



### 1. Risk of injury

Swing clamp cylinders can generate great forces. Thus, considerable risks of injury by pinching or crushing are constantly present within the swing area during operation. Injuries are to be prevented by using appropriate protective devices with interlock. Above that, accident prevention regulations in force have to be adhered to.

#### **DANGER!**

When you use single-acting swing clamp cylinders, do not remove the cover from the housing under any circumstances. Otherwise high risk of injury by jumping out of the heavily preloaded springs threatens. Loosened mounting screws must be tightened immediately.

### 2. Volume flow and overload protection

You will find information about the maximum permissible volume flow on the data sheet of the selected swing clamp cylinder. These data relate to the shortest clamping time of 1 second. When the quotient (pump flow : number of cylinders) is larger than the volume flow, a throttle check valve has to be interposed. In order to prevent pressure intensification, the throttle check valve has to be connected to the feed line of the swing

clamp cylinder. The throttle check valve may not impede run-off of the hydraulic oil. In order to prevent excess swinging of the clamping arm, it is recommended for single-acting cylinders to principally reduce the volume flow for clamping (for throttle check valves, see data sheet 700-15).

### 3. Application of special clamp arms

To dimension special clamp arms it is important to keep with the clamping force, indicated on the data sheet of the selected swing clamp cylinder. The assigned operating pressures may not be exceeded. Once the length

of standard clamping arms is to be exceeded, operating pressure and volume flow have to be reduced according to the data in the diagram on the data sheet.

### 4. Assembly and disassembly of clamping arms

During assembly of the clamping arms, always pay attention to not transfer torques to the piston rod. To do so, counter-hold the clamping arm when tightening or loosening the fastening screw. You can find information about suitable clamping arms on the data sheet of the selected swing clamp cylinder and on the information sheet "Swing Clamp Cylinders - Clamping Arms".

Picture (1) = incorrect assembly Picture (2) = correct assembly



### 5. Assembly and disassembly of contact bolts

Contact bolts are to be assembled to provide contact to the workpiece after completion of the swing motion. Counter-hold the clamp arm when

tightening or loosening the counter nut in order to prevent torque transfer to the piston rod (for contact bolts see data sheet 1000-1).

### 6. Interference-free swing motion

During mounting of the cylinder always pay attention to guarantee free swing motions.

The workpiece may only be clamped once the swing stroke is completed.

### 7. Aeration with single-acting swing clamp cylinders

In order to prevent malfunctions for this model of cylinder, the spring chamber has to be ventilated. The integrated filter protects the spring chamber from external pollution.

An additional ventilation line can be connected to prevent ingress of fluids. This charge should be placed to a protected position.

### 8. Ventilation prior to operation

Entrapped air sensibly delays the clamping process. Results of that are malfunctions which can be prevented by ventilation of the swing clamp cylinder before starting the operation.

The ventilation can be carried out by a central ventilation screw in the system or directly at the cylinder.

#### **Ventilation with threaded port:**

1. conduct low oil pressure into the cylinder,
2. slightly loosen screwed pipe joint,
3. hold oil pressure until the oil comes out of the cylinder free from bubbles,
4. tighten screwed pipe joint.

#### **Ventilation with manifold connection:**

1. conduct low oil pressure into the cylinder,
2. slightly loosen locking screw,
3. hold oil pressure until the oils comes out of the cylinder free from bubbles,
4. tighten locking screw.

**Also pay attention to the data sheet "Recommendations & Specifications for hydraulic equipment and facilities". You can find this in our catalog or on our website at [www.hydrokomp.de](http://www.hydrokomp.de).**