NEXOIL
FLUID SYSTEMS MANUFACTURING

V&B SERVOCOMANDI

Hydraulic Cylinders NXM Series (ISO 6020/2)

INSTALLATION AND MAINTENANCE MANUAL

Edition 08/2024

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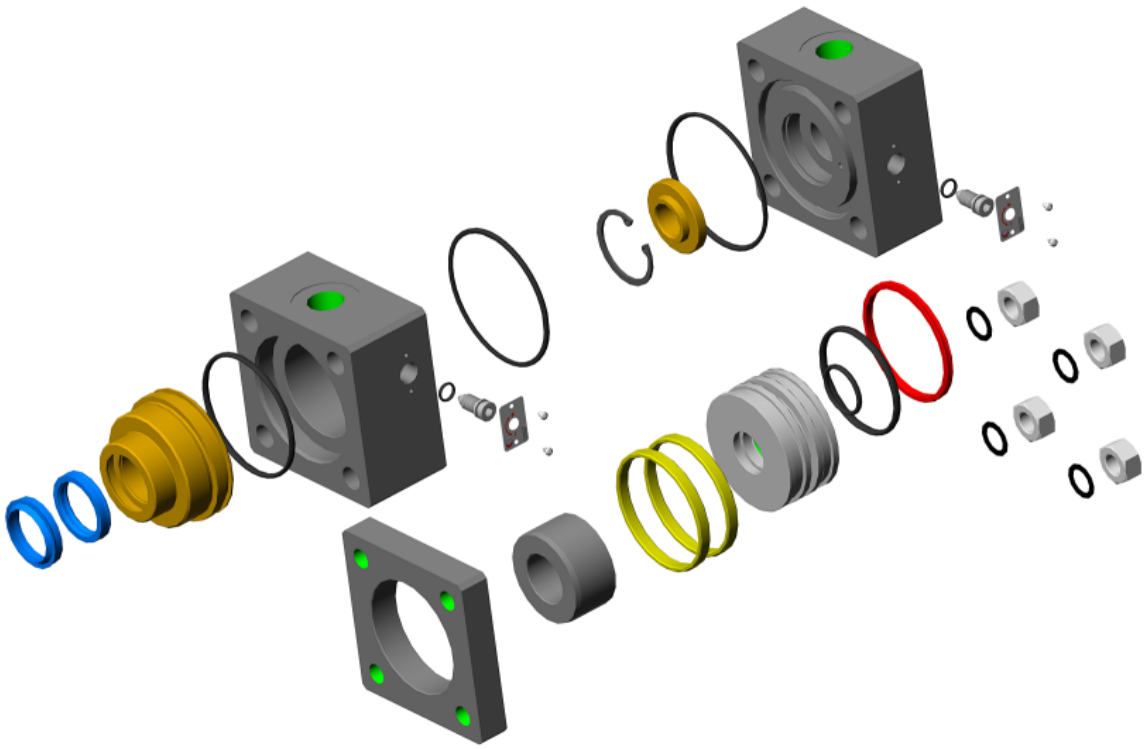
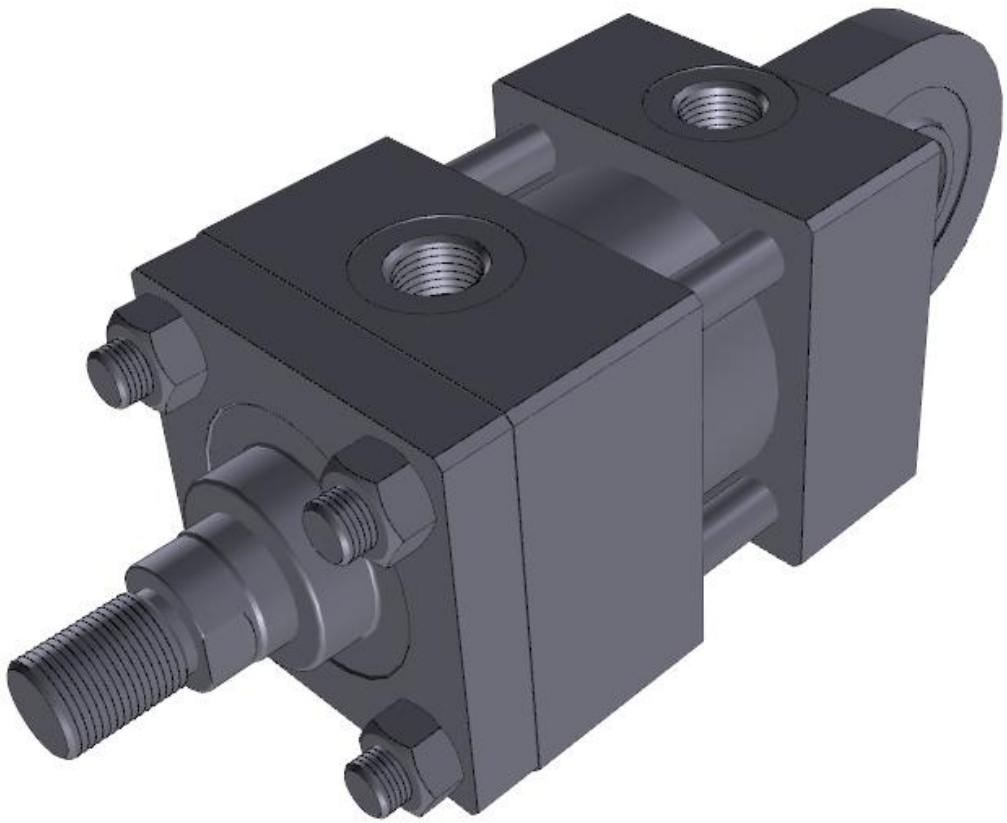
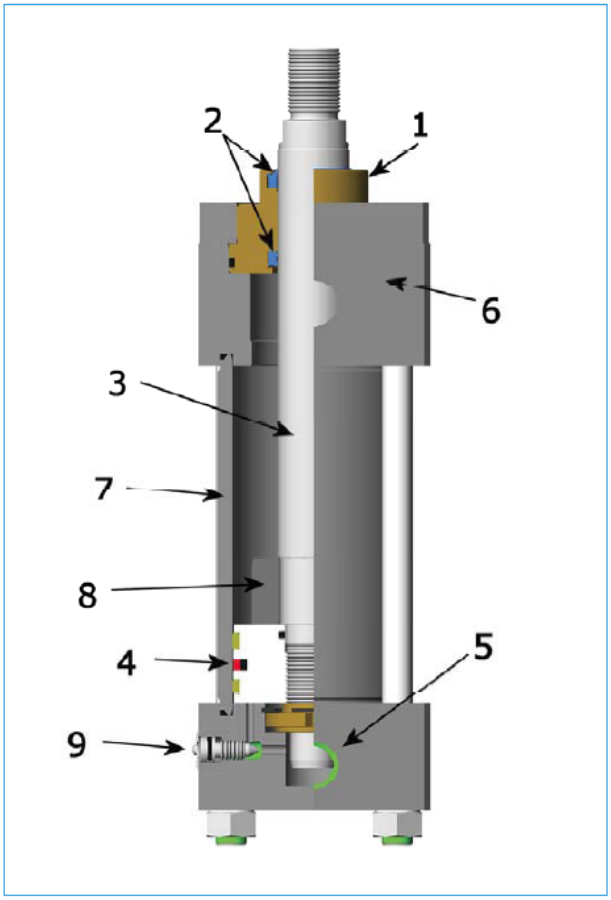


TECHNICAL FEATURES

- Heavy duty metric hydraulic cylinder
- Nominal pressure: 160bar
- Test pressure: 240bar
- In accordance with ISO6020/2 (1991), DIN24554 standards
- Security factor 4:1 at nominal pressure and with reference to min. breaking point
- Hydraulic mineral oil
- Standard seals from -20°C to +80°C.
- High temperature seals up to 150°C
- Construction: tie-rod design
- Bore sizes: 25 to 200m
- Piston rod diameters: 12 to 140mm
- Cushions: adjustable and available on both ends
- Chromium plated rod, polished tube.



GENERAL DESIGN FEATURES



1 Rod cartridge

Machined from steel with bronze guiding elements, the NXM standard cartridge provides maximum bearing support and wear resistance. Cartridge removal is easily allowed with hex wrench without loosening the tie rods.

2 Rod seals

Standard rod seals are made from poliurethane, and provide long life sealing together with high wear resistance. A heavy duty double-lipped rod wiper removes foreign polluted or dusty materials from the exposed rod to extend rod seal life. Standard rod seal temperature range is –20° +80°. Viton seals are available for higher temperatures (up to 150°) upon request. Low-friction seals are highly suggested when cylinder works with high frequencies. Different seal types are also available upon customer's request.

3 Piston rod

They are manufactured from high tensile carbon alloy C45 steel, hard chrome plated and polished (0,025 mm) to maximum surface finishing of 0,2 μm, tolerance f7.

4 Piston and piston seals

The standard piston is of one-piece steel construction, and is piloted to the rod for concentricity. The standard version of the seal of the overall piston, comprising: an element made of polyurethane, for the sealing dynamic, one of NBR, for static sealing and two rings Heavy duty friction. Temperature range of standard piston seal is –20° +80°. Low-friction seals and viton seals are available upon request. Seals for special applications are also available upon customer's request.

5 Ports

Series NXM cyliders are supplied as standard with BSPP/GAS ports. Other ports are also availble upon request.

6 Head & cap ends

These are machined from steel and located into the cylinder body's internal diameter for added strenght and precise alignment of tube and rod cartridge.

7 Cylinder body

The cylinder body is made from high resistance steel, honed to 0,4 Ra finishing. Two O-rings ensure sealing between cylinder body and both cylinder ends.

8 Cushioning

Optional cushions at the head and cap end are available upon request. They provide controlled deceleration which reduces noise and shock loading, and prolongs machine life. Our patented cushioning system is operative on both cylinder ends.

9 Cushion adjustment screw

Cushion adjustment screws are provided at both end of the cylinder for precise cushion adjustment, and are retained so that they can not possibly be unintentionally ejected. The screw is profiled for fine adjustment. On bore size 25 cushion adjustment screws are not available (cushionings are non-adjustable).

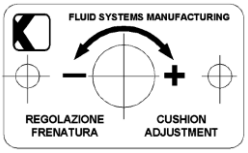
Long stokes

When considering the use of long stroke cylinders (more than 1000 mm) the use of stop tubes should be considered to reduce piston and cartridge wear. For selection of stop tube in connection with cylinder stroke please refer to the following chart:

INSTALLATION

- Remove the hydraulic cylinder packaging.
- Make sure that the hydraulic cylinder and isn't damaged during transport.
- Make sure that hydraulic system is without pressure.
- Remove the protective screw caps.
- Filling hydraulic cylinders (horizontal position) with hydraulic oil and bleed it.
- Connect the hydraulic ports
- Commissioning the cylinder
- Adjust the cushioning:

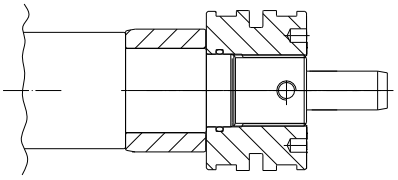
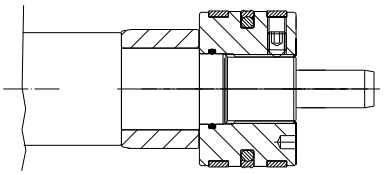
Turn, clockwise to increase and anticlockwise to decrease the cushion, the screw that is under the label of cushioning.



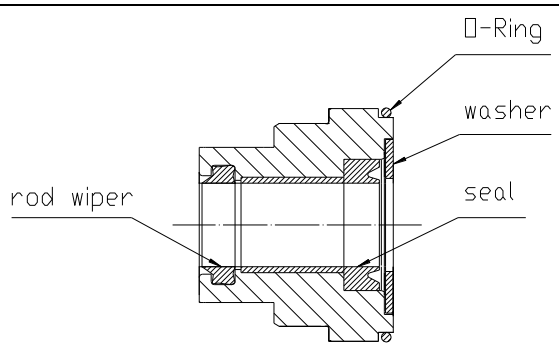
STANDARD MAINTENANCE

SEALS

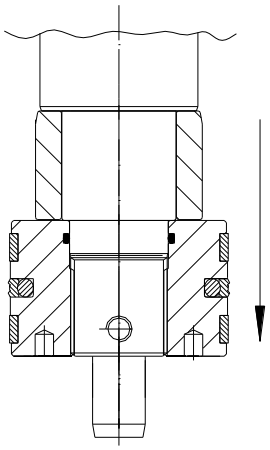
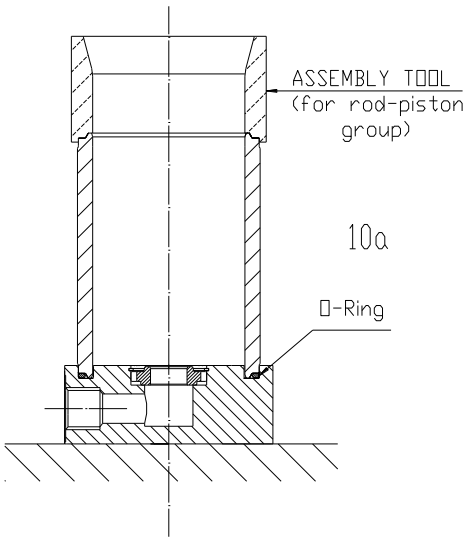
1st group: piston-seals replacing

STEP	INSTRUCTIONS	
110	Make sure that the rod is free from either burr or machining scraps	
120	Clamp the piston-rod group in a vice using exclusively brass or aluminium claws	
130	Remove the old external seals and guide ring	
140	Lubricate the piston grooves using either grease or hydraulic oil	
150	Insert the new seal and the new guide ring.	

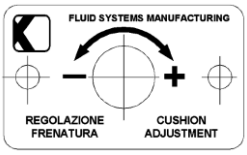
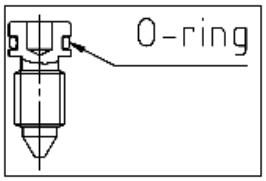
2nd group: bushing-seals replacing

STEP	INSTRUCTIONS	
210	Place the bushing on a workbench	
220	Remove the old seals	
230	Lubricate the bushing inner grooves using either grease or hydraulic oil	
240	Insert the rod wiper, then the rod seal and, if there was, the rod seal washer. Finally, insert the outer O-Ring	

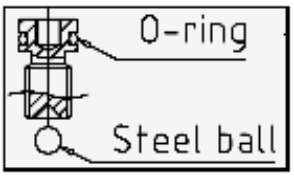
3rd group: cylinder assembling with tube seals

STEP	INSTRUCTIONS	
310	Place the rear head on a workbench. First insert the O-ring, and then insert vertically the cylinder tube (see 10a)	
320	Place the rod-piston group assembly tool on the cylinder tube (see 10a) Lubricate the assembly tool using either grease or hydraulic oil Insert the rod-piston group	
330	Insert the front head on the tube, paying attention at position of its O-ring	
340	Place the bushing assembly tool on the piston rod. Lubricate the assembly tool using either grease or hydraulic oil Insert the bushing-seals group	
350	Insert the retainer plate, then place the cylinder in a horizontal position Insert the tie rods together with their nuts and washers Tighten with a dynamometric spanner See page 8 for TORQUE VALUE REFERENCE CHART	

4th group: cushion screw seal replacing

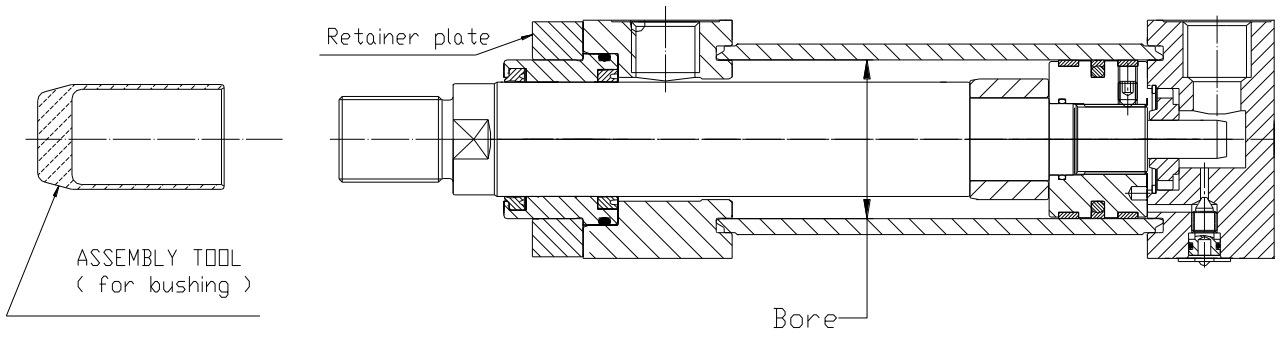
STEP	INSTRUCTIONS	
410	Remove cushion label	
420	Unscrew the cushion screw	
430	Remove the O-ring	
440	Lubricate the groove using either grease or hydraulic oil	
450	Insert the new O-ring	

5th group: bypass screw seal replacing

STEP	INSTRUCTIONS	
510	Remove bypass label	
520	Unscrew the cushion screw	
530	Remove the O-ring	
540	Lubricate the groove using either grease or hydraulic oil	
550	Insert the new O-ring	

SPECIAL MAINTENANCE

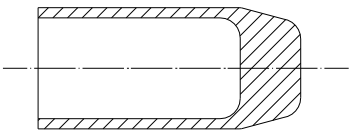
For special maintenance contact directly the Nexoil srl



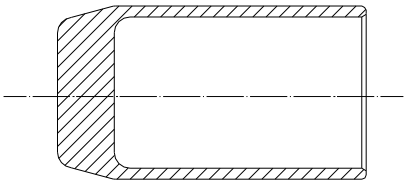
TORQUE VALUE REFERENCE CHART			
	Bore	Tie rod nuts torque (Nm)	Tie rod nuts thread
1	25	6	M5
2	32	10.4	M6
3	40	26	M8x1
4	50	90.6	M12x1.25
5	63	90.6	M12x1.25
6	80	214	M16x1.5
7	100	214	M16x1.5
8	125	571	M22x1.5
9	160	1070	M27x2
10	200	1480	M30x2

ASSEMBLY TOOLS

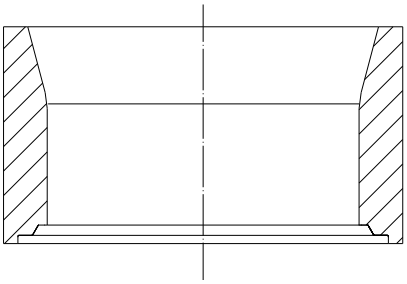
INVITATION TOOL (for piston rod)			
	Bore	Standard	
1	25	2KINVS25	
2	32	2KINVS32	
3	40	2KINVS40	
4	50	2KINVS50	
5	63	2KINVS63	
6	80	2KINVS80	
7	100	2KINVS100	
8	125	2KINVS125	
9	160	2KINVS160	
10	200	2KINVS200	



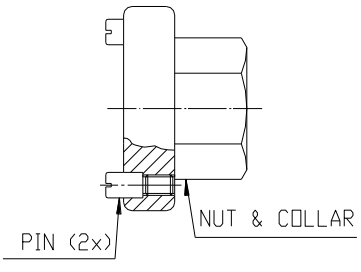
INVITATION TOOL (for bushing)			
	Rod	Standard	
1	12	2KINVB12	
2	14	2KINVB14	
3	18	2KINVB18	
4	22	2KINVB22	
5	28	2KINVB28	
6	36	2KINVB36	
7	45	2KINVB45	
8	56	2KINVB56	
9	70	2KINVB70	
10	90	2KINVB90	
11	110	2KINVB110	
12	140	2KINVB140	



INVITATION TOOL (for rod-piston group)			
	Bore	Standard	
1	25	2KINVP25	
2	32	2KINVP32	
3	40	2KINVP40	
4	50	2KINVP50	
5	63	2KINVP63	
6	80	2KINVP80	
7	100	2KINVP100	
8	125	2KINVP125	
9	160	2KINVP160	
10	200	2KINVP200	



ASSEMBLY TOOL (for rod-piston group)					
	Bore	Pin	Nut & Collar	Complete tool	
1	25	2KPERNO25	2KDADO25	2KATTR25	
2	32	2KPERNO32	2KDADO32	2KATTR32	
3	40	2KPERNO40	2KDADO40	2KATTR40	
4	50	2KPERNO50	2KDADO50	2KATTR50	
5	63	2KPERNO63	2KDADO63	2KATTR63	
6	80	2KPERNO80	2KDADO80	2KATTR80	
7	100	2KPERNO100	2KDADO100	2KATTR100	
8	125	2KPERNO125	2KDADO125	2KATTR125	
9	160	2KPERNO160	2KDADO160	2KATTR160	
10	200	2KPERNO200	2KDADO200	2KATTR200	



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