

# Technical data sheet

FOR THE ROTARY ACTUATOR

Type: HSE 08 SP  
Art. no.: 4200927

|                                            |                                                                                                                                                                                                                                                                                       |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model .....                                | Vane-type rotary actuator<br>In principle the actuation has a pressure- and viscosity-dependent internal leak volume flow rate. For example, if an external torque affect the rotary actuator shaft in an idle mode, the rotary actuator shaft shifts slowly from its angle position! |
| Series .....                               | HSE: Rotary actuator with end position damping and with or without rotary angle limitation.                                                                                                                                                                                           |
| Size .....                                 | 08                                                                                                                                                                                                                                                                                    |
| Mounting style                             |                                                                                                                                                                                                                                                                                       |
| - Rotary actuator housing .....            | single-sided face mounting with thread according to DIN 13-1 - M 20<br>Strength class of the fastening screws $\geq 8.8$                                                                                                                                                              |
| - Drive shaft end .....                    | two parallel keys according to DIN 6885-1 - B32x18x140 (2 x 180°)                                                                                                                                                                                                                     |
| - Centre hole in the drive shaft end ..... | DIN 332-2 - D M 24                                                                                                                                                                                                                                                                    |
| Connection type .....                      | pipe thread according to DIN ISO 228-1;<br>A and B: G3/4; axial in the end-position damping block                                                                                                                                                                                     |
| Installation position .....                | arbitrary; Depending on the position of installation and case of application a load may cause running ahead the rotary actuator drive shaft. In such a case, appropriate countermeasures must be taken!                                                                               |
| Installation instructions .....            | see operating instructions                                                                                                                                                                                                                                                            |
| Rotary angle limitation .....              | An external rotary angle limitation is recommended!                                                                                                                                                                                                                                   |
| Intended use .....                         | The rotary actuator is intended for generation an alternating torque in a stationary application.                                                                                                                                                                                     |

|                                        |                    |                    |           |                                                                                                                                                            |      |
|----------------------------------------|--------------------|--------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| max. nominal pressure                  | $p_{N \max}$       | bar                | 160       |                                                                                                                                                            | 1)   |
| min. minimum pressure                  | $p_{M \min}$       | bar                | 20        | Required for a proper functioning of the load-free drive.                                                                                                  |      |
| max. starting pressure without load    | $p_{St \max}$      | bar                | 8.0       | at an output pressure of $p = 1 \text{ bar}$                                                                                                               |      |
| specific torque                        | $M_{sp}$           | Nm/bar             | 98.90     | torque constant                                                                                                                                            | 2)   |
| theoretical torque                     | $M_{th}$           | Nm                 | 15 824    | at $\Delta p = p_{N \max}$                                                                                                                                 | 2)   |
| mechanical efficiency $\approx$        | $\eta_{mec}$       | -                  | 0.950     | at $\Delta p = p_{N \max}$ and $\omega = \omega_{\max}$                                                                                                    | 3)   |
| effective torque                       | $M_{eff}$          | Nm                 | 15 033    | at $\Delta p = p_{N \max}$ and $\omega = \omega_{\max}$                                                                                                    | 3)   |
| number of working chambers             | Z                  | -                  | 2         |                                                                                                                                                            |      |
| nominal angle of rotary                | $\varphi_N$        | grad               | 292       | The internal stop must not be approached!                                                                                                                  | 2)   |
| max. operating angle of rotary         | $\varphi_{A \max}$ | grad               | 290       |                                                                                                                                                            |      |
| recom. min. operating angle of rotary  | $\varphi_{A \min}$ | grad               | 23        | If smaler rotating angles are to be realised in continious operation, the manufacturer must be consulted.                                                  |      |
| maximum radial force                   | $F_{r \max}$       | N                  | 20 000    | force acting centered on the journal of the drive shaft                                                                                                    |      |
| maximum axial force                    | $F_{ax \max}$      | N                  | 10 000    | force acting centrically on the journal of the drive shaft                                                                                                 |      |
| weight $\approx$                       | m                  | kg                 | 256.0     | $\pm 10\%$ , incl. oil filling                                                                                                                             |      |
| mass moment of inertia of drive shaft  | $J_{W0}$           | kgdm <sup>2</sup>  | 34.36     | $\pm 5\%$ , without other attachments such as hub, coupling, rotation encoder, etc.                                                                        |      |
| max. angular speed                     | $\omega_{\max}$    | rad/s              | 2.2       | This corresponds to 126 deg/s or an equivalent rotational speed of $n = 21 \text{ min}^{-1}$ .                                                             | 1)   |
| specific displacement                  | $V_{sp}$           | cm <sup>3</sup> /° | 17.26     | This results in a theoretical operating volume of $V_A = 5 005.8 \text{ cm}^3$ .                                                                           | 2)   |
| theoretical volume flow rate required  | $Q_{th}$           | l/min              | 130.6     | at $\omega = \omega_{\max}$                                                                                                                                | 2)   |
| max. internal leakage volume flow rate | $Q_{L \max}$       | l/min              | 0.59      | at $\Delta p = p_{N \max}$ and $v = 50 \text{ mm}^2/\text{s}$                                                                                              | 3)4) |
| effective required volume flow rate    | $Q_{eff}$          | l/min              | 131.2     | at $\Delta p = p_{N \max}$ , $\omega = \omega_{\max}$ and $v = 50 \text{ mm}^2/\text{s}$                                                                   | 3)4) |
| permissible pressure fluid             |                    |                    |           | HLP mineral oils according to DIN 51524 T2                                                                                                                 |      |
| temperature range of pressure fluid    | $\vartheta_{oi}$   | °C                 | -20 – +80 | The viscosity range set in operation is to be observed.                                                                                                    | 1)   |
| range of kinematic viscosity           | $\nu$              | mm <sup>2</sup> /s | 18 – 150  | short-term, the optimum operating viscosity range is 30 – 50 mm <sup>2</sup> /s                                                                            |      |
| cleanliness class of pressure fluid    |                    |                    |           | Max. permissible degree of pollution according to ISO 4406 class 18/16/13.<br>To increase service life, we recommend according to ISO 4406 class 17/15/12. |      |
| range of ambient temperature           | $\vartheta$        | °C                 | 0 – +60   |                                                                                                                                                            |      |
| design of component surfaces           |                    |                    |           | metallic bright and wetted with anticorrosion agents<br>Subject to technical modifications and error!                                                      |      |

1) The simultaneous occurrence of two or more maximum values of temperature, pressure and angular speed requires the written consent of the manufacturer!

2) Theoretically determined value without manufacturing tolerances and if so an efficiency.

3) Median recorded in test series; an inferential variance is possible.

4) In mint condition of the internal seals and their counter-surfaces!