Operating and maintenance instructions for hydraulic cylinders

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1) GENERAL:

In order to guarantee proper functioning, it is absolutely necessary to purge the pipelines before connecting them to the hydraulic cylinder, as well as to keep all internal parts clean. Our hydraulic cylinders have been checked to ensure they are clean inside and pressure-tight.

2) ASSEMBLY:

With hydraulic cylinders it has to be ensured that they are easy to access with regards to later maintenance, while the place of assembly can be chosen at will.

The strain can only be in an axial direction!

The hydraulic cylinder represents an actuating element; it cannot and must not be a construction element (such as a part of a steel construction). **This means that neither the piston rod nor the cylinder can be installed under tension!** If either one is installed under tension, then the destruction of the guide bush, the cylinder surface and the premature malfunction of the seal elements are unavoidable. The piping should be short (oil exchange desirable) and as straight as possible. The use of lots of elbow unions and manifolds is to be avoided, as they cause a loss of pressure, and thereby affect the performance of the overall system. The number of screw connections should be kept at low as possible, as each additional screw connection increases the risk of a leak. The connection of the hose lines and pipelines must be carried out by a trained plumber. In order to avoid incorrect pipe installation, it is recommended to lay the lines using a circuit diagram. The lines and fittings used must be designed to cope with the corresponding operating pressure. With differential cylinders the hydraulic fluid should be able to flow freely, and there must not be any pressure greater than the operating pressure exerted on the piston rod side due to pressure intensifiers.

With single-acting hydraulic cylinders the non-pressurised side must be connected via a suction line to the hydraulic tank (suction of oiled air).

3) CONSTRUCTION:

The design and key data of the hydraulic cylinder can be found in the supplied dimensional drawing or the cross-sectional diagram. Each hydraulic cylinder is subjected to a static pressure test. (The amount of test pressure depends on the type of cylinder)

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4) START-UP:

Before the system can be started with full working pressure and at full speed, all the parts have to be thoroughly purged.

For the purging procedure, consumer connections are bridged by hose connections. After purging, new filter elements are to be mounted or the existing ones are to be cleaned carefully.

As soon as the operating temperature has reached its normal level, switch off the system, check all the pipe connections and brackets and where necessary tighten.

The max. operating temperature should not exceed +70ºC.

The cylinders are to be bled on the base and piston side by loosening the connection or by using extra bleed screws intended precisely for this purpose. A proper bleeding of the system can also partly be viewed on the oil level sight glass. (The oil must be free of bubbles and must not foam)

5) CARE AND MAINTENANCE

All hydraulic elements are lubricated by the operating medium, which is why the care and maintenance essentially covers the monitoring of the hydraulic fluid and the pipelines (for leaks).

The replacing of hydraulic fluid depends on several operating factors and is based on the amount of wear and contamination. We recommend the first change of hydraulic liquid after approx. 50 to max. 200 hours, depending on the ratio of the pumping rate to the container volume. For large systems, however, a further oil change is to be planned at the latest after 3,000 operating hours and for smaller units after around 1,500 operating hours.

The oil level and the hydraulic fluid temperature are to be checked regularly.

If the hydraulic fluid is changed the filter inserts also have to be replaced.

The filter should also be monitored during normal operation, as already explained, and should be cleaned at least every 200 operating hours.

The tightening of screws or the plugging of leaks are maintenance work, and are also carried out on new systems without invoking the warranty. If spare parts are ordered or parts are exchanged, however, the names and production numbers must be stated.

Despite careful planning, assembly and start-up, malfunctions can still occur on hydraulic systems. By

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listening to the device you can quickly detect noises and determine the cause of errors. In any case the hydraulic control panel should be used to help determine a defect, as if you have precise information the manufacturer can quickly take the corresponding measures to remove the defect.

Please only let a specialist perform the assembly and later maintenance work, observe our instructions and keep your system very clean! By doing so you can achieve error-free operation and an increased life span.

6) STORAGE:

If the hydraulic cylinder is stored for approx. 6 months the residual layer of oil produced in our pressure test is sufficient as internal protection. (Standard: HLP46 mineral-based hydraulic oil or similar)

The prerequisite for this is that the cylinder is stored in a dry room, free of vapours and corrosive substances as well as at a constant room temperature of no lower than +7ºC.

If the hydraulic cylinder is stored for over 6 months, it has to be checked every six months using the respective test oil level by moving it at least 5 times (pushing in and out). In case of large temperature fluctuations the hydraulic cylinder has to be moved at shorter intervals. After the check the cylinder is to be sealed using a dummy plug. (None of the residual oil from the test oil remains in the cylinder)

Outer protection is carried out on blank parts with TECTYL or DENSO TAPE.

The painting is carried out using oil-proof base paint or in accordance with customer specifications.

7) SPARE PARTS AND FIRST DEVICES:

We maintain an extensive warehouse of replacement parts. As, however, not all the parts and devices, which are installed in the system, can be held in the warehouse, it is necessary for the most important spare parts and devices to reach the warehouse on time, in order to avoid expensive downtime.

8) MAINTENANCE – SERVICE:

8.1) In general the cylinders are maintenance-free, although in case of severe strains it should be ensured that the bearing points are lubricated sufficiently. The joints and pivots generally require maintenance.

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8.2) Leakage monitoring at regular intervals

8.3) If leakages occur in large quantities, the following procedure is recommended:

- Where possible send the hydraulic cylinder back to our production site for checking, using the contact address stated below. Here the system is checked completely and the seals are replaced.
- If the seals are replaced on site, please proceed as per the cross-sectional diagram of the respective hydraulic cylinder. Seals should be treated with a suitable seal lubricant or with the operating medium before installation.

CONTACT ADDRESS:

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