

## SAR 07.2 – SAR 16.2

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

#### Intermittent duty S4 - 25 %, 380 V/50 Hz

| Multi-turn actuator |                    |                  | Motor          |                                                 |             |                                                  |                                                 |                                     |       |                                      |                              |           |
|---------------------|--------------------|------------------|----------------|-------------------------------------------------|-------------|--------------------------------------------------|-------------------------------------------------|-------------------------------------|-------|--------------------------------------|------------------------------|-----------|
| Type                | Output speed [rpm] | Max. torque [Nm] | Motor type     | Nominal power <sup>1)</sup> P <sub>N</sub> [kW] | Speed [rpm] | Nominal current <sup>2)</sup> I <sub>N</sub> [A] | Max. current <sup>3)</sup> I <sub>max</sub> [A] | Starting current I <sub>A</sub> [A] | cos φ | Overcurrent prot. device setting [A] | AUMA power class switchgears |           |
|                     |                    |                  |                |                                                 |             |                                                  |                                                 |                                     |       |                                      | Contactor                    | Thyristor |
| SAR 07.2            | 4                  | 30               | VD0R063-4-0.02 | 0.02                                            | 1,400       | 0.4                                              | 0.3                                             | 1.1                                 | 0.40  | 0.3                                  | A1                           | B1        |
|                     | 5.6                |                  |                |                                                 |             | 0.4                                              | 0.4                                             | 1.1                                 | 0.40  | 0.4                                  | A1                           | B1        |
|                     | 8                  |                  | VD0R063-4-0.04 | 0.04                                            | 1,400       | 0.4                                              | 0.4                                             | 1.1                                 | 0.50  | 0.4                                  | A1                           | B1        |
|                     | 11                 |                  |                |                                                 |             | 0.4                                              | 0.5                                             | 1.1                                 | 0.50  | 0.5                                  | A1                           | B1        |
|                     | 16                 |                  | VD0R063-2-0.06 | 0.06                                            | 2,800       | 0.6                                              | 0.6                                             | 2.0                                 | 0.57  | 0.6                                  | A1                           | B1        |
|                     | 22                 |                  |                |                                                 |             | 0.6                                              | 0.7                                             | 2.0                                 | 0.57  | 0.7                                  | A1                           | B1        |
|                     | 32                 |                  | AD0R063-4-0.10 | 0.10                                            | 1,400       | 1.0                                              | 1.0                                             | 2.5                                 | 0.42  | 1.0                                  | A1                           | B1        |
|                     | 45                 |                  |                |                                                 |             | 1.0                                              | 1.1                                             | 2.5                                 | 0.42  | 1.1                                  | A1                           | B1        |
| 63                  | AD0R063-2-0.20     | 0.20             | 2,800          | 0.8                                             | 1.3         | 4.6                                              | 0.60                                            | 1.3                                 | A1    | B1                                   |                              |           |
| 90                  |                    |                  |                | 0.8                                             | 1.4         | 4.6                                              | 0.60                                            | 1.4                                 | A1    | B1                                   |                              |           |
| SAR 07.6            | 4                  | 60               | VD0R063-4-0.03 | 0.03                                            | 1,400       | 0.4                                              | 0.4                                             | 1.1                                 | 0.43  | 0.4                                  | A1                           | B1        |
|                     | 5.6                |                  |                |                                                 |             | 0.4                                              | 0.5                                             | 1.1                                 | 0.43  | 0.5                                  | A1                           | B1        |
|                     | 8                  |                  | VD0R063-4-0.06 | 0.06                                            | 1,400       | 0.6                                              | 0.7                                             | 1.7                                 | 0.38  | 0.7                                  | A1                           | B1        |
|                     | 11                 |                  |                |                                                 |             | 0.6                                              | 0.7                                             | 1.7                                 | 0.38  | 0.7                                  | A1                           | B1        |
|                     | 16                 |                  | VD0R063-2-0.12 | 0.12                                            | 2,800       | 0.7                                              | 0.9                                             | 3.2                                 | 0.52  | 0.9                                  | A1                           | B1        |
|                     | 22                 |                  |                |                                                 |             | 0.7                                              | 1.1                                             | 3.2                                 | 0.52  | 1.1                                  | A1                           | B1        |
|                     | 32                 |                  | AD0R063-4-0.20 | 0.20                                            | 1,400       | 1.7                                              | 2.0                                             | 4.8                                 | 0.42  | 2.0                                  | A1                           | B1        |
|                     | 45                 |                  |                |                                                 |             | 1.7                                              | 2.1                                             | 4.8                                 | 0.42  | 2.1                                  | A1                           | B1        |
| 63                  | AD0R063-2-0.40     | 0.40             | 2,800          | 1.7                                             | 2.4         | 9.5                                              | 0.53                                            | 2.4                                 | A1    | B1                                   |                              |           |
| 90                  |                    |                  |                | 1.7                                             | 2.6         | 9.5                                              | 0.53                                            | 2.6                                 | A1    | B1                                   |                              |           |
| SAR 10.2            | 4                  | 120              | VD0R071-4-0.06 | 0.06                                            | 1,400       | 0.5                                              | 0.6                                             | 2.1                                 | 0.40  | 0.6                                  | A1                           | B1        |
|                     | 5.6                |                  |                |                                                 |             | 0.5                                              | 0.6                                             | 2.1                                 | 0.40  | 0.6                                  | A1                           | B1        |
|                     | 8                  |                  | VD0R071-4-0.12 | 0.12                                            | 1,400       | 1.1                                              | 1.2                                             | 3.2                                 | 0.40  | 1.2                                  | A1                           | B1        |
|                     | 11                 |                  |                |                                                 |             | 1.1                                              | 1.3                                             | 3.2                                 | 0.40  | 1.3                                  | A1                           | B1        |
|                     | 16                 |                  | VD0R071-2-0.25 | 0.25                                            | 2,800       | 1.4                                              | 1.6                                             | 4.7                                 | 0.52  | 1.6                                  | A1                           | B1        |
|                     | 22                 |                  |                |                                                 |             | 1.4                                              | 1.9                                             | 4.7                                 | 0.52  | 1.9                                  | A1                           | B1        |
|                     | 32                 |                  | AD0R071-4-0.40 | 0.40                                            | 1,400       | 2.6                                              | 2.7                                             | 8.9                                 | 0.42  | 2.7                                  | A1                           | B1        |
|                     | 45                 |                  |                |                                                 |             | 2.6                                              | 3.2                                             | 8.9                                 | 0.42  | 3.2                                  | A1                           | B1        |
| 63                  | AD0R071-2-0.70     | 0.70             | 2,800          | 3.2                                             | 3.8         | 17                                               | 0.54                                            | 3.8                                 | A1    | B1                                   |                              |           |
| 90                  |                    |                  |                | 3.2                                             | 4.2         | 17                                               | 0.54                                            | 4.2                                 | A1    | B1                                   |                              |           |
| SAR 14.2            | 4                  | 250              | VD0R090-4-0.12 | 0.12                                            | 1,400       | 0.5                                              | 0.8                                             | 2.9                                 | 0.60  | 0.8                                  | A1                           | B1        |
|                     | 5.6                |                  |                |                                                 |             | 0.5                                              | 1.1                                             | 2.9                                 | 0.60  | 1.1                                  | A1                           | B1        |
|                     | 8                  |                  | VD0R090-4-0.25 | 0.25                                            | 1,400       | 1.1                                              | 1.7                                             | 5.5                                 | 0.60  | 1.7                                  | A1                           | B1        |
|                     | 11                 |                  |                |                                                 |             | 1.1                                              | 1.8                                             | 5.5                                 | 0.60  | 1.8                                  | A1                           | B1        |
|                     | 16                 |                  | VD0R090-2-0.45 | 0.45                                            | 2,800       | 1.6                                              | 3.2                                             | 9.5                                 | 0.64  | 3.2                                  | A1                           | B1        |
|                     | 22                 |                  |                |                                                 |             | 1.6                                              | 3.7                                             | 9.5                                 | 0.64  | 3.7                                  | A1                           | B1        |
|                     | 32                 |                  | AD0R090-4-0.75 | 0.75                                            | 1,400       | 2.6                                              | 4.2                                             | 17                                  | 0.62  | 4.2                                  | A1                           | B1        |
|                     | 45                 |                  |                |                                                 |             | 2.6                                              | 5.3                                             | 17                                  | 0.62  | 5.3                                  | A1                           | B1        |
| 63                  | AD0R090-2-1.40     | 1.40             | 2,800          | 4.9                                             | 7.4         | 40                                               | 0.60                                            | 7.4                                 | A2    | B2                                   |                              |           |
| 90                  |                    |                  |                | 4.9                                             | 9.5         | 40                                               | 0.60                                            | 9.5                                 | A2    | B2                                   |                              |           |
| SAR 14.6            | 4                  | 500              | VD0R090-4-0.20 | 0.20                                            | 1,400       | 0.9                                              | 0.9                                             | 5.5                                 | 0.54  | 0.9                                  | A1                           | B1        |
|                     | 5.6                |                  |                |                                                 |             | 0.9                                              | 1.1                                             | 5.5                                 | 0.54  | 1.1                                  | A1                           | B1        |
|                     | 8                  |                  | VD0R090-4-0.40 | 0.40                                            | 1,400       | 1.8                                              | 3.2                                             | 9.8                                 | 0.56  | 3.2                                  | A1                           | B1        |
|                     | 11                 |                  |                |                                                 |             | 1.8                                              | 3.7                                             | 9.8                                 | 0.56  | 3.7                                  | A1                           | B1        |
|                     | 16                 |                  | VD0R090-2-0.80 | 0.80                                            | 2,800       | 3.8                                              | 5.3                                             | 19                                  | 0.51  | 5.3                                  | A1                           | B2        |
|                     | 22                 |                  |                |                                                 |             | 3.8                                              | 5.8                                             | 19                                  | 0.51  | 5.8                                  | A1                           | B2        |
|                     | 32                 |                  | AD0R090-4-1.60 | 1.60                                            | 1,400       | 5.6                                              | 7.9                                             | 40                                  | 0.57  | 7.9                                  | A2                           | B2        |
|                     | 45                 |                  |                |                                                 |             | 5.6                                              | 9.5                                             | 40                                  | 0.57  | 9.5                                  | A2                           | B2        |
| 63                  | AD0R090-2-3.00     | 3.00             | 2,800          | 9.5                                             | 14          | 61                                               | 0.60                                            | 14                                  | A2    | B3                                   |                              |           |
| 90                  |                    |                  |                | 9.5                                             | 17          | 61                                               | 0.60                                            | 17                                  | A2    | B3                                   |                              |           |
| SAR 16.2            | 4                  | 1,000            | VD0R112-4-0.40 | 0.40                                            | 1,400       | 1.5                                              | 2.8                                             | 11                                  | 0.65  | 2.8                                  | A1                           | B1        |
|                     | 5.6                |                  |                |                                                 |             | 1.5                                              | 3.1                                             | 11                                  | 0.65  | 3.1                                  | A1                           | B1        |
|                     | 8                  |                  | VD0R112-4-0.80 | 0.80                                            | 1,400       | 2.9                                              | 5.3                                             | 23                                  | 0.57  | 5.3                                  | A1                           | B2        |
|                     | 11                 |                  |                |                                                 |             | 2.9                                              | 5.8                                             | 23                                  | 0.57  | 5.8                                  | A1                           | B2        |
|                     | 16                 |                  | VD0R112-2-1.50 | 1.50                                            | 2,800       | 5.9                                              | 9.5                                             | 42                                  | 0.60  | 9.5                                  | A2                           | B2        |
|                     | 22                 |                  |                |                                                 |             | 5.9                                              | 11                                              | 42                                  | 0.60  | 11                                   | A2                           | B2        |
|                     | 32                 |                  | AD0R112-4-3.00 | 3.00                                            | 1,400       | 8.9                                              | 14                                              | 63                                  | 0.71  | 14                                   | A2                           | B3        |
|                     | 45                 |                  |                |                                                 |             | 8.9                                              | 17                                              | 63                                  | 0.71  | 17                                   | A2                           | B3        |
| 63                  | AD0R112-2-5.00     | 5.00             | 2,800          | 12                                              | 26          | 120                                              | 0.80                                            | 26                                  | A3    | –                                    |                              |           |
| 90                  |                    |                  |                | 12                                              | 32          | 120                                              | 0.80                                            | 26                                  | A3    | –                                    |                              |           |

#### Notes on table

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|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1) Nominal power P <sub>N</sub>   | Mechanical power output at motor shaft at running torque of multi-turn actuator (corresponds to approx. 35 % of maximum torque).<br>The consumed electrical power can be calculated using the following formula:<br>$P = U \times I \times \cos \varphi \times \sqrt{3}$ |
| 2) Nominal current I <sub>N</sub> | Current at running torque                                                                                                                                                                                                                                                |
| 3) Max. current I <sub>max</sub>  | Current at maximum torque                                                                                                                                                                                                                                                |

| Notes on installation and sizing |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                           |          |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|----------|------------------|----------------------------------------------------------------------------|-----------------------------------------------------------|--|-------------------|----------|------|----------|-------------------|-------|------|--------|---------------------|--------|------|--------|-------|-------|----|-------|-------|-------|----|-------|-------|-------|----|-------|-------|--------|
| Motor data                       | Motor data is approximate. Due to usual manufacturing tolerances, there may be deviations from the values given.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           |          |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| Thermoswitches/PTC thermistors   | <p>To protect against overheating, thermoswitches or PTC thermistors are embedded in the motor windings.</p> <p><b>Actuators without integral controls (AUMA NORM):</b><br/>Thermoswitches or PTC thermistors have to be considered within the external controls (refer to terminal plan).</p> <p><b>Note: Failure to connect thermoswitches or PTC thermistors shall void our warranty for the motor.</b></p> <p><b>Rating of the thermoswitches</b></p> <table border="1"> <thead> <tr> <th colspan="2">AC current</th> <th colspan="2">DC current</th> </tr> </thead> <tbody> <tr> <td colspan="2">250 V, 50 – 60 Hz</td> <td>60 V</td> <td>1.0 A</td> </tr> <tr> <td>cos <math>\varphi</math> = 1</td> <td>2.5 A</td> <td>42 V</td> <td>1.2 A</td> </tr> <tr> <td>cos <math>\varphi</math> = 0.6</td> <td>1.6 A</td> <td>24 V</td> <td>1.5 A</td> </tr> </tbody> </table> <p><b>Actuators with AM or AC integral controls:</b><br/>Thermal motor protection is already integrated.</p>                                                                                                                                                                                                                                                                                                                                                              |                                                           |          | AC current       |                                                                            | DC current                                                |  | 250 V, 50 – 60 Hz |          | 60 V | 1.0 A    | cos $\varphi$ = 1 | 2.5 A | 42 V | 1.2 A  | cos $\varphi$ = 0.6 | 1.6 A  | 24 V | 1.5 A  |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| AC current                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DC current                                                |          |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| 250 V, 50 – 60 Hz                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 60 V                                                      | 1.0 A    |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| cos $\varphi$ = 1                | 2.5 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 42 V                                                      | 1.2 A    |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| cos $\varphi$ = 0.6              | 1.6 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 24 V                                                      | 1.5 A    |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| Mains voltage, mains frequency   | <p>Permissible variation of the mains voltage: <math>\pm 10</math> %</p> <p>Permissible variation of the mains frequency: <math>\pm 5</math> %</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           |          |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| Switchgear sizing                | <p>For motor operation, reversing contactors (mechanically, electrically and electronically locked) or thyristors (electronically locked) can be used.</p> <p><b>Actuators without integral controls (AUMA NORM):</b><br/>Switchgears are supplied by the customer. We recommend specification of switchgears suitable for their rated operating power/motor power in compliance with the assigned AUMA power class.<br/>Switchgear assignment to AUMA power classes:</p> <table border="1"> <thead> <tr> <th rowspan="2">AUMA power class</th> <th rowspan="2">Reversing contactor<br/>Rated power according to<br/>IEC 60947-4-1:2010 AC-3</th> <th colspan="2">Reversing contactor<br/>motor power according to UL/CSA at</th> </tr> <tr> <th>480 V AC</th> <th>600 V AC</th> </tr> </thead> <tbody> <tr> <td></td> <td>400 V AC</td> <td></td> <td></td> </tr> <tr> <td>A1</td> <td>4.0 kW</td> <td>5.0 hp</td> <td>5.0 hp</td> </tr> <tr> <td>A2</td> <td>7.5 kW</td> <td>10 hp</td> <td>10 hp</td> </tr> <tr> <td>A3</td> <td>15 kW</td> <td>20 hp</td> <td>25 hp</td> </tr> <tr> <td>A4</td> <td>30 kW</td> <td>60 hp</td> <td>60 hp</td> </tr> <tr> <td>A5</td> <td>55 kW</td> <td>75 hp</td> <td>100 hp</td> </tr> </tbody> </table> <p><b>Actuators with AM or AC integral controls:</b><br/>Required switchgears are already integrated.</p> |                                                           |          | AUMA power class | Reversing contactor<br>Rated power according to<br>IEC 60947-4-1:2010 AC-3 | Reversing contactor<br>motor power according to UL/CSA at |  | 480 V AC          | 600 V AC |      | 400 V AC |                   |       | A1   | 4.0 kW | 5.0 hp              | 5.0 hp | A2   | 7.5 kW | 10 hp | 10 hp | A3 | 15 kW | 20 hp | 25 hp | A4 | 30 kW | 60 hp | 60 hp | A5 | 55 kW | 75 hp | 100 hp |
| AUMA power class                 | Reversing contactor<br>Rated power according to<br>IEC 60947-4-1:2010 AC-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Reversing contactor<br>motor power according to UL/CSA at |          |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 480 V AC                                                  | 600 V AC |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
|                                  | 400 V AC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |          |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| A1                               | 4.0 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5.0 hp                                                    | 5.0 hp   |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| A2                               | 7.5 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 10 hp                                                     | 10 hp    |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| A3                               | 15 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 20 hp                                                     | 25 hp    |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| A4                               | 30 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 60 hp                                                     | 60 hp    |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |
| A5                               | 55 kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 75 hp                                                     | 100 hp   |                  |                                                                            |                                                           |  |                   |          |      |          |                   |       |      |        |                     |        |      |        |       |       |    |       |       |       |    |       |       |       |    |       |       |        |