

AUMA NORM

Technical data Multi-turn actuators for modulating duty with 3-phase AC motors

| Type | Speed rpm | | Torque range ¹⁾ | | | Modulating torque ²⁾ | | Number of starts | Pulse duration ³⁾ | Backlash | Valve attachment ⁴⁾ | | | Handwheel | | Weight ⁵⁾ |
|------------|-----------|-------|----------------------------|------------------|------------------|---------------------------------|------------------|------------------|------------------------------|----------|--------------------------------|-----------------|-------------------------|-----------|---------------|----------------------|
| | 50 Hz | 60 Hz | Min. [Nm] | S4-25% Max. [Nm] | S4-50% Max. [Nm] | S4-25% Max. [Nm] | S4-50% Max. [Nm] | | | | Stand-ard EN ISO 5210 | Option DIN 3210 | Max. Ø rising stem [mm] | Ø [mm] | Reduct. ratio | |
| SAREx 07.2 | 4 | 4.8 | 15 | 30 | 20 | 15 | 8 | 1,200 | 50 | 260 | F07 | – | 26 | 160 | 11 : 1 | 22 |
| | 5.6 | 6.7 | | | | | | | | 200 | | | | | 8 : 1 | |
| | 8 | 9.6 | | | | | | | | 155 | | | | | 11 : 1 | |
| | 11 | 13 | | | | | | | | 130 | | | | | 8 : 1 | |
| | 16 | 19 | | | | | | | | 100 | | | | | 11 : 1 | |
| | 22 | 26 | | | | | | | | 90 | | | | | 8 : 1 | |
| | 32 | 38 | | | | | | | | 75 | | | | | 11 : 1 | |
| | 45 | 54 | | | | | | | | 70 | | | | | 8 : 1 | |
| | 63 | 75 | | | | | | 65 | 11 : 1 | 23 | | | | | | |
| | 90 | 108 | | | | | | 60 | 8 : 1 | | | | | | | |
| SAREx 07.6 | 4 | 4.8 | 30 | 60 | 40 | 30 | 15 | 1,200 | 50 | 260 | F07 | – | 26 | 160 | 11 : 1 | 22 |
| | 5.6 | 6.7 | | | | | | | | 200 | | | | | 8 : 1 | |
| | 8 | 9.6 | | | | | | | | 155 | | | | | 11 : 1 | |
| | 11 | 13 | | | | | | | | 130 | | | | | 8 : 1 | |
| | 16 | 19 | | | | | | | | 100 | | | | | 11 : 1 | |
| | 22 | 26 | | | | | | | | 90 | | | | | 8 : 1 | |
| | 32 | 38 | | | | | | | | 75 | | | | | 11 : 1 | |
| | 45 | 54 | | | | | | | | 70 | | | | | 8 : 1 | |
| | 63 | 75 | | | | 65 | 11 : 1 | 24 | | | | | | | | |
| | 90 | 108 | | | | 60 | 8 : 1 | | | | | | | | | |
| SAREx 10.2 | 4 | 4.8 | 60 | 120 | 90 | 60 | 30 | 1,000 | 50 | 260 | F10 | G0 | 40 | 200 | 11 : 1 | 26 |
| | 5.6 | 6.7 | | | | | | | | 200 | | | | | 8 : 1 | |
| | 8 | 9.6 | | | | | | | | 155 | | | | | 11 : 1 | |
| | 11 | 13 | | | | | | | | 130 | | | | | 8 : 1 | |
| | 16 | 19 | | | | | | | | 100 | | | | | 11 : 1 | |
| | 22 | 26 | | | | | | | | 90 | | | | | 8 : 1 | |
| | 32 | 38 | | | | 75 | 11 : 1 | 28 | | | | | | | | |
| | 45 | 54 | | | | 70 | 8 : 1 | | | | | | | | | |
| | 63 | 75 | | | | 65 | 11 : 1 | | | | | | | | | |
| | 90 | 108 | | | | 60 | 8 : 1 | | | | | | | | | |
| SAREx 14.2 | 4 | 4.8 | 120 | 250 | 180 | 120 | 60 | 900 | 70 | 280 | F14 | G1/2 | 57 | 315 | 11 : 1 | 48 |
| | 5.6 | 6.7 | | | | | | | | 220 | | | | | 8 : 1 | |
| | 8 | 9.6 | | | | | | | | 175 | | | | | 11 : 1 | |
| | 11 | 13 | | | | | | | | 150 | | | | | 8 : 1 | |
| | 16 | 19 | | | | | | | | 120 | | | | | 11 : 1 | 52 |
| | 22 | 26 | | | | | | | | 110 | | | | | 8 : 1 | |
| | 32 | 38 | | | | 100 | 11 : 1 | | | | | | | | | |
| | 45 | 54 | | | | 90 | 8 : 1 | | | | | | | | | |
| | 63 | 75 | | | | 85 | 11 : 1 | | | | | | | | | |
| | 90 | 108 | | | | 80 | 8 : 1 | | | | | | | | | |
| SAREx 14.6 | 4 | 4.8 | 250 | 500 | 360 | 200 | 100 | 900 | 70 | 280 | F14 | G1/2 | 57 | 400 | 11 : 1 | 50 |
| | 5.6 | 6.7 | | | | | | | | 220 | | | | | 8 : 1 | |
| | 8 | 9.6 | | | | | | | | 175 | | | | | 11 : 1 | |
| | 11 | 13 | | | | | | | | 150 | | | | | 8 : 1 | |
| | 16 | 19 | | | | | | | | 120 | | | | | 11 : 1 | 56 |
| | 22 | 26 | | | | | | | | 110 | | | | | 8 : 1 | |
| | 32 | 38 | | | | 100 | 11 : 1 | | | | | | | | | |
| | 45 | 54 | | | | 90 | 8 : 1 | | | | | | | | | |
| | 63 | 75 | | | | 85 | 11 : 1 | | | | | | | | | |
| | 90 | 108 | | | | 80 | 8 : 1 | | | | | | | | | |
| SAREx 16.2 | 4 | 4.8 | 500 | 1,000 | 710 | 400 | 200 | 600 | 100 | 300 | F16 | G3 | 75 | 500 | 11 : 1 | 72 |
| | 5.6 | 6.7 | | | | | | | | 250 | | | | | 8 : 1 | |
| | 8 | 9.6 | | | | | | | | 200 | | | | | 11 : 1 | |
| | 11 | 13 | | | | | | | | 175 | | | | | 8 : 1 | |
| | 16 | 19 | | | | | | | | 150 | | | | | 11 : 1 | |
| | 22 | 26 | | | | | | | | 140 | | | | | 8 : 1 | |
| | 32 | 38 | | | | 130 | 11 : 1 | 83 | | | | | | | | |
| | 45 | 54 | | | | 120 | 8 : 1 | | | | | | | | | |
| | 63 | 75 | | | | 115 | 11 : 1 | | | | | | | | | |
| | 90 | 108 | | | | 110 | 8 : 1 | | 88 | | | | | | | |

1) – 5) Refer to notes on page 2.

We reserve the right to alter data according to improvements made. Previous documents become invalid with the issue of this document.

AUMA NORM

Technical data Multi-turn actuators for modulating duty with 3-phase AC motors

General information

AUMA NORM multi-turn actuators require electric controls.

For sizes SAREx 07.2 – SAREx 16.2, AUMA offer AMExC or ACExC actuator controls. These can also easily be mounted to the actuator at a later date.

Notes on table on page 1

| | |
|----------------------|--|
| 1) Torque range | The tripping torque is adjustable for directions OPEN and CLOSE within the indicated torque range. |
| 2) Modulating torque | Maximum torque in modulating duty at nominal voltage and ambient temperature of 40 °C |
| 3) Pulse duration | For identical direction of rotation |
| 4) Valve attachment | Indicated flange sizes apply for output drive types A and B1. Refer to dimension sheets for further output drive types. |
| 5) Weight | Indicated weight includes AUMA NORM multi-turn actuator with 3-phase AC motor, standard electrical connection, output drive type B1 and handwheel. |

Features and functions

| | | | | | | | | | | | | |
|--|---|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Explosion protection | Standard: | II2G Ex de IIC T4 oder T3 II2G c IIC T4 or T3 III2D Ex tb IIIC T130 °C or T190 °C Db IP6x | | | | | | | | | | |
| | Options: | II2G Ex d IIC T4 or T3 II2G c IIC T4 or T3 | | | | | | | | | | |
| EC type examination certificate | DEKRA 11 ATEX 0008 X | | | | | | | | | | | |
| Type of duty | Standard: | Intermittent duty S4 - 25 % | | | | | | | | | | |
| | Option: | Intermittent duty S4 - 50 % | | | | | | | | | | |
| | For nominal voltage and 40 °C ambient temperature and at modulating torque load. | | | | | | | | | | | |
| Motors | 3-ph AC asynchronous motor, type IM B9 according to IEC 60034 | | | | | | | | | | | |
| Mains voltage, mains frequency | Standard voltages: | | | | | | | | | | | |
| | 3-phase AC current - voltages/frequencies | | | | | | | | | | | |
| | Volt | 220 | 230 | 240 | 380 | 400 | 415 | 440 | 460 | 480 | 500 | |
| | Hz | 50 | 50 | 50 | 50 | 50 | 50 | 60 | 60 | 60 | 50 | |
| | Special voltages: | | | | | | | | | | | |
| | 3-phase AC current - voltages/frequencies | | | | | | | | | | | |
| | Volt | 525 | 575 | 660 | 690 | | | | | | | |
| | Hz | 50 | 50 | 50 | 50 | | | | | | | |
| | Permissible variation of mains voltage: ±10 % | | | | | | | | | | | |
| | Permissible variation of mains frequency: ±5 % | | | | | | | | | | | |
| Overvoltage category | Category III according to IEC 60364-4-443 | | | | | | | | | | | |
| Insulation class | Standard: | F, tropicalized | | | | | | | | | | |
| | Option: | H, tropicalized | | | | | | | | | | |
| Motor protection | PTC thermistors (according to DIN 44082) PTC thermistors additionally require a suitable tripping device in the controls. | | | | | | | | | | | |
| Self-locking | Yes (Multi-turn actuators are self-locking, if the valve position cannot be changed from standstill while torque acts upon the output drive). | | | | | | | | | | | |
| Motor heater (option) | Voltages: | 110 – 120 V AC, 220 – 240 V AC or 400 V AC (externally supplied) | | | | | | | | | | |
| | Power depending on the size 12.5 – 25 W | | | | | | | | | | | |
| Manual operation | Manual drive for setting and emergency operation, handwheel does not rotate during electrical operation | | | | | | | | | | | |
| | Options: | Handwheel lockable Handwheel stem extension Power tool for emergency operation with square 30 mm or 50 mm | | | | | | | | | | |
| | | | | | | | | | | | | |
| Indication for manual operation (option) | Indication whether manual operation is active/not active via single switch (1 change-over contact) | | | | | | | | | | | |
| Electrical connection | Standard: | Ex plug/socket connector with screw-type terminals (KP) | | | | | | | | | | |
| | Option: | Ex plug socket connector with terminal blocks (KES) | | | | | | | | | | |

AUMA NORM

Technical data Multi-turn actuators for modulating duty with 3-phase AC motors

| | | |
|---------------------------|---|---|
| Threads for cable entries | Standard: | Metric threads |
| | Options: | Pg-threads, NPT-threads, G-threads |
| Terminal plan | TPA00R1AA-001-000 (basic version) | |
| Valve attachment | Standard: | B1 according to EN ISO 5210 |
| | Options: | A, B2, B3, B4 according to EN ISO 5210 A, B, D, E according to DIN 3210 C according to DIN 3338 |
| | Special output drive types: AF, B3D, ED, DD, IB1, IB3 A prepared for permanent lubrication of stem | |

Electromechanical control unit

| | | |
|--|---|--|
| Limit switching | Counter gear mechanism for end positions OPEN and CLOSED Turns per stroke: 2 to 500 (standard) or 2 to 5,000 (option) | |
| | Standard: | Single switches (1 NC and 1 NO) for each end position, not galvanically isolated |
| | Options: | Tandem switches (2 NC and 2 NO) for each end position, switches galvanically isolated |
| | | Triple switches (3 NC and 3 NO) for each end position, switches galvanically isolated Intermediate position switch (DUO limit switching), adjustable for any position |
| Torque switching | Torque switching adjustable for directions OPEN and CLOSE | |
| | Standard: | Single switches (1 NC and 1 NO) for each direction, not galvanically isolated |
| | Options: | Tandem switches (2 NC and 2 NO) for each direction, switches galvanically isolated |
| Position feedback signal, analogue (options) | Potentiometer or 0/4 – 20 mA (RWG) | |
| Mechanical position indicator (option) | Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED | |
| Running indication | Blinker transmitter | |
| Heater in switch compartment | Standard: | Self-regulating PTC heater, 5 – 20 W, 110 – 250 V AC/DC |
| | Options: | 24 – 48 V AC/DC or 380 – 400 V AC |
| | A resistance type heater of 5 W, 24 V AC is installed in the actuator in combination with AMExC or ACExC actuator controls. | |

Electronic control unit (only in combination with ACExC actuator controls)

| | | |
|--|---|--|
| Non-intrusive setting (option) | Magnetic limit and torque transmitter MWG for 1 to 500 turns per stroke or 10 to 5,000 turns per stroke | |
| Position feedback signal | Via actuator controls | |
| Torque feedback signal | Via actuator controls | |
| Mechanical position indicator (option) | Continuous indication, adjustable indicator disc with symbols OPEN and CLOSED | |
| Running indication | Blinking signal via controls | |
| Heater in switch compartment | Resistance type heater with 5 W, 24 V AC | |

Service conditions

| | | |
|-----------------------|--|-------------------------|
| Use | Indoor and outdoor use permissible | |
| Mounting position | Any position | |
| Installation altitude | ≤ 2,000 m above sea level | |
| | > 2,000 m above sea level, please contact AUMA | |
| Ambient temperature | Standard: | –40 °C to +40 °C/+60 °C |
| | Option: | –60 °C to +40 °C/+60 °C |

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| | | | |
|---|--|--|--|
| Enclosure protection according to EN 60529 | IP 68 with AUMA 3-phase AC motor | | |
| | Terminal compartment additionally sealed against interior (double sealed) | | |
| | According to AUMA definition, enclosure protection IP 68 meets the following requirements: <ul style="list-style-type: none">• Depth of water: maximum 8 m head of water• Duration of continuous immersion in water: Max. 96 hours• Up to 10 operations during continuous immersion Modulating duty is not possible during continuous immersion. | | |
| Pollution degree | Pollution degree 4 (when closed) according to EN 50178 | | |
| Vibration resistance according to IEC 60068-2-6 | 2 g, from 10 Hz to 200 Hz Resistant to vibration during start-up or for failures of the plant. However, a fatigue strength may not be derived from this. Valid for multi-turn actuators in version AUMA NORM (with AUMA plug/socket connector, without actuator controls). Not valid in combination with gearboxes. | | |
| Corrosion protection | Standard: | KS | Suitable for installation in industrial units, in water or power plants with a low pollutant concentration as well as for installation in occasionally or permanently aggressive atmosphere with a moderate pollutant concentration (e.g. wastewater treatments plants, chemical industry) |
| | Options: | KX | Suitable for installation in extremely aggressive atmospheres with high humidity and high pollutant concentration |
| | | KX-G | Same as KX, however aluminium-free version (outer parts) |
| Finish coating | Powder paint Two-component iron-mica combination | | |
| Colour | Standard: | AUMA silver-grey (similar to RAL 7037) | |
| | Option: | Other colours are possible on request. | |
| Lifetime | AUMA multi-turn actuators meet or even exceed the lifetime requirements of EN 15714-2. Detailed information can be provided on request. | | |

Further information

| | | | |
|---------------------|---|--|--|
| EU Directives | ATEX Directive: (94/9/EC) | | |
| | Electromagnetic Compatibility (EMC): (2004/108/EC) | | |
| Reference documents | Low Voltage Directive: (2006/95/EC) | | |
| | Machinery Directive: (2006/42/EC) | | |
| | Product description Electric multi-turn actuators with integral controls for applications in the oil and gas industry | | |
| | Dimensions SAREx 07.2 – SAREx 16.2/SAREx 07.2 – SAREx 16.2 | | |
| | Electrical data SAREx 07.2 – SAREx 16.2 with 1-phase AC motors | | |
| | Technical data for switches | | |
| | Technical data Electronic position transmitter/potentiometer | | |
| | Technical data Output speeds, motors, reduction ratios and blinker transmitters | | |
| | | | |