

HEAVY DUTY

Ball Lock Pilot - Conical Code: **BAPK**

"N" becomes = 1.2 x "P" minimum when "P" is below (see table).

Standard Tolerances

Round / P ⁺⁰¹ ₋₀₀		,01	From P to d2
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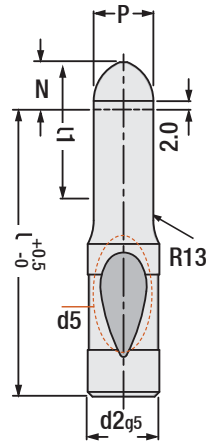
When P = d2, shank / body tolerances apply.

Material: 1.3343 (M2) Hardness: 60 - 62 HRC

d2	d5	P	L1	N	L
10	10	5.9 ~ 9.9	19	8	80 100 125
13		9.9 ~ 12.9	19	10	
16		12.9 ~ 15.9	25	15	80
20	12	15.9 ~ 19.9	25	20	100
25	mm	19.9 ~ 24.9	25	25	125
32		24.9 ~ 31.9	25	30	140
40		31.9 ~ 39.9	30	40	150

Note: P / L selection as per request.
- Special dimensions on request.

Order: **BAPK**. d2 x P x L



HEAVY DUTY

Ball Lock Pilot - Spherical Code: **BAPX**

- It is length of "L" pilot except end.
- 2 mm length is guided to punch before punch contacting sheet metal.

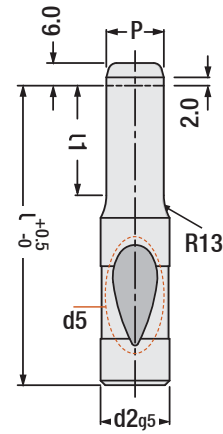
P	N
≤ 10 mm	8 mm
10.1 mm - 15 mm	12 mm
> 15 mm	15 mm

Material: 1.3343 (M2) Hardness: 60 - 62 HRC

d2	d5	P	L1	N	L
10	10	2.5 ~ 10	19	10	71 80 100
13		5 ~ 13	19	10	
16		8 ~ 16	19	10	
20	12	12 ~ 20	19	10	71 80
25	mm	16 ~ 25	19	10	100
32		24 ~ 32	19	10	125
40		30 ~ 40	25	10	

Note: P / L selection as per request.
- Special dimensions on request.

Order: **BAPX**. d2 x P x L



HEAVY DUTY

Ball Lock Pilot - Parabolic Code: **BAPP**

"N" becomes = 1.2 x "P" minimum when "P" is below (see table).

Standard Tolerances

Round / P ⁺⁰¹ ₋₀₀		,01	From P to d2
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When P = d2, shank / body tolerances apply.

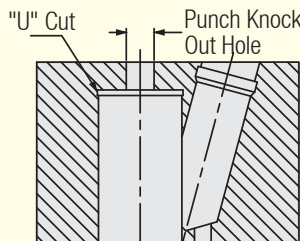
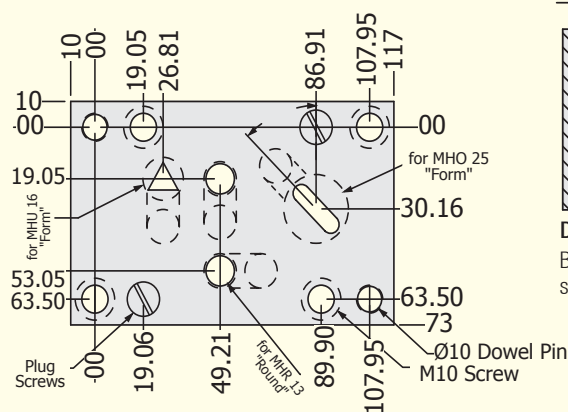
Material: 1.3343 (M2) Hardness: 60 - 62 HRC

d2	d5	P	L1	L
10	10	2.5 ~ 10	19	71 80 100
13		5 ~ 13	19	
16		8 ~ 16	19	
20	12	12 ~ 20	19	71 80
25	mm	16 ~ 25	19	100
32		24 ~ 32	19	125
40		30 ~ 40	25	

Note: P / L selection as per request.
- Special dimensions on request.

Order: **BAPP**. d2 x P x L

Multi Hole, Special Ball Lock Retainers



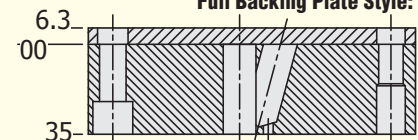
Detail View of Punch Hole
Ball - socket class "R" will be supplied unless otherwise specified.

Ball-holes:

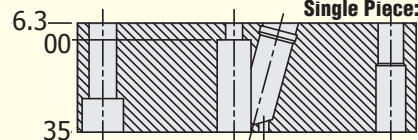
Class	Radial Tolerance
R	+ 5°
F	+ .0°5'

Technical Information !

Full Backing Plate Style:



Single Piece:



Tolerances for All Types

Outside Edges	± .5
Dowel Hole Locations	± .01
Screw Hole Locations	± .1
Component Hole Locations	± .01

In technical drawings, the hardened backing plates of multi hole ball lock retainers are shown as two different examples as traditional and single piece retainer. Here, the retainer has been measured from the left upper corner and the zero point is considered as a punch or dowel pin hole and it is positioned correctly in die. This aids in CNC programming and ensures proper settling of the punch retainer and its matching die section or matrix retainer.