



PUNCHES, DIES AND RETAINERS



OCTOBER 2017





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# OVERVIEW OF DIFFERENT PUNCHES AND DIES

## PUNCHES

SHAPE OF HEAD		SHAPE OF CUT	BLANK						PILOT
	Cylindrical head m5		<b>PPB/PSMB</b> Pages 8 et 12	<b>PPS/PSMS</b> Pages 8 et 12	<b>PPF/PSMF</b> Pages 9 et 13	<b>PPL/PSML</b> Pages 9 et 13	<b>PPR/PSMR</b> Pages 9 et 13	<b>PPV/PSMV</b> Pages 9 et 13	<b>PPZ/PNPZ</b> Page 22
	Cylindrical head with ejector m5		<b>PPEB</b> Page 10	<b>PPES</b> Page 10	<b>PPEF</b> Page 11	<b>PPEL</b> Page 11	<b>PPER</b> Page 11	<b>PPEV</b> Page 11	
	Conical head h6		<b>TFB</b> Page 14	<b>TFS</b> Page 15	<b>TFF</b> Page 15	<b>TFL</b> Page 15	<b>TFR</b> Page 15	<b>TFV</b> Page 15	
	Light duty ball-lock		<b>BLB</b> Page 16	<b>BLS</b> Page 16	<b>BLF</b> Page 17	<b>BLL</b> Page 17	<b>BLR</b> Page 17	<b>BLV</b> Page 17	
	Heavy duty ball-lock		<b>BLHB</b> Page 16	<b>BLHS</b> Page 16	<b>BLHF</b> Page 17	<b>BLHL</b> Page 17	<b>BLHR</b> Page 17	<b>BLHV</b> Page 17	
	Point larger than shank - ball-lock g5		<b>BLKB</b> Page 18	<b>BLKS</b> Page 18	<b>BLKF</b> Page 19	<b>BLKL</b> Page 19	<b>BLKR</b> Page 19	<b>BLKV</b> Page 19	
	Light duty ball-lock with ejector		<b>BLEB</b> Page 20	<b>BLES</b> Page 20	<b>BLEF</b> Page 21	<b>BLEL</b> Page 21	<b>BLER</b> Page 21	<b>BLEV</b> Page 21	
	Heavy duty ball-lock with ejector		<b>BLEHB</b> Page 20	<b>BLEHS</b> Page 20	<b>BLEHF</b> Page 21	<b>BLEHL</b> Page 21	<b>BLEHR</b> Page 21	<b>BLEHV</b> Page 21	
	Dome head h6		<b>PFB</b> Page 23	<b>PFS</b> Page 23					

## DIE BUSHES

SHAPE OF HEAD		SHAPE OF CUT	BLANK						EDM DIE BLANKS	DIE SHAPES
	Straight m5/h5		<b>MB/MLB</b> Page 26	<b>M/MLS</b> Page 26	<b>MF/MLF</b> Page 27	<b>ML/MLL</b> Page 27	<b>MR/MLR</b> Page 27	<b>MV/MLV</b> Page 27	<b>MBS/MLBS</b> Page 44	
	Headed m5/h5		<b>MSB/MCB</b> Page 28	<b>MS/MCS</b> Page 28	<b>MSF/MCF</b> Page 29	<b>MSL/MCL</b> Page 29	<b>MSR/MCR</b> Page 29	<b>MSV/MCV</b> Page 29	<b>MSBS/MCBS</b> Page 44	
	Key-located h5		<b>TPCB</b> Page 30	<b>TPCS</b> Page 30	<b>TPCF</b> Page 31	<b>TPCL</b> Page 31	<b>TPCR</b> Page 31	<b>TPCV</b> Page 31	<b>TPBS</b> Page 31	
	Flat reversible h5		<b>MPB</b> Page 32	<b>MPS</b> Page 32	<b>MPF</b> Page 33	<b>MPL</b> Page 33	<b>MPR</b> Page 33	<b>MPV</b> Page 33		
	Flat Key-located h5		<b>MAB</b> Page 34	<b>MAS</b> Page 34	<b>MAF</b> Page 34	<b>MAL</b> Page 34	<b>MAR</b> Page 34	<b>MAV</b> Page 34		

# OVERVIEW OF DIFFERENT DIE BUSHES PUNCH RETAINERS AND DIE RETAINERS

## DIE BUSHES

SHAPE OF HEAD		SHAPE OF CUT	BLANK					
	Ball-lock m5/h5		<b>BLMB</b> Page 36	<b>BLMS</b> 36Page	<b>BLMF</b> Page 37	<b>BLML</b> Page 37	<b>BLMR</b> Page 37	<b>BLMV</b> Page 37
	Straight with tapered recess m5/h5		<b>MBS/MLBS</b> Page 38	<b>MDS/MLDS</b> Page 38	<b>MDF/MLDF</b> Page 39	<b>MLD</b> Page 39	<b>MDR/MLDR</b> Page 39	<b>MDV/MLDV</b> Page 39
	Headed with tapered recess m5/h5		<b>MSBS/MCBS</b> Page 40	<b>MSDS/MCDS</b> Page 40	<b>MSDF/MCDF</b> Page 41	<b>MSDL/MCDL</b> Page 41	<b>MSDR/MCDR</b> Page 41	<b>MSDV/MCDV</b> Page 41
	Key-located with tapered recess m5/h5		<b>TPCBS</b> Page 42	<b>TPCDS</b> Page 42	<b>TPCDF</b> Page 43	<b>TPCDL</b> Page 43	<b>TPCDR</b> Page 43	<b>TPCDV</b> Page 43

## PUNCH RETAINERS / DIE RETAINERS

SHAPE OF PUNCH RETAINER		TYPE OF PUNCH	ROUND PUNCHES PPB / PPEB / PPS / PPES	SHAPED PUNCHES PP* / PPE*	BALL-PUNCHES BL* / BLH* / BLE* / BLEH*	BOTTLE-NECK HEADED PUNCHES
	Square		<b>CC</b> Page 48	<b>CCP</b> Page 48		
	Rectangular		<b>RC</b> Page 49	<b>RCP</b> Page 49		
	Reduced		<b>TC/TCM/TLM</b> Page 50-51-52	<b>TCP/TCPM/TLPM</b> Page 50-51-52		<b>TCPFM</b> Page 53
	Reduced ball-lock Light duty				<b>TAB</b> Page 54	
	Reduced ball-lock Heavy duty				<b>TABH</b> Page 54	
	Ball-lock Square				<b>CA</b> Page 55	
	Ball-lock Rectangular				<b>RA</b> Page 55	
SHAPE OF PUNCH RETAINER		TYPE OF PUNCH	BALL-LOCK DIE BUSHES <b>BLM*</b> Page 37			
	Ball-lock Square		<b>DCA</b> Page 52			
	Ball-lock Rectangular		<b>DRA</b> Page 52			

## MATERIAL

Our **punches** are available in the following steel qualities:

A - HWS chromium steel	(Z 160 CDV 12, 1.2379)
B - HSS high-speed steel	(Z 90 WDCV 06050402, 1.3343)
D - HSSP high-speed steel	(HSS + TIN coating)
E - Sintered high-speed steel	(ASP 23)
K - Chromium modified Steel	X110CrMoV8-T6

Different coatings are available upon request: TiCN, CRN etc.

Material A treatment:	Body: 58 to 62 HRc Head 40 to 50 HRc
Material B treatment:	Body: 60 to 64 HRc Head 47 to 57 HRc

Our **die bushes** are available in the following steel qualities:

A - Chromium steel (Z 160 CDV 12). Treatment: 58 to 62 HRc
B - HSS high-speed steel (Z 90 WDCV 06050402) (available according to reference)

## TOLERANCE

Standard production according to AFNOR or ISO standards

## DELIVERY TIMES

All of the standard punches and dies featured in this catalogue and manufactured in A-B-C-E and K steel qualities can be supplied within a few days after receipt of the order.

Non-standard punches and dies: prices and delivery times upon request.

## CLEARANCE (between punch and die)

Do not forget to account for the clearance when stating the dimensions of the die and punch.

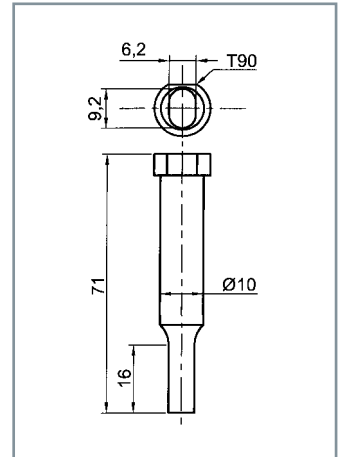
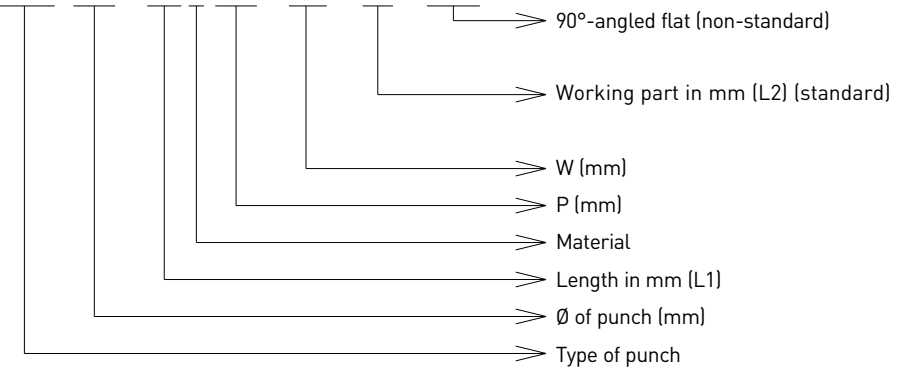
## NON-STANDARD PUNCHES, DIE BUSHES, PUNCH RETAINERS AND DIE RETAINERS

We manufacture all shapes of non-standard punches, die bushes, punch retainers and die retainers.

We require a detailed drawing with tolerances.

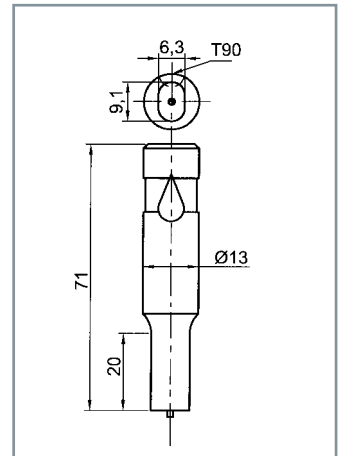
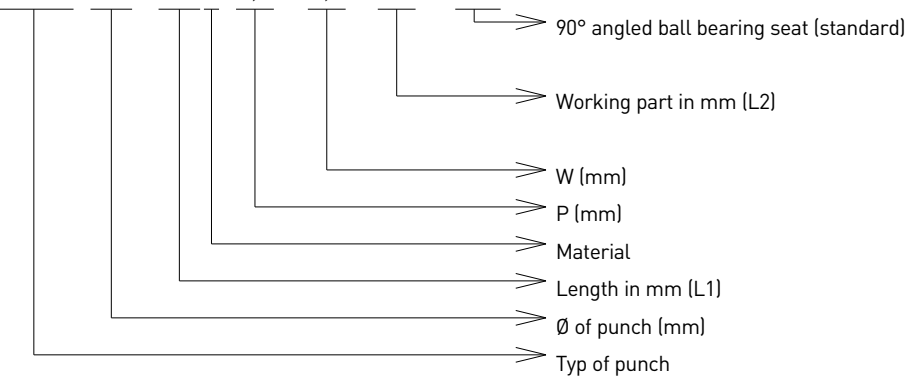
## Designation : Cylindrical head punches

**PPL . 100 . 071B 9,2 x 6,2 x 16 + T90**



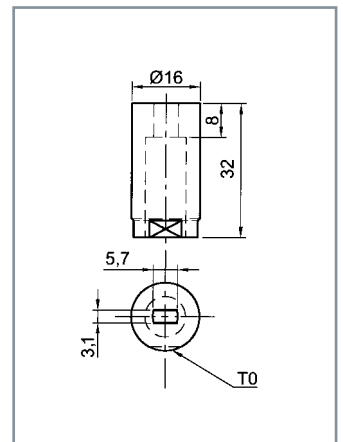
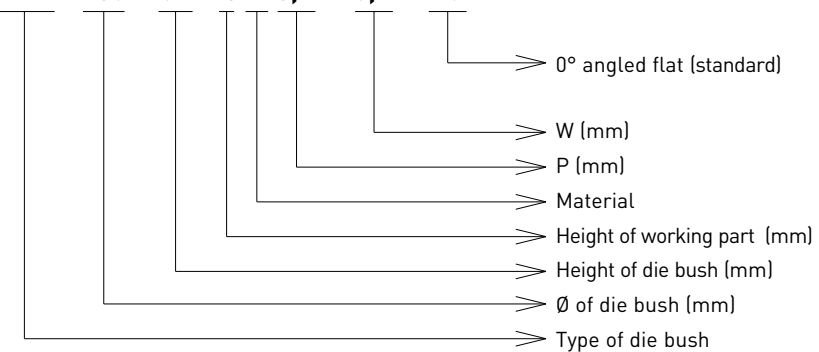
## Designation : Ball-lock punch with ejector

**BLEL . 130 . 071B 9,1 x 6,3 x 20 + T90**



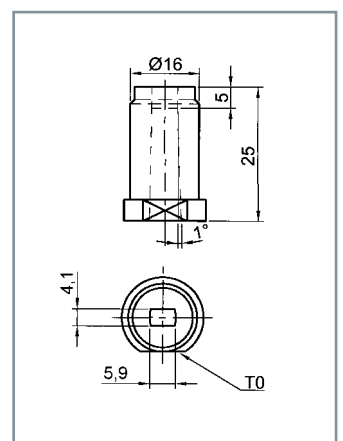
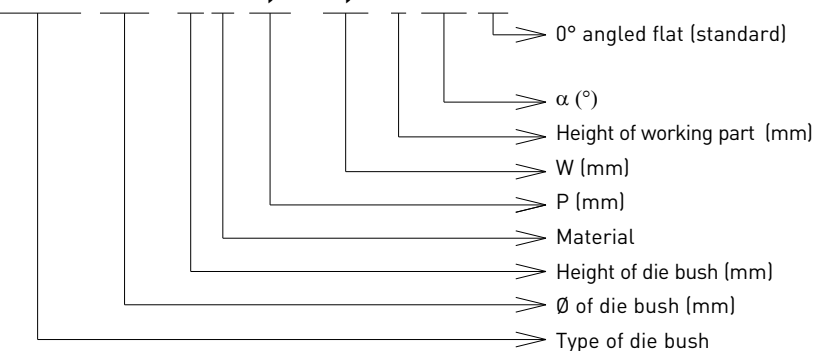
## Designation : Straight die bush

**MLF . 160 . 32 . 8 A 5,7 x 3,1 + T0**



## Designation: Headed die bush with tapered recess

**MCDF . 160 . 25 A 5,9 x 4,1 - 5 x 1 + T0**





# CYLINDRICAL HEAD PRECISION PUNCHES

PPB  
PPS



Conform to the following standards:  
ISO 8020 - AFNOR NFE 63100, except for diameters\*.

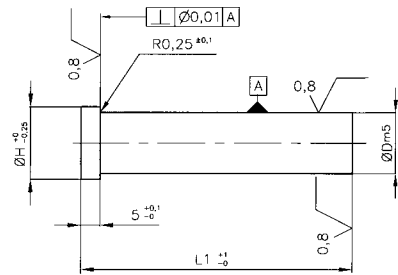
**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRC
  - B - Z 90 WDCV 06050402 / 60-64 HRC
  - D - B + TIN
  - E - ASP 23
  - K - X110CrMoV8-T6 / 61-63 HRC
- Different coatings available upon request:  
TICN, CRN etc.

**Ordering example**

Qty=3; Type PPB; D=8 mm; L1=71 mm Material B  
PPB.080.071B

**PUNCH BLANKS  
PPB Series**



Reference	Ø D	Ø H	L1 (intermediate dimensions available upon request)			
			71	80	100	120
PPB.040.xxxM	4 *	7				
PPB.050.xxxM	5	8				
PPB.060.xxxM	6	9				
PPB.070.xxxM	7 *	10				
PPB.080.xxxM	8	11				
PPB.090.xxxM	9 *	12				
PPB.100.xxxM	10	13				
PPB.110.xxxM	11 *	14				
PPB.120.xxxM	12 *	15				
PPB.130.xxxM	13	16				
PPB.140.xxxM	14 *	17				
PPB.150.xxxM	15 *	18				
PPB.160.xxxM	16	19				
PPB.200.xxxM	20	23				
PPB.250.xxxM	25	28				
PPB.320.xxxM	32	35				

Materials A, B and D     Materials A, B, D and E     Materials B and D     Material A



# CYLINDRICAL HEAD PRECISION PUNCHES

PP\*



Conform to the following standards:  
ISO 8020 - AFNOR NFE 63100, except for diameters\*.

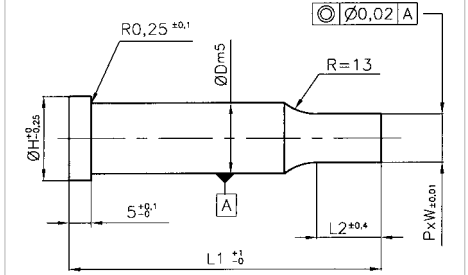
**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRC
  - B - Z 90 WDCV 06050402 / 60-64 HRC
  - D - B + TIN
  - E - ASP 23
  - K - X110CrMoV8-T6 / 61-63 HRC
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

Qty=3; Type PPL; D=10 mm; L1=71 mm  
Material B; P=9.2 mm; W=6.2 mm  
L2=16 mm; 90°-angled flat (T90).  
3 PPL.100.071B 9,2x6,2x16 + T90

**SHAPED PUNCHES  
PPF/PP/PPR/PPV Series**



Reference	ØD	ØH	L2					L1			
			10	13	20	25	71	80	100	120	
PP*.040.xxxM	4 *	7	X	X	X	X					
PP*.050.xxxM	5	8	X	X	X	X					
PP*.060.xxxM	6	9	X	X	X	X					
PP*.070.xxxM	7 *	10	X	X	X	X					
PP*.080.xxxM	8	11	X	X	X	X					
PP*.090.xxxM	9 *	12	X	X	X	X					
PP*.100.xxxM	10	13	X	X	X	X					
PP*.110.xxxM	11 *	14		X	X	X					
PP*.120.xxxM	12 *	15		X	X	X					
PP*.130.xxxM	13	16		X	X	X					
PP*.140.xxxM	14 *	17		X	X	X					
PP*.150.xxxM	15 *	18		X	X	X					
PP*.160.xxxM	16	19		X	X	X					
PP*.200.xxxM	20	23		X	X	X					
PP*.250.xxxM	25	28		X	X	X					
PP*.320.xxxM	32	35		X	X	X					

Materials A, B and D     Materials A, B, D and E     Materials B and D     Material A     Length L2 applied by default  
Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).



Conform to the following standards:  
ISO 8020 - AFNOR NFE 63100, except for diameters\*.

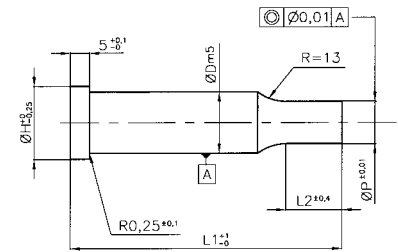
**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRC
  - B - Z 90 WDCV 06050402 / 60-64 HRC
  - D - B + TIN
  - E - ASP 23
  - K - X110CrMoV8-T6 / 61-63 HRC
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

Qty=3; Type PPS; D=8 mm; L1=71 mm  
Material B; P=6,2 mm; L2=25 mm  
3 PPS.080.071B 6,2x25

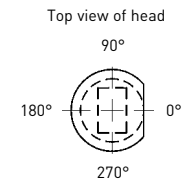
**ROUND PUNCHES  
PPS Series**



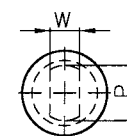
Reference	ØD	ØH	ØP	L2					L1			
				10	13	16	20	25	71	80	100	120
PPS.040.xxxM	4 *	7	0,8 - 3,9	X	X	X	X	X				
PPS.050.xxxM	5	8	0,8 - 4,9	X	X	X	X	X				
PPS.060.xxxM	6	9	1,5 - 5,9	X	X	X	X	X				
PPS.070.xxxM	7 *	10	2,0 - 6,9	X	X	X	X	X				
PPS.080.xxxM	8	11	2,5 - 7,9	X	X	X	X	X				
PPS.090.xxxM	9 *	12	3,5 - 8,9	X	X	X	X	X				
PPS.100.xxxM	10	13	4,5 - 9,9	X	X	X	X	X				
PPS.110.xxxM	11 *	14	5,1 - 10,9		X	X	X	X				
PPS.120.xxxM	12 *	15	5,8 - 11,9		X	X	X	X				
PPS.130.xxxM	13	16	6,5 - 12,9		X	X	X	X				
PPS.140.xxxM	14 *	17	7,5 - 13,9		X	X	X	X				
PPS.150.xxxM	15 *	18	8,5 - 14,9		X	X	X	X				
PPS.160.xxxM	16	19	9,5 - 15,9		X	X	X	X				
PPS.200.xxxM	20	23	12,5 - 19,9		X	X	X	X				
PPS.250.xxxM	25	28	16,5 - 24,9		X	X	X	X				
PPS.320.xxxM	32	35	22,5 - 31,9		X	X	X	X				

Materials A, B and D     Materials A, B, D and E     Materials B and D     Material A     Length L2 applied by default  
Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).

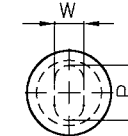
A flat can be created on the head for a price supplement.  
The position T=0° is considered to be the standard flat.  
Specify different angles if required.  
The shapes R and V have a standard radius r=0.  
A different radius r may be specified at no extra cost.



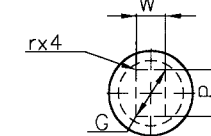
**PPF**



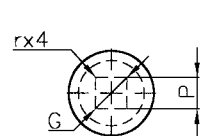
**PPL**



**PPR**



**PPV**



$G = \sqrt{P^2 + W^2}$ ;  $G \leq D - 0,1$

Ref.	P	W	Ref.	P	W	Ref.	P	W	Ref.	P
PPF.040	1,5 - 3,9	1,0 - 3,5	PPL.040	1,5 - 3,9	1,0 - 3,5	PPR.040	1,5 - 2,5	1,5 - 2,0	PPV.040	1,5 - 2,8
PPF.050	1,5 - 4,9	1,0 - 4,5	PPL.050	1,5 - 4,9	1,0 - 4,5	PPR.050	1,5 - 3,5	1,5 - 3,0	PPV.050	1,5 - 3,4
PPF.060	2,0 - 5,9	1,5 - 5,5	PPL.060	2,0 - 5,9	1,5 - 5,5	PPR.060	1,5 - 5,0	1,5 - 3,0	PPV.060	2,0 - 4,1
PPF.070	2,2 - 6,9	1,7 - 6,5	PPL.070	2,2 - 6,9	1,7 - 6,5	PPR.070	1,8 - 5,5	1,7 - 3,5	PPV.070	2,5 - 4,8
PPF.080	2,5 - 7,9	2,0 - 7,5	PPL.080	2,5 - 7,9	2,0 - 7,5	PPR.080	2,0 - 6,0	2,0 - 4,0	PPV.080	3,0 - 5,5
PPF.090	3,2 - 8,9	2,7 - 8,5	PPL.090	3,2 - 8,9	2,7 - 8,5	PPR.090	2,8 - 6,5	2,7 - 5,0	PPV.090	3,3 - 6,2
PPF.100	4,0 - 9,9	3,5 - 9,5	PPL.100	4,0 - 9,9	3,5 - 9,5	PPR.100	3,5 - 7,0	3,5 - 6,0	PPV.100	3,5 - 7,0
PPF.110	4,3 - 10,9	3,8 - 10,5	PPL.110	4,3 - 10,9	3,8 - 10,5	PPR.110	3,8 - 7,8	3,8 - 6,6	PPV.110	3,8 - 7,6
PPF.120	4,7 - 11,9	4,2 - 11,5	PPL.120	4,7 - 11,9	4,2 - 11,5	PPR.120	4,2 - 8,7	4,2 - 7,3	PPV.120	4,2 - 8,3
PPF.130	5,0 - 12,9	4,5 - 12,5	PPL.130	5,0 - 12,9	4,5 - 12,5	PPR.130	4,5 - 9,5	4,5 - 8,0	PPV.130	4,5 - 9,1
PPF.140	5,6 - 13,9	5,1 - 13,5	PPL.140	5,6 - 13,9	5,1 - 13,5	PPR.140	5,0 - 10,5	5,1 - 8,3	PPV.140	5,1 - 9,8
PPF.150	6,3 - 14,9	5,7 - 14,5	PPL.150	6,3 - 14,9	5,7 - 14,5	PPR.150	5,5 - 11,5	5,7 - 8,6	PPV.150	5,8 - 10,5
PPF.160	7,0 - 15,9	6,5 - 15,5	PPL.160	7,0 - 15,9	6,5 - 15,5	PPR.160	6,0 - 12,5	6,0 - 9,0	PPV.160	6,5 - 11,2
PPF.200	8,5 - 19,9	8,0 - 19,5	PPL.200	8,5 - 19,9	8,0 - 19,5	PPR.200	8,0 - 17,0	8,0 - 10,0	PPV.200	9,5 - 14,0
PPF.250	11,5 - 24,9	11,0 - 24,5	PPL.250	11,5 - 24,9	11,0 - 24,5	PPR.250	10,0 - 22,0	10,0 - 12,0	PPV.250	12,5 - 17,6
PPF.320	20,5 - 31,9	20,0 - 31,5	PPL.320	20,5 - 31,9	20,0 - 31,5	PPR.320	12,0 - 26,0	12,0 - 18,0	PPV.320	17,0 - 22,5





# CYLINDRICAL HEAD EJECTOR PUNCH

# PPEB PPES

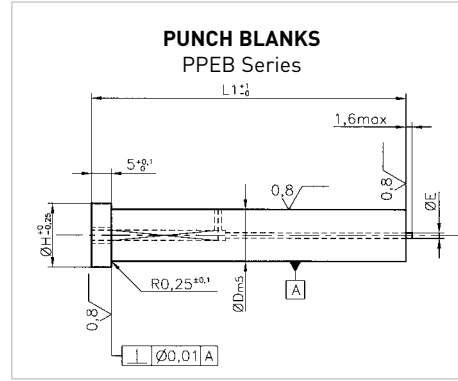


Conform to the following standards: ISO 8020 - AFNOR NFE 63100

**Available materials:**  
B - Z 90 WDCV 06050402 / 60-64 HRc  
D - B + TIN  
K - X110CrMoV8-T6 / 61-63 HRc  
Different coatings available upon request:  
TICN, CRN etc.

### Ordering example

Qty=3; Type PPEB; D=8 mm;  
L1=71 mm; Material B  
3 PPEB.080.071B



Reference	ØD	ØH	ØP	L1			
				71	80	100	120
PPEB.050.xxxM	5	8	1,1				
PPEB.060.xxxM	6	9	1,1				
PPEB.080.xxxM	8	11	1,1				
PPEB.100.xxxM	10	13	1,3				
PPEB.130.xxxM	13	16	1,3				
PPEB.160.xxxM	16	19	2,2				
PPEB.200.xxxM	20	23	2,2				
PPEB.250.xxxM	25	28	2,2				
PPEB.320.xxxM	32	35	2,2				

Length "L1": Intermediate dimensions available upon request.

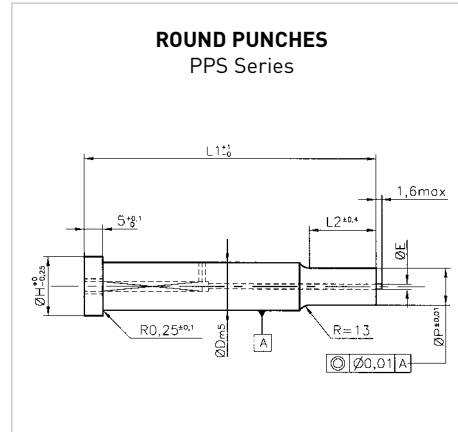


Conform to the following standards: ISO 8020 - AFNOR NFE 63100

**Available materials:**  
B - Z 90 WDCV 06050402 / 60-64 HRc  
D - B + TIN  
K - X110CrMoV8-T6 / 61-63 HRc  
Different coatings available upon request: TICN, CRN etc.

### Ordering example

Qty=3; Type PPES; D=13 mm;  
L1=71 mm; Material B  
P=10.2 mm; L2=25 mm  
3 PPES.130.071B 10,2x25



Reference	ØD	ØH	ØP	ØE	L2					L1			
					10	13	16	20	25	71	80	100	120
PPES.050.xxxM	5	8	2,0 - 4,9	1,1	X	X	X	X	X				
PPES.060.xxxM	6	9	2,5 - 5,9	1,1	X	X	X	X	X				
PPES.080.xxxM	8	11	3,0 - 7,9	1,1	X	X	X	X	X				
PPES.100.xxxM	10	13	4,0 - 9,9	1,3	X	X	X	X	X				
PPES.130.xxxM	13	16	6,0 - 12,9	1,3		X	X	X	X				
PPES.160.xxxM	16	19	9,0 - 15,9	2,2			X	X	X				
PPES.200.xxxM	20	23	12,0 - 19,9	2,2				X	X				
PPES.250.xxxM	25	28	17,0 - 24,9	2,2					X				
PPES.320.xxxM	32	35	22,5 - 31,9	2,2						X			

Length "L1": Intermediate dimensions available upon request - The standard length L2 applied by default is shaded grey in the table below  
Special "L2" lengths available upon request (max 25 mm at no extra cost).



# CYLINDRICAL HEAD EJECTOR PUNCHES

# PPE\*



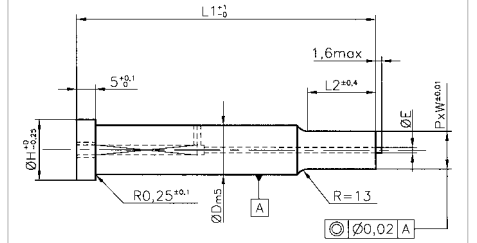
Conform to the following standards: ISO 8020 - AFNOR NFE 63100

**Available materials:**  
B - Z 90 WDCV 06050402 / 60-64 HRc  
D - B + TIN  
Different coatings available upon request:  
TICN, CRN etc.

### Ordering example

Qty=3; Type PPEL; D=8 mm; L1=71 mm  
Material B; P=6.5 mm; W=4 mm;  
L2=25 mm; 90°-angled flat (T90).  
3 PPEL.080.071B 6,4x4x25 + T90

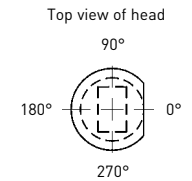
### SHAPED PUNCHES PPEF/PPEL/PPER/PPEV Series



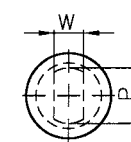
Reference	ØD	ØH	ØE	L2					L1			
				10	13	16	20	25	71	80	100	120
PPE*.050.xxxM	5	8	1,1	X	X	X	X	X				
PPE*.060.xxxM	6	9	1,1	X	X	X	X	X				
PPE*.080.xxxM	8	11	1,1	X	X	X	X	X				
PPE*.100.xxxM	10	13	1,3	X	X	X	X	X				
PPE*.130.xxxM	13	16	1,3		X	X	X	X				
PPE*.160.xxxM	16	19	2,2			X	X	X				
PPE*.200.xxxM	20	23	2,2				X	X	X			
PPE*.250.xxxM	25	28	2,2					X	X	X		
PPE*.320.xxxM	32	35	2,2						X	X	X	

Length "L1": Intermediate dimensions available upon request - The standard length L2 applied by default is shaded grey in the table below  
Special "L2" lengths available upon request (max 25 mm at no extra cost).

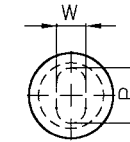
A flat can be created on the head for a price supplement.  
The position T=0° is considered to be the standard flat.  
Specify different angles if required.  
The shapes R and V have a standard radius r=0.  
A different different radius r may be specified at no extra cost.



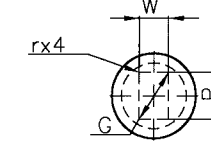
### PPEF



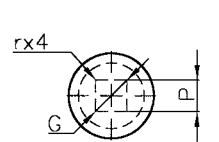
### PPEL



### PPER



### PPEV



$$G = \sqrt{P^2 + W^2}; G \leq D - 0,1$$

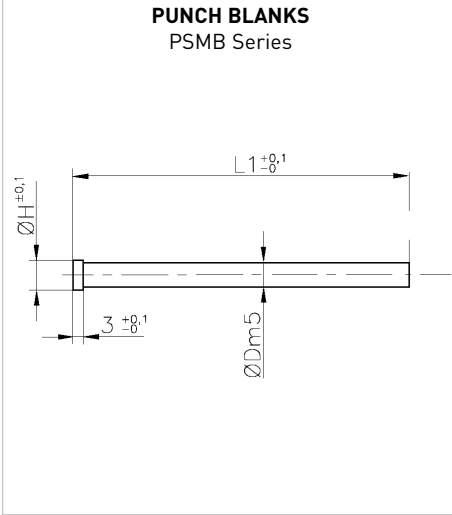
Ref.	P	W	Ref.	P	W	Ref.	P	W	Ref.	P
PPEF.050	2,0 - 4,9	2,0 - 4,5	PPEL.050	2,0 - 4,9	2,0 - 4,5	PPER.050	2,0 - 3,5	2,0 - 3,0	PPEV.050	2,0 - 3,4
PPEF.060	3,0 - 5,9	2,5 - 5,5	PPEL.060	3,0 - 5,9	2,5 - 5,5	PPER.060	2,5 - 5,0	2,5 - 3,0	PPEV.060	2,5 - 4,1
PPEF.080	3,5 - 7,9	3,0 - 7,5	PPEL.080	3,5 - 7,9	3,0 - 7,5	PPER.080	3,0 - 6,0	3,0 - 4,0	PPEV.080	3,0 - 5,5
PPEF.100	5,0 - 9,9	4,0 - 9,5	PPEL.100	5,0 - 9,9	4,0 - 9,5	PPER.100	4,5 - 7,0	4,5 - 6,0	PPEV.100	4,5 - 7,0
PPEF.130	6,5 - 12,9	6,0 - 12,5	PPEL.130	6,5 - 12,9	6,0 - 12,5	PPER.130	6,0 - 9,5	6,0 - 8,0	PPEV.130	6,0 - 9,1
PPEF.160	9,5 - 15,9	9,0 - 15,5	PPEL.160	9,5 - 15,9	9,0 - 15,5	PPER.160	7,0 - 12,5	7,0 - 9,0	PPEV.160	7,0 - 11,2
PPEF.200	12,5 - 19,9	12,0 - 19,5	PPEL.200	12,5 - 19,9	12,0 - 19,5	PPER.200	8,0 - 17,0	8,0 - 10,0	PPEV.200	9,5 - 14,0
PPEF.250	17,5 - 24,9	17,0 - 24,5	PPEL.250	17,5 - 24,9	17,0 - 24,5	PPER.250	10,0 - 22,0	10,0 - 12,0	PPEV.250	12,5 - 17,6
PPEF.320	20,5 - 31,9	20,0 - 31,5	PPEL.320	20,5 - 31,9	20,0 - 31,5	PPER.320	12,0 - 26,0	12,0 - 18,0	PPEV.320	17,0 - 22,9



**Available materials:**  
 A - Z 160 CDV 12 / 60-64 HRc  
 B - Z 90 WDCV 06050400 / 62-66 HRc  
 D - B + TIN

**Ordering example**  
 Qty=3 ; Type PSMB ; D=4 mm ; L=71 mm Material B

3 PSMB.040.071B



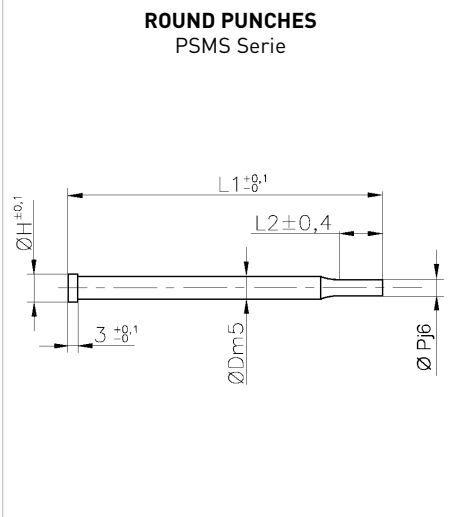
Reference	Ø D	Ø H	L			
			63	71	80	100
PSMB.020.xxxM	2	3,5				
PSMB.030.xxxM	3	4,5				
PSMB.040.xxxM	4	5,5				
PSMB.050.xxxM	5	6,5				
PSMB.060.xxxM	6	7,5				



**Available materials:**  
 A - Z 160 CDV 12 / 60-64 HRc  
 B - Z 90 WDCV 06050400 / 62-66 HRc  
 D - B + TIN

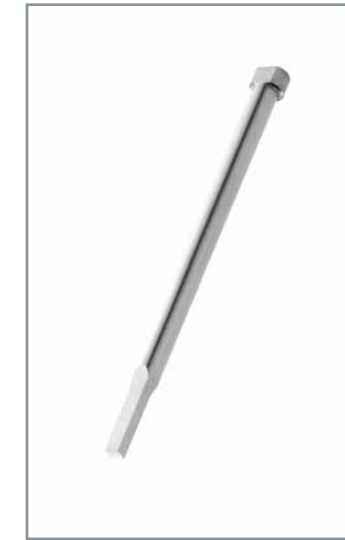
**Ordering example**  
 Qty=3 ; Type PSMB ; D=2 mm ; L=71 mm Material B ;  
 P=0,8 mm ; L2=10 mm

3 PSMB.020.071B 0,8x10



Reference	Ø D	Ø H	Ø P	L2					L1				
				10	13	16	20	25	63	71	80	100	
PSMB.020.xxxM	2	3,5	0,7 - 1,95	X									
PSMB.030.xxxM	3	4,5	1,6 - 2,95	X	X								
PSMB.040.xxxM	4	5,5	2 - 3,95	X	X	X							
PSMB.050.xxxM	5	6,5	2 - 4,95	X	X	X	X	X					
PSMB.060.xxxM	6	7,5	3 - 5,95		X	X	X	X					

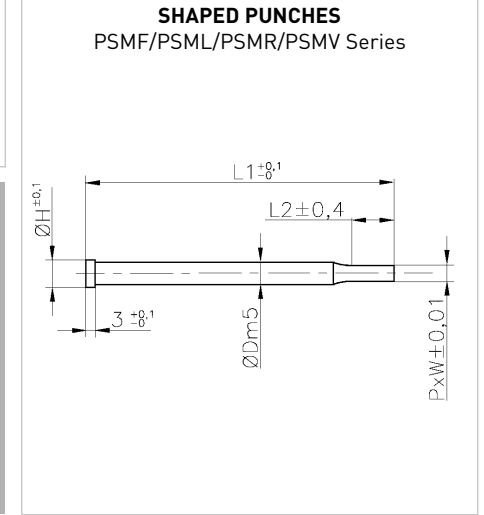
Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).



**Available materials:**  
 A - Z 160 CDV 12 / 60-64 HRc  
 B - Z 90 WDCV 06050400 / 62-66 HRc  
 D - B + TIN

**Ordering example**  
 Qty=3 ; Type PSML ; D=4 mm ; L=71 mm Material B  
 O=3,7 mm ; W=2,1 mm ; L2=16 ; angled flat 90° (T90)

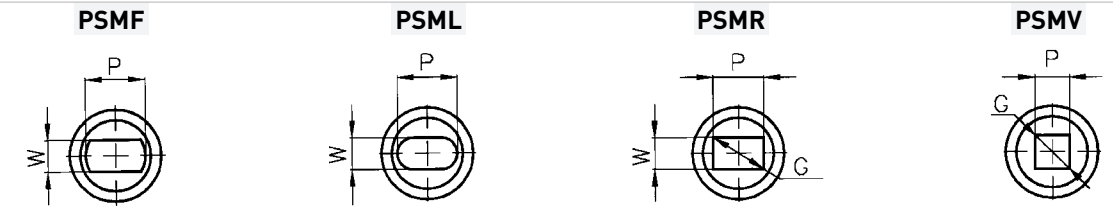
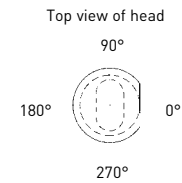
3 PSML.040.071B 3,7x2,1x16+T90



Reference	Ø D	Ø H	L2					L1				
			10	13	16	20	25	63	71	80	100	
PSM*.020.xxxM	2	3,5	X									
PSM*.030.xxxM	3	4,5	X	X								
PSM*.040.xxxM	4	5,5	X	X	X							
PSM*.050.xxxM	5	6,5	X	X	X	X	X					
PSM*.060.xxxM	6	7,5		X	X	X	X					

Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request

A flat can be created on the head for a price supplement.  
 The position T=0° is considered to be the standard flat.  
 Specify different angles if required.



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

Ref.	P	W	Ref.	P	W	Ref.	P	W	Ref.	P
PSMF.020	1 - 1,9	0,7 - 1,5	PSML.020	1 - 1,9	0,7 - 1,5	PSMR.020	1 - 1,9	0,7 - 1,5	PSMV.020	1 - 1,9
PSMF.030	1 - 1,9	0,7 - 2,5	PSML.030	1 - 1,9	0,7 - 2,5	PSMR.030	1 - 1,9	0,7 - 2,5	PSMV.030	1 - 1,9
PSMF.040	1,5 - 3,9	1 - 3,5	PSML.040	1,5 - 3,9	1 - 3,5	PSMR.040	1,5 - 3,9	1 - 3,5	PSMV.040	1,5 - 3,9
PSMF.050	1,5 - 4,9	1 - 4,5	PSML.050	1,5 - 4,9	1 - 4,5	PSMR.050	1,5 - 4,9	1 - 4,5	PSMV.050	1,5 - 4,9
PSMF.060	2 - 5,9	1,5 - 5,5	PSML.060	2 - 5,9	1,5 - 5,5	PSMR.060	2 - 5,9	1,5 - 5,5	PSMV.060	2 - 5,9



# CONICAL HEAD PRECISION PUNCHES

## TFB



Conform to the following standards: ISO 6752 - AFNOR NFE 63-109 - DIN 9861 D

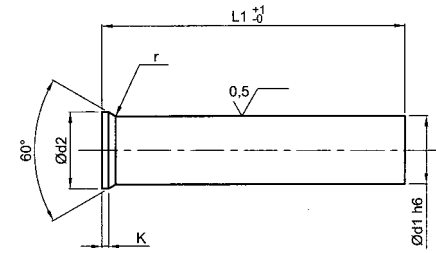
**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRC
  - B - Z 90 WDCV 06050402 / 60-64 HRC
  - D - B + TIN
- Different coatings available upon request:  
TICN, CRN etc.  
TFB punches are available in increments of 0.1 mm from Ø0.5 mm to Ø16 mm, (depending on the material).

**Ordering example**

Qty=3; Type TFB; Ød1=10.3 mm; L1=71 mm; Material A.  
3 TFB.103.071A

**PUNCH BLANKS  
TFB Series**



Reference	Ød1	Ød2	K	L1		Reference	Ød1	Ød2	K	L1		Reference	Ød1	Ød2	K	L1	
				71	100					71	100					71	100
TFB.005.xxxM	0,5	0,9	0,2			TFB.058.xxxM	5,8	7,0	0,5			TFB.111.xxxM	11,1	13,0	1,0		
TFB.006.xxxM	0,6	1,1	0,2			TFB.059.xxxM	5,9	7,0	0,5			TFB.112.xxxM	11,2	13,0	1,0		
TFB.007.xxxM	0,7	1,3	0,2			TFB.060.xxxM	6,0	8,0	0,5			TFB.113.xxxM	11,3	13,0	1,0		
TFB.008.xxxM	0,8	1,4	0,4			TFB.061.xxxM	6,1	8,0	0,5			TFB.114.xxxM	11,4	13,0	1,0		
TFB.009.xxxM	0,9	1,6	0,4			TFB.062.xxxM	6,2	8,0	0,5			TFB.115.xxxM	11,5	14,0	1,0		
TFB.010.xxxM	1,0	1,8	0,5			TFB.063.xxxM	6,3	8,0	0,5			TFB.116.xxxM	11,6	14,0	1,0		
TFB.011.xxxM	1,1	1,8	0,5			TFB.064.xxxM	6,4	8,0	0,5			TFB.117.xxxM	11,7	14,0	1,0		
TFB.012.xxxM	1,2	2,0	0,5			TFB.065.xxxM	6,5	9,0	1,0			TFB.118.xxxM	11,8	14,0	1,0		
TFB.013.xxxM	1,3	2,0	0,5			TFB.066.xxxM	6,6	9,0	1,0			TFB.119.xxxM	11,9	14,0	1,0		
TFB.014.xxxM	1,4	2,2	0,5			TFB.067.xxxM	6,7	9,0	1,0			TFB.120.xxxM	12,0	14,0	1,0		
TFB.015.xxxM	1,5	2,2	0,5			TFB.068.xxxM	6,8	9,0	1,0			TFB.121.xxxM	12,1	14,0	1,0		
TFB.016.xxxM	1,6	2,5	0,5			TFB.069.xxxM	6,9	9,0	1,0			TFB.122.xxxM	12,2	14,0	1,0		
TFB.017.xxxM	1,7	2,5	0,5			TFB.070.xxxM	7,0	9,0	1,0			TFB.123.xxxM	12,3	14,0	1,0		
TFB.018.xxxM	1,8	2,8	0,5			TFB.071.xxxM	7,1	9,0	1,0			TFB.124.xxxM	12,4	14,0	1,0		
TFB.019.xxxM	1,9	2,8	0,5			TFB.072.xxxM	7,2	9,0	1,0			TFB.125.xxxM	12,5	15,0	1,0		
TFB.020.xxxM	2,0	3,0	0,5			TFB.073.xxxM	7,3	9,0	1,0			TFB.126.xxxM	12,6	15,0	1,0		
TFB.021.xxxM	2,1	3,2	0,5			TFB.074.xxxM	7,4	9,0	1,0			TFB.127.xxxM	12,7	15,0	1,0		
TFB.022.xxxM	2,2	3,2	0,5			TFB.075.xxxM	7,5	10,0	1,0			TFB.128.xxxM	12,8	15,0	1,0		
TFB.023.xxxM	2,3	3,5	0,5			TFB.076.xxxM	7,6	10,0	1,0			TFB.129.xxxM	12,9	15,0	1,0		
TFB.024.xxxM	2,4	3,5	0,5			TFB.077.xxxM	7,7	10,0	1,0			TFB.130.xxxM	13,0	15,0	1,0		
TFB.025.xxxM	2,5	3,5	0,5			TFB.078.xxxM	7,8	10,0	1,0			TFB.131.xxxM	13,1	15,0	1,5		
TFB.026.xxxM	2,6	4,0	0,5			TFB.079.xxxM	7,9	10,0	1,0			TFB.132.xxxM	13,2	15,0	1,5		
TFB.027.xxxM	2,7	4,0	0,5			TFB.080.xxxM	8,0	10,0	1,0			TFB.133.xxxM	13,3	15,0	1,5		
TFB.028.xxxM	2,8	4,0	0,5			TFB.081.xxxM	8,1	10,0	1,0			TFB.134.xxxM	13,4	15,0	1,5		
TFB.029.xxxM	2,9	4,0	0,5			TFB.082.xxxM	8,2	10,0	1,0			TFB.135.xxxM	13,5	16,0	1,5		
TFB.030.xxxM	3,0	4,5	0,5			TFB.083.xxxM	8,3	10,0	1,0			TFB.136.xxxM	13,6	16,0	1,5		
TFB.031.xxxM	3,1	4,5	0,5			TFB.084.xxxM	8,4	10,0	1,0			TFB.137.xxxM	13,7	16,0	1,5		
TFB.032.xxxM	3,2	4,5	0,5			TFB.085.xxxM	8,5	11,0	1,0			TFB.138.xxxM	13,8	16,0	1,5		
TFB.033.xxxM	3,3	4,5	0,5			TFB.086.xxxM	8,6	11,0	1,0			TFB.139.xxxM	13,9	16,0	1,5		
TFB.034.xxxM	3,4	4,5	0,5			TFB.087.xxxM	8,7	11,0	1,0			TFB.140.xxxM	14,0	16,0	1,5		
TFB.035.xxxM	3,5	5,0	0,5			TFB.088.xxxM	8,8	11,0	1,0			TFB.141.xxxM	14,1	16,0	1,5		
TFB.036.xxxM	3,6	5,0	0,5			TFB.089.xxxM	8,9	11,0	1,0			TFB.142.xxxM	14,2	16,0	1,5		
TFB.037.xxxM	3,7	5,0	0,5			TFB.090.xxxM	9,0	11,0	1,0			TFB.143.xxxM	14,3	16,0	1,5		
TFB.038.xxxM	3,8	5,0	0,5			TFB.091.xxxM	9,1	11,0	1,0			TFB.144.xxxM	14,4	16,0	1,5		
TFB.039.xxxM	3,9	5,0	0,5			TFB.092.xxxM	9,2	11,0	1,0			TFB.145.xxxM	14,5	17,0	1,5		
TFB.040.xxxM	4,0	5,5	0,5			TFB.093.xxxM	9,3	11,0	1,0			TFB.146.xxxM	14,6	17,0	1,5		
TFB.041.xxxM	4,1	5,5	0,5			TFB.094.xxxM	9,4	11,0	1,0			TFB.147.xxxM	14,7	17,0	1,5		
TFB.042.xxxM	4,2	5,5	0,5			TFB.095.xxxM	9,5	12,0	1,0			TFB.148.xxxM	14,8	17,0	1,5		
TFB.043.xxxM	4,3	5,5	0,5			TFB.096.xxxM	9,6	12,0	1,0			TFB.149.xxxM	14,9	17,0	1,5		
TFB.044.xxxM	4,4	5,5	0,5			TFB.097.xxxM	9,7	12,0	1,0			TFB.150.xxxM	15,0	17,0	1,5		
TFB.045.xxxM	4,5	6,0	0,5			TFB.098.xxxM	9,8	12,0	1,0			TFB.151.xxxM	15,1	17,0	1,5		
TFB.046.xxxM	4,6	6,0	0,5			TFB.099.xxxM	9,9	12,0	1,0			TFB.152.xxxM	15,2	17,0	1,5		
TFB.047.xxxM	4,7	6,0	0,5			TFB.100.xxxM	10,0	12,0	1,0			TFB.153.xxxM	15,3	17,0	1,5		
TFB.048.xxxM	4,8	6,0	0,5			TFB.101.xxxM	10,1	12,0	1,0			TFB.154.xxxM	15,4	17,0	1,5		
TFB.049.xxxM	4,9	6,0	0,5			TFB.102.xxxM	10,2	12,0	1,0			TFB.155.xxxM	15,5	18,0	1,5		
TFB.050.xxxM	5,0	6,5	0,5			TFB.103.xxxM	10,3	12,0	1,0			TFB.156.xxxM	15,6	18,0	1,5		
TFB.051.xxxM	5,1	6,5	0,5			TFB.104.xxxM	10,4	12,0	1,0			TFB.157.xxxM	15,7	18,0	1,5		
TFB.052.xxxM	5,2	6,5	0,5			TFB.105.xxxM	10,5	13,0	1,0			TFB.158.xxxM	15,8	18,0	1,5		
TFB.053.xxxM	5,3	6,5	0,5			TFB.106.xxxM	10,6	13,0	1,0			TFB.159.xxxM	15,9	18,0	1,5		
TFB.054.xxxM	5,4	6,5	0,5			TFB.107.xxxM	10,7	13,0	1,0			TFB.160.xxxM	16,0	18,0	1,5		
TFB.055.xxxM	5,5	7,0	0,5			TFB.108.xxxM	10,8	13,0	1,0								
TFB.056.xxxM	5,6	7,0	0,5			TFB.109.xxxM	10,9	13,0	1,0								
TFB.057.xxxM	5,7	7,0	0,5			TFB.110.xxxM	11,0	13,0	1,0								

Materials A, B and D

A materials

Different L1 lengths available upon request

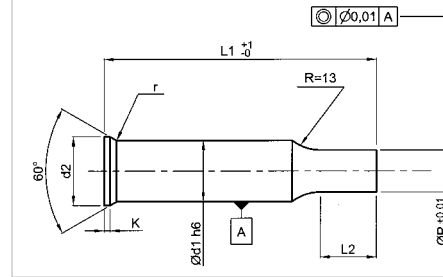


# CONICAL HEAD PRECISION PUNCHES

## TFS TF\*



**ROUND PUNCHES  
TFS Series**



Conform to the following standards: ISO 6752 - AFNOR NFE 63-109 - DIN 9861 C

**Available materials :**

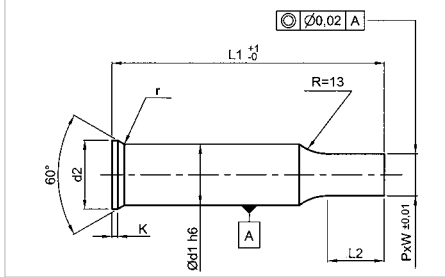
- A - Z 160 CDV 12 / 58-62 HRC
  - B - Z 90 WDCV 06050402 / 60-64 HRC
- Conical Head Ejector Punches can be made upon request.

**Ordering example**

Qty=3; Type TFL; Ød1=8mm ; L1=71 mm ; Material B; P=6.2 mm  
W=4 mm; L2=7 mm; 90°-angled flat.  
3 TFL.080.071B 6,2x4x7 + T90



**SHAPED PUNCHES  
TFF/TFL/TFR/TFV Series**

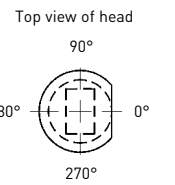


A flat can be created on the head for a price supplement.

The position T=0° is considered to be the standard flat.

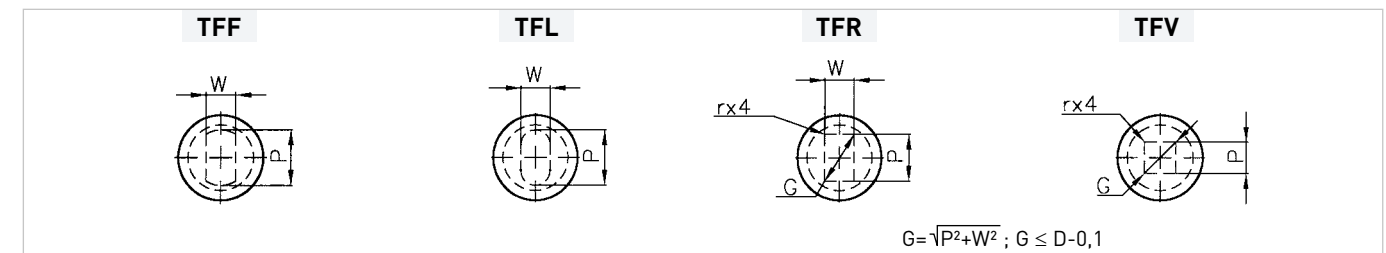
Specify different angles if required. The shapes R and V have a standard radius r=0.

A different radius r may be specified at no extra cost.



Reference	Reference	Ød1	Ød2	K	Ø P (TFS punch)	L1	
						71	100
TFS.020.xxxM	TF*.020.xxxM	2	3	0,5	1 - 1,9		
TFS.030.xxxM	TF*.030.xxxM	3	4,5	0,5	1,5 - 2,9		
TFS.040.xxxM	TF*.040.xxxM	4	5,5	0,5	2 - 3,9		
TFS.050.xxxM	TF*.050.xxxM	5	6,5	0,5	2,5 - 4,9		
TFS.060.xxxM	TF*.060.xxxM	6	8	0,5	3 - 5,9		
TFS.070.xxxM	TF*.070.xxxM	7	9	1	3,5 - 6,9		
TFS.080.xxxM	TF*.080.xxxM	8	10	1	4 - 7,9		
TFS.090.xxxM	TF*.090.xxxM	9	11	1	4,5 - 8,9		
TFS.100.xxxM	TF*.100.xxxM	10	12	1	5 - 9,9		
TFS.110.xxxM	TF*.110.xxxM	11	13	1	6 - 10,9		
TFS.120.xxxM	TF*.120.xxxM	12	14	1	7 - 11,9		
TFS.130.xxxM	TF*.130.xxxM	13	15	1	8 - 12,9		
TFS.140.xxxM	TF*.140.xxxM	14	16	1,5	9 - 13,9		
TFS.150.xxxM	TF*.150.xxxM	15	17	1,5	10 - 14,9		
TFS.160.xxxM	TF*.160.xxxM	16	18	1,5	11 - 15,9		

Different L1 lengths available upon request - Standard L2 length of 7 mm is applied by default - Special L2 lengths available upon request



$$G = \sqrt{P^2 + W^2}; G \leq D - 0,1$$

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
TFF.020	0,7 - 1,9	0,5 - 1,5	TFL.020	0,7 - 1,9	0,5 - 1,5	TFR.020	0,7 - 1,3	0,5 - 1,2	TFV.020	0,7 - 1,4
TFF.030	1,0 - 2,9	0,6 - 2,5	TFL.030	1,0 - 2,9	0,6 - 2,5	TFR.030	0,9 - 2,0	0,6 - 1,5	TFV.030	0,9 - 2,1
TFF.040	1,2 - 3,9	0,8 - 3,5	TFL.040	1,2 - 3,9	0,8 - 3,5	TFR.040	1,2 - 2,5	0,8 - 2,2	TFV.040	1,2 - 2,8
TFF.050	1,5 - 4,9	1,0 - 4,5	TFL.050	1,5 - 4,9	1,0 - 4,5	TFR.050	1,5 - 3,5	1,2 - 3,0	TFV.050	1,5 - 3,4
TFF.060	2,0 - 5,9	1,5 - 5,5	TFL.060	2,0 - 5,9	1,5 - 5,5	TFR.060	1,5 - 5,0	1,5 - 3,0	TFV.060	2,0 - 4,1
TFF.070	2,3 - 6,9	1,8 - 6,5	TFL.070	2,3 - 6,9	1,8 - 6,5	TFR.070	1,8 - 5,5	1,8 - 3,5	TFV.070	2,5 - 4,9
TFF.080	2,5 - 7,9	2,0 - 7,5	TFL.080	2,5 - 7,9	2,0 - 7,5	TFR.080	2,0 - 6,0	2,0 - 4,0	TFV.080	3,0 - 5,5
TFF.090	3,3 - 8,9	2,8 - 8,5	TFL.090	3,3 - 8,9	2,8 - 8,5	TFR.090	2,8 - 6,5	2,8 - 5,0	TFV.090	3,2 - 6,3
TFF.100	4,0 - 9,9									





# BALL-LOCK PUNCHES

**BLB  
BLHB  
BLS  
BLHS**



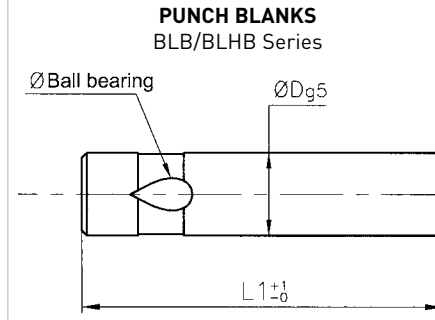
Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRc
- B - Z 90 WDCV 06050402 / 60-64 HRc
- D - B + TIN
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

Qty=3; Type BLHB; D=16 mm; L1=80 mm; Material A  
3 TFB.103.071A



Reference	Ø D	ØBall bearing	L1 (intermediate dimensions available upon request)			
			71	80	100	125
LIGHT DUTY						
BLB.100.xxxM	10	8				
BLB.130.xxxM	13	8				
BLB.160.xxxM	16	8				
BLB.200.xxxM	20	8				
BLB.250.xxxM	25	8				
HEAVY DUTY						
BLHB.100.xxxM	10	10				
BLHB.130.xxxM	13	12				
BLHB.160.xxxM	16	12				
BLHB.200.xxxM	20	12				
BLHB.250.xxxM	25	12				
BLHB.320.xxxM	32	12				
BLHB.400.xxxM	40	12				

Materials A, B and D    
  Materials B and D



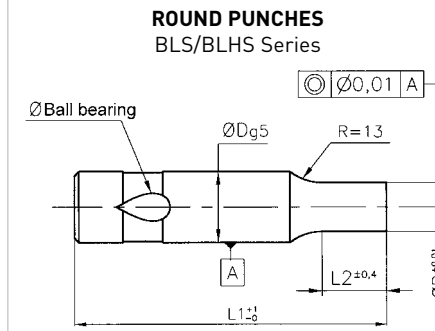
Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRc
- B - Z 90 WDCV 06050402 / 60-64 HRc
- D - B + TIN
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

Qty=3; Type BLS; D=16 mm; L1=71 mm  
Material B; P=12 mm; L2=25 mm  
3 BLS.160.071B 12x25



Reference	ØD	ØBall bearing	ØP	L2					L1			
				10	13	16	20	25	71	80	100	125
LIGHT DUTY												
BLS.100.xxxM	10	8	4 - 9,9	X	X	X	X	X				
BLS.130.xxxM	13	8	8 - 12,9		X	X	X	X				
BLS.160.xxxM	16	8	10 - 15,9		X	X	X	X				
BLS.200.xxxM	20	8	13 - 19,9			X	X	X				
BLS.250.xxxM	25	8	17 - 24,9			X	X	X				
HEAVY DUTY												
BLHS.100.xxxM	10	10	2,0 - 9,9	X	X	X	X	X				
BLHS.130.xxxM	13	12	5,0 - 12,9		X	X	X	X				
BLHS.160.xxxM	16	12	8,0 - 15,9		X	X	X	X				
BLHS.200.xxxM	20	12	12,0 - 19,9			X	X	X				
BLHS.250.xxxM	25	12	16,0 - 24,9			X	X	X				
BLHS.320.xxxM	32	12	24,0 - 31,9			X	X	X				
BLHS.400.xxxM	40	12	30,0 - 39,9			X	X	X				

Materials A, B and D    
  Materials B and D    
  Length L2 applied by default

Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).≠



# BALL-LOCK PUNCHES

**BL\*  
BLH**



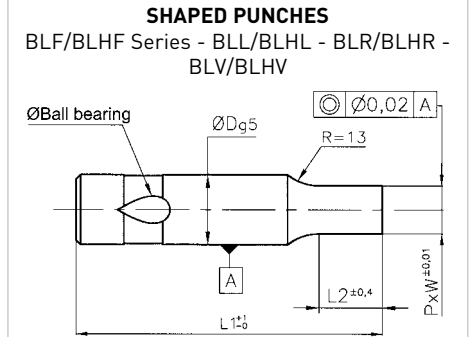
Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**

- A - Z 160 CDV 12 / 58-62 HRc
- B - Z 90 WDCV 06050402 / 60-64 HRc
- D - B + TIN
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

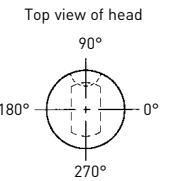
Qty=3; Type BL\*; D=10 mm; L1=71 mm; Material B; P=9.2 mm; W=6.2 mm; L2=16 mm; 90°-angled ball bearing seat (T90).  
3 BLL.100.071B 9,2x6,2x16+T90



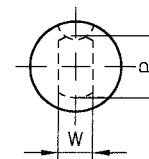
Reference	ØD	ØBall bearing	L2					L1 (intermediate dimensions available upon request)			
			10	13	16	20	25	71	80	100	125
LIGHT DUTY											
BL*.100.xxxM	10	8	X	X	X	X	X				
BL*.130.xxxM	13	8		X	X	X	X				
BL*.160.xxxM	16	8		X	X	X	X				
BL*.200.xxxM	20	8			X	X	X				
BL*.250.xxxM	25	8			X	X	X				
HEAVY DUTY											
BLH*.100.xxxM	10	10	X	X	X	X	X				
BLH*.130.xxxM	13	12		X	X	X	X				
BLH*.160.xxxM	16	12		X	X	X	X				
BLH*.200.xxxM	20	12			X	X	X				
BLH*.250.xxxM	25	12			X	X	X				
BLH*.320.xxxM	32	12			X	X	X				
BLH*.400.xxxM	40	12			X	X	X				

Materials A, B and D    
  Materials B and D    
  Length L2 applied by default  
 Special "L2" lengths available upon request (25 mm max. at no extra cost).

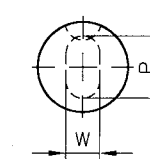
The T=90° position shown opposite is considered to be standard. The ball bearing seat may be positioned at a different angle (to be specified) at no extra cost. The shapes R and V have a standard radius r=0. A different radius r may be specified at no extra cost.



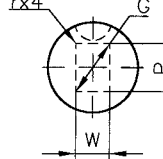
**BLF/BLHF**



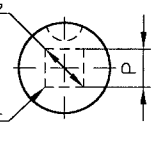
**BLL/BLHL**



**BLR/BLHR**



**BLV/BLHV**



$G = \sqrt{P^2 + W^2}$ ;  $G \leq D - 0,1$

Ref.	P	W	Ref.	P	W	Ref.	P	W	Ref.	P
LIGHT DUTY										
BLF.100	4,5 - 9,9	3,5 - 9,5	BLL.100	4,0 - 9,9	3,5 - 9,5	BLR.100	3,5 - 7,0	3,5 - 6,0	BLV.100	3,5 - 7,0
BLF.130	6,5 - 12,9	4,5 - 12,5	BLL.130	5,0 - 12,9	4,5 - 12,5	BLR.130	4,5 - 9,5	4,5 - 8,0	BLV.130	4,5 - 9,1
BLF.160	8,0 - 15,9	6,5 - 15,5	BLL.160	7,0 - 15,9	6,0 - 15,5	BLR.160	6,0 - 12,5	6,0 - 9,0	BLV.160	6,5 - 11,2
BLF.200	8,5 - 19,9	8,0 - 19,5	BLL.200	8,5 - 19,5	8,0 - 19,5	BLR.200	8,0 - 17,0	8,0 - 10,0	BLV.200	9,5 - 14,0
BLF.250	11,5 - 24,5	11,0 - 24,5	BLL.250	11,5 - 24,9	10,0 - 24,5	BLR.250	10,0 - 22,0	10,0 - 12,0	BLV.250	12,5 - 17,6
HEAVY DUTY										
BLHF.100	4,5 - 9,9	3,5 - 9,5	BLHL.100	4,0 - 9,9	3,5 - 9,5	BLHR.100	3,5 - 7,0	3,5 - 6,0	BLHV.100	3,5 - 7,0
BLHF.130	6,5 - 12,9	4,5 - 12,5	BLHL.130	5,0 - 12,9	4,5 - 12,5	BLHR.130	4,5 - 9,5	4,5 - 8,0	BLHV.130	4,5 - 9,1
BLHF.160	8,0 - 15,9	6,5 - 15,5	BLHL.160	7,0 - 15,9	6,0 - 15,5	BLHR.160	6,0 - 12,5	6,0 - 9,0	BLHV.160	6,5 - 11,2
BLHF.200	8,5 - 19,9	8,0 - 19,5	BLHL.200	8,5 - 19,9	8,0 - 19,5	BLHR.200	8,0 - 17,0	8,0 - 10,0	BLHV.200	9,5 - 14,0
BLHF.250	11,5 - 24,5	11,0 - 24,5	BLHL.250	11,5 - 24,9	10,0 - 24,5	BLHR.250	10,0 - 22,0	10,0 - 12,0	BLHV.250	12,5 - 17,6
BLHF.320	20,4 - 31,9	20,0 - 31,5	BLHL.320	20,4 - 31,9	20,0 - 31,5	BLHR.320	12,4 - 26,0	12,0 - 18,0	BLHV.320	12,0 - 22,5
BLHF.400	28,5 - 39,9	28,0 - 39,5	BLHL.400	28,5 - 39,9	28,0 - 39,5	BLHR.400	14,0 - 30,0	14,0 - 24,0	BLHV.400	14,0 - 28,2

# BALL-LOCK PUNCHES

## BLKB BLKS



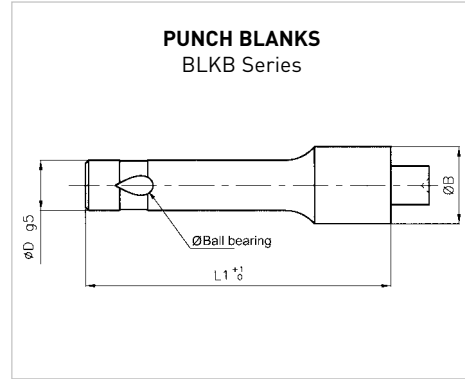
Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**

- A - Z160 CDV 12 / 58-62 HRc
  - B - Z 90 WDCV 06050402 / 60-64 HRc
  - D - B + TIN
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

Qty=3; Type BLKB; D=13 mm; L1=80 mm; Material B  
3 BLKB.103.080B



Reference	ØD	ØB	ØBall bearing	L1	
				71	80
BLKB.100.xxxM	10	20,5	8		
BLKB.130.xxxM	13	30	8		
BLKB.160.xxxM	16	32,5	8		
BLKB.200.xxxM	20	38,5	8		
BLKB.250.xxxM	25	48	8		
BLKB.320.xxxM	32	50	12		
BLKB.400.xxxM	40	56	12		

Materials B and D    
  Material A    
  Materials A, B and D



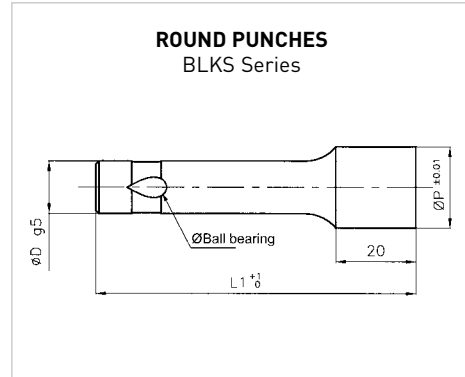
Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials**

- A - Z160 CDV 12 / 58-62 HRc
  - B - Z 90 WDCV 06050402 / 60-64 HRc
  - D - B + TIN
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

Qty=3; Type BLKS; D=13 mm; L1=80 mm  
Material B; P=28.9 mm  
3 BLKS.130.080B 28,9



Reference	ØD	ØP		ØBall bearing	L1	
		71	80		71	80
BLKS.100.xxxM	10	12	- 20	8		
BLKS.130.xxxM	13	15	- 29,5	8		
BLKS.160.xxxM	16	18	- 32	8		
BLKS.200.xxxM	20	22	- 38	8		
BLKS.250.xxxM	25	28	- 47,5	8		
BLKS.320.xxxM	32	35	- 49,5	12		
BLKS.400.xxxM	40	43	- 55,5	12		

Materials B and D    
  Material A    
  Materials A, B and D

# BALL-LOCK PUNCHES

## BLK\*



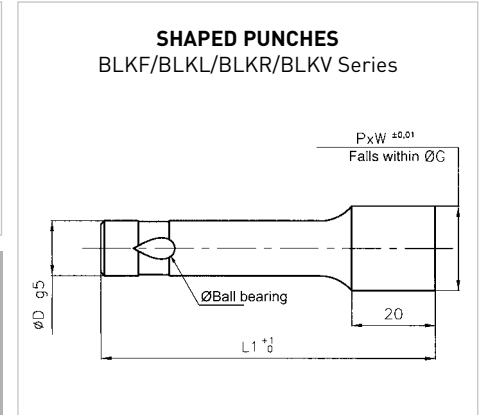
Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**

- A - Z160 CDV 12 / 58-62 HRc
  - B - Z 90 WDCV 06050402 / 60-64 HRc
  - D - B + TIN
- Different coatings available upon request: TICN, CRN etc.

**Ordering example**

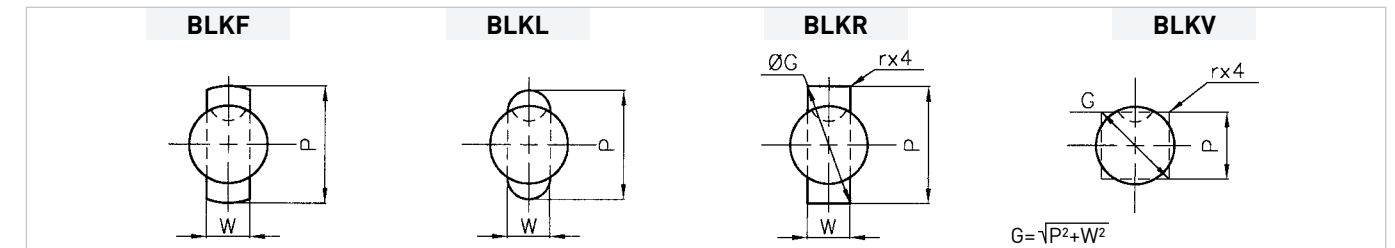
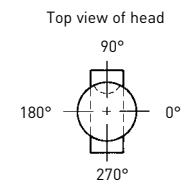
Qty=3; Type BLKR; D=13 mm; L1=80 mm  
Matière B; P=22.3 mm; W=16 mm  
90°- angled ball bearing seat (T90).  
3 BLKR.130.080B 22,3x16 + T90



Reference	Ø D	ØBall bearing	L1	
			71	80
BLK*.100.xxxM	10	8		
BLK*.130.xxxM	13	8		
BLK*.160.xxxM	16	8		
BLK*.200.xxxM	20	8		
BLK*.250.xxxM	25	8		
BLK*.320.xxxM	32	12		
BLK*.400.xxxM	40	12		

Materials B and D    
  Material A    
  Materials A, B and D

The T=90° position shown opposite is considered to be standard. The ball bearing seat may be positioned at a different angle (to be specified) at no extra cost. The shapes R and V have a standard radius r=0. A different radius r may be specified at no extra cost.



Reference	ØG max	Reference	ØG max	Reference	ØG max	Reference	ØG max
BLKF.100	20	BLKL.100	20	BLKR.100	20	BLKV.100	20
BLKF.130	29,5	BLKL.130	29,5	BLKR.130	29,5	BLKV.130	29,5
BLKF.160	32	BLKL.160	32	BLKR.160	32	BLKV.160	32
BLKF.200	38	BLKL.200	38	BLKR.200	38	BLKV.200	38
BLKF.250	47,5	BLKL.250	47,5	BLKR.250	47,5	BLKV.250	47,5
BLKF.250	49,5	BLKL.250	49,5	BLKR.250	49,5	BLKV.250	49,5
BLKF.250	55,5	BLKL.250	55,5	BLKR.250	55,5	BLKV.250	55,5



# BALL-LOCK EJECTOR PUNCHES

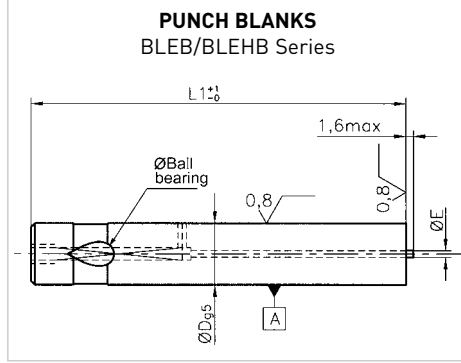
**BLEB  
BLEHB  
BLES  
BLEHS**



Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**  
B - Z 90 WDCV 06050402 / 60-64 HRc  
D - B + TIN  
Different coatings available upon request:  
TICN, CRN etc.

**Ordering example**  
Qty=3; Type BLEB; D=10 mm; L1=71 mm; Material B  
3 BLEB.100.071B



Reference	ØD	ØBall bearing	ØE	L1 (intermediate dimensions available upon request)			
				71	80	100	125
<b>LIGHT DUTY</b>							
BLEB.100.xxxM	10	8	1,3				
BLEB.130.xxxM	13	8	1,3				
BLEB.160.xxxM	16	8	2,2				
BLEB.200.xxxM	20	8	2,2				
BLEB.250.xxxM	25	8	2,2				
<b>HEAVY DUTY</b>							
BLEHB.100.xxxM	10	10	1,3				
BLEHB.130.xxxM	13	12	1,3				
BLEHB.160.xxxM	16	12	2,2				
BLEHB.200.xxxM	20	12	2,2				
BLEHB.250.xxxM	25	12	2,2				
BLEHB.320.xxxM	32	12	2,2				
BLEHB.400.xxxM	40	12	2,2				

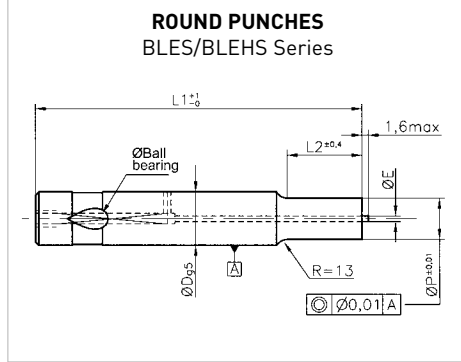
Materials A, B and D       Materials B and D



Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**  
B - Z 90 WDCV 06050402 / 60-64 HRc  
D - B + TIN  
Different coatings available upon request:  
TICN, CRN etc.

**Ordering example**  
Qty=3; Type BLES; D=10 mm; L1=71 mm  
Material B; P=8.2 mm; L2=16 mm  
3 BLES.100.071B 8,2x16



Reference	ØD	ØBall bearing	ØE	ØP	L2					L1			
					10	13	16	20	25	71	80	100	125
<b>LIGHT DUTY</b>													
BLES.100.xxxM	10	8	1,3	4,0 - 9,9	X	X	X	X	X				
BLES.130.xxxM	13	8	1,3	6,0 - 12,9		X	X	X	X				
BLES.160.xxxM	16	8	2,2	9,0 - 15,9		X	X	X	X				
BLES.200.xxxM	20	8	2,2	12,0 - 19,9			X	X	X				
BLES.250.xxxM	25	8	2,2	17,0 - 24,9				X	X				
<b>HEAVY DUTY</b>													
BLEHS.100.xxxM	10	10	1,3	3,2 - 9,9	X	X	X	X	X				
BLEHS.130.xxxM	13	12	1,3	5,0 - 12,9		X	X	X	X				
BLEHS.160.xxxM	16	12	2,2	8,0 - 15,9		X	X	X	X				
BLEHS.200.xxxM	20	12	2,2	12,0 - 19,9			X	X	X				
BLEHS.250.xxxM	25	12	2,2	16,0 - 24,9			X	X	X				
BLEHS.320.xxxM	32	12	2,2	24,0 - 31,9			X	X	X				
BLEHS.400.xxxM	40	12	2,2	30,0 - 39,9			X	X	X				

Materials A, B and D       Materials B and D       Length L2 applied by default

Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).



# BALL-LOCK EJECTOR PUNCHES

**BLE\*  
BLEH\***

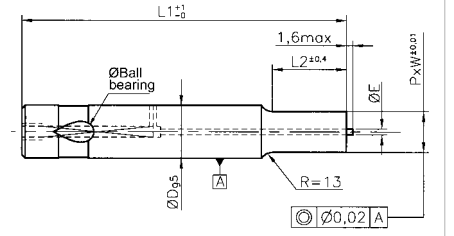


Conform to the following standards: ISO 10071 - AFNOR NFE 63-102

**Available materials:**  
B - Z 90 WDCV 06050402 / 60-64 HRc  
D - B + TIN  
Different coatings available upon request: TICN, CRN etc.

**Ordering example**  
Qty=3; Type BLEL; D=13 mm; L1=71 mm  
Material B; P=7.2 mm; W=8 mm;  
L2=25mm; 90°-angled ball bearing seat (T90).  
3 BLEL.130.071B 7,2x8x25+T90

**SHAPED PUNCHES SERIES**  
BLEF/BLEHF - BLEL/BLEHL - BLER/BLEHR - BLEV/BLEHV

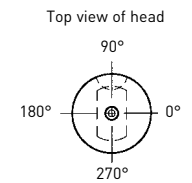


Reference	ØD	ØBall bear.	ØE	L2					L1				
				10	13	16	20	25	71	80	100	125	
<b>LIGHT DUTY</b>													
BLE*.100.xxxM	10	8	1,3	X	X	X	X	X					
BLE*.130.xxxM	13	8	1,3		X	X	X	X					
BLE*.160.xxxM	16	8	2,2		X	X	X	X					
BLE*.200.xxxM	20	8	2,2			X	X	X					
BLE*.250.xxxM	25	8	2,2			X	X	X					
<b>HEAVY DUTY</b>													
BLEH*.100.xxxM	10	10	1,3	X	X	X	X	X					
BLEH*.130.xxxM	13	12	1,3		X	X	X	X					
BLEH*.160.xxxM	16	12	2,2		X	X	X	X					
BLEH*.200.xxxM	20	12	2,2			X	X	X					
BLEH*.250.xxxM	25	12	2,2			X	X	X					
BLEH*.320.xxxM	32	12	2,2			X	X	X					
BLEH*.400.xxxM	40	12	2,2			X	X	X					

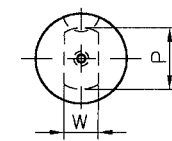
Materials A, B and D       Materials B and D       Length L2 applied by default

Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).

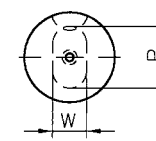
The T=90° position shown opposite is considered to be standard. The ball bearing seat may be positioned at a different angle (to be specified) at no extra cost. The shapes R and V have a standard radius r=0. A different radius r may be specified at no extra cost.



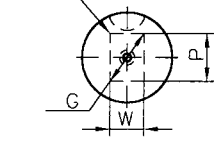
**BLEF/BLEHF**



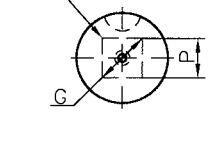
**BLEL/BLEHL**



**BLER/BLEHR**



**BLEV/BLEHV**



$G = \sqrt{P^2 + W^2}$ ;  $G \leq D - 0,1$

Ref.	P	W	Ref.	P	W	Ref.	P	W	Ref.	P
<b>LIGHT DUTY</b>										
BLEF.100	4,5 - 9,9	4,0 - 9,5	BLEL.100	4,5 - 9,9	4,0 - 9,5	BLER.100	4,0 - 7,0	4,0 - 6,0	BLEV.100	4,0 - 7,0
BLEF.130	6,5 - 12,9	6,0 - 12,5	BLEL.130	6,5 - 12,9	6,0 - 12,5	BLER.130	6,0 - 9,5	6,0 - 8,0	BLEV.130	6,0 - 9,0
BLEF.160	9,5 - 15,9	9,0 - 15,5	BLEL.160	9,5 - 15,9	9,0 - 15,5	BLER.160	7,0 - 12,5	7,0 - 9,0	BLEV.160	7,0 - 11,2
BLEF.200	12,5 - 19,9	12,0 - 19,5	BLEL.200	12,5 - 19,9	12,0 - 19,5	BLER.200	8,0 - 17,0	8,0 - 12,5	BLEV.200	9,5 - 14,0
BLEF.250	17,5 - 24,9	17,0 - 24,5	BLEL.250	17,5 - 24,9	17,0 - 24,5	BLER.250	10,0 - 22,0	10,0 - 12,0	BLEV.250	12,5 - 17,5
<b>HEAVY DUTY</b>										
BLEHF.100	4,5 - 9,9	4,0 - 9,5	BLEHL.100	4,5 - 9,9	4,0 - 9,5	BLEHR.100	4,0 - 7,0	4,0 - 6,0	BLEHV.100	4,0 - 7,0
BLEHF.130	6,5 - 12,9	6,0 - 12,5	BLEHL.130	6,5 - 12,9	6,0 - 12,5	BLEHR.130	6,0 - 9,5	6,0 - 8,0	BLEHV.130	6,0 - 9,0
BLEHF.160	9,5 - 15,9	9,0 - 15,5	BLEHL.160	9,5 - 15,9	9,0 - 15,5	BLEHR.160	7,0 - 12,5	7,0 - 9,0	BLEHV.160	7,0 - 11,2
BLEHF.200	12,5 - 19,9	12,0 - 19,5	BLEHL.200	12,5 - 19,9	12,0 - 19,5	BLEHR.200	8,0 - 17,0	8,0 - 10,0	BLEHV.200	9,5 - 14,0
BLEHF.250	17,5 - 24,9	17,0 - 24,5	BLEHL.250	17,5 - 24,9	17,0 - 24,5	BLEHR.250	10,0 - 22,0	10,0 - 12,0	BLEHV.250	12,5 - 17,5
BLEHF.320	20,5 - 31,9	20,0 - 31,5	BLEHL.320	20,5 - 31,9	20,0 - 31,5	BLEHR.320	12,0 - 26,0	12,0 - 18,0	BLEHV.320	12,0 - 22,5
BLEHF.400	28,5 - 39,9	28,0 - 39,5	BLEHL.400	28,5 - 39,9	28,0 - 39,5	BLEHR.400	14,0 - 30,0	14,0 - 24,0	BLEHV.400	14,0 - 28,2

# CYLINDRICAL HEAD PILOT PUNCHES

# PPZ PNPZ

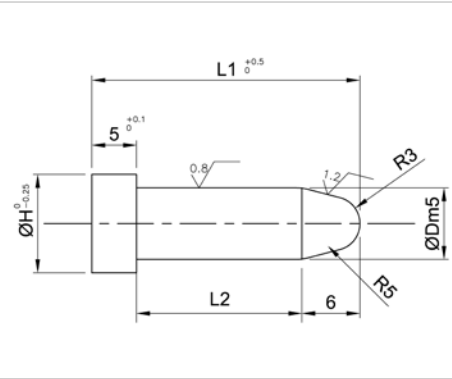
# DOME HEAD PRECISION PUNCHES

# PFB PFS



Band pilot punch  
Material B : Z 90 WDCV 06050402 / 60-64 HRc

Ordering example  
D = 10 ; L1 = 30  
Ref. PPZ.100.030B



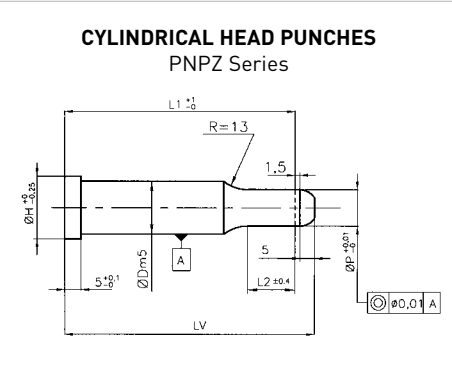
Reference	Ø D	Ø H	L1		L2	
			25	30	14	19
PPZ.080.025B	8	11	x		x	
PPZ.080.030B				x		x
PPZ.100.025B	10	13	x		x	
PPZ.100.030B				x		x
PPZ.120.025B	12	15	x		x	
PPZ.120.030B				x		x



Conform to the following standards: ISO 8020 - AFNOR NFE 63100

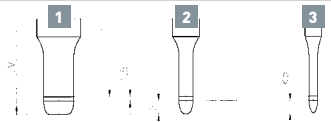
Available materials:  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

Ordering example  
Qty=3; Type PNPZ; D=8 mm; L1=71 mm  
Material B; P=6.3 mm; L2=16 mm  
3 PNPZ.080.071B 6,3x16



### END SHAPE

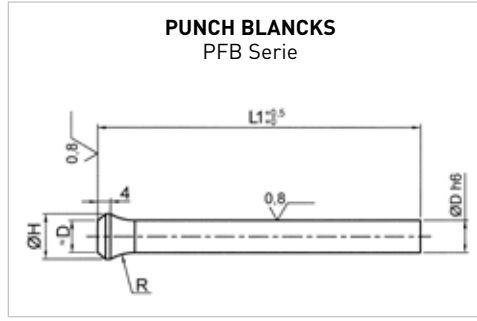
- Ø P > 5,2 mm - Flat end
- Ø P = 5,2 mm - Spherical end
- Ø P < 5,2 mm - Pointed end



Reference	Ø D	Ø H	P	L2					L1				
				10	13	16	20	25	71	80	90	110	
PNPZ.050.xxxM	5	8	0,8 - 4,9	X	X	X	X	X					
PNPZ.060.xxxM	6	9	1,5 - 5,9	X	X	X	X	X					
PNPZ.080.xxxM	8	10	2,5 - 7,9	X	X	X	X	X					
PNPZ.100.xxxM	10	13	4,5 - 9,9	X	X	X	X	X					
PNPZ.130.xxxM	13	16	6,5 - 12,9		X	X	X	X					
PNPZ.160.xxxM	16	19	9,5 - 15,9		X	X	X	X					
PNPZ.200.xxxM	20	23	12,5 - 19,9			X	X	X					
PNPZ.250.xxxM	25	28	16,5 - 24,9			X	X	X					

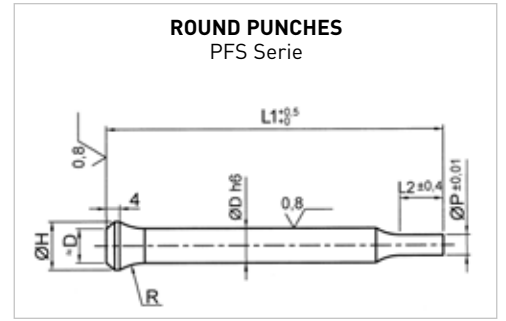
Materials A and B    Material B    Length L2 applied by default

Length "L1": Intermediate dimensions available upon request - Special "L2" lengths available upon request (max. 25 mm at no extra cost).



Available materials:  
B - Z90 WDCV 06050402 / 60 - 64 Hrc  
Different coatings available upon request: TiCN, CRN, etc.

Ordering example  
Qty=5; Type PFB; D = 10 mm; L1 = 71 mm  
Material B  
5 PFB.100.071B



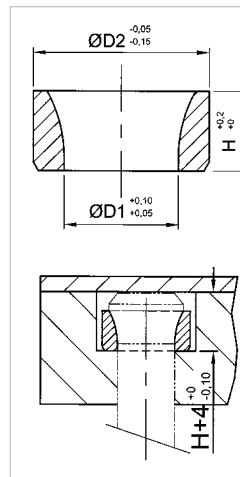
Available materials:  
B - Z90 WDCV 06050402 / 60 - 64 Hrc  
Different coatings available upon request: TiN, TiCN, AlCrN ...

Ordering example  
Qty=3; Type PFS; D=13 mm; L1=80 mm  
Material B; ØP = 8,1; L2 = 16 mm  
3 PFS.130.080B 8,1x16

Reference Punches	Reference round shape	Ø D	Ø H	R	Ø P	L2 (for shaped)					L1 (intermediate dimension available upon request)				
						10	13	16	20	25	71	80	100	120	
PFB.050.xxxB	PFS.050.xxxB	5	7	10	0,8 - 3,9	X	X	X	X	X					
PFB.055.xxxB	PFS.055.xxxB	5,5	8	10	1,2 - 5,4	X	X	X	X	X					
PFB.060.xxxB	PFS.060.xxxB	6	9	10	1,5 - 5,9	X	X	X	X	X					
PFB.065.xxxB	PFS.065.xxxB	6,5	9,5	12	1,7 - 6,4	X	X	X	X	X					
PFB.070.xxxB	PFS.070.xxxB	7	10	12	1,8 - 6,9	X	X	X	X	X					
PFB.075.xxxB	PFS.075.xxxB	7,5	11	12	2,1 - 7,4	X	X	X	X	X					
PFB.080.xxxB	PFS.080.xxxB	8	11	12	2,5 - 7,9	X	X	X	X	X					
PFB.085.xxxB	PFS.085.xxxB	8,5	13	15	3 - 8,4	X	X	X	X	X					
PFB.090.xxxB	PFS.090.xxxB	9	13	15	3,5 - 8,9	X	X	X	X	X					
PFB.095.xxxB	PFS.095.xxxB	9,5	14	15	4 - 9,4	X	X	X	X	X					
PFB.100.xxxB	PFS.100.xxxB	10	14	15	4,5 - 9,9	X	X	X	X	X					
PFB.105.xxxB	PFS.105.xxxB	10,5	15	15	4,9 - 10,4		X	X	X	X					
PFB.110.xxxB	PFS.110.xxxB	11	15	15	5,3 - 10,9		X	X	X	X					
PFB.115.xxxB	PFS.115.xxxB	11,5	16	15	5,7 - 11,4		X	X	X	X					
PFB.120.xxxB	PFS.120.xxxB	12	16	15	6,1 - 11,9		X	X	X	X					
PFB.130.xxxB	PFS.130.xxxB	13	17	15	6,5 - 12,9		X	X	X	X					
PFB.140.xxxB	PFS.140.xxxB	14	18	15	7,5 - 13,9		X	X	X	X					
PFB.150.xxxB	PFS.150.xxxB	15	19	15	8,5 - 14,9		X	X	X	X					
PFB.160.xxxB	PFS.160.xxxB	16	20	15	9,5 - 15,9		X	X	X	X					
PFB.170.xxxB	PFS.170.xxxB	17	21	15	10,3 - 16,9			X	X	X					
PFB.180.xxxB	PFS.180.xxxB	18	22	15	11 - 17,9			X	X	X					
PFB.190.xxxB	PFS.190.xxxB	19	23	15	11,8 - 18,9			X	X	X					
PFB.200.xxxB	PFS.200.xxxB	20	25	15	12,5 - 19,9			X	X	X					
PFB.250.xxxB	PFS.250.xxxB	25	30	15	18 - 24,9			X	X	X					

Length L1 et L2 : Intermediate dimension available upon request

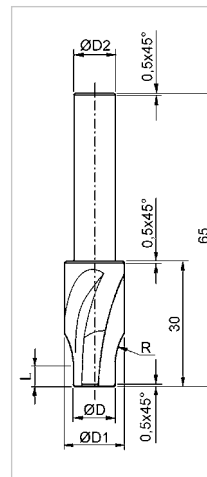
Materials A and B    Material B    Length L2 applied by default



Seat for mounting dome head punches.

Ordering example  
Qty=15; for punches of ØD = 10 mm  
15 SPF.010  
Intermediate dimensions available upon request

Reference	ØD1	ØD2	H
SPF.050	5	13	6
SPF.060	6	13	7
SPF.080	8	16	8
SPF.100	10	20	9
SPF.130	13	25	9
SPF.160	16	32	9
SPF.200	20	32	10



Tool for machining the housing for dome head punches.  
Material: High-speed steel (M=B)  
Material: Carbide (M=C)

Ordering example  
Qty=1; ØD = 10 mm made from high-speed steel  
1 FPF.010.000B

Reference	ØD1	ØD2	R	L
FPF.005.000M	5	7,4	8	10
FPF.006.000M	6	9,5	8	10
FPF.008.000M	8	11,5	8	12
FPF.010.000M	10	14,5	10	15
FPF.013.000M	13	17,5	10	15
FPF.016.000M	16	20,5	10	15
FPF.020.000M	20	25,5	16	15

PUNCH RETAINERS FOR BOTTLE-NECK HEADED PUNCHES ARE AVAILABLE UPON REQUEST



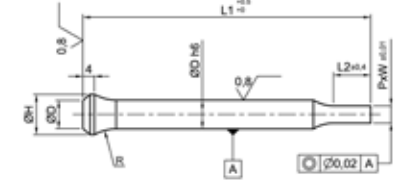


**Available material :**  
B - Z90 WDCV 06050402 / 60 - 64 Hrc  
Different coatings available upon request:  
TiN, TiCN, AlCrN ...

### Ordering example

Qty=3 ; Type PFL; D = 10 mm ; L1 = 71 mm ; Material B ;  
P=9,2 mm ; W = 6,2 mm ; L2 = 16 mm ; angled flat 90° (T90).  
3 PFL.100.071B ; 9,2x6,2x16 + T90

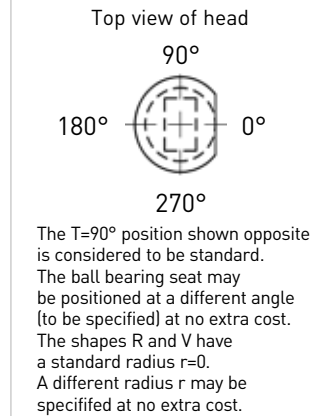
### SHAPED PUNCHES PFF/PFL/PFR/PFV Series



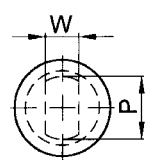
Reference	Ø D	Ø H	R	L2 (for shaped)					L1 (intermediate dimension available upon request)			
				10	13	16	20	25	71	80	100	120
PF*.050.xxxB	5	7	10	X	X	X	X	X				
PF*.055.xxxB	5,5	8	10	X	X	X	X	X				
PF*.060.xxxB	6	9	10	X	X	X	X	X				
PF*.065.xxxB	6,5	10	12	X	X	X	X	X				
PF*.070.xxxB	7	10	12	X	X	X	X	X				
PF*.075.xxxB	7,5	11	12	X	X	X	X	X				
PF*.080.xxxB	8	11	12	X	X	X	X	X				
PF*.085.xxxB	8,5	13	15	X	X	X	X	X				
PF*.090.xxxB	9	13	15	X	X	X	X	X				
PF*.095.xxxB	9,5	14	15	X	X	X	X	X				
PF*.100.xxxB	10	14	15	X	X	X	X	X				
PF*.105.xxxB	10,5	15	15		X	X	X	X				
PF*.110.xxxB	11	15	15		X	X	X	X				
PF*.115.xxxB	11,5	16	15		X	X	X	X				
PF*.120.xxxB	12	16	15		X	X	X	X				
PF*.130.xxxB	13	17	15		X	X	X	X				
PF*.140.xxxB	14	18	15		X	X	X	X				
PF*.150.xxxB	15	19	15		X	X	X	X				
PF*.160.xxxB	16	20	15		X	X	X	X				
PF*.170.xxxB	17	21	15			X	X	X				
PF*.180.xxxB	18	22	15			X	X	X				
PF*.190.xxxB	19	23	15			X	X	X				
PF*.200.xxxB	20	25	15			X	X	X				
PF*.250.xxxB	25	30	15			X	X	X				

Lenght L1 et L2 : Intermediate dimension available upon request

Material A et B     Material B     Lenght L2 applical by default



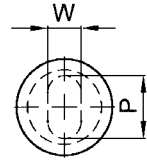
### PFF



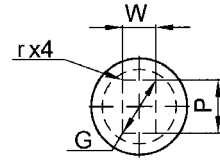
$$G = \sqrt{P^2 + W^2}$$

$$G \leq D - 0,1$$

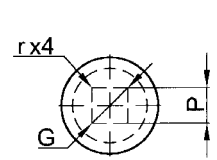
### PFL



### PFR



### PFV



Ref.	P	W	Ref.	P	W	Ref.	P	W	Ref.	P
PFF.050	1,5 - 4,9	1 - 4,5	PFL.050	1,5 - 4,9	1 - 4,5	PFR.050	1,5 - 3,5	1,5 - 3	PFV.050	1,5 - 3,4
PFF.055	1,8 - 5,4	1,3 - 5	PFL.055	1,8 - 5,4	1,3 - 5	PFR.055	1,5 - 4,3	1,5 - 3	PFV.055	1,8 - 3,8
PFF.060	2 - 5,9	1,5 - 5,5	PFL.060	2 - 5,9	1,5 - 5,5	PFR.060	1,5 - 5	1,5 - 3	PFV.060	2 - 4,1
PFF.065	2 - 6,4	1,6 - 6	PFL.065	2 - 6,4	1,5 - 6	PFR.065	1,5 - 5,2	1,6 - 3,2	PFV.065	2,2 - 4,5
PFF.070	2,2 - 6,9	1,7 - 6,5	PFL.070	2,2 - 6,9	1,7 - 6,5	PFR.070	1,5 - 5,5	1,7 - 3,5	PFV.070	2,5 - 4,8
PFF.075	2,3 - 7,4	1,9 - 7	PFL.075	2,3 - 7,4	1,9 - 7	PFR.075	1,8 - 5,8	1,9 - 3,8	PFV.075	2,8 - 5,2
PFF.080	2,5 - 7,9	2 - 7,5	PFL.080	2,5 - 7,9	2 - 7,5	PFR.080	2 - 6	2 - 4	PFV.080	3 - 5,5
PFF.085	2,9 - 8,4	2,4 - 8	PFL.085	2,9 - 8,4	2,4 - 8	PFR.085	2,4 - 6,3	2,4 - 4,5	PFV.085	3,2 - 5,9
PFF.090	3,2 - 8,9	2,7 - 8,5	PFL.090	3,2 - 8,9	2,7 - 8,5	PFR.090	2,8 - 6,5	2,7 - 5	PFV.090	3,3 - 6,2
PFF.095	3,6 - 9,4	3,1 - 9	PFL.095	3,6 - 9,4	3,1 - 9	PFR.095	3,2 - 6,8	3,1 - 5,5	PFV.095	3,4 - 6,7
PFF.100	4,0 - 9,9	3,5 - 9,5	PFL.100	4,0 - 9,9	3,5 - 9,5	PFR.100	3,5 - 7	3,5 - 6	PFV.100	3,5 - 7
PFF.105	4,2 - 10,4	3,7 - 10	PFL.105	4,2 - 10,4	3,7 - 10	PFR.105	3,7 - 7,4	3,7 - 6,3	PFV.105	3,7 - 7,3
PFF.110	4,3 - 10,9	3,8 - 10,5	PFL.110	4,3 - 10,9	3,8 - 10,5	PFR.110	3,8 - 7,8	3,8 - 6,6	PFV.110	3,8 - 7,6
PFF.115	4,5 - 11,4	4 - 11	PFL.115	4,5 - 11,4	4 - 11	PFR.115	4 - 8,3	4 - 7	PFV.115	4 - 8,1
PFF.120	4,7 - 11,9	4,2 - 11,5	PFL.120	4,7 - 11,9	4,2 - 11,5	PFR.120	4,2 - 8,7	4,2 - 7,3	PFV.120	4,2 - 8,3
PFF.130	5 - 12,9	4,5 - 12,5	PFL.130	5 - 12,9	4,5 - 12,5	PFR.130	4,5 - 9,5	4,5 - 8	PFV.130	4,5 - 9,1
PFF.140	5,6 - 13,9	5,1 - 13,5	PFL.140	5,6 - 13,9	5,1 - 13,5	PFR.140	5 - 10,5	5,1 - 8,3	PFV.140	5,1 - 9,8
PFF.150	6,3 - 14,9	5,7 - 14,5	PFL.150	6,3 - 14,9	5,7 - 14,5	PFR.150	5,5 - 11,5	5,7 - 8,6	PFV.150	5,8 - 10,5
PFF.160	7 - 15,9	6,5 - 15,5	PFL.160	7 - 15,9	6,5 - 15,5	PFR.160	6 - 12,5	6 - 9	PFV.160	6,5 - 11,2
PFF.170	7,4 - 16,9	6,9 - 16,5	PFL.170	7,4 - 16,9	6,9 - 16,5	PFR.170	7,4 - 13,6	6,5 - 9,3	PFV.170	7,3 - 12
PFF.180	7,8 - 17,9	7,3 - 17,5	PFL.180	7,8 - 17,9	7,3 - 17,5	PFR.180	7,6 - 14,8	7 - 9,5	PFV.180	8 - 12,7
PFF.190	8,2 - 18,9	7,7 - 18,5	PFL.190	8,2 - 18,9	7,7 - 18,5	PFR.190	7,8 - 16	7,5 - 9,8	PFV.190	8,8 - 13,4
PFF.200	8,5 - 19,9	8 - 19,5	PFL.200	8,5 - 19,9	8 - 19,5	PFR.200	8 - 17	8 - 10	PFV.200	9,5 - 14
PFF.250	11,5 - 24,9	11 - 24,5	PFL.250	11,5 - 24,9	11 - 24,5	PFR.250	10 - 22	10 - 12	PFV.250	12,5 - 17,6

Blank area for notes with horizontal dashed lines.







# HEADED DIE BUSH

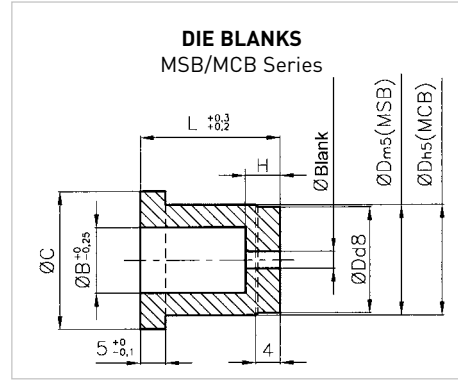
MSB  
MCB  
MS  
MCS



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of Ø22 mm and 35 mm in height.

**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRC  
B - Z 90 WDCV 06050402 / 60-64 HRC

**Ordering example**  
Qty=2; Type: MCB (tolerance h5)  
D=20 mm; L=32 mm; H=8 mm; Material A  
2 MCB.200.32.8A



Reference		Ø D	Ø C	Ø B	H	Ø Blank	L			
Ø D m5	Ø D h5						20	25	32	35
MSB.060.xx.xM	MCB.060.xx.xM	6	9	3,5	3	1				
MSB.080.xx.xM	MCB.080.xx.xM	8	11	4	4	1				
MSB.100.xx.xM	MCB.100.xx.xM	10	13	5,8	5   8	1,5				
MSB.130.xx.xM	MCB.130.xx.xM	13	16	8	5   8	1,5				
MSB.160.xx.xM	MCB.160.xx.xM	16	19	9,5	5   8	2				
MSB.200.xx.xM	MCB.200.xx.xM	20	23	12	5   8	2				
MSB.220.xx.xM	MCB.220.xx.xM	22	25	14	8	2				
MSB.250.xx.xM	MCB.250.xx.xM	25	28	17,3	5   8	2				
MSB.320.xx.xM	MCB.320.xx.xM	32	35	20,7	8	2				
MSB.400.xx.xM	MCB.400.xx.xM	40	43	27,7	8	2				
MSB.500.xx.xM	MCB.500.xx.xM	50	53	37	8	2				

Reference MSB for ØDm5

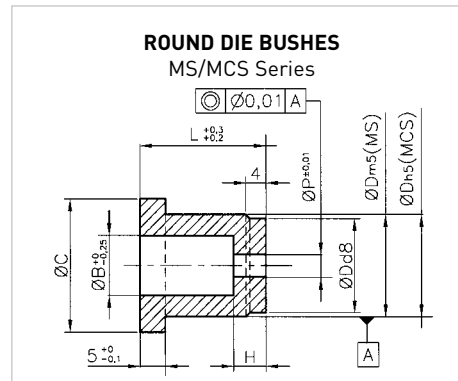
Reference MCB for ØDh5



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of Ø22 mm and 35 mm in height.

**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRC  
B - Z 90 WDCV 06050402 / 60-64 HRC

**Ordering example**  
Qty=2; Type MCS (tolerance h5);  
D=20 mm; L=32 mm; H=8 mm;  
Material A; P=10,2 mm  
Ref. 2 MCS.200.32.8A 10,2



Reference		Ø D	Ø C	Ø B	H	Ø P	L			
Ø D m5	Ø D h5						20	25	32	35
MS.060.xx.xM	MCS.060.xx.xM	6	9	3,5	3	1,5 - 3,0				
MS.080.xx.xM	MCS.080.xx.xM	8	11	4	4	1,5 - 3,5				
MS.100.xx.xM	MCS.100.xx.xM	10	13	5,8	5   8	2,0 - 5,0				
MS.130.xx.xM	MCS.130.xx.xM	13	16	8	5   8	2,0 - 7,0				
MS.160.xx.xM	MCS.160.xx.xM	16	19	9,5	5   8	2,5 - 9,0				
MS.200.xx.xM	MCS.200.xx.xM	20	23	12	5   8	2,5 - 11,0				
MS.220.xx.xM	MCS.220.xx.xM	22	25	14	8	2,5 - 13,0				
MS.250.xx.xM	MCS.250.xx.xM	25	28	17,3	5   8	2,5 - 16,0				
MS.320.xx.xM	MCS.320.xx.xM	32	35	20,7	8	2,5 - 20,0				
MS.400.xx.xM	MCS.400.xx.xM	40	43	27,7	8	2,5 - 27,0				
MS.500.xx.xM	MCS.500.xx.xM	50	53	37	8	2,5 - 36,0				

Reference MS for ØDm5

Reference MCS for ØDh5



# HEADED DIE BUSH

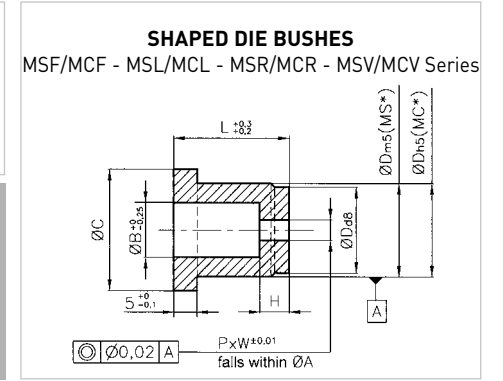
MS\*  
MC\*



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of Ø22 mm and 35 mm in height.

**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRC  
B - Z 90 WDCV 06050402 / 60-64 HRC

**Ordering example**  
Qty=2; Type: MCL (tolerance h5)  
D=20 mm; L=32 mm; H=8 mm;  
Matière A; P=7.2 mm; W=5.2 mm;  
90°-angled flat [T90]  
2 MCL.200.32.8A 7,2x5,2 + T90

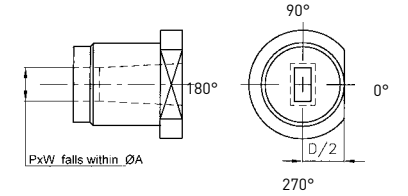


Reference		Ø D	Ø C	Ø B	H	Ø A	L			
Ø D m5	Ø D h5						20	25	32	35
MS*.060.xx.xM	MC*.060.xx.xM	6	9	3,5	3	3,0				
MS*.080.xx.xM	MC*.080.xx.xM	8	11	4	4	3,5				
MS*.100.xx.xM	MC*.100.xx.xM	10	13	5,8	5   8	5,0				
MS*.130.xx.xM	MC*.130.xx.xM	13	16	8	5   8	7,0				
MS*.160.xx.xM	MC*.160.xx.xM	16	19	9,5	5   8	9,0				
MS*.200.xx.xM	MC*.200.xx.xM	20	23	12	5   8	11,0				
MS*.220.xx.xM	MC*.220.xx.xM	22	25	14	8	13,0				
MS*.250.xx.xM	MC*.250.xx.xM	25	28	17,3	5   8	16,0				
MS*.320.xx.xM	MC*.320.xx.xM	32	35	20,7	8	20,0				
MS*.400.xx.xM	MC*.400.xx.xM	40	43	27,7	8	27,0				
MS*.500.xx.xM	MC*.500.xx.xM	50	53	37	8	36,0				

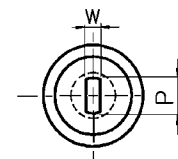
Reference MS\* for ØDm5

Reference MC\* for ØDh5

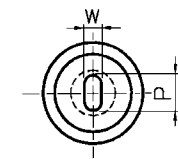
A flat can be created on the flange for a price supplement.  
The position T=0° is considered to be the standard flat.  
A pin-operated rotation stop can be added for a price supplement.  
Please state G90 (for 90° angle).  
Specify different angles if required.  
For shapes R and V, a radius r may be specified at no extra cost.



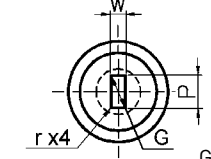
MSF/MCF  
ØDm5/Øh5



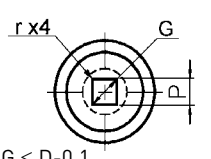
MSL/MCL  
ØDm5/Øh5



MSR/MCR  
ØDm5/Øh5



MSV/MCV  
ØDm5/Øh5



$G = \sqrt{P^2 + W^2}$ ;  $G \leq D - 0,1$

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
MSF/MCF.060	1,5 - 3,0	1,5 - 2,5	MSL/MCL.060	1,5 - 3,0	1,5 - 2,5	MSR/MCR.060	1,5 - 2,2	1,5 - 1,8	MSV/MCV.060	1,5 - 1,8
MSF/MCF.080	1,5 - 3,5	1,5 - 3,0	MSL/MCL.080	1,5 - 3,5	1,5 - 3,0	MSR/MCR.080	1,5 - 3,2	1,5 - 2,7	MSV/MCV.080	1,5 - 2,5
MSF/MCF.100	2,0 - 5,0	2,0 - 4,0	MSL/MCL.100	2,0 - 5,0	2,0 - 4,0	MSR/MCR.100	2,0 - 4,2	2,0 - 3,7	MSV/MCV.100	2,0 - 3,2
MSF/MCF.130	2,0 - 7,0	2,0 - 5,0	MSL/MCL.130	2,0 - 7,0	2,0 - 5,0	MSR/MCR.130	2,0 - 6,5	2,0 - 4,8	MSV/MCV.130	2,0 - 4,7
MSF/MCF.160	3,5 - 9,0	2,5 - 6,5	MSL/MCL.160	3,5 - 9,0	2,5 - 6,5	MSR/MCR.160	3,5 - 7,6	2,5 - 5,9	MSV/MCV.160	2,5 - 5,8
MSF/MCF.200	5,0 - 11,0	2,5 - 9,5	MSL/MCL.200	5,0 - 11,0	2,5 - 9,5	MSR/MCR.200	5,0 - 9,7	2,5 - 8,5	MSV/MCV.200	2,5 - 7,5
MSF/MCF.250	7,0 - 16,0	2,5 - 15,0	MSL/MCL.250	7,0 - 16,0	2,5 - 15,0	MSR/MCR.250	7,0 - 14,6	2,5 - 13,5	MSV/MCV.250	2,5 - 11,3
MSF/MCF.320	8,0 - 20,0	2,5 - 18,0	MSL/MCL.320	8,0 - 20,0	2,5 - 18,0	MSR/MCR.320	8,0 - 17,9	2,5 - 16,5	MSV/MCV.320	2,5 - 13,7
MSF/MCF.400	9,0 - 27,0	2,5 - 24,5	MSL/MCL.400	9,0 - 27,0	2,5 - 24,5	MSR/MCR.400	9,0 - 25,0	2,5 - 23,0	MSV/MCV.400	2,5 - 18,7
MSF/MCF.500	10,0 - 36,0	2,5 - 32,0	MSL/MCL.500	10,0 - 36,0	2,5 - 32,0	MSR/MCR.500	10,0 - 34,4	2,5 - 30,5	MSV/MCV.500	2,5 - 25,2



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080

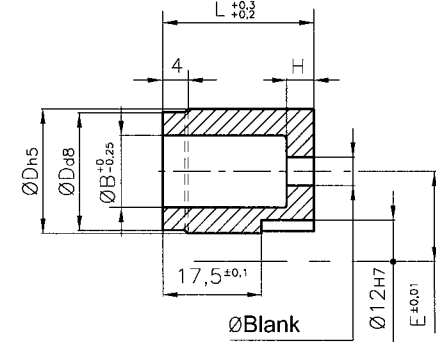
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
K - X110CrMoV8-T6 / 61-63 HRc

### Ordering example

L=32 mm; H=8 mm; Matière A  
Qty=2; BTPC-type clamp (see facing page)

2 TPCB.200.32.8A  
2 BTPC

### DIE BLANKS TPCB Series



Reference	Ø D	Ø B	E	H	ØBlank	L	
							32
TPCB.160.32.xA	16	9,5	11,5	5	8	2	
TPCB.200.32.xA	20	12	13,5	5	8	2	
TPCB.250.32.xA	25	17,3	16	5	8	2	
TPCB.320.32.xA	32	20,7	19,5	5	8	2	
TPCB.400.32.xA	40	27,7	23,5	5	8	2	
TPCB.500.32.xA	50	37	28,5	5	8	2	



ISO 8977 - AFNOR NFE 63080

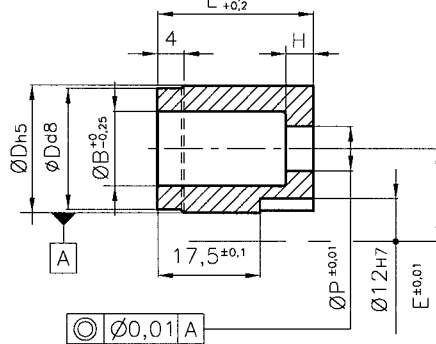
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
K - X110CrMoV8-T6 / 61-63 HRc

### Ordering example

Qty=2; Type TPCS; D=20 mm; L=32 mm  
H=8 mm; Material A; P=9.6 mm  
Qty=2; BTPC-type clamp (see facing page)

2 TPCS.200.32.8A 9,6  
2 BTPC

### ROUND DIE BUSHES TPCS Series



Reference	Ø D	Ø B	E	H	Ø P	L	
							32
TPCS.160.32.xA	16	9,5	11,5	5	8	2,5 - 9,0	
TPCS.200.32.xA	20	12	13,5	5	8	2,5 - 11,0	
TPCS.250.32.xA	25	17,3	16	5	8	2,5 - 16,0	
TPCS.320.32.xA	32	20,7	19,5	5	8	2,5 - 20,0	
TPCS.400.32.xA	40	27,7	23,5	5	8	2,5 - 27,0	
TPCS.500.32.xA	50	37	28,5	5	8	2,5 - 36,0	



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080

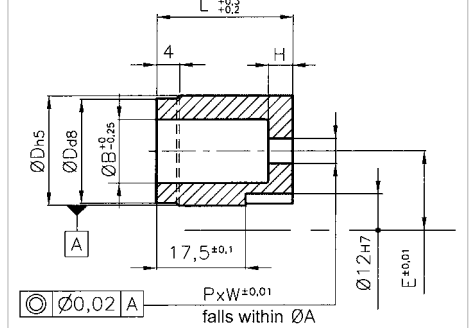
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc

### Ordering example

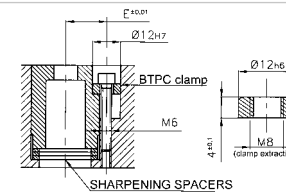
Qty=2; Type TPCL; D=20 mm; L=32 mm  
H=8 mm; Material A; P=7.3 mm; W=6 mm  
90°- angled notch (T90)  
Qty=2; BTPC type clamp

2 TPCL.200.32.8A 7,3x6 + T90  
2 BTPC

### SHAPED DIE BUSH TPCF/TPCL/TPCR/TPCV Series

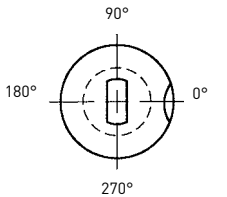


Reference	Ø D	Ø B	E	H	Ø A	L	
							32
TPC*.160.32.xA	16	9,5	11,5	5	8	9	
TPC*.200.32.xA	20	12	13,5	5	8	11	
TPC*.250.32.xA	25	17,3	16	5	8	16	
TPC*.320.32.xA	32	20,7	19,5	5	8	20	
TPC*.400.32.xA	40	27,7	23,5	5	8	27	
TPC*.500.32.xA	50	37	28,5	5	8	36	

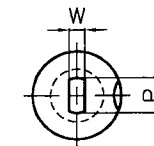


Die bushes may be fitted using VMPB screws (voir page 45)

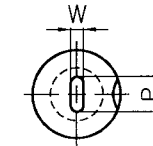
The Ø12 H7 notch is used as a locator. This position T=0° is considered to be the standard flat. Specify different angles if required. For shapes R and V, a radius r may be specified at no extra cost.



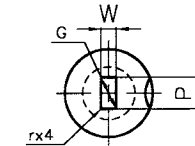
### TPCF



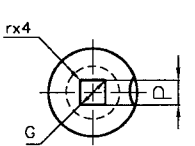
### TPCL



### TPCR



### TPCV



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

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
TPCF.160	3,5 - 9,0	2,5 - 6,5	TPCL.160	3,5 - 9,0	2,5 - 6,5	TPCR.160	3,5 - 7,6	2,5 - 5,9	TPCV.160	2,5 - 5,8
TPCF.200	5,0 - 11,0	2,5 - 9,5	TPCL.200	5,0 - 11,0	2,5 - 9,5	TPCR.200	5,0 - 9,7	2,5 - 8,5	TPCV.200	2,5 - 7,5
TPCF.250	7,0 - 16,0	2,5 - 15,0	TPCL.250	7,0 - 16,0	2,5 - 15,0	TPCR.250	7,0 - 14,6	2,5 - 13,5	TPCV.250	2,5 - 11,3
TPCF.320	8,0 - 20,0	2,5 - 18,0	TPCL.320	8,0 - 20,0	2,5 - 18,0	TPCR.320	8,0 - 17,9	2,5 - 16,5	TPCV.320	2,5 - 13,7
TPCF.400	9,0 - 27,0	2,5 - 24,5	TPCL.400	9,0 - 27,0	2,5 - 24,5	TPCR.400	9,0 - 25,0	2,5 - 23,0	TPCV.400	2,5 - 18,7
TPCF.500	10,0 - 36,0	2,5 - 32,0	TPCL.500	10,0 - 36,0	2,5 - 32,0	TPCR.500	10,0 - 34,4	2,5 - 30,5	TPCV.500	2,5 - 25,2



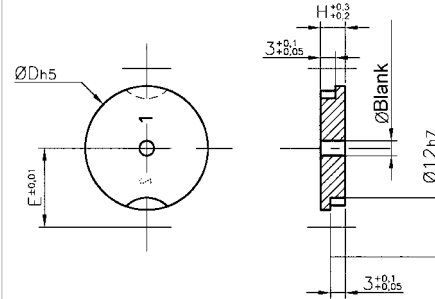
**Available materials:**  
A -Z 160 CDV 12 / 58-62 HRc

**Ordering example**

Qty=2; Type MPB; D=20 mm; H=5 mm  
Material A  
Qty=2; Screw type: VMPB

2 MPB.200.5A  
2 VMPB

**DIE BLANKS**  
MPB Series



Reference	Ø D	H			E	ØBlank
MPB.130.xxA	13	5	8	-	10,5	1,5
MPB.160.xxA	16	5	8	-	11,5	2
MPB.200.xxA	20	5	8	10	13,5	2
MPB.250.xxA	25	5	8	10	16	2
MPB.320.xxA	32	5	8	-	19,5	2
MPB.400.xxA	40	5	8	-	23,5	2
MPB.500.xxA	50	5	8	-	28,5	2



**Available materials:**  
A -Z 160 CDV 12 / 58-62 HRc

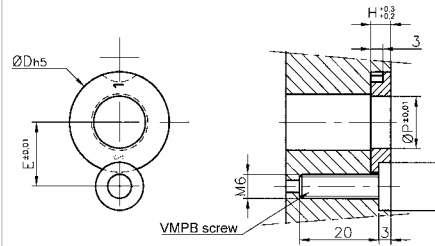
**Please note:**  
Maximum torque for the VMPB screw: 11 N.m max.

**Ordering example**

Qty=2; Type MPS; D=20 mm; H=10 mm  
Material A; P=10.3 mm  
Qty=2; Screw type: VMPB

2 MPS.200.10A 10,3  
2 VMPB

**ROUND DIE BUSHES**  
MPS Series



Reference	Ø D	H			E	Ø P	
MPS.130.xxA	13	5	8	-	10,5	2,0	7,0
MPS.160.xxA	16	5	8	-	11,5	2,5	9,0
MPS.200.xxA	20	5	8	10	13,5	2,5	11,0
MPS.250.xxA	25	5	8	10	16	2,5	16,0
MPS.320.xxA	32	5	8	-	19,5	2,5	20,0
MPS.400.xxA	40	5	8	-	23,5	2,5	27,0
MPS.500.xxA	50	5	8	-	28,5	2,5	36,0



**Available materials:**  
A -Z 160 CDV 12 / 58-62 HRc

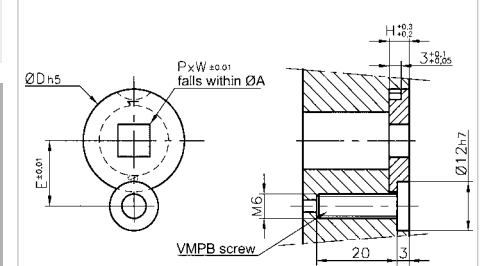
**Please note:**  
Maximum torque for the VMPB screw: 11 N.m max.

**Ordering example**

Qty=2; Type MPF; D=32 mm; H=5 mm  
Material A; P=7.1 mm; W=5.2 mm;  
90°-angled notch [T90]  
Qty=2; Screw type: VMPB

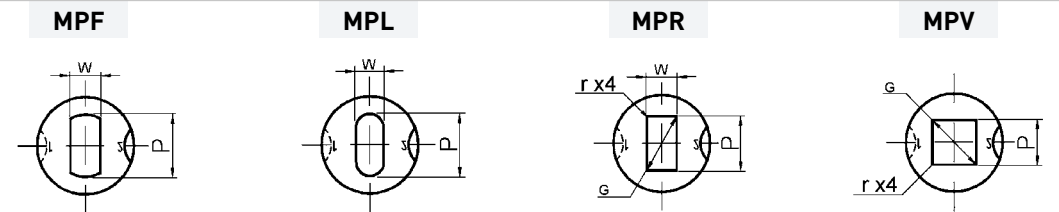
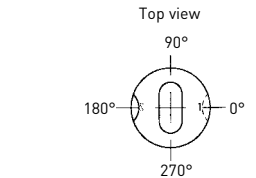
2 MPF.320.5A 7,1x5,2 + T90  
2 VMPB

**SHAPED DIE BUSHES**  
MPF/MPL/MPR/MPV Series



Reference	Ø D	H			E	Ø A max
MP*.130.xxA	13	5	8	-	10,5	7
MP*.160.xxA	16	5	8	-	11,5	9
MP*.200.xxA	20	5	8	10	13,5	11
MP*.250.xxA	25	5	8	10	16	16
MP*.320.xxA	32	5	8	-	19,5	20
MP*.400.xxA	40	5	8	-	23,5	27
MP*.500.xxA	50	5	8	-	28,5	36

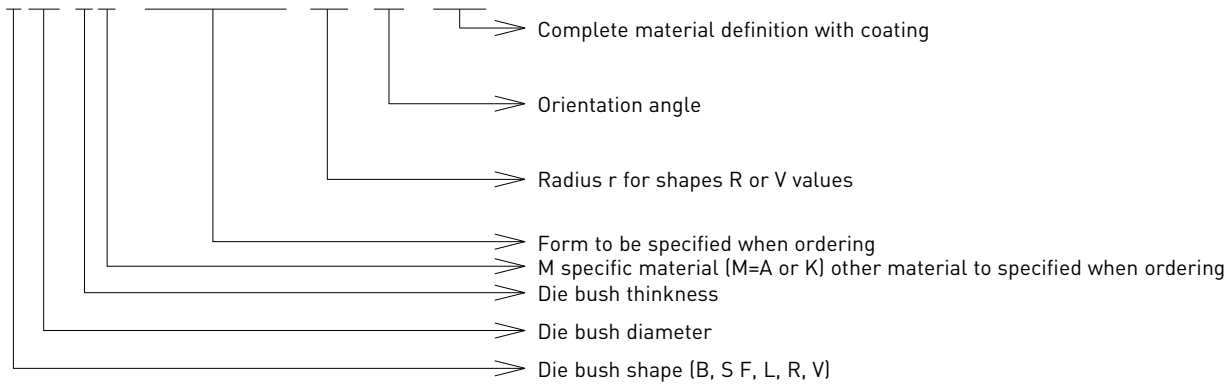
The Ø12 H7 notch is used as a locator.  
This T=0° position shown opposite is considered to be standard.  
Specify different angles if required.  
For shapes R and V, a radius r may be specified at no extra cost.



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

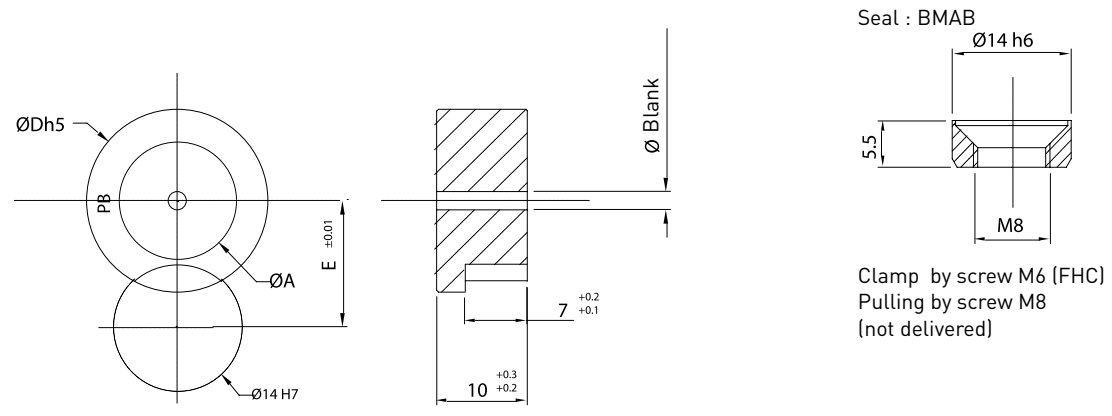
Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
MPF.130.xxA	3,3 - 7,0	2,0 - 5,0	MPL.130.xxA	3,3 - 7,0	2,0 - 5,0	MPR.130.xxA	3,3 - 6,5	2,0 - 4,8	MPV.130.xxA	2,0 - 4,7
MPF.160.xxA	3,5 - 9,0	2,5 - 6,5	MPL.160.xxA	3,5 - 9,0	2,5 - 6,5	MPR.160.xxA	3,5 - 7,6	2,5 - 5,9	MPV.160.xxA	2,5 - 5,8
MPF.200.xxA	5,0 - 11,0	2,5 - 9,5	MPL.200.xxA	5,0 - 11,0	2,5 - 9,5	MPR.200.xxA	5,0 - 9,7	2,5 - 8,5	MPV.200.xxA	2,5 - 7,5
MPF.250.xxA	7,0 - 16,0	2,5 - 15,0	MPL.250.xxA	7,0 - 16,0	2,5 - 15,0	MPR.250.xxA	7,0 - 14,6	2,5 - 13,5	MPV.250.xxA	2,5 - 11,3
MPF.320.xxA	8,0 - 20,0	2,5 - 18,0	MPL.320.xxA	8,0 - 20,0	2,5 - 18,0	MPR.320.xxA	8,0 - 17,9	2,5 - 16,5	MPV.320.xxA	2,5 - 13,7
MPF.400.xxA	9,0 - 27,0	2,5 - 24,5	MPL.400.xxA	9,0 - 27,0	2,5 - 24,5	MPR.400.xxA	9,0 - 25,0	2,5 - 23,0	MPV.400.xxA	2,5 - 18,7
MPF.500.xxA	10,0 - 36,0	2,5 - 32,0	MPL.500.xxA	10,0 - 36,0	2,5 - 32,0	MPR.500.xxA	10,0 - 34,4	2,5 - 30,5	MPV.500.xxA	2,5 - 25,2

MAx.xxx.10M - P=xx W=xx r=xx Txx M=xx

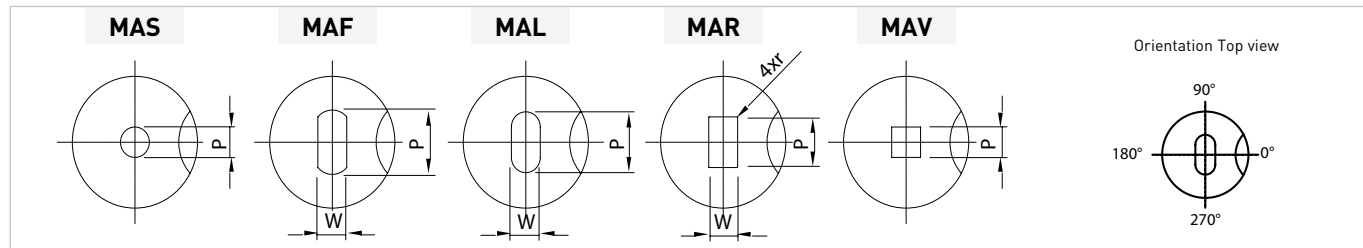


### Examples

- MAB.130.10M - M=X110CrM0V8-T6+PVD** : Blank key-located die bush  $\varnothing$  13 ep. 10 en X110CrM0V8-T6+PVD
- MAS.160.10M - P=10 M=X110CrM0V8-T6+PVD** : Blank key-located die bush  $\varnothing$  16 ép. 10 with round shape  $\varnothing$ P = 10 en X110CrM0V8-T6+PVD
- MAR.200.10M - P=15 W3 r=0,25 T90 M=X110CrM0V8-T6+PVD** : Blank key-located die bush  $\varnothing$  20 ép. 10 with rectangular shape P=15 W3 r=0,25 T=90° in X110CrM0V8 - T6+PVD



Blank ref	$\varnothing D$	$\varnothing E$	A max	Blank
MAB.130.10M	13	11,5	7	1,5
MAB.160.10M	16	12,5	9	2
MAB.200.10M	20	14	10	2
MAB.250.10M	25	16,5	15	2
MAB.320.10M	32	20	19	2
MAB.400.10M	40	24,5	27	2
MAB.500.10M	50	29,5	36	2



Notes section with horizontal dashed lines for writing.





Conform to the following standards:  
AFNOR NFE 63-102

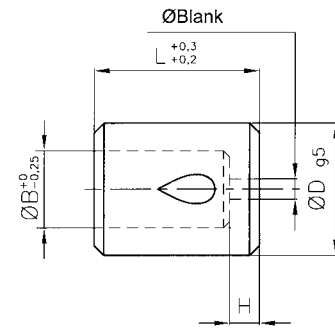
Available materials:  
A - Z 160 CDV 12 / 58-62 HRc

### Ordering example

Qty=2; Type: BLMB, D=20 mm;  
L=32 mm; H=5 mm; Material A

2 BLMB.200.32.5A

### DIE BLANKS BLMB Series



Reference	Ø D	Ø B	H	ØBlank	L
					32
BLMB.130.32.5A	13	6,5	5	1,5	
BLMB.160.32.5A	16	8	5	2	
BLMB.200.32.5A	20	12	5	2	
BLMB.250.32.5A	25	17,5	5	2	
BLMB.320.32.6A	32	21,5	6	2	
BLMB.400.32.8A	40	28	8	2	



Conform to the following standards:  
AFNOR NFE 63-102

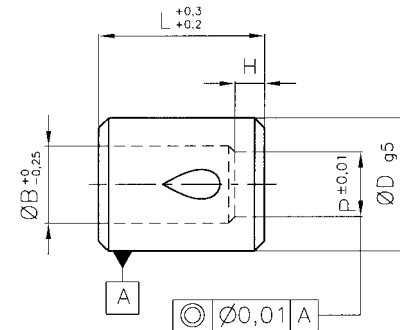
Available materials:  
A - Z 160 CDV 12 / 58-62 HRc

### Ordering example

Qty=2; Type: BLMS ; D=20 mm; L=32 mm  
H=5 mm; Material A; P=8.2 mm

2 BLMS.200.32.5A 8,2

### ROUND DIE BUSHES BLMS Series



Reference	Ø D	Ø B	H	ØP	L
					32
BLMS.130.32.5A	13	6,5	5	2,0 - 5,5	
BLMS.160.32.5A	16	8	5	2,5 - 6,9	
BLMS.200.32.5A	20	12	5	2,5 - 11,0	
BLMS.250.32.5A	25	17,5	5	2,5 - 16,3	
BLMS.320.32.6A	32	21,5	6	2,5 - 20,5	
BLMS.400.32.8A	40	28	8	2,5 - 27,0	



Conform to the following standards:  
AFNOR NFE 63-102

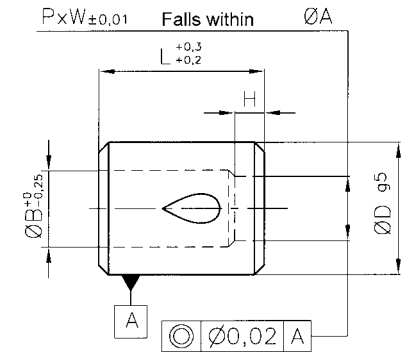
Available materials:  
A - Z 160 CDV 12 / 58-62 HRc

### Ordering example

Qty=2; Type: BLML; D=20 mm; L=32 mm  
H=5 mm; Material A; P=8.2 mm; W=5.6 mm  
90°- angled ball bearing seat (T90).

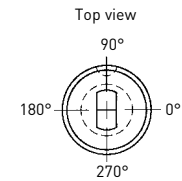
2 BLML.200.32.5A 8,2x5,6+T90

### SHAPED DIE BUSHES BLMF/BLML/BLMR/BLMV Series

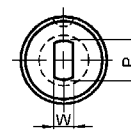


Reference	Ø D	Ø B	H	Ø A	L
					32
BLM*.130.32.5A	13	6,5	5	5,5	
BLM*.160.32.5A	16	8	5	7	
BLM*.200.32.5A	20	12	5	11	
BLM*.250.32.5A	25	17,5	5	16,5	
BLM*.320.32.6A	32	21,5	6	20,5	
BLM*.400.32.8A	40	28	8	27	

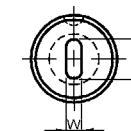
The T=90° position shown opposite is considered to be standard.  
The ball bearing seat may be positioned at a different angle  
(to be specified) at no extra cost.  
For shapes R and V, a radius r may be specified at no extra cost.



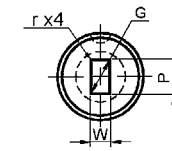
### BLMF



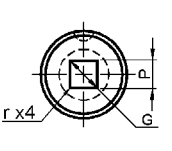
### BLML



### BLMR



### BLMV



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

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
BLMF.130	2,5 - 5,5	2,0 - 5,0	BLML.130	2,5 - 5,5	2,0 - 5,0	BLMR.130	2,5 - 5,5	2,0 - 3,5	BLMV.130	2,0 - 4,0
BLMF.160	3,5 - 7,0	2,5 - 6,5	BLML.160	3,5 - 7,0	2,5 - 6,5	BLMR.160	3,5 - 7,0	2,5 - 3,5	BLMV.160	2,5 - 5,0
BLMF.200	5,0 - 11,0	2,5 - 10,5	BLML.200	5,0 - 11,0	2,5 - 10,5	BLMR.200	5,0 - 11,0	2,5 - 5,0	BLMV.200	2,5 - 7,5
BLMF.250	5,0 - 16,5	2,5 - 16,0	BLML.250	5,0 - 16,5	2,5 - 16,0	BLMR.250	5,0 - 16,5	2,5 - 6,5	BLMV.250	2,5 -
BLMF.320	6,0 - 20,5	2,5 - 20,0	BLML.320	6,0 - 20,5	2,5 - 20,0	BLMR.320	6,0 - 20,5	2,5 - 10,0	BLMV.320	2,5 - 14,5
BLMF.400	8,0 - 27,0	2,5 - 26,5	BLML.400	8,0 - 27,0	2,5 - 26,5	BLMR.400	8,0 - 27,0	2,5 - 13,0	BLMV.400	2,5 - 19,0



# STRAIGHT DIE BUSHES WITH TAPERED RECESSES

MBS  
MLBS  
MDS  
MLDS



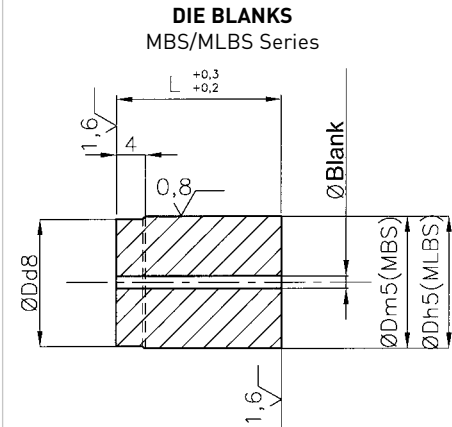
**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of Ø22 mm and 35 mm in height.

**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

### Ordering example

Qty=2; Type MBS; D=20 mm; L= 32 mm;  
Material A

2 MBS.200.32A



Reference		Ø D	Ø BLANK	L			
Ø D m5	Ø D h5			20	25	32	35
MBS.060.xxM	MLBS.060.xxM	6	1				
MBS.080.xxM	MLBS.080.xxM	8	1				
MBS.100.xxM	MLBS.100.xxM	10	1,5				
MBS.130.xxM	MLBS.130.xxM	13	1,5				
MBS.160.xxM	MLBS.160.xxM	16	2				
MBS.200.xxM	MLBS.200.xxM	20	2				
MBS.220.xxM	MLBS.220.xxM	22	2				
MBS.250.xxM	MLBS.250.xxM	25	2				
MBS.320.xxM	MLBS.320.xxM	32	2				
MBS.380.xxM		38	2				
MBS.400.xxM	MLBS.400.xxM	40	2				
MBS.450.xxM		45	2				
MBS.500.xxM	MLBS.500.xxM	50	2				



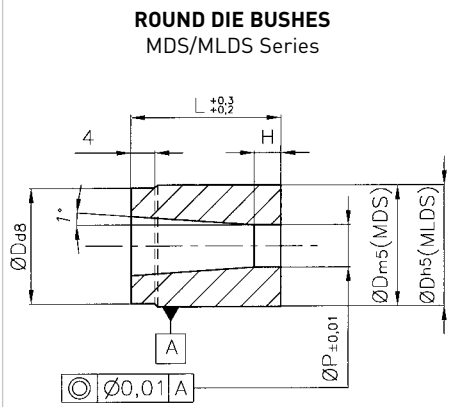
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

**Please note:**  
Default height H: 5 mm.

### Ordering example:

Qty=2; Type MDS; D=20 mm; L= 32 mm;  
Material A; P=5.6 mm; H=5 mm; a=1°

2 MDS.200.32A 5,6 - 5 x 1



Reference		Ø D	Ø P	L			
Ø D m5	Ø D h5			20	25	32	35
MDS.060.xxM	MLDS.060.xxM	6	1,5 - 2,5				
MDS.080.xxM	MLDS.080.xxM	8	1,5 - 3,5				
MDS.100.xxM	MLDS.100.xxM	10	2,0 - 4,5				
MDS.130.xxM	MLDS.130.xxM	13	2,0 - 6,7				
MDS.160.xxM	MLDS.160.xxM	16	2,5 - 8,2				
MDS.200.xxM	MLDS.200.xxM	20	2,5 - 10,7				
MDS.220.xxM	MLDS.220.xxM	22	2,5 - 13,0				
MDS.250.xxM	MLDS.250.xxM	25	2,5 - 16,0				
MDS.320.xxM	MLDS.320.xxM	32	2,5 - 19,4				
MDS.380.xxM		38	2,5 - 23,0				
MDS.400.xxM	MLDS.400.xxM	40	2,5 - 26,4				
MDS.450.xxM		45	2,5 - 27,0				
MDS.500.xxM	MLDS.500.xxM	50	2,5 - 35,7				



# STRAIGHT DIE BUSHES WITH TAPERED RECESSES

MD\*  
MLD\*



**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

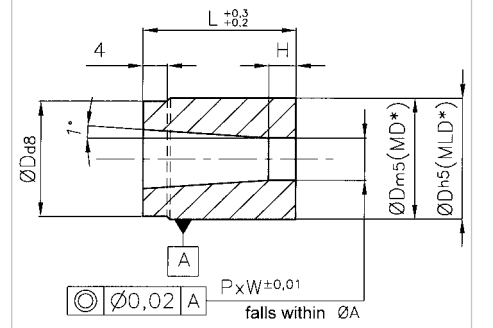
**Please note:**  
Default height H: 5 mm.

### Ordering example

Qty=2; Type: MLDF; D=20 mm; L=32 mm;  
Material A; P=7.5 mm; W=3.4 mm; H=5 mm; 90°-angled flat (T90)

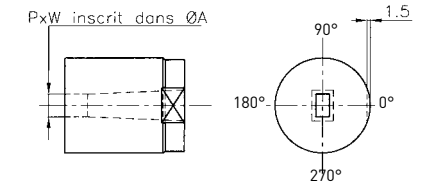
2 MLDF.200.32A 7,5 x 3,4 - 5x1 + T90

**SHAPED DIE BUSHES**  
Series: MDF/MLDF - MDL/MLDL - MDR/MLDR - MDV/MLDV

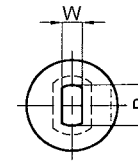


Reference		Ø D	Ø A	L			
Ø D m5	Ø D h5			20	25	32	35
MD*.060.xxM	MLD*.060.xxM	6	2,5				
MD*.080.xxM	MLD*.080.xxM	8	3,5				
MD*.100.xxM	MLD*.100.xxM	10	4,5				
MD*.130.xxM	MLD*.130.xxM	13	6,7				
MD*.160.xxM	MLD*.160.xxM	16	8,2				
MD*.200.xxM	MLD*.200.xxM	20	10,7				
MD*.220.xxM	MLD*.220.xxM	22	13,0				
MD*.250.xxM	MLD*.250.xxM	25	16,0				
MD*.320.xxM	MLD*.320.xxM	32	19,4				
MD*.380.xxM		38	23,0				
MD*.400.xxM	MLD*.400.xxM	40	26,4				
MD*.450.xxM		45	27,0				
MD*.500.xxM	MLD*.500.xxM	50	35,7				

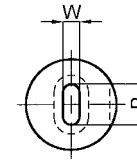
A flat can be created for a price supplement.  
The position T=0° is considered to be the standard flat.  
Specify different angles if required.  
A pin-operated rotation stop can be added for a price supplement.  
Please state G90 (for 90° angle).  
For shapes R and V, a radius r may be specified at no extra cost.



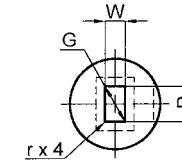
MDF/MLDF



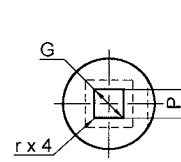
MDL/MLDL



MDR/MLDR



MDV/MLDV



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

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
MDF/MLDF.060	1,5 - 2,5	1,5 - 2,5	MDL/MLDL.060	1,5 - 2,5	1,5 - 2,5	MDR/MLDR.060	1,5 - 2,2	1,5 - 1,8	MDV/MLDV.060	1,5 - 1,8
MDF/MLDF.080	1,5 - 3,5	1,5 - 3,0	MDL/MLDL.080	1,5 - 3,5	1,5 - 3,0	MDR/MLDR.080	1,5 - 3,2	1,5 - 2,7	MDV/MLDV.080	1,5 - 2,5
MDF/MLDF.100	2,0 - 4,5	2,0 - 4,0	MDL/MLDL.100	2,0 - 4,5	2,0 - 4,0	MDR/MLDR.100	2,0 - 4,2	2,0 - 3,7	MDV/MLDV.100	2,0 - 3,2
MDF/MLDF.130	2,0 - 6,7	2,0 - 5,0	MDL/MLDL.130	2,0 - 6,7	2,0 - 5,0	MDR/MLDR.130	2,0 - 6,5	2,0 - 4,8	MDV/MLDV.130	2,0 - 4,7
MDF/MLDF.160	3,5 - 8,2	2,5 - 6,5	MDL/MLDL.160	3,5 - 8,2	2,5 - 6,5	MDR/MLDR.160	3,5 - 7,6	2,5 - 5,9	MDV/MLDV.160	2,5 - 5,8
MDF/MLDF.200	5,0 - 10,7	2,5 - 9,5	MDL/MLDL.200	5,0 - 10,7	2,5 - 9,5	MDR/MLDR.200	5,0 - 9,7	2,5 - 8,5	MDV/MLDV.200	2,5 - 7,5
MDF/MLDF.220	5,0 - 13,0	2,5 - 12,5	MDL/MLDL.220	5,0 - 13,0	2,5 - 12,5	MDR/MLDR.220	5,0 - 12,0	2,5 - 12,5	MDV/MLDV.220	2,5 - 9,0
MDF/MLDF.250	7,0 - 16,0	2,5 - 15,0	MDL/MLDL.250	7,0 - 16,0	2,5 - 15,0	MDR/MLDR.250	7,0 - 14,6	2,5 - 13,5	MDV/MLDV.250	2,5 - 11,3
MDF/MLDF.320	8,0 - 19,4	2,5 - 18,0	MDL/MLDL.320	8,0 - 19,4	2,5 - 18,0	MDR/MLDR.320	8,0 - 17,9	2,5 - 16,5	MDV/MLDV.320	2,5 - 13,5
MDF .380	8,5 - 23,0	2,5 - 23,5	MDL .380	8,5 - 23,0	2,5 - 23,5	MDR .380	8,5 - 23,2	2,5 - 21,3	MDV .380	2,5 - 18,3
MDF/MLDF.400	9,0 - 26,4	2,5 - 24,5	MDL/MLDL.400	9,0 - 26,4	2,5 - 24,5	MDR/MLDR.400	9,0 - 25,0	2,5 - 23,0	MDV/MLDV.400	2,5 - 18,7
MDF .450	9,5 - 27,0	2,5 - 31,5	MDL .450	9,5 - 27,0	2,5 - 31,5	MDR .450	9,5 - 29,7	2,5 - 27,3	MDV .450	2,5 - 24,7
MDF/MLDF.500	10,0 - 35,7	2,5 - 32,0	MDL/MLDL.500	10,0 - 35,7	2,5 - 32,0	MDR/MLDR.500	10,0 - 34,4	2,5 - 30,5	MDV/MLDV.500	2,5 - 25,2



# HEADED DIE BUSHES WITH TAPERED RECESSES

MSBS  
MCBS  
MSDS  
MCDS



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of  $\varnothing 22$  mm and 35 mm in height.

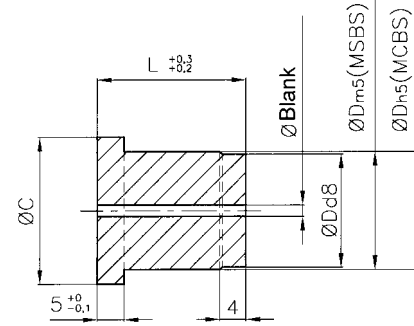
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

### Ordering example

Qty=2; Type: MSBS; D=20 mm;  
L=32 mm; Material A

2 MSBS.200.32A

### DIE BLANKS MSBS/MCBS Series



Reference		Ø D	Ø C	Ø BLANK	L			
Ø D m5	Ø D h5				20	25	32	35
MSBS.060.xxM	MCBS.060.xxM	6	9	1				
MSBS.080.xxM	MCBS.080.xxM	8	11	1				
MSBS.100.xxM	MCBS.100.xxM	10	13	1,5				
MSBS.130.xxM	MCBS.130.xxM	13	16	1,5				
MSBS.160.xxM	MCBS.160.xxM	16	19	2				
MSBS.200.xxM	MCBS.200.xxM	20	23	2				
MSBS.220.xxM	MCBS.220.xxM	22	25	2				
MSBS.250.xxM	MCBS.250.xxM	25	28	2				
MSBS.320.xxM	MCBS.320.xxM	32	35	2				
MSBS.400.xxM	MCBS.400.xxM	40	43	2				
MSBS.500.xxM	MCBS.500.xxM	50	53	2				



**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

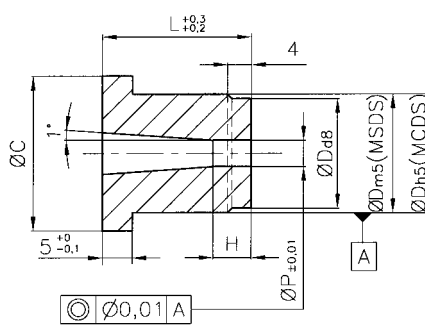
**Please note:**  
Default height H: 5 mm.

### Ordering example

Qty=2; Type: MSDS; D=20 mm; L=32 mm;  
Material A; P=7.8 mm; H=5 mm; a=1°

2 MSDS.200.32A 7,8 - 5 x 1

### ROUND DIE BUSHES MSDS/MCDS Series



Reference		Ø D	Ø C	Ø P	L			
Ø D m5	Ø D h5				20	25	32	35
MSDS.060.xxM	MCDS.060.xxM	6	9	1,5 - 2,5				
MSDS.080.xxM	MCDS.080.xxM	8	11	1,5 - 3,5				
MSDS.100.xxM	MCDS.100.xxM	10	13	2,0 - 4,5				
MSDS.130.xxM	MCDS.130.xxM	13	16	2,0 - 6,7				
MSDS.160.xxM	MCDS.160.xxM	16	19	2,5 - 8,2				
MSDS.200.xxM	MCDS.200.xxM	20	23	2,5 - 10,7				
MSDS.220.xxM	MCDS.220.xxM	22	25	2,5 - 13,0				
MSDS.250.xxM	MCDS.250.xxM	25	28	2,5 - 16,0				
MSDS.320.xxM	MCDS.320.xxM	32	35	2,5 - 19,4				
MSDS.400.xxM	MCDS.400.xxM	40	43	2,5 - 26,4				
MSDS.500.xxM	MCDS.500.xxM	50	53	2,5 - 35,7				



# HEADED DIE BUSHES WITH TAPERED RECESSES

MSD\*  
MCD\*



**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

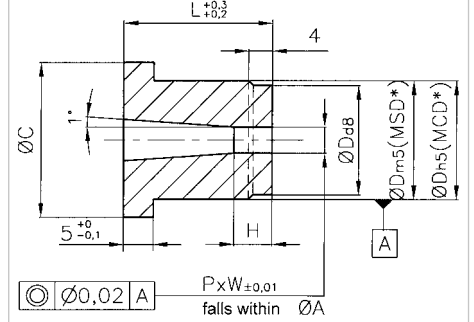
**Note:**  
Default height H: 5 mm.

### Ordering example

Qty=2; Type MCD; D=20 mm; L=32 mm;  
Material A; P=7.5 mm; W=3.4 mm; H=5mm;  
90°-angled flat [T90]

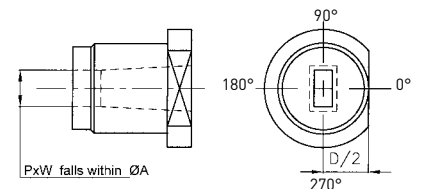
2 MCD.200.32A 7,5 x 3,4 - 5x1 + T90

### SHAPED DIE BUSHES Series: MSDF/MCDF - MSDL/MCDL- MSDR/MCDR/ MCDV - MSDV/MCDV

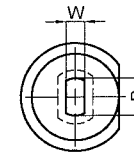


Reference		Ø D	Ø C	Ø A	L			
Ø D m5	Ø D h5				20	25	32	35
MSD*.060.xxM	MCD*.060.xxM	6	9	2,5				
MSD*.080.xxM	MCD*.080.xxM	8	11	3,5				
MSD*.100.xxM	MCD*.100.xxM	10	13	4,5				
MSD*.130.xxM	MCD*.130.xxM	13	16	6,7				
MSD*.160.xxM	MCD*.160.xxM	16	19	8,2				
MSD*.200.xxM	MCD*.200.xxM	20	23	10,7				
MSD*.220.xxM	MCD*.220.xxM	22	25	13,0				
MSD*.250.xxM	MCD*.250.xxM	25	28	16,0				
MSD*.320.xxM	MCD*.320.xxM	32	35	19,4				
MSD*.400.xxM	MCD*.400.xxM	40	43	26,4				
MSD*.500.xxM	MCD*.500.xxM	50	53	35,7				

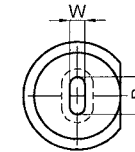
A flat can be created on the flange for a price supplement.  
The position T=0° is considered to be the standard flat.  
Specify different angles if required.  
A pin-operated rotation stop can be added for a price supplement.  
Please state G90 (for 90° angle).  
For shapes R and V, a radius r may be specified at no extra cost.



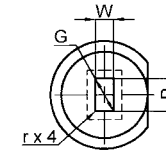
### MSDF/MCDF



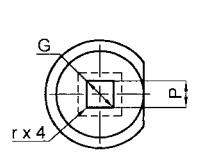
### MSDL/MCDL



### MSDR/MCDR



### MSDV/MCDV



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

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
MSDF/MCDF.060	1,5 - 2,5	1,5 - 2,5	MSDL/MCDL.060	1,5 - 2,5	1,5 - 2,5	MSDR/MCDR.060	1,5 - 2,2	1,5 - 1,8	MSDV/MCDV.060	1,5 - 1,8
MSDF/MCDF.080	1,5 - 3,5	1,5 - 3,0	MSDL/MCDL.080	1,5 - 3,5	1,5 - 3,0	MSDR/MCDR.080	1,5 - 3,2	1,5 - 2,7	MSDV/MCDV.080	1,5 - 2,5
MSDF/MCDF.100	2,0 - 4,5	2,0 - 4,0	MSDL/MCDL.100	2,0 - 4,5	2,0 - 4,0	MSDR/MCDR.100	2,0 - 4,2	2,0 - 3,7	MSDV/MCDV.100	2,0 - 3,2
MSDF/MCDF.130	2,0 - 6,7	2,0 - 5,0	MSDL/MCDL.130	2,0 - 6,7	2,0 - 5,0	MSDR/MCDR.130	2,0 - 6,5	2,0 - 4,8	MSDV/MCDV.130	2,0 - 4,7
MSDF/MCDF.160	3,5 - 8,2	2,5 - 6,5	MSDL/MCDL.160	3,5 - 8,2	2,5 - 6,5	MSDR/MCDR.160	3,5 - 7,6	2,5 - 5,9	MSDV/MCDV.160	2,5 - 5,8
MSDF/MCDF.200	5,0 - 10,7	2,5 - 9,5	MSDL/MCDL.200	5,0 - 10,7	2,5 - 9,5	MSDR/MCDR.200	5,0 - 9,7	2,5 - 8,5	MSDV/MCDV.200	2,5 - 7,5
MSDF/MCDF.220	5,0 - 13,0	2,5 - 12,5	MSDL/MCDL.220	5,0 - 13,0	2,5 - 12,5	MSDR/MCDR.220	5,0 - 12,0	2,5 - 12,5	MSDV/MCDV.220	2,5 - 9,0
MSDF/MCDF.250	7,0 - 16,0	2,5 - 15,0	MSDL/MCDL.250	7,0 - 16,0	2,5 - 15,0	MSDR/MCDR.250	7,0 - 14,6	2,5 - 13,5	MSDV/MCDV.250	2,5 - 11,3
MSDF/MCDF.320	8,0 - 19,4	2,5 - 18,0	MSDL/MCDL.320	8,0 - 19,4	2,5 - 18,0	MSDR/MCDR.320	8,0 - 17,9	2,5 - 16,5	MSDV/MCDV.320	2,5 - 13,5
MSDF/MCDF.400	9,0 - 26,4	2,5 - 24,5	MSDL/MCDL.400	9,0 - 26,4	2,5 - 24,5	MSDR/MCDR.400	9,0 - 25,0	2,5 - 23,0	MSDV/MCDV.400	2,5 - 18,7
MSDF/MCDF.500	10,0 - 35,7	2,5 - 32,0	MSDL/MCDL.500	10,0 - 35,7	2,5 - 32,0	MSDR/MCDR.500	10,0 - 34,4	2,5 - 30,5	MSDV/MCDV.500	2,5 - 25,2

# KEY-LOCATED DIE BUSHES WITH TAPERED RECESSES

## TPCBS TPCDS



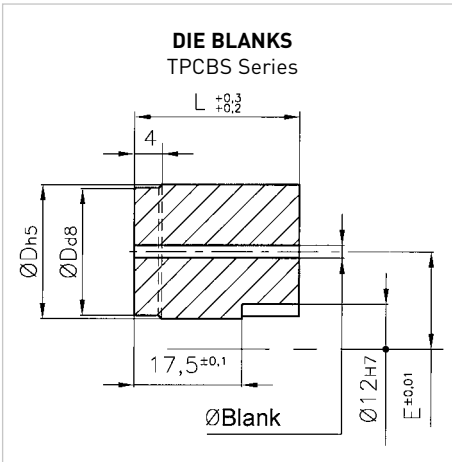
**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of  $\varnothing 22$  mm and 35 mm in height.

**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
K - X 110CrMoV8-T6 / 61-63 HRc

**Ordering example**

Qty=2; Type: TPCBS; D=20 mm  
L=32 mm; Material A

2 TPCBS.200.32A



Reference	$\varnothing D$	E	$\varnothing \text{BLANK}$	L
				32
TPCBS.160.32A	16	11,5	2	
TPCBS.200.32A	20	13,5	2	
TPCBS.250.32A	25	16	2	
TPCBS.320.32A	32	19,5	2	
TPCBS.400.32A	40	23,5	2	
TPCBS.500.32A	50	28,5	2	



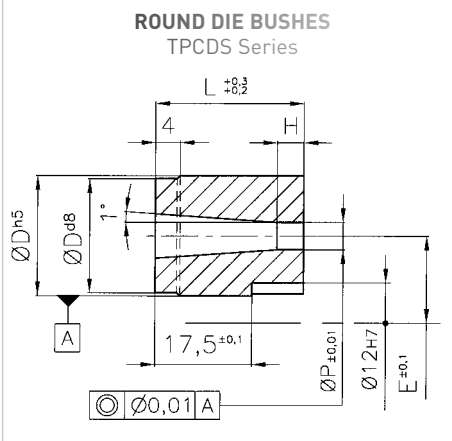
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc

**Please note:**  
Default height H: 5 mm.

**Ordering example**

Qty=2; Type TPCDS; D=20 mm; L=32 mm;  
Material A; P=6,3 mm; H=5 mm;  $\alpha=1^\circ$ .  
Qty=2; BTPC-type clamp ( see page 45).

2 TPCDS.200.32A 6,3 - 5 x 1  
2 BTPC



Reference	$\varnothing D$	E	$\varnothing P$	L
				32
TPCDS.160.32A	16	11,5	2,5 - 8,2	
TPCDS.200.32A	20	13,5	2,5 - 10,7	
TPCDS.250.32A	25	16	2,5 - 16,0	
TPCDS.320.32A	32	19,5	2,5 - 19,4	
TPCDS.400.32A	40	23,5	2,5 - 26,4	
TPCDS.500.32A	50	28,5	2,5 - 35,7	

# KEY-LOCATED DIE BUSHES WITH TAPERED RECESSES

## TPCD\*



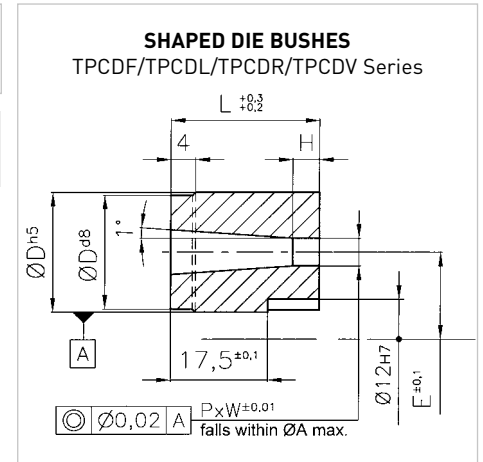
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc

**Please note:**  
Default height H: 5 mm.

**Ordering example**

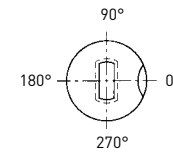
Qty=2; Type TPCDL; D=20 mm; L=32 mm;  
Material A; P=7,5 mm; W=3,4 mm; H=5 mm; 90°-angled notch [T90]  
Qty=2; BTPC-type clamp (see page 4.27).

2 TPCDL.200.32A 7,5 x 3,4 - 5x1 + T90  
2 BTPC

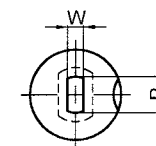


Reference	$\varnothing D$	E	$\varnothing A$	L
				32
TPCD*.160.32A	16	11,5	8,2	
TPCD*.200.32A	20	13,5	10,7	
TPCD*.250.32A	25	16	16	
TPCD*.320.32A	32	19,5	19,4	
TPCD*.400.32A	40	23,5	26,4	
TPCD*.500.32A	50	28,5	35,7	

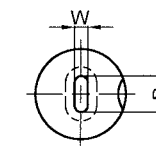
A  $\varnothing 12$  H7 notch is used as a locator.  
This position T=0° is considered to be the standard.  
Specify different angles if required.  
For shapes R and V, a radius r may be specified at no extra cost.



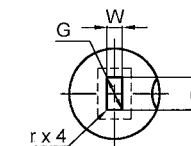
**TPCDF**



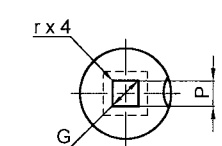
**TPCDL**



**TPCDR**



**TPCDV**



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

Reference	P	W	Reference	P	W	Reference	P	W	Reference	P
TPCDF.160	3,5 - 9,0	2,5 - 6,5	TPCDL.160	3,5 - 9,0	2,5 - 6,5	TPCDR.160	3,5 - 7,6	2,5 - 5,9	TPCDV.160	2,5 - 5,8
TPCDF.200	5,0 - 11,0	2,5 - 9,5	TPCDL.200	5,0 - 11,0	2,5 - 9,5	TPCDR.200	5,0 - 9,7	2,5 - 8,5	TPCDV.200	2,5 - 7,5
TPCDF.250	7,0 - 16,0	2,5 - 15,0	TPCDL.250	7,0 - 16,0	2,5 - 15,0	TPCDR.250	7,0 - 14,6	2,5 - 13,5	TPCDV.250	2,5 - 11,3
TPCDF.320	8,0 - 20,0	2,5 - 18,0	TPCDL.320	8,0 - 20,0	2,5 - 18,0	TPCDR.320	8,0 - 17,9	2,5 - 16,5	TPCDV.320	2,5 - 13,7
TPCDF.400	9,0 - 27,0	2,5 - 24,5	TPCDL.400	9,0 - 27,0	2,5 - 24,5	TPCDR.400	9,0 - 25,0	2,5 - 23,0	TPCDV.400	2,5 - 18,7
TPCDF.500	10,0 - 36,0	2,5 - 32,0	TPCDL.500	10,0 - 36,0	2,5 - 32,0	TPCDR.500	10,0 - 34,4	2,5 - 30,5	TPCDV.500	2,5 - 25,2





**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of Ø22 mm and 35 mm in height.

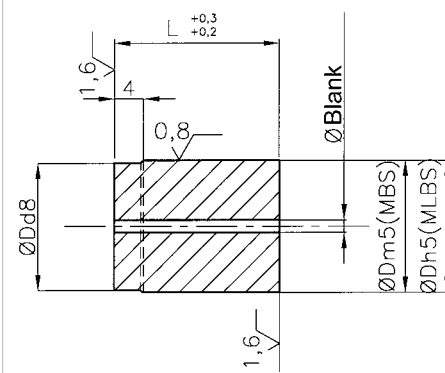
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc

**Ordering example**

Qty=2; Type: MLBS (tolerance: h5);  
D=20 mm; L=32 mm; Material A

2 MLBS.200.32A

**STRAIGHT DIE BLANKS**  
MBS/MLBS Series



Reference		Ø D	Ø Blank	L			
Ø D m5	Ø D h5			20	25	32	35
MBS.060.xxM	MLBS.060.xxM	6	1				
MBS.080.xxM	MLBS.080.xxM	8	1				
MBS.100.xxM	MLBS.100.xxM	10	1,5				
MBS.130.xxM	MLBS.130.xxM	13	1,5				
MBS.160.xxM	MLBS.160.xxM	16	2				
MBS.200.xxM	MLBS.200.xxM	20	2				
MBS.220.xxM	MLBS.220.xxM	22	2				
MBS.250.xxM	MLBS.250.xxM	25	2				
MBS.320.xxM	MLBS.320.xxM	32	2				
MBS.380.xxM		38	2				
MBS.400.xxM	MLBS.400.xxM	40	2				
MBS.450.xxM		45	2				
MBS.500.xxM	MLBS.500.xxM	50	2				

Reference MBS for ØDm5      Référence MLBS for ØDh5



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080 except for die bushes of Ø22 mm and 35 mm in height.

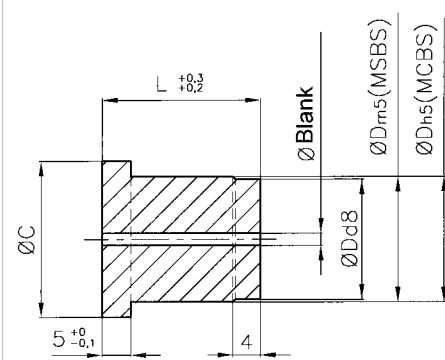
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc  
B - Z 90 WDCV 06050402 / 60-64 HRc

**Ordering example**

Qty=2; Type: MCBS (tolerance h5)  
D=20 mm; L=32 mm; Material A

2 MCBS.200.32A

**ROUND-HEADED DIE BLANKS**  
MSBS/MCBS Series



Reference		Ø D	Ø C	Ø Blank	L			
Ø D m5	Ø D h5				20	25	32	35
MSBS.060.xxM	MCBS.060.xxM	6	9	1				
MSBS.080.xxM	MCBS.080.xxM	8	11	1				
MSBS.100.xxM	MCBS.100.xxM	10	13	1,5				
MSBS.130.xxM	MCBS.130.xxM	13	16	1,5				
MSBS.160.xxM	MCBS.160.xxM	16	19	2				
MSBS.200.xxM	MCBS.200.xxM	20	23	2				
MSBS.220.xxM	MCBS.220.xxM	22	25	2				
MSBS.250.xxM	MCBS.250.xxM	25	28	2				
MSBS.320.xxM	MCBS.320.xxM	32	35	2				
MSBS.400.xxM	MCBS.400.xxM	40	43	2				
MSBS.500.xxM	MCBS.500.xxM	50	53	2				

Reference MSBS pour ØDm5      Référence MCBS for ØDh5



**Conform to the following standards:**  
ISO 8977 - AFNOR NFE 63080

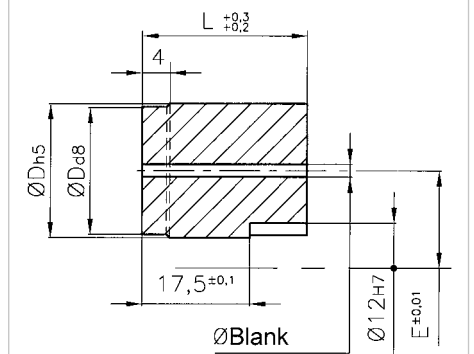
**Available materials:**  
A - Z 160 CDV 12 / 58-62 HRc

**Ordering example**

Qty=2; Type: TPCBS; D=20 mm  
L=32 mm; Material A  
Qty=2; BTPC-type clamp (see facing page).

2 TPCBS.200.32A  
2 BTPC

**KEY-LOCATED DIE BLANKS**  
TPCBS Series



Fitting of TPCBS die bushes

**BTPC CLAMP**

**SHARPENING SPACERS**

**VMPB SCREW**

**SHARPENING SPACERS (see page 4.38)**

Reference	Ø D	E	Ø Blank	L
				32
TPCBS.160.32A	16	11,5	2	
TPCBS.200.32A	20	13,5	2	
TPCBS.250.32A	25	16	2	
TPCBS.320.32A	32	19,5	2	
TPCBS.400.32A	40	23,5	2	
TPCBS.500.32A	50	28,5	2	



# SHARPENING SPACERS

## CAML CAMC



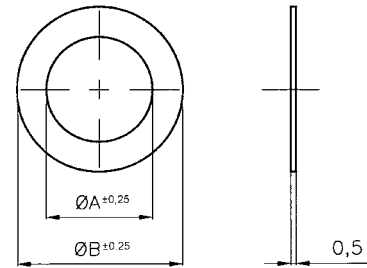
**Material:**  
XC70 (1.1249)

**Ordering example**

Qty=3; Type: CAML  
ØDie bush D=20 mm

3 CAML.200

FOR M/ML-TPC DIE BUSHES  
CAML Series



Reference	ØD Die bushes	Ø A	Ø B
CAML.100	10	6	9,7
CAML.130	13	8	12,7
CAML.160	16	10	15,7
CAML.200	20	12	19,7
CAML.250	25	19	24,7
CAML.320	32	24	31,7
CAML.400	40	28	39,7
CAML.500	50	40	49,7



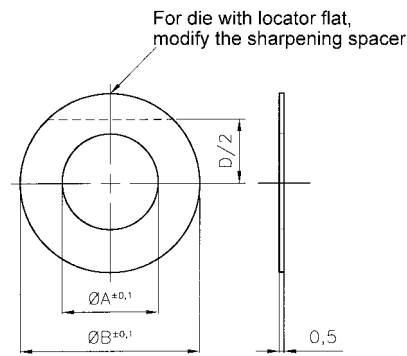
**Material:**  
XC70 (1.1249)

**Ordering example**

Qty=3; Type: CAML  
ØDie bush D=20 mm

3 CAMC.200

FOR MS/MC HEADED DIE BUSHES  
CAMC Series



Reference	ØD Die bushes	Ø A	Ø B
CAMC.100	10	6	12,7
CAMC.130	13	8	15,7
CAMC.160	16	10	18,7
CAMC.200	20	12	22,7
CAMC.250	25	19	27,7
CAMC.320	32	24	34,7
CAMC.400	40	28	42,7
CAMC.500	50	40	52,7

# URETHANE STRIPPERS

## DEV



**French patent:**  
REF.1.454.836

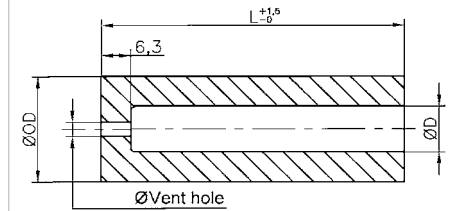
**Material:**  
90 Shore polyurethane

**Ordering example**

Qty=3; Type: DEV; D=20 mm  
L=75 mm

3 DEV.200.075

DEV Series



Reference	Ø D (in mm)	Ø OD (in mm)	L (in mm)	ØVent hole	Approx. stripping pressure (in daN) with deformation of		
					3 mm	6,5 mm	9,5 mm
*	5	18	35	1,6	125	200	
	5	18	45	1,6	115	175	
DEV.050.055	5	18	55	1,6	105	150	
*	6	19	35	1,6	140	240	
	6	19	45	1,6	135	230	
	6	19	55	1,6	110	190	240
DEV.060.065	6	19	65	1,6	90	130	200
*	8	21	35	1,6	160	250	
	8	21	45	1,6	150	225	
	8	21	55	1,6	135	200	300
	8	21	65	1,6	120	185	290
DEV.080.075	8	21	75	1,6	100	165	270
*	10	23	35	2,5	210	350	
	10	23	38	2,5	190	310	
	10	23	45	2,5	175	285	
	10	23	47	2,5	160	270	
	10	23	55	2,5	145	250	325
	10	23	65	2,5	130	220	290
DEV.100.075	10	23	75	2,5	115	190	265
*	13	26	35	3	260	390	
	13	26	38	3	225	360	
	13	26	45	3	215	340	
	13	26	47	3	165	270	
	13	26	55	3	150	240	300
	13	26	65	3	130	200	250
DEV.130.075	13	26	75	3	105	160	200
*	16	30	35	3	300	460	
	16	30	38	3	260	420	
	16	30	45	3	240	390	
	16	30	47	3	235	385	
	16	30	55	3	220	360	460
	16	30	65	3	200	330	420
DEV.160.075	16	30	75	3	170	290	360
*	20	38	38	3	280	420	
	20	38	47	3	240	390	
	20	38	55	3	200	350	550
	20	38	65	3	165	300	450
DEV.200.075	20	38	75	3	150	270	400
*	25	50	35	3	1200	1800	
	25	50	38	3	1100	1600	
	25	50	45	3	1000	1500	
	25	50	47	3	900	1400	
	25	50	55	3	700	1150	1650
	25	50	65	3	600	1000	1450
DEV.250.075	25	50	75	3	500	850	1300

\*Intermediate lengths L To be adjusted by the customer

# SQUARE RETAINERS

**CC  
CCP**



**Conform to the following standards:**  
AFNOR NFE 63-108

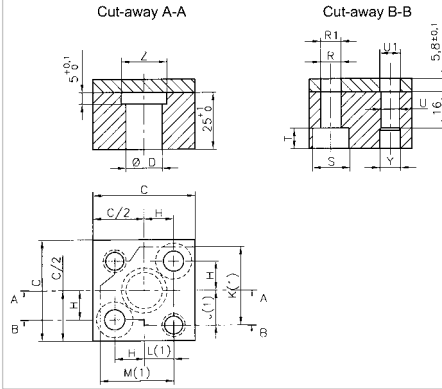
**Hardness of material**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

**Ordering example**  
Qty=3; Type CC; D=20 mm

3 CC.200

(1) The centre distances of the holes R1 and U1 in the backing plates are tolerated to  $\pm 0.1$  mm.  
Dimensions without tolerances  $\pm 0.25$  mm.

**FOR PPB/PPEB/PPS/PPES ROUND PUNCHES**  
CC Series



Reference	$\varnothing D$ G6	C $\pm 0,25$	H $\pm 0,1$	J $\pm 0,01$	K $\pm 0,01$	L $\pm 0,01$	M $\pm 0,01$	R H13	R1 H13	S H13	T $\pm 0,25$	U G6	U1 H13	Y H13	Z $\pm 0,25$
CC.080	8	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	12
CC.100	10	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	14
CC.130	13	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	17
CC.160	16	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	20
CC.200	20	56	16	19	35	16	32	11	11	18	11	10	11	11	25
CC.250	25	63	20	22,5	42,5	20	40	14	14	20	13	10	11	11	30
CC.320	32	75	25	28	53	25	50	14	14	20	13	10	11	11	37



**Conform to the following standards:**  
AFNOR NFE 63-108

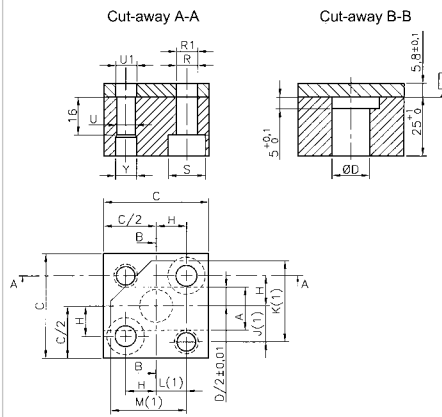
**Hardness of material**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

**Ordering example**  
Qty=3; Type CCP; D=20 mm

3 CCP.200

(1) The centre distances of the holes R1 and U1 in the backing plates are tolerated to  $\pm 0.1$  mm.  
Dimensions without tolerances  $\pm 0.25$  mm.

**FOR PP\*/PPE\* SHAPED PUNCHES**  
CCP Series



Ref.	$\varnothing D$ G6	A $\pm 10,25$	C $\pm 0,25$	H $\pm 0,1$	J $\pm 0,01$	K $\pm 0,01$	L $\pm 0,01$	M $\pm 0,01$	R H13	R1 H13	S H13	T $\pm 0,25$	U G6	U1 H13	Y H13	Z $\pm 0,25$
CCP.080	8	11	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	12
CCP.100	10	12	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	14
CCP.130	13	17	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	17
CCP.160	16	18,5	45	13	15,5	28,5	13	26	9	9	16	9	8	9	9	20
CCP.200	20	23	56	16	19	35	16	32	11	11	18	11	10	11	11	25
CCP.250	25	28,5	63	20	22,5	42,5	20	40	14	14	20	13	10	11	11	30
CCP.320	32	35	75	25	28	53	25	50	14	14	20	13	10	11	11	37

# RECTANGULAR PUNCH RETAINERS

**RC  
RCP**



**Conform to the following standards:**  
AFNOR NFE 63-107

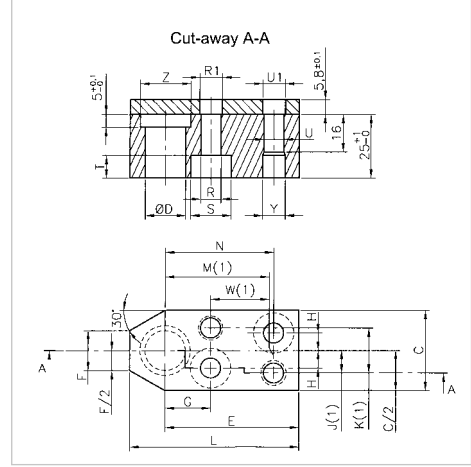
**Hardness of material**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

**Ordering example**  
Qty=3; Type RC; D=20 mm

3 RC.200

(1) The centre distances of the holes R1 and U1 in the backing plates are tolerated to  $\pm 0.1$  mm.  
Dimensions without tolerances  $\pm 0.25$  mm.

**FOR PPB/PPEB/PPS/PPES ROUND PUNCHES**  
RC Series



Ref.	$\varnothing D$ G6	L $\pm 0,25$	C $\pm 0,25$	E $\pm 0,2$	F $\pm 0,25$	G $\pm 0,1$	H $\pm 0,1$	J $\pm 0,01$	K $\pm 0,01$	M $\pm 0,01$	W $\pm 0,01$	N $\pm 0,01$	R H13	R1 H13	S H13	T $\pm 0,25$	U G6	U1 H13	Y H13	Z $\pm 0,25$
RC.080	8	60	32	50	11	15	7	9	18	40	25	40	9	9	16	9	8	9	9	12
RC.100	10	60	32	50	11	15	7	9	18	40	25	40	9	9	16	9	8	9	9	14
RC.130	13	67	32	53	16	18	7	9	18	43	25	43	9	9	16	9	8	9	9	17
RC.160	16	67	32	53	16	18	7	9	18	43	25	43	9	9	16	9	8	9	9	20
RC.200	20	80	40	60	22	25	9	11	22	50	25	50	11	11	18	11	10	11	11	25
RC.250	25	80	40	60	22	25	9	11	22	50	25	50	11	11	18	11	10	11	11	30
RC.320	32	95	50	70	30	28	13	15	30	58	30	58	14	14	20	13	10	11	11	37



**Conform to the following standards:**  
AFNOR NFE 63-107

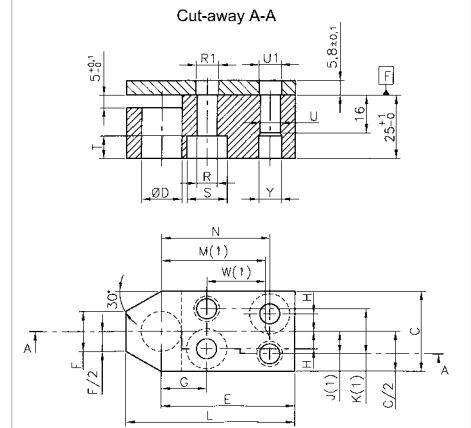
**Hardness of material**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

**Ordering example**  
Qty=3; Type RCP; D=20 mm

3 RCP.200

(1) The centre distances of the holes R1 and U1 in the backing plates are tolerated to  $\pm 0.1$  mm.  
Dimensions without tolerances  $\pm 0.25$  mm.

**FOR PP\*/PPE\* SHAPED PUNCHES**  
RCP Series



Ref.	$\varnothing D$ G6	L $\pm 0,25$	C $\pm 0,25$	E $\pm 0,2$	F $\pm 0,25$	G $\pm 0,1$	H $\pm 0,1$	J $\pm 0,01$	K $\pm 0,01$	M $\pm 0,01$	W $\pm 0,01$	N $\pm 0,01$	R H13	R1 H13	S H13	T $\pm 0,25$	U G6	U1 H13	Y H13	Z $\pm 0,25$
RCP.080	8	60	32	50	11	15	7	9	18	40	25	40	9	9	16	9	8	9	9	12
RCP.100	10	60	32	50	11	15	7	9	18	40	25	40	9	9	16	9	8	9	9	14
RCP.130	13	67	32	53	16	18	7	9	18	43	25	43	9	9	16	9	8	9	9	17
RCP.160	16	67	32	53	16	18	7	9	18	43	25	43	9	9	16	9	8	9	9	20
RCP.200	20	80	40	60	22	25	9	11	22	50	25	50	11	11	18	11	10	11	11	25
RCP.250	25	80	40	60	22	25	9	11	22	50	25	50	11	11	18	11	10	11	11	30
RCP.320	32	95	50	70	30	28	13	15	30	58	30	58	14	14	20	13	10	11	11	37



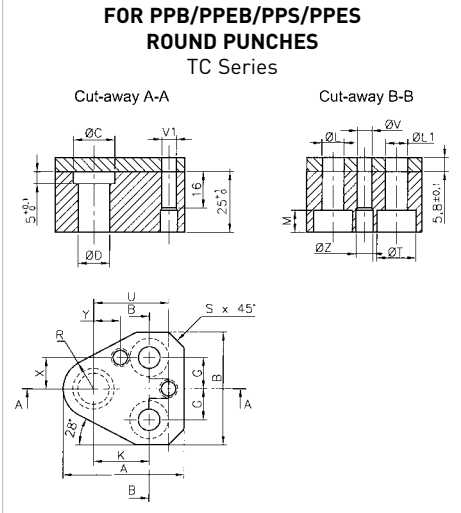
**Conform to the following standards:**  
AFNOR NFE 63-117

**Hardness of material**  
- Punch retainer: 43/48 HRC  
- Backing plate: 32/38 HRC

**Ordering example**  
Qty=3; Type TC; D=20mm

3 TC.200

(1) The centre distances of the holes L1 and V1 in the backing plates are toleranced to  $\pm 0.1$  mm. Dimensions without tolerances  $\pm 0.25$  mm.



Ref.	$\varnothing D$ G6	C $\pm 0,25$	A $\pm 0,25$	B $\pm 0,25$	R $\pm 0,25$	S $\pm 0,25$	G $\pm 0,25$	K $\pm 0,25$	Y $\pm 0,01$	U $\pm 0,01$	X $\pm 0,01$	V G6	L H13	T H13	M $\pm 0,25$	Z H13
TC.080	8	12	44,5	38	9,5	5	10	21	9	29	10	6	9	16	9	7
TC.100	10	14	44,5	38	9,5	5	10	21	9	29	10	6	9	16	9	7
TC.130	13	17	50,5	47	12,5	6,5	13	23	11	32	13	6	9	16	9	7
TC.160	16	20	53,5	50	14	7	12	26	12	34	13	6	11	18	11	7
TC.200	20	25	60	55	17,5	8	14	27	11,5	34	17	8	11	18	11	9
TC.250	25	30	69,5	63	22	9	15	30	12	39	21	8	14	20	13	9
TC.320	32	37	69,5	63	22	9	15	33	16,5	40	22	8	14	20	13	9



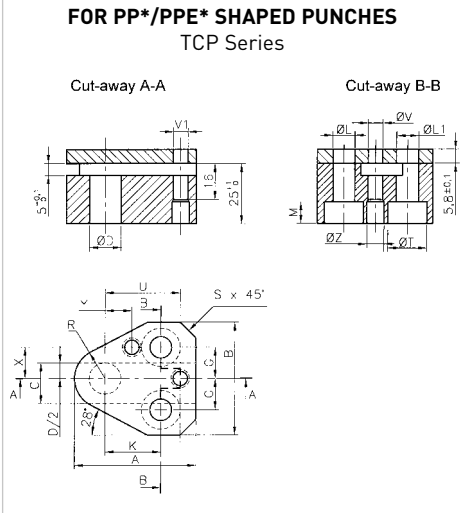
**Conform to the following standards:**  
AFNOR NFE 63-117

**Hardness of material**  
- Punch retainer: 43/48 HRC  
- Backing plate: 32/38 HRC

**Ordering example**  
Qty=3; Type TCP; D=20mm

3 TCP.200

(1) The centre distances of the holes L1 and V1 in the backing plates are toleranced to  $\pm 0.1$  mm. Dimensions without tolerances  $\pm 0.25$  mm.

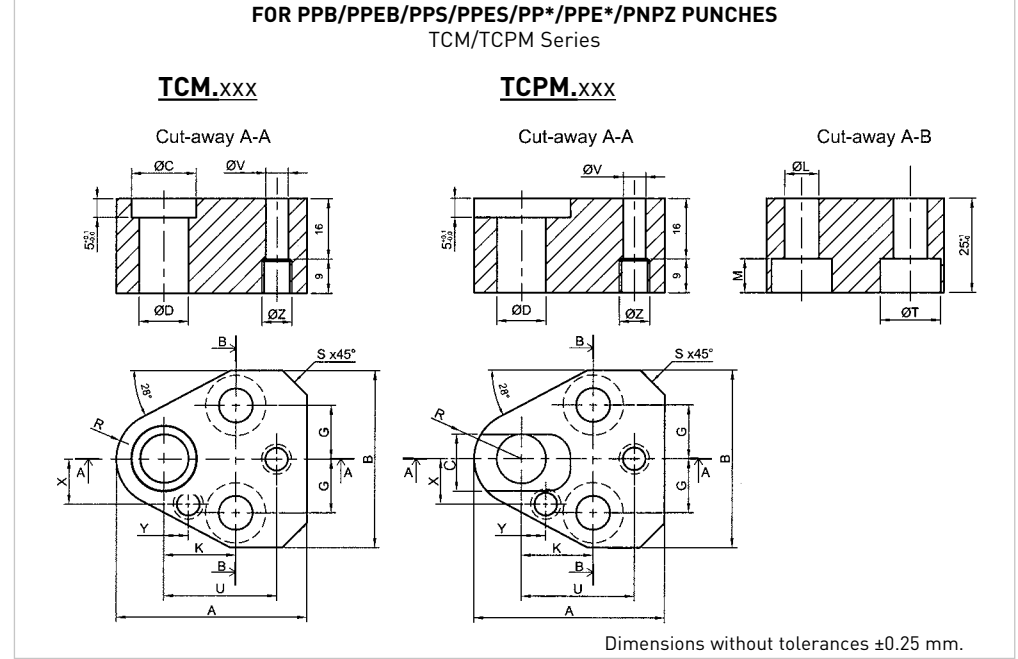


Ref.	$\varnothing D$ G6	C $\pm 0,25$	A $\pm 0,25$	B $\pm 0,25$	R $\pm 0,25$	S $\pm 0,25$	G $\pm 0,25$	K $\pm 0,25$	Y $\pm 0,01$	U $\pm 0,01$	X $\pm 0,01$	V G6	L H13	T H13	M $\pm 0,25$	Z H13
TCP.080	8	11	44,5	38	9,5	5	10	21	9	29	10	6	9	16	9	7
TCP.100	10	12	44,5	38	9,5	5	10	21	9	29	10	6	9	16	9	7
TCP.130	13	17	50,5	47	12,5	6,5	13	23	11	32	13	6	9	16	9	7
TCP.160	16	18,5	53,5	50	14	7	12	26	12	34	13	6	11	18	11	7
TCP.200	20	23	60	55	17,5	8	14	27	11,5	34	17	8	11	18	11	9
TCP.250	25	28,5	69,5	63	22	9	15	30	12	39	21	8	14	20	13	9
TCP.320	32	35	69,5	63	22	9	15	33	16,5	40	22	8	14	20	13	9



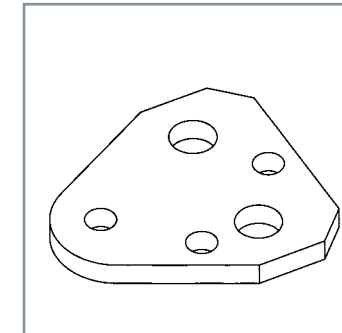
TCM-type punch retainer: For round-headed punches, round cutting shape.  
TCPM-type punch retainer: For round-headed punches with rotation stop, various cutting shapes.

**Hardness of material:**  
- Punch retainer: 43/48 HRC



$\varnothing D$	$\varnothing C$ $\pm 0,10$ TCM.XXX	C $\pm 0,10$ TCPM.XXX
8	12	10
10	14	12,3
13	17	15
16	20	18
20	25	22,5
25	30	27,8
32	37	34

Reference	$\varnothing D$ G6	A $\pm 0,25$	B $\pm 0,25$	R $\pm 0,25$	S $\pm 0,25$	G $\pm 0,10$	K $\pm 0,10$	Y $\pm 0,01$	U $\pm 0,01$	X $\pm 0,01$	V G6	L H12	T H13	M $\pm 0,25$	Z	
TCM.080	TCPM.080	8	44,3	41	9,5	5	11,12	19,05	7,5	26,92	9	6	9	16	9	M8
TCM.100	TCPM.100	10	44,3	41	9,5	5	11,12	19,05	7,5	26,92	9	6	9	16	9	M8
TCM.130	TCPM.130	13	50,4	47	12,5	7,5	14,27	19,05	6,5	29,97	12	6	9	16	9	M8
TCM.160	TCPM.160	16	53,5	50	14	8,5	15,87	19,05	6	31,75	13,5	6	9	16	9	M8
TCM.200	TCPM.200	20	60,1	55	17,4	10	17,47	19,05	5	33,53	16,5	6	11	18	11	M8
TCM.250	TCPM.250	25	69,7	63	22	12	19,84	23,82	7	40,64	22	6	14	20	13	M8
TCM.320	TCPM.320	32	69,7	63	22	12	19,84	23,82	7	40,64	22	6	14	20	13	M8

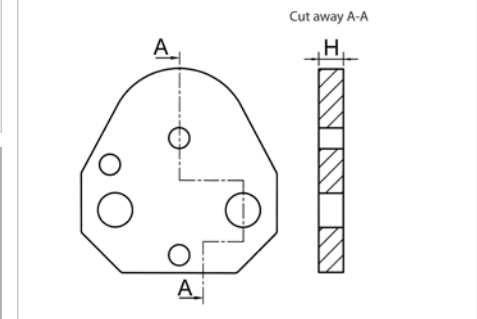


Backing plate for international standard punch retainers.

**Hardness of material:**  
- Backing plate: 43/48 HRC

**Ordering example:**  
Qty=3; Type PCM; D=16mm; H=4.8 mm

3 PCM.160.048



$\varnothing D$ (punch)	H=4,8	H=5,8
8	PCM.080.048	PCM.080.058
10	PCM.100.048	PCM.100.058
13	PCM.130.048	PCM.130.058
16	PCM.160.048	PCM.160.058
20	PCM.200.048	PCM.200.058
25	PCM.250.048	PCM.250.058
32	PCM.320.048	PCM.320.058



# INTERNATIONAL STANDARD HIGH HEIGHT COMPACT PUNCHES-RETAINERS

## TLM TLPM



### Ordering example

Qty=3 ; Type TLM ; D=20 mm

Ref. 3 TLM.200

TLM - type punch retainer : for round-headed punches, round cutting shape.

TLPM - type punch retainer : for round-headed punches with rotation stop, various cutting shape.

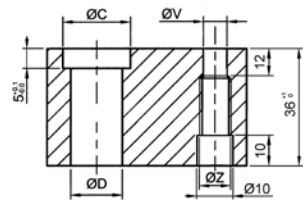
### Hardness of material :

- Punch-retainer : 43/48 HRC

### FOR PPB/PPEB/PPS/PPES/PP\*/PPE\*/PNPZ ROUND PUNCHES TLM/TLPM SERIES

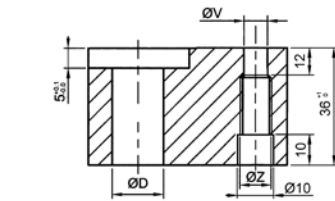
#### TLM.XXX

Cut away A-A

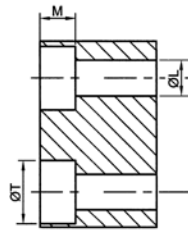


#### TLPM.XXX

Cut away A-A

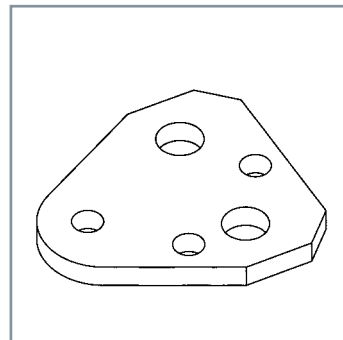


Cut away B-B



ØD	ØC TLM.XXX	C TLPM.XXX
8	12	10
10	14,5	12,3
13	18,5	15,8
16	20,5	18,3
20	25,5	22,8
25	30,5	27,8
32	38,5	35,3

Reference	ØD	A	B	R	S	G	K	Y	U ±0,01	X ±0,01	V G6	L	T	M	a°	
TLM.080	TLPM.080	8	44,3	41	9,5	5	11,12	19,05	7,5	26,925	9	6	9	14,5	9	30
TLM.100	TLPM.100	10	44,3	41	9,5	5	11,12	19,05	7,5	26,925	9	6	9	14,5	9	30
TLM.130	TLPM.130	13	50,4	47	12,5	7,5	14,27	19,05	6,5	29,970	12	6	9	14,5	9	28
TLM.160	TLPM.160	16	53,5	50	14	8,5	15,87	19,05	6	31,750	13,5	6	9	14,5	9	28
TLM.200	TLPM.200	20	60,1	55	17,5	10	17,47	19,05	5	33,530	16,5	6	11	18,5	11	28
TLM.250	TLPM.250	25	69,7	63	22	12	19,84	23,82	7	40,640	22	6	14	20,5	13	28
TLM.320	TLPM.320	32	69,7	63	22	12	19,84	23,82	7	40,640	22	6	14	20,5	13	28



Baching plate for international standard punch retainers.

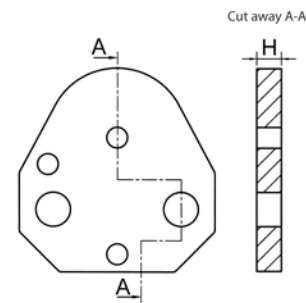
### Hardness of material :

- Baching plate : 43/48 HRC

### Ordering example

Qty=3 ; Type PCM ; D=16mm ; H=4,8 mm

Ref. 3 PCM.160.048

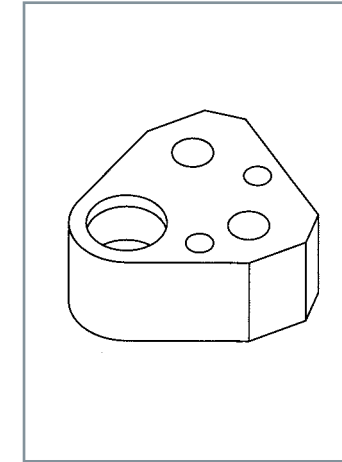


ØD (poinçon)	H=4,8	H=5,8
8	PCM.080.048	PCM.080.058
10	PCM.100.048	PCM.100.058
13	PCM.130.048	PCM.130.058
16	PCM.160.048	PCM.160.058
20	PCM.200.048	PCM.200.058
25	PCM.250.048	PCM.250.058
32	PCM.320.048	PCM.320.058



# REDUCED RETAINERS FOR BOTTLE-NECK HEADED PUNCHES

## TCPFM



### Hardness of material :

Punch-retainer : 43/48 HRC

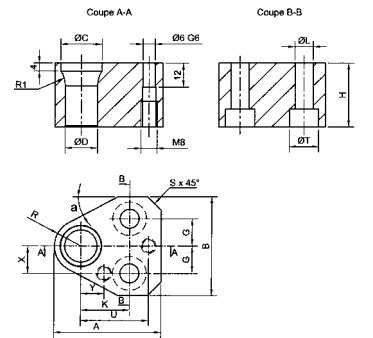
### Ordering example

Qty=3 ; Type TPFM

Ref. 3 TPFM.200

### FOR ROUND BOTTLE-NECK HEADED PUNCHES

PFB/PFS  
TPFM Serie



Ref.	ØD K6	C ±0,25	A ±0,25	B ±0,25	H	R ±0,25	S ±0,25	G ±0,25	K ±0,25	Y ±0,01	U ±0,01	X ±0,01	L H13	T H13	M ±0,25	a°
TCPFM.060	6	9,5	35	37,5	25	8	5	11,1	19	9	23	8	7	12	9	30°
TCPFM.080	8	11,5	44,3	41	25	9,5	5	11,12	19,05	7,5	26,92	9	9	16	9	30°
TCPFM.100	10	14,5	44,3	41	32	9,5	5	11,12	19,05	7,5	26,92	9	9	16	9	30°
TCPFM.130	13	17,5	50,4	47	32	12,5	6,5	14,27	19,05	6,5	29,97	12	9	16	9	28°
TCPFM.160	16	20,5	53,5	50	32	14	7	15,87	19,05	6	31,75	13,5	9	16	9	28°
TCPFM.200	20	25,5	60,1	55	41	17,5	8	17,47	19,05	5	33,53	16,5	11	18	11	28°





**Conform to the following standards:**  
AFNOR NFE 63-117

**Hardness of material:**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

**Ordering example**  
Qty=3; Type: TAB; D=20 mm  
Qty=1; Ball-lock release tool (Ref. BRT.800)

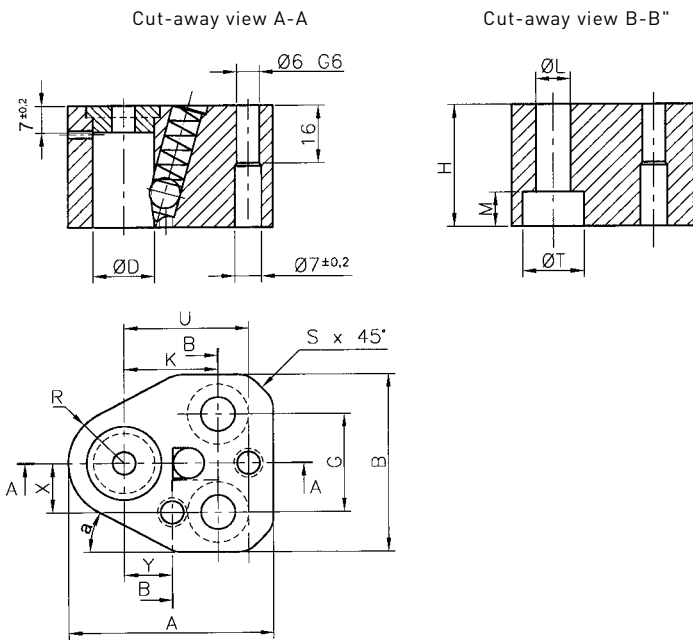
3 TAB.200  
1 BRT.800

Ball-lock release tool



Dimensions without tolerances ±0.25 mm

### FOR BL\*/BLH\*/BLE\*/BLEH\*/BLK\* BALL-LOCK PUNCHES TAB/TABH Series



Ref.	ØD H6	Ø Bille	A ±0,25	B ±0,25	H <sup>+1</sup> <sub>0</sub>	L <sup>+0,3</sup>	U ±0,01	Y ±0,01	K ±0,1	G ±0,2	X ±0,01	M ±0,2	T <sup>+0,3</sup> <sub>0</sub>	R ±0,25	S	a°
<b>LIGHT DUTY</b>																
TAB.100	10	8	44,3	41	32	9	26,924	7,5	19,05	22,24	9	9	16	9,5	5	30°
TAB.130	13	8	50,4	47	32	9	29,972	6,5	19,05	28,54	12	9	16	12,5	6,5	28°
TAB.160	16	8	53,5	50	32	9	31,750	6	19,05	31,74	13,5	9	16	14,5	7	28°
TAB.200	20	8	60,1	55	32	11	33,528	5	19,05	34,94	16,5	11	18	17,4	8	28°
TAB.250	25	8	69,7	63	32	14	40,640	7	23,82	39,68	22	13	20	22,2	9	28°
<b>HEAVY DUTY</b>																
TABH.100	10	10	44,3	41	41	9	26,924	7,5	19,05	22,24	9	9	15	9,5	5	30°
TABH.130	13	12	50,4	47	41	9	29,972	6,5	19,05	28,54	12	9	15	12,5	6,5	28°
TABH.160	16	12	53,5	50	41	9	31,750	6	19,05	31,74	13,5	9	15	14,5	7	28°
TABH.200	20	12	60,1	55	41	11	33,528	5	19,05	34,94	16,5	11	18	17,4	8	28°
TABH.250	25	12	69,7	63	41	14	40,640	7	23,82	39,68	22	13	20	22,2	9	28°
TABH.320	32	12	69,7	63	41	14	40,640	7	23,82	39,68	22	13	20	22,2	9	28°
TABH.400	40	12	76,4	73	41	14	43,993	10	27	48	26	13	20	26	10	28°



**Conform to the following standards:**  
AFNOR NFE 63-103

**Hardness of material:**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

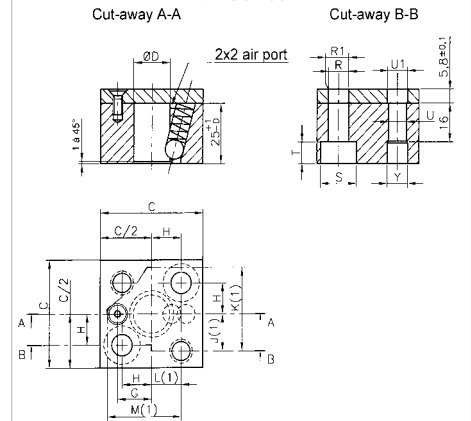
**Ordering example**  
Qty=3; Type: CA; D=16mm

3 CA.200

Accessory for dismantling of punches: Ball-lock release tool (see page 54).  
(1) The centre distances of the R1 and U1 holes in the backing plates are toleranced to ±0.1 mm.

Dimensions without tolerances ±0.25 mm.

### SQUARE BLOCKS FOR BL\*/BLE\*/BLK\* PUNCHES CA Series



Ref.	ØD H6	C H13	G H1	H H1	J H0,01	K H0,01	L H0,01	M H0,01	R H13	R1 H13	S H13	T H0,25	U G6	U1 H13	Y H13
CA.100	10	45	15	13	15,5	28,5	13	26	9	9	16	9	8	9	9
CA.130	13	45	15	13	15,5	28,5	13	26	9	9	16	9	8	9	9
CA.160	16	45	15	13	15,5	28,5	13	26	9	9	16	9	8	9	9
CA.200	20	56	19	16	19	35	16	32	11	11	18	11	10	11	11
CA.250	25	63	22	20	22,5	42,5	20	40	14	14	20	13	10	11	11



**Conform to the following standards:**  
AFNOR NFE 63-103

**Hardness of material:**  
- Punch retainer: 43/48 HRc  
- Backing plate: 32/38 HRc

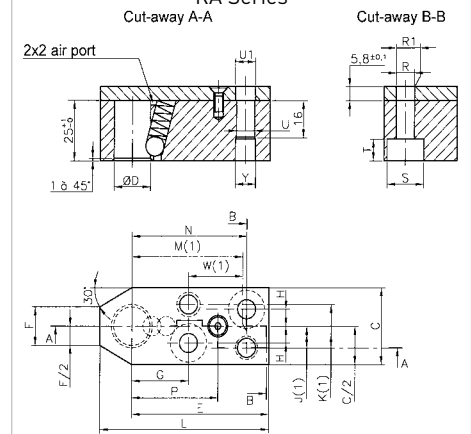
**Ordering example**  
Qty=3; Type: RA; D=20mm

3 RA.200

Accessory for dismantling of punches: Ball-lock release tool (see page 54).  
(1) The centre distances of the R1 and U1 holes in the backing plates are toleranced to ±0.1 mm.

Dimensions without tolerances ±0.25 mm.

### RECTANGULAR BLOCKS FOR BL\*/BLE\*/BLK\* PUNCHES RA Series



Ref.	ØD H6	L H13	C H13	E H0,2	F H0,25	G H1	H H1	J H0,01	K H0,01	M H0,01	W H0,01	N H1	P H1	R H13	R1 H13	S H13	T H0,25	U G6	U1 H13	Y H13
RA.100	10	75	32	60	18	25	7	9	18	50	25	50	38	9	9	16	9	8	9	9
RA.130	13	75	32	60	18	25	7	9	18	50	25	50	38	9	9	16	9	8	9	9
RA.160	16	75	32	60	18	25	7	9	18	50	25	50	38	9	9	16	9	8	9	9
RA.200	20	85	40	63	20	28	9	11	22	53	25	53	41	11	11	18	11	10	11	11
RA.250	25	85	40	63	20	28	9	11	22	53	25	53	41	11	11	18	11	10	11	11



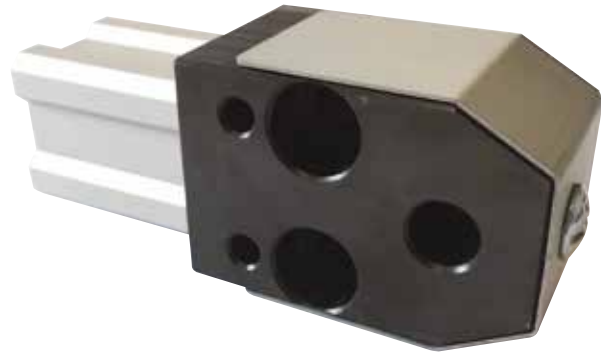


# RETRACTABLE PNEUMATICALLY -CONTROLLED RETAINER

## RCEP.M

# RETRACTABLE PNEUMATICALLY -CONTROLLED RETAINER

## RCEP



**Available materials:**  
- Punch retainer: 40 CMD 8 T4  
- Backing plate: 35 CD 4 / 32-38 HRc

**Ordering example**  
Qty=3 ; Type RCEP.M ; D=13 mm

3 RCEP.M.130

Retractable punch retainers are used when parts for different models are manufactured on the same tool. The layout of the holes on the part can be changed in a few minutes or even seconds. A blade holds the punch in position and sets it back sufficiently to prevent contact with the material.

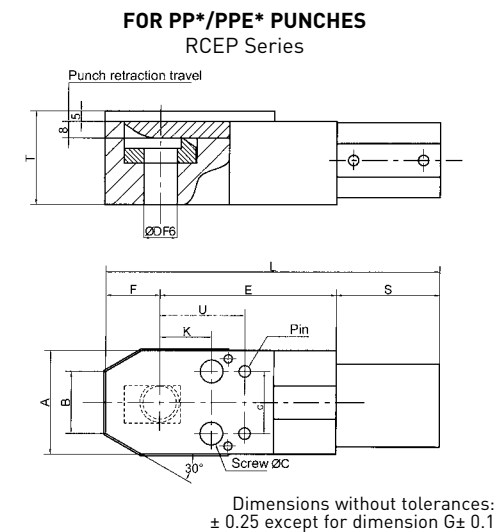
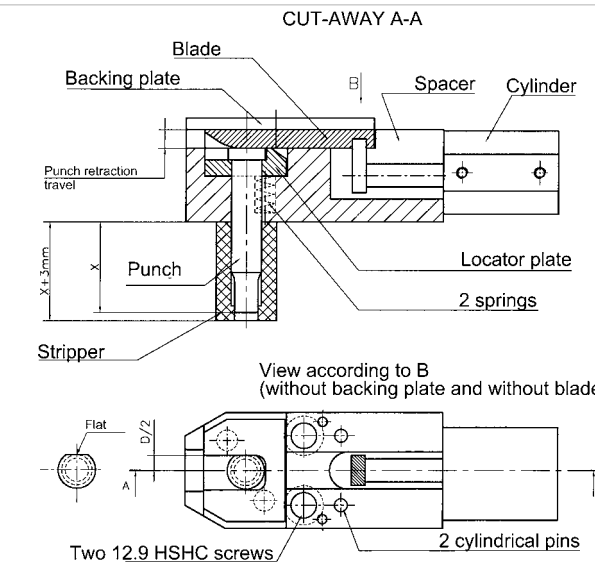
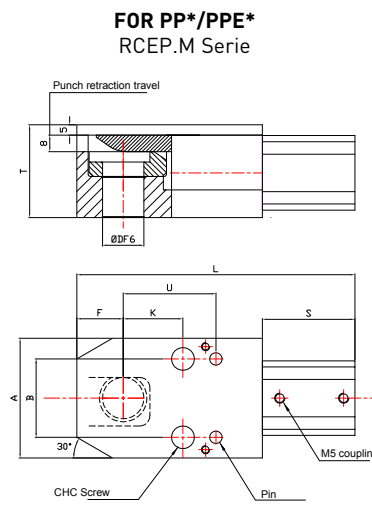
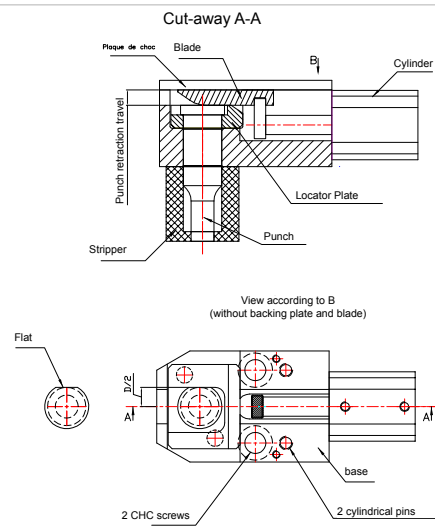


**Available materials:**  
- Punch retainer: 40 CMD 8 T4  
- Backing plate: 35 CD 4 / 32-38 HRc

**Ordering example**  
Qty=3; Type RCEP; D=13 mm

3 RCEP.130

Retractable punch retainers are used when parts for different models are manufactured on the same tool. The layout of the holes on the part can be changed in a few minutes or even seconds. A blade holds the punch in position and sets it back sufficiently to prevent contact with the material.



Micro Retractable punch retainer can be used with PP and PPE-type punches (page 6-9). If fitted with a stripper, make your choice according to the standard on page 39.

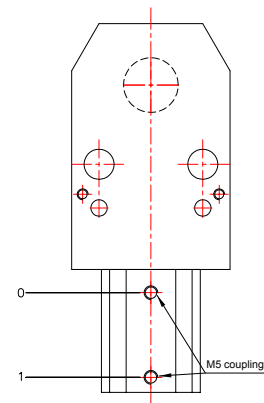
**Connection to the compressed air system**

You must allow for through holes in the frame and discharge vents in the press. The pipes must be fixed to the bottom of the frame by clamps. Diameter of connection to cylinder : M5

Key : 1 = Actuation of punch  
0 = retraction of punch

**Please note :**

Accessories required for connection to the compressed air system are not supplied.



Retractable punch retainer can be used with PP and PPE-type punches (page 6-9). If fitted with a stripper, make your choice according to the standard on page 39.

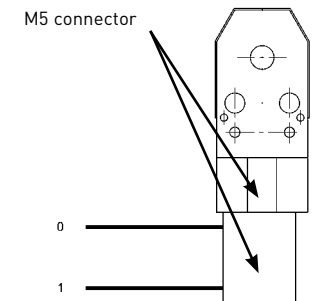
**Connection to the compressed air system**

You must allow for through holes in the frame and discharge vents in the press. The pipes must be fixed to the bottom of the frame by clamps. Diameter of connection to cylinder : M5

Key : 1 = Actuation of punch  
0 = retraction of punch

**Please note :**

Accessories required for connection to the compressed air system are not supplied.



Reference	ØD	L	A	B	F	C	K	S	T	U	screw CHC	Pin
RCEP.M.100	10	117	46	30	17,5	72,5	25	44,5	45	41	M8x50	GT 6x32
RCEP.M.130	13	117	49	30	17,5	72,5	25	44,5	45	41	M10x50	GT 6x32
RCEP.M.160	16	117	49	30	17,5	72,5	25	44,5	45	41	M10x50	GT 6x32
RCEP.M.200	20	139,5	58	38	22,5	90	29	49,5	45	45	M10x50	GT 6x32
RCEP.M.250	25	139,5	58	38	22,5	90	29	49,5	45	45	M10x50	GT 6x32
RCEP.M.320	32	190,5	80	56	31	121	38	69,5	55	60	M12x60	GT 8x32
RCEP.M.400	40	190,5	80	56	31	121	38	69,5	55	60	M12x60	GT 8x32

Reference	ØD	L	A	B	E	F	G	K	S	T	U	HSHC screw	Pin
RCEP.100	10	160,5	46	30	86	25	30	25	49,5	45	41	M8x50	GT 6x32
RCEP.130	13	160,5	50	30	86	25	30	25	49,5	45	41	M10x50	GT 6x32
RCEP.160	16	160,5	50	30	86	25	30	25	49,5	45	41	M10x50	GT 6x32
RCEP.200	20	184,5	58	38	100	25	38	29	59,5	45	45	M10x50	GT 6x32
RCEP.250	25	184,5	58	38	100	25	38	29	59,5	45	45	M10x50	GT 6x32
RCEP.320	32	234,5	80	56	130	35	56	38	69,5	55	60	M12x60	GT 8x32
RCEP.400	40	234,5	80	56	130	35	56	38	69,5	55	60	M12x60	GT 8x32





# NOTES

A large rectangular area with a thin black border, containing 20 horizontal dotted lines for writing notes.



# NOTES

A large rectangular area with a thin black border, containing 20 horizontal dotted lines for writing notes.



**MDL**

# MDL GROUP

[www.mdl-eu.com](http://www.mdl-eu.com)

## EUROPE

MDL Europe - MDL Rodis SAS  
Aire d'activité du Florival  
9 rue de l'Oberwald  
FR-68500 ISSENHEIM  
Tél : +33 (0)3 89 74 24 24  
[mdl@mdl-rodiss.com](mailto:mdl@mdl-rodiss.com)

MDL PORTER BESSON SAS  
Zone Eurespace  
5 rue Nosières  
FR-25770 SERRE LES SAPINS  
Tél : +33 (0)3 81 58 95 00  
[porter-besson@mdl-rodiss.com](mailto:porter-besson@mdl-rodiss.com)

MDL Deutschland GmbH  
Munzinger Strasse 1  
DE-79111 FREIBURG IM BREISGAU  
Tel. +49(0)761 503 127 11  
[mdl-verkauf@mdl-rodiss.com](mailto:mdl-verkauf@mdl-rodiss.com)

## BRAZIL

MDL - Maquinas Danly Ltda  
Av. Prink 151  
BR-CEP 18120 MAIRINQUE  
Tel.+55 11 2107 0400  
[vendas@mdl-brasil.com.br](mailto:vendas@mdl-brasil.com.br)  
[mdl-brasil.com.br](http://mdl-brasil.com.br)

## MEXICO

MDL DE MEXICO SA DE CV  
Conjunto Victoria II  
Acceso III N°52 Bodega 19  
Zona Industrial Benito Juarez  
MX-CEP 76120 QUERETARO  
[ventas@mdlmexico.com.mx](mailto:ventas@mdlmexico.com.mx)  
[www.mdlmexico.com.mx](http://www.mdlmexico.com.mx)

## U.S.A.

Mold & Die Components Inc.  
4572 N.Long Road  
USA- COLUMBUS, IN 47203  
Tel. +1 812 373-0021  
[sales@mdlcomponents.com](mailto:sales@mdlcomponents.com)  
[www.mdlcomponents.com](http://www.mdlcomponents.com)

## INDIA

MDL Vishal India Pvt Ltd  
S.F.N°2/2, Panapatti,  
Chettipalayam (Via), Palladam Road  
IN- COIMBATORE 641201, Tamil Nadu  
Tel : +91 (0) 42 5920 0100  
[sales@mdl-india.com](mailto:sales@mdl-india.com)

**3D available on**  
[www.mdl-embedded.qa.partcommunity.com](http://www.mdl-embedded.qa.partcommunity.com)

