

HYDROX

Hydrox™ Manual /
Manual+ control units

installation, operation and maintenance manual



Contents

1. General	4
2. Control unit identification	5
3. Unloading and storage	6
4. Control unit installation	7
5. Operation	8
5.1 Manual operation with Hydrox Control Unit (HCU) Manual / Manual+	8
5.2 Electric operation with Hydrox Control Unit (HCU) Manual+	10
6. Maintenance	12
6.1 Oil change	12
6.2 Battery replacement	13
6.3. Spare components list	14



NOTE:

This manual must be read and its instructions must be followed when installing, operating and/or performing maintenance on the control unit or its equipment.

These instructions are of general nature and do not cover all possible operating scenarios. For more specific guidance on the installation, operation and maintenance of the actuator or its suitability for an intended use, please contact the manufacturer.

Vexve Oy reserves the right to make alterations to these instructions.

Vexve Oy is not responsible for damages caused by incorrect transportation, handling, installation, operation or maintenance. Furthermore, Vexve Oy is not responsible for damage caused by foreign objects or impurities.

Warranty

Warranty according to Vexve Oy's "General terms and conditions of sale".

The warranty covers manufacturing and material faults. The warranty does not apply to damages caused by inappropriate installation, operation, maintenance, or storage ie. these instructions must be followed for the warranty to apply. Vexve Oy requires that any faulty products under warranty are to be returned to the factory for inspection. Only after the product has been found faulty, Vexve Oy can grant compensation.

Please refer to Vexve Oy's "General terms and conditions of sale" for detailed warranty clauses. The document is available from the manufacturer

Warnings and symbols

Ignoring the warnings and symbols may lead to serious injury or equipment damage. Persons authorized to use the equipment must be familiar with the warnings and instructions.

Appropriate transportation, storage and installation as well as careful commissioning are essential to ensure faultless and stable operation.

The following symbols are used in this manual to draw attention to actions essential to ensure the proper use and safety of the device.



Meaning of the symbol: NOTE

The NOTE symbol is used for actions and functions that are essential for the proper use of the device. Ignoring this symbol may have harmful consequences.



Meaning of the symbol: WARNING

The WARNING symbol is used for actions and functions that, if carried out incorrectly, may lead to injury or equipment damage.

1. General

Vexve Oy's Hydrox control unit is the best solution for controlling the Hydrox actuators. Specifically designed to operate seamlessly with Hydrox actuators and therefore with Vexve and Naval ball and butterfly valves. The Hydrox control unit is the perfect solution for easy and reliable operation with minimum need of maintenance and with maximum safety at all times.



NOTE:

When intending to use the control unit with actuators from other manufacturers than Vexve Oy please contact Vexve Oy to ensure its suitability.

For detailed technical information including dimensions and weights, pressures etc. please refer to Hydrox Product catalogue or data sheets (www.vexve.com).

2. Control unit identification

The identification plate locates at the control unit's side. It has the following information:

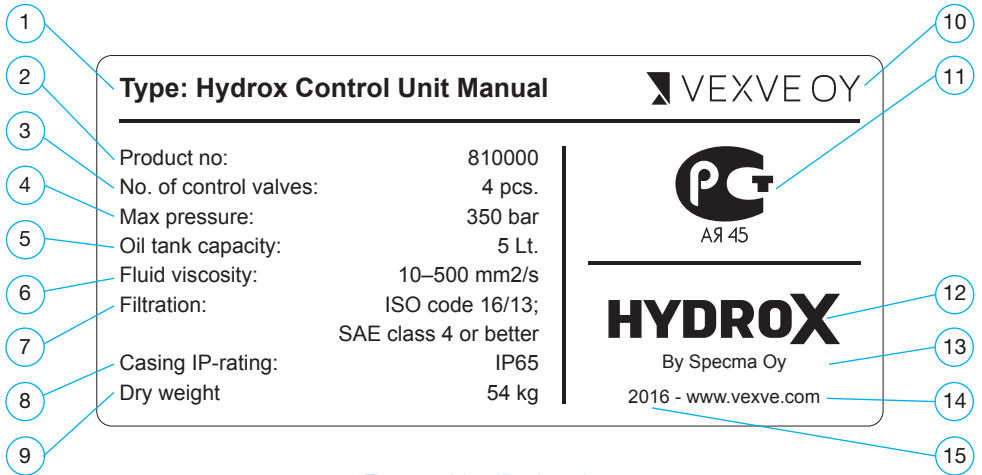


Figure 1. Identification plate.

- | | |
|--------------------------|---------------------------|
| 1. Control unit type | 10. Producer |
| 2. Product no | 11. Russian certification |
| 3. No. of control valves | 12. Trademark |
| 4. Max. pressure | 13. Manufacturer |
| 5. Oil tank capacity | 14. Producer's website |
| 6. Fluid viscosity | 15. Manufacturing year |
| 7. Filtration | |
| 8. Casing IP-rating | |
| 9. Dry weight | |

3. Unloading and storage

Check that the content of the delivery is as ordered. Check that the control unit and related equipment have not been damaged during transportation.

Store the control unit carefully before installation, preferably in a well-ventilated, dry place, on a shelf or a wooden grid to protect it from rising damp.

Protect the cabinet's ingoing components from sand, dust, water, moist and other contamination.

Protect bare metal surfaces with anti-corrosive agent before storage.

The control unit must be transported to the installation site in a sturdy package. Do not remove any protectors before installation. Protect the control unit from dust and other impurities.

Take the weight of the control unit and its equipment into account when handling them.

The maximum storage time is two years.

Packaging:

Vexve's products are protected during transportation with special packaging. The packaging consists of environmentally friendly materials that are easy to sort and recycle.

Recycling the packaging materials at designated

waste collection points is recommended.

The following packaging materials are used: wood, cardboard, paper, and polyethylene sheets.

Recycling and disposal

Nearly all parts of the actuator are made of recyclable materials. The material type is marked on most parts. Separate recycling and disposal instructions are available from the manufacturer. The actuator can also be returned to the manufacturer for recycling and disposal against a fee.

4. Control unit installation

See figure 2.

Control units must always be installed securely to the wall with four screws from the corners (1). The control unit can also be installed to a plinth intended for it with four screws. Cabinets must be mounted and used in the position according to the drawing.

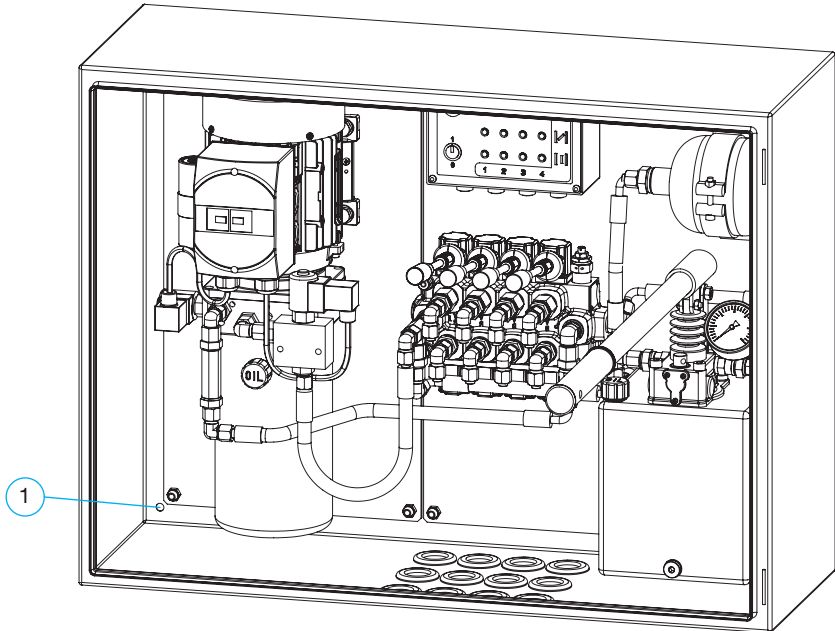


Figure 2. Mounting holes.

Preparations before commissioning:

- Make sure the hydraulic connections are clean.
- Keep all protective caps on the hydraulic connections until connected. This is for preventing the components against contamination.
- Check that all bolts and hydraulic couplings are fastened. The control cabinets are always pressure tested and verified before delivery. However, during delivery, the threaded connections can loosen and therefore this should be controlled before pressurizing the system.

5. Operation



NOTE:

Please contact Vexve Oy if you intend to use the control unit with other actuators than Hydrox.

When bleeding the system the hydraulic connectors must be loosened in the hydraulic actuator. Otherwise the valve could change its position.

5.1 Manual operation with Hydrox Control Unit (HCU)

Manual / Manual+

Part numbers mentioned in this chapter refer to the figures 3, 4 and 5.

Up to four valves can be connected and operated with the Hydrox Control Unit (HCU).

Following initial steps are needed for taking the system into use:

Systems without position transmitter:

1. Connect the hydraulic hoses to the actuator's connections "A" and "B". Do not tighten them fully.
2. Connect the hydraulic hose from actuator port "A" to the cabinet control block port "A" and for port "B" vice versa.
3. Fill in the pump tank (1) with hydraulic oil (max. 4 L).
4. To bleed the system, switch the hand lever of the first valve in the control valve block into the shut position. In order to pressurize the hydraulic hose in the port A, begin to pump with the hand pump lever (3) and let the air bleed out of the loosen hydraulic connector on the actuator. Repeat the foregoing procedure for the hose connected in the port B by switching the first valve in the open position.

5. During bleeding process check the oil level of the pump's tank and refill the tank if necessary.
6. Tighten the hose connections on the actuator.
7. Repeat the foregoing steps (4-6) with the other valves.

When commissioning of the system has successfully finished you can continue with the operational steps to open or close the valves:

8. Choose the hand lever of the valve to be operated and switch it to the open or shut position.
9. By operating the hand pump the valve turns in the chosen position.
10. Actuator's indicator slot (4) will show the valve's position.
11. When shutting the valve observe that the actuator's indicator slot turns into close position and the pressure level starts to increase. Then stop pumping.
12. When opening the valve observe that the actuator's indicator slot turns into open position and the pressure level starts to increase. Then stop pumping.



NOTE:

Please contact Vexve Oy if you intend to use the control unit with other position transmitter than provided by Vexve Oy.

When bleeding the system the hydraulic connectors must be loosened in the hydraulic actuator. Otherwise the valve could change its position.

Systems with position transmitter:

1. Connect the hydraulic hoses to the actuator's connections "A" and "B". Do not tighten them fully.
2. Connect the hydraulic hose from actuator port "A" to the cabinet control block port "A" and for port "B" vice versa.
3. Fill in the pump tank (1) with hydraulic oil (max. 4 L).
4. To bleed the system, switch the hand lever of the first valve in the control valve block into the shut position. In order to pressurize the hydraulic hose in the port A, begin to pump with the hand pump lever (3) and let the air bleed out of the loosen hydraulic connector on the actuator. Repeat the foregoing procedure for the hose connected in the port B, by switching the first valve in the open position.
5. During bleeding process check the oil level of the pump's tank and refill the tank if necessary.
6. Tighten the hose connections on the actuator.
7. Repeat the foregoing steps (4-6) with the other valves.
8. Connect the position transmitter (5) cables to the indication box (6).
9. Turn on the valve limit position indication box.

10. Test the functionality of the LEDs by switching the "TEST" knob (7).

When commissioning of the system has successfully finished you can continue with the operational steps to open or close the valves:

11. Test the functionality of the LEDs by switching the "TEST" knob (7).
12. Choose the hand lever of the valve to be operated and switch it to the open or shut position.
13. By operating the hand pump the valve turns in the chosen position.
14. The limit position indication box will show the valve's position. RED shut; YELLOW travelling; GREEN open.
15. When shutting the valve observe that the RED lights up and the pressure level starts to increase (8). Then stop pumping.
16. When opening the valve observe that the GREEN lights up and the pressure level starts to increase. Then stop pumping.

5.2 Electric operation with Hydrox Control Unit (HCU) Manual+

Part numbers mentioned in this chapter refer to the figures 3, 4 and 5.

Please observe the same steps as in 5.1 for initial use and operation.

1. Fill in the pump oil tank (9) with hydraulic oil (max. 2L).
2. Plug the power cable to the electric grid.
3. Start the electric pump by pressing the green button (10).
4. Choose the hand lever (2) of the valve to be operated and switch it to the open or close position.
5. While closing the valve observe that the actuator's indicator slot turns into close position (red light when using with position transmitter). When the indicator slot has reached closed position and the pressure has increased, please release the lever.
6. While opening the valve observe that the actuator's indicator slot turns into open position (green light when using with position transmitter). When the indicator slot has reached open position and the pressure has increased, please switch the lever to neutral position.
7. After the wanted operations are done please shut down the electric pump by pressing the red button (11).

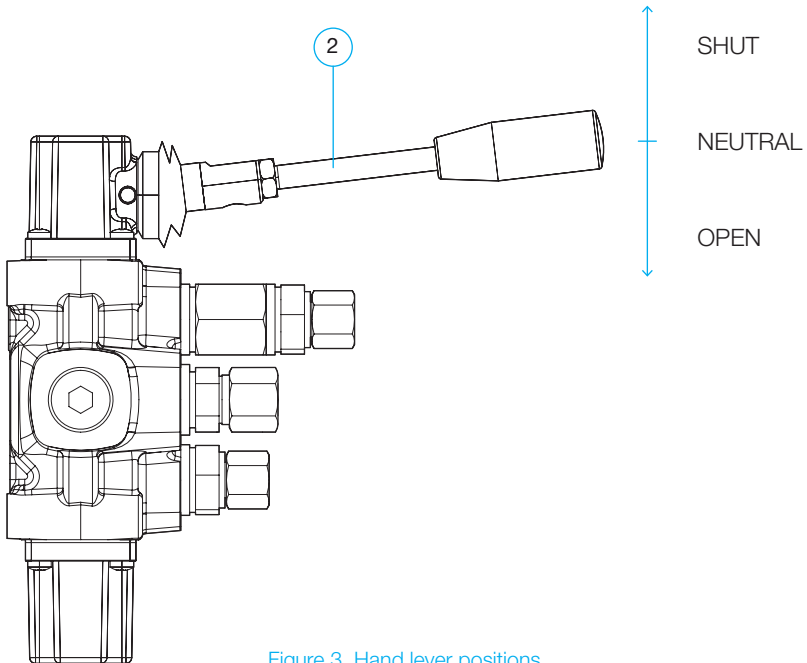


Figure 3. Hand lever positions

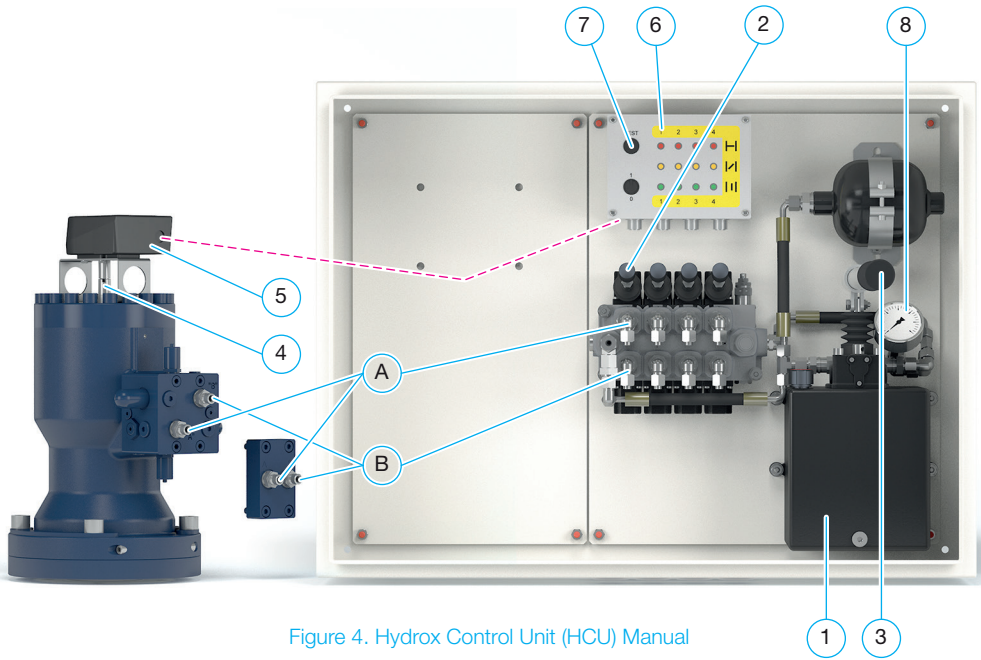


Figure 4. Hydrox Control Unit (HCU) Manual

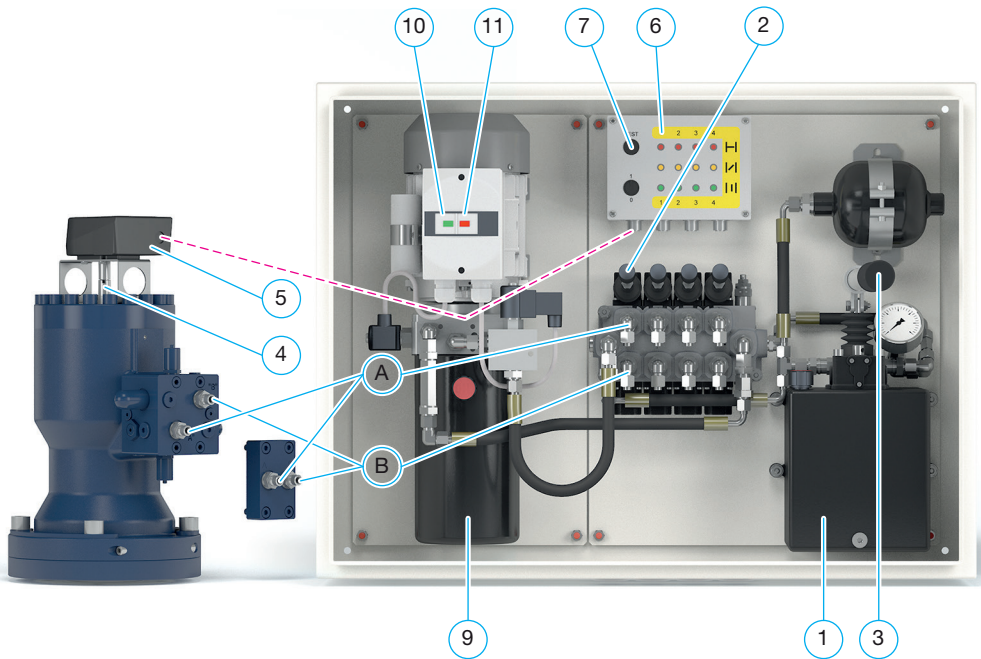


Figure 5. Hydrox Control Unit (HCU) Manual+

6. Maintenance

Hydrox control units need only little maintenance.

The correct choice of control unit, valve and actuator combination as well as careful installation, commissioning and use significantly reduce any need for maintenance.

We recommend checking the following periodically:

Check that the control unit is free from oil leaks, and carefully tighten if any leakages occurred.

To ensure long-term operational reliability, even when seldom used (around ten times a year or less), we recommend the following:

Approximately six months after commissioning and then once a year, check the functionality of the control unit, inspect the control unit for oil leaks, and ensure the tightness of the hydraulic hoses between the control unit and actuator. Test also the functionality of the position indication box.

6.1 Oil change

Oil changes are necessary and depend on size of the system. Under clean conditions, it is recommended that the condition of the oil is inspected approximately every two years and that the oil is replaced at every second inspection. If dirty/low-quality oil is used, oil changes are necessary at shorter intervals. Because the small oil volume in part-turn actuators compared to the volume in the pipework, there is no oil change during the operating cycles. Because of this, it is recommended to change the hydraulic oil so that the oil changes also inside the part-turn actuator and hoses not only in the hydraulic pump.

6.2 Battery replacement

See figure 6.

Battery must be tested by pressing the test button on the indication box during the maintenance periods.

Following steps are needed to replace the battery:

1. Loosen the corner screws (1) of the position indication box and pull the front plate gently. Note that the wires inside the box should not be loosened.
2. Replace the battery (2) with a similar one.
3. Close the indication box by mounting the front plate and tightening the corner screws.

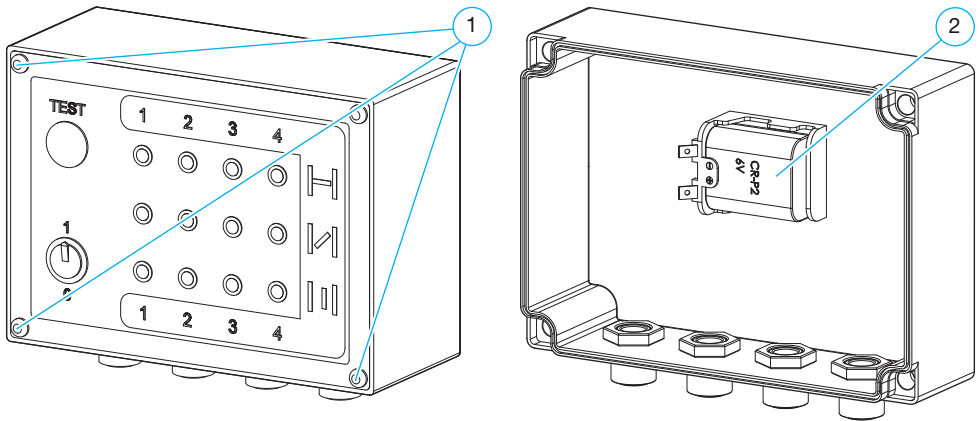


Figure 6. Battery replacement.

6.3. Spare components list

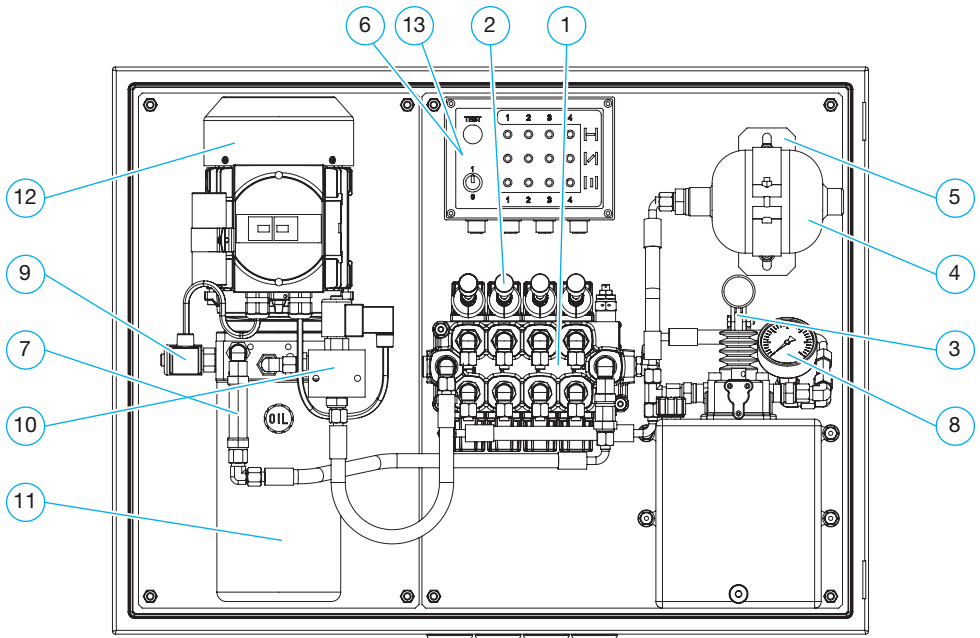


Figure 7. Parts.

	Part	Manual	Manual+
1	Monoblock directional control valves	810100	810100
2	Lever	810101	810101
3	Handpump	810102	810102
4	Diaphragm accumulator	810103	810103
5	Diaphragm accumulator fastener	810104	810104
6	Position indication box	810105	810105
7	Check valve	810106	810106
8	Manometer	810107	810107
9	Solenoid valve		811101
10	Valve body	810108	810108
11	Hydraulic power unit		811102
12	Electric motor		811103
13	Battery for the position indication box	810109	810109



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