



C E R T I F I C A T E

Certificate no. 16-SIL-0010018-31-TIC

WE HEREBY CERTIFY THAT

Product description ELECTRO-HYDRAULIC SPRING RETURN ACTUATORS

Models SERIES EH/S

Manufacturer ROTORK FLUID SYSTEMS S.r.l.
Via Padre Jacques Hamel 138/B - 55016 Porcari LU

IS IN COMPLIANCE WITH THE REQUIREMENTS OF THE STANDARDS

IEC 61508 Parts 1–7:2010

AS RESULT OF THE ASSESSMENT ACCORDING TO THE PROVISION
SET OUT IN THE ABOVE-MENTIONED STANDARDS

Report no. RC-0619-515-SIL-TIC-PC-0010018-16-27

Expiry date 11.06.2022

Note

This certificate is issued upon the request of the manufacturer as voluntary certification; it does not include the production surveillance.
This certificate does not allow the manufacturer to use the safety mark of TÜV INTERCERT.



Reggio Emilia, 12.06.2019


Dipl. Ing. Ferdinando Sergizzarea
TÜV INTERCERT Certification Body



C E R T I F I C A T E

ANNEX to Certificate no. 16-SIL-0010018-31-TIC

| Type | A | | | | |
|--|--|--------------------------|---|---|---|
| HFT | 0 | | | | |
| Safety functions | 1. Delivery of a full stroke driven by the spring, with power fluid exhausted from the cylinder through the control system | | | | |
| Mode of operation | Low Demand Mode | | | | |
| Random failure rates | | | | | |
| Circuit diagram | λ_D [1/h] | $\lambda_{DD(PS)}$ [1/h] | PFD _{AVG} (TI=12 m, MRT=24 h) | PFD _{AVG} (TI=12 m, TI ₀ =1 m, MRT=24 h) | PFD _{AVG} (TI=12 m, TI ₀ =3 m, MRT=24 h) |
| 85615 | 7,54E-07 | 6,83E-07 | 3,32E-03 | 5,79E-04 | 1,08E-03 |
| 85619 | 9,50E-08 | 8,96E-08 | 4,18E-04 | 5,84E-05 | 1,24E-04 |
| 85620 | 1,31E-07 | 1,25E-07 | 5,77E-04 | 7,38E-05 | 1,65E-04 |
| 85623 (with Sigma Valves QEV) | 1,48E-07 | 1,42E-07 | 6,52E-04 | 8,11E-05 | 1,85E-04 |
| 85623 (with Bifold Fluidpower QEV15 or QEV50) | 1,48E-07 | 1,42E-07 | 6,52E-04 | 8,11E-05 | 1,85E-04 |
| HDC167 | 7,54E-07 | 6,83E-07 | 3,32E-03 | 5,79E-04 | 1,08E-03 |
| HDC167-1 | 9,50E-08 | 8,96E-08 | 4,18E-04 | 5,84E-05 | 1,24E-04 |
| Systematic capability | 3 (Route 1 _S applied) | | | | |
| Architectural constraints | Route 1 _H : | Applied | Route 2 _H : | Applied | |
| | The product can be used in: <ul style="list-style-type: none"> single channel configuration: <ul style="list-style-type: none"> up to SIL 2 without external diagnostic tests up to SIL 3 considering external diagnostic tests double channel configuration: up to SIL 3 | | | | |

Remarks:

- Modifications of the schemes, which do not involve the safety function, do not impair the validity of the present certificate.
- The above values of PFD_{AVG} are calculated for MRT=24 h and Proof Test Coverage=100%. For other values of MRT, TI, TI_{PS} and/or non-perfect Proof Test, the PFD_{AVG} values must be re-calculated.
- For further details, including environmental conditions, limitations of use, lifetime, failure rates traceability, mean repair times, common cause factors and systematic capability constraints, make reference to Safety Manual SM-EH-B-02-E.

END OF CERTIFICATE

Reggio Emilia, 12.06.2019


 Dipl. Ing. Ferdinando Sergizzarea
 TÜV INTERCERT Certification Body