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2300 SERIES CONTENTS

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2300 SERIES HYDRAULIC CYLINDERS

2300 series hydraulic cylinders are made for continuous, hard industrial use and/or for an aggressive environment. The compact design means short structural dimensions. This enables cylinders to be used in various applications.

TYPICAL APPLICATION FIELDS

- Pulp and paper industry
- Wood handling industry
- Metal industry
- Demanding mobile applications. Ask also our other cylinder models!

NOMINAL WORKING PARAMETERS AND MEDIUMS

- Working pressure: max 25 MPa (250 bar)
- Operating temperature range for sealing systems: -30 .. +100 °C
- Pressure medium: mineral oils
- Cylinder diameters (NS) 32 to 320 mm
- Stroke lengths according to customers requirements.

MATERIAL SPECIFICATION

- Cylinder barrel: Steel tube, roll finished or internally honed to Ra 0,4 max
- Piston rod: Hard chromium plated carbon steel. Ra 0,3 max
- End covers: Steel
- Surface treatment SFS 4962 FeS a 2 ½ E120/2
- Acid proof cylinders are made from AISI 329.

MOUNTING STYLES

- Cylinder can be mounted by five body mounting styles and by three rod end mounting styles
- Oil ports are G, SAE, NPT and UNF
- Mounting parts: Steel.

SEALING SYSTEMS

- Sealing system determines, what efficiency ratio and sealing properties the cylinder gets. Sealing system can be chosen from four basic alternatives.
- Seals: NBR rubber, PUR and PTFE alloy
- Bearings: Piston and piston rod are guided with glide bearing.

BASIC SETTINGS

- Air bleeds are provided at both ends for all diameters
- Inspection of structural measurements, functional test and pressure test.

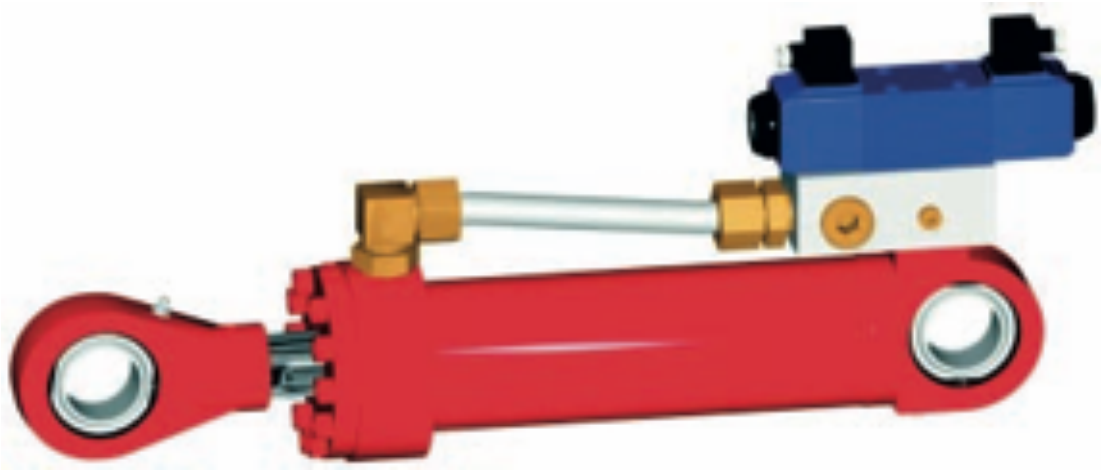
CUSHIONING TECHNIQUE

- Cushioned cylinder allows faster cycle times and increased production. Basic cylinder is without cushioning, but it can be ordered to cap end, front end or both ends.
- Cylinders with cushioning are adjusted to basic settings.

SPECIAL FEATURES

The range of special features is available for JKV 2300 cylinders. This includes

- Special rod: stroke limits, rod bellows, overlong rod
- Corrosive environment: Acid proof rod, acid proof mounting or totally acid proof cylinder



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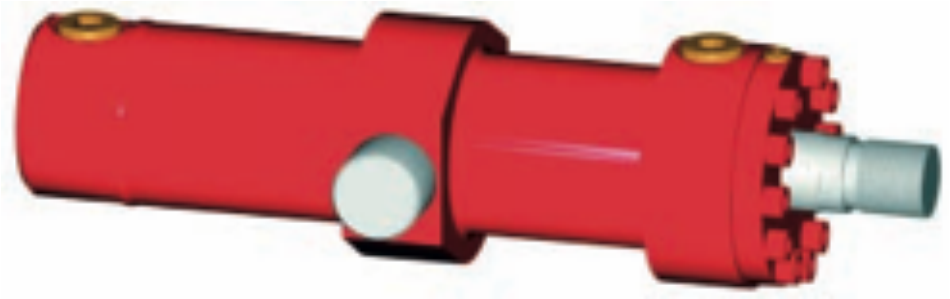
MOUNTING STYLES

Mounting no. 7

Cap fixed eye with spherical plain bearing mounting is for applications in wich the machine member travels in a curved path in one plane where some misalignment is unavoidable.



Mounting no. 6

Intermediate trunnion mounting is for applications in wich the machine travels in a curved path in one plane (fixed or movable trunnion).

Mounting no. 5

Head trunnion mounting is for applications in wich the machine travels in a curved path in one plane.

MOUNTING STYLES

Mounting no. 3

Cap flange mounting is for applications in wich the machine travels in a linear path. Flange mounting style is very rigid (square flange in cylinders ≤NS 80, circular flange in cylinders≥ NS 100).

Mounting no. 2

Cap flange mounting is for applications in wich the machine travels in a linear path. Flange mounting style is very rigid (square flange in cylinders ≤NS 80, circular flange in cylinders≥ NS 100).

Rod end spherical eye MVP

Welded spherical eye HVP

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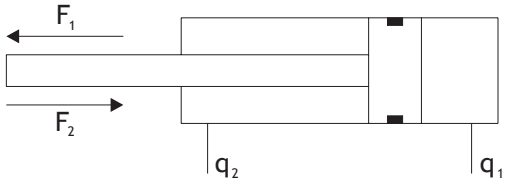
TECHNICAL DATA

Area, force and oil flow table

NS	PISTON ROD	AREA RATIO	BORE AREA	ANNULUS AREA	FORCE WITH 25 MPa (*)		FLOW q AT SPEED 0.1 m/s	
ø [mm]	ø [mm]	A/A_1	A [mm^2]	A_1 [mm^2]	F_1 [KN]	F_2 [KN]	q_1 [l/min]	q_2 [l/min]
32	20	1.64	804	490	20.1	12.3	4.8	2.9
40	25	1.64	1257	766	31.4	19.1	7.5	4.6
50	25	1.33	1963	1473	49.1	36.8	11.8	8.8
	30	1.56		1257		31.4		7.5
63	30	1.29	3117	2410	77.9	60.3	18.7	14.5
	40	1.68		1861		46.5		11.2
80	40	1.33	5027	3770	125.7	94.2	30.2	22.6
	50	1.64		3063		76.6		18.4
100	50	1.33	7854	5890	196.3	147.3	47.1	35.3
	65	1.73		4536		113.4		27.2
125	65	1.37	12272	8954	306.8	223.8	73.6	53.7
	80	1.69		7245		181.1		43.5
160	90	1.46	20106	13744	502.7	343.6	120.6	82.5
	110	1.9		10603		265.1		63.6
200	110	1.43	31416	21913	785.4	547.8	188.5	131.5
	140	1.96		16022		400.6		96.1
250	140	1.46	49087	33694	1227.2	842.3	294.5	202.2
320	180	1.46	80425	54978	2010	1374.4	482.5	329.9

*Theoretical max force



Weight table [kg] : Basic cylinder +stroke 100 mm +rod end

NS	ROD	Mounting no. 7	Mounting no. 6	Mounting no. 5	Mounting no. 3	Mounting no. 2	+1000mm	+HVP	+MVP
ø [mm]	ø [mm]	with threaded rod	with threaded rod	with threaded rod	with threaded rod	with threaded rod	+kg	+kg	+kg
32	20	2.5	3.0	2.5	3.5	3.0	6.0	0.5	0.5
40	25	3.5	4.0	3.5	5.0	4.5	9.5	0.5	0.5
50	25	4.0	5.0	4.5	6.0	5.0	11.0	1.0	1.0
	30	4.0	5.0	4.5	6.0	5.0	12.5		
63	30	7.0	9.5	8.0	9.0	8.0	14.0	1.5	1.5
	40	7.0	9.5	8.0	9.0	8.0	18.5		
80	40	10.0	14.0	12.0	19	16	20.5	2.0	2.5
	50	10.5	14.5	12.5	19	16	26		
100	50	22	27	23	30	22	36	2.5	5.0
	65	22	27	23	31	22	46		
125	65	33	43	34	42	38	51	4.5	9.5
	80	33	44	35	43	39	65		
160	90	67	79	70	84	84	92	6.5	17.5
	110	70	82	73	87	87	117		
200	110	113	141	124	145	145	141	18.0	30.0
	140	115	143	126	147	148	188		
250	140	230	240	215	250	240	263	36.0	72.0
320	180	450	470	430	550	480	397	68.0	109.0

SEALING SYSTEMS

The performance and the operational reliability of hydraulic cylinder essentially depends on the seals installed.

There are four sealing system alternatives in JKV 2300 series. They are laboratory tested and found reliable in practice.

Basic sealing system in 2300 series is combination sealing system F. Sealing system F is for heavy use and it can stand high pressure peaks. It also has very small friction force as well as good sealing properties. It can be recommended for demanding conditions. Alternatives S, R or 1 can also be ordered for special purposes.

Choose the best option for your application from the table below.

APPLICATION	SEALING SYSTEM F	S	R	1
Light mobile hydraulics			■	■
Medium mobile hydraulics			■	■
Heavy mobile hydraulics			▪	▪
Stationary hydraulics: Injection moulding machines	■	▪		
Stationary hydraulics: Presses	■	▪	▪	
Stationary hydraulics: Machine tools	■	■		
Standard cylinder hydraulics: Light	▪	▪	■	■
Standard cylinder hydraulics: Medium	■	■	■	▪
Standard cylinder hydraulics: Heavy	■	■		

■ Preferred use

▪ Use also possible

MAIN PROPERTIES

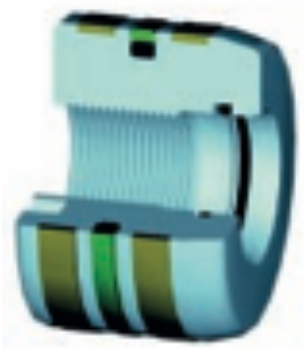
Sealing system F: Low friction force, very dry piston rod
Sealing system S: Low friction force high and low speeds
Sealing system R: Resistance to water
Sealing system 1: Dirty conditions, accepts pressure peaks

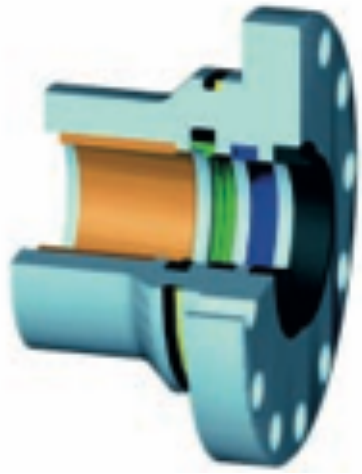
MORE INFORMATION

Sealing system F, page C2
Sealing system S, page C3
Sealing system R, page C4
Sealing system 1, page C5

SEALING SYSTEMS

Combination sealing system F





Piston seals

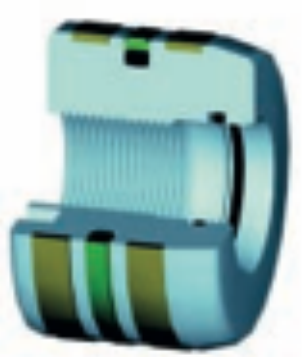
Rod seals

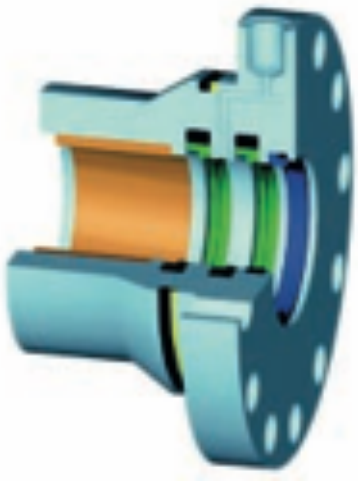
Technical data

Max. pressure:	According to cylinder body limits
Temperature area [°C]:	-30...100
Velocity max. [m/s]:	0.5
Rod seal type:	Glide ring sealing + U-packing
Piston seal type:	Glide ring sealing
Material:	PTFE teflon + AU polyurethane
Applications:	Low friction force, very dry piston rod. Demanding industrial use

SEALING SYSTEMS

Glide ring sealing system S





Piston seals

Rod seals

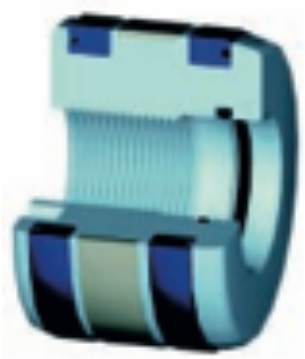
Technical data

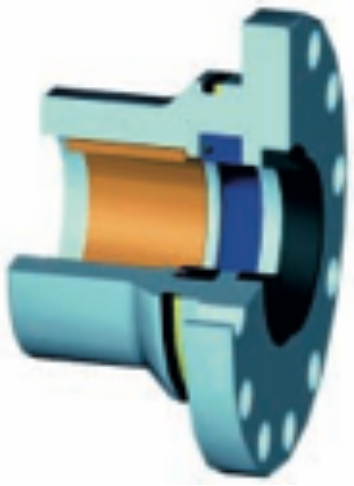
Max. pressure:	According to cylinder body limits
Temperature area [°C]:	-30...100
Velocity max. [m/s]:	15
Rod seal type:	Glide ring sealing
Piston seal type:	Glide ring sealing
Material:	PTFE teflon
Applications:	Low friction force, high and low speeds. Demanding industrial use

Option: Sealing system SV, for high temperature applications.

SEALING SYSTEMS

U-packing sealing system R





Piston seals

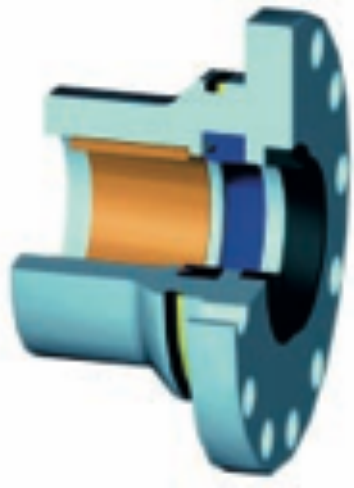
Rod seals

Technical data

Max. pressure:	According to cylinder body limits
Temperature area [°C]:	-30...100
Velocity max. [m/s]:	0.5
Rod seal type:	U-packing
Piston seal type:	U-packing
Material:	NBR rubber
Applications:	For normal industrial use, resistance to water.

SEALING SYSTEMS

Compact sealing system 1



Piston seals

Rod seals

Technical data

Max. pressure:	According to cylinder body limits
Temperature area [°C]:	-30...100
Velocity max. [m/s]:	0.5
Rod seal type:	U-packing
Piston seal type:	Compact sealing
Material:	NBR rubber
Applications:	Dirty conditions, accepts pressure peaks.

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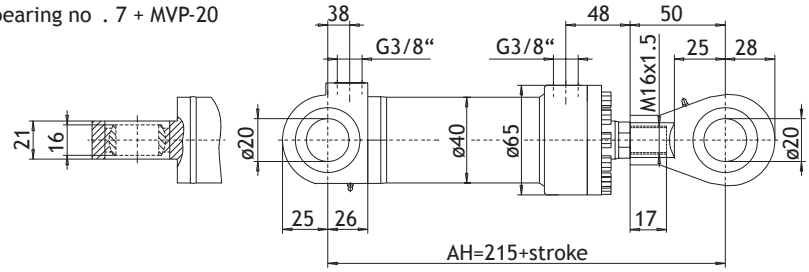
DIMENSIONS NS 32

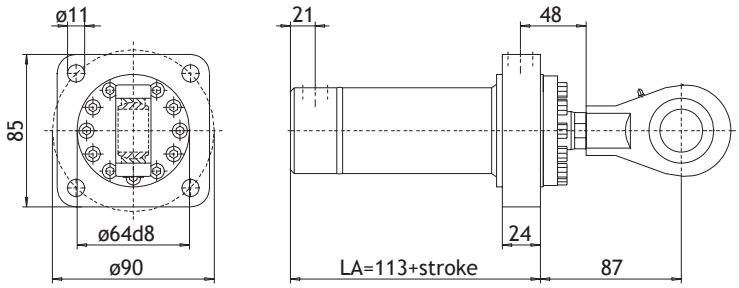
FUNCTIONS

without cushion

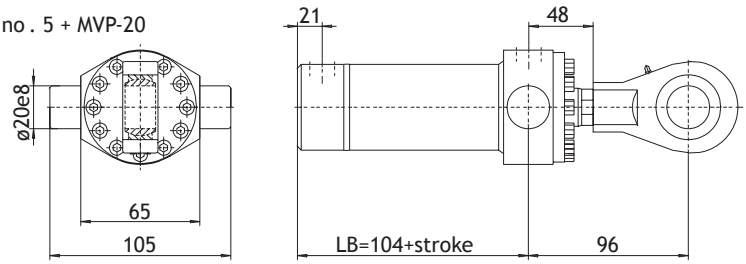
Spherical bearing no . 7 + MVP-20



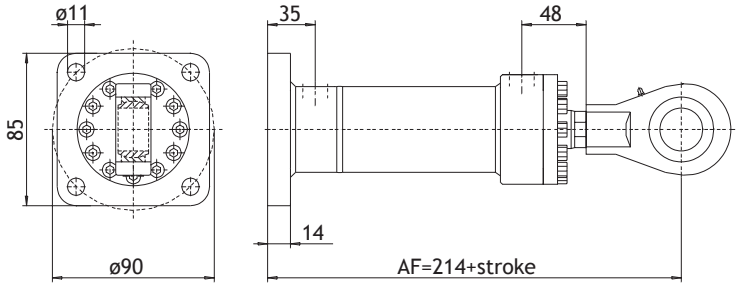
Head flange no . 2 + MVP-20



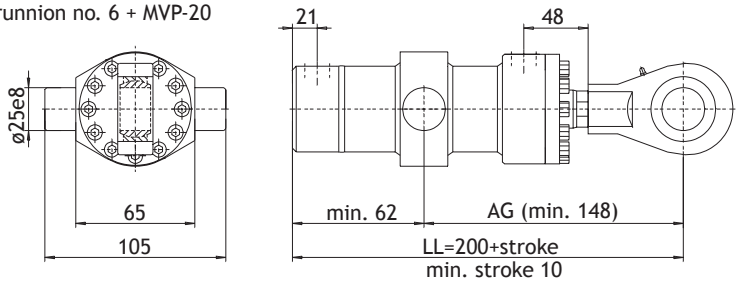
Head trunnion no . 5 + MVP-20



Cap flange no . 3 + MVP-20



Intermediate trunnion no. 6 + MVP-20



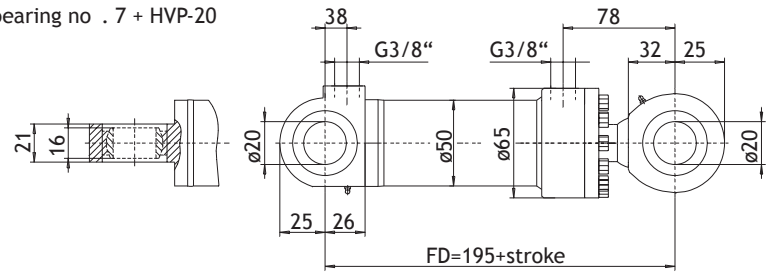
NS 32 TECHNICAL DATA

- Bore dia 32 mm
- Full bore area 800 mm²
- Annulus area 490 mm²
- Piston rod dia 20
- Rod area 310 mm²
- Working pressure 25 MPa
- Standard oil port G 3/8“
- Standard spherical bearing GE 20DO

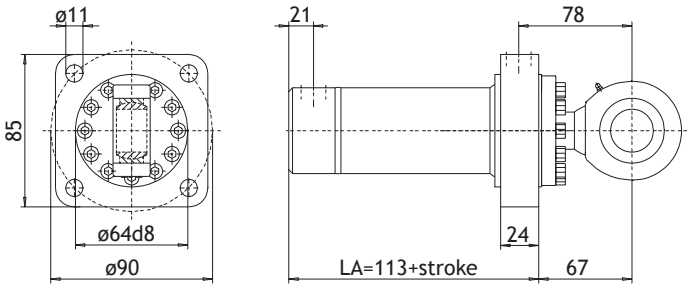
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

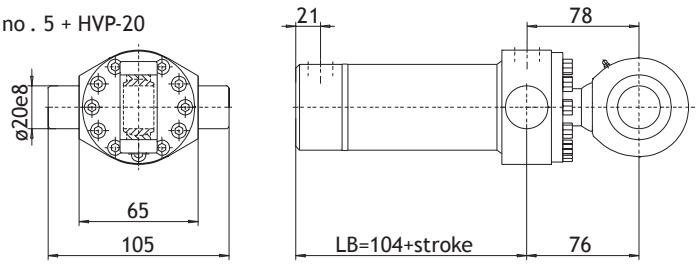
Spherical bearing no . 7 + HVP-20



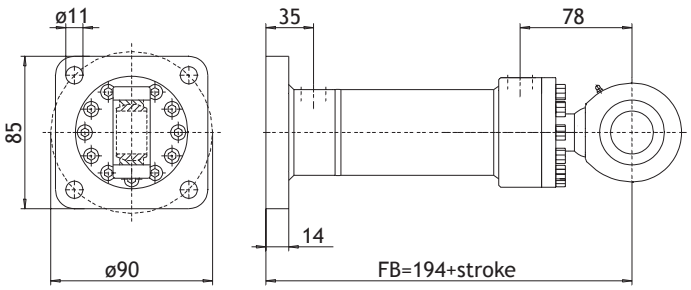
Head flange no. 2 +HVP-20



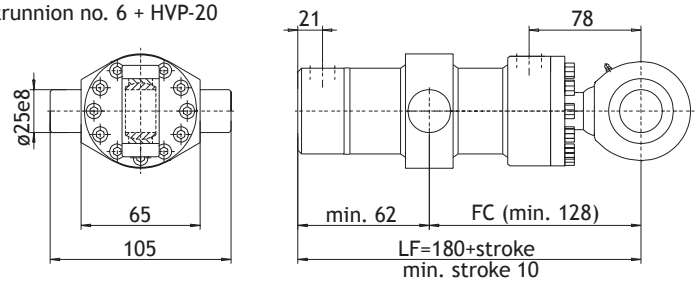
Head trunnion no . 5 + HVP-20



Cap flange no . 3 + HVP-20



Intermediate trunnion no. 6 + HVP-20

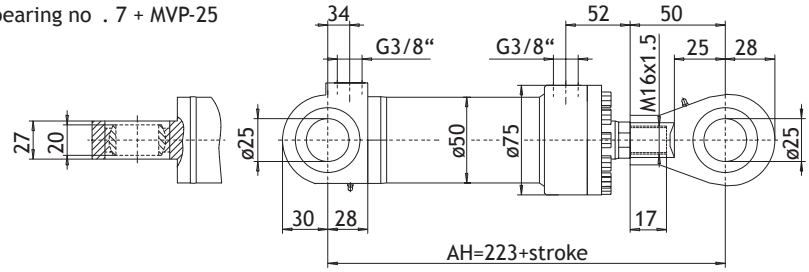


DIMENSIONS NS 40

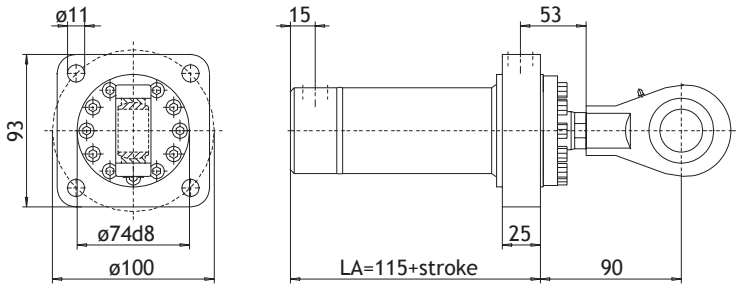
FUNCTIONS

without cushion

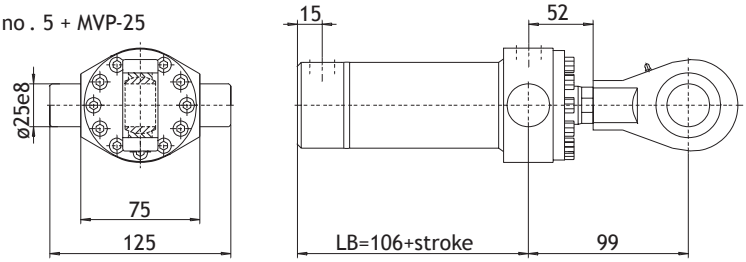
Spherical bearing no . 7 + MVP-25



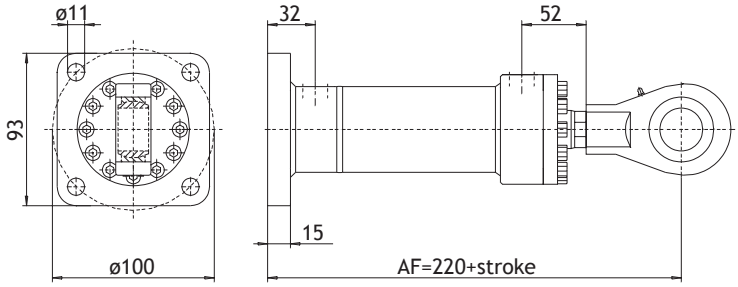
Head flange no . 2 + MVP-25



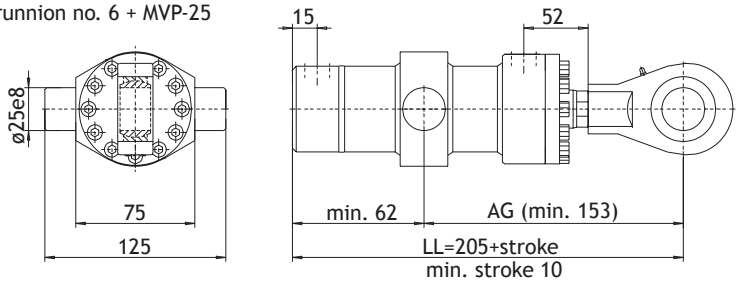
Head trunnion no . 5 + MVP-25



Cap flange no . 3 + MVP-25



Intermediate trunnion no. 6 + MVP-25



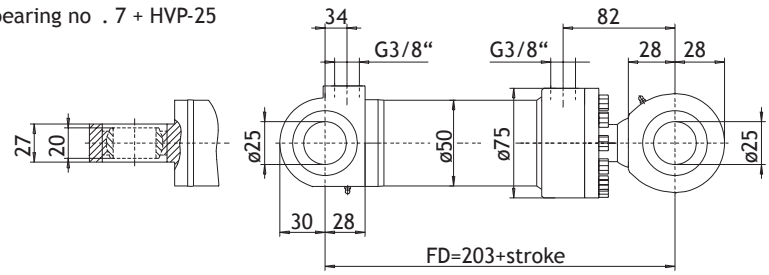
NS 40 TECHNICAL DATA

- Bore dia 40 mm
- Full bore area 1255 mm²
- Annulus area 765 mm²
- Piston rod dia 25
- Rod area 490 mm²
- Working pressure 25 MPa
- Standard oil port G 3/8“
- Standard spherical bearing GE 25DO

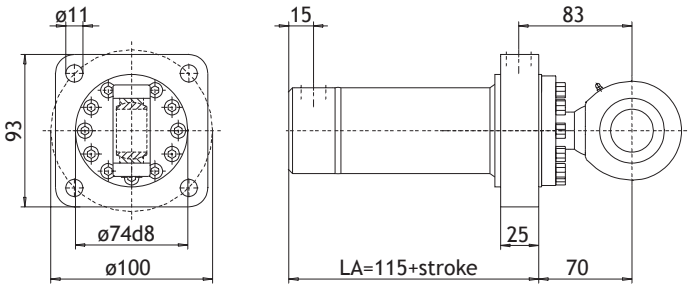
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

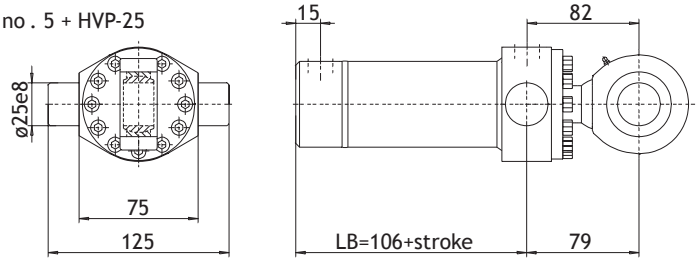
Spherical bearing no . 7 + HVP-25



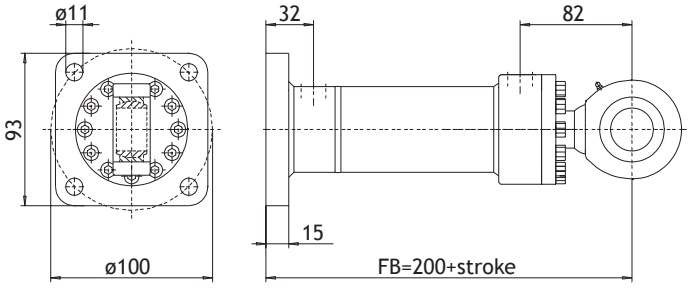
Head flange no. 2 +HVP-25



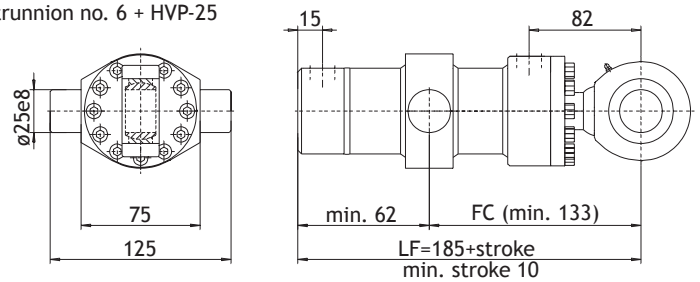
Head trunnion no . 5 + HVP-25



Cap flange no . 3 + HVP-25



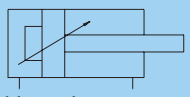
Intermediate trunnion no. 6 + HVP-25

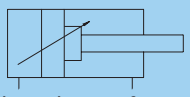


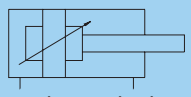
DIMENSIONS NS 50

FUNCTIONS


without cushion


adjustable cushion in cap end


adjustable cushion in front end


adjustable cushion in both ends

Dimensions with cushion

AH=263+stroke, cushion in cap end.
268+stroke, cushion in front end.
298+stroke, cushion in both ends.

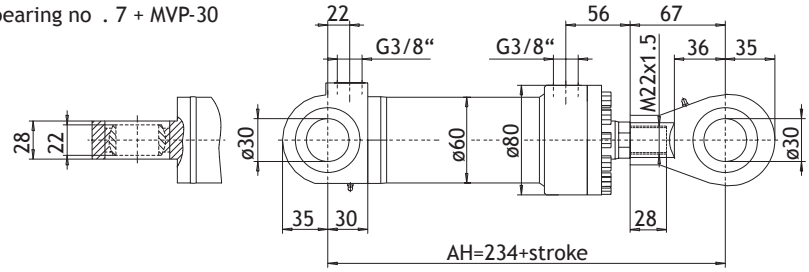
LA=161+stroke, cushion in front end or in both ends.

LB=153+stroke, cushion in front end or in both ends.

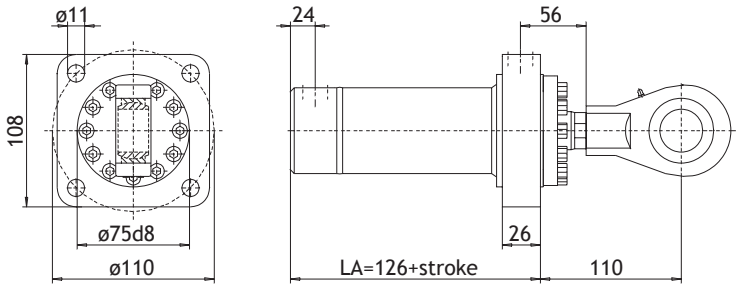
AF=287+stroke, cushion in front end or in both ends.

LL=271+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 210, cushion in front end or in both ends.)

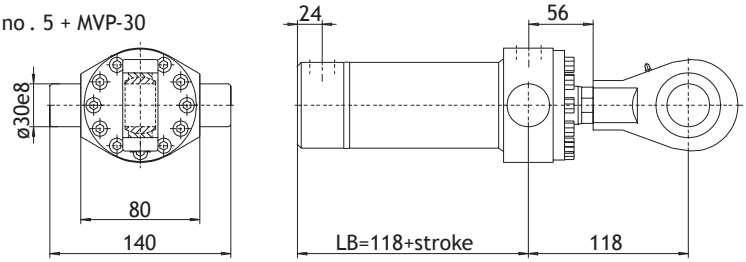
Spherical bearing no . 7 + MVP-30



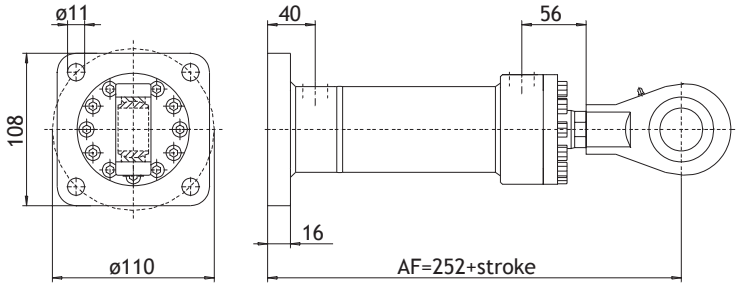
Head flange no . 2 + MVP-30



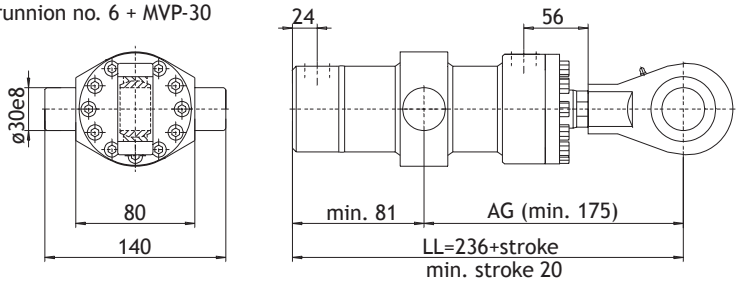
Head trunnion no . 5 + MVP-30



Cap flange no . 3 + MVP-30



Intermediate trunnion no. 6 + MVP-30



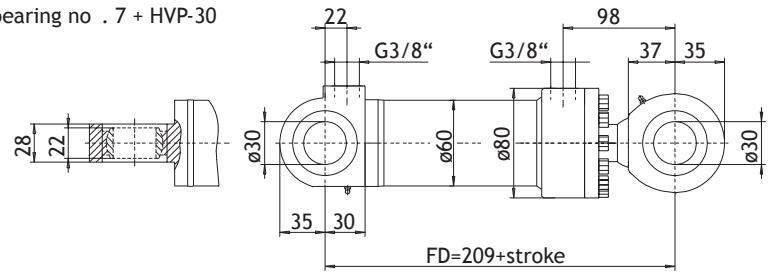
NS 50 TECHNICAL DATA

- Bore dia 50 mm
- Full bore area 1960 mm²
- Annulus area 1470 mm² or 1255 mm²
- Piston rod dia 25 or 30 mm
- Rod area 490 mm² or 705 mm²
- Working pressure 25 MPa
- Standard oil port G 3/8“
- Standard spherical bearing GE 30DO

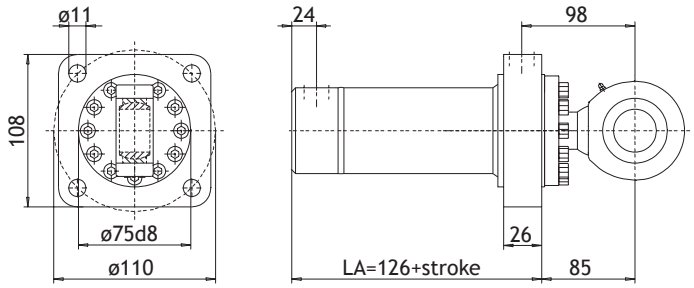
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

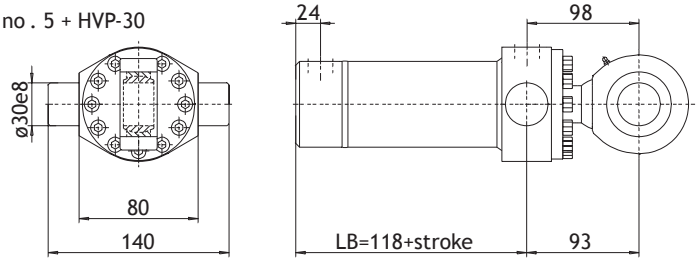
Spherical bearing no . 7 + HVP-30



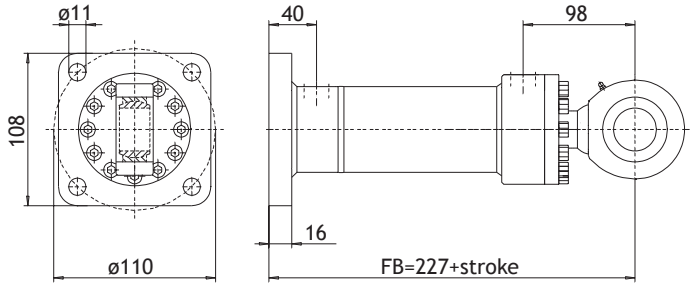
Head flange no. 2 +HVP-30



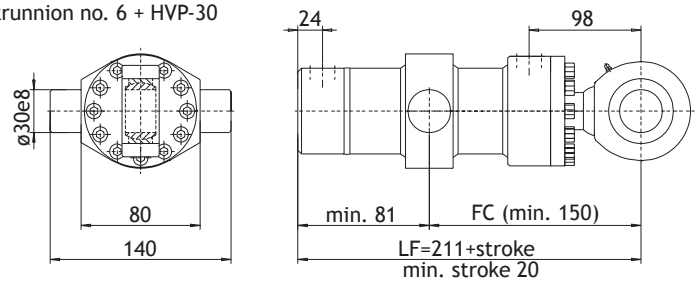
Head trunnion no . 5 + HVP-30



Cap flange no . 3 + HVP-30



Intermediate trunnion no. 6 + HVP-30



Dimensions with cushion

FD=239+stroke, cushion in cap end.
244+stroke, cushion in front end.
274+stroke, cushion in both ends.

LA=161+stroke, cushion in front end or in both ends.

LB=153+stroke, cushion in front end or in both ends.

FB=262+stroke, cushion in front end or in both ends.

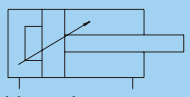
LF=246+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 185, cushion in front end or in both ends.)

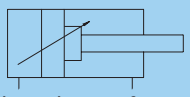
pmc polarteknik

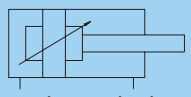
DIMENSIONS NS 63

FUNCTIONS


without cushion


adjustable cushion in cap end


adjustable cushion in front end


adjustable cushion in both ends

Dimensions with cushion

AH=296+stroke, cushion in cap end.
311+stroke, cushion in front end.
341+stroke, cushion in both ends.

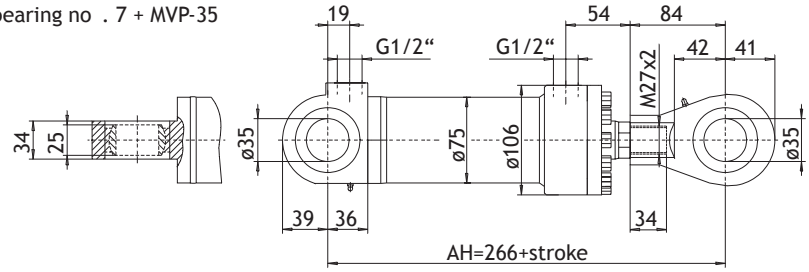
LA=185+stroke, cushion in front end or in both ends.

LB=169+stroke, cushion in front end or in both ends.

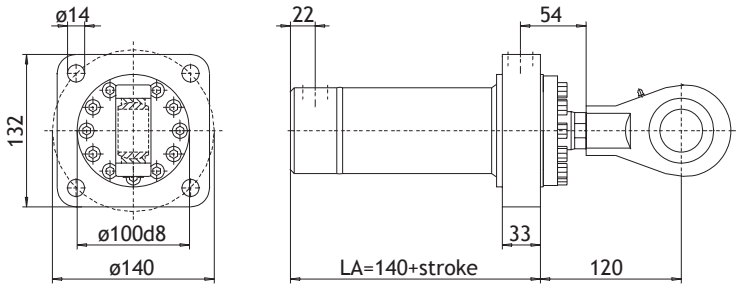
AF=325+stroke, cushion in front end or in both ends.

LL=305+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 248, cushion in front end or in both ends.)

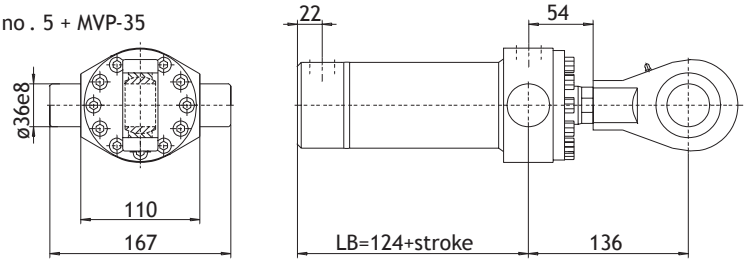
Spherical bearing no . 7 + MVP-35



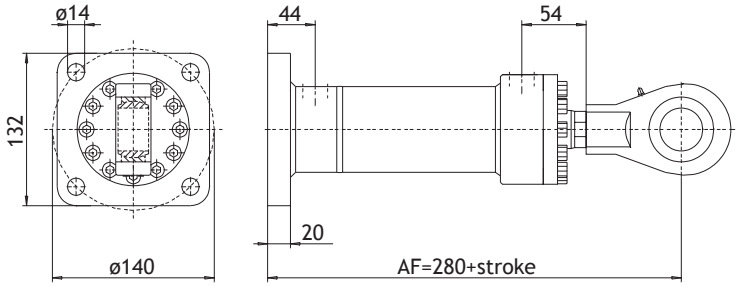
Head flange no . 2 + MVP-35



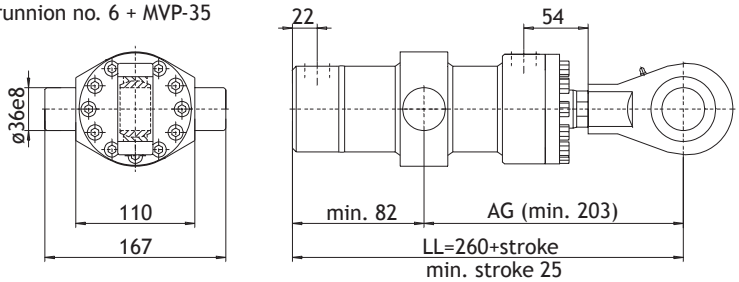
Head trunnion no . 5 + MVP-35



Cap flange no . 3 + MVP-35



Intermediate trunnion no. 6 + MVP-35



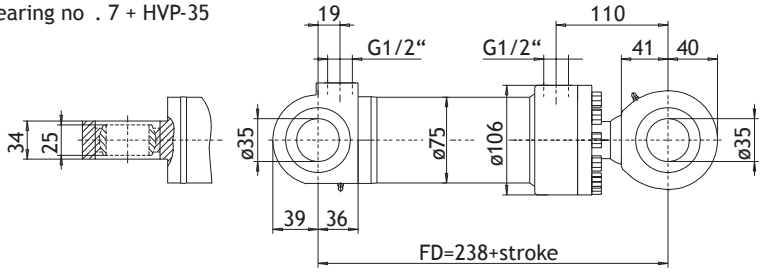
NS 63 TECHNICAL DATA

- Bore dia 63 mm
- Full bore area 3115 mm²
- Annulus area 2410 mm² or 1860 mm²
- Piston rod dia 30 or 40 mm
- Rod area 705 mm² or 1255 mm²
- Working pressure 25 MPa
- Standard oil port G 1/2“
- Standard spherical bearing GE 35DO

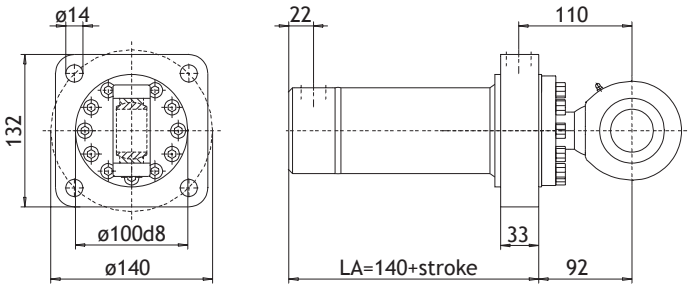
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

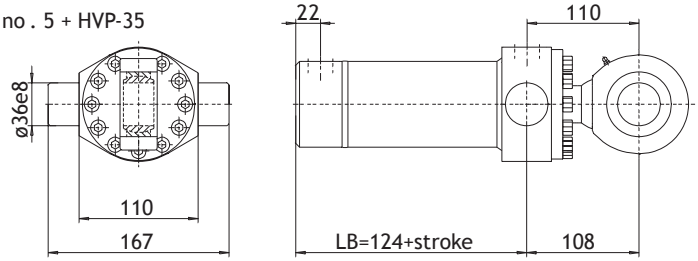
Spherical bearing no . 7 + HVP-35



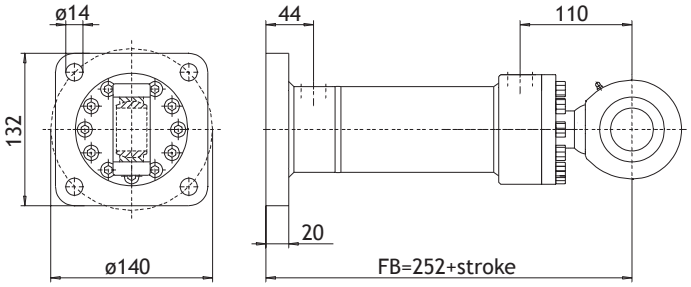
Head flange no. 2 +HVP-35



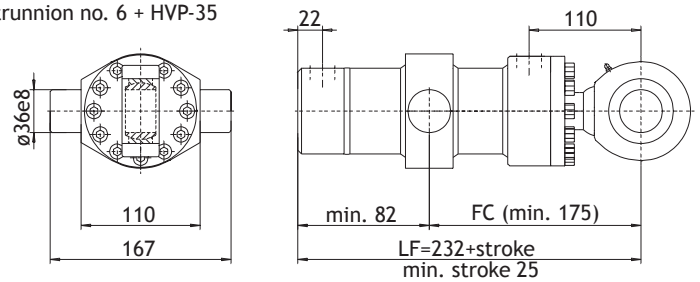
Head trunnion no . 5 + HVP-35



Cap flange no . 3 + HVP-35



Intermediate trunnion no. 6 + HVP-35



Dimensions with cushion

FD=268+stroke, cushion in cap end.
283+stroke, cushion in front end.
313+stroke, cushion in both ends.

LA=185+stroke, cushion in front end or in both ends.

LB=169+stroke, cushion in front end or in both ends.

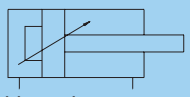
FB=297+stroke, cushion in front end or in both ends.

LF=277+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 220, cushion in front end or in both ends.)

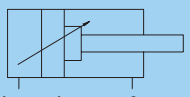
DIMENSIONS NS 80

FUNCTIONS

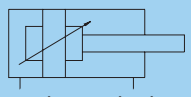
without cushion



adjustable cushion in cap end



adjustable cushion in front end



adjustable cushion in both ends

Dimensions with cushion

AH=346+stroke, cushion in cap end.
351+stroke, cushion in front end.
391+stroke, cushion in both ends.

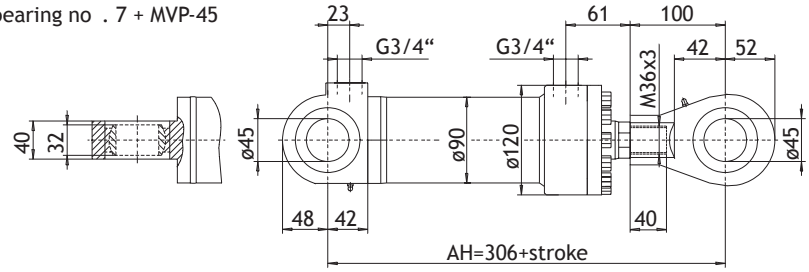
LA=207+stroke, cushion in front end or in both ends.

LB=186+stroke, cushion in front end or in both ends.

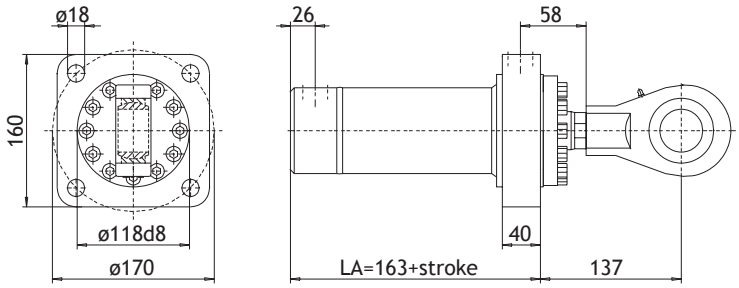
AF=368+stroke, cushion in front end or in both ends.

LL=344+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 274, cushion in front end or in both ends.)

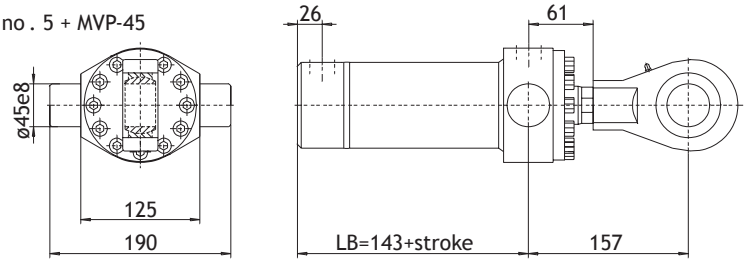
Spherical bearing no . 7 + MVP-45



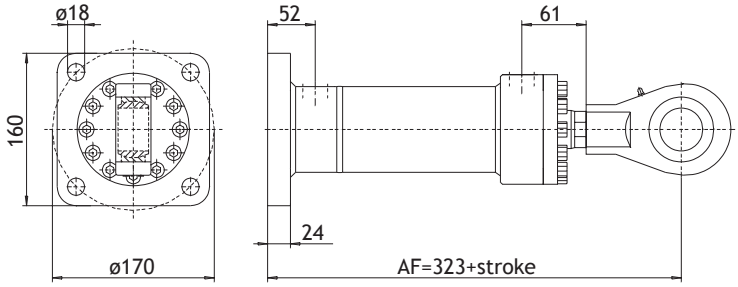
Head flange no . 2 + MVP-45



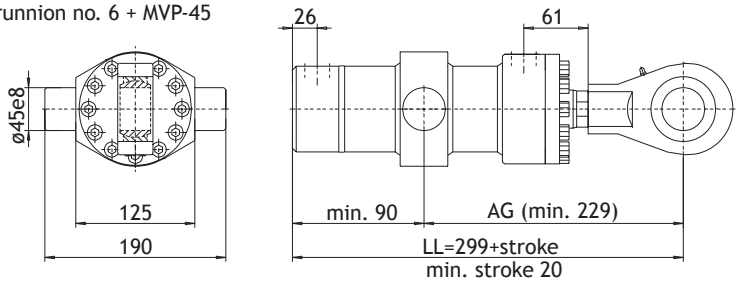
Head trunnion no . 5 + MVP-45



Cap flange no . 3 + MVP-45



Intermediate trunnion no. 6 + MVP-45



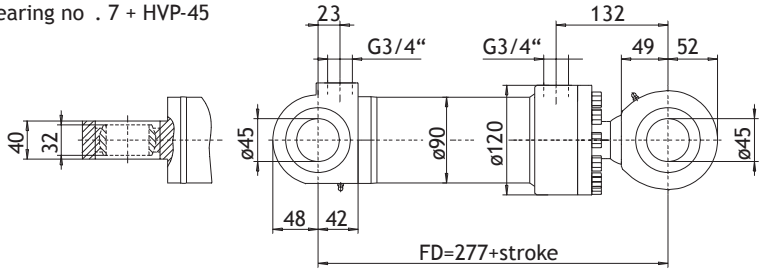
NS 80 TECHNICAL DATA

- Bore dia 80 mm
- Full bore area 5025 mm²
- Annulus area 3770 mm² or 3065 mm²
- Piston rod dia 40 or 50 mm
- Rod area 1255 mm² or 1960 mm²
- Working pressure 25 MPa
- Standard oil port G 3/4“
- Standard spherical bearing GE 45DO

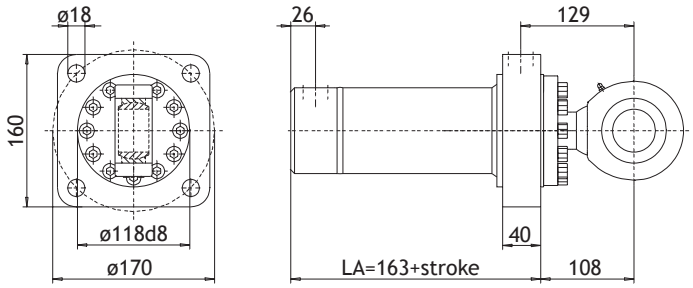
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

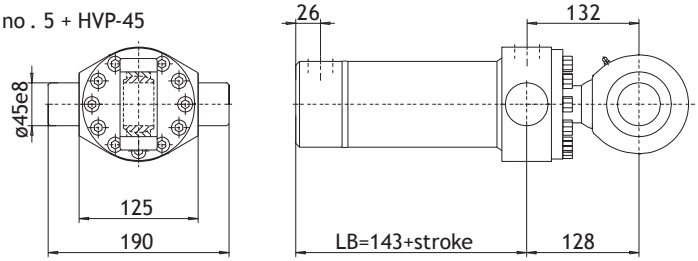
Spherical bearing no . 7 + HVP-45



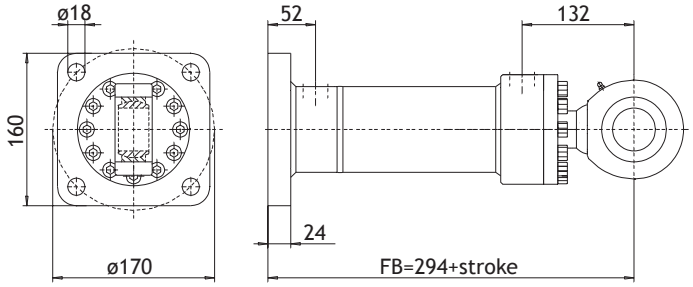
Head flange no. 2 +HVP-45



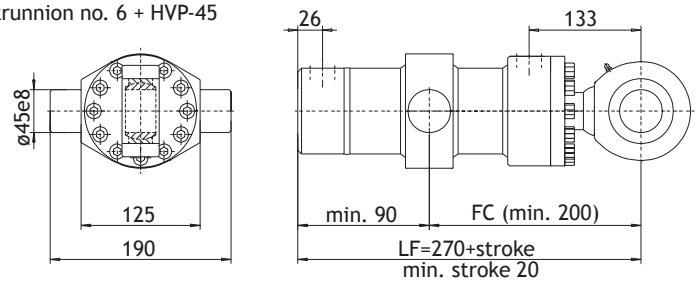
Head trunnion no . 5 + HVP-45



Cap flange no . 3 + HVP-45



Intermediate trunnion no. 6 + HVP-45



Dimensions with cushion

FD=317+stroke, cushion in cap end.
322+stroke, cushion in front end.
362+stroke, cushion in both ends.

LA=207+stroke, cushion in front end or in both ends.

LB=186+stroke, cushion in front end or in both ends.

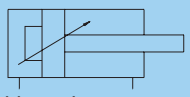
FB=339+stroke, cushion in front end or in both ends.

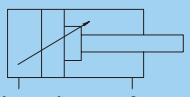
LF=315+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 245, cushion in front end or in both ends.)

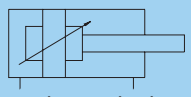
DIMENSIONS NS 100

FUNCTIONS


without cushion


adjustable cushion in cap end


adjustable cushion in front end


adjustable cushion in both ends

Dimensions with cushion

AH=415+stroke, cushion in cap end.
415+stroke, cushion in front end.
460+stroke, cushion in both ends.

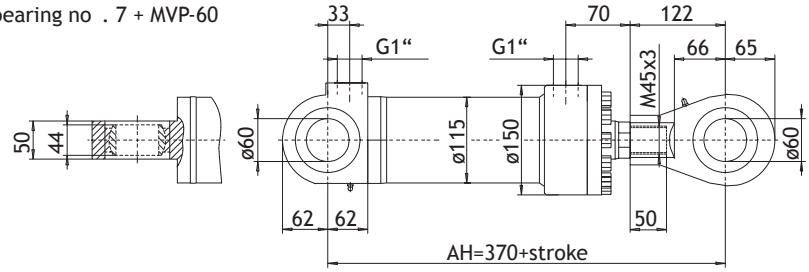
LA=234+stroke, cushion in front end or in both ends.

LB=211+stroke, cushion in front end or in both ends.

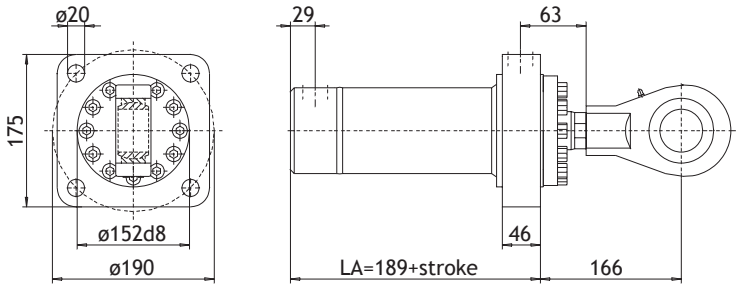
AF=428+stroke, cushion in front end or in both ends.

LL=389+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 322, cushion in front end or in both ends.)

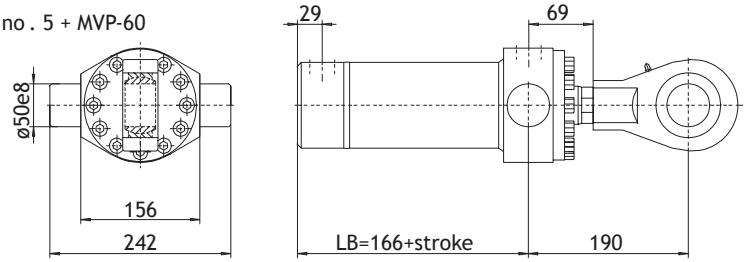
Spherical bearing no . 7 + MVP-60



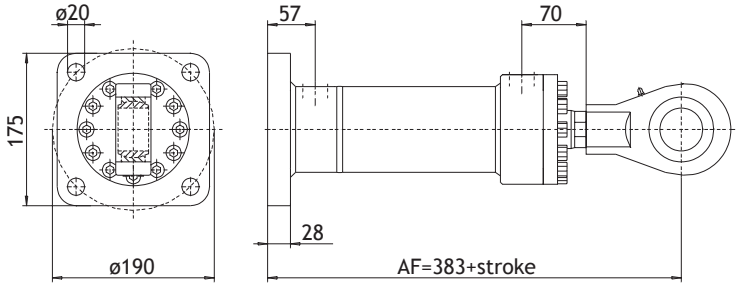
Head flange no . 2 + MVP-60



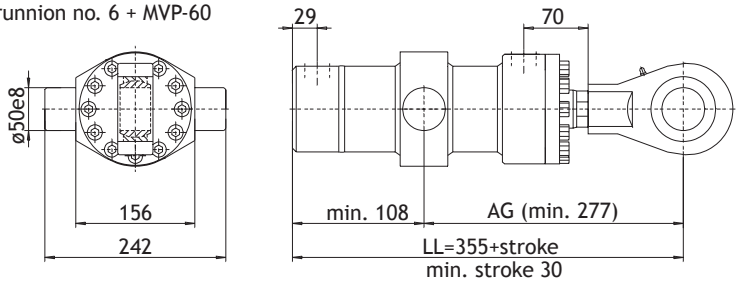
Head trunnion no . 5 + MVP-60



Cap flange no . 3 + MVP-60



Intermediate trunnion no. 6 + MVP-60



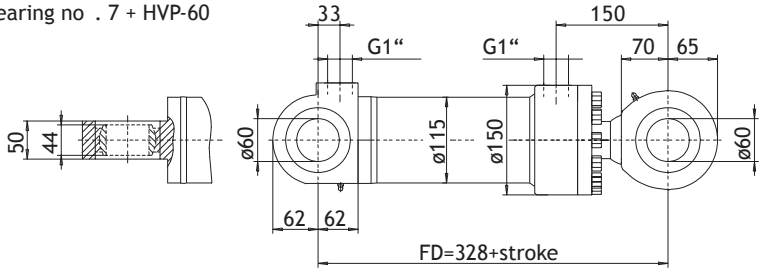
NS 100 TECHNICAL DATA

- Bore dia 100 mm
- Full bore area 7850 mm²
- Annulus area 5890 mm² or 4535 mm²
- Piston rod dia 50 or 65 mm
- Rod area 1960 mm² or 3315 mm²
- Working pressure 25 MPa
- Standard oil port G 1“
- Standard spherical bearing GE 60DO

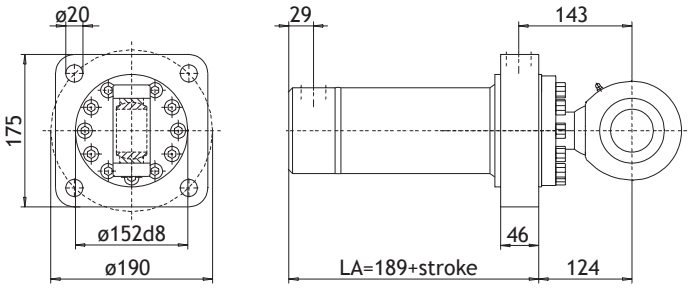
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

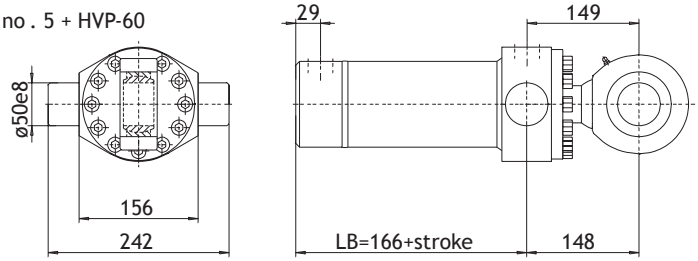
Spherical bearing no . 7 + HVP-60



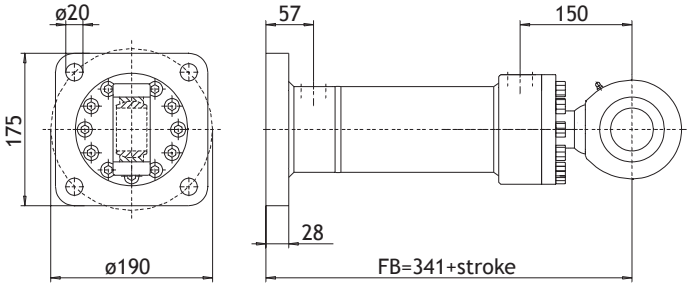
Head flange no. 2 +HVP-60



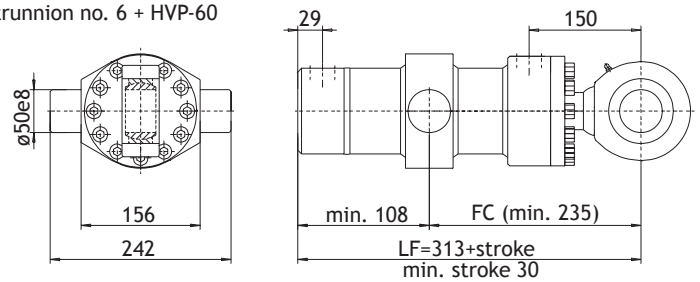
Head trunnion no . 5 + HVP-60



Cap flange no . 3 + HVP-60



Intermediate trunnion no. 6 + HVP-60



Dimensions with cushion

FD=373+stroke, cushion in cap end.
373+stroke, cushion in front end.
418+stroke, cushion in both ends.

LA=234+stroke, cushion in front end or in both ends.

LB=211+stroke, cushion in front end or in both ends.

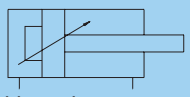
FB=386+stroke, cushion in front end or in both ends.

LF=358+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 280, cushion in front end or in both ends.)

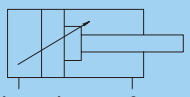
DIMENSIONS NS 125

FUNCTIONS

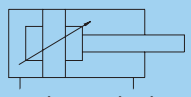
without cushion



adjustable cushion in cap end



adjustable cushion in front end



adjustable cushion in both ends

Dimensions with cushion

AH=501+stroke, cushion in cap end.
511+stroke, cushion in front end.
561+stroke, cushion in both ends.

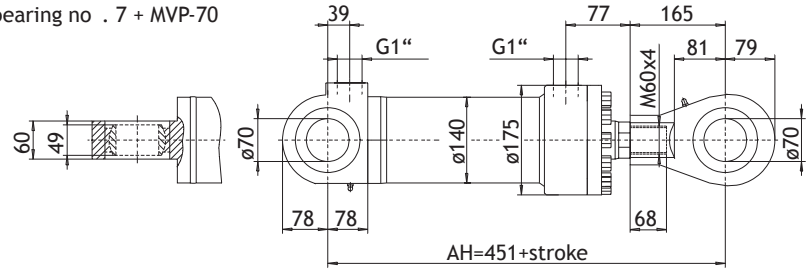
LA=257+stroke, cushion in front end or in both ends.

LB=238+stroke, cushion in front end or in both ends.

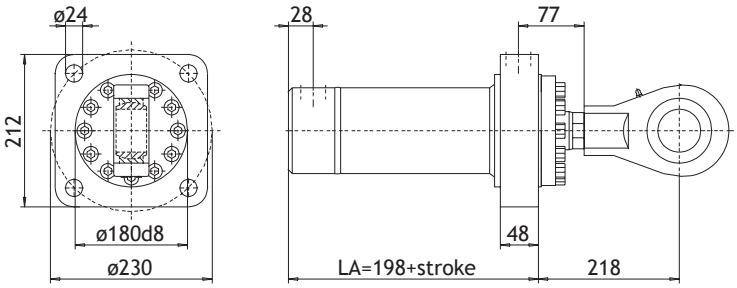
AF=508+stroke, cushion in front end or in both ends.

LL=475+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 396, cushion in front end or in both ends.)

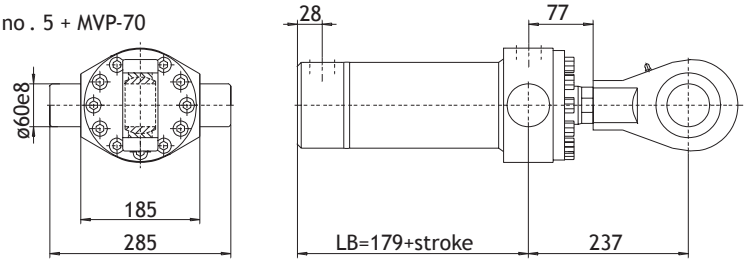
Spherical bearing no . 7 + MVP-70



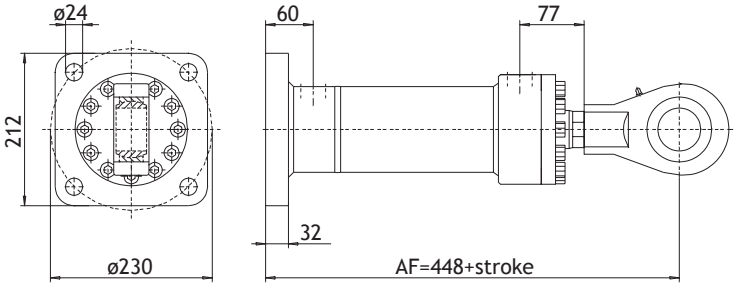
Head flange no . 2 + MVP-70



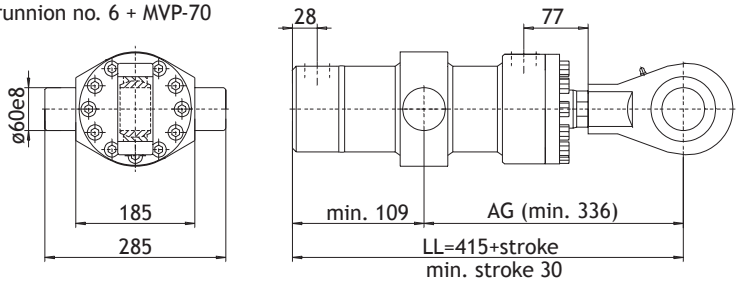
Head trunnion no . 5 + MVP-70



Cap flange no . 3 + MVP-70



Intermediate trunnion no. 6 + MVP-70



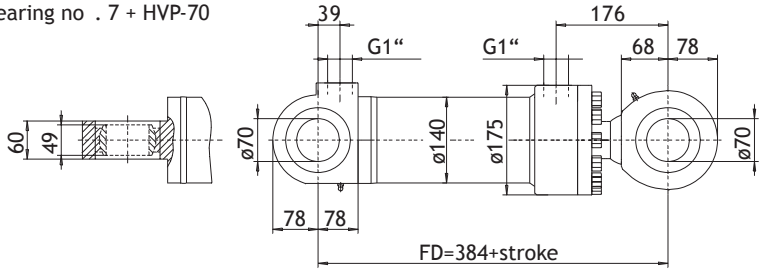
NS 125 TECHNICAL DATA

- Bore dia 125 mm
- Full bore area 12270 mm²
- Annulus area 8950 mm² or 7245 mm²
- Piston rod dia 65 or 80 mm
- Rod area 3315 mm² or 5025 mm²
- Working pressure 25 MPa
- Standard oil port G 1“
- Standard spherical bearing GE 70DO

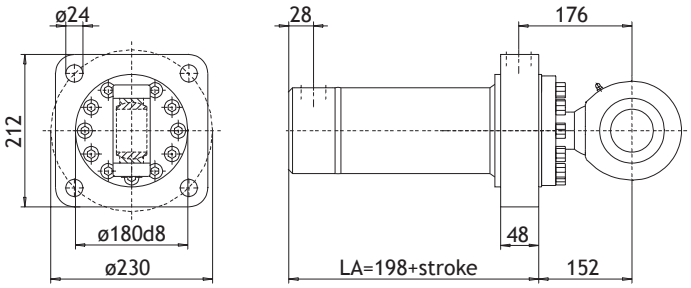
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

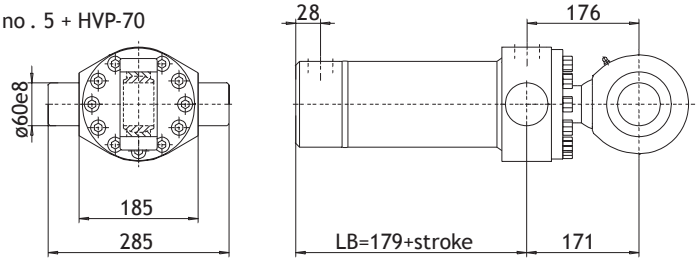
Spherical bearing no . 7 + HVP-70



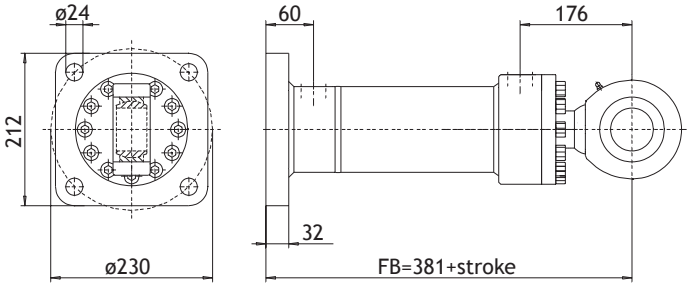
Head flange no. 2 +HVP-70



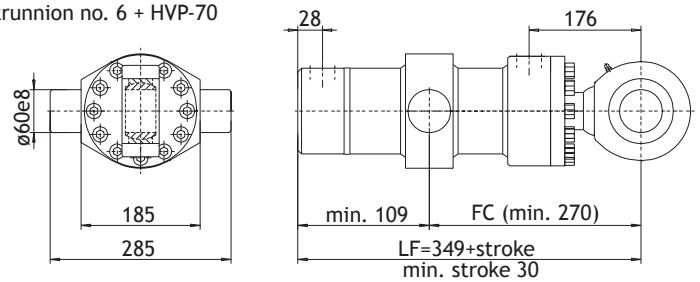
Head trunnion no . 5 + HVP-70



Cap flange no . 3 + HVP-70



Intermediate trunnion no. 6 + HVP-70



Dimensions with cushion

FD=434+stroke, cushion in cap end.
444+stroke, cushion in front end.
494+stroke, cushion in both ends.

LA=257+stroke, cushion in front end or in both ends.

LB=238+stroke, cushion in front end or in both ends.

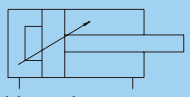
FB=441+stroke, cushion in front end or in both ends.

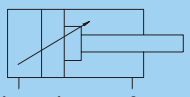
LF=409+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 330, cushion in front end or in both ends.)

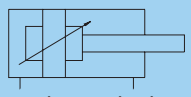
DIMENSIONS NS 160

FUNCTIONS


without cushion


adjustable cushion in cap end


adjustable cushion in front end


adjustable cushion in both ends

Dimensions with cushion

AH=604+stroke, cushion in cap end.
614+stroke, cushion in front end.
664+stroke, cushion in both ends.

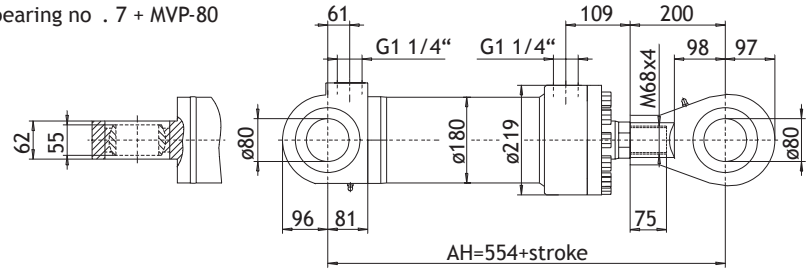
LA=309+stroke, cushion in front end or in both ends.

LB=280+stroke, cushion in front end or in both ends.

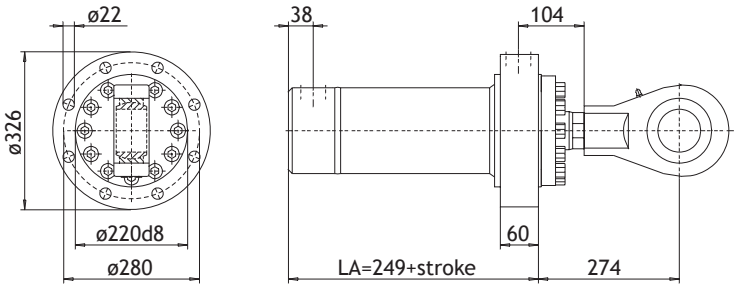
AF=618+stroke, cushion in front end or in both ends.

LL=583+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 503, cushion in front end or in both ends.)

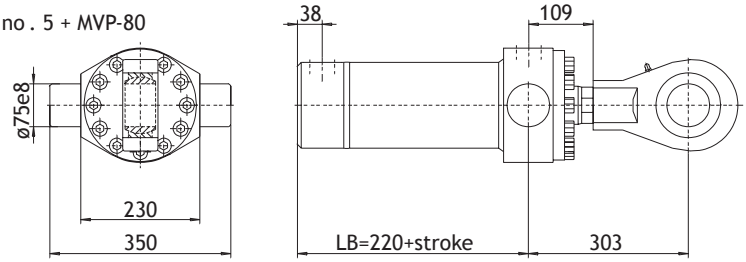
Spherical bearing no . 7 + MVP-80



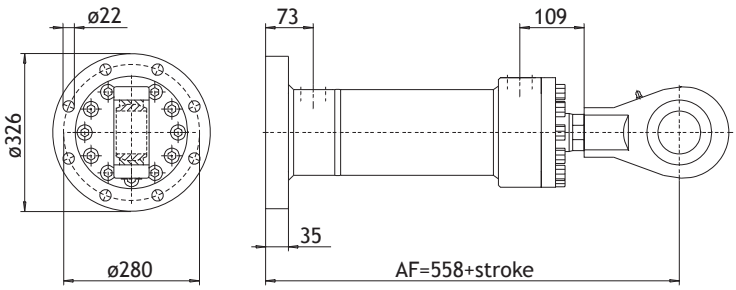
Head flange no . 2 + MVP-80



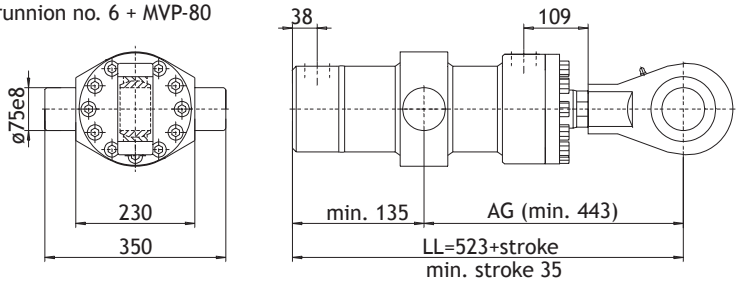
Head trunnion no . 5 + MVP-80



Cap flange no . 3 + MVP-80



Intermediate trunnion no. 6 + MVP-80



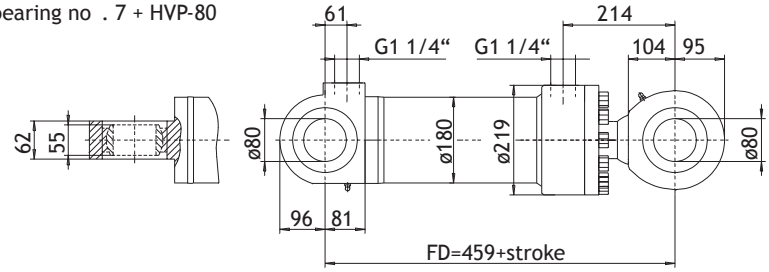
NS 160 TECHNICAL DATA

- Bore dia 160 mm
- Full bore area 20110 mm²
- Annulus area 13740 mm² or 10600 mm²
- Piston rod dia 90 or 110 mm
- Rod area 6360 mm² or 9500 mm²
- Working pressure 25 MPa
- Standard oil port G 1 1/4“
- Standard spherical bearing GE 80DO

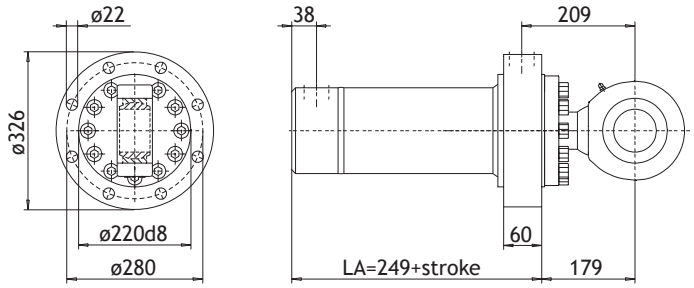
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

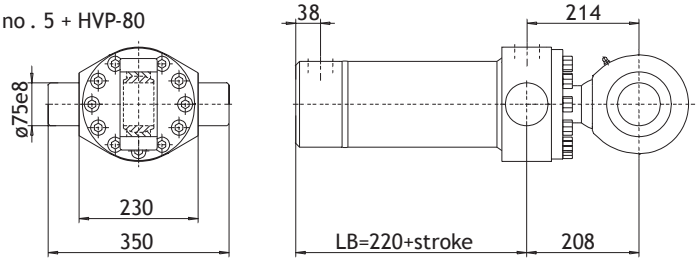
Spherical bearing no . 7 + HVP-80



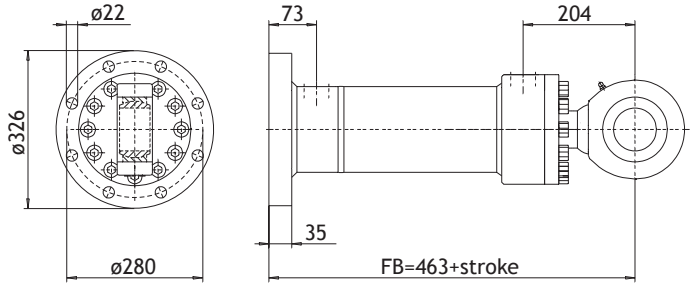
Head flange no. 2 +HVP-80



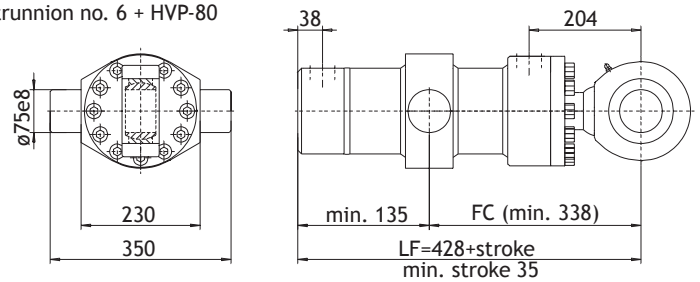
Head trunnion no . 5 + HVP-80



Cap flange no . 3 + HVP-80



Intermediate trunnion no. 6 + HVP-80



Dimensions with cushion

FD=509+stroke, cushion in cap end.
519+stroke, cushion in front end.
569+stroke, cushion in both ends.

LA=309+stroke, cushion in front end or in both ends.

LB=280+stroke, cushion in front end or in both ends.

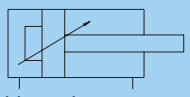
FB=523+stroke, cushion in front end or in both ends.

LF=488+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 398, cushion in front end or in both ends.)

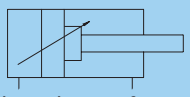
DIMENSIONS NS 200

FUNCTIONS

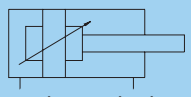
without cushion



adjustable cushion in cap end



adjustable cushion in front end



adjustable cushion in both ends

Dimensions with cushion

AH=720+stroke, cushion in cap end.
735+stroke, cushion in front end.
795+stroke, cushion in both ends.

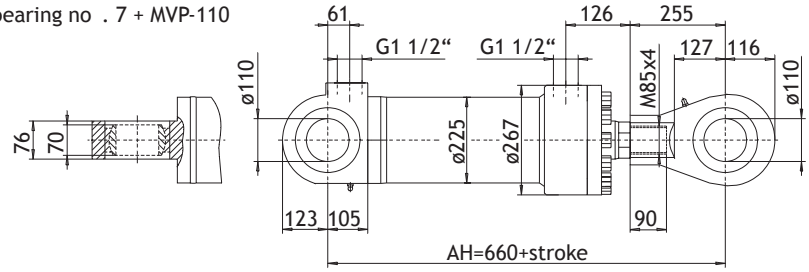
LA=344+stroke, cushion in front end or in both ends.

LB=305+stroke, cushion in front end or in both ends.

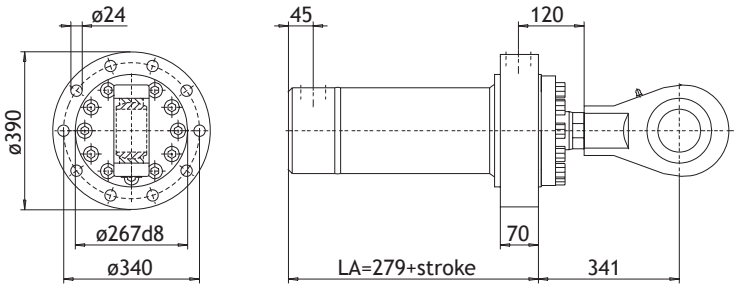
AF=725+stroke, cushion in front end or in both ends.

LL=685+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 595, cushion in front end or in both ends.)

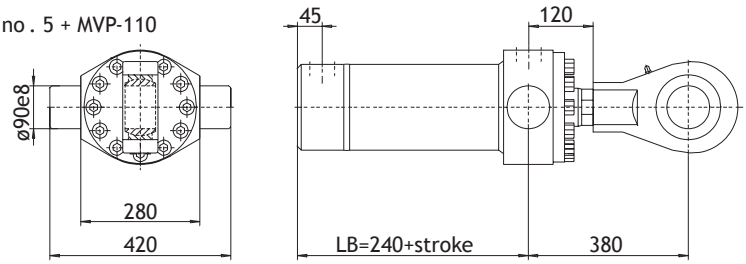
Spherical bearing no . 7 + MVP-110



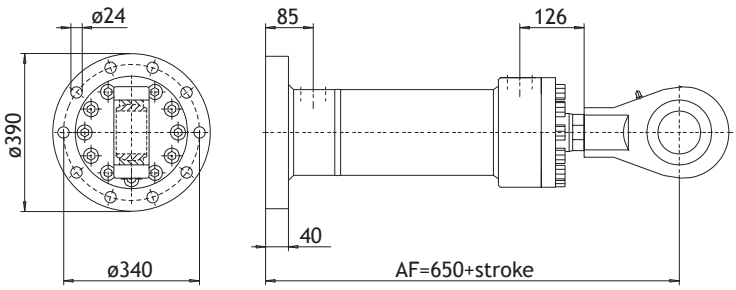
Head flange no . 2 + MVP-110



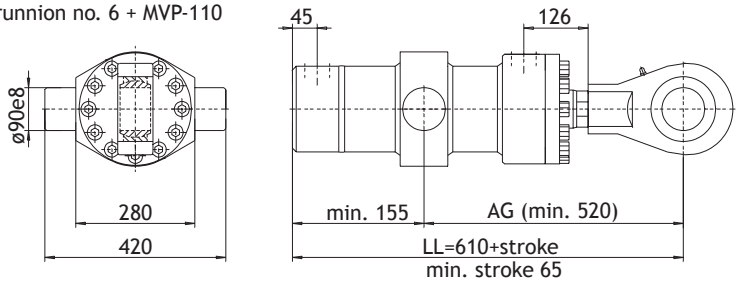
Head trunnion no . 5 + MVP-110



Cap flange no . 3 + MVP-110



Intermediate trunnion no. 6 + MVP-110



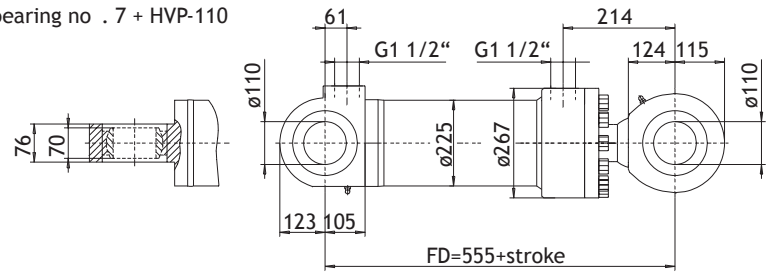
NS 200 TECHNICAL DATA

- Bore dia 200 mm
- Full bore area 31420 mm²
- Annulus area 21910 mm² or 16020 mm²
- Piston rod dia 110 or 140 mm
- Rod area 9500 mm² or 15390 mm²
- Working pressure 25 MPa
- Standard oil port G 1 1/2“
- Standard spherical bearing GE 110DO

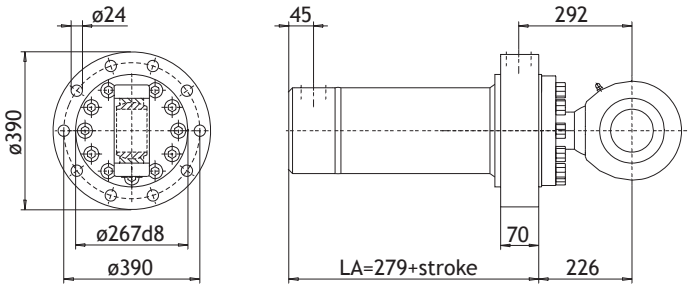
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

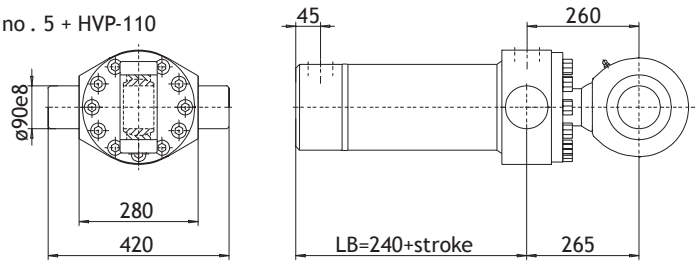
Spherical bearing no . 7 + HVP-110



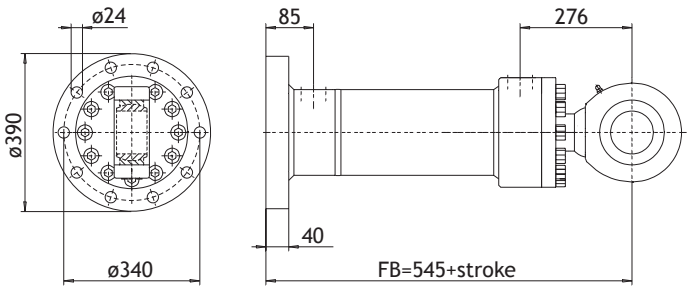
Head flange no. 2 +HVP-110



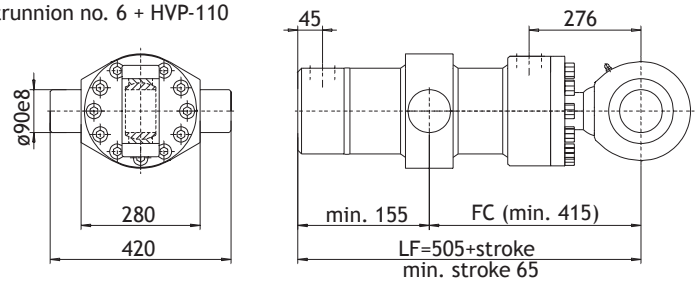
Head trunnion no . 5 + HVP-110



Cap flange no . 3 + HVP-110



Intermediate trunnion no. 6 + HVP-110



Dimensions with cushion

FD=615+stroke, cushion in cap end.
630+stroke, cushion in front end.
690+stroke, cushion in both ends.

LA=344+stroke, cushion in front end or in both ends.

LB=305+stroke, cushion in front end or in both ends.

FB=620+stroke, cushion in front end or in both ends.

LF=580+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 490, cushion in front end or in both ends.)

pmc polarteknik

DIMENSIONS NS 250

FUNCTIONS

without cushion | adjustable cushion in cap end | adjustable cushion in front end | adjustable cushion in both ends

Dimensions with cushion

AH=947+stroke, cushion in cap end.
952+stroke, cushion in front end.
1022+stroke, cushion in both ends.

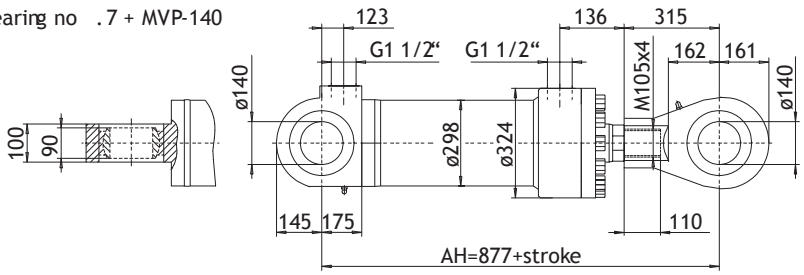
LA=404+stroke, cushion in front end or in both ends.

LB=357+stroke, cushion in front end or in both ends.

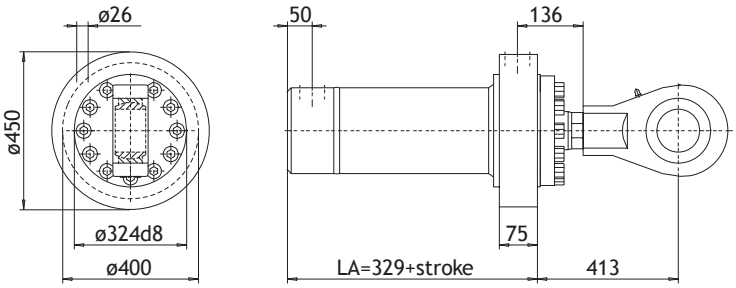
AF=862+stroke, cushion in front end or in both ends.

LL=817+stroke, cushion in front end or in both ends.
Specify dimension AG in your order.
(Min. 692, cushion in front end or in both ends.)

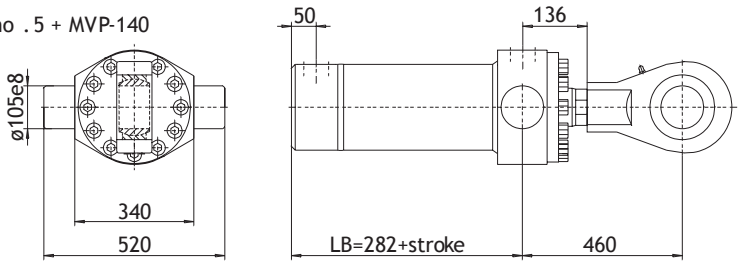
Spherical bearing no .7 + MVP-140



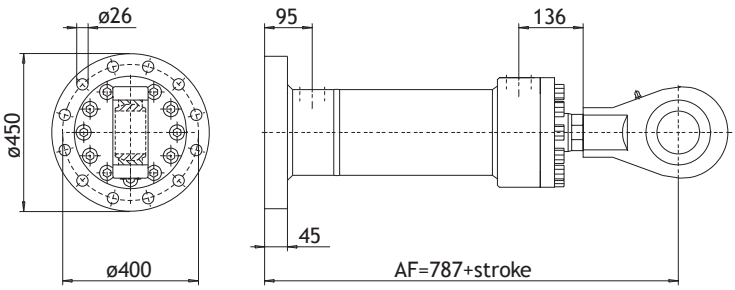
Head flange no .2 + MVP-140



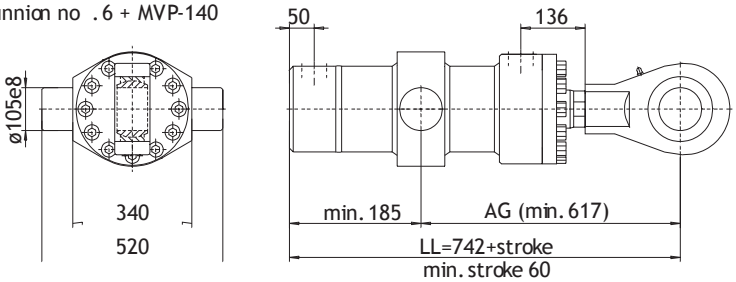
Head trunnion no .5 + MVP-140



Cap flange no .3 + MVP-140



Intermediate trunnion no .6 + MVP-140



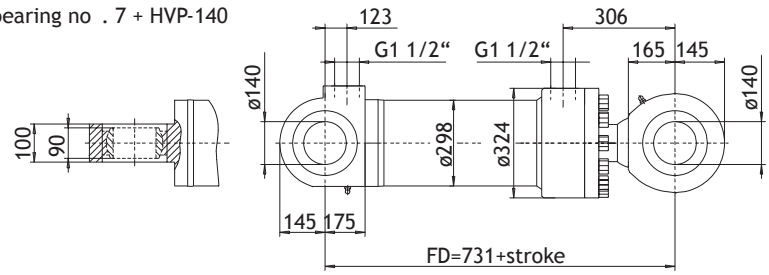
NS 250 TECHNICAL DATA

- Bore dia 250 mm
- Full bore area 49090 mm²
- Annulus area 33690 mm²
- Piston rod dia 140 mm
- Rod area 15390 mm²
- Working pressure 25 MPa
- Standard oil port G 1 1/2“
- Standard spherical bearing GE 140DO

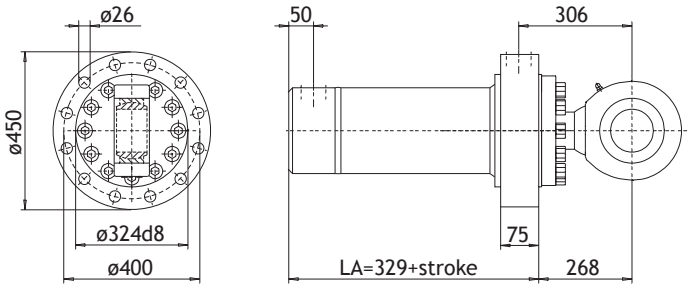
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

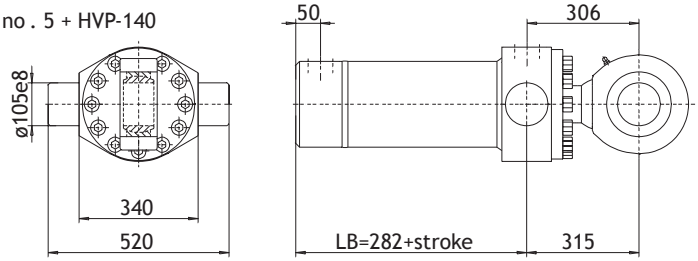
Spherical bearing no . 7 + HVP-140



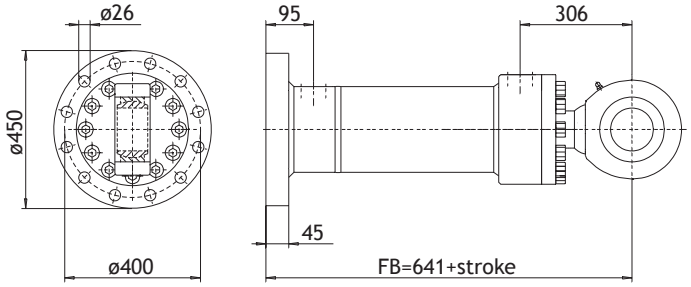
Head flange no. 2 +HVP-140



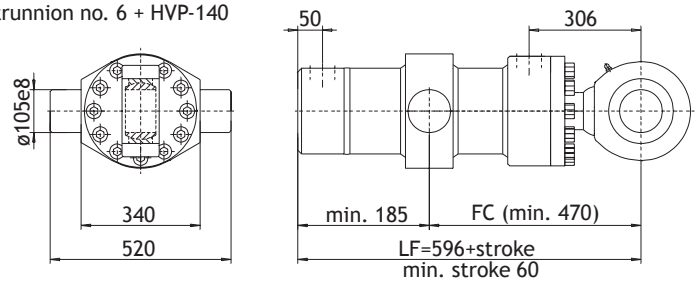
Head trunnion no . 5 + HVP-140



Cap flange no . 3 + HVP-140



Intermediate trunnion no. 6 + HVP-140



Dimensions with cushion

FD=801+stroke, cushion in cap end.
806+stroke, cushion in front end.
877+stroke, cushion in both ends.

LA=404+stroke, cushion in front end or in both ends.

LB=357+stroke, cushion in front end or in both ends.

FB=716+stroke, cushion in front end or in both ends.

LF=488+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 545, cushion in front end or in both ends.)

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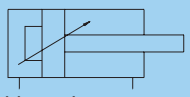
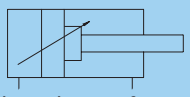
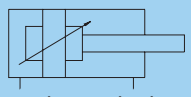
DIMENSIONS NS 320

FUNCTIONS


without cushion


adjustable cushion in cap end


adjustable cushion in front end


adjustable cushion in both ends

Dimensions with cushion

AH=1110+stroke, cushion in cap end.
1120+stroke, cushion in front end.
1205+stroke, cushion in both ends.

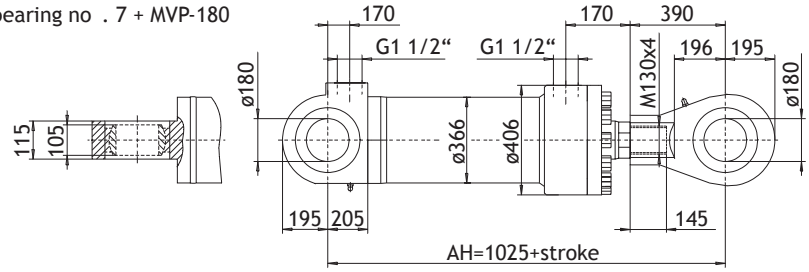
LA=448+stroke, cushion in front end or in both ends.

LB=409+stroke, cushion in front end or in both ends.

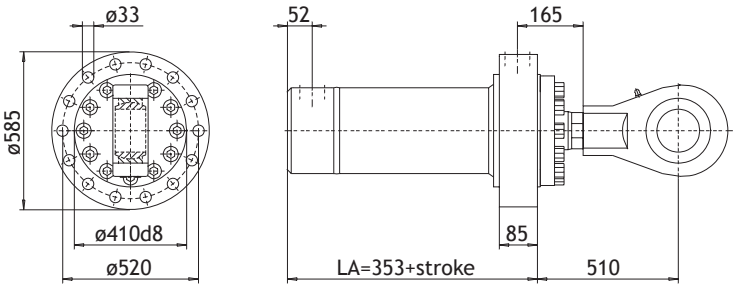
AF=1015+stroke, cushion in front end or in both ends.

LL=958+stroke, cushion in front end or in both ends.
Specify dimension AG in your order. (Min. 850, cushion in front end or in both ends.)

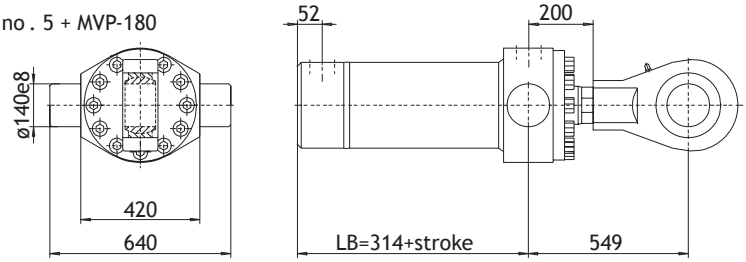
Spherical bearing no . 7 + MVP-180



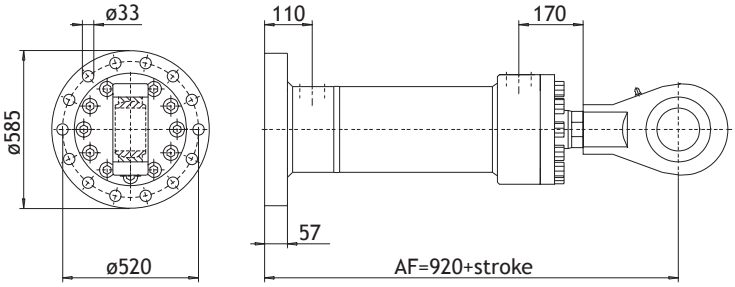
Head flange no . 2 + MVP-180



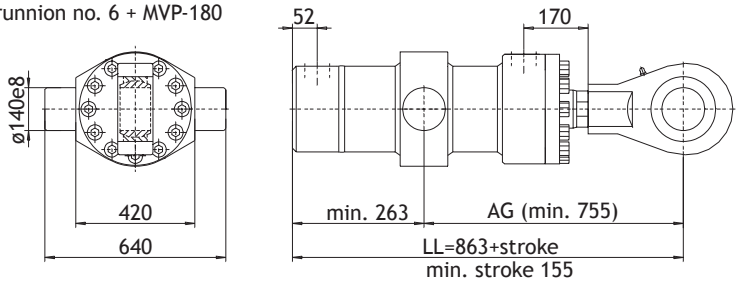
Head trunnion no . 5 + MVP-180



Cap flange no . 3 + MVP-180



Intermediate trunnion no. 6 + MVP-180



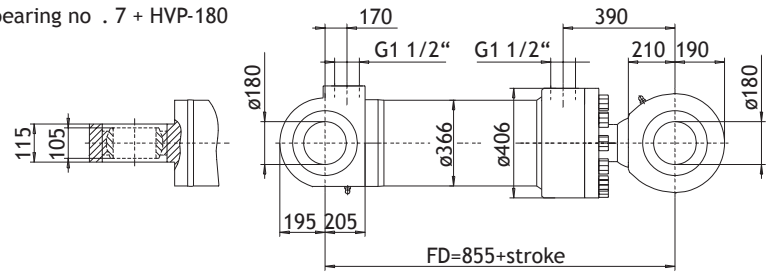
NS 320 TECHNICAL DATA

- Bore dia 320 mm
- Full bore area 80420 mm²
- Annulus area 54980 mm²
- Piston rod dia 180 mm
- Rod area 25450 mm²
- Working pressure 25 MPa
- Standard oil port G 1 1/2“
- Standard spherical bearing GE 180DO

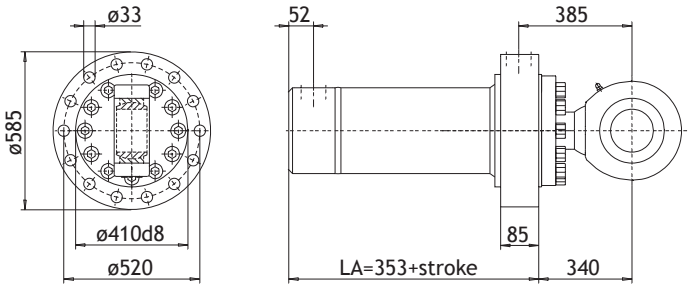
OPTIONS

Piston rods: pages D23, D24. Oil ports: page D25. Bearings: pages D23, D24, F2. Sealing systems: pages C1-C5.

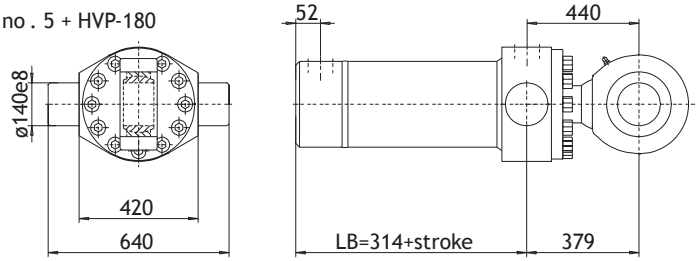
Spherical bearing no . 7 + HVP-180



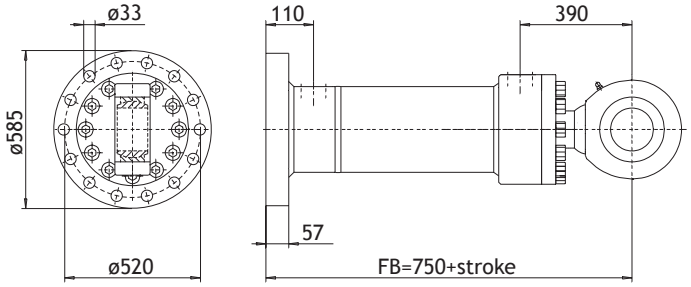
Head flange no. 2 +HVP-180



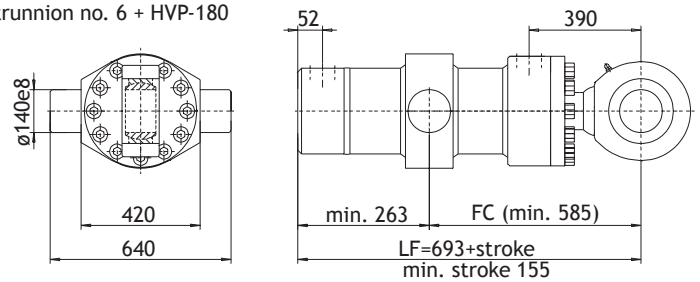
Head trunnion no . 5 + HVP-180



Cap flange no . 3 + HVP-180



Intermediate trunnion no. 6 + HVP-180



Dimensions with cushion

FD=940+stroke, cushion in cap end.
950+stroke, cushion in front end.
1035+stroke, cushion in both ends.

LA=448+stroke, cushion in front end or in both ends.

LB=409+stroke, cushion in front end or in both ends.

FB=845+stroke, cushion in front end or in both ends.

LF=788+stroke, cushion in front end or in both ends.
Specify dimension FC in your order. (Min. 680, cushion in front end or in both ends.)

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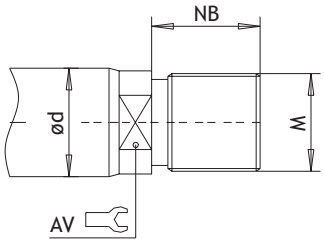
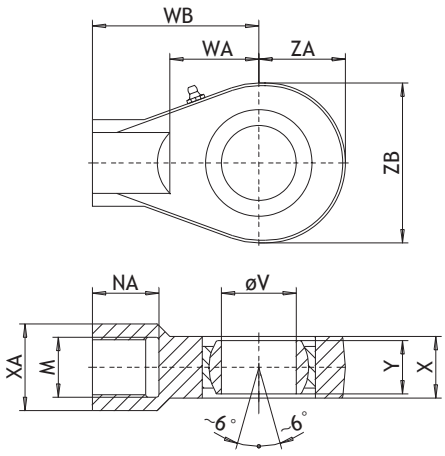
PISTON RODS & ROD ENDS

Piston rod with shouldered male thread



NS	32	40	50	63	80	100	125	160	200	250	320
d	20	25	25/30	30/40	40/50	50/65	65/80	90/110	110/140	140	180
NB	17	17	28	34	40	50	68	78	90	110	145
M	M16x1.5	M16x1.5	M22x1.5	M27x2	M36x3	M45x3	M60x4	M68x4	M85x4	M105x4	M130x4
AV	17	22	20/24	24/32	35/41	41/55	55/65	75/90	90/120	120	165

Rod end spherical eye MVP

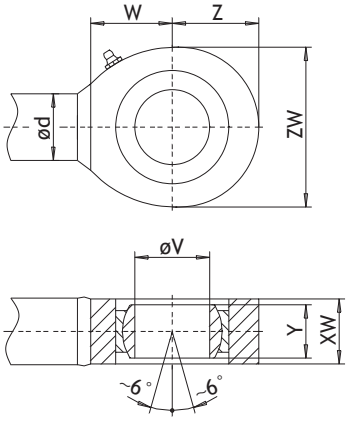


Spherical bearing GE..DO, ISO 6124-1

NS	32	40	50	63	80	100	125	160	200	250	320
TYPE	MVP-20	MVP-25	MVP-30	MVP-35	MVP-45	MVP-60	MVP-70	MVP-80	MVP-110	MVP-140	MVP-180
WB	50	50	67	84	100	122	165	200	255	315	390
WA	25	25	36	42	53	66	81	98	127	162	196
ZA	28	28	35	41	52	65	79	97	126	161	195
ZB	56	56	64	76	96	120	146	178	230	292	350
XA	25	25	35	45	52	63	91	106	138	170	200
M	M16x1.5	M16x1.5	M22x1.5	M27x2	M36x3	M45x3	M60x4	M68x4	M85x4	M105x4	M130x4
NA	17	17	28	34	40	50	68	78	93	112	146
V	20	25	30	35	45	60	70	80	110	140	180
Y	16	20	22	25	32	44	49	55	70	90	105
X	19	23	28	32	37	50	60	62	76	100	115

PISTON RODS & ROD ENDS

Piston rod with welded spherical eye HVP



Spherical bearing GE..DO, ISO 6124-1

NS	32	40	50	63	80	100	125	160	200	250	320
TYPE	HVP-20	HVP-25	HVP-30	HVP-35	HVP-45	HVP-60	HVP-70	HVP-80	HVP-110	HVP-140	HVP-180
d	20	25	25/30	30/40	40/50	50/65	65/80	90/110	110/140	140	180
W	32	28	37	41	46	70	68	104	124	165	210
Z	25	28	35	40	52	65	78	95	115	145	190
ZW	45	56	70	76	96	127	140	178	214	290	380
V	20	25	30	35	45	60	70	80	110	140	180
Y	16	20	22	25	32	44	49	55	70	90	105
XW	21	27	28	34	39	50	60	62	76	100	115

Piston rod materials

- Hard chromium plated garbon steel. Ra 0.3 max

- Options: hard chromium plated induction hardened steel, hard chromium plated AISI 329 (acid proof)

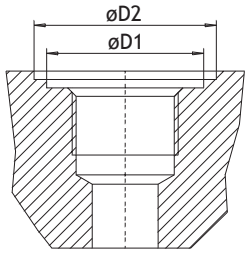
Spherical bearings

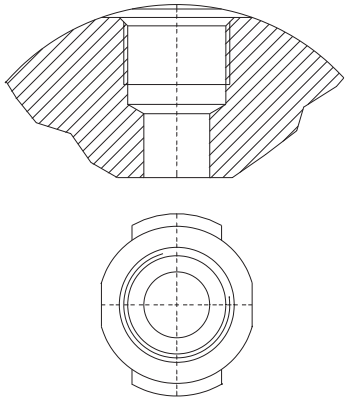
- Standard: GE...DO (INA), GE...ES (SKF), ISO 6124-1

- Options: GE...DO-2RS (INA), GE...ES-2RS (SKF) (sealed)
  GE...UK (INA) (maintenance free)
  GE...UK-2RS (INA), GE...TE-2RS (SKF) (maintenance free + sealed)
  GE...TEG (SKF) (maintenance free, stainless steel)

OIL PORT CONNECTIONS

Standard oil port connection G

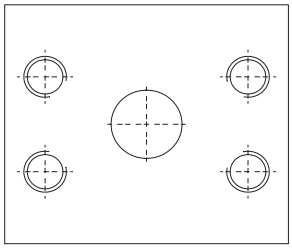




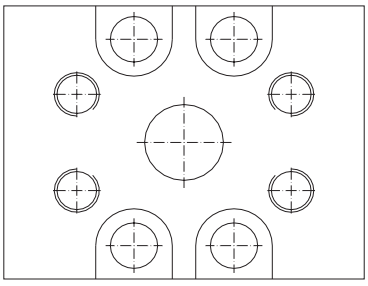
Surface with dimension øD2 is made only when needed

NS	32	40	50	63	80	100	125	160	200	250	320
G	3/8	3/8	3/8	1/2	3/4	1	1	1 1/4	1 1/2	1 1/2	1 1/2
D1	27	27	27	33	41	49	49	59	61	61	61
D2	-	-	-	-	-	-	-	-	65	65	65

Oil port connections available by special order

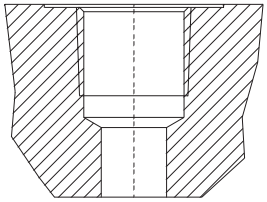


SAE 3000 psi
SAE 6000 psi

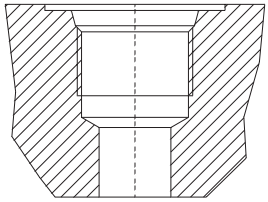


Direction adapter

Oil port connections available by special order



NPTF



UNF-2B
(SAE J514)

2300 SERIES ORDER CODE

EXAMPLE: 2300-RD/125/500/65/7+MVP-70/A-A-1-A

JKV	2300	RD	125	500	65	7	MVP-70	A	A	1	A	*
	SERIE	SEALING SYSTEM/ CUSHION LOCATION	PISTON DIAMETER	STROKE LENGTH	PISTON ROD DIAMETER	BODY MOUNTING STYLE	ROD END	FRONT END OIL PORT LOCATION	REAR END OIL PORT LOCATION	AIR BLEED LOCATION	GLAND DRAIN LOCATION	FURTHER DATA
	2300 Differential cylinder 2301 Double rod cylinder							LOOK AT PICTURE BELOW				

ROD END

	Threaded rod end
MVP-70	Threaded rod end+spherical eye
MVH-70	Threaded rod end+spherical eye, maintenance free
HVP-70	Rod with welded spherical eye
HVH-70	Rod with welded spherical eye, maintenance free

SEALING SYSTEM/
CUSHION LOCATION

Normal, typical industrial sealing system

R	
RE	Cushioned front end
RT	Cushioned cap end
RD	Cushion in both ends

Dirty conditions sealing system

1	
1E	Cushioned front end
1T	Cushioned cap end
1D	Cushion in both ends

Low friction, high & low speed sealing system

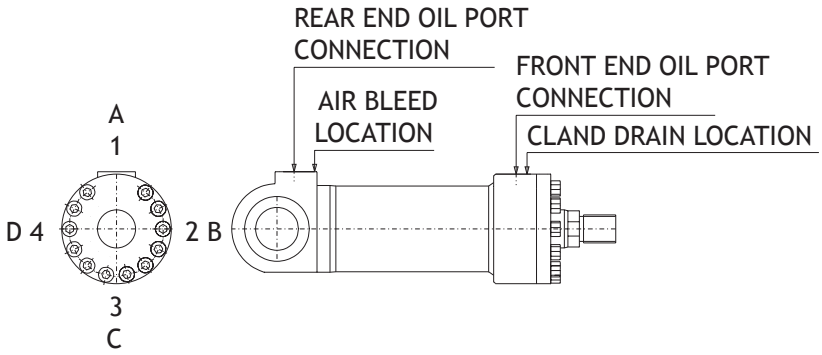
S	
SE	Cushioned front end
ST	Cushioned cap end
SD	Cushion in both ends
SV	High temperature sealing

Low friction, no leakage combination sealing system

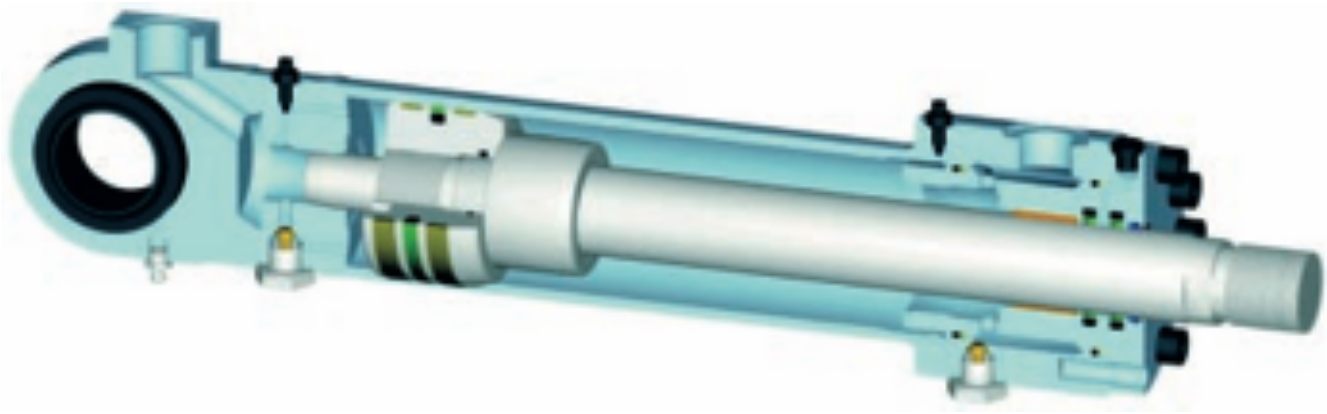
F	
FE	Cushioned front end
FT	Cushioned cap end
FD	Cushion in both ends

BODY MOUNTING STYLE

2	Head flange
3	Cap flange
5	Head trunnion
6	Intermediate trunnion, welded
6E	Intermediate trunnion, threaded
7	Spherical bearing mount
7E	Spherical bearing mount, special dimensions
7H	Spherical bearing mount, maintenance free



2300 SERIES CUSHION TECHNIQUE



Cylinder with cushion in both ends D

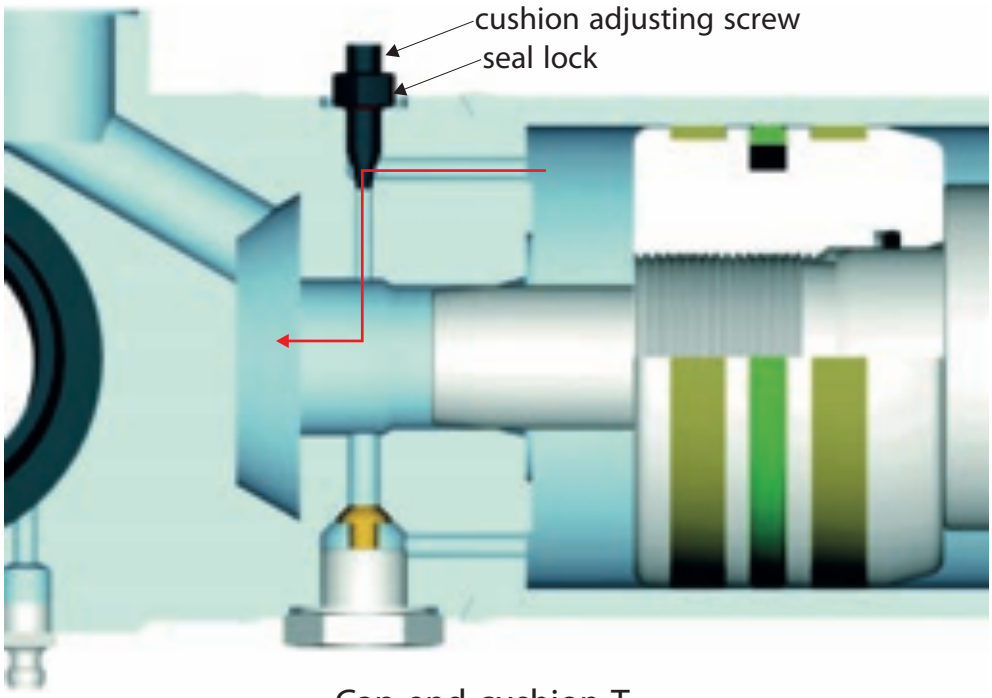
Cushion opportunities for 2300 series are

- Cap end cushion T
- front end cushion E
- cushion in both ends D.

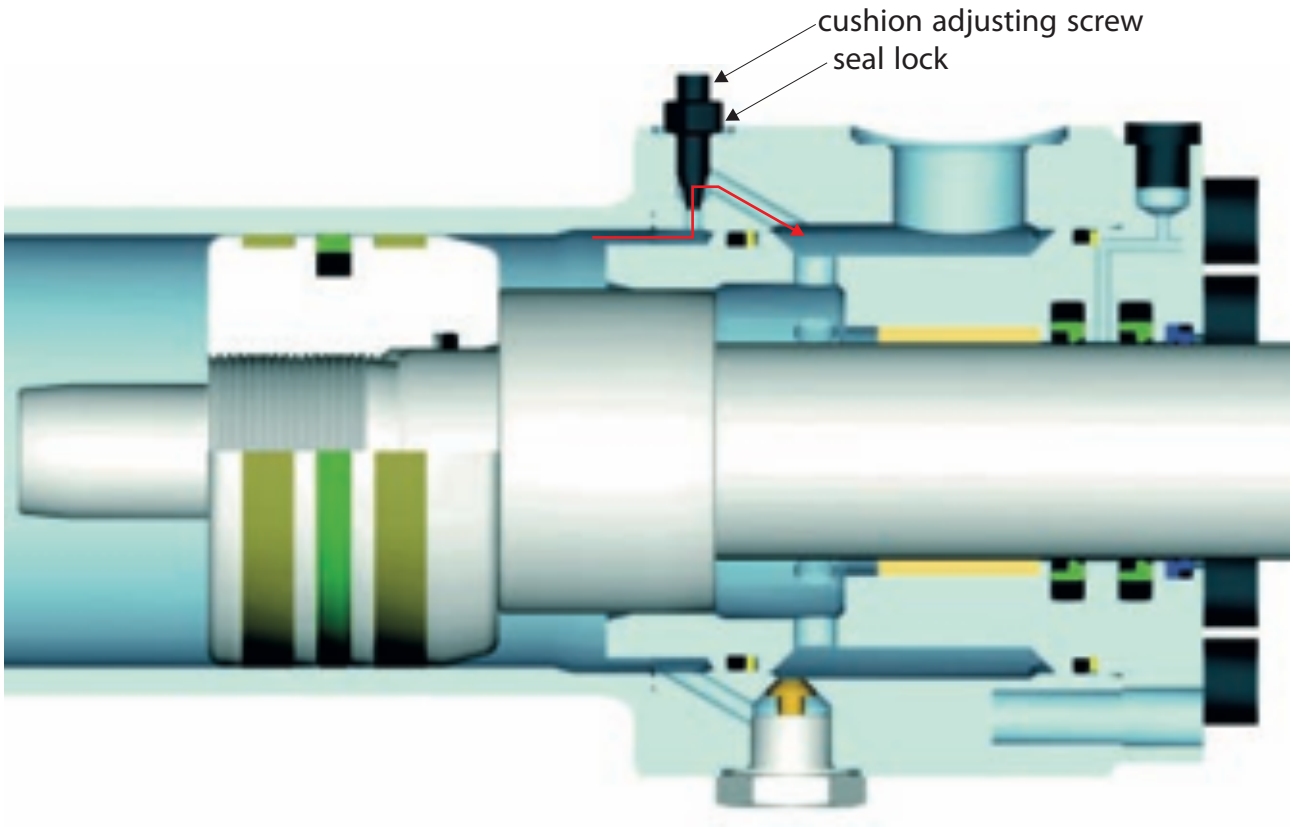
Cushion is adjustable in both ends. Adjusting is easy, You only have to turn the cushion adjusting screw clockwise and the cushion force increases and opposite.
Important! Don't open/close the cushion adjusting screw completely!

Example pictures presents cushion technique in cylinders from NS 50 to NS 80. Cylinders from NS 100 to NS 320 has basically a similar kind of technique except the cushion parts are separate from the cylinder body.

2300 SERIES CUSHION TECHNIQUE

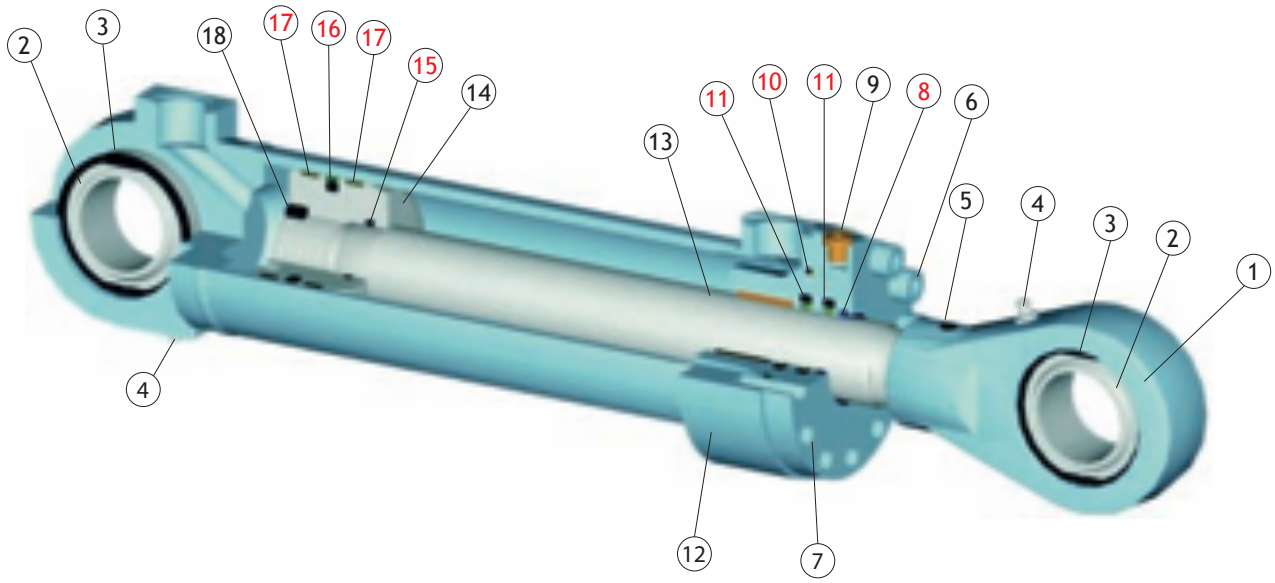


Cap end cushion T



Front end cushion E

SPARE PARTS



When you order spare parts please inform us the cylinders type code.

Example: Seal kit for cylinder JKV 2300-RD3/125/500/65/7+MVP-70/A-A-1-A

PART	DESCRIPTION	NOTICE	MORE INFORMATION
1	Rod end spherical eye MVP		Pages: B2, D23
2	Spherical bearing	Standard: GE..DO, ISO 6124-1	Pages: F2, D24
3	Lock ring		
4	Grease nipple		
5	Hexagon socket set screw		
6	Hexagon socket head cap screw		
7	Cylinder head/Rod guide	According to sealing system	Pages: C2-C5, F2
8	Rod wiper	Included into seal kit	Pages: C1-C5, F2
9	Hexagon socket screw plug		
10	O-ring	Included into seal kit	Pages: C1-C5, F2
11	Piston rod seal	Included into seal kit	Pages: C1-C5, F2
12	Cylinder body		Pages: B1, B2, F2, D25
13	Piston rod		Pages: D23, D24, F2
14	Piston	According to sealing system	Pages: C2-C5, F2
15	O-ring	Included into seal kit	Pages: C1-C5, F2
16	Piston seal	Included into seal kit	Pages: C1-C5, F2
17	Piston guide ring	Included into seal kit	Pages: C1-C5, F2
18	Hexagon socket set screw		

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SPARE PARTS

DESCRIPTION	OPTIONS
PISTON RODS & ROD ENDS PARTS NO. 1, 13	Piston rod with shouldered male thread
	Piston rod with welded spherical eye HVP
	Rod end spherical eye MVP
SPHERICAL BEARINGS PART NO. 2	GE...DO (INA), GE...ES (SKF)
	GE...DO-2RS (INA), GE...ES-2RS (SKF) (sealed)
	GE...UK (INA) (maintenance free)
	GE...UK-2RS (INA), GE...TE-2RS (SKF) (maintenance free + sealed)
	GE...TGR (SKF) (maintenance free, stainless steel)
PISTONS PART NO. 14	Piston for sealing system F
	Piston for sealing system S
	Piston for sealing system R
	Piston for sealing system 1
CYLINDER HEADS PART NO. 7	Head for sealing system F
	Head for sealing system FD/FE
	Head for sealing system S
	Head for sealing system SD/SE
	Head for sealing system R
	Head for sealing system RD/RE
	Head for sealing system 1
	Head for sealing system 1D/1E
SEAL KITS	Seal kit F
	Seal kit S
	Seal kit R
	Seal kit 1
CYLINDER BODIES PART NO. 12	Spherical bearing no. 7
	Spherical bearing no. 7, cushion in front end
	Spherical bearing no. 7, cushion in cap end
	Spherical bearing no. 7, cushion in both ends
	Intermediate trunnion no. 6
	Intermediate trunnion no. 6, cushion in front end
	Intermediate trunnion no. 6, cushion in cap end
	Intermediate trunnion no. 6, cushion in both ends
	Head trunnion no. 5
	Head trunnion no. 5, cushion in front end
	Head trunnion no. 5, cushion in cap end
	Head trunnion no. 5, cushion in both ends
	Cap flange no. 3
	Cap flange no. 3, cushion in front end
	Cap flange no. 3, cushion in cap end
	Cap flange no. 3, cushion in both ends
	Head flange no. 2
	Head flange no. 2, cushion in front end
	Head flange no. 2, cushion in cap end
	Head flange no. 2, cushion in both ends
PRE-ASSEMLED SPARE PART MODULES	Cylinder head + seals
	Piston + seals
	Piston rod + piston + cylinder head + seals
	Rod end spherical eye MVP + spherical bearing + lock rings + grease nipple
	Piston rod with welded spherical eye HVP + spherical bearing + lock rings + grease nipple
	Cylinder body no . 7 + spherical bearing + lock rings + grease nipple

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NOTES

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NOTES