

USER MANUAL

Electric pump



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1. WELCOME AT HYTORC

Thank you for buying HYTORC equipment.

This user manual and safety instruction is designed to provide you with the basic knowledge required to operate and maintain your new HYTORC equipment.

Please read this manual carefully and follow the instructions provided. If you still have any questions regarding HYTORC bolting equipment, please do not hesitate and call us at +31 (0) 24 3660 660 or contact us at info@hytorc.nl.

You also find more information on our website www.hytorc.nl.

2. GENERAL INFORMATION

Your purchase of HYTORC equipment entitles you to the following HYTORC services:

- Instructions to your employees within your organization by a HYTORC specialist
- Free annual inspection of your HYTORC equipment
- Free loaner equipment in case of failure under warranty
- If your HYTORC equipment cannot be repaired within 5 workdays, you get an equivalent free loaner tool
- 24-hour service
- World-wide warranty
- When you need help abroad? No problem! We help you!
- HYTORC equipment according to the newest technology
- A full year complete warranty
- Qualified work force employable for solutions at difficult challenges

3. SAFETY INSTRUCTIONS

Warning: Your HYTORC torque machine is a power tool, and as with any other power tool, certain safety precautions should be observed to avoid accidents or personal injury. The following instructions will assist you.

- **Read all instructions.**
- **Keep work area clean and well lit.**
- **Consider work area environment.** Electrical Pumps should never be used in an atmosphere that can be considered potentially volatile. If there is any doubt, use an air pump. Note: Metal-to-metal contact can cause sparks, precautions should be taken.
- **Avoid premature tool starting.** The Pump Remote Control is for the TOOL OPERATOR only.

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- **Guard against electric shock.** Make sure the pump is properly grounded and the proper voltage is being used.
- **Store equipment properly.** After use, tools and accessories should be properly stored to avoid deterioration.
- **Proper safety attire.** When handling hydraulic equipment use work gloves, hard hats, safety shoes and other applicable clothing.
- **Use safety glasses with side covers.**
- **Moving equipment.** Do not use hydraulic hoses, uni-swivels, pump power or remote cords as means of moving the equipment.
- **Maintain your HYTORC equipment with care.** For top performance, inspect tools, power pack and accessories for visual damage frequently and always prior to use. Always follow instruction for proper tool and pump maintenance. Refer to the Operations Maintenance Section in chapter 10 for further clarification.
- **Stay alert!** Watch what you are doing. Use Common sense. Do not use power equipment under the influence of any mood altering substances.
- **Prior to operation:**
 - Ensure that all hydraulic connections are securely connected and there is no leakage;
 - Verify that the hydraulic hoses are not kinked or otherwise damaged;
 - Make sure that the square drive and its retainer are fully and securely engaged;
 - Be certain that all connectors, elbows, fitting and swivels are not bent, loose or damaged.
- **Prior to use:**
 - Check sockets for size, quality and flaws (do not use if questionable);
 - Cycle tool to ensure proper function;
 - Locate a solid, secure reaction point;
 - Be sure the reaction arm retaining clamp is fully engaged;
 - Be sure the hydraulic hoses are free of the reaction point;
 - Pressurize the system momentarily; if the tool tends to "ride up" or to "creep", stop and re-adjust the reaction arm to a more solid and secure position.

Commentary: *HYTORC pump units are exclusive for HYTORC tools and vice versa. If other equipment is connected to the pump, it can damage the pump unit. When another brand pump unit is used no flawless operation can be guaranteed.*

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4. CONNECTING TO THE HYDRAULIC PUMP UNIT

All HYTORC pump units are ready for use at delivery. Before use, always check the oil level.

All HYTORC pump units have to be filled with hydraulic oil type HLP 32 or equivalent. If the oil is delivered separately then fill the pump before use. It is possible to use a different oil with another viscosity, but please consult us before using another kind of oil. Filling with biodegradable oil is only allowed at the new pump types.

5. CONNECTING TO A VOLTAGE SOURCE.

5.1 Voltage and the type of cable

- Make sure the right line power is present (230 or 400 Volt).
- Beware of over- and undervoltage, caused by using an extension cable that is too long or too thin.
- Use the hydraulic pump only if the green/yellow grounding cables are connected.
- If needed, use an 2,5 mm² electrical extension cable, unroll the cable winch completely.

5.2 Rotation direction of the 400 Voltage pumps

If the pump does not start or has problems starting, most of the time the cause is a high resistance in the cables. Use a thicker or a shorter cable. Another cause is a cable cut. This gives the same problems as when a thin cable is used. In such case, renew the cable.

With 400-Volt-pump units it is necessary to check the rotating direction of the motor. When, after plugging in, a red light appears you can reverse the phase in the plug by turning it 180° with a screw driver.



phase reversing plug

fig1: reverse of the phase (rotation direction pump)

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6. CONNECTING THE HYDRAULIC HOSES.

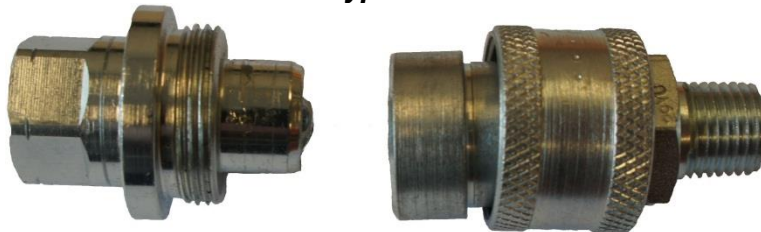
6.1 Hose coupler types

A safety coupling exists of a male and female coupling part.

There are 3 types :

- **Type Pioneer:** The couplings have to be pressure free before connecting them together. Slide the couplings together and screw the moveable ring of the female coupling to the male coupling. Make sure the ring is fully tightened. The tool will not work when the ring is not completely tight.
- **Type 716:** This is the same coupling as Type Pioneer, but the male and female couplings have a toothed locking, which are axial moveable. Tightening is possible by sliding the couplings together. For loosening first axial move the toothed locking and after that unscrew the couplings.
- **Type 1008:** The male coupling is inserted in the female coupling. After that tighten the locking ring on the female coupling. For loosening the couplings, first unscrew the locking ring then move the slideable part on the female coupling backwards. After this the two parts can be loosened by moving them axial.

Type Pioneer



Type 716



Type 1008



Fig 2: coupler types

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6.2 Pressure release of the hoses before disassemble

When the couplings are stuck after use, most likely there is some residual pressure left in the hose. By pushing the button on the pressure releasing valve on top of the pump unit, the hose becomes pressureless and the couplings can be disconnected by hand.

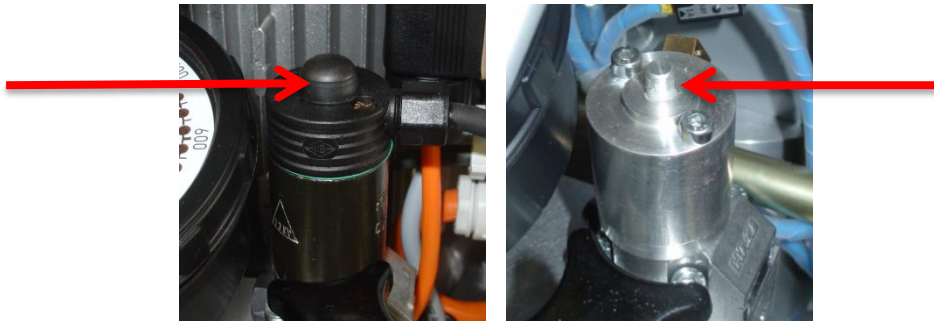


Fig 3 : pressure release valves.

7. OPERATION OF THE PUMP FUNCTIONS

7.1 Remote control functions

With the upper button you turn on the pump unit. Push the button again and hold it, the pump builds up pressure and the tool is operated. With a push on the lower button you completely shut down the pump unit.

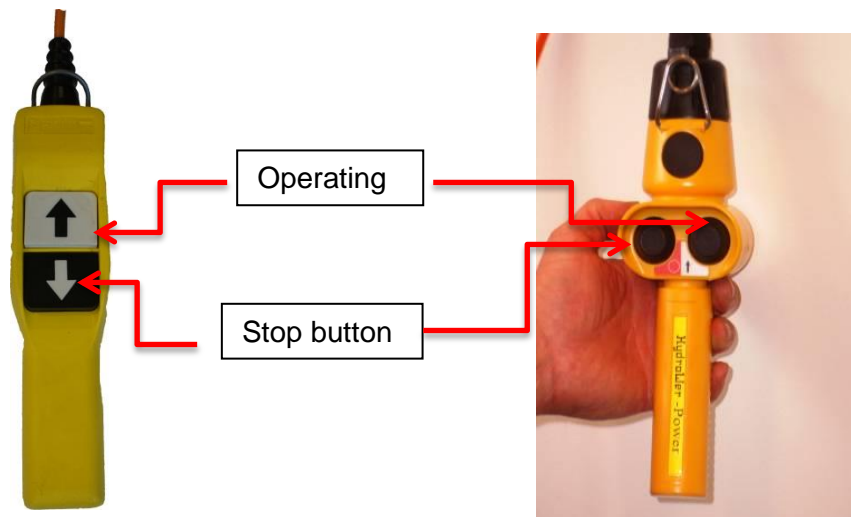


Fig 4: remote control types

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7.1.1 Wireless remote control

Make contact with the pump unit by placing the little green cube with the metal strip in the remote control. The metal strip faced down, so it can make contact with the screws on the remote control.

1. Push the start button, wait till you hear a click
2. Push once on the up-button. The pump starts running. Press up again and pressure is build
3. The pump is ready for use
4. Push the down button to shut down the pump unit



Fig 5: wireless remote control

7.2 pressure gauge reading

Digital pressure gauge: There are pump units that have a digital pressure gauge. These pressure gauges have a double read-out : one with small LED lights and one with a more precise digital readable display.

The LED light read-out is not accurate! Therefore we always recommend to read from the digital display.



Fig 6: pressure gauge

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Analog pressure gauge : This gauge has also two scales to read. One written in Bar and the other in PSI. Both have the same accuracy.

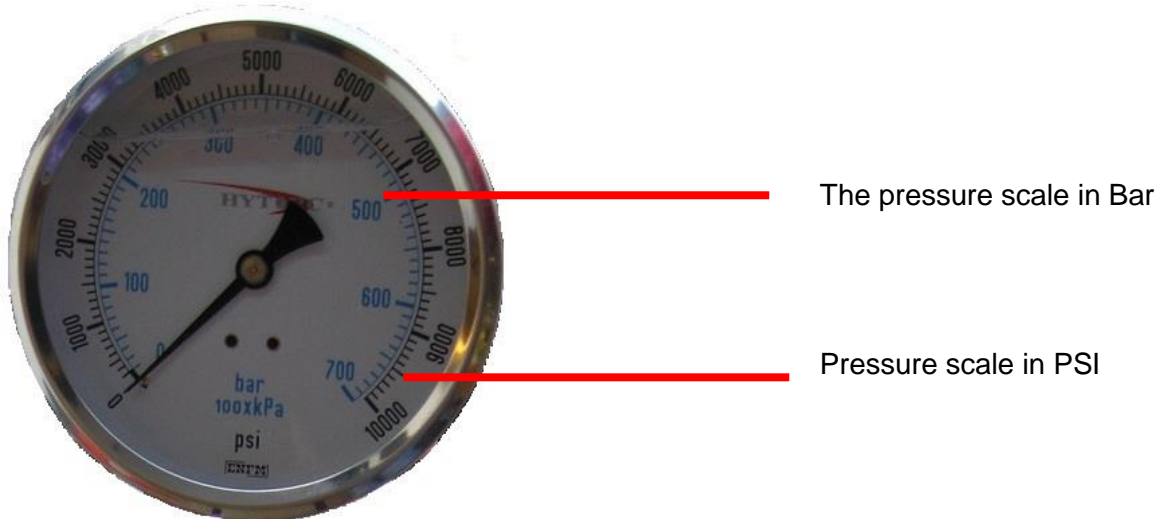


Fig 7: analog pressure gauge

7.3 Setting of torque value / boltload

Take the remote control and push the button. The pump unit starts working and the tool makes one stroke. Repeat this twice and check if the tool works. Turn the wing nut completely back (left). Push the remote control button and hold this. Adjust the pressure by slowly screw in the black button. Read the pressure on the gauge. When the right pressure is reached, secure the pressure by locking the wing nut. Release the button and push this again to check if the right pressure is reached. The HYTORC hydraulic pump unit has a working range from 20 BAR up to 700 BAR. Within this range the pressure is infinitely adjustable.

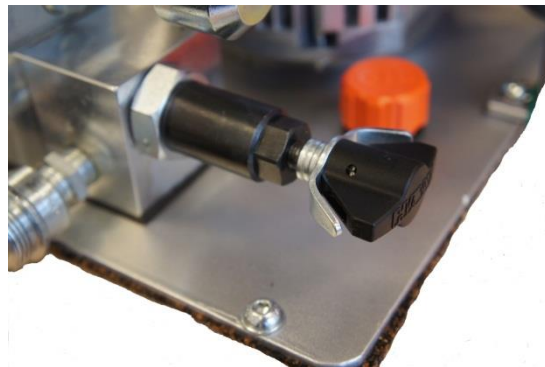


Fig 8: wing nut

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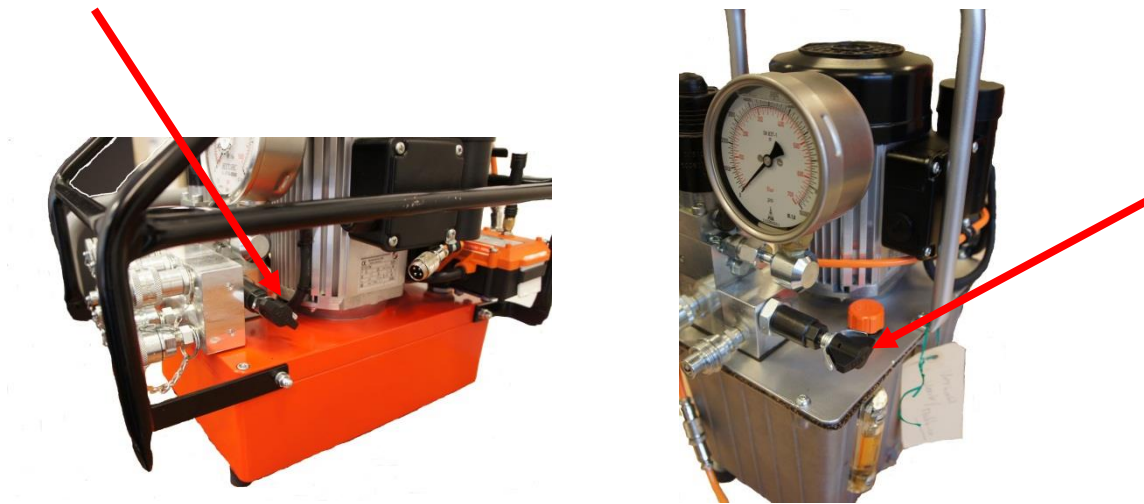


Fig 9: Pressure release button

Important

To change the pressure screw back the wing nut to a lower (than the desired) pressure. After this follow the description as mentioned above to adjust the pressure. Right turn is higher pressure, left turn is lower pressure.

8. USE OF THE WRENCHES

8.1 Adjust the torque

Every tool comes with its own pressure/ torque table. Search the desired torque in the right column (Nm, kgm or ft.lbs) and read the associated pressure (Bar or PSI).

DRUK PRESSURE	AANHAALMOMENT IN			DRUK PRESSURE
PSI	Ft.lbs	Kgm	Nm	BAR
1.000	164	23	219	70
1.200	197	28	262	84
1.400	231	32	306	98

Fig. 10 Pressure/ torque table

8.2 Setting the rotation direction

Changing the rotation direction is different for each wrench and is independent of the pump unit. Read the manual that is delivered with the wrench.

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9. INSPECTION AND CALIBRATION

The electrical pump units are equipped with thermal protection. The motor and oil temperature are monitored. When the value for the maximum temperature is exceeded, the pump shuts down and a red light appears or the green light goes out.

9.1 Inspection before each use

- Check the oil level in the reservoir.
- Check the hoses for damage.
- Screw on the couplings well.

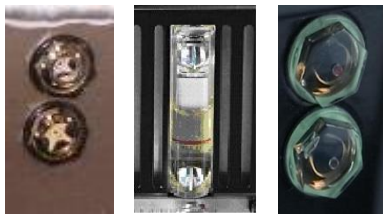


Fig 11: oil level check

WARNING!

Loose couplings can be dangerous when these are under pressure. Tightening the couplings too tight can cause damage to the thread. Make sure the couplings are screwed on tight, but don't screw them with a tong.

- Check both oil levels in the pump unit reservoirs.
- Check the power supply (the right E-voltage).
- No damage to cables or hoses of the remote control.
- Check if there is no damage to the power cables.
- Check the hydraulic hoses for damage. The pressure is 700 Bar. Adjust the pump pressure to 200 Bar. Check if the needle repeatedly comes back to 200 Bar. Repeat this at 400 and 700 Bar.
- Oil pressure gauges are filled with glycerine. When the glycerine level drops, there is a leak and repair is needed.
- If the gauge is filled with hydraulic oil, this indicates an internal leak.
- Clean the wrench after every use and inspect the tool for enough lubricant.

9.2 Calibration

Every pump has its own calibration report, which will be delivered separately with the HYTORC pump. The advise is to maintain and calibrate the pump every year.

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10. MAINTENANCE

10.1 Minor maintenance

- Hydraulic oil:
Change the oil completely after 40 operation hours or at least once a year. Use only High-grade oil, ISO VG 46 or 32.
- Quick couplers hoses:
Clean dirty or rigid couplers or replace them.

10.2 Maintenance at HYTORC

- Torque wrench:
Depending of the usage, but at least once a year, disassemble the tool completely. Clean, inspect, change small springs and lubricate again. Inspection on capacity at 100, 200, 300 and 700 BAR.
- Pump unit:
Calibrate pump pressure gauge once a year and fill glycerine level.
- Motor (electrical and air driven):
The rotor axle and bearings; clean and lubricate once a year.
- Clean the control valves.
- Test the pump on regular functioning, determine the output capacity of the pump and measure the constant pressure.
- Clean and replace the filters.
- Tuning of the needed gear-change points
- Determine the work-temperature, the constant pressure, the volume measurement, the power- and air decrease etc.
- Replace the oil

11. MALFUNCTIONS AND SOLUTIONS

11.1 Torque wrench

- The tool does not operate anymore → check if all couplers (both on tool as well as on pump side) are tightened properly. The coupling nut of the female coupler has to be tightened completely to the collar of the male coupler.

11.2 Pumps

- The pump pressure at a fixed adjustment does not repeat accurately → pump pressure adjusting valve is dirty or damaged → contact HYTORC Nederland B.V. +31 (0)24-3660660.
- Pump runs and produces pressure but the tool does not turn → check coupler connections. The ring of the female coupler has to be tightened completely to the collar of the male coupler
- The tool turns in the wrong direction → probably two hoses or an even number of hoses are connected to each other or the male and female couplers are interchanged.

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11.2.1 Electrical pump units

- Motor makes strange noise and produces no pressure → check rotating direction.
- Motor runs too slow or stops automatically after starting → voltage drop in the power.
Usually too thin or too long extension cable is used. Check pump unit with the main plug directly in the electric point.
- Motor runs but does not switch from forward to reverse → rupture in the remote control cable → valve block defect.
- Motor does not run → no electrical power or rupture in supply cable.

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