

## Vgradnja

### 1. Skladiščenje pred vgradnjo

Hidravlični cilindri naj bodo skladiščeni v pokritem, suhem prostoru brez industrijskih par ali kislih snovi in pri konstantni temperaturi, ki ni manjša od 5° C.

Kadar je skladiščna doba daljša od 6 mesecev, je potrebno hidravlični cilinder priklopiti na hidravlični sistem in ga vsakih 6 mesecev vsaj 5-krat premakniti iz začetnega v končni položaj.

### 2. Priprava za vgradnjo

Priključne cevi in ostale priključne elemente je potrebno pred priključitvijo na hidravlični cilinder znotraj očistiti in izprati.

Glede na velikost cilindra in način pritrditve v sistem je potrebno zagotoviti zadostno oporo in ustrezne pritrdilne elemente.

Vse notranje dele hidravličnega cilindra je potrebno ohranjati čiste, zato naj se zaščitne čepe odstrani šele pred priklopom cevovodov.

### 3. Vgradnja v sistem

Položaj vgradnje hidravličnega cilindra je poljuben, omogoča naj le ustrezen dostop za kasnejše vzdrževanje.

Hidravlični cilinder je lahko le delovni element, ki je vgrajen tako, da na batnico in ohišje (cevi) v mirovanju ne deluje nobena zunanja obremenitev. Pri obratovanju pa sme obremenitev delovati le v aksialni smeri, saj lahko radialne in tangencialne obremenitve povzročijo uničenje vodilnih elementov, tekalnih površin, tesnil in ostalih delov cilindra.

Cevovodi naj bodo kratki in speljani čim bolj ravno brez nepotrebnih kotnih priključkov in krivin, ki povzročajo padec tlaka.

Priklop cevovodov naj opravi usposobljen strokovnjak s področja hidravlike.

Pri dvostransko delujočih hidravličnih cilindrih mora biti omogočen prosti povratni tok hidravličnega medija iz hidravličnega cilindra nazaj v sistem.

## Uporaba

### 1. Zagon

Pred zagonom hidravličnega sistema v maksimalnih delovnih pogojih je potrebno vse dele sistema dobro izprati. Za ta namen je potrebno priključke hidravličnega cilindra premostiti s fleksibilnimi cevimi zvezami. Po pranju je potrebno elemente filtriranja skrbno očistiti ali po potrebi zamenjati z novimi. Hidravlični cilinder je potrebno z odzračevalnimi vijaki ali z odvijanjem priključkov temeljito odzračiti.

Ko olje v sistemu doseže svojo delovno temperaturo, je potrebno preveriti, če vsi spoji in priključki popolnoma tesnijo. Po potrebi naj se še dodatno privijejo.

### 2. Obratovanje

Pri dvostransko delujočih cilindrih tlak na strani batnice (glava) ne sme preseči delovnega tlaka. Zaradi razmerja med površino bata in batnice je na strani bata (dno) dovoljeno obratovati le takrat, ko ni nevarnosti pojava zastojnih tlakov v hidravličnem cilindru.

### 3. Neustrezni delovni pogoji

Delovni medij mora ustrezati predpisanim zahtevam.

Delovni tlak in temperatura ne smeta presegati predpisanih vrednosti.

## Vzdrževanje

Vsi hidravlični deli so mazani z delovnim medijem, zato posebno vzdrževanje ni potrebno.

V rednih časovnih intervalih je potrebno preverjati puščanje medija. V primeru večje netesnosti je potrebno zamenjati tesnila ali pa vrniti hidravlični cilinder v naše podjetje na kontrolo in menjavo tesnil.

V rednih časovnih intervalih je potrebno opraviti mazanje ležajev in puš.

Pri naročilu nadomestnih delov je potrebno definirati tip hidravličnega cilindra.

Vgradnjo hidravličnih cilindrov, zagon in kasnejše vzdrževanje naj opravljajo ustrezno kvalificirane osebe. Upoštevati je potrebno dana navodila in vzdrževati čistočo sistema, da bo doseženo brezhibno delovanje in dolga življenjska doba.

## Mounting

### 1. Storage prior to mounting

Hydraulic cylinders need to be stored in covered dry premises with no industrial vapours or acid substances, at a constant minimum ambient temperature of 5° C.

Should the storage period exceed 6 months, hydraulic cylinder need to be connected to hydraulic circuit, 5 complete cycles from initial to maximum extended position need to be perform every 6 months.

### 2. Preparing cylinder for mounting

Before connecting to hydraulic cylinder connection hoses and other connection elements shall be cleaned and washed from inside.

With regard to cylinder dimensions and modality of fixation into the circuit sufficient support and adequate fixing elements need to be assured.

As all internal parts of hydraulic cylinder need to be kept clean, it is recommended to remove protective taps just before connection of piping.

### 3. Assembling into the system

Mounting position of hydraulic cylinder is arbitrary according to user's requirements, but it shall allow adequate access to maintenance personnel.

Hydraulic cylinder as a working appliance shall be installed in a manner to prevent any external charge acting onto piston rod and cylinder barrel (body) while not in function. During operation load may act exclusively in axial direction, as radial and tangential charges might lead to damage of rod gland, rolling surfaces, seals, bearings and other parts of the cylinder.

Piping should be as short and as straight as possible without needless angle junctions and curves, as they might result in pressure decrease.

Piping connection shall be performed only by qualified hydraulics technician.

In double-acting hydraulic cylinders return hydraulic oil flow from the cylinder back into the circuit shall be enabled.

## Use

### 1. Activation

All parts of hydraulic system need to be well washed prior to activation of the system in maximum working conditions. Connectors to hydraulic cylinder shall be surmounted by flexible piping for this purpose. Once washed, filtering elements need to be thoroughly cleaned or replaced if required.

Hydraulic cylinder needs to be thoroughly vented by the use of air vent screws or simply unscrewing the connectors.

Once hydraulic oil inside the circuit attains its working temperature it is necessary to check seals to prevent oil from leaking. If necessary they should be screwed additionally.

### 2. Operation

In double-acting cylinders piston rod side (head) pressure should not exceed working pressure. Due to surface area ratio between piston and piston rod, operation on piston (bottom) side is allowed only when there is no risk of standstill pressure inside the hydraulic cylinder.

### 3. Poor operation conditions

Hydraulic fluid needs to meet all prerequisite requirements.

Working pressure and temperature may not exceed prescribed values.

## Maintenance

As greasing of all hydraulic components is assured by hydraulic fluid, particular maintenance is not required.

Eventual oil leakage shall be checked in regular maintenance intervals. In case when major leakage is observed, seals should be replaced or have cylinder controlled and seals replaced by manufacturer.

Greasing of bearings and ear style bearings shall be performed in regular maintenance intervals.

When ordering spare parts please refer to your type of hydraulic cylinder.

Mounting, activation and maintenance of hydraulic cylinders shall be performed exclusively by qualified personnel. Instructions need to be thoroughly observed and hydraulic system kept clean to assure impeccable operation and longer operational life.