



**ROEMHELD**  
HILMA ■ STARK

# Clamp control valve

Operating Manual

WM-020-255-10-en BA clamp control valve



**precise, fast and powerful**

## Clamp control valve

Art. no. 704 210



Manufacturer:

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## 2 Identification of the partly completed machinery

Product:	Clamp control valve
Function:	Checks clamping process of one or more SPEEDY quick-release clamping cylinders
Product group:	Quick-release locking plate / clamp control valve
Article numbers:	704 210
Trade name:	corresponds to product group, see above

## 3 Instructions for the user

### 3.1 Purpose of the document

The present operating manual

- describes the function, operation and maintenance of the clamp control valve.
- gives important instructions for safe and efficient use of the clamp control valve

### 3.2 Presentation of safety instructions

Safety instructions are identified by a pictogram and a signal word. The signal word describes the severity of the impending risk.



**DANGER**

**Immediate** imminent risk to life and health of persons (serious injury or death). Be sure to follow these instructions and the procedures described!



**CAUTION**

**Potentially** hazardous situation (minor injury or material damage). Be sure to follow these instructions and the procedures described!



**INFORMATION**

Tips for use and particularly useful information.



**INSTRUCTION**

Obligation to follow the described procedure or method for the safe use of the machine.



## 4 Basic safety

### 4.1 Intended use



The clamp control valve is used to control the clamping process of one or more SPEEDY quick-release clamping cylinders.

- Intended use also presupposes:
- compliance with all the instructions in the operating manual
- observance of the inspection and maintenance intervals
- use of only OEM parts

### 4.2 Reasonably foreseeable misuse



Any use other than that specified under "intended use" or use beyond this is considered improper use!

Risks can arise if the device is not used for its intended purpose. Improper uses include e.g.:

- exceeding the technical values specified for normal operation

The operating company bears sole responsibility for any injury or damage resulting from such improper use. The manufacturer assumes no liability.

### 4.3 Modifications or alterations



Unauthorised modifications or alterations to the clamp control valve will void any liability and warranty on the part of the manufacturer!

Therefore do not make any modifications or alterations to the clamp control valve without consultation with and the written approval of the manufacturer.

### 4.4 Spare and wear parts and auxiliary materials



The use of spare and wear parts from third-party manufacturers can result in risks. Only use STARK original parts or parts approved by the manufacturer. The manufacturer will assume no liability for any injury or damage resulting from the use of spare and wear parts and auxiliary materials not approved by the manufacturer.

### 4.5 Obligations of the operating company



The operating company is obliged to only allow persons to work on or with the clamp control valve who

- are familiar with the fundamental occupational health & safety and accident prevention regulations
- have been instructed in the use of the clamp control valve and have read and understood this operating manual.

The requirements of EC Directive 2007/30/EC on the use of work equipment must be observed.

### 4.6 Residual risks



Note that mechanical and hydraulic residual energies can develop at the clamp control valve!

### 4.7 Pressure hazards

Lines or hoses bursting due to excessive pressures can endanger persons.

Measure:

- Protect hydraulic lines with pressure control valves
- Observe the specified pressure limits
- Pressure compensation in closed systems with temperature rise.



## 5 Description and function of the clamp control valve

### 5.1 Use

The clamp control valve is used to check the clamping process of one or more SPEEDY clamping cylinders, especially for machines with rotating axes. The clamp control valve is used with all SPEEDY quick-release clamping cylinders of the SPEEDY classic, Twister, Tornado and Sweeper series.

### 5.2 Operating principle

The pistons of the SPEEDY quick-release clamping cylinders have a distance of 1 mm in the clamped position (see figure on page 8). If the piston moves below this extent, the balls have not clamped in the groove of the retractable nipple and have slipped off at the retractable nipple. This closes the clamp control valve and no more oil can flow through the clamp control valve. In this case, no more pressure is measured at the output of the clamp control.

When clamping is correct, the clamp control valves remain open and the oil can flow through the valves to the output of the clamp control and actuate the pressure switch there.

### 5.3 Application notes

Each SPEEDY quick-release clamping cylinder has a clamp control valve which checks the position of the piston (see hydraulic circuit diagram page 8). The clamp control valves are all connected in series. If all SPEEDY quick-release clamping cylinders are correctly clamped, oil will pass from the INPUT monitoring unit to the OUTPUT monitoring unit. During testing, if the "Monitoring input" connection is pressurised with 8 bar hydraulic pressure, which measures a pressure of 8 bar at the "Monitoring output" connection, all SPEEDY quick-release clamping cylinders are correctly clamped and the machine is ready to start.

### 5.4 Clamp control process

The clamp control must only be carried out after the SPEEDY quick-release clamping cylinders have been fully clamped. After the "Clamp" command, you have to wait a few seconds before starting the clamp control so that the SPEEDY quick-release clamping cylinders are effectively clamped. The test time depends on the number of SPEEDY quick-release clamping cylinders to be tested, but should not exceed 10 seconds. After the test time has elapsed, the clamp control is depressurised and the oil can drain off through the integrated non-return valve.



## 6 Assembly and installation

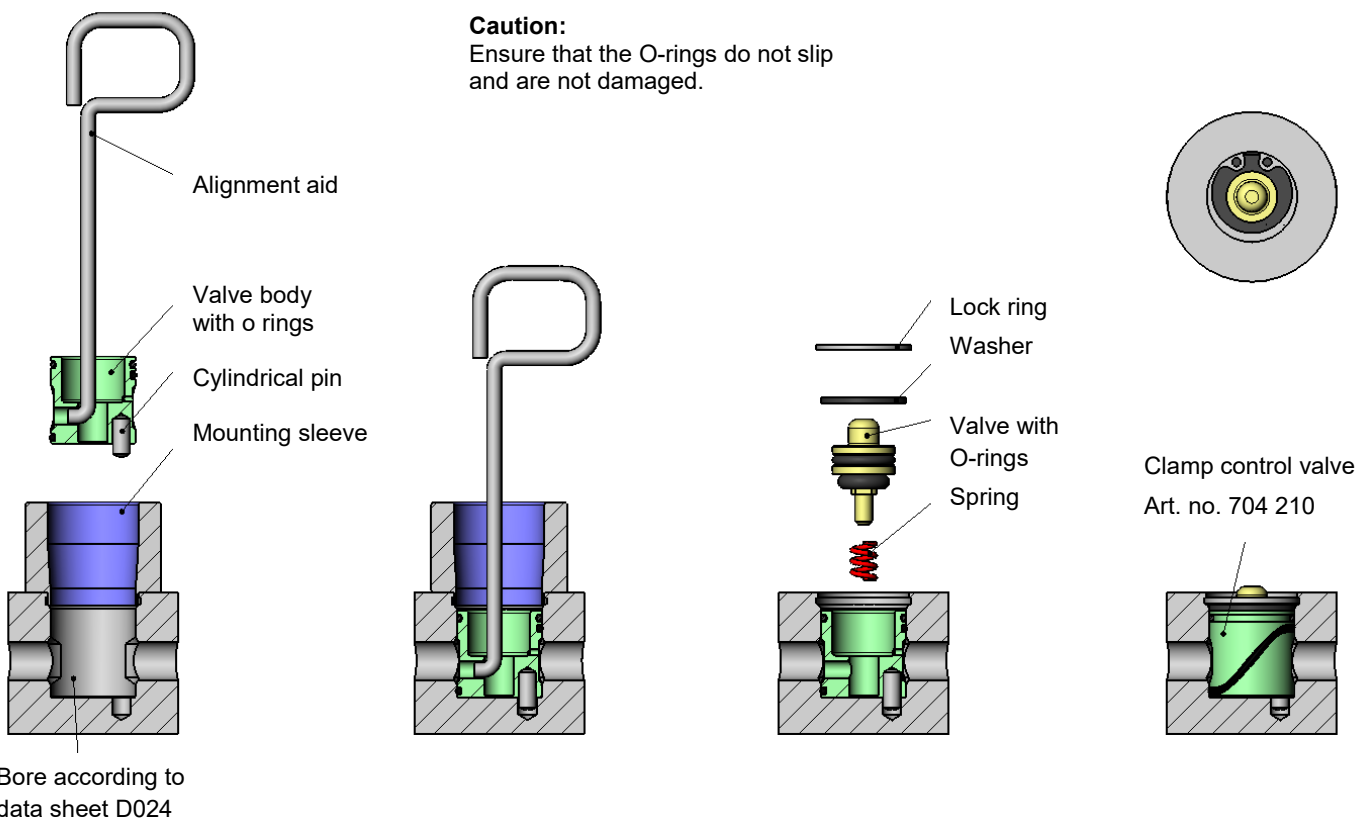
### 6.1 Check the following:

- Are all parts available according to the packing list?
- Are any parts damaged?
- Are all parts clean?
- Is the installation contour manufactured according to the corresponding data sheet D024?
- Check dimensional accuracy

Only undamaged and clean parts may be installed.

The installation contour and the feed lines for the hydraulics must be properly deburred and thoroughly cleaned.

Installation with assembly aid article number: 504 070



**1.**  
Slowly and carefully insert the valve body with alignment aid into the mounting sleeve.

**2.**  
Insert the alignment aid into the horizontal bore of the valve body and fit the cylindrical pin with the installation contour of the bore by rotating it.

**3.**  
Insert the pressure spring and valve with O-rings, use washer and lock ring to complete.

**4.**  
Installed clamp control valve.



## 7 Commissioning, handling and operation

### 7.1 During initial commissioning:

The system must be vented to ensure problem-free operation of the clamp control. To do this, leave pressure at the “Control input” connection, then vent at the “Control output” connection until oil emerges bubble-free.

### 7.2 Testing

For functional testing of each individual SPEEDY quick-release clamping cylinder, it is necessary for each SPEEDY quick-release clamping cylinder to provide a retractable nipple with an attachment which lies on the SPEEDY quick-release clamping cylinder. If all nipples with attachment are clamped simultaneously, an enable signal must be present at the output.

Then remove one nipple with attachment at a time and clamp again. No enable signal must be present. Repeat this procedure for all SPEEDY quick-release clamping cylinders. If there is no signal for all tested cylinders, the clamp control of the SPEEDY quick-release clamping cylinders is OK.

This test must be carried out monthly or if problems with the clamp control occur.

### 7.3 Maintenance

In principle, the seals of the clamp control valves must also be replaced when replacing the seals of the SPEEDY quick-release clamping cylinder after the permissible number of strokes has been reached. Otherwise the clamp control valve is maintenance-free.

### 7.4 Storage

#### Until first use:

If you do not use the clamp control valve immediately, please store it dry and dust-free in its original packaging.

#### Long period of storage after use:

Before storing the clamp control valve  
Carry out measures for corrosion protection

#### After long period of storage:

After a long period of storage (approx. 3 years), replace the O-rings before use.

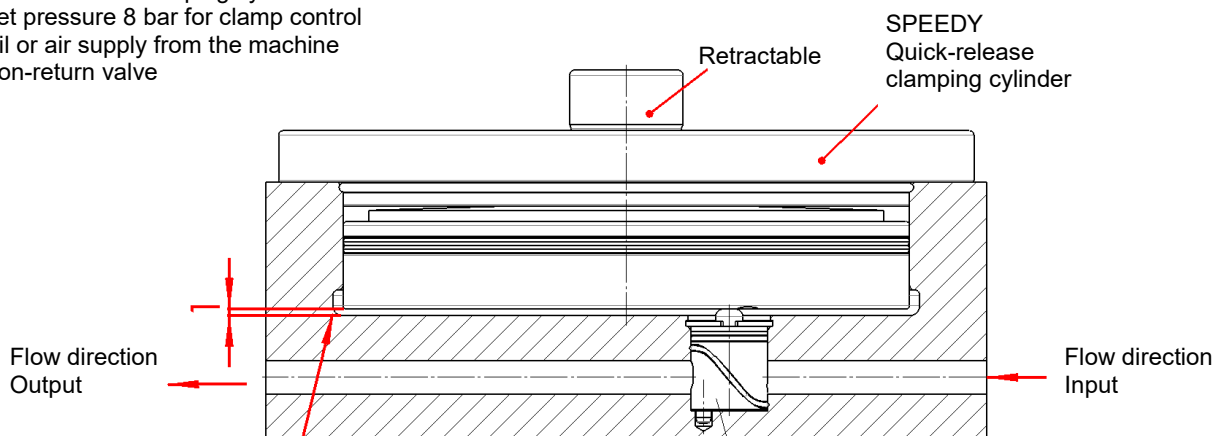
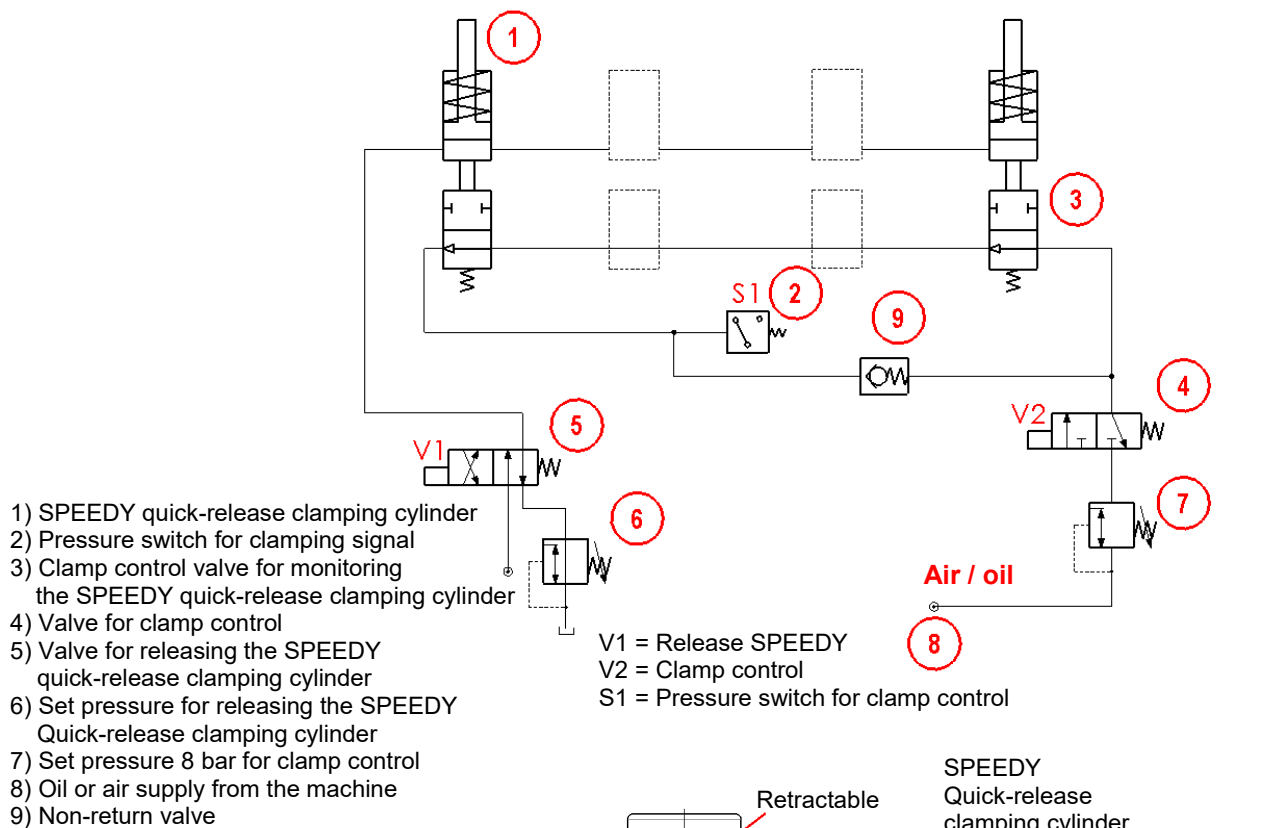
### 7.5 Recycling

All parts, auxiliary materials and process media of the clamp control valve must be separated according to type and disposed of in accordance with the local regulations and directives.



## 8 Technical data

Article numbers:	704 210
Drawing number:	046-501
Designation:	Clamp control valve
Normal operating pressure (hydraulic):	8 bar
Normal operating pressure (air):	5 bar
Max. operating pressure (hydraulic oil):	10 bar
Max. operating pressure (air):	6 bar
Temperature air:	+10°C to +80°C
Hydraulic oil:	According to DIN 51502 (HLP32 or HLP 46)
Filter class:	Quality class 4



In the clamped state, the piston hangs on the retractable nipple.  
 The distance to the drill hole bottom is 1 mm.  
 The clamp control valve is open.

At a distance of approx. 0.5 mm,  
 the clamp control valve begins to close.





## 9 Manufacturer's declaration

### Declaration of Conformity Konformitätserklärung

We / Wir

**Stark Spannsysteme GmbH  
Römergrund 14  
A-6830 Rankweil  
Austria**

declare under our sole responsibility that the product  
erklären in alleiniger Verantwortung, dass das Produkt

**Type: Clamp control valve no. 704 210**

, to which this declaration relates, corresponds to the following standards  
auf das sich diese Erklärung bezieht, mit den folgenden Normen übereinstimmt

2006/42/EC                    Machines, Addendum II A / Maschinen, Anhang II A

and the following standards were applied.  
und dass die folgenden Normen zur Anwendung gelangten.

DIN EN ISO 4413        Safety of Machinery - Safety Requirements for Fluid Power Systems and Their  
                                  Components - Hydraulics  
                                  Sicherheit von Maschinen - Sicherheitstechnische Anforderungen an fluidtechnische  
                                  Anlagen und deren Bauteile – Hydraulik

A technical documentation exists completely. The instruction manual for the product is available.  
Eine technische Dokumentation ist vollständig vorhanden. Die zum Produkt gehörende Betriebsanleitung  
liegt vor.

Stark Spannsysteme GmbH

Rankweil, 21/03/2018

Martin Greif  
Managing Director / Geschäftsführer