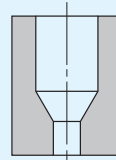
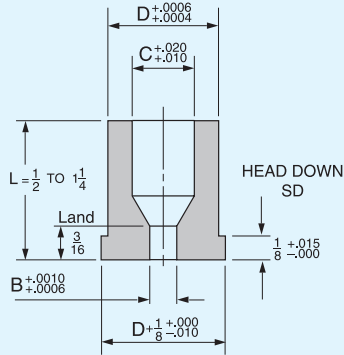
FLATTED



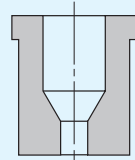
W
OVAL



L
LONG LIFE



HEADLESS
S



HEAD UP
SU

***insert the shape code**

Alternative shapes, body dia, overall length and land lengths available

Symbol Numbers			Body Dia D	Diagonal Range B	Dia C
Head Down	Headless	Head Up			
SD*2	S*2	SU*2	.250	.063-.125	.125
SD*3	S*3	SU*3	.3125	.070-.187	.187
SD*4	S*4	SU*4	.375	.090-.250	.250
SD*5	S*5	SU*5	.4375	.125-.312	.312
SD*6	S*6	SU*6	.500	.150-.344	.344
SD*7	S*7	SU*7	.625	.250-.450	.450
SD*8	S*8	SU*8	.750	.375-.562	.562
SD*9	S*9	SU*9	.875	.375-.687	.687
SD*10	S*10	SU*10	1.000	.375-.812	.812
SD*11	S*11	SU*11	1.125	.375-.937	.937
SD*12	S*12	SU*12	1.250	.375-.937	.937
SD*13	S*13	SU*13	1.375	.375-.969	.969
SD*14	S*14	SU*14	1.500	.375-1.000	1.000

Example order:

6 off SUW10 x .375 x .500 x 1"

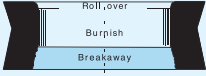
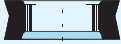
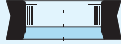
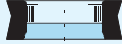
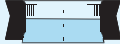
10 off SDT6 x .250 x 1 1/4"

Location Flats if required see page 22

Note: Diagonal B must not exceed dia C

Views are from the dia C end

Guide to Punch & Die Clearances

Hole Type & Variation Dependant on Clearance	Tight Clearance	Normal Clearance	Optimum Clearance	Maximum Clearance (Extended tool life)
				
			Use with ejector punches	
Aluminium, Hard	1 - 2%	4 - 8%	12 - 15%	16 - 20%
Aluminium, Soft	1 - 2%	10 - 12%	18 - 20%	25 - 28%
Brass, 1/2 Hard	1 - 3%	4 - 6%	12 - 16%	16 - 20%
Brass, Annealed	3 - 5%	6 - 10%	12 - 16%	18 - 22%
Bronze, 1/2 Hard	1 - 3%	7 - 10%	20 - 24%	25 - 27%
Copper, 1/2 Hard	2 - 4%	6 - 10%	12 - 16%	18 - 22%
Copper, Annealed	1 - 2%	4 - 8%	10 - 14%	16 - 18%
Magnesium	1 - 2%	3 - 6%	7 - 9%	10 - 14%
Stainless, Annealed	2 - 4%	6 - 10%	18 - 22%	25 - 27%
Steel, High Carbon	5 - 10%	22 - 25%	26 - 32%	33 - 36%
Steel, Low Carbon	2 - 4%	10 - 14%	16 - 20%	16 - 23%

All above clearances are total % allowance of material thickness

Formula for Calculating Blanking Pressure.

Blanking Pressure in tons: $P = LTS \div 2200 \text{ LBS}$

L = Length of Cut
T = Thickness of material
S = Shear strength of material

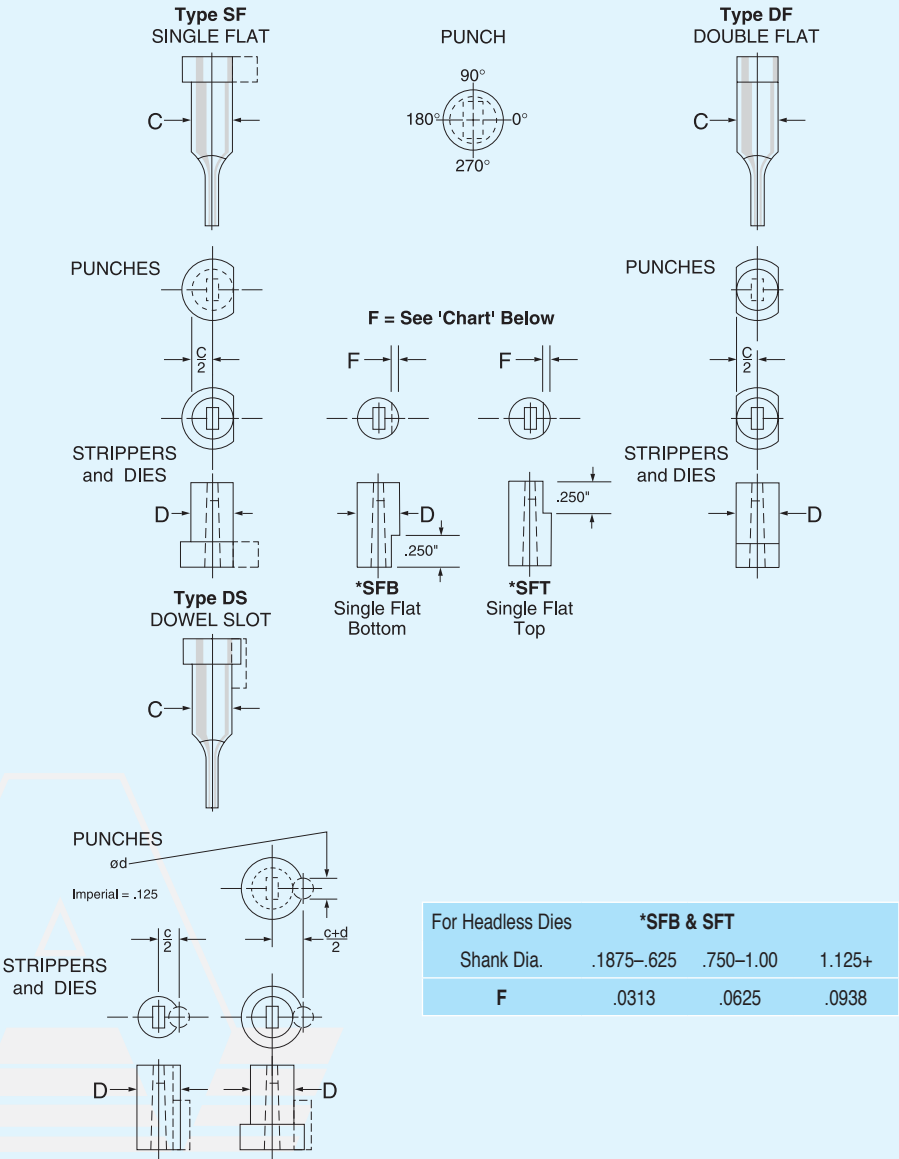
Stripping Pressure

Stripping pressure will not normally exceed 10% of Blanking pressure under normal conditions.

	Material Group	High Carbon Steel Hard Bronze Spring Steel	Stainless Steel Medium Carbon Steel	Low Carbon Steel Hard Aluminium Hard Brass	Soft Brass Aluminium Copper
Shear Strength	lb/in ² kg/cm ²	100,000 - 200,000 7000 - 14000	60,000 - 100,000 4200 - 7000	40,000 - 60,000 2800 - 4200	30,000 - 40,000 2100 - 2800

These are guide lines only. A W Precision Ltd accept no liability.

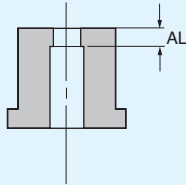
Standard Locations for Punches, Strippers and Dies



For Headless Dies		*SFB & SFT		
Shank Dia.	.1875-.625	.750-1.00	1.125+	
F	.0313	.0625	.0938	

Standard Dowel Locations available, please specify size.

Die Bushes Alternative Land

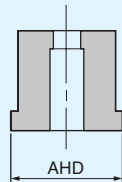


Specify Land Required - AL = *

Example order:

DHP9 .240 1.18 AL=.310

Die Bushes Alternative Head Diameter

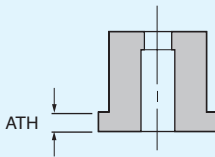


Specify Head DIA Required - AHD = *

Example order:

DHP9 .240 1.18 AHD=1.000

Die Bushes Alternative Thickness Head



Specify Head Thick Required - ATH = *

Example order:

DHP9 .240 1.18 ATH=.310

Die Bushes Alternative Body Diameter



Specify Body DIA Required = * ABD

Example order:

DHP.785 .240 1.18



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