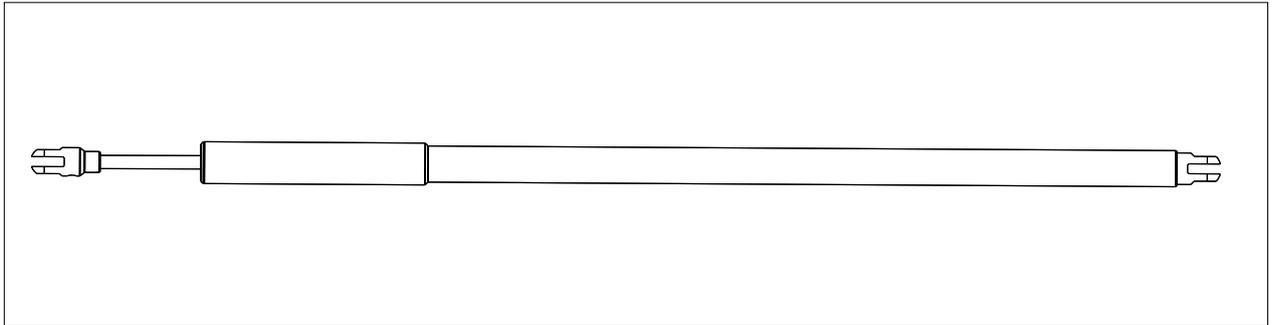


Assembly / Disassembly SELDÉN HYDRAULIC VANG



ASSEMBLY / DISASSEMBLY SELDEN HYDRAULIC VANG

SAFETY NOTICE:

WEAR HAND, EYE AND EAR PROTECTION.

**NITROGEN GAS IS DANGEROUS IF RELEASED IN A CONFINED SPACE.
WE RECOMMEND THAT IT IS RELEASED IN THE OPEN (OUTSIDE).**

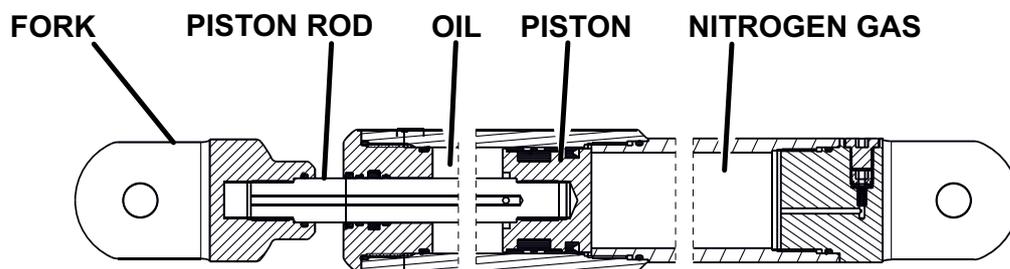
GENERAL INFORMATION

The boom vang has a compartment filled with nitrogen gas.

The gas acts on the piston to extend the vang.

The hydraulic hose connects to the fork.

The oil pressure acts on the piston through a channel in the piston rod.



Tools:

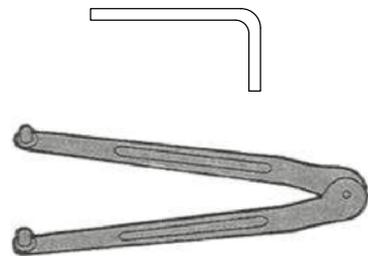
Hex wrench, 2 mm, or small screwdriver (for releasing gas)

Hex wrenches.

Face pin wrench for 6mm holes, 9mm for HV 138.

Picking tools (for removal and mounting of o-rings)

Thread locker: loctite 243, loctite 2400



This instruction applies to:

HYDRAULIC VANG HV 44

HYDRAULIC VANG HV 57

HYDRAULIC VANG HV 89

HYDRAULIC VANG HV 46

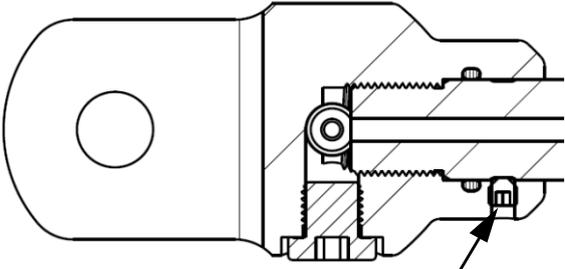
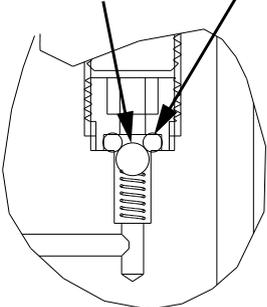
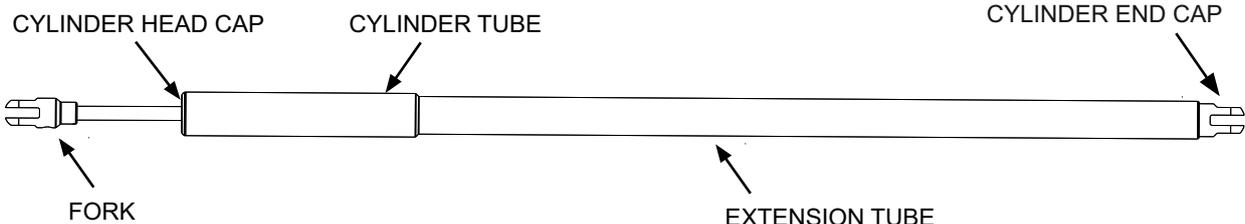
HYDRAULIC VANG HV 69

HYDRAULIC VANG HV 106

HYDRAULIC VANG HV 138

1. Disassembly

Step by step installation instructions

<p>Fix the cylinder in a vise, carefully padded so that the surface of the cylinder is not damaged.</p> <p>For HV 46, 69, 89, 106, 138: unscrew the fork grub screw.</p> <p>Unscrew and remove the fork. The thread is right-hand.</p> <p>The gas pressure acts on the piston as well as the end parts, loading the threads.</p> <p>In order to disassemble the vang, the gas has to be let out.</p>	 <p>GRUB SCREW</p>
<p>Releasing the nitrogen gas pressure: to be done in a well ventilated area</p> <ol style="list-style-type: none">1) Remove the plug in the cylinder end cap with a 6mm hex key. Be careful and use protective equipment in case this plug has been pressurized.2) Push the ball downwards with a thin device such as a small screwdriver or a 2mm hex key. -Be careful not to damage the o-ring seal.3) It takes about one minute to get the nitrogen gas out.	 <p>BALL O-RING SEAL</p>
<p>Removing the cylinder head cap and piston rod</p> <ol style="list-style-type: none">1) Double check that the gas pressure is zero.2) Use the face pin wrench to unscrew the head cap3) Put rags underneath to collect any oil leakage.4) When the cylinder head cap is unscrewed, the piston rod can be pulled out of the cylinder.5) Put tape on the piston rod threads, and pull the cylinder head cap off from the rod.  <p>CYLINDER HEAD CAP CYLINDER TUBE CYLINDER END CAP</p> <p>FORK EXTENSION TUBE</p>	

ROD WIPER, ROD SEAL, GUIDE RINGS, O-RING SEALS AND BACK-UP RING

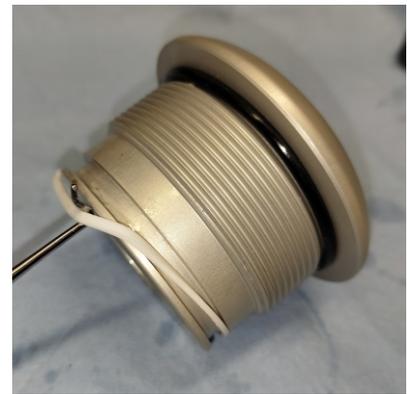
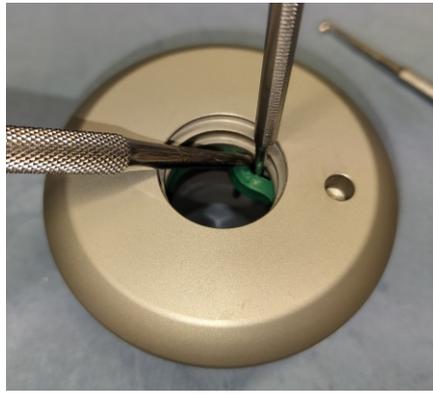
Disassembly:

The guide rings and the rod wiper can be removed with a sharp removal tool.

To remove the rod seal, use two tools.

Take care not to damage the sealing surfaces.

Remove outer o-rings and back-up ring.



Assembly:

Inspect all surfaces for sharp edges. Clean and lubricate all surfaces.

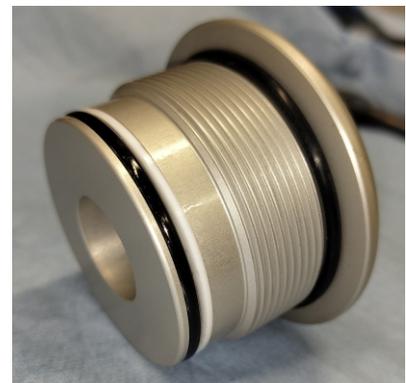
First install the guide rings by hand.

Check drawings at the end of the manual for correct seal orientation.

Insert the rod seal by squeezing it and inserting it into the groove. Push it into place the last bit using a tool.

The rod wiper can be installed by hand.

The back-up ring and the outer o-rings can be installed by hand.



PISTON SEAL CHANGE: HV 44, 46, 57, 69, 89

Disassembly:

The white guide rings and black backup rings can be disassembled without tools.

Fix the rod in a vise.

To remove the piston NBR rubber seal, use a soft plastic strap.

Lubricate the seal and pull the strap around the circumference.

To remove the NBR rubber u-cup seal (gas seal) use a non-sharp tool with a hook.

Take care not to damage the sealing surfaces.



Assembly:

Inspect all surfaces for sharp edges.

Clean and lubricate all surfaces.

Assemble the piston NBR rubber seal from the rod side (see picture)

Lubricate with oil. A soft plastic strap, or two, can be used to mount the seal in its groove.

The white guide rings and black backup rings can be assembled without tools.

The NBR rubber u-cup seal (gas seal) can be mounted by hand, or with a plastic strap

Check the orientation afterwards, with the lip against the gas.



PISTON SEAL CHANGE: HV 106, 138

Disassembly:

The grey guide rings can be removed without tools.

Fix the rod in a vise.

Remove piston seals and supporting o-rings using an appropriate tool taking care not to damage the surface of the piston.

Assembly:

Inspect all surfaces for sharp edges.

Clean and lubricate all surfaces.

Lubricate the piston seal o-rings with oil.

Mount the o-rings (to be inside the piston seals) in the deep grooves, this can be done without tools.

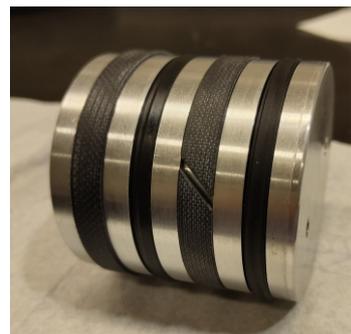
To make piston seals easier to install they can be heated using hot water.

Check drawing for correct placement and orientation of each piston seal.

Lubricate and mount the piston seals from each side respectively using a round mounting tool without sharp edges.

Other tools such as a screwdriver can also be used but extra care need to be taken to avoid damaging the seals or the piston.

Lubricate and mount the guide rings, this can be done without tools.



FORK, CHANGE OF O-RING

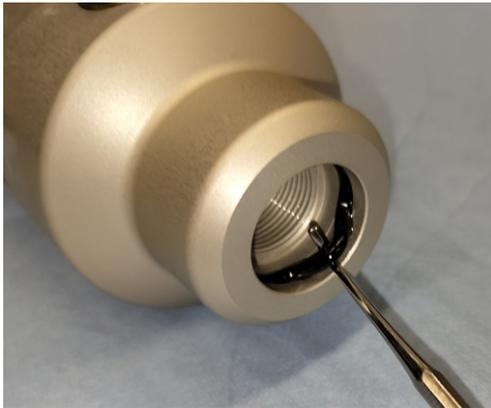
Disassembly:

The fork is screwed onto the rod with a righthand thread.

Use a non-sharp tool to remove the o-ring (see picture)

For HV 69, an additional back-up ring is mounted in this groove, check drawing.

Be careful not to damage the seal surface.



Assembly:

Clean and lubricate the o-ring groove.

Mount the o-ring by hand, pinching it into an oval shape first.

Push it into the groove by hand as a last step.

For HV 69, mount the back-up ring in the groove outside the o-ring.



CYLINDER AND EXTENSION TUBE, O-RING CHANGE

Disassembly:

For HV 46, 69, 89, 106, 138, remove grub screw in cylinder before disassembly.

The cylinder and the extension tube are screwed together with a right hand thread.

For HV 69, 89, 106, 138, two o-rings in separate grooves are used.

For HV 46, two o-rings in separate grooves, one with back-up ring is used.

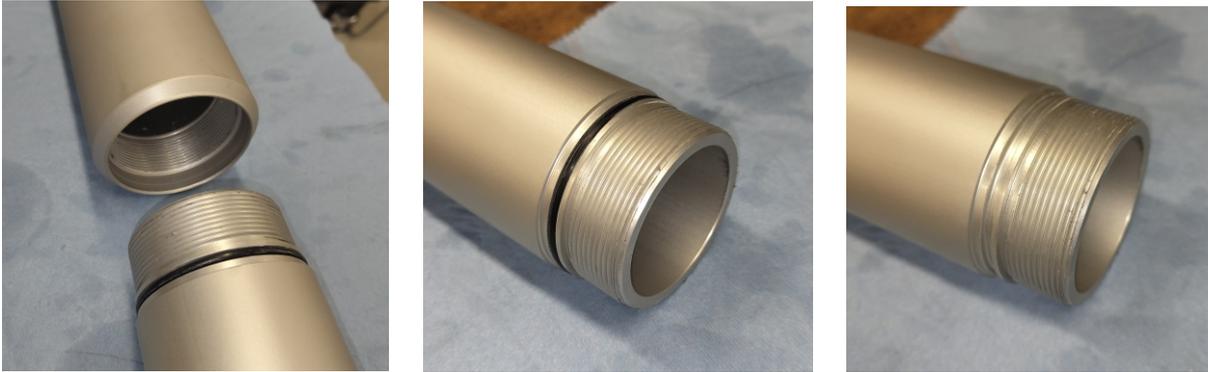
The o-ring(s) can be removed without tool.

If stretched by hand it will lift up from the groove, making it possible to remove it without tools.

Assembly:

Clean and lubricate the o-ring groove(s), and check for sharp edges.

Cover the threads with tape before mounting the o-ring(s).



CYLINDER END CAP

Disassembly:

The cylinder end cap and the extension tube are screwed together with a right hand thread.

The o-ring(s) can be removed without tool.

If stretched by hand it will lift up from the groove, making it possible to remove it without tools.

For HV 89, 106, 138, two o-rings in separate grooves are used.

For HV 46, one o-ring with back-up ring are used.

Assembly:

Clean and lubricate the o-ring groove(s), and check for sharp edges.

Cover the threads with tape before mounting the o-ring(s).



INSTALL THE CYLINDER HEAD CAP ONTO THE ROD

Assembly:

Check that the piston is fixed to the rod, if not unscrew it, clean the threads, and bond it to the rod with Loctite 2400.

Check that the guide rings and the seals are properly installed.

Cover the threads with tape.

Check that the tapered part on the rod next to the threads is smooth and without burrs.

Remove any sharp edges with emery cloth.

Lubricate and insert the rod into the cylinder head cap.



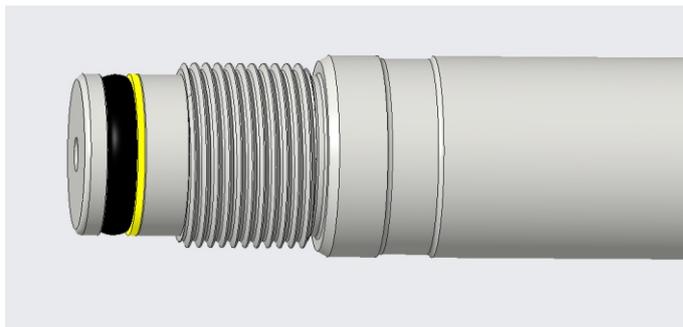
FOR HV 89, 106, 138: REPLACE O-RING AND BACK-UP RING ON PISTON ROD END

Remove o-ring and back-up ring, this can be done by hand.

Check groove for sharp edges.

Lubricate groove, the new o-ring and back-up ring.

Mount the back-up ring first, then the o-ring.



GAS VALVE O-RING REPLACEMENT

Remove the plug with a 6mm hex key

The valve insert can also be removed with the same tool.

The steel ball and the spring will come loose when the insert is removed.

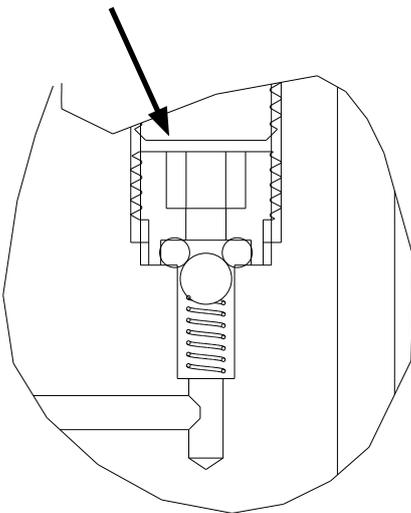
Remove the o-ring, clean and inspect the surfaces.

Lubricate the new o-ring and install it into the valve insert.

When re-installing, use a small amount of Loctite 243 to secure the valve insert.



Valve insert



ASSEMBLY

CYLINDER / EXTENSION TUBE

EXTENSION TUBE / CYLINDER END CAP

Inspect the threads and sealing surfaces for any sharp edges.

Clean and lubricate the seals and threads.

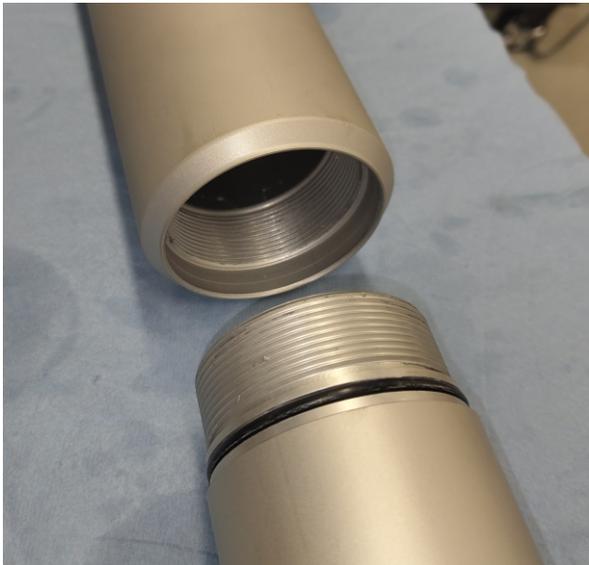
Use a small amount of loctite 2400 on the threads of the extension tube and the cylinder end cap.

Screw the extension tube into the cylinder.

For HV 46, 69, 89, 106, 138: mount the grub screw in the cylinder using loctite 243.

NOTICE: Do not over torque grub screw, max 7 Nm.

Screw the cylinder end cap into the extension tube.



ASSEMBLY

Lubricate the piston seals.

Inspect the cylinder for sharp edges.

Carefully push the piston into the cylinder.

Lubricate the seals on the cylinder head cap.

Use a small amount of loctite 2400 on the threads of the head cap.

Screw the head cap into the cylinder.

Tighten with the face pin wrench.

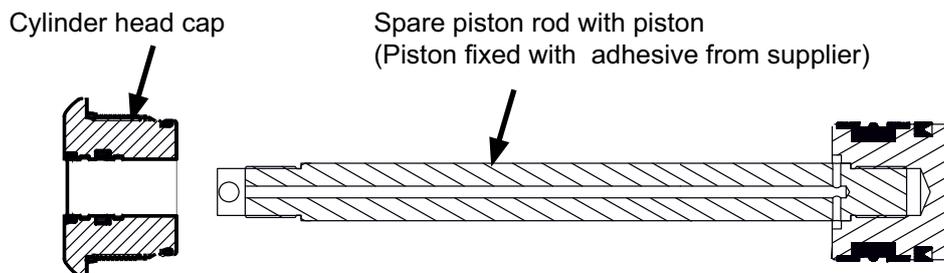
Check and lubricate the seals on the fork.

Use a small amount of loctite 2400 on the threads of piston rod.

Screw the fork onto the piston rod.

For HV 46, 69, 89, 106, 138, mount the grub screw in the fork using loctite 243.

NOTICE: Do not over torque grub screw, max 7 Nm.



ALIGNING THE FORK BEFORE FILLING GAS

Adjust alignment of fork/piston before filling with gas, adjust by turning fork/rod clockwise so that the forks are in line as the picture below and the plugs on both forks are oriented in the same direction.



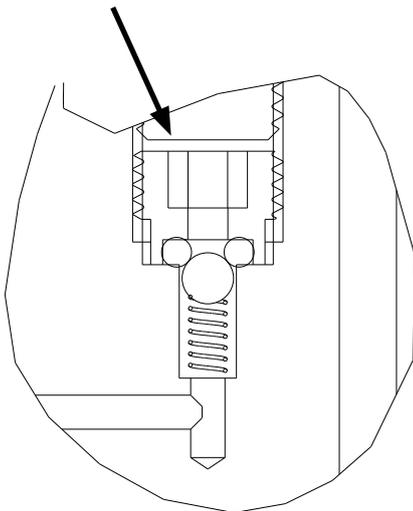
Filling nitrogen gas

Connect with a BSP 1/4" ISO228-1 adapter and fill the vane with nitrogen gas to a pressure of 43 Bar.

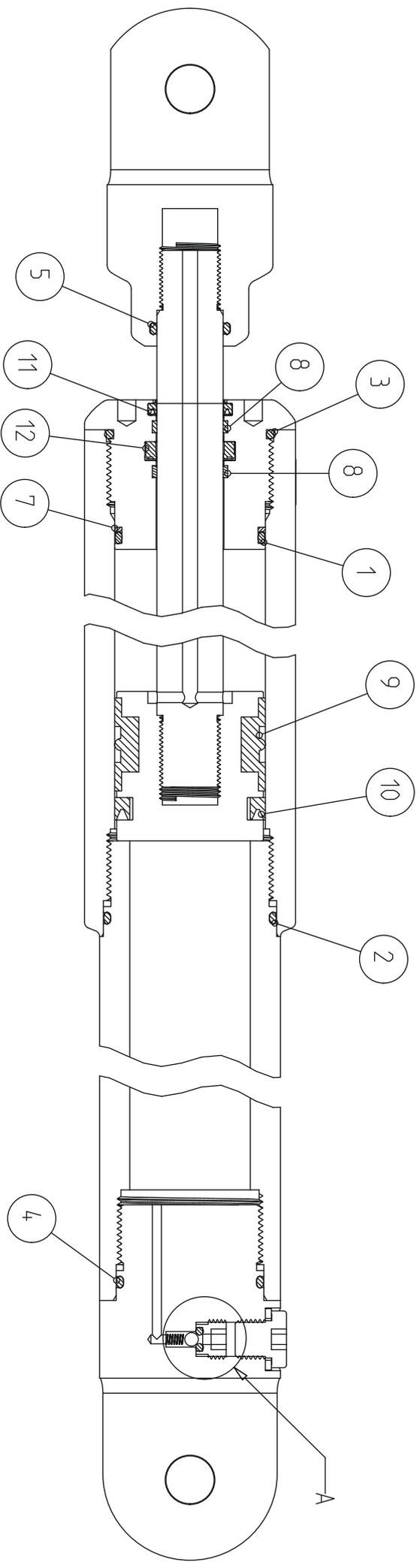
To double check that the gas pressure is correct after filling:

- Connect the hydraulic hose pump until it starts contracting.
- For a gas pressure of 43 Bar, oil pressure of about 50 Bar will start to move the piston inwards.

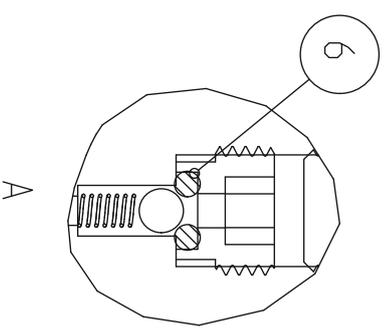
Valve insert



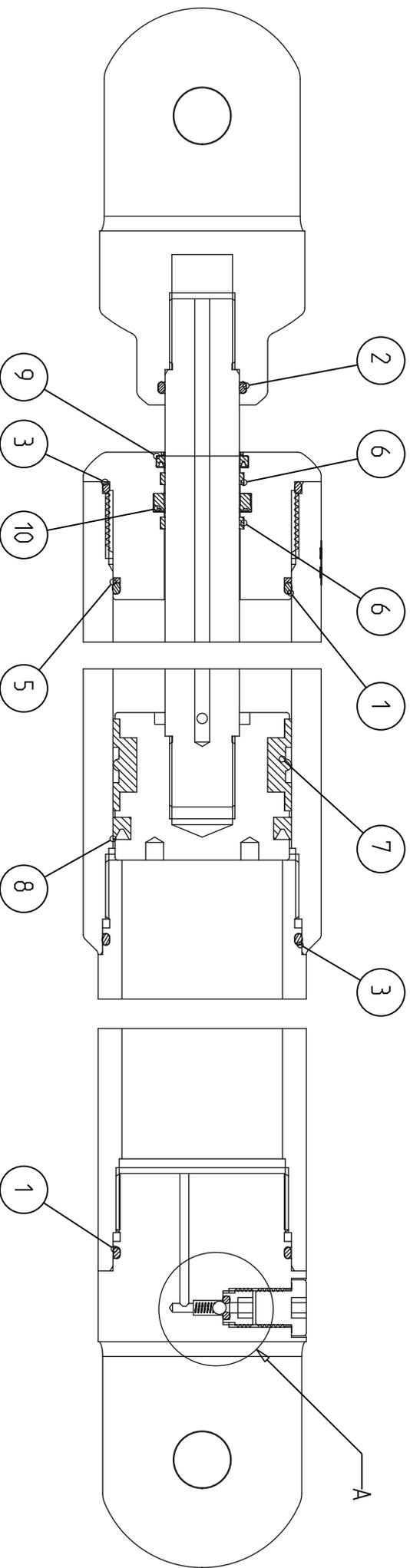
HV 44



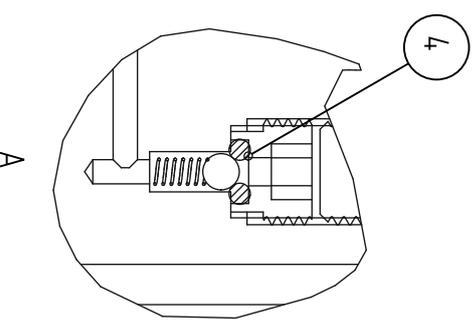
Item Qty	Description	Dimension	Note	Part No.	
12	1	ROD SEAL	Ø30/22-5.7	GC2230P5008	586-300
11	1	ROD WIPER	Ø28/22-4.8	AY2020P5008	586-100
10	1	PISTON GAS SEAL	50/38x6	GAP1 GPM6 5038 NBR85	585-804
9	1	Piston Seal	50/34-18.4	TPM196133	585-803
8	2	ROD GUIDE RING	Ø25/22-4	ISD 10766	582-603
7	1	Back Up Ring	50/45-1.3	80650331000	582-302
6	1	O-RING	Ø2.85x2.62 70 SHORE		530-353
5	1	O-RING	Ø21.2x3 90 SHORE		530-349
4	1	O-RING	Ø4.3x3 70 SHORE		530-347
3	1	O-RING	Ø50x3 70 SHORE		530-346
2	1	O-RING	Ø52x3 70 SHORE		530-345
1	1	O-RING	Ø4.4x3 70 SHORE		530-344



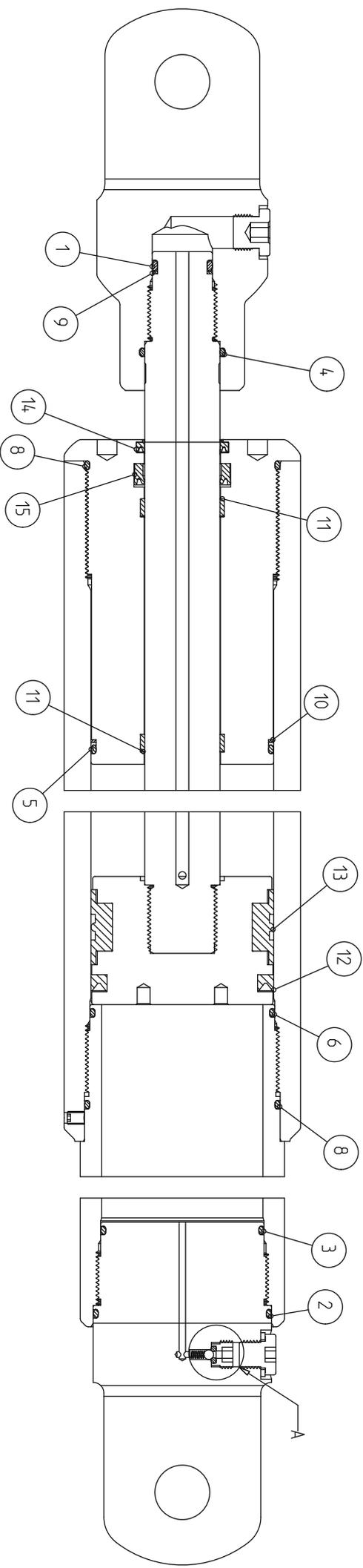
HV 57



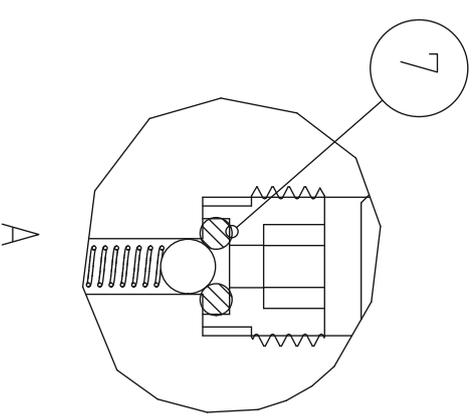
10	1	ROD SEAL	ø25/33x5.7	GS2024P5008	586-302
9	1	ROD WIPER	ø25/31-4.8	AY2050P5008	586-102
8	1	PISTON GAS SEAL	ø48/60X6	U-MANSCH.N 48X60X6	585-802
7	1	PISTON SEAL	ø60/44-18.4	TPM236173/ TPM9020	585-800
6	2	ROD GUIDE RING	ø28/25-4	F3028003015040A	582-602
5	1	BACK-UP RING	ø60/55-1.3	SR055006000130T	582-301
4	1	O-RING	ø2.85x2.62 70 SHORE		530-353
3	2	O-RING	ø61.5x3 70 SHORE		530-352
2	1	O-RING	ø24.2x3 70 SHORE		530-351
1	2	O-RING	ø54.5x3 70 SHORE		530-350
Item Qty		Description	Dimension	Note	Part No.



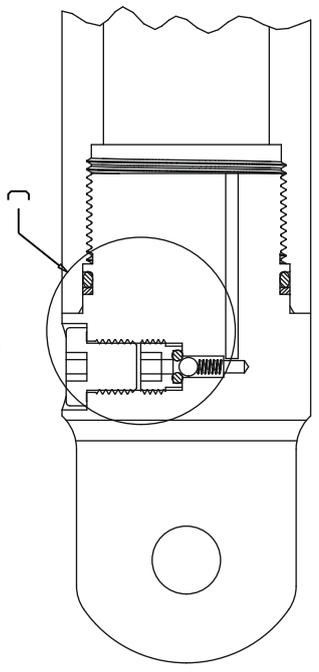
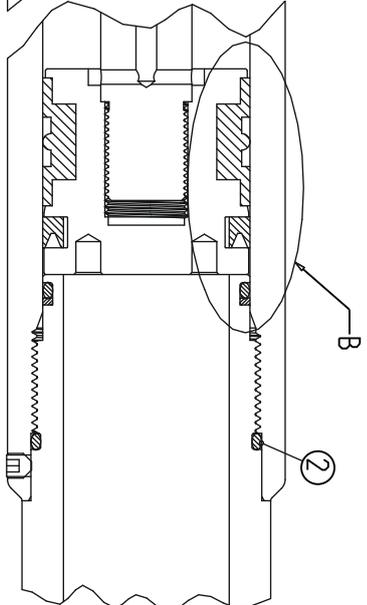
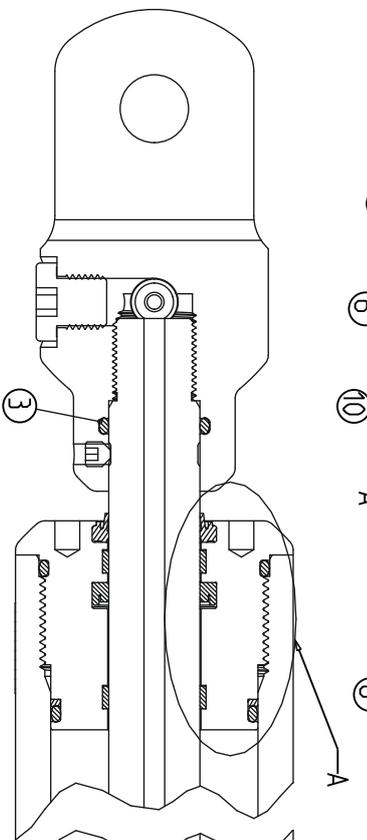
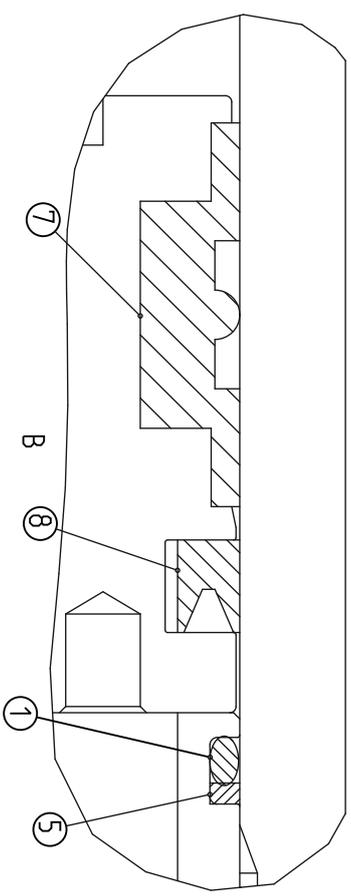
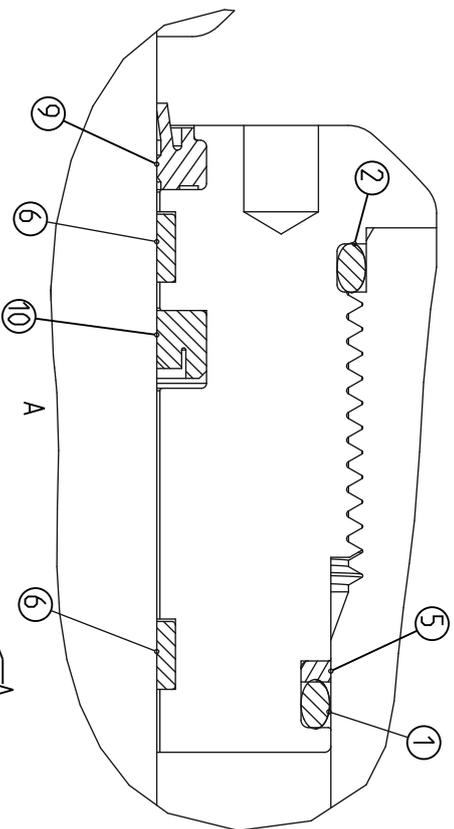
HV 89



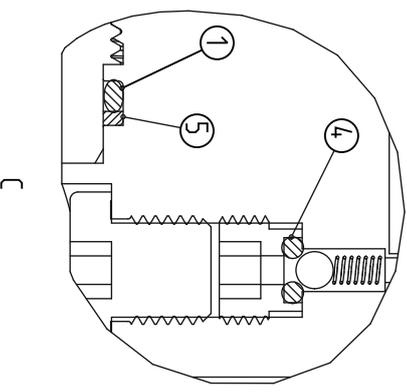
15	1	HYDR ROD SEAL	ø35/45-10	B33545P5008 (PARKER)	586-303
14	1	HYDR SCRAPER SEAL	ø35/43x5,8	AY3039P5008 (PARKER)	586-104
13	1	HYDR PISTON SEAL	ø85/65-22.4	TPM334255 (GTPM901700)	585-808
12	1	N u-manschet	ø70/85-7.5	N u-manschet 80665196000	585-807
11	2	ROD GUIDE RING	ø39/35-4	STYRBAND PO-30- 8,1 X 2	582-607
10	1	BACK-UP RING	ø85/80-1.3	80650338000	582-306
9	1	BACK-UP RING	ø28/23-1.3	Tätningen - 80650321023	542-028
8	2	O-RING	84.5X3 70 SHORE		530-374
7	1	O-RING	ø2.85x2.62 70 SHORE		530-353
6	1	O-RING	ø80x3 70 SHORE		530-319
5	1	O-RING	ø79.5x3 70 SHORE		530-318
4	1	O-RING	ø34.2x3 70 SHORE		530-317
3	1	O-RING	ø70x3 70 SHORE		530-316
2	1	O-RING	ø77x3 70 SHORE		530-315
1	1	O-RING	ø21.82x3.53 70 SHORE	Tätningen - 80640343000	530-254
Item	Qty	Description	Dimension	Note	Part No.



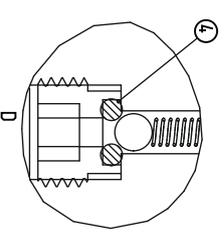
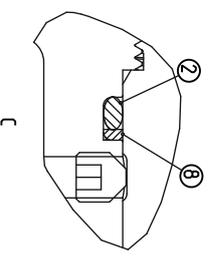
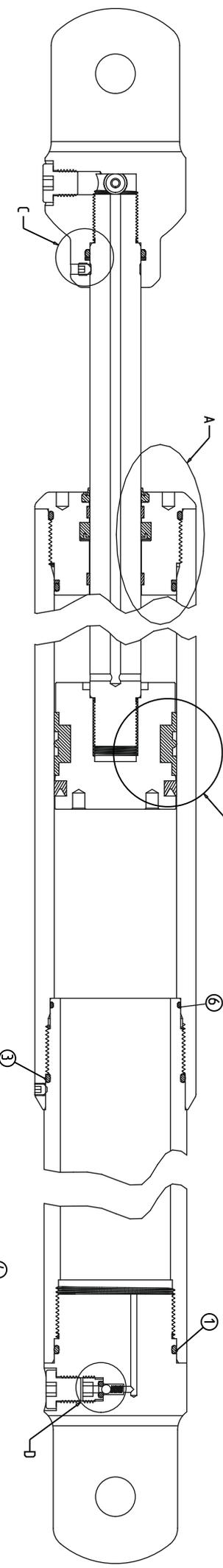
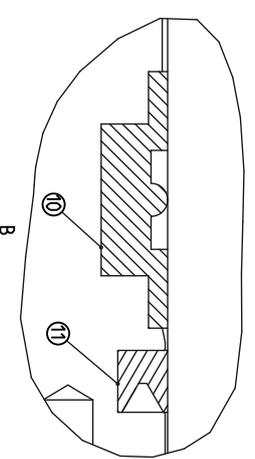
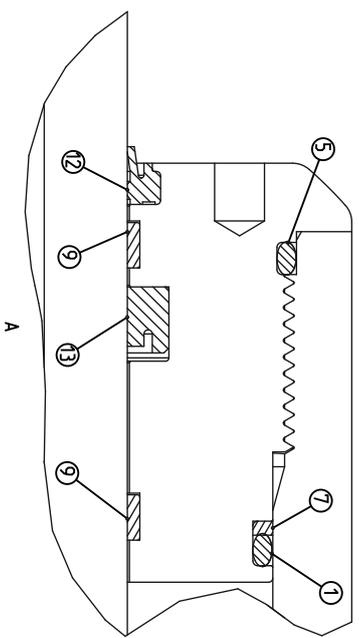
HV 46



10	1	ROD SEAL	Ø30/22-5.7	586-306	Freudenberg NI300
9	1	ROD WIPER	Ø30/22-7	586-106	Freudenberg PU5
8	1	PISTON GAS SEAL	50/38x6	585-804	GAPI GPM6 5038 NBR85
7	1	Piston Seal	50/34-18.4	585-803	TPM196133
6	2	ROD GUIDE RING	Ø25/22-5.5	582-613	Menkel HGW HG517
5	3	Back Up Ring	50/45-1.3	582-302	80650331000
4	1	O-RING	Ø2.85x2.62 70 SHORE	530-353	
3	1	O-RING	Ø21.2x3 90 SHORE	530-349	
2	2	O-RING	Ø50x3 70 SHORE	530-346	
1	3	O-RING	Ø44x3 70 SHORE	530-344	
Item Qty		Description	Dimension	Part No.	Note

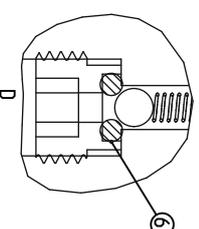
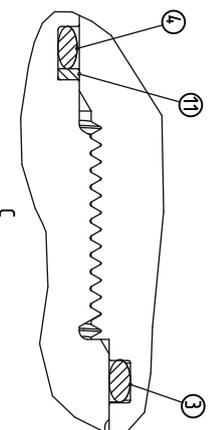
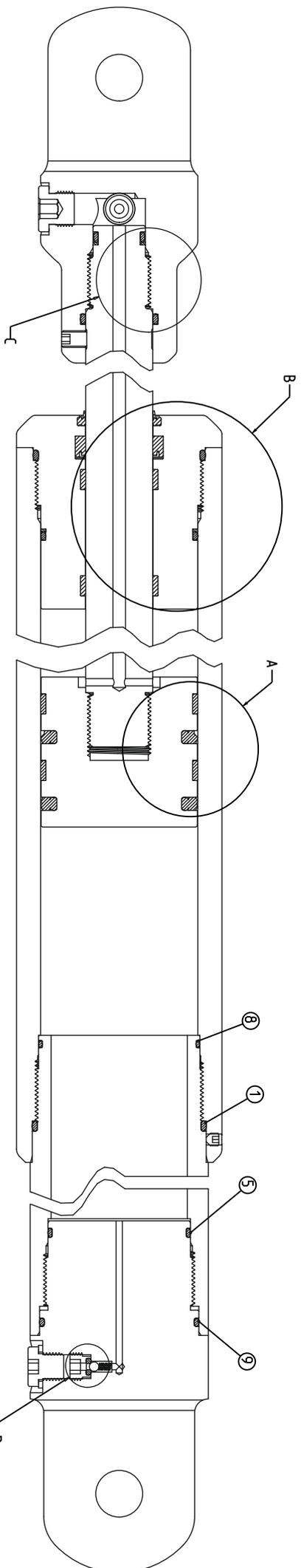
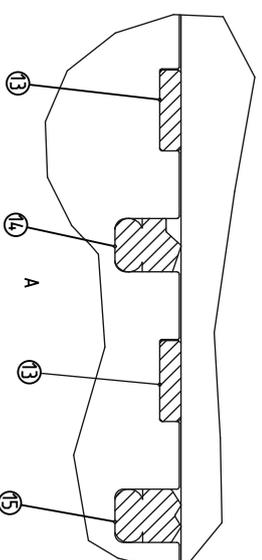
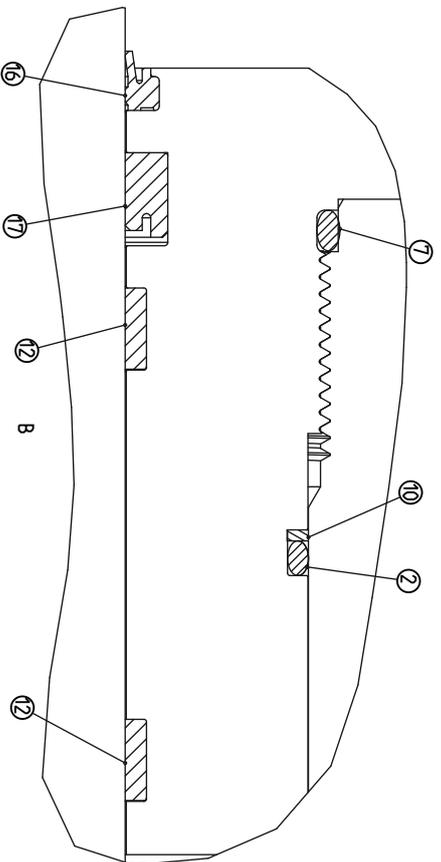


HV 69

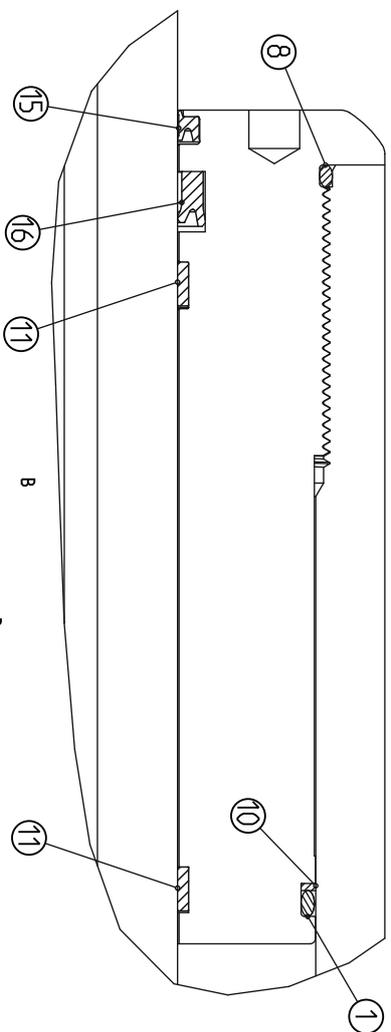


13	1	ROD SEAL	ø35/25-8	586-307	Freudenberg NI300
12	1	ROD WIPER	ø33/25-7	586-107	Freudenberg PU5
11	1	PISTON GAS SEAL	ø4,8/60X6	585-802	U-MANSCH.N
10	1	PISTON SEAL	ø60/44-18,4	585-800	TPM236/73 / TPM9020
9	2	ROD GUIDE RING	ø28/25-5,5	582-614	
8	1	BACK-UP RING	ø30/25-1,3	582-310	
7	1	BACK-UP RING	ø60/55-1,3	582-301	
6	1	O-RING	ø58x2 70 SHORE	530-425	
5	1	O-RING	ø57x3 70 SHORE	530-355	
4	1	O-RING	ø2,85x2,62 70 SHORE	530-353	
3	1	O-RING	ø61,5x3 70 SHORE	530-352	
2	1	O-RING	ø24,2x3 70 SHORE	530-351	
1	2	O-RING	ø54,5x3 70 SHORE	530-350	
Item	Qty	Description	Dimension	Part No.	Note

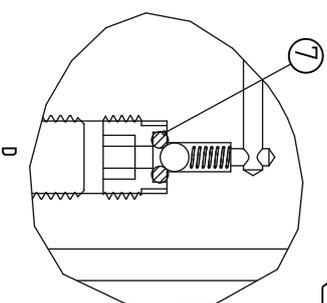
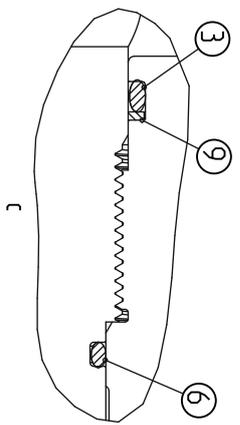
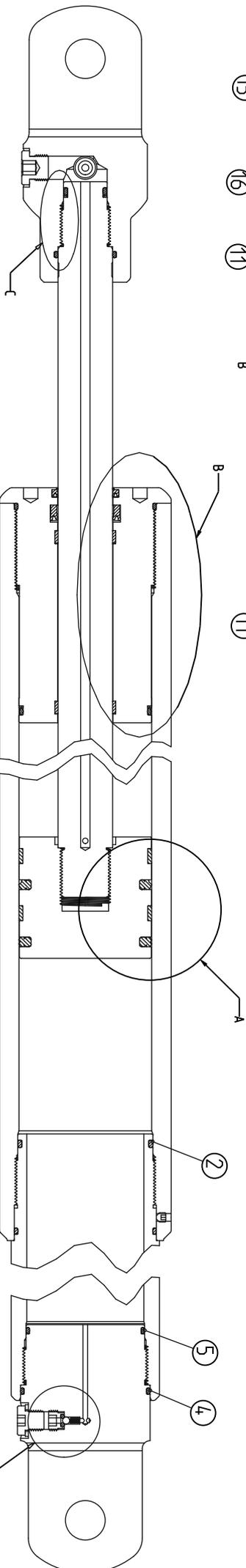
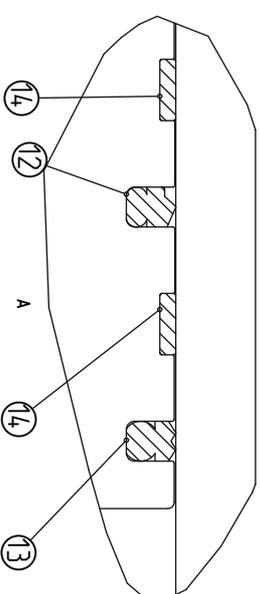
HV 106



17	1	ROD SEAL	ø32x ø6.2x10 / 5	586-308	Freudentberg NI300
16	1	ROD WIPER	ø32/4.0-7	586-108	Freudentberg P05
15	1	DOUBLE ACTING PISTON SEAL	ø75x59.5x5.9	585-648	SKF K08-P
14	1	SINGLE ACTING PISTON SEAL	ø75x59.5x5.9	585-647	SKF K08-E
13	2	GUIDE RING	ø75x70-9.7	585-646	SKF F01
12	2	ROD GUIDE RING	32x37x9.6 / 2.5 MM	582-615	MERKEL HGW HG517
11	1	BACK-UP RING	25/20-1.3	582-313	
10	1	BACK-UP RING	75/70-1.3	582-312	
9	1	O-RING	ø67x3 70 SHORE	530-445	
8	1	O-RING	ø70x2.5 70 SHORE	530-444	
7	1	O-RING	ø72.62x3.53 90 SHORE	530-427	
6	1	O-RING	ø2.85x2.62 70 SHORE	530-353	
5	1	O-RING	ø60.2x3 90 SHORE	530-260	
4	1	O-RING	ø18.64x3.53 70 SHORE	530-250	
3	1	O-RING	ø31.34x3.53 70 SHORE	530-249	
2	1	O-RING	ø69.5x3 70 SHORE	530-200	
1	1	O-RING	ø78x3 70 SHORE	530-154	
Item Qty		Description	Dimension	Part No.	Note



HV 138



16	1	HYDR ROD SEAL	Ø35/45-10	586-303	PARKER B33545P5008
15	1	HYDR SCRAPER SEAL	Ø35/43x5.8	586-104	PARKER AY3039P5008
14	2	GUIDE RING	Ø85x Ø80x9.7	585-661	SKF F01
13	1	DOUBLE ACTING PISTON SEAL	Ø85x69.5x6.9	585-660	SKF K08-P
12	1	SINGLE ACTING PISTON SEAL	Ø85x69.5x6.3	585-659	SKF K08-E
11	2	ROD GUIDE RING	Ø39/35-4	582-607	
10	1	BACK-UP RING	Ø85/80-1.3	582-306	
9	1	BACK-UP RING	Ø28/23-1.3	542-028	
8	2	O-RING	84.5X3 70 SHORE	530-374	
7	1	O-RING	Ø2.85x2.62 70 SHORE	530-353	
6	1	O-RING	Ø34.2x3 70 SHORE	530-317	
5	1	O-RING	Ø70x3 70 SHORE	530-316	
4	1	O-RING	Ø77x3 70 SHORE	530-315	
3	1	O-RING	Ø21.82x3.53 70 SHORE	530-254	
2	1	O-RING	Ø60x3.53	530-174	
1	1	O-RING	Ø77x3.5 70 SHORE	530-156	
Item Qty		Description	Dimension	Part No.	Note

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