Durable, Long-lasting Punches & Punch Blanks

> DAY TON

Global leader in providing fabrication and stamping solutions

www.daytonprogress.com



TuffPunch[®] Punches and Punch Blanks

Product Applications

Dayton Progress *TuffPunch*®

Punches and *Punch Blanks* are Kommercial 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. (See p. 3 for additional information.) TuffPunch[®] 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 TuffPunch[®] product line includes: *Dayton Jektole[®] Punches; Regular Punches; Center Dowel Punches; Punch Blanks;* and *Retainers.* Both standard sizes and standard alterations are shown in this catalog.

Minimizes Head Failure

All Dayton TuffPunch[®] products are designed with a 10°-angled head with a diameter equal to the shank diameter (see photo). 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 TuffPunch[®] 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. 9.

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 TuffPunch[®] products.

The *DayKool*[™] process utilizes a liquid nitrogen vapor to cool the steel to −184° C (-300° F), 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 Coatings

All products listed in this catalog can be treated to increase material hardness, reduce galling, and improve wear and/or corrosion resistance. A coating chart is included on the product pages.

DayTride[®] **(XN)**—a low-cost surface application that treats all exposed surfaces. Ideal for punches and matrixes. Provides high dimensional stability. Approx. hardness: RC73.

DAYTIN® (XNT)—applied via PVD (physical vapor deposition). Provides extreme hardness (hard as carbide) and excellent lubricity when used with a lubricant. Not recommended for stainless steel, copper, or nickel. Approx. hardness: *Vickers 2300.

TiCN (XCN)—very hard PVD, thin film. Provides ultra hardness (harder than carbide) and superior abrasive wear resistance. Approx. hardness: *Vickers 3000.

Center Dowel Punches & Retainers



This catalog contains *Center Dowel Punches* (Jektole[®] and

Regular) and *TuffPunch® Single Head Punch Retainers*, designed specifically to be used with all TuffPunch[®] punches. Only one dowel is required for round punches, reducing machining time by us to 50%. The in-line center dowel assures precise punch-to-matrix alignment, giving you higher quality parts, longer punch life, and reduced downtime. Shaped punches use a secondary dowel for precise alignment.

Use of the TuffPunch[®] Center Dowel Punch and Retainer eliminate hand-fitting, cutting mounting time by nearly 50%. Simply pull the retainer from its box, and screw it into the die set. This heads-above-the-rest TuffPunch[®] combination gives you true dimensional accuracy every time.

*Vickers used when RC exceeds 80.

TuffPunch[®], DayKool™, DayTride[®], and DAYTiN[®] are trademarks of Dayton Progress Corp. ©2009 Dayton Progress Corporation. All rights reserved.

Ordering Information

Each page contains detailed instructions on how to order specific Dayton TuffPunch® products. Individual drawings show product shape, dimensions, tolerances, and concentricity. When ordering, you are asked to specify quantity, type, shank and length codes (for example), and other applicable data.



In the example above, the type specified is "APRF." "A" stands for Press-Fit, "P" stands for regular punch, "R" stands for rectangle, and "F" stands for TuffPunch[®]. 16 is the shank diameter. 25 is the point length, and 90 is the overall length. P 8.5 represents the point dimension, and W 8.0 represents the point width, when applicable.

Standard Alterations

Punches, retainers, and punch blanks are available in sizes other than those listed in the catalog. These special order products can be manufactured for a slight additional charge.

When ordering, you are asked to specify different designations for various non-standard dimensions. For



example, if the P & W dimensions are smaller than standard, an "X" must be placed in front of the P or W dimen-

sion, e.g., "XP" and "XW." If the point length is longer than standard, designate "XBR" for the point length. The sample drawing above is from the "Standard Alterations" section on p. 9.

Other special order designations include: "XL" for overall length shortened; "XK" for no side hole and no components (for air ejection of slugs); and other special designations for surface coatings.

Product Designation

When ordering, you are asked to specify quantity, product type, length codes, and point or hole size (for example). In addition, use the following chart to define the product as a part number.



Jektole® Punches and Clearances

Jektole®—Dayton's slug ejection punch—permits

doubling punch to matrix clearance; produces up to three times the number of hits between sharpenings; and reduces burr heights. Jektole[®] is available in TuffPunch[®] Punches and Punch Blanks. For additional information on standard sizes and standard alterations, see pp. 4 and 9.



Special Features

There are several features that contribute to minimizing failures. In addition to the head design and large fillet under the head, all punch shapes with sharp corners will have a carefully blended radius ground to reduce loading on the punch. The reduced load and standard cryogenic treatment result in fewer punch point problems caused by chipping, wear, or breakage.



TuffPunch[®] Jektole[®] Punches



Material

Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55

Alt.

19

19

19

25

25

25

Type & D

AJXF

AJXF 08

AJXF 10

AJXF 13

AJXF 16

AJXF 20

AJXF 25

Range

Ρ

4.00 - 7.99

5.00 - 9.99

6.00-12.99

10.00-15.99

13.00-19.99

18.00-24.99



70 80

. • •





Min. Max.

6.00-13.00

6.00-16.00

P/G 50 60

> • • •

• • • •

• • • •

• • • •

• . • •

W

AJ_F 08 4.00 - 8.00

AJ_F 10 5.00-10.00

AJ_F 20 6.00-20.00

AJ_F 25 6.00-25.00

Ocenterline to flat minimum =

2.0 for J6 and 3.0 for J9.

Type & D

AJ F

AJ_F 13

AJ_F 16



100

•

•

•

90

• • AJHF

Jektole®

Group

J4M

J6M

J6M

.J9M

.J9M

J9M

HOW TO ORDER

Example: 6

AJJF

Specify: Qty. Type

12

10 AJLF

AJXF

AJRF

Note: The standard location of a key	90 	Reflected
the D dimension	₽ {(<u>†</u> <u>†</u> <u>†</u>	→ 0° (X2)

19-80

25-80

19-90

D Code L

16

16

16

For additional

information, see p.10

P (or P&W)

Dimension

P 8.2, W 7.2

P 8.3 P 8.5, W 8.0

Standard Alterations See p.9 for additional ordering instructions.

Surface Coatings

See p. 2 for details.	
Code/Added Deliv	ery
XCN —TiCN	+3 days
XN —DayTride®	+3 days
XNT —DayTiN®	+3 days



Round 1 Day Shape 2 Days

Note: 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 TuffPunch® products. For additional information, see p. 2.

When L = 50, L₁ is 8.0.

Shank Point Length L₁

Std.

13

13

13

19

19

19

D

08

10

13

16

20

25

Alternate point length not available.

TuffPunch[®] Jektole[®] Punch Blanks



Material Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55



Jektole® side hole position allows alternate point lengths shown on AJ_F above.

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

Note: DayKoolTM (XCR)—a cryogenic steel conditioning process used primarily with hard, thick materials to improve strength, toughness, and dimensional stability—is standard on all Dayton TuffPunch® products. For additional information, see p. 2.

Specify:	Qty.	Туре	D Code	L
Example:	6	AJBF	20	80

Standard Alterations See p.9 for additional ordering instructions.



Blanks 1 Day

Surface Coatings See p.2 for details.

Code/Added Delive	ery
XCN —TiCN	+3 days
XN —DayTride®	+3 days
XNT —DayTiN®	+3 days

TuffPunch[®] Regular Punches



Material

Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55

Alt.

19

19

19

25

25

25

Type & D

APXF

APXF 08

APXF 10

APXF 13

APXF 16

APXF 20

APXF 25

Range

P

3.00 - 7.99

3.00 - 9.99

6.00-12.99

10.00-15.99

13.00-19.99

18.00-24.99



HOW TO ODDED

APJF

ΔΡΖΕ

1000 100					
Specify:	Qty.	Туре	D Code	L	P (or P&W) Dimension
Example:	6	APXF	16	19-80	P 8.3
	12	APRF	16	25-80	P 8.5, W 8.0
	10	APLF	16	19-70	P 8.2, W 7.2



R (Specify) \mathbf{h} ጠ፣ ŀ Ľ

> 70 80 90 100

•

•

APKF

be certain the diagonal G does not exceed the maximum shown Note: Sharp corners will have a 0.13 radius to minimize wear

Min.

3.00 - 8.00

3.00-10.00

3.00-13.00

4.00-16.00

5.00-20.00

6.00-25.00

0.5

₹1.2^{+0.4}

+0.3

W

Max.

P/G

50 60

• • • •

• • • .

D^m2

ŧ

• • • • •

•

• • • .

•

Type & D

AP F

AP_F 08

AP_F 10

AP_F 13

AP_F 16

AP_F 20

AP_F 25

APNF APVF APYF	ł	₽ -w-	-w-	-w-
-W- R= 2	Sin Sin			

• •

•

APBF

•

• • •

APLF

APHF

A

Note: The standard location of a key flat is parallel to the P dimension. For additional information, see p.10	Reflected View - 0° (X2)

Standard Alterations
See p.9 for additional
ordering instructions.

Surface Coatings

ery
+3 days
+3 days
+3 days



Note: 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 TuffPunch® products. For additional information, see p. 2.

10°-

ł +D+2

When L = 50, L₁ is 8.0.

Shank Point Length L₁

Std.

13

13

13

19

19

19

D

08

10

13

16

20

25

Alternate point length not available.

TuffPunch[®] Regular Punch Blanks



Material Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55

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

Note: 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 TuffPunch® products. For additional information, see p. 2.

Specify:	Qty.	Туре	D Code	L
Example:	6	APBF	20	80

See p.9 for additional ordering instructions.



Blanks 1 Day

Surface Coatings See p.2 for details

000 p	. E for dotailo.		
Co	de/Added Delive	ery	
XC	N —TiCN	+3 days	
XN	—DayTride®	+3 days	
XN	T —DayTiN®	+3 days	



TuffPunch[®] Jektole[®] Center Dowel Punches



Material

Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55



SJLF

S.IVF

S.INF

SJHF

SJYF



- Check your P&W dimensions to be certain the diagonal G does not exceed the maximum shown.
 Centerline to flat minimum =
- 2.0 for J6 and 3.0 for J9.

					-	1								
Shank	Point	Lenath L1	Type & D	Range	Type & D	Min.	Max.							Jektole®
D	Std.	Alt.	SJXF	P	SJ_F	W	P/G	80	90	100	110	120	130	Group
10	13	19	SJXF 10	5.0 – 9.99	SJ_F 10	5.00-	10.00	•	•	•	•	•	•	J6M
13	13	19	SJXF 13	6.0–12.99	SJ_F 13	6.00-	13.00	•	•	•	•	•	•	J6M
16	19	25	SJXF 16	10.0–15.99	SJ_F 16	6.00-	16.00	•	•	•	•	•	•	J9M
20	19	25	SJXF 20	13.0–19.99	SJ_F 20	6.00-2	20.00	•	•	•	•	•	•	J9M
25	19	25	SJXF 25	18.0-24.99	SJ_F 25	6.00-2	25.00	•	•	•	•	•	•	J9M
32	19	25	SJXF 32	20.0-31.99	SJ_F 32	6.00-3	32.00	•	•	•	•	•	•	J9M
38	19	25	SJXF 38	28.0-37.99	SJ_F 38	6.00-3	38.00	•	•	•	•	•	•	J9M
45	19	25	SJXF 45	35.0-44.99	SJ_F 45	6.00-4	45.00	•	•	•	•	•	•	J9M

Note: *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 TuffPunch[®] products. For additional information, see p. 2.

HOW TO ORDER

SJJF

S.I7F

Qty.	Туре	D Code	L	P (or P&W) Dimension
10	SJXF	19	80	P 8.3
10	SJRF	25	80	P 8.5, W 8.0
16	SJLF	19	71	P 8.2, W 7.2
	Qty. 10 10 16	Qty. Type 10 SJXF 10 SJRF 16 SJLF	Qty. Type D Code 10 SJXF 19 10 SJRF 25 16 SJLF 19	Oty. Type D Code L 10 SJXF 19 80 10 SJRF 25 80 16 SJLF 19 71



Standard Alterations
See p.9 for additional
ordering instructions.

Surface Coatings

See p. 2 for details.	
Code/Added Delive	ery
XCN —TiCN	+3 days
XN —DayTride®	+3 days
XNT —DayTiN®	+3 days



Round 1 Day Shape 2 Days

TuffPunch[®] Jektole[®] Center Dowel Blanks



Material Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55



Jektole[®] side hole position allows alternate point length shown on SJ_F above.

Shank	Catalog				L			Jektole ®
D	Number	80	90	100	110	120	130	Group
10	SJBF 10	•	•	•	•	•	•	J6M
13	SJBF 13	•	•	•	•	•	•	J6M
16	SJBF 16	•	•	•	•	•	•	J9M
20	SJBF 20	•	•	•	•	•	•	J9M
25	SJBF 25	•	•	•	•	•	•	J9M
32	SJBF 32	•	•	•	•	•	•	J9M
38	SJBF 38	•	•	•	•	•	•	J9M
45	SJBF 45	•	•	•	•	•	•	J9M
		1		1				1

Note: *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 TuffPunch[®] products. For additional information, see p. 2.

HOW TO OI	RDER				
Specify:	Qty.	Туре	D Code	L	
Example:	9	SJBF	38	120	

Standard Alterations See p.9 for additional ordering instructions.



Blanks 1 Day

Surface Coatings See p.2 for details.

Code/Added Delive	ery
XCN —TiCN	+3 days
XN —DayTride®	+3 days
XNT —DayTiN®	+3 days

TuffPunch[®] Regular Center Dowel Punches



Material

Shank Point Length L₁

Std.

13

13

19

19

19

19

19

19

D

10

13

16

20

25

32

38

45

Material

Heads RC 40-55

Steel: PS4 (CPM M4), RC 60-62 Heads RC 40-55

Alt.

19

19

25

25

25

25

25

25

Type & D

SPXF

SPXF 10

SPXF 13

SPXF 16

SPXF 20

SPXF 25

SPXF 32

SPXF 38

SPXF 45





radius to minimize wear

Type & D

SP F

SP_F 10

SP F 13

SP_F 16

SP_F 20

SP_F 25

SP_F 32

SP_F 38

SP_F 45

Min.

3.00-10.00

3.00-13.00

4.00-16.00

5.00-20.00

6.00-25.00

6.00 - 25.00

6.00-25.00

6.00-25.00

W

© Ø0.01 A

Range

P

3.00 - 9.99

6.00-12.99

10.00-15.99

13.00-19.99

18.00-24.99

20.00-31.99

28.00-37.99

35.00-44.99

m¦

SPKF

ecify)

= 0.02 A Check your P&W dimensions to SP be certain the diagonal G does Ű not exceed the maximum shown Note: Sharp corners will have a 0.13

Max.

P/G

80 90

• • • • • •

• • • • .

• •

• • • • • .

• • • • • •

۰ • • ۰ • •

• • • • • •

•

• • • •

-w-	-w-	₽ <u></u> -w-1
NF		

100 110 120 130

• . .

.

•

•

SPLF

È L

013

SPHF

M

SPJF	Note: The standard location of a key	0° Reflecte View
TT.	flat is parallel to the P dimension.	€ (X2)

L

90

80

70

D Code

19

25

19

For additional

information, see p.10

Type

SPXF

SPLF

HOW TO ORDER

Specify: Qty.

Example: 10

16 SPRF

16

Standard Alterations See p.9 for additional ordering instructions.

Surface Coatings

See p. 2 for details.	
Code/Added Deliv	ery
XCN —TiCN	+3 days
XN —DayTride®	+3 days
XNT —DayTiN®	+3 days



Note: 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 TuffPunch® products. For additional information, see p. 2.

TuffPunch[®] Regular Center Dowel Blanks



Steel: PS4 (CPM M4), RC 60-62

D^{m5} SPBF 10-0⁺0 ÷ R1.2^{+0.4} Ø6 | x11 Deep 8.0±0.01 +0.3

Shank Catalog D Number 90 100 110 120 130 80 SPBF 10 10 . • • c • . SPBF 13 13 • . . . SPBF 16 16 • • • • . . 20 SPBF 20 • • . • • . SPBF 25 25 . . • . . • 32 SPBF 32 • • • • • • 38 SPBF 38 • • • • • • SPBF 45 • 45 . . • • •

Note: DayKoolTM (XCR)—a cryogenic steel conditioning process used primarily with hard, thick materials to improve strength, toughness, and dimensional stability-is standard on all Dayton TuffPunch® products. For additional information, see p. 2.

Specify:	Qty.	Туре	D Code	L
Example:	6	SPBF	25	110

Standard Alterations See p.9 for additional ordering instructions.



Blanks 1 Day

Surface Coatings See p. 2 for details

000 p.2 101 dotails.							
Code/Added Delive	ery						
XCN —TiCN	+3 days						
XN —DayTride®	+3 days						
XNT —DayTiN®	+3 days						

P (or P&W) Dimension

P 8.2, W 7.2

P

P 8.3 P 8.5, W 8.0



TuffPunch[®] Single Head Retainers



Type

ARTF

ARTFS

Clearance

Holes (5)

D

10

25



ARTF and ARTFS TuffPunch®

Retainer sets include:

2 Screws

2 Dowels

Backing Plate

Catalog No.

URBP 10 63

URBP 13 63

URBP 16 63

URBP 20 63

URBP 25 63

D

10

13

16

20

25







Catalog	No.				ARTF			ARTFS						Screw
Туре	Code	D	A	В	Н	G	K	M	R	S	U	X	Y	Size
	10	10.00	44.5	43.7	15.5	11.1	19.0	7.75	9.5	12.0	26.925	9.0	7.5	M8
ADTE	13	13.00	50.8	50.0	18.5	14.3	19.0	9.25	12.7	15.2	29.970	12.0	6.5	M8
ARIF	16	16.00	54.0	53.2	21.5	15.9	19.0	10.75	14.3	16.8	31.750	13.5	6.0	M8
ANIFS	20	20.00	60.3	59.5	25.5	17.5	19.0	12.75	17.5	20.0	33.530	16.5	5.0	M10
	25	25.00	69.9	69.1	30.5	19.8	23.8	15.25	22.2	24.7	40.640	22.0	7.0	M12

Features/Benefits

TuffPunch[®] ARTF and ARTFS Single Head Punch Retainers are designed specifically for use with TuffPunch[®] Punches—Jektole[®] and Regular. Only one dowel is required for round punches, reducing machining time by up to 50%. The in-line center dowel assures precise punch-to-matrix alignment, giving you higher quality parts, longer punch life, and reduced downtime. Shaped punches use a secondary dowel for precise alignment.

Use of the TuffPunch[®] Center Dowel Punch and Retainer also eliminates hand-fitting, cutting mounting time by nearly 50%. Simply pull the retainer from its box, and screw it into the die set. This TuffPunch[®] combination gives you true dimensional accuracy every time.



HOW TO ORDER

Specify:

Example:

Qty.

4

6

Backing Plate T=6.3

Standard Alterations

Punches are available in sizes other than those listed on the individual product pages.

Jektole[®], Regular, and Center Dowel



XBR (Straight Before Radius) It is recommended that point lengths be kept as short as





L ₁ I	Max. ►	8	13	19 Min F	25 (Rounds)	30	35	40	Jektole® Group
08	AJXF	3.0	3.0	3.0	4.0	5.0			J4M
10	AJXF APXF SJXF SPXF	4.0 1.5 4.0 1.5	4.0 1.5 4.0 1.5	4.0 1.5 4.0 1.5	4.0 2.0 4.0 2.0	5.0 2.0 5.0 2.0	5.0 2.0 5.0 2.0	 2.0 6.0 4.0	J6M J6M
13	AJXF APXF SJXF SPXF	4.0 3.0 3.0	4.0 3.0 4.0 3.0	4.0 3.0 4.0 3.0	4.0 3.0 4.0 3.0	5.0 3.0 5.0 3.0	5.0 3.0 5.0 3.0	4.0 6.0 4.0	J6M J6M
16	AJXF APXF SJXF SPXF	6.0 5.0 5.0	6.0 5.0 6.0 5.0	6.0 5.0 6.0 5.0	6.0 5.0 6.0 5.0	6.0 5.0 6.0 5.0	6.0 5.0 6.0 5.0	5.0 6.0 5.0	J9M J9M
20	AJXF APXF SJXF SPXF	6.0 6.0 6.0	6.0 6.0 6.0 6.0	6.0 6.0 6.0 6.0	6.0 6.0 6.0 6.0	6.0 6.5 7.6 6.5	6.0 6.5 7.6 6.5	6.5 7.6 6.5	J9M J9M
25	AJXF APXF SJXF SPXF	8.0 8.0 8.0	8.0 8.0 8.0 8.0	8.0 8.0 8.0 8.0	8.0 8.0 8.0 8.0	8.0 9.0 10.0 9.0	8.0 9.0 10.0 9.0	9.0 10.0 9.0	J9M J9M
32	SJXF SPXF	8.0	10.0 8.0	10.0 8.0	10.0 8.0	10.0 9.0	10.0 9.0	10.0 9.0	J9M
38	SJXF SPXF	8.0	10.0 8.0	10.0 8.0	10.0 8.0	10.0 9.0	10.0 9.0	10.0 9.0	J9M
45	SJXF SPXF	8.0	10.0 8.0	10.0 8.0	10.0 8.0	10.0 9.0	10.0 9.0	10.0 9.0	J9M
L ₁ M	ax. 🕨	8	13	19	25	30	35	40	Jektole® Group
L ₁ M D Code	ax. 🕨 Type	8	13	19 Min. P (St	25 iapes)	30	35	40	Jektole® Group
L ₁ M D Code 08	ax. ► Type AJ_F AP_F	8 3.0 1.0	13 3.0 1.5	19 Min. P (St 3.0 3.0	25 napes) 4.0 3.0	30 4.0 4.0	35 5.0	40 	Jektole® Group J4M
L ₁ M D Code 08 10	AJ_F AP_F AJ_F AJ_F AJ_F SJ_F SP_F	8 3.0 1.0 4.0 1.25 4.0 1.25	13 3.0 1.5 4.0 1.5 4.0 1.5	19 Min. P (St 3.0 3.0 4.0 3.0 4.0 3.0 3.0	25 hapes) 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 4.5 5.0	40	Jektole [®] Group J4M J6M
L ₁ M D Code 08 10	ax. Type AJ_F AP_F AP_F SJ_F SP_F AJ_F AJ_F SP_F SP_F SP_F SP_F SP_F	8 3.0 1.0 4.0 1.25 4.0 1.25 4.0 1.5 1.5	13 3.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5	19 Min. P (St 3.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0	25 hapes) 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 5.0 4.5 5.0 5.0 5.0 4.5 5.0	40	Jektole® Group J4M J6M J6M J6M
L1 M D Code 08 10 13 13	ax. Type AJ F AP F AP F SP F AJ	8 3.0 1.0 4.0 1.25 4.0 1.25 4.0 1.5 6.0 2.0	13 3.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 6.0 2.0	19 Min. P (St 3.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 6.0 3.0 6.0 3.0 3.0 6.0 3.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	25 hapes) 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 6.0 3.5 6.0 3.5	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 5.0 5.0 5.0 5.0 4.5 5.0 4.5 5.0 6.0 6.0 6.0 6.0	40	Jektole® Group J4M J6M J6M J6M J9M J9M
L1 M D Code 08 10 13 13 20	ax. Type AJ F AP F AP F SP F AJ	8 3.0 4.0 1.25 4.0 1.25 4.0 1.5 6.0 2.0 6.0 2.5	13 3.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 6.0 2.0 6.0 2.5 6.0 2.5 6.0 2.5	19 Min. P (St 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	25 appes) 4.0 3.0 4.0 3.5 6.0 5.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 4.5 5.0 5.0 5.0 5.0 5.0 5.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	40 6.0 6.0 6.0 6.0 6.0	Jektole® Group J4M J6M J6M J6M J9M J9M J9M J9M
L1 M D Code 08 10 13 13 20 25	ax. Type AJ F AP F AP F SP F AJ F SP F AJ F SP F SP F AJ F SP	8 3.0 1.0 4.0 1.25 4.0 1.25 4.0 1.5	13 3.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 6.0 2.0 6.0 2.0 6.0 2.5 6.0 2.5 6.0 3.0 6.0 2.5 6.0 3.0 6.0 2.5 6.0 3.0 6.0 2.5	19 Min. P (St 3.0 4.0 3.0 6.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	25 apes) 4.0 3.0 4.0 3.5 6.0 5.5 6.5 6.5 6.5 6.5 6.5 6.5 6.5	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 4.5 5.0 5.0 5.0 5.0 5.0 5.0 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	40 6.0 6.0 6.0 6.0 6.0 6.0 9.0	Jektole® Group J4M J4M J6M J6M J6M J6M J6M J9M J9M J9M J9M J9M J9M J9M
L1 M D Code 08 10 13 13 20 25 32	ax. Type AJ F AP F AP F AP F SP F AP F SP F AP F AP F SP F AP F SP F AP F SP F AP F SP	8 3.0 1.0 4.0 1.25 4.0 1.25 4.0 1.5	13 3.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 6.0 2.0 6.0 2.0 6.0 2.0 6.0 2.0 6.0 2.0 6.0 2.0 6.0 2.0 6.0 2.0 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 3.0 6.0 3.0	19 Min. P (St 3.0 4.0 3.0 4.0 3.0 4.0 3.0 4.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 6.0 3.0 7.2 3.0	25 apes) 4.0 3.0 4.0 3.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 6.0 7.5 7.5 6.0 7.5 7.5 7.5 7.5 7.5 7.5 7.5 7.5	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 4.5 5.0 5.0 4.5 5.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6	40 6.0 6.0 6.0 6.0 6.0 6.0 9.0 7.2	Jektole® Group J4M J6M J6M J6M J9M J9M J9M J9M J9M J9M J9M J9M J9M
L1 M D Code 08 10 13 13 16 20 25 32 38	ax. Type AJ F AP F SP F AJ F SP F AJ F SP F AJ F SP F AJ F SP F AJ F SP F AJ F SP F SP F SP F SP F SJ F SP F SP F SP F SP F SJ F SP	8 3.0 1.0 4.0 1.25 4.0 1.25 4.0 1.25 4.0 1.25 4.0 1.5 6.0 2.0 2.0 6.0 2.5 6.0 3.0 3.0	13 3.0 1.5 4.0 1.5 4.0 1.5 4.0 1.5 6.0 2.0 6.0 2.0 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 2.5 6.0 3.0	19 Min. P (St 3.0 4.0 3.0 6.0 3.0 7.2 3.0 7.2 3.0	25 appes) 4.0 3.0 4.0 3.5 6.0 3.5 7.2 3.5 7.2 3.5 7.2 3.5 7.2 3.5 7.2 7.2 7.2 7.2 7.2 7.2 7.2 7.2	30 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	35 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	40 6.0 6.0 6.0 6.0 9.0 7.2 7.2	Jektole® Group J4M J4M J6M J6M J6M J6M J9M J9M J9M J9M J9M J9M J9M J9M J9M J9

Note: For surface coatings information, see p. 2 and the individual product pages.



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

- LL Precision Overall Length Same as XL except overall length is held to ±0.02.
- **XK** No Side Hole For air ejection. No cost.
- **XS** Shear Angles See information at right.

X.J Smaller Jektole Components

Shear Angles (XS)

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 P 8.3 XS20 A5°.





Locking Devices—Flats vs. Dowel Slots

Orientation

10

The standard location for all locking devices is 0°, and is always



is 0°, and is always 270° 270° on the long side (P) All views are reflected views

of the shape. Custom

locations are measured counterclockwise from 0°.



Standard and Alternate Locations

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

Custom Locations

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

Single Flats: X2

Order Example: X2 — 90°

Single Flats: X5

Order Example: X5 — 135°

Double Flats F = .5DF dimension views are relected views (looking down from top of punch)

Additional Flats



The depth of the flat is taken from the shank, not the head, on punches.

Double	Flats:	Х3
--------	--------	----

Locking Devices: X3 Order Example: X3 — 90° Second Flat is *always parallel* to the first flat.

Additional Flats				
Code	Depth	Length		
X81	1.5	13		
X82	1.5	16		
X83	1.5	20		
X84	1.5	Full Length		
X85	2.5	13		
X86	2.5	16		
X87	2.5	20		
X88	2.5	Full Length		
X89	Specify Dimensions			

Order Example: X6 — 135°

Double Flats: X6

Locking Devices: X6

Additional Flats			
Code	Depth	Length	
X91	1.5	13	
X92	1.5	16	
X93	1.5	20	
X94	1.5	Full Length	
X95	2.5	13	
X96	2.5	16	
X97	2.5	20	
X98	2.5	Full Length	
X99	Specify	y Dimensions	

Dowel Slots



Dowel Slots: X4 & X41

For standard locations, specify **X4** (3.0 Dowel) or **X41** (4.0 Dowel). For alternate locations, specify **X4** or **X41** and degree required.

Order Example: X4 – 90°

Dowel Slots: X7 & X71

Specify **X7** (3.0 Dowel) or **X71** (4.0 Dowel). For custom locations, specify **X7** or **X71** and degree required.

Order Example: X71 — 135°

Location Tolerance

FI	at	Dowel			
F	Radial	F	Radial		
+ 0.013 - 0.0	.025/25.0 inch	+ 0.013 - 0.0	0°4'		

How To Specify

The most common locking devices flat, double flat, and dowel—are available. Simply select the type, then add the code to the component description.

HOW TO ORDER

 Specify:
 Qty.
 Type
 D Code
 L
 P (or P&W) Dimension
 Locking Device

 Example:
 1
 AJRF
 16
 25-80
 P8.5, W.8.0
 X2

Other Dayton Products

Ball Lock Punches, Matrixes, Pilots, and Retainers

Dayton *Ball Lock Products* are mainstays in industries with high-demand applications, including automotive and major appliance manufacturing. Because there is no need to pull a die from the press, removal and replacement of worn punches can reduce downtime and improve profitability.

Dayton *True Position® Retainers* (the recognized industry standard) eliminate hand fitting, reduce mounting time, and are ideally suited for both round and complexshaped products. True Position[®] allows easy replacement of broken or worn punches.

MaxLife® Die Springs

Dayton *MaxLife[®] Die Springs* are: made to exact specifications; manufactured to outperform and outlast other major brands; designed specifically for press and mold dies; and ensure

> optimum operation in heavy industry applications. Corrosion-resistant Dayton die springs are made from pre-

tempered chrome silicon wire, and optimize the working life of press and mold dies.

Urethane Stripping and Forming Products

Durable, yet flexible, Dayton urethane strippers and forming products provide superior stripping over conventional strippers; develop higher load-bearing

capacity; are tear- and oil-resistant; provide exceptional dampening; and are easy to install and replace.

Dayton dual durometer *SMARTStrip*[™] *Strippers*

(two elastomers molded into a single piece) are a cost-effective alternative to metal spring strippers.

Dayton provides a full range of leading-edge die component products: headed punches, guides, and matrixes; positive-locking Ball Lock products; retainers; slug-ejection punches; retaining systems; die springs; and others. For details, contact Dayton Progress or your nearest Dayton Progress Distributor.

[®] True Position and Max Life are registered trademarks of Dayton Progress. ™ SMARTStrip is a trademark of Dayton Progress.



Dayton Progress Corporation 500 Progress Road P.O. Box 39 Dayton, OH 45449-0039 USA

Dayton Progress Portland 1314 Meridian St. Portland, IN 47371 USA

Dayton Progress Canada, Ltd. 861 Rowntree Dairy Road Woodbridge, Ontario L4L 5W3

Dayton Progress, Ltd. G1 Holly Farm Business Park Honiley, Kenilworth Warwickshire CV8 1NP UK

Dayton Progress Corporation of Japan 2-7-35 Hashimotodai Sagamihara-Shi, Kanagawa-Ken 229-1132 Japan

Dayton Progress GmbH Im Heidegraben 8 Postfach 1165 61401 Oberursel/Ts., Germany

Dayton Progress Perfuradores Lda Zona Industrial de Casal da Areia Lote 17 Cós, 2460-392 Alcobaça, Portugal

Dayton Progress SAS 105 Avenue de l'Epinette BP 128 Zone Industrielle 77107 Meaux Cedex, France

Dayton Progress Czech sro Hala G Pražská 707 CZ-294 71 Benátky nad Jizerou Czech Republic



Global leader in providing fabrication and stamping solutions

www.daytonprogress.com