

# RTCH



  
*Engineering  
GREAT Solutions*

## Scotch Yoke Hydraulic Actuators

# RTCH: Hydraulic Actuators

The RTCH Series is a range of compact hydraulic quarter turn actuators with materials selected to withstand the most hostile environmental conditions. They are suitable for all onshore and offshore applications, covering the majority of on-off and modulating valves. The RTCH Series is designed to provide maximum reliability and flexibility to cover a wide range of valves in all pressure classes.

## Key features

- > Double acting or spring return modular design
- > Totally sealed weatherproof housing that provides complete protection for all moving parts
- > Housing is manufactured in carbon steel material without any cast/grey/ductile iron or aluminum parts
- > Scotch yoke mechanism available in both canted or symmetrical executions
- > Chromium plated guide bar to absorb transversal forces
- > Bushings are made of high strength bronze alloy (other materials on application)
- > Electroless nickel plated cylinder to minimise friction and prevent corrosion
- > Power module design for safety allows replacement of the cylinder seals without any danger
- > Multiple certified lifting lugs ideally located to balance center of gravity for safe lifting
- > ISO 5211 flange connection
- > Position indicator provided with VDI/VDE 3845 NAMUR drive slot
- > An integral hand-pump available on request
- > Full stainless steel version available on request
- > Single gasket for easy maintenance, no external tie rods (spring return version)

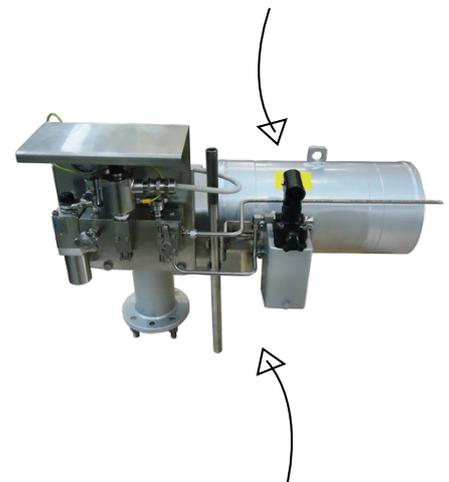
## Benefits

- > **Reliable**  
Rugged carbon steel housing and high-strength alloy steel scotch yoke mechanism with a heavy-duty nickel plated cylinder ensure safe and reliable operation. Housing is not put under any pressure, minimising leakage points and simplifying maintenance. For spring return, cylinder seals can be replaced safely without removal of the spring.
- > **Strong**  
The watertight housing is also coated internally to ensure long-lasting corrosion resistance. Stainless steel travel stops allow fine stroke adjustment between 82° and 98°.
- > **Compact**  
Designed to provide high torque with minimum space and weight. Symmetrical or canted scotch yoke mechanism for ideal torque distribution. For spring return, the hydraulic cylinder is installed inside the spring.
- > **Safe**  
For spring return maximum safety is ensured through the spring pack design which allows the spring compression to take place without removing the cylinder cap and screws.

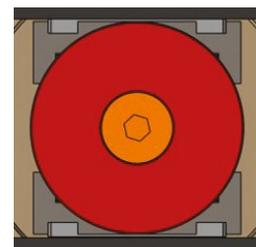
*Total capability in valve actuation*



*Watertight housing, coated inside and out*



*RTCHS (stainless steel) model suitable for offshore applications*



Our innovative Zero Backlash mechanism improves performance and solves the wearing-related gap issues between the sliding block and the scotch yoke slot, maintaining friction at similar levels to even the most established technology. It is available on request, please contact us for more information.

## Technical specifications

### Operating pressure

Up to 350 Bar

### Standard supply medium

Hydraulic oil (special version for fire resistant fluids on request)

### Standard operating temperature

-30°C to 100°C (high/low temperature design available on request)

### Output torque

From 40 Nm up to 6,000 Nm for double acting version

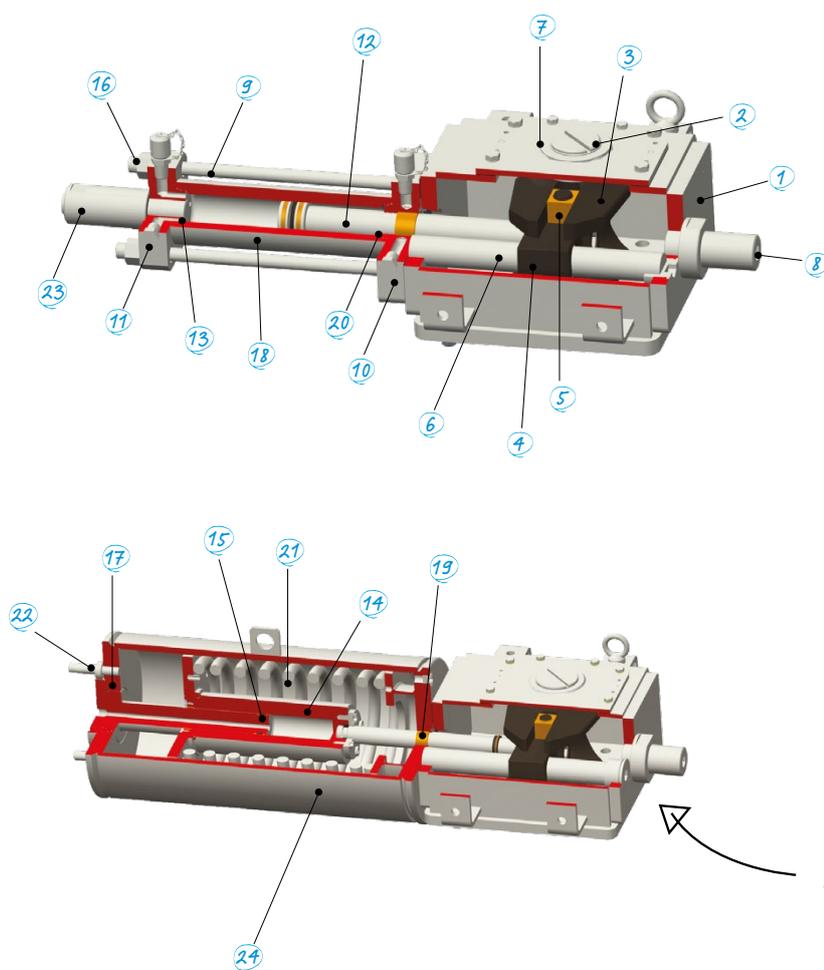
### Spring Ending Torque

From 40 Nm up to 2.500 Nm for single acting version (higher values on request)

### Certifications / approvals

PED 2014/68/EU  
 ATEX 2014/34/EU  
 EAC TR TS 012/2011  
 MACHINERY DIRECTIVE 2006/42/EC  
 IP66/67M according to IEC/EN 60529  
 SIL3 (IEC 61508) as a "single device"  
 Designed and tested in accordance with EN 15714-4  
 Further certifications are available please contact IMI STI for updated list.

## Product breakdown



Description	Material
1. Housing	Carbon steel
2. Yoke bushing	Steel/bronze/PTFE
3. Scotch yoke	Alloy steel
4. Guiding block	Carbon steel
5. Sliding block	Bronze
6. Guide bar	Alloy steel
7. Cover	Carbon steel
8. Stop screw	Stainless steel
9. Tie rod	Alloy steel
10. Head flange	Carbon steel
11. End flange	Carbon steel
12. Piston rod	Alloy steel
13. O-ring	Nitrile rubber (NBR)
14. Piston	Carbon steel
15. O-ring	Nitrile rubber (NBR)
16. Nut	Alloy steel
17. O-ring	Nitrile rubber (NBR)
18. Cylinder tube	Carbon steel
19. Piston rod bushing	Steel/bronze/PTFE
20. Rod seal	PTFE/NBR
21. Spring	Spring steel
22. Stop screw	Stainless steel
23. Stopper protection	Stainless steel
24. Spring container	Carbon steel

*Total capability in valve actuation*

## Optional accessories

IMI STI designs and produces a wide range of accessories and control systems to ensure superior performance and to satisfy the most demanding requirements in modulating, on/off and heavy duty service. Control systems panels/cabinets can be installed on the actuators or supplied loose for remote mounting which allows for easy access and to limit exposure to excess heat and vibration. For more information, see our dedicated brochure of accessories.

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