

Submersible Motor

UMA

Type Series Booklet



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Type Series Booklet UMA

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Drives
Submersible Motor
UMA

Main applications

- Driving submersible borehole pumps

Used for:

- General irrigation systems
- Spray irrigation systems
- Water extraction / water withdrawal
- Industrial water supply
- Lowering groundwater levels
- Fire-fighting systems
- Pressure boosting
- Mining
- Offshore technology and cavern applications

Operating data
Table 1: Operating properties

| Characteristic | | Value | |
|-------------------|---------------------|--------|--------|
| | | 50 Hz | 60 Hz |
| Power | P _N [kW] | ≤ 400 | ≤ 420 |
| Fluid temperature | T [°C] | ≤ 50 | ≤ 50 |
| Type of current | | 3 ~ | 3 ~ |
| Voltage | V [V] | ≤ 1000 | ≤ 1000 |
| Number of poles | | 2 | 2 |
| Speed | n [rpm] | ≈ 2900 | ≈ 3500 |

Designation
Example: UMA 200 - 45 / 21 C D
Table 2: Designation key

| Code | Description | |
|------|---------------------------------------|-----------------------------|
| UMA | Motor type series, asynchronous motor | |
| 200 | Nominal size [mm] | |
| | 150 | 150 mm / 6" |
| | 200 | 200 mm / 8" |
| | 250 | 250 mm / 10" |
| | 300 | 300 mm / 12" |
| 45 | Maximum rated power [kW] for 50 Hz | |
| 2 | Number of poles | |
| 1 | Winding | |
| | 1 | J1 (PVC) |
| | 2 | J2 (VPE/XLPE) ¹⁾ |
| C | Material variant | |
| | E | Stainless steel 1.4301 |
| | C | Stainless steel 1.4571 |
| | D | Duplex 1.4539 |
| | G | Cast iron JL1030 |
| D | Product generation | |

¹⁾ For higher temperatures

Short designation used in product literature
Example: UMA 200(D)
Table 3: Designation key

| Code | Description |
|------|---------------------------------------|
| UMA | Motor type series, asynchronous motor |
| 200 | Nominal size [mm] |
| (D) | Product generation |

Design details
Design

- Three-phase asynchronous motor
- With squirrel cage motor for submerged use
- Filled or unfilled
- Rubber expansion diaphragm for pressure equalisation
- Mechanical seal

Installation types

- Horizontal installation²⁾
- Vertical installation³⁾
- Angled installation⁴⁾

Bearings

- Radial bearings and thrust bearings lubricated by the motor fill
- Thrust bearing with self-adjusting tilting pads for absorbing the axial thrust

Connections

UMA 150(E), UMA 200(D):

- To NEMA

UMA 250(D), UMA 300(D):

- To KSB

Variants available on request

- Flameproof design

Materials
UMA 150(E)
Table 4: Overview of wetted materials per material variant
 Other material variants on request

| Part No. | Description | Material variant | | |
|----------|--------------------------|------------------|--------|--------|
| | | E | C | D |
| 59-12 | Diaphragm | EPDM | | |
| 81-59 | Stator | 1.4301 | 1.4571 | 1.4539 |
| 81-60 | Diaphragm housing | 1.4301 | 1.4404 | - |
| 100 | Housing | 1.4301 | 1.4571 | 1.4539 |
| 145 | Adapter | 1.4308 | 1.4408 | 1.4539 |
| 271 | Sand guard | EPDM | | |
| 382.51 | Bearing carrier (bottom) | 1.4301 | 1.4571 | 1.4539 |
| 433 | Mechanical seal | SiC / SiC | | |
| 818 | Rotor | 1.4021 | 1.4462 | 1.4462 |
| 902 | Grub screw | A2 | A4 | 1.4539 |
| 903.51 | Screw plug | A2 | A4 | 1.4539 |
| - | Screws, bolts and nuts | A4 | A4 | 1.4539 |

UMA 200(D)
Table 5: Overview of wetted materials per material variant
 Other material variants on request

| Part No. | Description | Material variant | | |
|----------|---------------------|----------------------|--------|--------|
| | | G | C | D |
| 59-12 | Diaphragm | EPDM | | |
| 81-59 | Stator with winding | 1.4301 | 1.4571 | 1.4539 |
| 145 | Adapter | JL 1030 (EN-GJL-200) | 1.4408 | 1.4539 |

² UMA 300(D) motors with "water reservoir" as an accessory

³ Motors designed for vertical installation are not suitable for horizontal installation.

⁴ On request

| Part No. | Description | Material variant | | |
|----------|-----------------------------|----------------------|--------|--------|
| | | G | C | D |
| 160.51 | Cover (diaphragm) | 1.4401 / 1.4571 | | 1.4539 |
| 160.52 | Cover (mechanical seal) | 1.4308 | 1.4408 | 1.4539 |
| 271 | Sand guard | EPDM | | |
| 354 | Thrust bearing housing | JL 1030 (EN-GJL-200) | 1.4408 | 1.4539 |
| 433 | Mechanical seal | SiC / SiC | | |
| 818 | Rotor (shaft or shaft stub) | 1.4460 | | 1.4462 |
| - | Screws, bolts and nuts | A4 | | 1.4539 |

UMA 250(D)
Table 6: Overview of wetted materials per material variant
 Other material variants on request

| Part No. | Description | Material variant | | |
|----------|-----------------------------|----------------------|--------|--------|
| | | G | C | D |
| 59-12 | Diaphragm | EPDM | | |
| 81-59 | Stator with winding | 1.4301 | 1.4571 | 1.4539 |
| 145 | Adapter | JL 1030 (EN-GJL-200) | 1.4408 | 1.4539 |
| 160.51 | Cover (diaphragm) | 1.4401 / 1.4571 | | 1.4539 |
| 160.52 | Cover (mechanical seal) | 1.4308 | 1.4408 | 1.4539 |
| 271 | Sand guard | EPDM | | |
| 354 | Thrust bearing housing | JL 1030 (EN-GJL-200) | 1.4408 | 1.4539 |
| 433 | Mechanical seal | SiC / SiC | | |
| 818 | Rotor (shaft or shaft stub) | 1.4460 | | 1.4462 |
| - | Screws, bolts and nuts | A4 | | 1.4539 |

UMA 300(D)
Table 7: Overview of wetted materials per material variant
 Other material variants on request

| Part No. | Description | Material variant | | |
|----------|-----------------------------|----------------------|---|--------|
| | | G | C | D |
| 59-12 | Diaphragm | EPDM 60 | | |
| 81-57 | Stator without winding | 1.4301 | | 1.4462 |
| 81-74 | Pressure screw | CC483K-GC | | 1.4462 |
| 145 | Adapter | JL 1040 (EN-GJL-250) | | 1.4517 |
| 160.51 | Cover (diaphragm) | 1.4401 | | 1.4462 |
| 270 | Deflector | NBR 70 | | |
| 354 | Thrust bearing housing | JL 1040 (EN-GJL-250) | | 1.4517 |
| 433 | Mechanical seal | SiC - carbon | | |
| 818 | Rotor (shaft or shaft stub) | 1.4462-C45+N | | |
| 828 | Cable grommet | EPDM 50 | | |
| 829 | Cable gland ring | 1.4401/1.4571 | | 1.4462 |
| - | Nuts | 1.4571 | | 1.4462 |

Coating and preservation

- **UMA 200(D), UMA 250(D):**
 - Quality: epoxy resin base powder coating for drinking water applications
 - Film thickness: 250 to 350 µm
 - Colour: blue (RAL 5003)
- **UMA 300(D):**
 - Quality: 2-component high-build coating for drinking water applications
 - Coating structure: primer and top coat
 - Film thickness: 100 to 150 µm
 - Colour: ultramarine blue (RAL 5002)

Starting method

- DOL starting (also in combination with autotransformer or soft starter)
- Star-delta starting
- Operation on a frequency inverter (with output filter only)
- UMA 300(D) motors for $V_N > 500$ V on request

Power cable

- One or two cables
- Flat or round cable
- With 1, 3 or 4 cores

- Motor lead and extension cable
- Fixed-length motor leads (optionally also longer)
- Certified for drinking water applications
- **Starting method**
- **Winding insulation**
 - PVC or VPE/XLPE

On request

- Shielded cable
- Special cable types
- Special cable lengths

Product benefits

- High efficiency reduces operating costs.
- Counter thrust bearing reliably absorbs negative axial thrust.
- Reliable pressure equalisation system for largest possible immersion depths
- Wear-resistant mechanical seal with sand thrower for a long service life

Certifications

Table 8: Overview

| Label | Effective in: | Comment |
|--|---------------|--|
|  | All countries | Certified quality management to ISO 9001 |
|  | France | Approved in accordance with the French drinking water regulation |

Selection information

Parameters

The following parameters are decisive for the motor selection:

- Maximum power input P_2 [kW] of the pump
- Fluid temperature T [°C]
- Flow velocity past the motor v [m/s]
- Supply voltage V [V]
- Supply frequency f [Hz]
- Starting method

Immersion depth

Minimum immersed depth:

See pump data (NPSH required)

Maximum immersion depth:

≤ 250 m

Larger immersion depths on request

Rated power

The maximum rated power depends on:

- **Rated voltage and rated frequency**
 - 50 Hz, 60 Hz
 - Permissible voltage/frequency fluctuations to EN 60034-1 $V_n \pm 5\%$ / $f_n \pm 2\%$
- **Fluid temperature**
 - 50 °C max.; higher temperatures on request
- **Flow velocity past the motor**
 - 0 m/s, 0.2 m/s, 0.5 m/s
 - Option: cooling shroud

Overview of product features / selection tables
Overview of product features
Table 9: Overview of product features

| Feature | UMA 150(E) | UMA 200(D) | UMA 250(D) | UMA 300(D) |
|------------------------------------|--|---|--|--|
| General motor data | | | | |
| Wiring in the motor | Δ, Y, or wired for both star and delta operation | | | |
| Frequency of starts | ≤ 15/hour | | ≤ 10/hour | UMA 300(D) ≤ 300/22: 10/hour UMA 300(D) > 300/22: 5/hour |
| Delay before re-starting | ≥ 1 minute | ≥ 1.5 minutes | ≥ 2 minutes | UMA 300(D) ≤ 300/22: ≥ 3 minutes UMA 300(D) > 300/22: ≥ 6 minutes |
| Enclosure | IP 68 | | | |
| Earthing | Internal | | | ≤ 50 mm ² : internal ≤ 70 mm ² : external |
| Installation type | | | | |
| Vertical | All sizes | | | |
| Horizontal | ≤ UMA 150(E) 30/21 ≤ UMA 150(E) 30/22 | ≤ UMA 200(D) 75/21 ≤ UMA 200(D) 75/22 | ≤ UMA 250(D) ≤ 160/21 ≤ UMA 250(D) ≤ 160/22 | : ≤ UMA 300(D) ≤ 300/22 |
| Voltages at 50 Hz: | | | | |
| DOL: | 220 / 230 V ⁵⁾ ; 380 V; 415 V, 500 V; 690 V; 865 V ⁶⁾ ; 1000 V ⁷⁾ | 380 V; 415 V; 500 V; 690 V; 865 V; 1000 V | | |
| YΔ: | 220 / 230 V ⁵⁾ ; 380 V; 500 V ⁶⁾ | 380 V; 415 V; 500 V | | |
| Voltages at 60 Hz: | | | | |
| DOL: | 220 / 230 V ⁵⁾ ; 380 V; 440 V, 480 V; 1000 V ⁷⁾ | 440 V; 480 V; 1000 V | 440 V; 480 V; 1000 V | |
| YΔ: | 220 / 230 V ⁵⁾ ; 380 V; 440 V; 480 V | 440 V; 480 V | 440 V; 480 V | |
| Special voltages on request | | | | |

Overview of motor leads⁸⁾
Table 10: Overview of motor leads available per motor size

| Design | | Cable length ⁹⁾ [m] | Cable cross-section | Core cross-section [mm ²] | | | | | | | | | | |
|-------------------|---------|-----------------------------------|---------------------|---------------------------------------|-----|-----|----|----|----|----|----|----|----|--|
| Standard | Variant | | | 2,5 | 4,0 | 6,0 | 10 | 16 | 25 | 35 | 50 | 70 | 95 | |
| UMA 150(E) | | | | | | | | | | | | | | |
| ✓ | - | 4 | | X | X | X | - | - | - | - | - | - | - | |
| ✓ | - | 4 | | X | X | X | - | - | - | - | - | - | - | |
| - | ✓ | 4 | | X | X | X | - | - | - | - | - | - | - | |
| - | ✓ | 4 | | X | X | X | - | - | - | - | - | - | - | |
| UMA 200(D) | | | | | | | | | | | | | | |
| ✓ | - | 6 | | - | - | X | X | X | - | - | - | - | - | |
| ✓ | - | 6 | | - | - | X | X | X | - | - | - | - | - | |
| - | ✓ | 6 | | - | - | X | X | X | X | - | - | - | - | |
| - | ✓ | 6 | | - | - | X | X | X | X | - | - | - | - | |
| UMA 250(D) | | | | | | | | | | | | | | |
| ✓ | - | 6 | | - | - | X | X | X | X | - | - | - | - | |

⁵⁾ Only UMA 150(E) ≤ 26/21 and ≤ 26/22
⁶⁾ Only UMA 150(E) ≥ 13/21 and ≥ 13/22
⁷⁾ Only UMA 150(E) 26/22, 30/22 and 37/22
⁸⁾ For submerged operation only
⁹⁾ Special lengths on request

| Design | | Cable length ⁹⁾ [m] | Cable cross-section | Core cross-section [mm ²] | | | | | | | | | | |
|-------------------|---------|-----------------------------------|---------------------|---------------------------------------|-----|-----|----|----|----|----|----|----|----|---|
| Standard | Variant | | | 2,5 | 4,0 | 6,0 | 10 | 16 | 25 | 35 | 50 | 70 | 95 | |
| ✓ | - | 6 | | - | - | - | - | - | - | - | X | X | - | - |
| - | ✓ | 6 | | - | - | X | X | X | X | X | - | - | - | - |
| - | ✓ | 6 | | - | - | X | X | X | X | X | X | X | - | - |
| - | ✓ | 6 | | - | - | X | X | X | X | X | X | - | - | - |
| - | ✓ | 6 | | - | - | X | X | X | X | X | X | X | - | - |
| - | ✓ | 6 | | - | - | - | - | - | - | - | X | - | - | - |
| UMA 300(D) | | | | | | | | | | | | | | |
| ✓ | - | 12 | | - | - | - | - | X | X | X | X | X | - | - |
| ✓ | - | 12 | | - | - | - | - | X | X | X | X | X | X | - |
| ✓ | - | 12 | | - | - | - | - | - | - | - | - | - | - | X |
| - | ✓ | 12 | | - | - | - | - | X | X | X | X | X | X | - |
| - | ✓ | 12 | | - | - | - | - | X | X | X | X | X | X | - |

Overview of motor fill
Table 11: Information on the motor fill

| UMA | Supplied | | Sticker | Motor fill |
|--------|----------|----------|---------|---|
| | Filled | Unfilled | | |
| 150(E) | X | - | - | Drinking water / antifreeze mixture (1,2 propylene glycol) |
| 200(D) | X | - | - | |
| 250(D) | X | - | - | |
| 300(D) | X | - | Green | |
| | - | X | Red | Drinking water or drinking water / antifreeze mixture (1,2 propylene glycol) |

Overview for 50 Hz: max. rated power, rated voltage and starting method
Motor with PVC winding insulation

 3~, n ≈ 2900 rpm⁻¹, DOL + YΔ

Fluid temperatures

T = 25 °C ⇒ v ≥ 0.2 m/s

T = 30 °C ⇒ v ≥ 0.5 m/s

Table 12: Selection table for motors with PVC winding insulation, 50 Hz

| UMA | Supply voltage P _N | | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------------------------|------|------|------|-------------------------|------|-------|------|----------------|------|-------|------|------|------|-------|------|-------|------|--------|------|------|
| | 220 V 230 V | | | | 380 V 400 V 415 V | | 380 V | | 400 V 415 V | | 500 V | | | | 690 V | | 895 V | | 1000 V | | |
| | DOL | | YΔ | | DOL | | YΔ | | YΔ | | DOL | | YΔ | | DOL | | DOL | | DOL | | |
| | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] |
| UMA 150(E) | | | | | | | | | | | | | | | | | | | | | |
| 5/21 | 5,5 | 7,3 | 5,5 | 7,3 | 5,5 | 7,3 | 5,0 | 6,7 | 5,5 | 7,3 | 5,5 | 7,3 | - | - | 5,5 | 7,3 | - | - | - | - | |
| 7/21 | 7,5 | 10,0 | 6,5 | 8,7 | 7,5 | 10,0 | 6,5 | 8,7 | 7,5 | 10,0 | 7,5 | 10,0 | - | - | 7,5 | 10,0 | - | - | - | - | |
| 9/21 | 9,3 | 12,4 | 8,0 | 10,7 | 9,3 | 12,4 | 8,0 | 10,7 | 9,3 | 12,4 | 9,3 | 12,4 | - | - | 9,3 | 12,4 | - | - | - | - | |
| 11/21 | 11,0 | 14,8 | 11,0 | 14,8 | 11,0 | 14,8 | 11,0 | 14,8 | 11,0 | 14,8 | 11,0 | 14,8 | 11,0 | 14,8 | 11,0 | 14,8 | - | - | - | - | |
| 13/21 | 13,0 | 17,4 | 12,5 | 16,7 | 13,0 | 17,4 | 12,5 | 16,7 | 13,0 | 17,4 | 13,0 | 17,4 | 13,0 | 17,4 | 13,0 | 17,4 | 13,0 | 17,4 | - | - | |
| 15/21 | 15,0 | 20,1 | 14,5 | 19,4 | 15,0 | 20,1 | 14,5 | 19,4 | 15,0 | 20,1 | 15,0 | 20,1 | 15,0 | 20,1 | 15,0 | 20,1 | 15,0 | 20,1 | - | - | |
| 18/21 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | 18,5 | 24,7 | - | - | |
| 22/21 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | 22,0 | 29,4 | - | - | |
| 26/21 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | - | - | |
| 30/21 | - | - | - | - | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | - | - | |
| UMA 200(D) | | | | | | | | | | | | | | | | | | | | | |
| 37/21 | - | - | - | - | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | - | - | |
| 45/21 | - | - | - | - | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | - | - | |
| 55/21 | - | - | - | - | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | - | - | |
| 65/21 | - | - | - | - | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | - | - | |
| 75/21 | - | - | - | - | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | - | - | |
| 90/21 | - | - | - | - | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | - | - | |
| UMA 250(D) | | | | | | | | | | | | | | | | | | | | | |
| 85/21 | - | - | - | - | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | - | - | |
| 110/21 | - | - | - | - | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | - | - | |
| 132/21 | - | - | - | - | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | - | - | |
| 160/21 | - | - | - | - | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | - | - | |
| 190/21 | - | - | - | - | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | - | - | |

Motors with VPE/XLPE winding insulation

 3~, n ≈ 2900 rpm⁻¹, DOL + YΔ

Fluid temperatures

T = 45 °C ⇒ v ≥ 0.2 m/s

T = 50 °C ⇒ v ≥ 0.5 m/s

Table 13: Selection table for motors with VPE/XLPE winding insulation, 50 Hz

| UMA | Supply voltage P _N | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------------------------|------|------|------|-------------------------|------|-------|------|----------------|------|-------|------|------|------|-------|------|-------|------|--------|------|
| | 220 V 230 V | | | | 380 V 400 V 415 V | | 380 V | | 400 V 415 V | | 500 V | | | | 690 V | | 895 V | | 1000 V | |
| | DOL | | YΔ | | DOL | | YΔ | | YΔ | | DOL | | YΔ | | DOL | | DOL | | DOL | |
| | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] |
| UMA 150(E) | | | | | | | | | | | | | | | | | | | | |
| 5/22 | 5,5 | 7,3 | 5,5 | 7,3 | 5,5 | 7,3 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 7/22 | 7,5 | 10,0 | 7,5 | 10,0 | 7,5 | 10,0 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9/22 | 8,5 | 11,4 | 8,5 | 11,4 | 8,5 | 11,4 | - | - | - | - | 7,5 | 10,0 | - | - | - | - | - | - | - | - |
| 11/22 | 10,0 | 13,4 | 10,0 | 13,4 | 10,0 | 13,4 | - | - | - | - | 11,0 | 14,8 | - | - | - | - | - | - | - | - |
| 13/22 | 13,0 | 17,4 | 13,0 | 17,4 | 13,0 | 17,4 | - | - | - | - | 10,5 | 14,1 | - | - | - | - | - | - | - | - |
| 15/22 | 15,0 | 20,1 | 15,0 | 20,1 | 15,0 | 20,1 | - | - | - | - | 13,5 | 18,1 | - | - | - | - | - | - | - | - |
| 18/22 | 17,5 | 23,5 | 17,5 | 23,5 | 18,5 | 24,7 | - | - | - | - | 18,5 | 24,7 | - | - | - | - | - | - | - | - |
| 22/22 | 22,0 | 29,5 | 22,0 | 29,5 | 20,5 | 27,5 | 20,5 | 27,5 | 20,5 | 27,5 | 20,5 | 27,5 | 20,5 | 27,5 | 20,5 | 27,5 | 20,5 | 27,5 | 20,0 | 26,8 |
| 26/22 | - | - | - | - | 26,0 | 34,8 | 26,0 | 34,8 | 26,0 | 34,8 | 24,0 | 32,2 | 24,0 | 32,2 | 26,0 | 34,8 | 24,0 | 32,2 | 24,0 | 32,2 |
| 30/22 | - | - | - | - | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 30,0 | 40,2 | 28,0 | 37,5 |
| UMA 200(D) | | | | | | | | | | | | | | | | | | | | |
| 37/22 | - | - | - | - | 32 | 43 | 32 | 43 | 32 | 43 | 32 | 43 | 32 | 43 | 32 | 43 | 32 | 43 | 32 | 43 |
| 45/22 | - | - | - | - | 40 | 53 | 40 | 53 | 40 | 53 | 40 | 53 | 40 | 53 | 40 | 53 | 40 | 53 | 40 | 53 |
| 55/22 | - | - | - | - | 53 | 71 | 53 | 71 | 53 | 71 | 53 | 71 | 53 | 71 | 53 | 71 | 53 | 71 | 53 | 71 |
| 65/22 | - | - | - | - | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 |
| 75/22 | - | - | - | - | 68 | 91 | 68 | 91 | 68 | 91 | 68 | 91 | 68 | 91 | 68 | 91 | 68 | 91 | 68 | 91 |
| 90/22 | - | - | - | - | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 |
| UMA 250(D) | | | | | | | | | | | | | | | | | | | | |
| 85/22 | - | - | - | - | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 | 85 | 114 |
| 110/22 | - | - | - | - | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 | 110 | 147 |
| 132/22 | - | - | - | - | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 |
| 160/22 | - | - | - | - | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 | 160 | 214 |
| 190/22 | - | - | - | - | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 | 190 | 255 |
| UMA 300(D) | | | | | | | | | | | | | | | | | | | | |
| 250/22 | - | - | - | - | 250 | 335 | 240 | 322 | 240 | 322 | 250 | 335 | 240 | 322 | 250 | 335 | 250 | 335 | 250 | 335 |
| 300/22 | - | - | - | - | 300 | 402 | 300 | 402 | 300 | 402 | 300 | 402 | 300 | 402 | 300 | 402 | 300 | 402 | 300 | 402 |
| 400/22 | - | - | - | - | 400 | 536 | 380 | 509 | 380 | 509 | 400 | 536 | 380 | 509 | 400 | 536 | 400 | 536 | 400 | 536 |

Overview for 60 Hz: max. rated power, rated voltage and starting method
Motor with PVC winding insulation

 3~, n ≈ 3500 rpm⁻¹, DOL + YΔ

Fluid temperatures

T = 25 °C ⇒ v ≥ 0.2 m/s

T = 30 °C ⇒ v ≥ 0.5 m/s

Table 14: Selection table for motors with PVC winding insulation, 60 Hz

| UMA | Supply voltage P _N | | | | | | | | | | | | | | | | | |
|-------------------|-------------------------------|------|------|------|-------|------|------|------|-------------------------|------|-------|------|-------|------|-------|------|--------|------|
| | 220 V 230 V | | | | 380 V | | | | 440 V 460 V 480 V | | 440 V | | 460 V | | 480 V | | 1000 V | |
| | DOL | | YΔ | | DOL | | YΔ | | DOL | | YΔ | | YΔ | | YΔ | | DOL | |
| | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] |
| UMA 150(E) | | | | | | | | | | | | | | | | | | |
| 5/21 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | - | - |
| 7/21 | 9,0 | 12,0 | 9,0 | 12,0 | 9,0 | 12,0 | 7,5 | 10,0 | 9,0 | 12,0 | 7,5 | 10,0 | 7,5 | 10,0 | 9,0 | 12,0 | - | - |
| 9/21 | 11,2 | 15,0 | 11,2 | 15,0 | 11,2 | 15,0 | 11,2 | 15,0 | 11,2 | 15,0 | 9,5 | 12,7 | 10,0 | 13,4 | 11,2 | 15,0 | - | - |
| 11/21 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | - | - |
| 13/21 | 15,6 | 20,9 | 15,6 | 20,9 | 15,6 | 20,9 | 15,6 | 20,9 | 15,6 | 20,9 | 15,0 | 20,1 | 15,6 | 20,9 | 15,6 | 20,9 | - | - |
| 15/21 | 18,0 | 24,1 | 18,0 | 24,1 | 18,0 | 24,1 | 18,0 | 24,1 | 18,0 | 24,1 | 17,0 | 22,7 | 18,0 | 24,1 | 18,0 | 24,1 | - | - |
| 18/21 | 22,2 | 29,7 | 22,2 | 29,7 | 22,2 | 29,7 | 22,2 | 29,7 | 22,2 | 29,7 | 22,2 | 29,7 | 22,2 | 29,7 | 22,2 | 29,7 | - | - |
| 22/21 | 26,4 | 35,3 | 26,4 | 35,3 | 26,4 | 35,3 | 26,4 | 35,3 | 26,4 | 35,3 | 26,4 | 35,3 | 26,4 | 35,3 | 26,4 | 35,3 | - | - |
| 26/21 | 31,2 | 41,8 | 31,2 | 41,8 | 31,2 | 41,8 | 31,2 | 41,8 | 31,2 | 41,8 | 26,0 | 41,8 | 31,2 | 41,8 | 31,2 | 41,8 | - | - |
| 30/21 | - | - | - | - | 36,0 | 48,2 | 36,0 | 48,2 | 36,0 | 48,2 | 36,0 | 48,2 | 36,0 | 48,2 | 36,0 | 48,2 | - | - |
| UMA 200(D) | | | | | | | | | | | | | | | | | | |
| 37/21 | - | - | - | - | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | - | - |
| 45/21 | - | - | - | - | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | - | - |
| 55/21 | - | - | - | - | 66 | 88 | 66 | 88 | 66 | 88 | 66 | 88 | 66 | 88 | 66 | 88 | - | - |
| 65/21 | - | - | - | - | 77 | 103 | 77 | 103 | 77 | 103 | 77 | 103 | 77 | 103 | 77 | 103 | - | - |
| 75/21 | - | - | - | - | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | - | - |
| 90/21 | - | - | - | - | 108 | 145 | 108 | 145 | 108 | 145 | 108 | 145 | 108 | 145 | 108 | 145 | - | - |
| UMA 250(D) | | | | | | | | | | | | | | | | | | |
| 85/21 | - | - | - | - | 102 | 137 | 100 | 134 | 102 | 137 | 100 | 134 | 100 | 134 | 100 | 134 | - | - |
| 110/21 | - | - | - | - | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | - | - |
| 132/21 | - | - | - | - | 158 | 212 | 158 | 212 | 158 | 212 | 158 | 212 | 158 | 212 | 158 | 212 | - | - |
| 160/21 | - | - | - | - | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | - | - |
| 190/21 | - | - | - | - | 228 | 306 | 220 | 295 | 228 | 306 | 228 | 306 | 228 | 306 | 228 | 306 | - | - |

Motors with VPE/XLPE winding insulation

 3~, n ≈ 3500 rpm⁻¹, DOL + YΔ

Fluid temperatures

T = 45 °C ⇒ v ≥ 0.2 m/s

T = 50 °C ⇒ v ≥ 0.5 m/s

Table 15: Selection table for motors with VPE/XLPE winding insulation, 50 Hz

| UMA | Supply voltage P _N | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------------------------|------|------|------|-------|------|------|------|-------------------------|------|-------|------|-------|------|-------|------|--------|------|-----|-----|
| | 220 V 230 V | | | | 380 V | | | | 440 V 460 V 480 V | | 440 V | | 460 V | | 480 V | | 1000 V | | | |
| | DOL | | YΔ | | DOL | | YΔ | | DOL | | YΔ | | YΔ | | YΔ | | DOL | | | |
| | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | [kW] | [hp] | | |
| UMA 150(E) | | | | | | | | | | | | | | | | | | | | |
| 5/22 | 6,6 | 8,8 | 6,6 | 8,8 | 6,6 | 8,8 | - | - | 6,6 | 8,8 | - | - | - | - | - | - | - | - | - | |
| 7/22 | 8,0 | 10,7 | 8,0 | 10,7 | 8,0 | 10,7 | - | - | 9,0 | 12,0 | - | - | - | - | - | - | - | - | - | |
| 9/22 | 10,0 | 13,4 | 10,0 | 13,4 | 10,0 | 13,4 | - | - | 10,0 | 13,4 | - | - | - | - | - | - | - | - | - | |
| 11/22 | 13,2 | 17,7 | 13,2 | 17,7 | 13,2 | 17,7 | - | - | 12,0 | 16,1 | - | - | - | - | - | - | - | - | - | |
| 13/22 | 15,6 | 20,9 | 15,6 | 20,9 | 15,6 | 20,9 | - | - | 15,6 | 20,9 | - | - | - | - | - | - | - | - | - | |
| 15/22 | 18,0 | 20,1 | 18,0 | 19,4 | 18,0 | 20,1 | - | - | 18,0 | 20,1 | - | - | - | - | - | - | - | - | - | |
| 18/22 | 21,0 | 28,2 | 21,0 | 28,2 | 21,0 | 28,2 | - | - | 22,0 | 29,5 | - | - | - | - | - | - | - | - | - | |
| 22/22 | 26,4 | 35,4 | 26,4 | 35,4 | 26,4 | 35,4 | 26,4 | 35,4 | 24,0 | 32,8 | 24,0 | 32,8 | 24,0 | 32,8 | 24,0 | 32,8 | 22,0 | 29,5 | - | |
| 26/22 | 31,2 | 34,8 | - | - | 31,2 | 34,8 | 31,2 | 34,8 | 31,2 | 34,8 | 31,2 | 34,8 | 31,2 | 34,8 | 31,2 | 34,8 | - | - | - | |
| 30/22 | - | - | - | - | 33,0 | 44,3 | - | - | 36,0 | 48,3 | 36,0 | 48,3 | 36,0 | 48,3 | 36,0 | 48,3 | 36,0 | 48,3 | - | |
| UMA 200(D) | | | | | | | | | | | | | | | | | | | | |
| 37/22 | - | - | - | - | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 | 37 | 50 |
| 45/22 | - | - | - | - | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 | 45 | 60 |
| 55/22 | - | - | - | - | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 | 55 | 74 |
| 65/22 | - | - | - | - | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 | 65 | 87 |
| 75/22 | - | - | - | - | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 | 75 | 101 |
| 90/22 | - | - | - | - | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 | 90 | 121 |
| UMA 250(D) | | | | | | | | | | | | | | | | | | | | |
| 85/22 | - | - | - | - | 100 | 134 | 100 | 134 | 100 | 134 | 100 | 134 | 100 | 134 | 100 | 134 | 100 | 134 | 100 | 134 |
| 110/22 | - | - | - | - | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 | 132 | 177 |
| 132/22 | - | - | - | - | 156 | 209 | 156 | 209 | 156 | 209 | 156 | 209 | 156 | 209 | 156 | 209 | 156 | 209 | 156 | 209 |
| 160/22 | - | - | - | - | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 | 192 | 257 |
| 190/22 | - | - | - | - | 220 | 295 | 220 | 295 | 220 | 295 | 220 | 295 | 220 | 295 | 220 | 295 | 220 | 295 | 220 | 295 |
| UMA 300(D) | | | | | | | | | | | | | | | | | | | | |
| 250/22 | - | - | - | - | 300 | 402 | - | - | 300 | 402 | 290 | 389 | 290 | 389 | 290 | 389 | 290 | 389 | 300 | 402 |
| 300/22 | - | - | - | - | 360 | 482 | - | - | 360 | 482 | 330 | 442 | 360 | 482 | 360 | 482 | 360 | 482 | 360 | 482 |
| 400/22 | - | - | - | - | 420 | 536 | - | - | 420 | 563 | 400 | 536 | 400 | 536 | 400 | 536 | 400 | 536 | 420 | 563 |

Technical data
UMA 150(E)
UMA 150(E) - 60 Hz
Table 16: UMA 150(E); 400 V / 50 Hz; 6 in, 3 ~, n ≈ 2900 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|-------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 5/21 | 5,5 | 7,3 | 41 | 37 | 2895 | 76,0 | 76,0 | 71,0 | 0,76 | 0,67 | 0,55 | 13,8 | 4 x 2,5 | 3/4 x 2,5 | 4,7 | 2,3 | 1,5 |
| 7/21 | 7,5 | 10,0 | 36 | 31 | 2875 | 77,0 | 77,5 | 75,0 | 0,78 | 0,70 | 0,57 | 18,1 | 4 x 2,5 | 3/4 x 2,5 | 4,4 | 2,2 | 1,4 |
| 9/21 | 9,3 | 12,4 | 35 | 29 | 2870 | 78,0 | 79,0 | 77,0 | 0,79 | 0,72 | 0,58 | 21,7 | 4 x 2,5 | 3/4 x 2,5 | 4,5 | 2,2 | 1,5 |
| 13/21 | 13,0 | 17,4 | 35 | 28 | 2880 | 80,0 | 80,5 | 79,0 | 0,78 | 0,70 | 0,56 | 30,1 | 4 x 2,5 | 3/4 x 2,5 | 4,9 | 2,4 | 1,6 |
| 15/21 | 15,0 | 20,1 | 35 | 29 | 2875 | 81,0 | 82,0 | 81,0 | 0,80 | 0,73 | 0,59 | 33,4 | 4 x 4,0 | 3/4 x 2,5 | 4,9 | 2,4 | 1,6 |
| 18/21 | 18,5 | 24,7 | 32 | 25 | 2875 | 81,5 | 82,5 | 80,5 | 0,78 | 0,70 | 0,57 | 42,1 | 4 x 4,0 | 3/4 x 2,5 | 4,9 | 2,4 | 1,6 |
| 22/21 | 22,0 | 29,4 | 35 | 28 | 2880 | 83,0 | 83,5 | 82,0 | 0,78 | 0,70 | 0,57 | 49,2 | 4 x 4,0 | 3/4 x 2,5 | 5,3 | 2,6 | 1,7 |
| 26/21 | 26,0 | 34,8 | 37 | 31 | 2885 | 84,5 | 85,0 | 83,0 | 0,78 | 0,71 | 0,58 | 56,9 | 4 x 6,0 | 3/4 x 4,0 | 5,4 | 2,7 | 1,8 |
| 30/21 | 30,0 | 40,2 | 36 | 30 | 2890 | 84,0 | 84,5 | 82,5 | 0,77 | 0,69 | 0,56 | 66,8 | 4 x 6,0 | 3/4 x 4,0 | 5,6 | 2,8 | 1,8 |
| 37/22 | 37,0 | 49,5 | 45 | 38 | 2875 | 83,5 | 84,0 | 83,0 | 0,79 | 0,71 | 0,58 | 81,6 | 3/4 x 4,0 II | 3/4 x 4,0 | 5,2 | 2,6 | 1,7 |

UMA 150(E) - 60 Hz
Table 17: UMA 150(E); 380 V / 60 Hz; 6 in, 3 ~, n ≈ 3500 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|-------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 5/21 | 6,6 | 8,8 | 38 | 33 | 3480 | 76,0 | 75,0 | 70,5 | 0,79 | 0,72 | 0,61 | 16,8 | 4 x 2,5 | 3/4 x 2,5 | 4,7 | 2,3 | 1,5 |
| 7/21 | 9,0 | 12,0 | 33 | 27 | 3465 | 77,0 | 77,0 | 74,0 | 0,79 | 0,72 | 0,60 | 22,4 | 4 x 2,5 | 3/4 x 2,5 | 4,5 | 2,2 | 1,5 |
| 9/21 | 11,2 | 15,0 | 31 | 24 | 3465 | 78,5 | 78,5 | 76,0 | 0,80 | 0,73 | 0,61 | 27,2 | 4 x 2,5 | 3/4 x 2,5 | 4,5 | 2,2 | 1,5 |
| 13/21 | 15,0 | 20,1 | 35 | 28 | 3480 | 81,5 | 81,0 | 78,5 | 0,77 | 0,69 | 0,56 | 36,4 | 4 x 2,5 | 3/4 x 2,5 | 5,3 | 2,6 | 1,7 |
| 15/21 | 18,0 | 24,1 | 32 | 24 | 3465 | 82,0 | 82,0 | 80,5 | 0,81 | 0,74 | 0,63 | 41,5 | 4 x 4,0 | 3/4 x 2,5 | 4,8 | 2,4 | 1,6 |
| 18/21 | 20,5 | 27,5 | 35 | 28 | 3490 | 84,0 | 83,0 | 80,0 | 0,74 | 0,65 | 0,52 | 50,6 | 4 x 4,0 | 3/4 x 2,5 | 5,7 | 2,8 | 1,9 |
| 22/21 | 26,4 | 35,3 | 33 | 26 | 3480 | 84,5 | 84,0 | 82,0 | 0,77 | 0,69 | 0,56 | 62,1 | 4 x 6,0 | 3/4 x 2,5 | 5,5 | 2,7 | 1,8 |
| 26/21 | 31,2 | 41,8 | 33 | 25 | 3475 | 84,5 | 84,5 | 83,0 | 0,80 | 0,73 | 0,61 | 70,3 | 3/4 x 4,0 II | 3/4 x 4,0 | 5,3 | 2,6 | 1,7 |
| 30/21 | 36,0 | 48,2 | 33 | 26 | 3480 | 85,0 | 85,0 | 83,0 | 0,79 | 0,72 | 0,59 | 81,8 | 3/4 x 4,0 II | 3/4 x 4,0 | 5,6 | 2,8 | 1,8 |
| 37/22 | 37,0 | 49,5 | 47 | 41 | 3495 | 84,5 | 84,0 | 81,0 | 0,75 | 0,66 | 0,53 | 89,4 | 3/4 x 4,0 II | 3/4 x 4,0 | 6,2 | 3,0 | 2,0 |

Table 18: UMA 150(E); 460 V / 60 Hz; 6 in, 3 ~, n ≈ 3500 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|-------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 5/21 | 6,6 | 8,8 | 38 | 32 | 3480 | 75,5 | 75,0 | 70,0 | 0,79 | 0,71 | 0,60 | 14,0 | 4 x 2,5 | 3/4 x 2,5 | 4,8 | 2,3 | 1,5 |
| 7/21 | 9,0 | 12,0 | 33 | 27 | 3460 | 77,0 | 77,0 | 74,5 | 0,80 | 0,74 | 0,62 | 18,3 | 4 x 2,5 | 3/4 x 2,5 | 4,4 | 2,2 | 1,4 |
| 9/21 | 11,2 | 15,0 | 32 | 24 | 3455 | 78,5 | 78,5 | 77,0 | 0,81 | 0,75 | 0,63 | 22,2 | 4 x 2,5 | 3/4 x 2,5 | 4,4 | 2,1 | 1,4 |
| 13/21 | 15,6 | 20,9 | 33 | 26 | 3465 | 81,5 | 82,0 | 79,5 | 0,80 | 0,73 | 0,61 | 30,2 | 4 x 2,5 | 3/4 x 2,5 | 4,8 | 2,4 | 1,6 |
| 15/21 | 18,0 | 24,1 | 33 | 26 | 3460 | 82,0 | 82,5 | 81,0 | 0,81 | 0,75 | 0,64 | 33,9 | 4 x 4,0 | 3/4 x 2,5 | 4,8 | 2,3 | 1,6 |
| 18/21 | 22,2 | 29,7 | 30 | 21 | 3465 | 82,5 | 83,0 | 81,5 | 0,80 | 0,74 | 0,61 | 42,1 | 4 x 4,0 | 3/4 x 2,5 | 4,9 | 2,4 | 1,6 |
| 22/21 | 26,4 | 35,3 | 33 | 25 | 3470 | 84,5 | 84,5 | 83,0 | 0,80 | 0,73 | 0,61 | 49,3 | 4 x 4,0 | 3/4 x 2,5 | 5,2 | 2,5 | 1,7 |
| 26/21 | 31,2 | 41,8 | 34 | 27 | 3470 | 85,0 | 85,5 | 84,0 | 0,80 | 0,74 | 0,62 | 57,3 | 4 x 6,0 | 3/4 x 4,0 | 5,3 | 2,6 | 1,7 |
| 30/21 | 36,0 | 48,2 | 34 | 27 | 3475 | 85,5 | 85,5 | 83,5 | 0,79 | 0,73 | 0,61 | 66,7 | 4 x 6,0 | 3/4 x 4,0 | 5,5 | 2,7 | 1,8 |
| 37/22 | 44,0 | 58,9 | 43 | 35 | 3465 | 84,5 | 85,0 | 84,0 | 0,81 | 0,74 | 0,62 | 81,1 | 3/4 x 4,0 II | 3/4 x 4,0 | 5,2 | 2,5 | 1,7 |

UMA 200(D)
UMA 200(D) - 50 Hz
Table 19: UMA 200(D); 400 V / 50 Hz; 8 in, 3~, n ≈ 2900 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|-------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 37/21 | 37 | 50 | 33 | 27 | 2905 | 85,0 | 85,5 | 84,0 | 0,84 | 0,79 | 0,68 | 74,8 | 4 x 10 | 3/4 x 6,0 | 5,8 | 2,9 | 1,9 |
| 45/21 | 45 | 60 | 32 | 25 | 2905 | 86,0 | 86,0 | 85,0 | 0,84 | 0,79 | 0,68 | 90,1 | 4 x 10 | 3/4 x 6,0 | 6,1 | 3,0 | 2,0 |
| 55/21 | 55 | 74 | 32 | 25 | 2910 | 87,0 | 87,0 | 86,0 | 0,84 | 0,79 | 0,68 | 110 | 4 x 16 | 3/4 x 6,0 | 6,4 | 3,1 | 2,1 |
| 65/21 | 65 | 87 | 33 | 26 | 2915 | 87,5 | 87,5 | 86,5 | 0,84 | 0,78 | 0,67 | 129 | 3/4 x 10 II | 3/4 x 10 | 6,9 | 3,4 | 2,2 |
| 75/21 | 75 | 101 | 29 | 21 | 2910 | 87,5 | 87,5 | 86,0 | 0,82 | 0,76 | 0,64 | 151 | 3/4 x 10 II | 3/4 x 10 | 6,9 | 3,4 | 2,2 |
| 90/21 | 90 | 121 | 30 | 22 | 2915 | 88,0 | 88,0 | 86,5 | 0,82 | 0,76 | 0,64 | 180 | 3/4 x 16 II | 3/4 x 16 | 7,2 | 3,5 | 2,3 |

UMA 200(D) - 60 Hz
Table 20: UMA 200(D); 380 V / 60 Hz, 8 in, 3~, n ≈ 3500 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|-------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 37/21 | 45 | 60 | 30 | 22 | 3485 | 85,5 | 85,0 | 82,5 | 0,85 | 0,81 | 0,72 | 94,0 | 4 x 16 | 3/4 x 6,0 | 6,0 | 3,0 | 2,0 |
| 45/21 | 55 | 74 | 28 | 20 | 3490 | 86,5 | 86,0 | 83,5 | 0,85 | 0,81 | 0,71 | 114 | 4 x 16 | 3/4 x 10 | 6,3 | 3,1 | 2,1 |
| 55/21 | 66 | 88 | 27 | - | 3495 | 87,0 | 86,5 | 84,0 | 0,84 | 0,80 | 0,70 | 137 | 3/4 x 10 II | 3/4 x 10 | 6,7 | 3,3 | 2,2 |
| 65/21 | 77 | 103 | 28 | - | 3500 | 87,5 | 87,0 | 84,5 | 0,85 | 0,80 | 0,70 | 158 | 3/4 x 10 II | 3/4 x 10 | 7,1 | 3,5 | 2,3 |
| 75/21 | 90 | 121 | 26 | - | 3500 | 88,0 | 87,5 | 85,0 | 0,81 | 0,75 | 0,63 | 191 | 3/4 x 16 II | 3/4 x 16 | 7,7 | 3,8 | 2,5 |
| 90/21 | 108 | 147 | 27 | 17 | 3500 | 88,5 | 88,0 | 86,0 | 0,83 | 0,77 | 0,66 | 223 | 3/4 x 16 II | 3/4 x 16 II | 7,7 | 3,8 | 2,5 |

Table 21: UMA 200(D); 460 V / 60 Hz; 8 in, 3~, n ≈ 3500 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|-------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 37/21 | 45 | 60 | 27 | - | 3475 | 84,5 | 84,5 | 82,5 | 0,87 | 0,84 | 0,76 | 77,0 | 4 x 10 | 3/4 x 6,0 | 5,4 | 2,7 | 1,8 |
| 45/21 | 55 | 74 | 26 | - | 3480 | 85,5 | 85,5 | 83,5 | 0,87 | 0,84 | 0,76 | 93,0 | 4 x 10 | 3/4 x 6,0 | 5,6 | 2,8 | 1,8 |
| 55/21 | 66 | 88 | 27 | - | 3485 | 86,5 | 86,5 | 84,5 | 0,87 | 0,84 | 0,76 | 110 | 4 x 16 | 3/4 x 6,0 | 6,0 | 2,9 | 1,9 |
| 65/21 | 77 | 103 | 28 | - | 3490 | 87,5 | 87,5 | 85,0 | 0,87 | 0,83 | 0,75 | 128 | 3/4 x 6,0 II | 3/4 x 10 | 6,5 | 3,2 | 2,1 |
| 75/21 | 90 | 121 | 24 | - | 3485 | 87,5 | 87,5 | 85,5 | 0,86 | 0,82 | 0,72 | 151 | 3/4 x 10 II | 3/4 x 10 | 6,6 | 3,2 | 2,1 |
| 90/21 | 108 | 147 | 25 | 15 | 3490 | 88,0 | 88,0 | 86,0 | 0,86 | 0,81 | 0,71 | 179 | 3/4 x 16 II | 3/4 x 16 II | 6,9 | 3,4 | 2,2 |

UMA 250(D)
UMA 250(D) - 50 Hz
Table 22: UMA 250(D); 400 V / 50 Hz; 10 in, 3~, n ≈ 2900 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A /I _N | | |
|--------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|--------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 85/21 | 85 | 114 | 29 | 20 | 2905 | 87,5 | 87,5 | 86,5 | 0,86 | 0,82 | 0,73 | 164 | 3/4 x 10 II | 3/4 x 16 | 5,8 | 2,8 | 1,9 |
| 110/21 | 110 | 147 | 27 | 17 | 2915 | 88,5 | 88,5 | 87,5 | 0,83 | 0,78 | 0,67 | 216 | 3/4 x 16 II | 3/4 x 25 | 6,4 | 3,2 | 2,1 |
| 132/21 | 132 | 177 | 26 | 16 | 2910 | 89,0 | 89,5 | 88,5 | 0,86 | 0,82 | 0,73 | 249 | 3/4 x 25 II | 3/4 x 25 | 6,1 | 3,0 | 2,0 |
| 160/21 | 160 | 214 | 23 | - | 2905 | 89,0 | 89,5 | 89,0 | 0,86 | 0,82 | 0,73 | 301 | 3/4 x 25 II | 3/4 x 35 | 6,0 | 2,9 | 1,9 |
| 190/21 | 190 | 255 | 23 | - | 2915 | 89,5 | 90,0 | 89,0 | 0,84 | 0,79 | 0,68 | 365 | 3/4 x 35 II | 3/4 x 35 | 6,8 | 3,3 | 2,2 |

UMA 250(D) - 60 Hz
Table 23: UMA 250(D); 380 V / 60 Hz, 10 in, 3~, n ≈ 3500 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A /I _N | | |
|--------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|--------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 85/21 | 102 | 137 | 27 | - | 3510 | 88,0 | 87,5 | 85,5 | 0,85 | 0,81 | 0,71 | 208 | 3/4 x 16 II | 3/4 x 16 | 6,2 | 3,0 | 2,0 |
| 110/21 | 132 | 177 | 24 | - | 3500 | 88,5 | 88,5 | 87,0 | 0,86 | 0,83 | 0,75 | 263 | 3/4 x 25 II | 3/4 x 25 | 5,8 | 2,8 | 1,9 |
| 132/21 | 158 | 212 | 24 | - | 3505 | 89,5 | 89,5 | 88,0 | 0,86 | 0,83 | 0,74 | 312 | 3/4 x 25 II | 3/4 x 35 | 6,1 | 3,0 | 2,0 |
| 160/21 | 192 | 257 | 20 | - | 3500 | 89,5 | 89,5 | 88,5 | 0,87 | 0,83 | 0,75 | 377 | 3/4 x 35 II | 3/4 x 50 | 5,9 | 2,9 | 1,9 |
| 190/21 | 228 | 306 | 20 | - | 3500 | 89,5 | 90,0 | 89,0 | 0,87 | 0,84 | 0,76 | 445 | 3/4 x 50 II | 3/4 x 50 | 5,9 | 2,9 | 1,9 |

Table 24: UMA 250(D); 460 V / 60 Hz, 10 in, 3~, n ≈ 3500 rpm, DOL + YΔ, v ≥ 0.2 m/s; 0.5 m/s

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A /I _N | | |
|--------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|--------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 85/21 | 102 | 137 | 25 | - | 3495 | 87,5 | 87,5 | 86,0 | 0,87 | 0,84 | 0,77 | 169 | 3/4 x 10 II | 3/4 x 16 | 5,4 | 2,6 | 1,7 |
| 110/21 | 132 | 177 | 24 | - | 3510 | 88,5 | 88,5 | 87,0 | 0,85 | 0,81 | 0,72 | 219 | 3/4 x 16 II | 3/4 x 25 | 6,1 | 3,0 | 2,0 |
| 132/21 | 158 | 212 | 23 | - | 3500 | 89,0 | 89,5 | 88,0 | 0,87 | 0,84 | 0,77 | 256 | 3/4 x 25 II | 3/4 x 25 | 5,7 | 2,8 | 1,9 |
| 160/21 | 192 | 257 | 20 | - | 3495 | 89,5 | 89,5 | 89,0 | 0,87 | 0,84 | 0,77 | 310 | 3/4 x 25 II | 3/4 x 35 | 5,6 | 2,8 | 1,8 |
| 190/21 | 228 | 306 | 21 | - | 3510 | 90,0 | 90,0 | 89,0 | 0,86 | 0,82 | 0,73 | 371 | 3/4 x 35 II | 3/4 x 50 | 6,4 | 3,1 | 2,1 |

UMA 300(D)
UMA 300(D) - 50 Hz
Table 25: UMA 300(D); 400 V / 50 Hz

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|--------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|----------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 250/22 | 250 | 335 | 46 | 34 | 2940 | 88,5 | 87,5 | 85,0 | 0,88 | 0,85 | 0,78 | 466 | 3/3 x 70 II + 1 x 95 | 6 x 95 + 1 x 95 | 5,6 | 2,7 | 1,8 |
| 300/22 | 300 | 402 | 46 | 35 | 2945 | 89,0 | 88,5 | 85,5 | 0,87 | 0,84 | 0,76 | 558 | 6 x 95 II + 1 x 95 | 6 x 95 + 1 x 95 | 5,9 | 2,9 | 1,9 |
| 400/22 | 400 | 536 | 38 | 22 | 2935 | 89,5 | 89,0 | 87,5 | 0,87 | 0,85 | 0,77 | 740 | 6 x 95 II + 1 x 95 | 6 x 95 + 1 x 95 | 5,2 | 2,6 | 1,7 |

UMA 300(D) - 60 Hz
Table 26: UMA 300(D); 380 V / 60 Hz

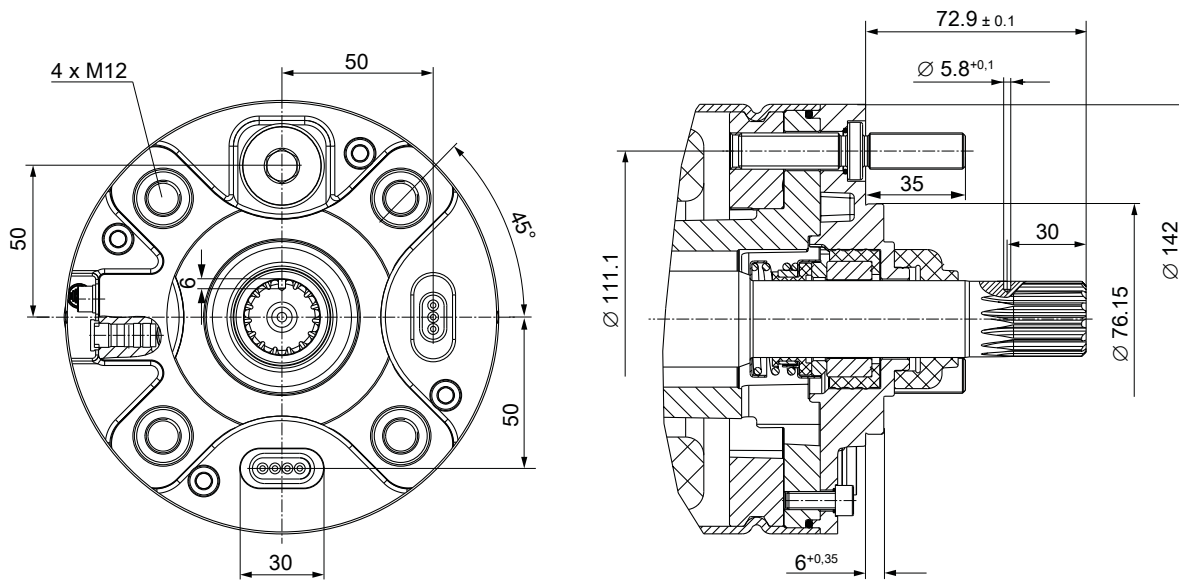
| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|--------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|--------------------|--------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 250/22 | 300 | 408 | 42 | 27 | 3545 | 88,5 | 87,5 | 84,5 | 0,87 | 0,84 | 0,76 | 591 | 6 x 95 II + 1 x 95 | 6 x 95 II + 1 x 95 | 5,8 | 2,9 | 1,9 |
| 300/22 | 360 | 490 | 42 | 27 | 3545 | 89,5 | 88,0 | 85,0 | 0,86 | 0,83 | 0,75 | 709 | 6 x 95 II + 1 x 95 | 6 x 95 II + 1 x 95 | 6,0 | 2,9 | 1,9 |
| 400/22 | 420 | 571 | 40 | 23 | 3540 | 89,5 | 89,0 | 86,0 | 0,87 | 0,84 | 0,77 | 818 | 6 x 95 II + 1 x 95 | 6 x 95 II + 1 x 95 | 5,6 | 2,8 | 1,8 |

Table 27: UMA 300(D); 460 V / 60 Hz

| Size | P _N | | T _{max} | | n _N | η _{Motor} | | | cos φ | | | I _N | Motor lead wiring | | I _A / I _N | | |
|--------|----------------|------|------------------|------------------|----------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|----------------------|----------------------|---------------------------------|------------|-------------|
| | | | T _{0,5} | T _{0,2} | | ⁴ / ₄ | ³ / ₄ | ² / ₄ | ⁴ / ₄ | ³ / ₄ | ² / ₄ | | DOL | Y, Δ | DOL (100 %) | DOL (70 %) | Y, Δ (58 %) |
| | [kW] | [hp] | [°C] | [°C] | [rpm] | [%] | [%] | [%] | | | | [A] | [mm ²] | [mm ²] | | | |
| 250/22 | 300 | 408 | 41 | 25 | 3540 | 88,5 | 87,5 | 84,5 | 0,87 | 0,85 | 0,78 | 487 | 3/3 x 70 II + 1 x 95 | 3/3 x 70 II + 1 x 95 | 5,5 | 2,7 | 1,8 |
| 300/22 | 360 | 490 | 42 | 27 | 3545 | 89,5 | 88,0 | 85,0 | 0,87 | 0,83 | 0,75 | 585 | 6 x 95 II + 1 x 95 | 6 x 95 II + 1 x 95 | 6,0 | 3,0 | 2,0 |
| 400/22 | 420 | 571 | 41 | 25 | 3545 | 90,0 | 89,0 | 86,0 | 0,86 | 0,82 | 0,73 | 682 | 6 x 95 II + 1 x 95 | 6 x 95 II + 1 x 95 | 6,4 | 3,1 | 2,1 |

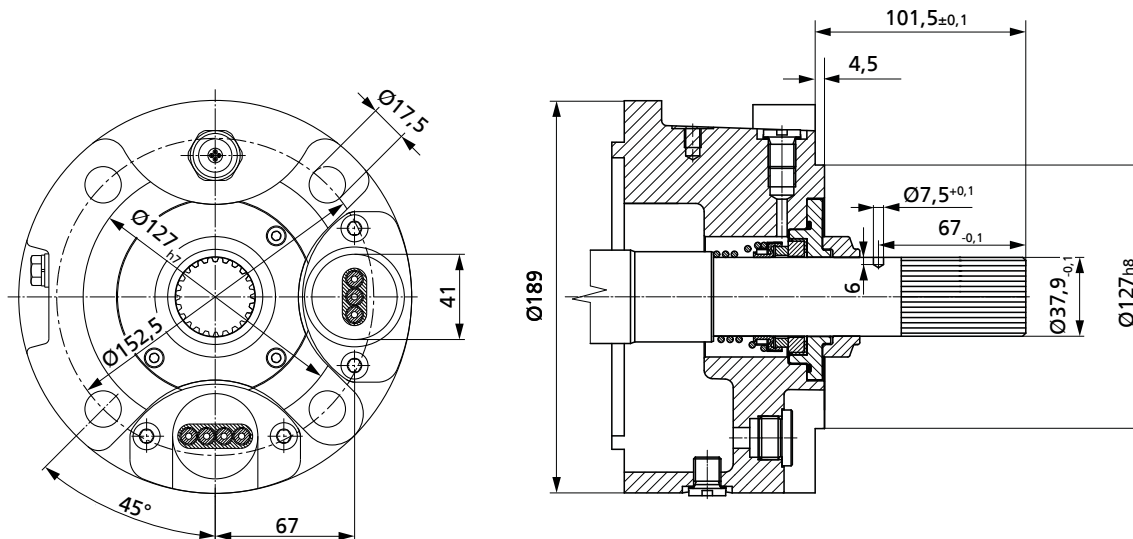
Torque values
Table 28: Starting and pull-out torques depending on the voltage; DOL + YΔ; tolerance applicable to all values: ± 20 %

| Size | Tightening torque M_A | | | Pull-out torque M_K | | |
|-------------------|-------------------------|-------|-------|-----------------------|-------|-------|
| | 50 Hz | 60 Hz | | 50 Hz | 60 Hz | |
| | 400 V | 380 V | 460 V | 400 V | 380 V | 460 V |
| | [Nm] | [Nm] | [Nm] | [Nm] | [Nm] | [Nm] |
| UMA 150(E) | | | | | | |
| 5/21 | 21 | 19 | 19 | 42 | 41 | 41 |
| 7/21 | 28 | 26 | 25 | 53 | 54 | 52 |
| 9/21 | 34 | 32 | 30 | 66 | 66 | 64 |
| 13/21 | 55 | 54 | 48 | 103 | 110 | 100 |
| 15/21 | 62 | 55 | 54 | 116 | 113 | 112 |
| 18/21 | 81 | 85 | 70 | 148 | 170 | 143 |
| 22/21 | 104 | 101 | 89 | 190 | 202 | 181 |
| 26/21 | 127 | 109 | 108 | 232 | 220 | 221 |
| 30/21 | 156 | 135 | 132 | 280 | 271 | 267 |
| 37/22 | 174 | 163 | 150 | 312 | 318 | 299 |
| UMA 200(D) | | | | | | |
| 37/21 | 170 | 158 | 136 | 335 | 356 | 313 |
| 45/21 | 216 | 203 | 172 | 423 | 456 | 396 |
| 55/21 | 282 | 260 | 221 | 545 | 572 | 507 |
| 65/21 | 368 | 328 | 286 | 698 | 712 | 647 |
| 75/21 | 453 | 466 | 365 | 819 | 945 | 769 |
| 90/21 | 581 | 542 | 463 | 1041 | 1113 | 971 |
| UMA 250(D) | | | | | | |
| 85/21 | 355 | 349 | 292 | 751 | 815 | 699 |
| 110/21 | 548 | 418 | 453 | 1110 | 972 | 1038 |
| 132/21 | 598 | 538 | 496 | 1235 | 1235 | 1155 |
| 160/21 | 721 | 628 | 593 | 1468 | 1430 | 1374 |
| 190/21 | 1027 | 759 | 838 | 2004 | 1717 | 1862 |
| UMA 300(D) | | | | | | |
| 250/22 | 787 | 768 | 696 | 2119 | 2247 | 2087 |
| 300/22 | 1032 | 950 | 970 | 2735 | 2793 | 2793 |
| 400/22 | 1224 | 1066 | 1267 | 3190 | 3038 | 3474 |

Dimensions and connections
UMA 150(E)

Fig. 1: UMA 150(E) dimensions [mm]
Table 29: UMA 150(E) dimensions, weights, moments of inertia

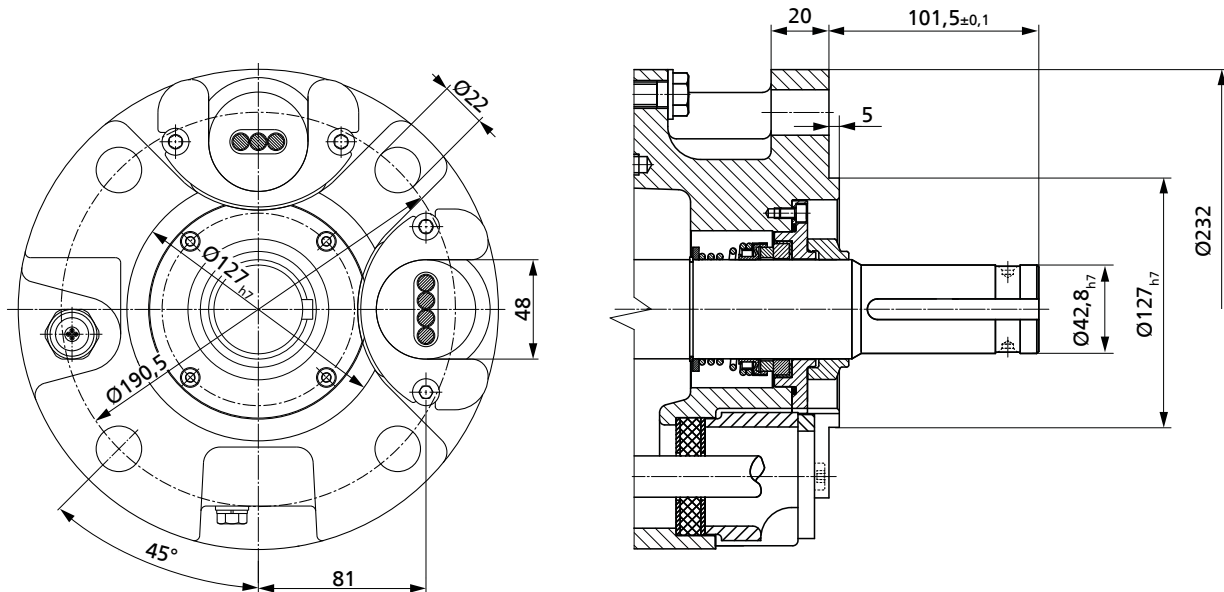
| Size | | Diameter _{motor} | | Length _{motor} | | Weight _{motor} | | Permissible axial thrust | | Moment of inertia (without sleeve coupling) |
|-------|-------|---------------------------|--------|-------------------------|---------|-------------------------------|-------|--------------------------|-------|---|
| | | D _M | | L _M | | m _M ¹⁰⁾ | | F _{AX} | | J |
| | | [mm] | [inch] | [mm] | [inch] | [kg] | [lbs] | [kN] | [lbs] | [kg x m ²] |
| 5/21 | 5/22 | 142 | 5,5906 | 679 | 26,7323 | 43 | 97 | 16 | 3500 | 0,0045 |
| 7/21 | 7/22 | 142 | 5,5906 | 699 | 27,5197 | 45 | 102 | 16 | 3500 | 0,0048 |
| 9/21 | 9/22 | 142 | 5,5906 | 729 | 28,7008 | 48 | 108 | 16 | 3500 | 0,0056 |
| 11/21 | 11/22 | 142 | 5,5906 | 759 | 29,8819 | 53 | 119 | 16 | 3500 | 0,0062 |
| 13/21 | 13/22 | 142 | 5,5906 | 809 | 31,8504 | 56 | 126 | 16 | 3500 | 0,0073 |
| 15/21 | 15/22 | 142 | 5,5906 | 854 | 33,6220 | 61 | 138 | 16 | 3500 | 0,0083 |
| 18/21 | 18/22 | 142 | 5,5906 | 899 | 35,3937 | 65 | 147 | 16 | 3500 | 0,0093 |
| 22/21 | 22/22 | 142 | 5,5906 | 989 | 38,9370 | 74 | 167 | 16 | 3500 | 0,0113 |
| 26/21 | 26/22 | 142 | 5,5906 | 1094 | 43,0709 | 85 | 192 | 16 | 3500 | 0,0137 |
| 30/21 | 30/22 | 142 | 5,5906 | 1194 | 47,0079 | 95 | 215 | 28 | 6200 | 0,0159 |
| - | 37/22 | 142 | 5,5906 | 1274 | 50,1575 | 102 | 230 | 28 | 6200 | 0,0176 |

¹⁰⁾ Including motor lead and water fill

UMA 200(D)

Fig. 2: UMA 200(D) dimensions [mm]
Table 30: UMA 200(D) dimensions, weights, moments of inertia

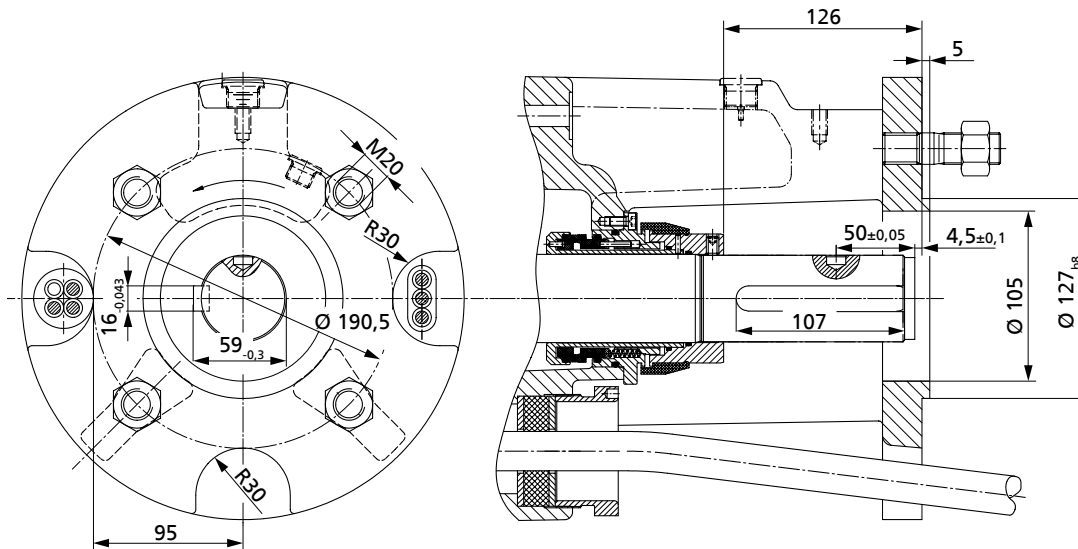
| Size | | Diameter _{motor} | | Length _{motor} | | Weight _{motor} | | Permissible axial thrust | | Moment of inertia (without sleeve coupling) |
|-------|-------|---------------------------|--------|-------------------------|--------|-------------------------------|-------|--------------------------|-------|---|
| | | D _M | | L _M | | m _M ¹¹⁾ | | F _{AX} | | J |
| | | [mm] | [inch] | [mm] | [inch] | [kg] | [lbs] | [kN] | [lbs] | [kg x m ²] |
| 37/21 | 37/22 | 189 | 7,447 | 1140 | 44,92 | 140 | 309 | 40 | 9000 | 0,0243 |
| 45/21 | 45/22 | 189 | 7,447 | 1230 | 48,46 | 156 | 343 | 40 | 9000 | 0,0294 |
| 55/21 | 55/22 | 189 | 7,447 | 1340 | 52,80 | 176 | 388 | 40 | 9000 | 0,0356 |
| 65/21 | 65/22 | 189 | 7,447 | 1470 | 57,92 | 199 | 437 | 40 | 9000 | 0,0430 |
| 75/21 | 75/22 | 189 | 7,447 | 1560 | 61,46 | 215 | 473 | 40 | 9000 | 0,0481 |
| 90/21 | 90/22 | 189 | 7,447 | 1740 | 68,56 | 247 | 545 | 40 | 9000 | 0,0583 |

¹¹ Including motor lead and water fill

UMA 250(D)

Fig. 3: UMA 250(D) dimensions [mm]
Table 31: UMA 250(D) dimensions, weights, moments of inertia

| Size | | Diameter _{motor} | | Length _{motor} | | Weight _{motor} | | Permissible axial thrust | | Moment of inertia (without sleeve coupling) |
|--------|--------|---------------------------|--------|-------------------------|--------|--------------------------------|-------|--------------------------|-------|---|
| | | D _M | | L _M | | m _M ⁽¹²⁾ | | F _{AX} | | m x D ² |
| | | [mm] | [inch] | [mm] | [inch] | [kg] | [lbs] | [kN] | [lbs] | [kg x m ²] |
| 85/21 | 85/22 | 232 | 9,134 | 1419 | 55,87 | 280 | 617 | 60 | 13500 | 0,0607 |
| 110/21 | 110/22 | 232 | 9,134 | 1529 | 60,20 | 317 | 694 | 60 | 13500 | 0,0731 |
| 132/21 | 132/22 | 232 | 9,134 | 1659 | 65,32 | 361 | 794 | 60 | 13500 | 0,0877 |
| 160/21 | 160/22 | 232 | 9,134 | 1769 | 69,65 | 398 | 905 | 60 | 13500 | 0,1001 |
| 190/21 | 190/22 | 232 | 9,134 | 1919 | 75,55 | 449 | 989 | 60 | 13500 | 0,1170 |

¹² Including motor lead and water fill

UMA 300(D)

Fig. 4: UMA 300(D) dimensions [mm]
Table 32: UMA 300(D) dimensions, weights, moments of inertia

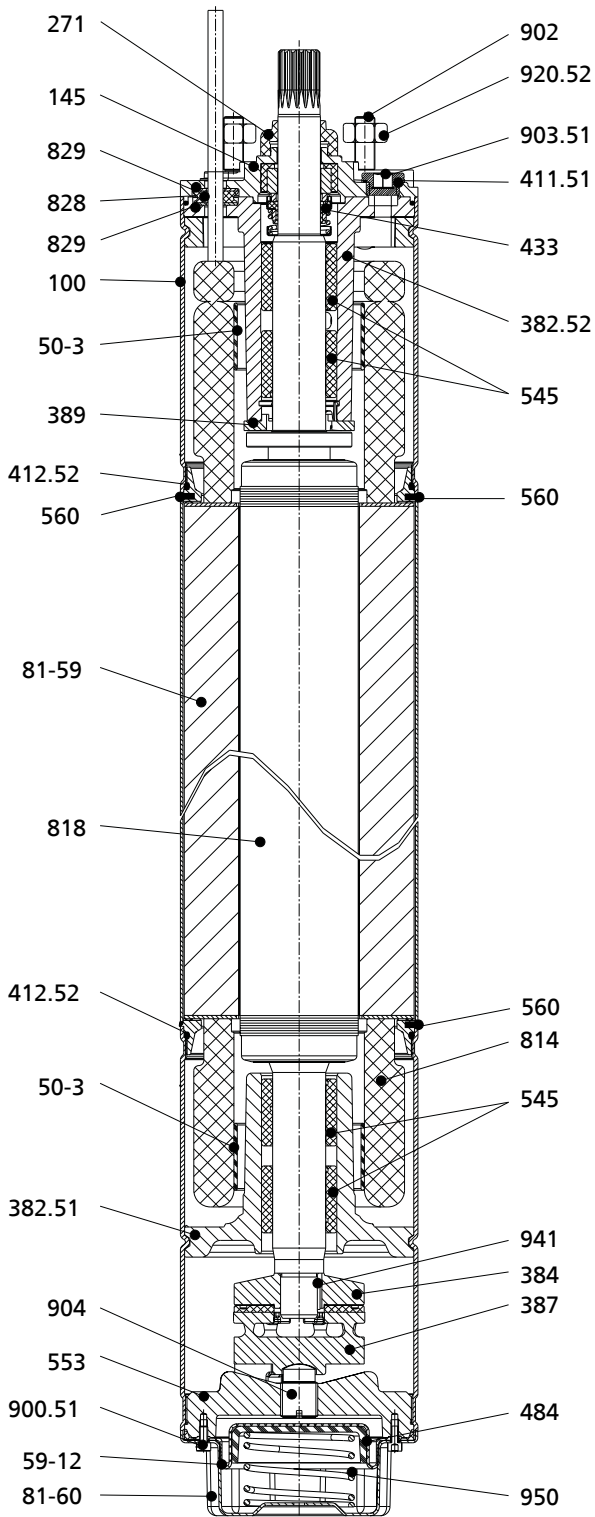
| Size | Diameter _{motor} | | Length _{motor} | | Weight _{motor} | | Permissible axial thrust | | Moment of inertia (without sleeve coupling) |
|--------|---------------------------|--------|-------------------------|--------|-------------------------------|-------|--------------------------|-------|---|
| | D _M | | L _M | | m _M ¹³⁾ | | F _{AX} | | J |
| | [mm] | [inch] | [mm] | [inch] | [kg] | [lbs] | [kN] | [lbs] | [kg x m ²] |
| 250/22 | 283 | 11,142 | 2073 | 81,61 | 574 | 1265 | 60 (90 ¹⁴⁾) | 13500 | 0,2172 |
| 300/22 | 283 | 11,142 | 2253 | 88,70 | 652 | 1437 | 60 (90 ¹⁴⁾) | 13500 | 0,2651 |
| 400/22 | 283 | 11,142 | 2373 | 93,42 | 704 | 1552 | 60 (90 ¹⁴⁾) | 13500 | 0,2971 |

¹³ Without water fill (32 l) and without motor lead

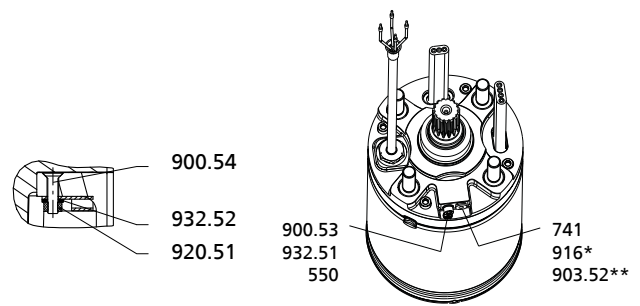
¹⁴ Optional

General drawings with list of components

UMA 150(E) submersible motor

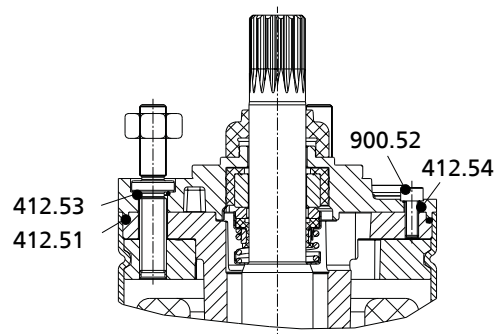


General assembly drawing, example UMA 150(E) > 30 kW

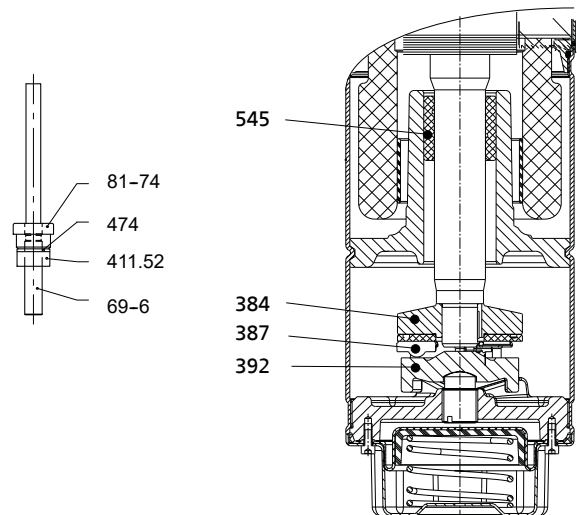


Fastening of earth conductor

Filler opening,
* for material variant E,
** for material variants C and D



Sectional view of the motor shaft, UMA 150(E) < 26 kW



Temperature sensor

Sectional view of thrust bearing,
UMA 150(E)

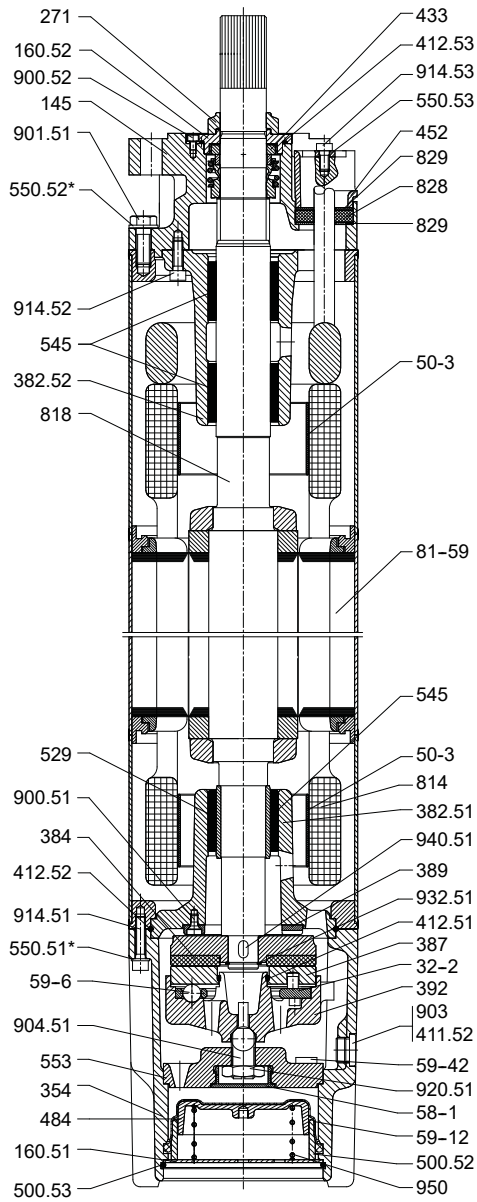
3455.51/11-EN

Table 33: List of components of UMA 150(E), material variants E, C, D

| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-----------------------------|---|--|
| 1 | 100 | Housing | - | - |
| 1 | 145 | Adapter | - | - |
| 1 | 271 | Sand guard | Kit 3 | - |
| 1 | 382.51 | Bearing carrier (bottom) | - | - |
| 1 | 382.52 | Bearing carrier (top) | - | - |
| 1 | 384 | Thrust collar | Kit 1a for UMA 150(E) 5/2. to 26/2. Kit 1b for UMA 150(E) 30/2. to 37/22 | - |
| 3 or 6 | 387 | Thrust bearing segment | Kit 1a for UMA 150(E) 5/2. to 26/2. Kit 1b for UMA 150(E) 30/2. to 37/22 | - |
| 1 | 389 | Counter thrust bearing ring | Kit 1a for UMA 150(E) 5/2. to 26/2. Kit 1b for UMA 150(E) 30/2. to 37/22 | - |
| 1 | 392 | Bearing segment carrier | Kit 1a for UMA 150(E) 5/2. to 26/2. Kit 1b for UMA 150(E) 30/2. to 37/22 | - |
| 1 | 411.51 | Joint ring | Kit 3 | - |
| 1 | 411.52 | Joint ring | Kit 7a (E, C), Kit 7b (D) | - |
| 1 | 412.51 | O-ring | Kit 3 | - |
| 2 | 412.52 | O-ring | Kits 1a and 1b Kit 3 | - |
| 4 | 412.53 | O-ring | Kit 3 Kit 4a (E, C), 4b (D) | - |
| 4 | 412.54 | O-ring | Kit 3 Kit 4a (E, C), 4b (D) | - |
| 1 | 433 | Mechanical seal | Kit 3 | - |
| 1 | 474 | Thrust ring | Kit 7a (E, C), Kit 7b (D) | - |
| 1 | 484 | Spring plate | - | - |
| 2 | 50-3 | Backing ring | - | - |
| 2 or 4 | 545 | Bearing bush | Kit 1a for UMA 150(E) 5/2. to 26/2. Kit 1b for UMA 150(E) 30/2. to 37/22 | Qty. of 2/4 available as kit 2a/2b with bearing sleeve 529 |
| 1 | 550 | Disc | Kit 4a (E, C), 4b (D) | - |
| 1 | 553 | Thrust insert | - | - |
| 3 | 560 | Pin | Kit 3 Kit 4a (E, C), 4b (D) | - |
| 1 | 59-12 | Diaphragm | Kit 3 | - |
| 1 | 69-6 | Temperature sensor | Kit 7a (E, C), Kit 7b (D) | - |
| 1 | 741 | Valve (filling) | Kit 5 | - |
| 1 | 81-59 | Stator | - | - |
| 1 | 81-60 | Diaphragm housing | - | - |
| 1 | 81-74 | Pressure screw | Kit 7a (E, C), Kit 7b (D) | - |
| 1 | 814 | Winding | - | - |
| 1 | 818 | Rotor | - | - |
| 1 or 2 | 828 | Cable grommet | Kit 6a, b, c, d, e | For versions with either one or two cables |
| 2 or 4 | 829 | Cable gland ring | Kit 6a, b, c, d, e | - |
| 6 | 900.51 | Bolt/screw | Kit 4a (E, C), 4b (D) | - |
| 4 | 900.52 | Bolt/screw | Kit 4a (E, C), 4b (D) | - |
| 1 | 900.53 | Bolt/screw | Kit 4a (E, C), 4b (D) | - |
| 1 | 900.54 | Bolt/screw | Kit 4a (E, C), 4b (D) | - |
| 4 | 902 | Stud | Kit 4a (E, C), 4b (D) | - |
| 1 | 903.51 | Screw plug | - | With integrated joint ring 411.51 |
| 1 | 903.52 | Screw plug | Kit 5 | Only in material variants C and D |
| 1 | 904 | Grub screw | Kits 1a and 1b | - |
| 1 | 916 | Plug | Kit 5 | Only in material variant E |
| 1 | 920.51 | Nut | Kit 4a (E, C), 4b (D) | - |

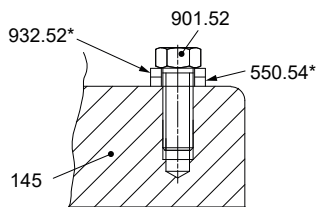
| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-------------|-----------------------|-----------------------------------|
| 4 | 920.52 | Nut | Kit 4a (E, C), 4b (D) | - |
| 1 | 932.51 | Circlip | Kit 4a (E, C), 4b (D) | Only in material variants E and C |
| 1 | 932.52 | Circlip | Kit 4a (E, C), 4b (D) | - |
| 1 | 941 | Key | Kits 1a and 1b | - |
| 1 | 950 | Spring | - | - |

UMA 200(D)



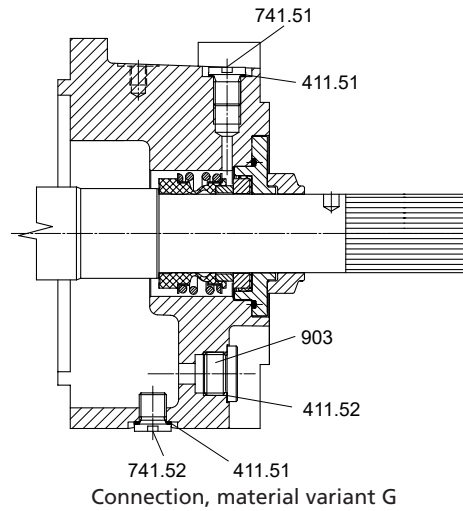
General assembly drawing of UMA 200(D)

* Not for material variant D

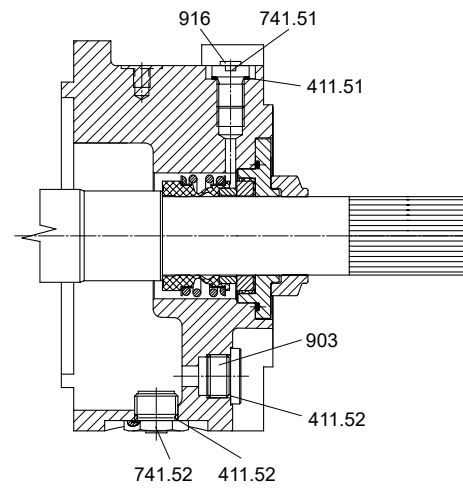


Fastening of earth conductor, external

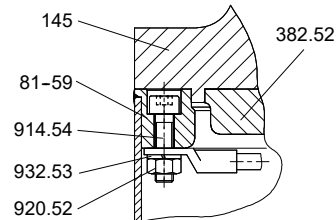
* Not for material variant D



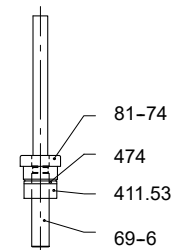
Connection, material variant G



Connection, material variants C, D



Fastening of earth conductor, internal



Temperature sensor

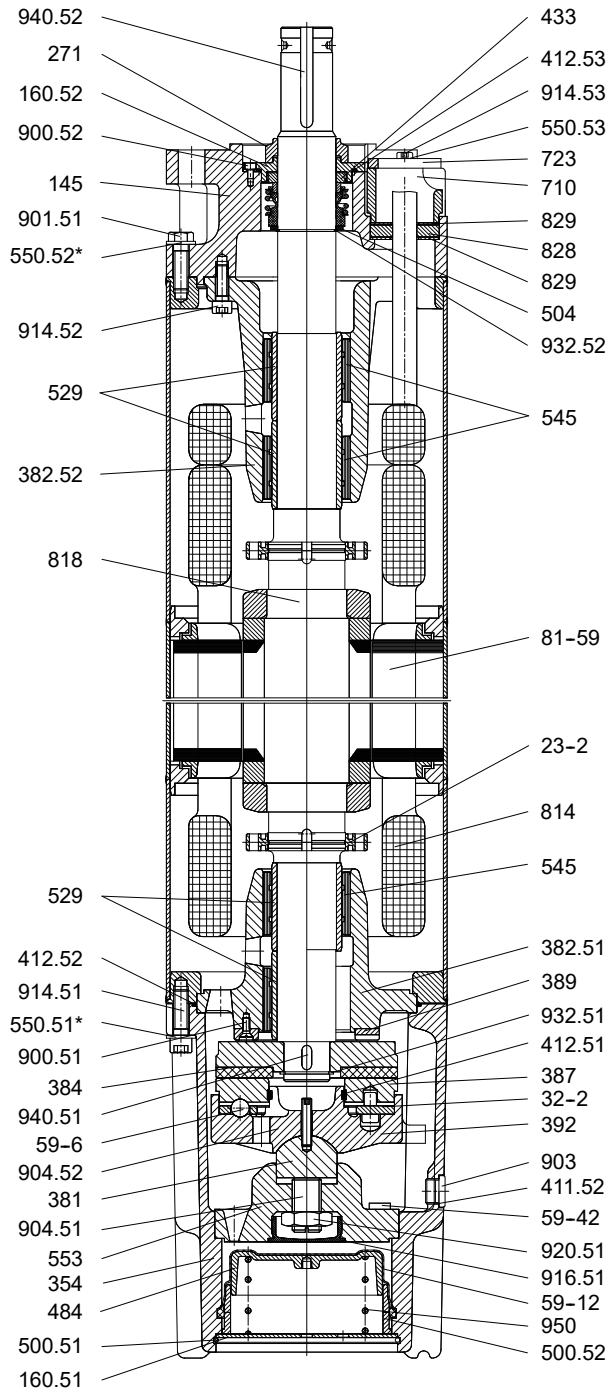
Recommended spare parts: kit 1, kit 2 and kit 3

Table 34: List of components for UMA 200(D) in material variants G, C, D

| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-------------------------------|-----------------------------|---|
| 1 | 145 | Adapter | - | - |
| 1 | 160.51 | Cover (diaphragm) | - | - |
| 1 | 160.52 | Cover (mechanical seal) | Kit 3 | - |
| 1 | 271 | Sand guard | Kit 3 | - |
| 1 | 32-2 | Ball retainer | Kit 1 | - |
| 1 | 354 | Thrust bearing housing | - | - |
| 1 | 382.51 | Bearing carrier (bottom) | - | - |
| 1 | 382.52 | Bearing carrier (top) | - | - |
| 1 | 384 | Thrust collar | Kit 1 | - |
| 6 | 387 | Thrust bearing segment | Kit 1 | - |
| 1 | 389 | Counter thrust bearing ring | Kit 4 | - |
| 1 | 392 | Bearing segment carrier | Kit 1 | - |
| 1 or 2 | 411.51 | Joint ring | Kit 3 | 1 joint ring for material variants C and D 2 joint rings for material variant G |
| 2 or 3 | 411.52 | Joint ring | Kit 8 | 2 joint rings for material variant G 3 joint rings for material variants C and D |
| 1 | 411.53 | Joint ring | Kit 3 / kit 7a | For versions with temperature sensor only |
| 1 | 412.51 | O-ring | Kit 1 | - |
| 1 | 412.52 | O-ring | Kit 3 / kit 1 | - |
| 1 | 412.53 | O-ring | Kit 3 | - |
| 1 | 433 | Mechanical seal | Kit 3 | - |
| 1 or 2 | 452 | Gland follower | Kits 6a, b, c, e, f | Qty. and design depending on cable(s) |
| 1 | 474 | Thrust ring | Kit 7a | For versions with temperature sensor only |
| 1 | 484 | Spring plate | - | - |
| 2 | 50-3 | Backing ring | - | - |
| 1 | 58-1 | Protecting plug | - | - |
| 6 | 59-6 | Ball | Kit 1 | - |
| 1 | 59-12 | Diaphragm | Kit 3 | - |
| 1 | 59-42 | Magnet | - | - |
| 1 | 500.52 | Ring | - | - |
| 1 | 500.53 | Ring | - | - |
| 1 | 529 | Bearing sleeve | Kit 2 | - |
| 3 | 545 | Bearing bush | Kit 2 | - |
| 6 | 550.51 | Disc | Kit 5 | Not for material variant D |
| 4 | 550.52 | Disc | Kit 5 | Not for material variant D |
| 2 or 4 | 550.53 | Disc | Kit 5 / kits 6a, b, c, e, f | Qty. and design depending on cable(s) |
| 1 | 550.54 | Disc | Kit 5 | - |
| 1 | 553 | Thrust insert | - | - |
| 1 | 69-6 | Temperature sensor | Kit 7a | For versions with temperature sensor only |
| 1 | 741.51 | Valve (ON) | Kit 8 | Only for material variant G |
| 1 | 741.52 | Valve (OFF) | Kit 8 | Only for material variant G |
| 1 | 81-59 | Stator with winding | - | - |
| 1 | 81-74 | Pressure screw | Kit 7a | For versions with temperature sensor only |
| 1 | 814 | Winding | - | - |
| 1 | 818 | Rotor (shaft end) | - | - |
| 1 or 2 | 828 | Cable grommet | Kits 6a, b, c, e, f | Qty. and design depending on cable(s) |
| 3 or 6 | 829 | Cable gland ring | Kits 6a, b, c, e, f | Qty. and design depending on cable(s) |
| 2 | 900.51 | Countersunk head screw | Kit 4 | - |
| 4 | 900.52 | Hexagon socket head cap screw | Kit 3 / kit 5 | - |
| 4 | 901.51 | Hexagon head bolt | Kit 5 | - |
| 1 | 901.52 | Hexagon head bolt | Kit 5 | - |
| 2 | 903 | Screw plug | - | With integrated joint ring |
| 1 | 904.51 | Grub screw | Kit 1 | - |

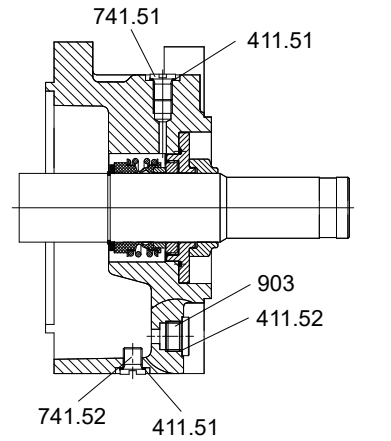
| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-------------------------------|-----------------------------|---------------------------------------|
| 6 | 914.51 | Hexagon socket head cap screw | Kit 5 | - |
| 4 | 914.52 | Hexagon socket head cap screw | Kit 5 | - |
| 2 or 4 | 914.53 | Hexagon socket head cap screw | Kit 5 / kits 6a, b, c, e, f | Qty. and design depending on cable(s) |
| 1 | 914.54 | Hexagon socket head cap screw | Kit 5 | - |
| 1 | 916 | Plug | - | For material variants C, D only |
| 1 | 920.51 | Hexagon nut | Kit 1 | - |
| 1 | 932.51 | Circlip | Kit 1 | - |
| 1 | 932.52 | Circlip | Kit 5 | Not for material variant D |
| 1 | 932.53 | Circlip | Kit 1 | - |
| 1 | 940.51 | Key | Kit 1 | - |
| 1 | 950 | Spring | - | - |

UMA 250(D)

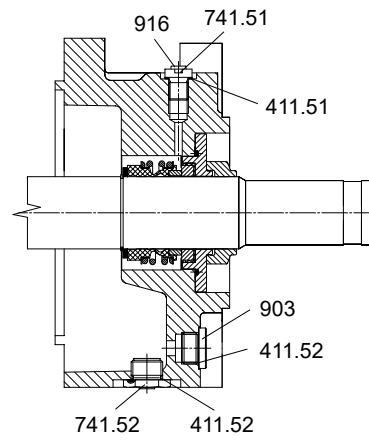


General assembly drawing of UMA 250(D)

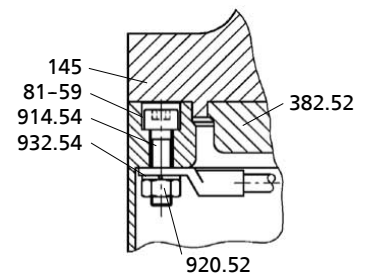
* Not for material variant D



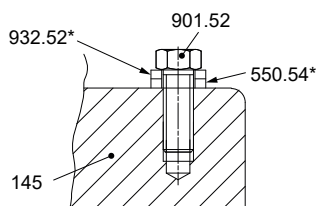
Connection, material variant G



Connection, material variants C, D

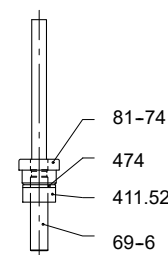


Fastening of earth conductor, internal



Fastening of earth conductor, external

* Not for material variant D



Temperature sensor

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Recommended spare parts: kit 1, kit 2 and kit 3

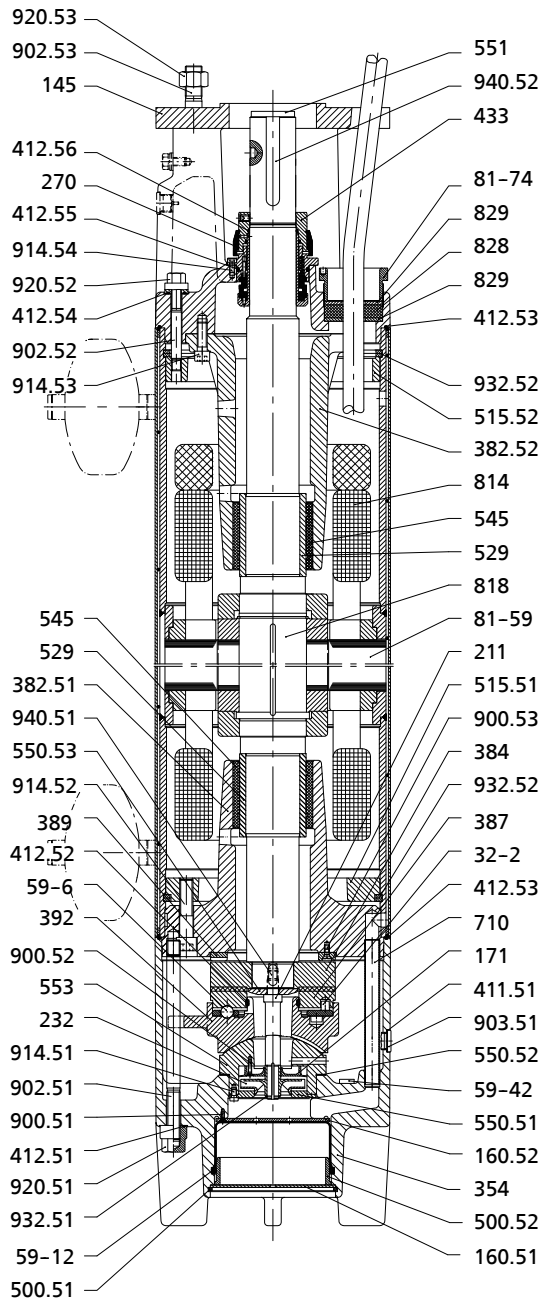
Table 35: List of components for UMA 200(D) in material variants G, C, D

| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-------------------------------|---|---|
| 1 | 145 | Adapter | - | - |
| 1 | 160.51 | Cover (diaphragm) | - | - |
| 1 | 160.52 | Cover (mechanical seal) | Kit 3 | - |
| 2 | 23-2 | Auxiliary impeller | - | - |
| 1 | 271 | Sand guard | Kit 3 | - |
| 1 | 32-2 | Ball retainer | Kit 1 | - |
| 1 | 354 | Thrust bearing housing | - | - |
| 1 | 381 | Bearing cartridge | Kit 1 | - |
| 1 | 382.51 | Bearing carrier (bottom) | - | - |
| 1 | 382.52 | Bearing carrier (top) | - | - |
| 1 | 384 | Thrust collar | Kit 1 | - |
| 6 | 387 | Thrust bearing segment | Kit 1 | - |
| 1 | 389 | Counter thrust bearing ring | Kit 4 | - |
| 1 | 392 | Bearing segment carrier | Kit 1 | - |
| 1 or 2 | 411.51 | Joint ring | Kit 3 | 1 joint ring for material variants C and D 2 joint rings for material variant G |
| 2 or 3 | 411.52 | Joint ring | Kit 3 | 2 joint rings for material variant G 3 joint rings for material variants C and D |
| 1 | 411.53 | Joint ring | Kit 3 / kit 7a | For versions with temperature sensor only |
| 1 | 412.51 | O-ring | Kit 1 | - |
| 1 | 412.52 | O-ring | Kit 3 / kit 1 | - |
| 1 | 412.53 | O-ring | Kit 3 | - |
| 1 | 433 | Mechanical seal | Kit 3 | - |
| 1 | 474 | Thrust ring | Kit 7a | For versions with temperature sensor only |
| 1 | 484 | Spring plate | - | - |
| 6 | 59-6 | Ball | Kit 1 | - |
| 1 | 59-12 | Diaphragm | Kit 3 | - |
| 1 | 59-42 | Magnet | - | - |
| 1 | 500.51 | Ring | - | - |
| 1 | 500.52 | Ring | - | - |
| 1 | 504 | Spacer ring | Kit 3 | - |
| 4 | 529 | Bearing sleeve | Kit 2 | - |
| 4 | 545 | Bearing bush | Kit 2 | - |
| 6 | 550.51 | Disc | Kit 5 | Not for material variant D |
| 6 | 550.52 | Disc | Kit 5 | Not for material variant D |
| 2 or 4 | 550.53 | Disc | Kit 5 / kits 6a, b, c, d, e, f, g, h, i | Qty. and design depending on cable(s) |
| 1 | 550.54 | Disc | Kit 5 | - |
| 1 | 553 | Thrust insert | - | - |
| 1 | 69-6 | Temperature sensor | Kit 7a | For versions with temperature sensor only |
| 1 or 2 | 710 | Pipe | Kits 6a, b, c, d, e, f, g | Qty. and design depending on cable(s) |
| 1 or 2 | 723 | Flange | Kits 6a, b, c, d, e, f, g, h, i | Qty. and design depending on cable(s) |
| 1 | 741.51 | Valve (ON) | Kit 8 | Only for material variant G |
| 1 | 741.52 | Valve (OFF) | Kit 8 | Only for material variant G |
| 1 | 81-59 | Stator | - | - |
| 1 | 81-74 | Pressure screw | Kit 7a | For versions with temperature sensor only |
| 1 | 814 | Winding | - | - |
| 1 | 818 | Rotor | - | - |
| 1 or 3 | 828 | Cable grommet | Kits 6a, b, c, d, e, f, g, h, i | Qty. and design depending on cable(s) |
| 3 or 6 | 829 | Cable gland ring | Kits 6a, b, c, d, e, f, g, h, i | Qty. and design depending on cable(s) |
| 3 | 900.51 | Countersunk head screw | Kit 4 | - |
| 4 | 900.52 | Hexagon socket head cap screw | Kit 3 / kit 5 | - |
| 6 | 901.51 | Hexagon head bolt | Kit 5 | - |
| 1 | 901.52 | Hexagon head bolt | Kit 5 | - |
| 2 | 903 | Screw plug | - | With integrated joint ring |

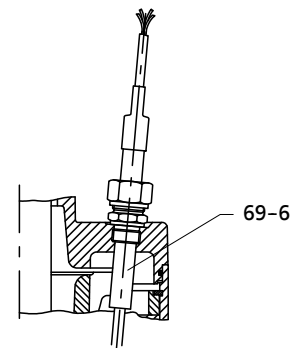
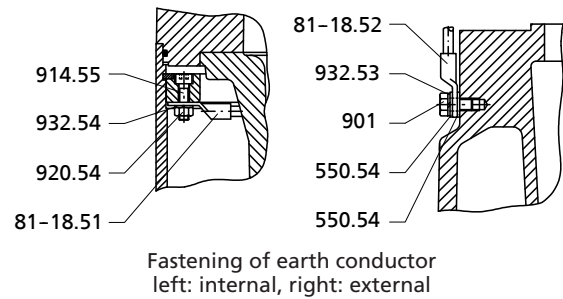
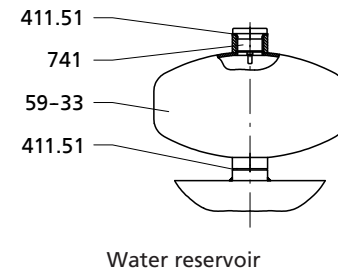
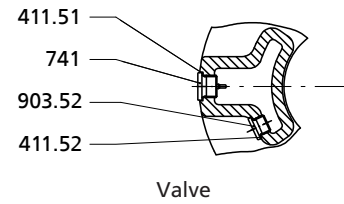
3455.51/11-EN

| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-------------------------------|---|---------------------------------------|
| 1 | 904.51 | Grub screw | Kit 1 | - |
| 1 | 904.52 | Grub screw | Kit 1 | - |
| 6 | 914.51 | Hexagon socket head cap screw | Kit 5 | - |
| 4 | 914.52 | Hexagon socket head cap screw | Kit 5 | - |
| 2 or 4 | 914.53 | Hexagon socket head cap screw | Kit 5 / kits 6a, b, c, d, e, f, g, h, i | Qty. and design depending on cable(s) |
| 1 | 914.54 | Hexagon socket head cap screw | Kit 5 | - |
| 1 | 916.51 | Plug | - | - |
| - | 916.52 | Plug (valve) | - | For material variants C, D only |
| 1 | 920.51 | Hexagon nut | Kit 1 | - |
| 1 | 920.52 | Hexagon nut | Kit 5 | - |
| 1 | 932.51 | Circlip | Kit 1 | - |
| 1 | 932.52 | Circlip | Kit 3 | Not for material variant D |
| 1 | 932.53 | Circlip | Kit 5 | - |
| 1 | 932.54 | Circlip | Kit 5 | - |
| 1 | 940.51 | Key | Kit 1 | - |
| 1 | 940.52 | Key | - | - |
| 1 | 950 | Spring | - | - |

UMA 300(D)



General assembly drawing of UMA 300(D)



Recommended spare parts: thrust bearing kit, radial bearing kit and O-ring kit

Table 36: List of components of UMA 300(D)

| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|--------------|-----------------------------|----------------------------------|--|
| 1 | 145 | Adapter | With 411.51/52, 741, 903.52 | - |
| 1 | 160.51 | Cover (diaphragm) | - | - |
| 1 | 160.52 | Cover (mechanical seal) | - | - |
| 1 | 160.53 | Cover | - | - |
| 1 | 171 | Diffuser | - | - |
| 1 | 211 | Pump shaft | - | - |
| 1 | 232 | Impeller | - | - |
| 1 | 270 | Deflector | Mechanical seal kit | - |
| 1 | 32-2 | Ball retainer | Thrust bearing kit | Only for thrust bearing diameter 150 mm |
| 1 | 354 | Thrust bearing housing | - | - |
| 1 | 382.51 | Bearing carrier (bottom) | - | - |
| 1 | 382.52 | Bearing carrier (top) | - | - |
| 1 | 384 | Thrust collar | Thrust bearing kit | - |
| 6 | 387 | Thrust bearing segment | Thrust bearing kit | - |
| 1 | 389 | Counter thrust bearing ring | Thrust bearing kit | - |
| 1 | 392 | Bearing segment carrier | Thrust bearing kit | - |
| 2 or 6* | 411.51 | Joint ring | - | * Only for horizontal installation |
| 1 | 411.52 | Joint ring | - | - |
| 6 | 412.51 | O-ring | O-ring kit | - |
| 1 | 412.52 | O-ring | Thrust bearing kit / O-ring kit | - |
| 2 | 412.53 | O-ring | O-ring kit | - |
| 8 | 412.54 | O-ring | O-ring kit | - |
| 1 | 412.55 | O-ring | Mechanical seal kit / O-ring kit | - |
| 1 | 412.56 | O-ring | Mechanical seal kit / O-ring kit | - |
| 1 | 433 | Mechanical seal | Mechanical seal kit | - |
| 6 | 59-6 | Ball | Thrust bearing kit | - |
| 1 | 59-12 | Diaphragm | - | - |
| 2* | 59-33 | Water reservoir | - | * Only for horizontal installation |
| 1 | 59-42 | Magnet | - | - |
| 1 | 500.51 | Ring | - | - |
| 1 | 500.52 | Ring | - | - |
| 1 | 515.51 | Locking ring (bottom) | - | - |
| 1 | 515.52 | Locking ring (top) | - | - |
| 2 or 4** | 529 | Bearing sleeve | Radial bearing kit | ** Only for UMA 300(D) .../42 |
| 2 or 4** | 545 | Bearing bush | Radial bearing kit | ** Only for UMA 300(D) .../42 |
| 5 | 550.51 | Disc | Thrust bearing kit | - |
| 1 | 550.52 | Disc | - | - |
| 2 | 550.53 | Disc | - | - |
| 1 | 551 | Spacer disc | - | - |
| 1 | 553 | Thrust insert | - | - |
| 1 | 69-6 | Temperature sensor | - | Only for version with temperature sensor, incl. 12 m power cable and accessories |
| 1 | 710 | Pipe | - | - |
| 1 or 2* | 742 | Lift check valve | With 411.51 | * Only for horizontal installation |
| 1 | 81-18.5 1 | Cable terminal | - | - |
| 1 | 81-18.5 2 | Cable terminal | - | - |
| 1 | 81-59 | Stator | - | - |
| 1, 2 or 3 | 81-74 | Pressure screw | - | Qty. and design depending on cable(s) |
| 1 | 814 | Winding | - | - |
| 1 | 818 | Rotor | - | - |
| 1, 2 or 3 | 828 | Cable grommet | - | Qty. and design depending on cable(s) |
| 2, 4 or 6 | 829 | Cable gland ring | - | Qty. and design depending on cable(s) |
| 3 | 900.51 | Countersunk head screw | Screws, bolts and nuts kit | - |
| 2 | 900.52 | Countersunk head screw | Screws, bolts and nuts kit | - |

| Qty/ motor | Part No. | Description | Scope of supply | Note |
|---------------|----------|-------------------------------|--|------------------------------------|
| 4 | 900.53 | Countersunk head screw | Thrust bearing kit / screws, bolts and nuts kit | - |
| 1 | 901 | Hexagon head bolt | Screws, bolts and nuts kit | - |
| 6 | 902.51 | Stud | Screws, bolts and nuts kit | - |
| 8 | 902.52 | Stud | Screws, bolts and nuts kit | - |
| 4 | 902.53 | Stud | Screws, bolts and nuts kit | - |
| 2 | 903.51 | Screw plug | With 411.51 | - |
| 1 | 903.52 | Screw plug | With 411.52 | - |
| 2* | 903.53 | Screw plug | - | * Only for horizontal installation |
| 2 | 914.51 | Hexagon socket head cap screw | Screws, bolts and nuts kit | - |
| 6 | 914.52 | Hexagon socket head cap screw | Screws, bolts and nuts kit | - |
| 4 | 914.53 | Hexagon socket head cap screw | Screws, bolts and nuts kit | - |
| 4 | 914.54 | Hexagon socket head cap screw | Mechanical seal kit / screws, bolts and nuts kit | - |
| 1 | 914.55 | Hexagon socket head cap screw | Screws, bolts and nuts kit | - |
| 6 | 920.51 | Nut | Screws, bolts and nuts kit | - |
| 8 | 920.52 | Nut | Screws, bolts and nuts kit | - |
| 4 | 920.53 | Nut | Screws, bolts and nuts kit | - |
| 1 | 920.54 | Nut | Screws, bolts and nuts kit | - |
| 1 | 932.51 | Circlip | - | - |
| 4 | 932.52 | Circlip | - | - |
| 1 | 932.53 | Circlip | - | - |
| 1 | 932.54 | Circlip | - | - |
| 1 | 940.51 | Key | - | - |
| 1 | 940.52 | Key | - | - |

Power cables

Main applications

- For use with drinking water applications
- Motor lead for submersible motors, cable laid under water
- Extension cable for the motor lead, cable laid freely exposed to air

Operating data

Table 37: Operating properties

| Characteristic | | Value |
|---------------------|-----------|-------------|
| Rated voltage | V_N [V] | ≤ 1000 |
| Ambient temperature | T [°C] | ≤ 50 |
| Immersion depth | IM [m] | ≤ 500 |

Designation

Example:

ZN 1391 - G FL GWT -J 4G25 - Cu-Rubber

Table 38: Designation key

| Code | Description | |
|-----------|-----------------------------------|---|
| ZN | Works standard | |
| G | Insulation, rubber | |
| FL | Type of power cable | |
| | FL | Flat |
| | RD | Round |
| GWT | Suitable for drinking water | |
| J | Information about earth conductor | |
| | J | With earth conductor |
| | O | Without earth conductor |
| 4G25 | Number of cores | |
| | 4G25 | With earth conductor, 4-core, cross-section 25 mm ² |
| | 3x25 | Without earth conductor, 3-core, cross-section 25 mm ² |
| Cu-rubber | Material | |

Design details

- 3-core or 4-core rubber-sheathed cable
- Comprising:
- Stranded copper conductor
 - Bare
 - Core insulation and outer sheath made of a special EPR-based rubber compound (ethylene propylene rubber)
 - Blue

Table 39: Cable designs

| Cable type | Characteristic |
|-------------|----------------|
| Flat cable | |
| | 3 cores, flat |
| | 4 cores, flat |
| Round cable | |
| | 1 core, round |
| | 4 cores, round |

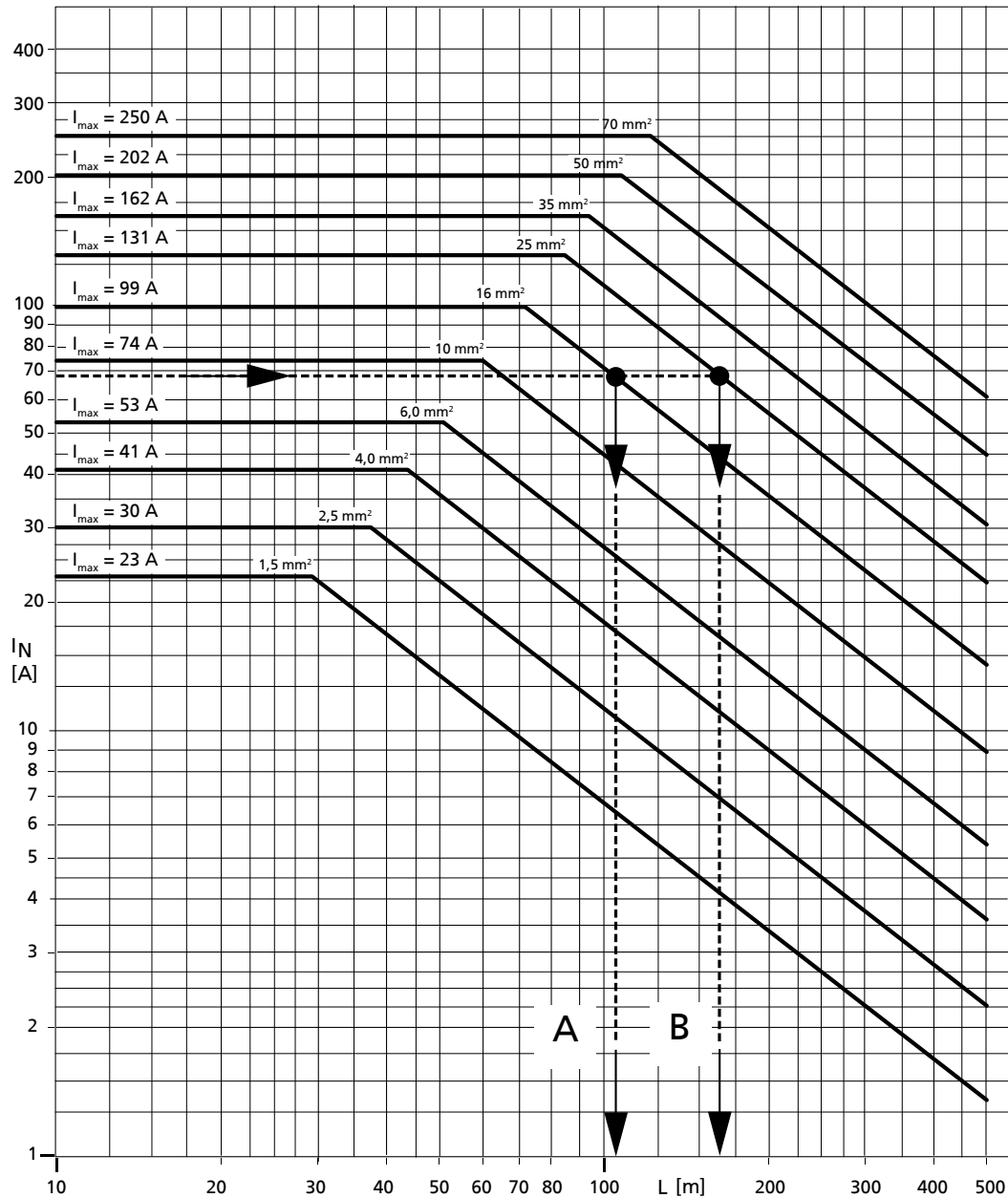
Selection information

Permissible cable lengths for starting method: DOL

Applies to 1 cable or 2 cables in parallel¹⁵⁾

Conditions:

- $V = 400 \text{ V}$; $\Delta V = 3 \%$; $T \leq 30 \text{ }^\circ\text{C}$; laid freely exposed to air and in contact with surfaces



Example A
 $I_N = 68 \text{ A}$
 Cable design: 1 x 16 mm²
 Cable length: $L \leq 105 \text{ m}$

Example B
 $I_N = 68 \text{ A}$
 Cable design: 1 x 25 mm²
 Cable length: $L \leq 165 \text{ m}$

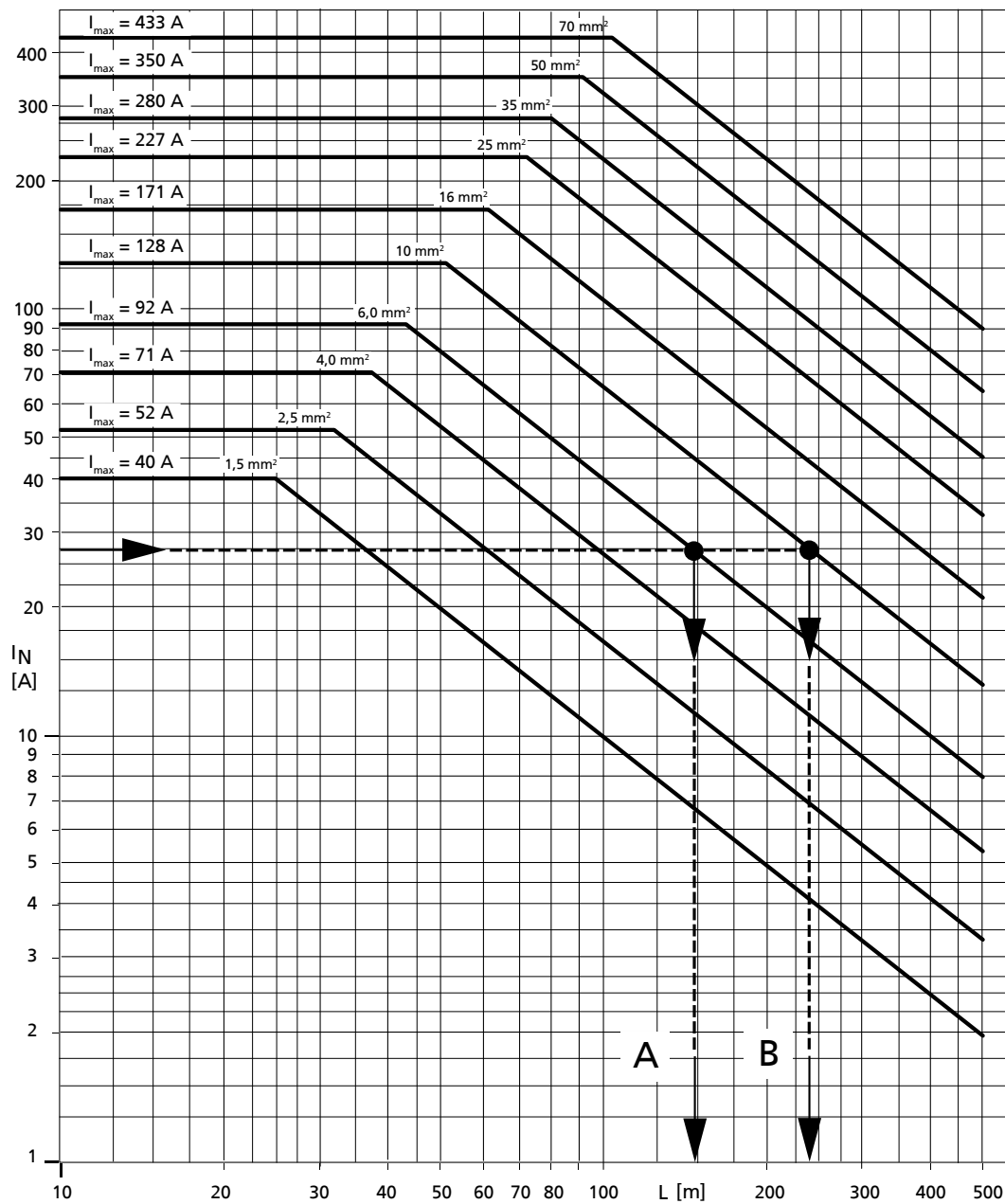
¹⁵⁾ For parallel cables the value is doubled to obtain the permissible length.

Permissible cable lengths for starting method: Δ

Applies to 2 cables

Conditions:

- $V = 400\text{ V}$; $\Delta V = 3\%$; $T \leq 30\text{ }^\circ\text{C}$; laid freely exposed to air and in contact with surfaces



Example A
 $I_N = 27\text{ A}$
 Cable design: $2 \times 6.0\text{ mm}^2$
 Cable length: $L \leq 145\text{ m}$

Example B
 $I_N = 27\text{ A}$
 Cable design: $2 \times 10\text{ mm}^2$
 Cable length: $L \leq 235\text{ m}$

Voltage drop in the extension cable

When calculating the required conductor cross-section q not only I_N , but also the voltage drop ΔV along the cable length L (distance from motor to control unit) must be taken into account. Proper functioning of our submersible motors requires $\Delta V \leq 3\%$ of the supply voltage U . If $\Delta V > 3\%$, a larger conductor cross-section must be used. The voltage drop is calculated using the following equations:

Starting method DOL/autotransformer

- 1 cable:

$$\Delta U = \frac{3,1 \times L \times I_N \times \cos \varphi}{q \times U} \quad [\%]$$

- 2 cables in parallel (II):

$$\Delta U = \frac{1,55 \times L \times I_N \times \cos \varphi}{q \times U} \quad [\%]$$

Starting method YΔ (2 cables):

$$\Delta U = \frac{2,1 \times L \times I_N \times \cos \varphi}{q \times U} \quad [\%]$$

Power loss ΔP:

$$\Delta P = \frac{\Delta U}{(\cos \varphi)^2} \quad [\%]$$

Table 40: Key

| Code | Description |
|----------------|--|
| L | Single cable length [m] |
| I_N | Rated current [A]: |
| $\cos \varphi$ | Power factor at 4/4 load |
| q | Conductor cross-section [mm ²] |
| U | Supply voltage [V] |

Maximum permissible rated motor current
Table 41: For ambient temperature $t \leq 30\text{ °C}$

| Starting method | Used as ... | I_{max} [A] for the following conductor cross-sections [mm ²] | | | | | | | | | | |
|--|-----------------|--|-----|----|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 25 | 35 | 50 | 70 | 95 |
| DOL (1 cable or 2 cables in parallel) | Motor lead | 29 | 38 | 52 | 67 | 94 | 125 | 166 | 205 | 256 | 316 | 517 |
| | Extension cable | 23 | 30 | 41 | 53 | 74 | 99 | 131 | 162 | 202 | 250 | 409 |
| YΔ (2 cables) | Motor lead | 50 | 66 | 90 | 116 | 163 | 217 | 288 | 355 | 443 | 547 | 895 |
| | Extension cable | 40 | 52 | 71 | 92 | 128 | 171 | 227 | 280 | 350 | 433 | 708 |

Dimensions and weights
Table 42: Selection table: dimensions [mm]

| Core type | | Conductor cross-section [mm ²] | | | | | | | | | | |
|-----------|----------|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 25 | 35 | 50 | 70 | 95 |
| ●●●● | Height | 5,2 ^{+1,0} | 6,1 ^{+1,5} | 7,0 ^{+2,0} | 7,6 ^{+2,2} | 9,3 ^{+2,2} | 11,2 ^{+2,3} | 13,0 ^{+2,5} | 14,6 ^{+2,9} | 17,0 ^{+3,0} | 19,3 ^{+2,7} | - |
| | Width | 11,0 ^{+2,0} | 13,2 ^{+2,3} | 15,5 ^{+3,5} | 17,4 ^{+3,6} | 21,5 ^{+3,5} | 26,7 ^{+4,3} | 31,6 ^{+3,9} | 35,5 ^{+5,0} | 42,1 ^{+4,9} | 48,4 ^{+3,6} | - |
| ●●●●● | Height | 5,2 ^{+1,0} | 6,1 ^{+1,5} | - | 7,6 ^{+2,2} | 9,3 ^{+2,2} | 11,2 ^{+2,3} | 13,0 ^{+2,5} | - | - | - | - |
| | Width | 14,5 ^{+2,7} | 17,5 ^{+2,5} | - | 23,5 ^{+3,0} | 29,0 ^{+3,5} | 35,0 ^{+2,4} | 41,5 ^{+4,5} | - | - | - | - |
| ● | Diameter | 5,3 ^{+1,1} | - | - | - | - | - | - | 13,8 ^{+3,6} | 16,0 ^{+3,8} | 18,5 ^{+3,6} | 21,9 ^{+1,5} |
| ●●● | Diameter | 10,0 ^{+2,0} | 12,0 ^{+1,9} | 13,9 ^{+2,0} | 15,7 ^{+2,1} | 21,1 ^{+2,1} | 24,5 ^{+4,3} | 29,7 ^{+4,3} | 33,3 ^{+5,5} | 39,0 ^{+5,6} | 44,2 ^{+5,8} | - |

Table 43: Selection table: weight [kg/m]

| Core type | Conductor cross-section [mm ²] | | | | | | | | | | |
|-----------|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | 1,5 | 2,5 | 4 | 6 | 10 | 16 | 25 | 35 | 50 | 70 | 95 |
| ●●●● | 0,110 | 0,171 | 0,252 | 0,319 | 0,486 | 0,750 | 1,107 | 1,438 | 2,054 | 2,760 | - |
| ●●●●● | 0,165 | 0,237 | - | 0,440 | 0,704 | 1,026 | 1,457 | - | - | - | - |
| ● | 0,051 | - | - | - | - | - | - | 0,499 | 0,699 | 0,940 | 1,140 |
| ●●● | 0,180 | 0,259 | 0,356 | 0,475 | 0,837 | 1,220 | 1,770 | 2,304 | 3,185 | 4,364 | - |



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