

# PNEUMATIC CYLINDERS

P2020 / P2520

ISO 15552

VDMA 24562

2014

**pmc**group™



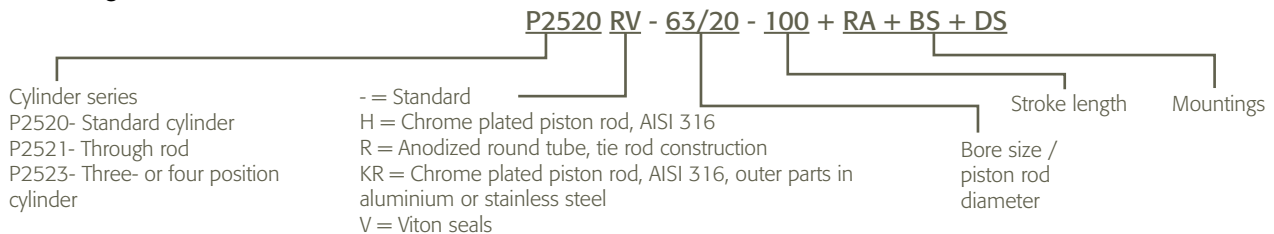
## Technical data

Dimensions conforms to VDMA 24562 and ISO 15552 standards.  
 Anodized profile (bore sizes 32-100) or hard anodized round tube with tie rods.  
 Optional guides and locking devices.  
 Chrome plated piston rod.  
 Available with Viton seals.  
 Magnetic piston as standard (bore sizes 32-200).



Pressure range: 0...10 bar (0...1,0 MPa).  
 Temperature range: -20...+60 °C standard seals (NBR) and -5...+150 °C Viton seals.  
 Operating medium: Filtered compressed air (40µm) or neutral gases, with or without lubrication.

## Ordering references



Bore ø	Piston rod ø	Port	Piston area cm <sup>2</sup>		Thrust N / 6 bar		Cushioning	
			out	in	out	in	length mm	area cm <sup>2</sup>
32	12	G 1/8	8,0	6,9	470	410	21	6,0
40	16	G 1/4	12,6	10,6	750	630	21	9,4
50	20	G 1/4	19,6	16,5	1170	980	21	13,5
63	20	G 3/8	31,2	28,1	1860	1650	21	25,0
80	25	G 3/8	50,3	45,4	3000	2650	28	37,7
100	25	G 1/2	78,5	73,5	4700	4300	31	66
125	32	G 1/2	123	115	7300	6800	37	103
160	40	G 3/4	201	188	12000	11100	42	175
200	40	G 3/4	314	302	18800	18000	42	288
250	50	G 1	490,8	471,2	29400	28200	53	443
320	63	G 1	804,2	773,0	48200	46300	53	756

PNE 1-1

## Product range

Bore ø	Standard stroke lengths										
	25	50	80	100	125	160	200	250	320	400	500
32	x	x	x	x	x	x	x	x	x	x	x
40	x	x	x	x	x	x	x	x	x	x	x
50	x	x	x	x	x	x	x	x	x	x	x
63		x	x	x	x	x	x	x	x	x	x
80		x	x	x	x	x	x	x	x	x	x
100		x	x	x	x	x	x	x	x	x	x
125				x	x	x	x	x	x	x	x
160				x	x	x	x	x	x	x	x
200				x	x	x	x	x	x	x	x
250				x	x	x	x	x	x	x	x
320				x	x	x	x	x	x	x	x

Non standard strokes up to max 3000 mm, diam. 250 and 320 up to 2000 mm.

PNE 1-2

## Technical data

Dimensions conforms to VDMA 24562 and ISO 15552 standards.

Hard anodized round tube with tie rods.

Optional guides and locking devices.

Chrome plated piston rod.

Available with Viton seals.

Magnetic piston as standard (bore sizes 32-125).

Pressure range: 0...10 bar (0...1,0 MPa).

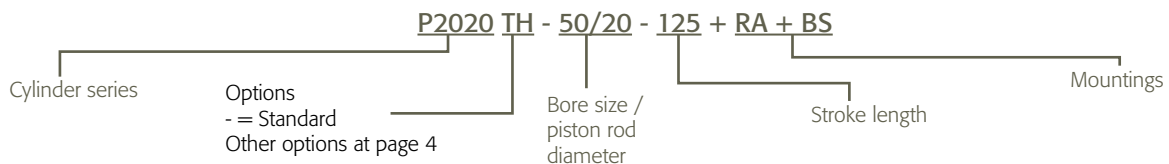
Temperature range: -30...+80 °C standard seals (PU) and

-5...+150 °C Viton seals.

Operating medium: Filtered compressed air (40µm) or neutral gases, with or without lubrication.



## Ordering references



Bore ø	Piston rod ø	Port	Piston area cm <sup>2</sup>		Thrust N / 6 bar		Cushioning	
			out	in	out	in	length mm	area cm <sup>2</sup>
32	12	G 1/8	8,0	6,9	470	410	21	6,0
40	16	G 1/4	12,6	10,6	750	630	21	9,4
50	20	G 1/4	19,6	16,5	1170	980	21	13,5
63	20	G 3/8	31,2	28,1	1860	1650	21	25,0
80	25	G 3/8	50,3	45,4	3000	2650	28	37,7
100	25	G 1/2	78,5	73,5	4700	4300	31	66
125	32	G 1/2	123	115	7300	6800	37	103
160	40	G 3/4	201	188	12000	11100	42	175
200	40	G 3/4	314	302	18800	18000	42	288

PNE 1-5

## Product range

Bore ø	Standard stroke lengths										
	25	50	80	100	125	160	200	250	320	400	500
P2020-32	x	x	x	x	x	x	x	x			
P2020-40	x	x	x	x	x	x	x	x	x		
P2020-50	x	x	x	x	x	x	x	x	x	x	x
P2020-63		x	x	x	x	x	x	x	x	x	x
P2020T-80		x	x	x	x	x	x	x	x	x	x
P2020T-100		x	x	x	x	x	x	x	x	x	x
P2020T-125				x	x	x	x	x	x	x	x
P2020T-160				x	x	x	x	x	x	x	x
P2020T-200				x	x	x	x	x	x	x	x

Non standard strokes up to max 3000 mm.

## Options

P2021, P25211 Cylinder with through piston rod	Equal thrust out and in. Better guiding of piston rod.	
P2022 Tandem cylinder	Cylinders have same stroke length and a common piston rod.	
P2023, P2523 R Three position cylinder, mounted rear to rear	Both cylinders have same stroke length, which provides three different positions.	
P2023, P2523 R Four position cylinder, mounted rear to rear	Cylinders have different stroke length, which provides four different positions.	
P2028 Multiple position cylinder, mounted front to rear end	Cylinder consist of two or more cylinders joined together to provide more than two defined end positions.	
P2007 Cylinder with oil cushioning	Oil cushioning gives even piston velocity regardless of variations of load.	

PNE 1-7

## Seal options

P2020T- Cylinder with non-lube seals Temperature range: -20...+80 °C	Cylinder for heavy use and demanding circumstances. Including PTFE lip seal and two lip PTFE scraper for piston rod. Standard for $\varnothing$ 80...200 and option for $\varnothing$ 32-63.	
P2020V-, P2520V Cylinder with seals for high temperature	Viton seals for piston, piston rod, cushioning and O-rings. In $\varnothing$ 80..200mm piston rod seals like P2020T	
P2020F-- Cylinder with seal for low temperatures	Contact our sales support for availability.	
P2000N- Cylinder for liquid operating medium	Cylinder without cushioning seals and with special piston seal for oil or water.	

PNE 1-8

## Accessories options

P2020M Cylinder with magnetic piston, $\varnothing$ 160...200	Cylinder with magnetic piston for touch-free position sensing. Standard in bore sizes 32...125.	
P2520R Cylinder with round tube $\varnothing$ 32...100	Cylinders $\varnothing$ 32-100 can be delivered with round tube instead of profile tube. Round tube is standard in $\varnothing$ 125...320.	
P2020P, P2520P Cylinder with piston rod protected	Piston rod protected with rubber gaiter. Piston rod is extended, dimensions in a separate table.	
P2020H, P2520H Cylinder with piston rod of stainless steel	Cylinder with piston rod of acid proof steel (AISI 316)	
P2020K, P2520K Cylinder with corrosion resistant material	Outer parts in aluminium or stainless steel.	1-6
P2020-, P2520-drawing number Special design	Special, made to custom design indicated with drawing number.	

PNE 1-9

## Magnetic sensors



Type	Order code	Voltage	Power max	Cable
Reed	P2520-Reed-3-1A	10-30 V AC/DC	< 500 mA	5 m
Reed	P2520-Reed-3-M8	10-30 V AC/DC	< 500 mA	200 mm + M8
PNP	P2520-PNP-3-1A	10-30 V DC	< 200 mA	5 m
PNP	P2520-PNP-3-M8	10-30 V DC	< 200 mA	200 mm + M8
NPN	P2520-NPN-3-1A	10-30 V DC	< 200 mA	5 m

PNE 1-3

## Mountings for switches

Bore size	P2520 profile tube	P2520R, P2020R round tube, tie rod
32	No need for bracket	KR-32040
40		KR-32040
50		KR-50100
63		KR-50100
80		KR-50100
100		KR-50100
125	ø125...320 not available with profile tube	KR-125
160		KR-160200
200		KR-160200
250		KR-250
320		KR-320

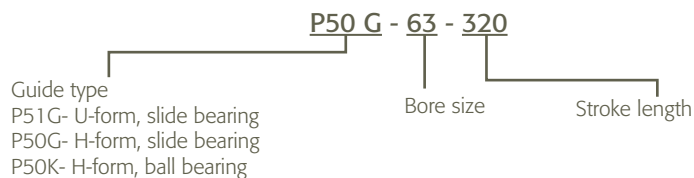
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## Guides

Cylinders are available with U- and H-form guides. H-form guide are available with sliding and ball bearings.



## Ordering references

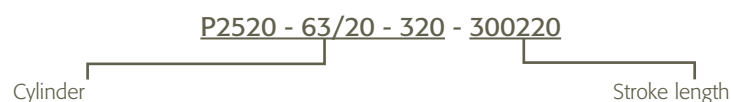


## Locking devices

Cylinders are available with locking devices. Locking device blocks if supply pressure drops below 4 bar. Pressure range: 4...8 bar (0,4...0,8MPa).



## Ordering references



Cylinders with locking devices are longer than standard cylinders. Additional length according to the table.

Cylinder ø	Additional length	Locking force N	Port size
32	+ 40 mm	600	G 1/8
40	+ 45 mm	1000	G 1/8
50	+ 60 mm	1500	G 1/8
63	+ 70 mm	2200	G 1/8
80	+ 80 mm	3000	G 1/8
100	+ 80 mm	5000	G 1/8

PNE 1-4

## Mountings for series P2520 and P2020

### Flange mounting FS

( $\varnothing$  32-320)



### Rear clevis mounting MA

( $\varnothing$  32-200)



Also available: M S ( $\varnothing$  32-320)

### Pivot axle AS

( $\varnothing$  32-320)



### Clevis foot UA

( $\varnothing$  32-125)



Also available: US ( $\varnothing$  80, 100, 160, 200)

### Foot mounting SS

( $\varnothing$  32-250)



### Piston rod end spherical bearing BS

( $\varnothing$  32-320)



Saatavana myös BH

### Piston rod clevis assembly CS

( $\varnothing$  32-320)



Also available: CH

### Brackets VA/ZA, VS/ZS

( $\varnothing$  32-200)



Also available: VS and VH ( $\varnothing$ 32-100)

### Trunnion mounting TA/TS

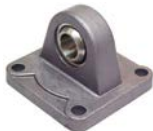
( $\varnothing$  32-320)



Also available: TS ( $\varnothing$  160, 200, 250) for round pipe TA/TS R of series TA 050 26 P 2620 with 050 diameter

### Spherical rear bearing RA, RAstd, RS, RSstd

( $\varnothing$  32-320)



Also available: RS (standard for sizes 160-200)

### Piston rod nut DS

( $\varnothing$  32-320)



Saatavana DH

### Rear eye mounting PA

( $\varnothing$  32-200)



Also available: DH ( $\varnothing$  32-320)

### Bracket Support for center trunnion YS

( $\varnothing$  32-125)



### Rear hinge LA

( $\varnothing$  32-200)

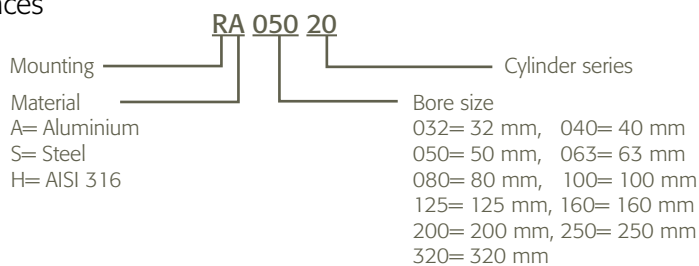


### Rear clevis mounting, narrow N

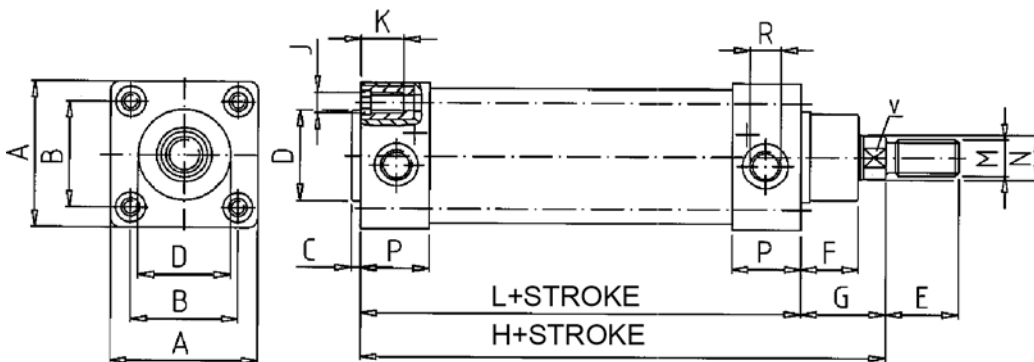
( $\varnothing$  32-125)



## Ordering references



## Dimensions



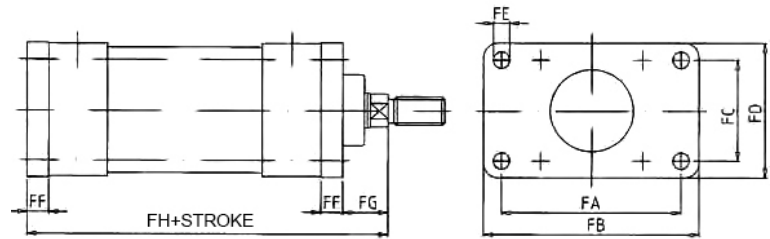
Bore size	Series	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	V
32	P2520	$\frac{47}{45,5}$	32,5	$\frac{4}{3,5}$	30	22	$\frac{16}{17}$	26	120	M6	16	94	M10X1,25	12	$\frac{26}{27}$	G1/8	10
	P2020	$\frac{47}{45,5}$		$\frac{4}{3,5}$			$\frac{16}{17}$								$\frac{26}{27}$		
40	P2520	$\frac{53}{52}$	38	$\frac{3,5}{3,5}$	35	24	$\frac{20}{20,5}$	30	135	M6	16	105	M12X1,25	16	$\frac{30}{27}$	G1/4	13
	P2020	$\frac{53}{52}$		$\frac{3,5}{3,5}$			$\frac{20}{20,5}$								$\frac{30}{27}$		
50	P2520	$\frac{65}{64}$	46,5	$\frac{4}{4}$	40	32	$\frac{25}{24}$	37	143	M8	16	106	M16X1,5	20	$\frac{30}{31}$	G1/4	17
	P2020	$\frac{65}{64}$		$\frac{4}{4}$			$\frac{25}{24}$								$\frac{30}{31}$		
63	P2520	$\frac{75}{74}$	56,5	4	45	32	$\frac{25}{24}$	37	158	M8	16	121	M16X1,5	20	$\frac{32}{32,5}$	G3/8	17
	P2020	$\frac{75}{74}$					$\frac{25}{24}$								$\frac{32}{32,5}$		
80	P2520	$\frac{95}{99}$	72	4	45	40	$\frac{32}{30}$	46	174	M10	16	128	M20X1,5	25	$\frac{38}{37}$	G3/8	$\frac{21}{21}$
	P2020	$\frac{95}{99}$					$\frac{32}{30}$								$\frac{38}{37}$		$\frac{21}{21}$
100	P2520	$\frac{115}{116}$	89	4	55	40	$\frac{35}{35}$	51	189	M10	16	138	M20X1,5	25	$\frac{40}{42}$	G1/2	$\frac{21}{21}$
	P2020	$\frac{115}{116}$					$\frac{35}{35}$								$\frac{40}{42}$		$\frac{21}{21}$
125	P2520	$\frac{140}{141}$	110	$\frac{4}{6}$	60	54	$\frac{45}{50}$	65	225	M12	$\frac{28}{20}$	160	M27X2	32	$\frac{46}{48,5}$	G1/2	27
	P2020	$\frac{140}{141}$		$\frac{4}{6}$			$\frac{45}{50}$				$\frac{28}{20}$				$\frac{46}{48,5}$		
160	P2520	$\frac{180}{182}$	140	$\frac{4}{6}$	65	72	$\frac{58}{55}$	80	260	M16	24	180	M36X2	40	$\frac{50}{51}$	G3/4	36
	P2020	$\frac{180}{182}$		$\frac{4}{6}$			$\frac{58}{55}$								$\frac{50}{51}$		
200	P2520	$\frac{220}{217}$	175	$\frac{5}{6}$	75	72	$\frac{67}{70}$	95	275	M16	24	180	M36X2	40	$\frac{50}{51}$	G3/4	36
	P2020	$\frac{220}{217}$		$\frac{5}{6}$			$\frac{67}{70}$								$\frac{50}{51}$		
250	P2520	288	220	10	90	84	75	105	305	M20	25	200	M42X2	50	62	G1	46
320	P2520	350	270	10	110	96	85	120	340	M24	28	220	M48X2	63	68	G1	55

PNE SMITAT

## Mountings

### Mounting FS

Flange at front or rear end.  
Material: Zink plated steel  
E.g FS 050 20

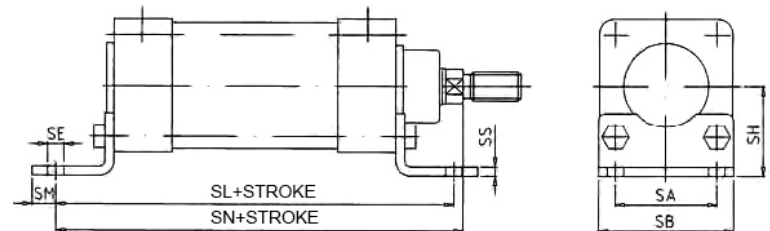


Bore diameter	FA	FB	FC	FD	FE	FF	FG	FH
32	64	80	32	45	7	10	16	130
40	72	90	36	52	9	10	20	145
50	90	110	45	65	9	12	25	155
63	100	120	50	75	9	12	25	170
80	126	150	63	95	12	16	30	190
100	150	170	75	115	14	16	35	205
125	180	205	90	140	16	20	45	245
160	230	260	115	180	18	20	60	280
200	270	300	135	220	22	25	70	300
250	320	400	220	285	26	25	80	330
320	400	470	270	350	33	30	90	370

FS

### Mounting SS

End angles.  
Material: Zink plated steel  
E.g SS 050 20



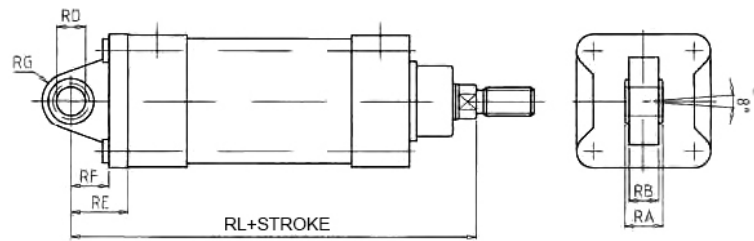
Bore diameter	SA	SB	SE	SH	SL	SM	SN	SS
32	32	45	7	32	142	11	144	4
40	36	52	9	36	161	8	163	4
50	45	65	9	45	170	15	175	5
63	50	75	9	50	185	13	190	5
80	63	95	12	63	210	14	215	6
100	75	115	14	71	220	16	230	6
125	90	140	16	90	250	25	270	8
160	115	180	18	115	300	20	320	10
200	135	220	22	135	320	20	345	12
250	165	270	26	165	350	25	280	14

SS



## Mounting RA/RS

Spherical rear bearing  
 Material: Aluminium (ø32...125)  
 Steel (ø160-320)  
 E.g RA 050 20



Bore diameter	RA	RB	RD (H9)	RG	RE	RF	RL
32	14	12	10	15	22	13	142
40	16	14	12	18	25	16	160
50	16	14	12	20	27	16	170
63	21	17	16	22	32	21	190
80	21	17	16	25	36	22	210
100	25	20	20	29	41	27	230
125	31	25	25	35	50	30	275
160	37	30	30	40	55	40	315
200	37	30	30	45	60	40	335

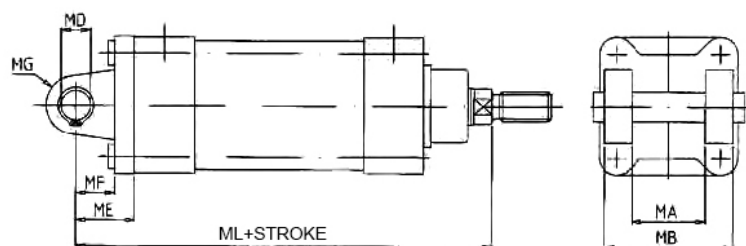
## Mounting RA STD /RS STD dimensions according ISO 15552/VDMA

Spherical rear bearing  
 Material: Aluminium (ø50...125)  
 Steel (ø160-200)  
 E.g RA 050 20 STD

Bore diameter	RA	RB	RD (H9)	RG	RE	RF	RL
50	21	14	16	20	27	16	170
80	25	17	20	25	36	22	210
125	37	25	30	35	50	30	275
160	43	30	35	40	55	40	315
200	43	30	35	40	60	40	335

## Mounting MA/MS

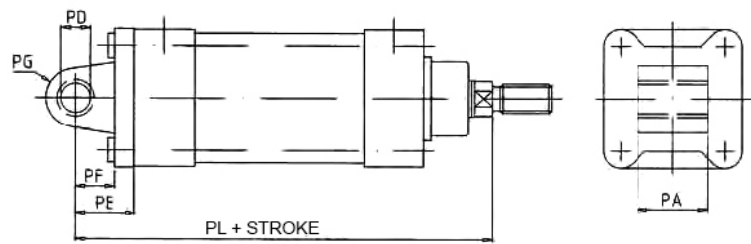
Rear clevis mounting.  
 Material: Aluminium (ø32...200)  
 Steel (ø250-320)  
 E.g MA 050 20



Bore diameter	MA	MB	MD (H9)	MG	ME	MF	ML
32	26	45	10	10	22	13	142
40	28	52	12	12	25	16	160
50	32	60	12	12	27	16	170
63	40	70	16	16	32	21	190
80	50	90	16	16	36	22	210
100	60	110	20	20	41	27	230
125	70	130	25	25	50	30	275
160	90	170	30	30	55	35	315
200	90	170	30	30	60	35	335
250	110	200	40	40	70	45	375
320	120	220	45	45	80	50	420

## Mounting PA/PS

Rear eye mounting.  
 Material: Aluminium ( $\varnothing 32 \dots 200$ )  
 Steel ( $\varnothing 250 \dots 320$ )  
 E.g PA 050 20

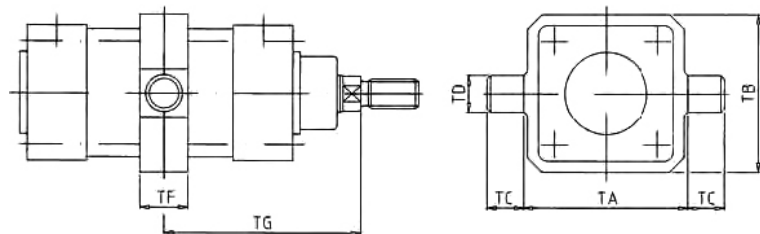


Bore diameter	PA	PD (H9)	PG	PE	PF	PL
32	26	10	10	22	13	142
40	28	12	12	25	16	160
50	32	12	12	27	16	170
63	40	16	16	32	21	190
80	50	16	16	36	22	210
100	60	20	20	41	27	230
125	70	25	25	50	30	275
160	90	30	30	55	35	315
200	90	30	30	60	35	335
250	110	40	40	70	45	375
320	120	45	45	80	50	420

PA

## Mounting TA/TS

Trunnion.  
 Material: Aluminium ( $\varnothing 32 \dots 200$ )  
 Steel ( $\varnothing 250 \dots 320$ )  
 E.g TA 050 20 R



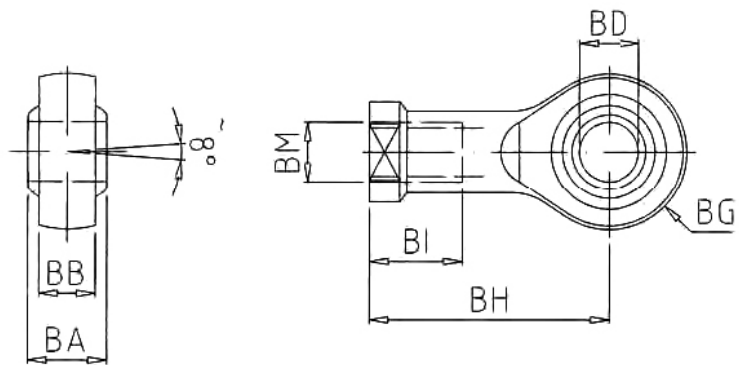
Adjustable with bore diameters 32..80 Fixed with diameters 100..320.  
 Dimension TG to be stated if not central.

Bore diameter	TA (h14)	TB	TC (h14)	TD (e9)	TF	TG min
32	50	50	12	12	20	63
40	63	60	16	16	20	70
50	75	72	16	16	20	78
63	90	86	20	20	26	83
80	110	102	20	20	30	98
100	132	125	25	25	36	109
125	160	155	25	25	36	130
160	200	190	32	32	40	151
200	250	240	32	32	40	166
250	320	295	40	40	50	193
320	400	370	50	50	70	224

TATS

## Mounting BS

Piston rod end spherical bearing.  
 Material: Zink plated steel  
 E.g BS 050 20  
 Also available in AISI 316, type BH

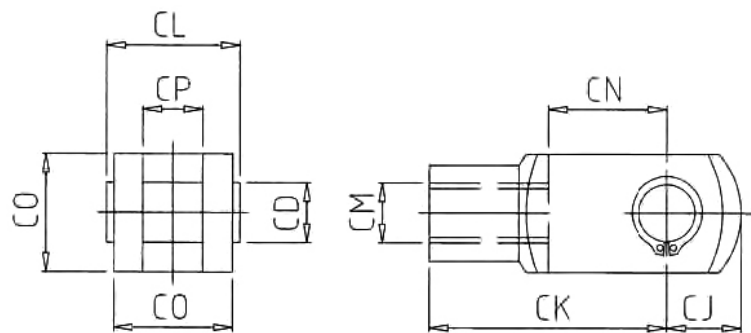


Bore diameter	BA(h12)	BB	BD(H9)	BGmax	BH	BI	BM
32	14	10,5	10	14	43	20	M10x1,25
40	16	12	12	16	50	23	M12x1,25
50	21	15	16	21	64	34	M16x1,5
63	21	15	16	21	64	34	M16x1,5
80	25	18	20	25	77	40	M20x1,5
100	25	18	20	25	77	40	M20x1,5
125	37	25	30	35	110	54	M27x2
160	43	30	35	40	125	56	M36x2
200	43	30	35	40	125	56	M36x2
250	49	38	40	45	142	60	M42x2
320	60	48	50	58	160	65	M48x2

BS

## Mounting CS

Piston rod clevis assembly.  
 Material: Zink plated steel  
 E.g CS 050 20  
 Also available in AISI 316, type CH

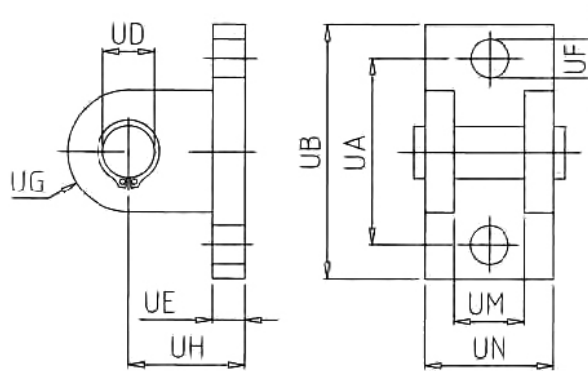


Bore diameter	CD(H9)	CJmax	CK	CL	CM	CO	CN	CP
32	10	16	40	26	M10x1,25	20	20	10
40	12	19	48	31	M12x1,25	24	24	12
50	16	25	64	39	M16x1,5	32	32	16
63	16	25	64	39	M16x1,5	32	32	16
80	20	32	80	48	M20x1,5	40	40	20
100	20	32	80	48	M20x1,5	40	40	20
125	30	45	110	64	M27x2	55	54	30
160	35	57	144	80	M36x2	70	72	35
200	35	57	144	80	M36x2	70	72	35
250	40	68	168	106	M42x2	85	84	40
320	50	85	192	121	M48x2	96	96	50

CS

## Mounting UA/US

Clevis foot, mounting for R and B  
 Material: Aluminium ( $\varnothing 32 \dots 125$ )  
 Steel ( $\varnothing 160-200$ )  
 Steel axis in all products  
 E.g UA 050 20  
 Also available: 32...125, also UH,  
 AISI316

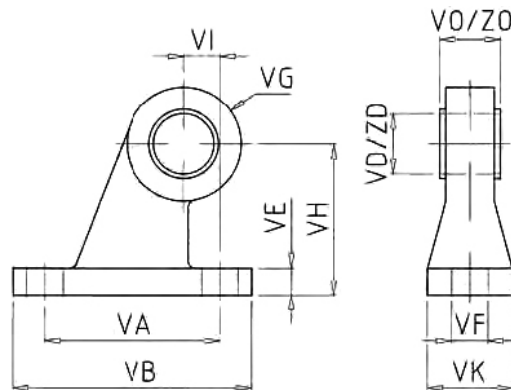


Bore diameter	UA	UB	UD	UE	UF	UG	UH	UM	UN
32	30	45	10	6	7	11	24	15	26
40	38	55	12	7	9	15	27	17	28
50	46	64	12	9	9	15	30	22	34
63	58	79	16	10	12	19	36	22	40
80	70	94	16	12	14	19	40	26	50
100	88	118	20	14	18	23	45	26	60
125	108	145	25	13	22	28	55	38	70
160	138	182	30	14	26	33	65	44	90
200	170	215	30	19	26	33	70	44	90

UA/US

## Mounting VA/VS and ZA/ZS

Brackets  
 V- Mounting for T  
 Z- Mounting for M, P and R  
 Material: Aluminium ( $\varnothing 63-100$ )  
 Steel ( $\varnothing 32-50$  and  $125-200$ )  
 E.g VA 050 20

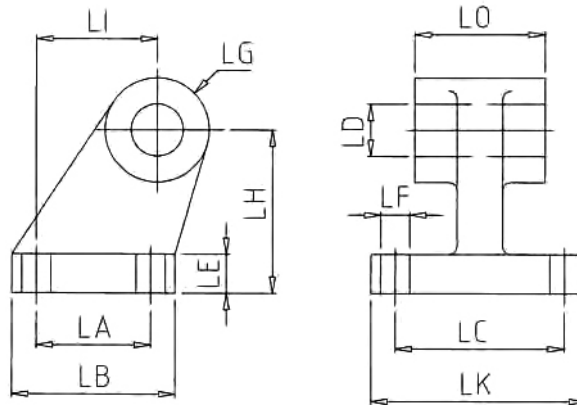


Bore diameter	VA	VB	VD(H9)	VE	VF	VG	VH	VI	VK	VO	ZD	ZO
32	30	45	12	6	7	11	32	7	16	12	10	10
40	38	55	16	7	9	15	36	9	18	16	12	12
50	46	64	16	7	9	15	45	10	25	16	12	15
63	58	79	20	9	12	19	50	12	25	20	16	16
80	70	94	20	11	14	19	63	14	34	20	16	21
100	88	118	25	11	18	23	71	17	40	25	20	27
125	108	145	25	13	22	28	90	21	45	25	25	25
160	138	182	32	18	26	33	115	25	60	30	30	30
200	170	215	32	18	26	33	135	25	60	30	30	30

VA/VS ZA/ZS

## Mounting LA

Rear 90° hinge mounting,  
mounting for M  
Material: Aluminium  
E.g LA 050 20

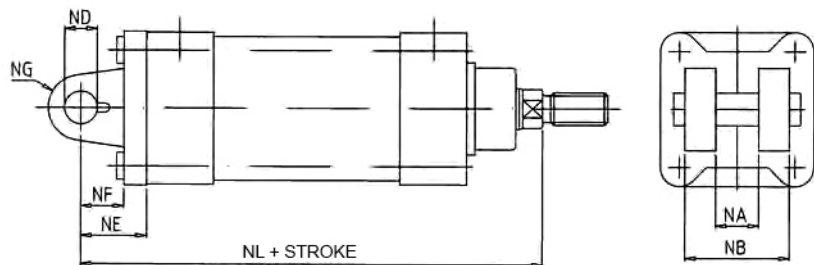


Bore diameter	LA	LB	LC	LD(H9)	LE	LF	LG	LH	LI	LK	LO
32	18	31	38	10	8	6,6	10	32	21	51	26
40	22	35	41	12	10	6,6	11	36	24	54	28
50	30	45	50	12	12	9	13	45	33	65	32
63	35	50	52	16	14	9	15	50	37	67	40
80	40	60	66	16	14	11	15	63	47	86	50
100	50	70	76	20	17	11	19	71	55	96	60
125	60	90	94	25	20	14	23	90	70	124	70
160	88	126	118	30	25	14	32	115	97	156	90
200	90	130	122	30	30	18	32	135	105	162	90

LA

## Mounting NA

Rear clevis mounting, narrow  
Material: Aluminium  
E.g NA 050 20

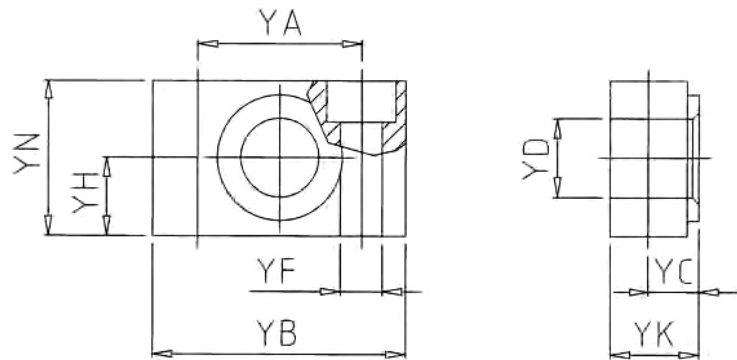


Bore diameter	NA	NB	ND	NG	NE	NF	NL
32	14	34	10	11	22	17	142
40	16	40	12	13	25	20	160
50	21	45	16	18	27	22	170
63	21	51	16	18	32	25	190
80	25	65	20	22	36	30	210
100	25	75	20	22	41	32	230
125	37	97	30	30	50	42	275
160	43	122	35	36	55	46	315
200	43	122	35	38	60	49	335

NA

## Mounting YS

Bracket  
Support for center trunnion T  
Material: Zink plated steel  
E.g YS 050 20



Bore diameter	YA	YB	YC	YD	YF	YH	YK	YN
32	32	46	10,5	12	6,6	15	18	30
40/50	36	55	12	16	9	18	21	36
63/80	42	65	13	20	11	20	23	40
100/125	50	75	16	25	14	25	28,5	50
160/200	60	92	22,5	32	18	30	40	60

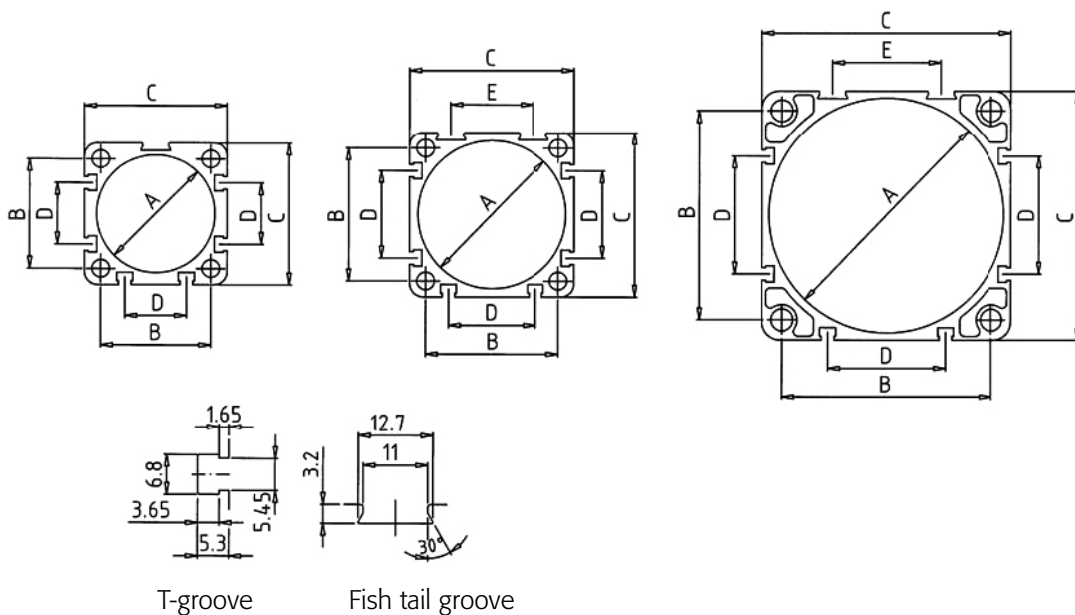
YS

## Grooves for sensors, P2520

32...50 mm

63...80 mm

100 mm



T-groove

Fish tail groove

Bore diameter	A	B	C	D	E
32	32	32,5	44,5	17	-
40	40	38	50,5	23	-
50	50	46,5	60,3	26	-
63	63	56,5	70	37	35
80	80	72	87	45	45
100	100	89	106	50	46

URAT



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The logo for pmcgroup™ features the letters 'pmc' in a bold, blue, sans-serif font, followed by the word 'group' in a lighter blue, lowercase, sans-serif font. A small trademark symbol (TM) is positioned to the upper right of the word 'group'.

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