Clamping device Ratio-Clamp®
Safe and efficient fixation of round rods
The patented clamping device Ratio-Clamp® fixes any round rod directly from the standstill and completely locks it into position. The clamping effect is immediate, lasts for an unlimited period of time and doesn’t require any energy supply – suitable for various applications, as a safety element or for locking component parts into place. 100% reliable!

Ratio-Clamp® Won’t let you down!

Contents

Advantages
- Functional principle
- Energy efficiency
Application areas 8
- Equipment
- Releasing pressure
- Locking
- Sealing system
Certification 10
Accessories
Technical data 11
**ADVANTAGES**

Hänchen’s Ratio-Clamp® offers safety while saving energy costs. Thanks to its sophisticated functional principle, the clamping device features some fundamental advantages when compared with other locking systems.

**The functional principle in detail**

Ratio-Clamp® works mechanically by using frictional contact. The power is directed through springs to a clamping sleeve which holds the rod radially using friction. The load capacity of the fixation is not influenced by the direction. The hydraulic releasing pressure moves the locking piston against the spring power to unlock the clamp - the rod can be moved in both directions. When the hydraulic pressure drops, the power stored in the springs is released, and the rod is locked.

- Locks all round rods
- Clamping and releasing without axial rod movement
- Zero play and wear-free with all types of movement, even under vibrations of the application
- Energy-efficient thanks to pressureless clamping process

**Energy efficiency and precision for every case**

Do you need a round rod locked in a specific position? There are several ways to do this: Electronic control, blocking all ports or using the clamping device Ratio-Clamp®. Ratio-Clamp® features a number of advantages.

- Clamping without energy supply
- Cost savings thanks to no energy loss
- Safe clamping in case of system failure
- Clamping for an unlimited period of time
- Accurate locking in any position
- Safety even in extreme conditions such as heat or cold

---

| Comparison of advantages and disadvantages of locking options for round rods |
|---|---|---|
| Material | Electronic control | Blocking all ports | Clamping device Ratio-Clamp® |
| Energy efficiency | — | + | + |
| Accuracy of position | + | — | + |
| Independence of external factors | + | — | + |
| Time and effort | — | + | + |
There are many situations where rods have to be held in a certain position:
For example to protect people, machines and tools in case of power failures or plant shutoffs. Or to fix axes during a manufacturing process. And also for all highly dynamic applications and test processes. Here are some examples from practical experience:

1. Casting machine > Production
Hänchen cylinders and Ratio-Clamp® clamping devices are perfect for casting machines because they must be precise as well as particularly resistant to heat and corrosion. Ratio-Clamp® devices hold the mould parts safely together during the casting process of aluminium motor blocks.

2. Sanding machine > Production
During the production process of ICE track beds, extremely large and heavy concrete workpieces must be positioned for sanding safely and with an accuracy of 0.01 mm. Hänchen’s hydraulic cylinders and Ratio-Clamp® clamping devices are designed exactly for these requirements.

3. Trains > Maintenance
Trains need to be lifted and fixed for maintenance – Ratio-Clamp® devices are perfect for this. The clamping device will keep the train safely in place until the work is done and it can get back on the tracks.

4. Aviation > Test stand
The setups for aviation tests have been refined to the last detail. Hänchen cylinders are used in different fields of testing, simulating ambient conditions and loads during different flight phases. Ratio-Clamp® clamping devices are used to protect the intricately constructed and expensive systems.

5. Navigation > Transport
Hänchen hydraulic cylinders with fitted Ratio-Clamp® devices are used for moving the bow and stern doors of ferries. The clamping devices guarantee that the doors are tightly closed during the voyage and safely locked while passengers are embarking or disembarking.
Basic design
The basic release pressure required for releasing the clamping device is between the minimum pressure and the maximum admissible pressure of 160 bar.

Reduced design
For application cases with low supply pressure, a version designed with a reduced released pressure is available.

Releasing pressure

With spring power
Usually, energy stored in springs is used to clamp a rod. This means that the rod can be held for unlimited periods of time without any energy supply.

Hydraulic
When very high holding loads are required, the clamping device can also be locked hydraulically. For the release, hydraulic pressure is used as usual.

Locking

Servocop®, compact seal, lip seal, wiper ring
The basic type of Ratio-Clamp® uses the friction-optimized sealing system Servocop®. Here, the primary seal is touching the rod. The maximum speed of the rod is 1 m/s.

Pressure piston seal, lip seal, wiper ring
For very sensitive applications, we recommend the design with pressure piston seal, where no pressurized seal is touching the rod. Thus, the sliding friction is very low and remains constant regardless of the releasing pressure. The maximum speed of the rod is 2 m/s.

Sealing system

TÜV certification
Ratio-Clamp® is certified by TÜV SÜD as a safety element.

DGUV Test
The clamping device is also available with a DGUV Test certification (testing and certification system of the Deutsche Gesetzliche Unfallversicherung).
Quality taken to the next level.

hydraulic cylinders

Ratio-Clamp® can be combined with Hänchen hydraulic and standard cylinders and with all cylinders from other manufacturers.

Proximity switch

Indicates whether the clamping device is locked released.

Control block

Used when Ratio-Clamp® is installed on a cylinder. It provides correct and consistent control and thus reduces the complexity of the required wiring.

Technical data

- For all round rods with hard surfaces
- Load capacity independent of direction
- After 2 m switchings, the clamping device must be checked by the manufacturer
- Max. rod speed: 1 m/s for Servocop®, 2 m/s for pressure piston seal
- Max. releasing pressure: 160 bar
- Operating temperature: -15 to +80° C
- Fluids: mineral oils, other fluids such as HFC or Skydrol® on request
Clamping device Ratio-Clamp®
Safe and efficient fixation of round rods