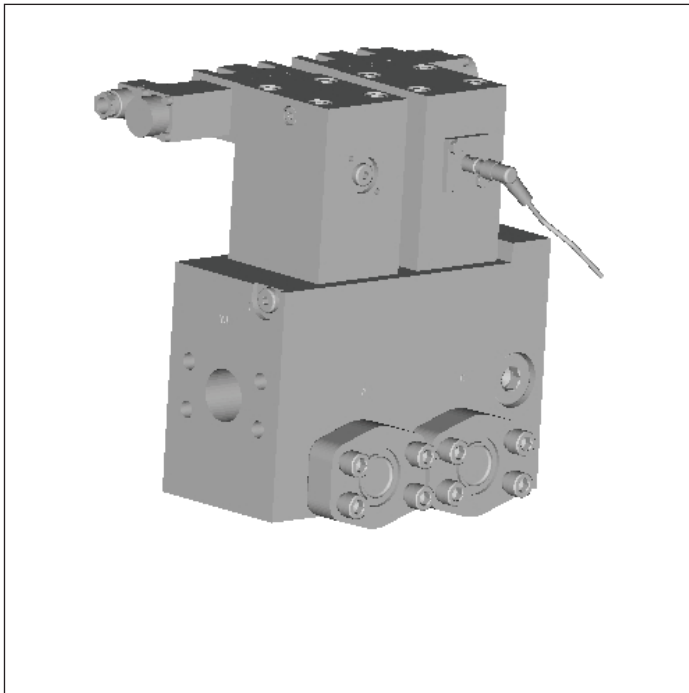


Hydraulic quick stop valve Häggglunds VQCB 800



- ▶ Valid for Häggglunds CA, CB, CBP, CBM
- ▶ Maximum flow 800 lpm (208 gpm)
- ▶ Fast response time, i.e. 100-150 ms
- ▶ Max pressure 350 bar (5000 psi)
- ▶ Open and closed loop

Features

- ▶ Compact and robust design
- ▶ Mounted directly on Häggglunds motors

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1 Ordering code

In order to identify Hägglunds equipment exactly, the following ordering code is used. These ordering codes should be stated in full in all correspondence e.g. when ordering spare parts.

Example VQCB 800:

VQC	B	800	1	0	00
01	02	03	04	05*	06*

01	Hydraulic quick stop valve VQC	VQC
02	Version	B
03	Rated flow 800 litres/min	800
04	Control voltage Standard 24 VDC 110 VAC (not in combination with QEC)	1 2
05*	Modification	0-9
06*	Design Standard Special index (Customer specific adaption)	00 01-99

*) To be filled in by Bosch Rexroth Mellansel AB.

4 Technical data

4.1 Technical data, Hägglunds VQCB 800

Table 1: Technical data Valve VQCB 800

Maximum operating pressure	350	bar	5000	psi
Pilot pressure	7 to 350	bar	100 to 5000	psi
Maximum flow	800	l/min	208	gpm
Pilot valve interface	NG6			
Temperature range	-25 to +70	°C	-13 to + 158	°F
Viscosity range	20 to 380	cSt		
Weight	57	kg	121	lb

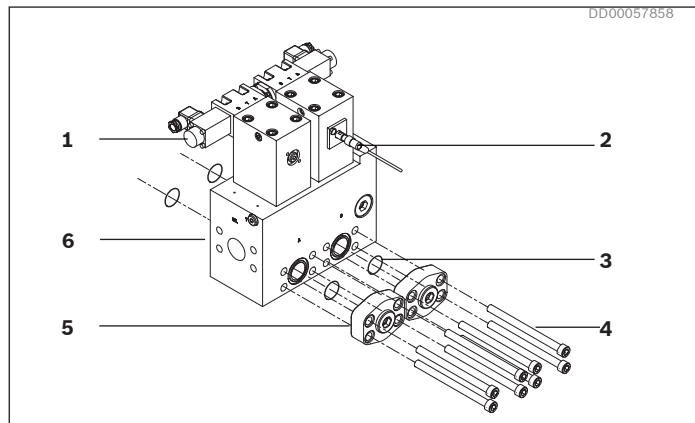


Fig. 2: Overview, valve VQCB 800

Table 2: Overview, valve VQCB 800 enclosed parts

Pos	Description	Pcs
1	Solenoid valve	2
2	Inductive sensor	1
3	O-ring 40,87x3,53 NBR90	4
4	Screw ASME B18.3-1/2-13UNC-2AX6 1/2	8
5	Protective cover	2
6	Valve	1

3 Calculation (quick stop function)

With Hägglunds hydraulic roll mill drive.

General

As the rubber roll mills are manually operated the time to stop the rollers is of utmost importance. Stopping of the roll can be calculated according to following:

φ	Stop angle	°
n	Speed	rpm
J_{machine}	Moment of inertia machine	kg·m ²
J_{motor}	Moment of inertia motor	kg·m ²
T_s	Specific torque	Nm/bar
Δp	Pressure over motor	bar
t_s	Response time hydraulic valve	s

$$\varphi = \pi \cdot n^2 \cdot (J_{\text{machine}} + J_{\text{motor}}) / (10 \cdot T_s \cdot \Delta p) + 6 \cdot n \cdot t_s$$

Example:

CB400 typical application for a rubber roll mill

$$\begin{aligned} n &= 15 \text{ rpm} \\ J_{\text{machine}} &= 350 \text{ kgm}^2 \\ J_{\text{motor}} &= 18.3 \text{ kgm}^2 \end{aligned}$$

$$\varphi = \pi \cdot 15^2 \cdot (350 + 18.3) / (10 \cdot 400 \cdot 350) + 6 \cdot 15 \cdot 0,15 = 13,7^\circ$$

5 Operating data

5.1 Operating data, solenoid

! CAUTION

Wrong polarity

Wrong polarity will destroy the transient suppressor

► Ensure that the solenoid is connected correctly!

Table 3: Operating data Solenoid

Supply voltage	24	VDC
Power consumption	30	W
Electric contact	DIN 43650	

Contact with built-in transient suppressor and indicator for electrical activation.

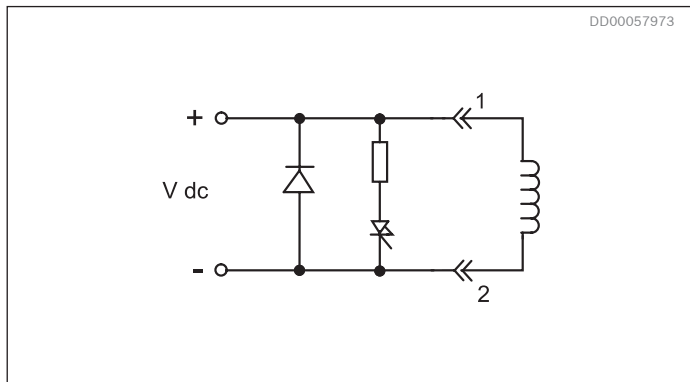


Fig. 3: Electric circuit, contact

5.2 Operating data, inductive sensor

Table 4: Operating data Inductive sensor

PNP Normally-open		
Supply voltage	U _b	10...30 VDC
Rated operational voltage	U _e	24 VDC
Voltage drop U _d at I _e	U _d	≤ 2,5 V
Rated operational current	I _e	200 mA
IEC 60529 protection	IP	IP68
Connection	M12x1	L=3m
	Cable PVC	
	3x0,34 mm ²	

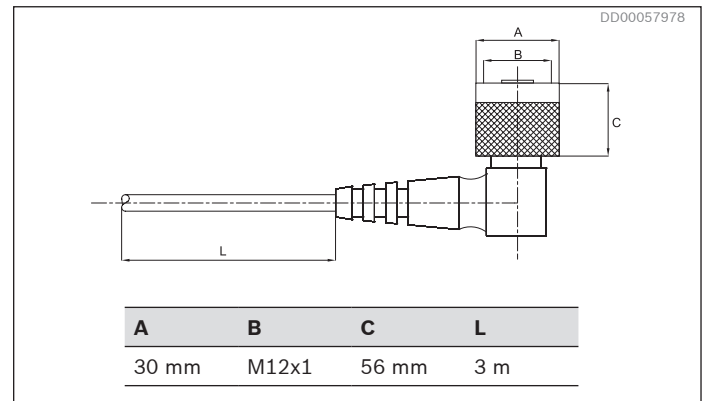


Fig. 4: Inductive sensor connector

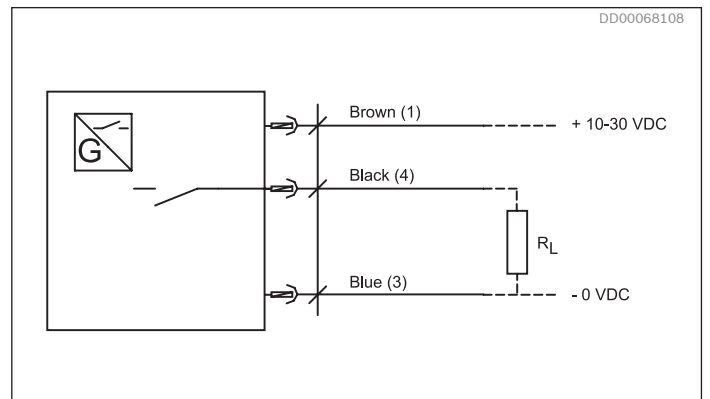
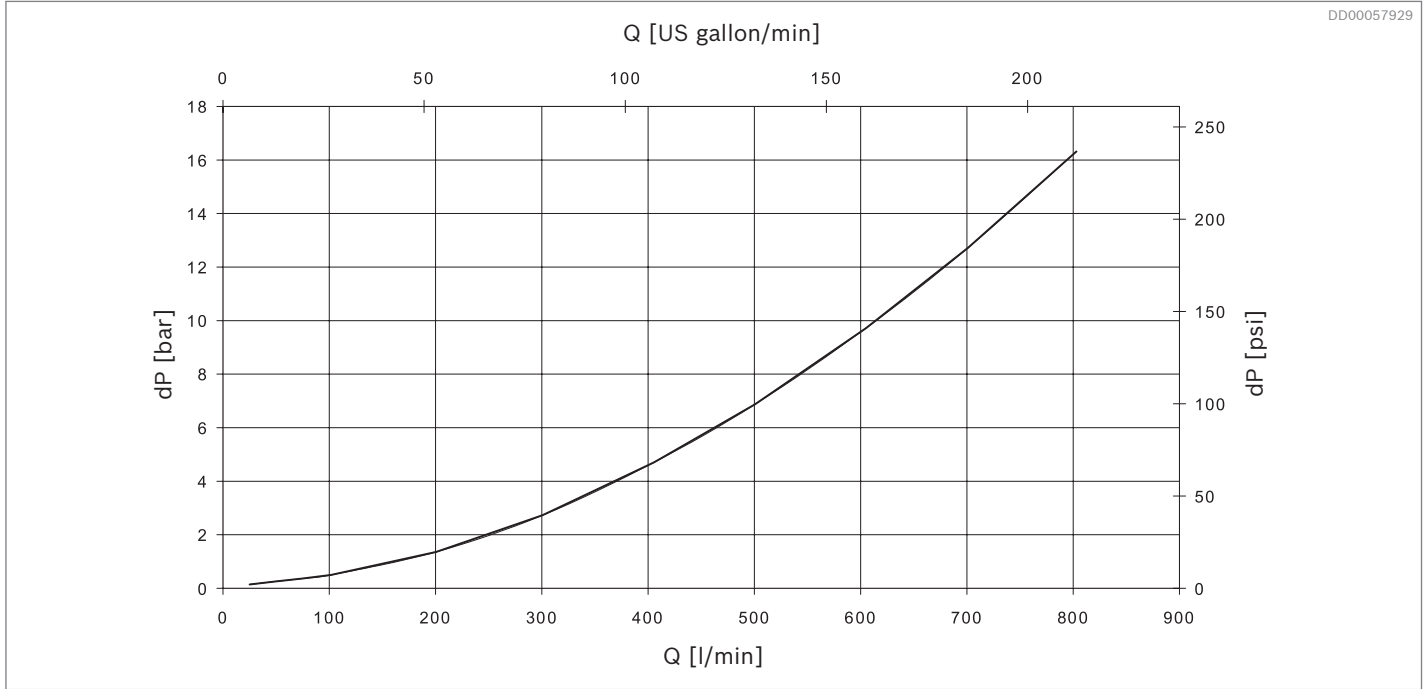


Fig. 5: Electric circuit, inductive sensor

6 Pressure loss diagram INL - OUT



7 Unit dimensions

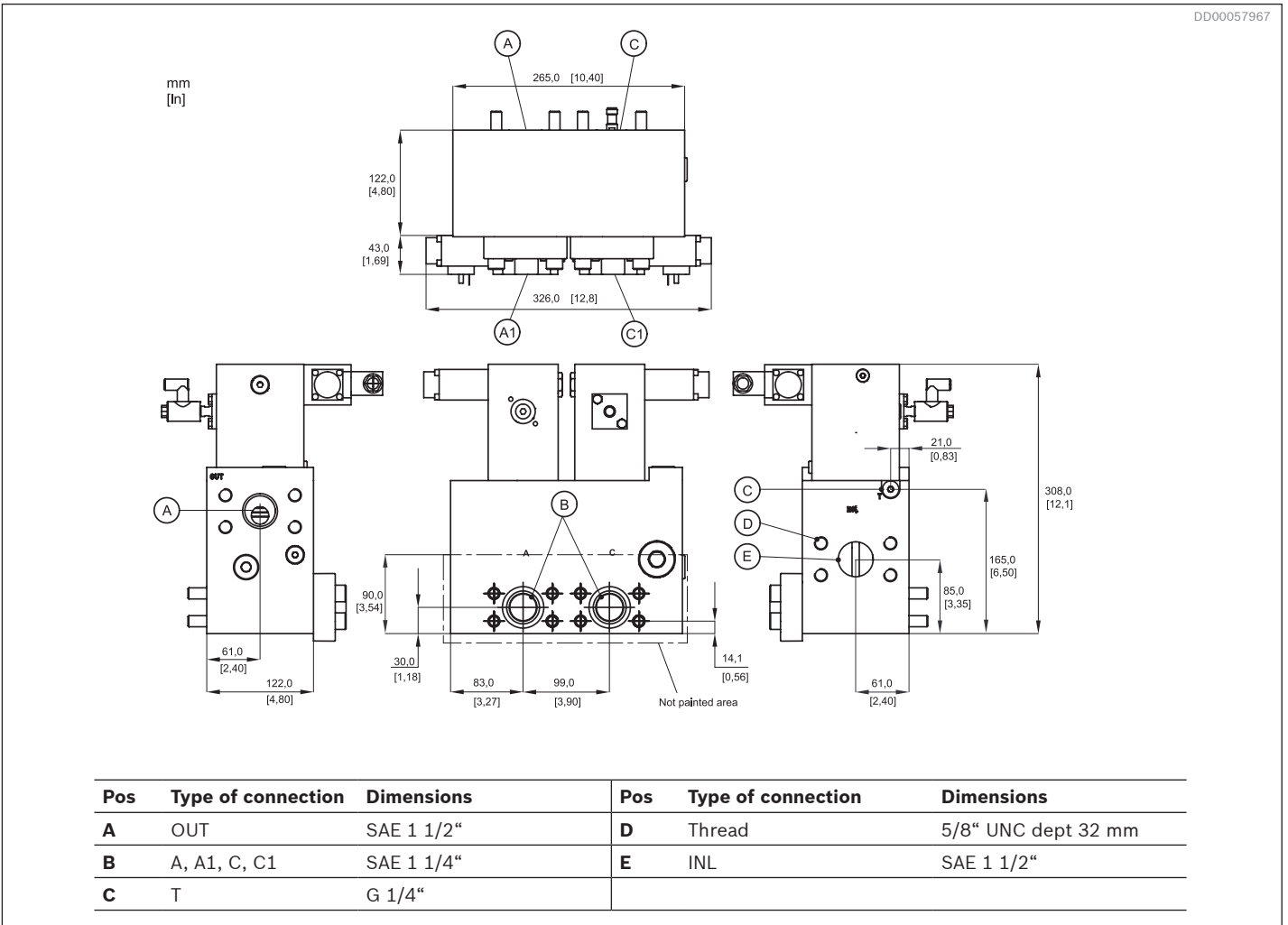


Fig. 6: Dimensions valve VQCB 800

8 General instructions

- ▶ The VQCB hydraulic quick stop valve is designed to be used in open and closed circuits.
- ▶ Project planning, assembly and commissioning of components for radial piston hydraulic motor require the involvement of qualified personnel.
- ▶ Depending on operational state of the radial piston hydraulic motor or stop valve (operating pressure, fluid temperature), the characteristic may vary.
- ▶ Pressure ports:
The ports and fixing threads are designed for the specified maximum pressure. The machine or system manufacturer must ensure that the connecting elements and lines correspond to the specified operating conditions (pressure, flow, hydraulic fluid, temperature) with necessary safety factors.
- ▶ The data and notes contained herein must be adhered to.
- ▶ Observe instruction regarding tightening torque and assembling of valve.

NOTICE

Connection of valve to the hydraulic motor

Wrong connection causes incorrect valve stop function

Ensure that the valve is connected correctly to the hydraulic motor due to rotation direction

- ▶ Clockwise rotation (seen from shaft side):
A-connection on valve to C-connection on hydraulic motor
- ▶ Counter clockwise rotation (seen from shaft side):
A-connection on valve to A-connection on hydraulic motor

9 Installation instructions

9.1 Mounting the valve on Hägglunds CA and CB The valve mounted directly on the motor.

10. Remove protective cover, see “Table 2: Overview, valve VQCB 800 enclosed parts” page 4, from motor mounting surface and clean the connection surface on the valve.
11. Place the O-rings (included in delivery) in their proper position on the valve mounting surface. Use grease to keep O-ring fixed during assembling.

12. Mount valve against the motor with the ports in correct position.
13. Tighten the screws (8 pcs ½ UNC) torque 130 Nm / 97 lb ft.
14. Restore paint finish and protect exposed surfaces.

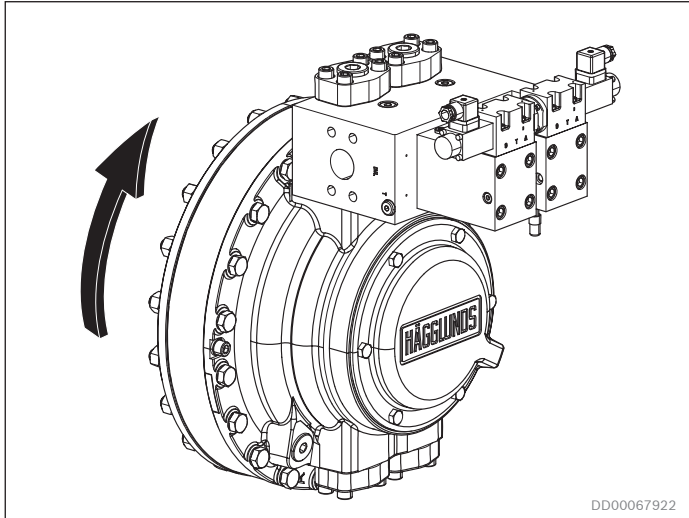


Fig. 7: CA valve mounting position for counter clockwise drive shaft rotation as viewed from the motor shaft side. INL port (A) on valve connected to A port on motor

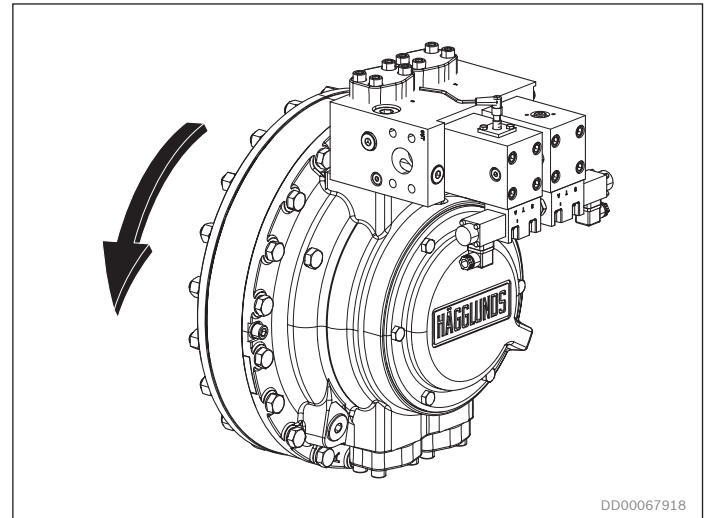


Fig. 8: CA valve mounting position for clockwise drive shaft rotation as viewed from shaft motor side. INL (A1) port on valve connected to C port on motor

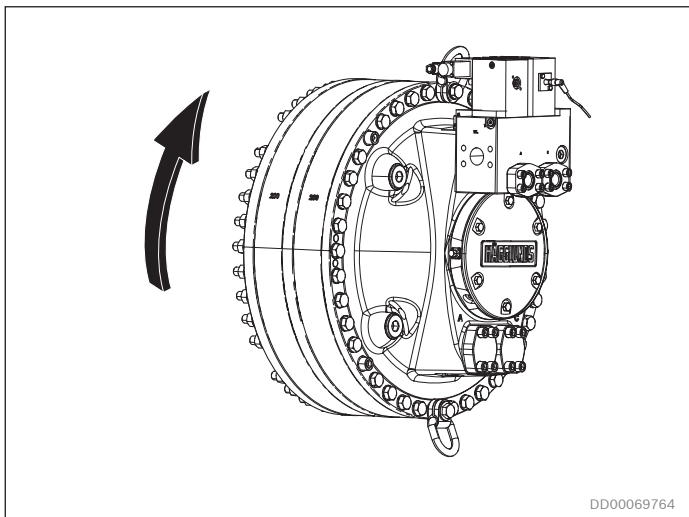


Fig. 9: CB valve mounting position for counter clockwise drive shaft rotation as viewed from motor shaft side. INL (A1) port on valve connected to A port on motor

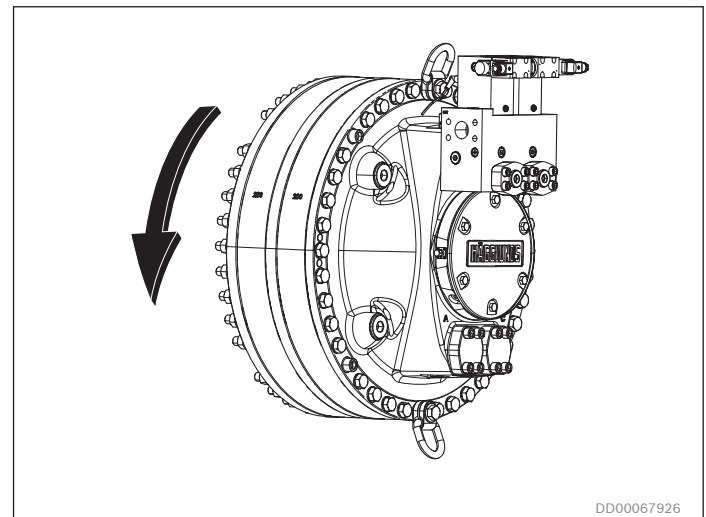


Fig. 10: CB valve mounting position for clockwise drive shaft rotation as viewed from motor shaft side. INL (A) port on valve connected to C port on motor

14.1 Mounting the valve on Häggblunds CBP and CBM together with adaptor

Notice!
 Adaptor R939011952, VA 1000-15 must be ordered separately!

14.2 The valve mounted directly on the motor.

1. Remove protective cover, see “Table 2: Overview, valve VQCB 800 enclosed parts” page 4, from motor mounting surface and clean the connection surface on the adaptor.
2. Place the O-rings (included in delivery) in their proper position on the adaptor mounting surface. Use clean grease to keep O-rings fixed during assembling.

3. Mount the adaptor on to the motor with the ports in their correct position. Tighten screws (8 pcs ¾ UNC) torque = 568 Nm / 419 lb. ft. Remove protective cover from adaptor mounting surface and clean the connection surface on the valve.
4. Place the O-rings in their proper position on the valve mounting surface. Use clean grease to keep O-rings fixed during assembling.
5. Mount valve against the adaptor with the ports in correct position.
6. Tighten the screws (8 pcs ½ UNC) torque 130 Nm / 97 lb ft.
7. Restore paint finish and protect exposed surfaces.

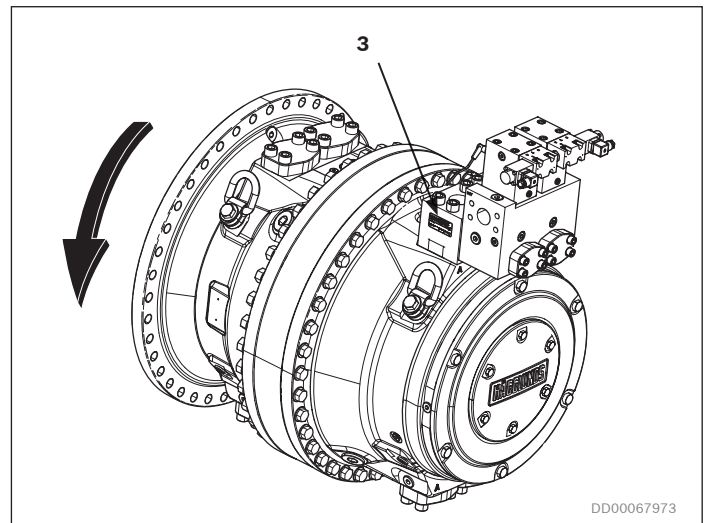
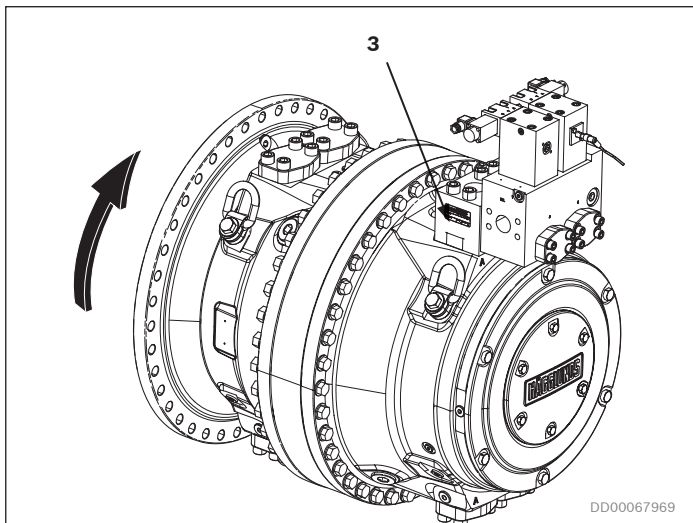


Fig. 11: CBP valve mounting position for counter clockwise drive shaft rotation as viewed from motor shaft side. INL (A1) port on valve connected to A port on motor

Fig. 12: CBP valve mounting position for clockwise drive shaft rotation as viewed from motor shaft side. INL (A) port on valve connected to C port on motor

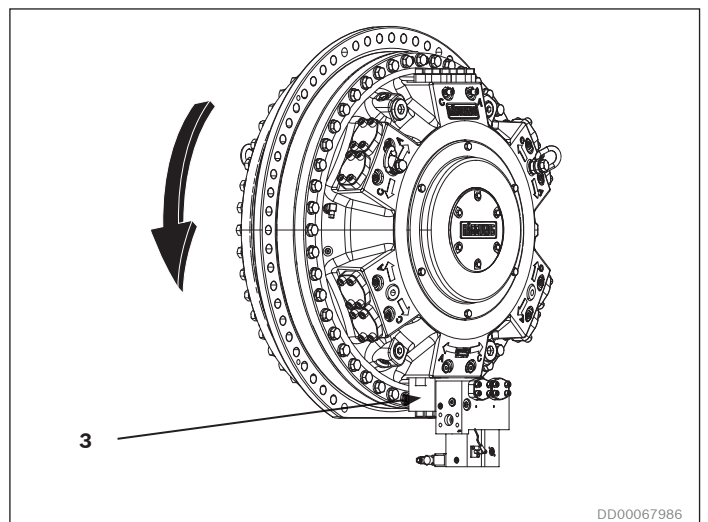
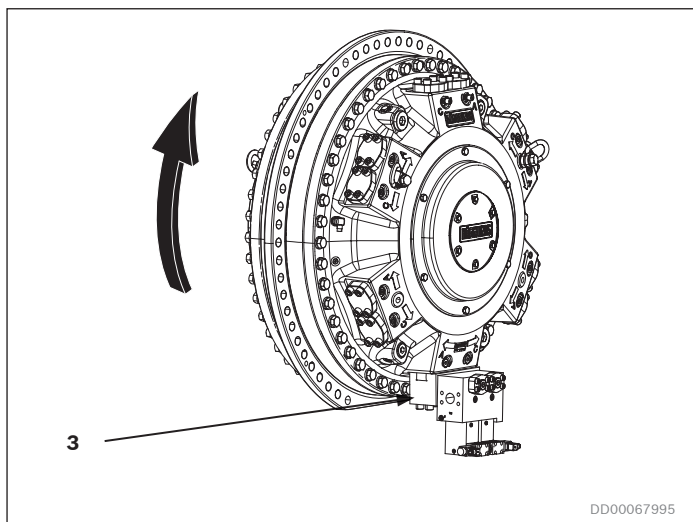






Fig. 13: CBM valve mounting position for counter clockwise drive shaft rotation as viewed from motor shaft side. INL (A) port on valve connected to A port on motor

Fig. 14: CBM valve mounting position for clockwise drive shaft rotation as viewed from motor shaft side. INL (A1) port on valve connected to C port on motor

8 Required and additional documentation

Table 5: Required and additional documentation

	Title	Document no	Document type
	Installation and maintenance manual, Hägglunds CA	EN411-18h	Instruction
	Installation and maintenance manual, Hägglunds CB	EN683-6BR	Instruction
	Installation and maintenance manual, Hägglunds CBP	EN818-6BR	Instruction
	Installation and maintenance manual, Hägglunds CBM	RE 15300-WA	Instruction

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