

# Technical Data

Pump Name

EVMSG45 11-0F5HQ1BEG E/45

|          |            |                                       |           |
|----------|------------|---------------------------------------|-----------|
| Customer | Date       | 2024-06-14                            | Company   |
| Contact  | Item no.   |                                       | Issued by |
| Phone    | Project    |                                       | Phone     |
| E-mail   | Project ID | Proiect redenumit 2024-06-14 17:13:34 | E-mail    |

## Requested data

|   |                           |                          |                    |          |
|---|---------------------------|--------------------------|--------------------|----------|
| 1 | Pump type                 | VERTICAL MULTISTAGE PUMP | Fluid              | Water    |
| 2 | Number of pumps / Reserve | 1 / 0                    | Liquid temperature | °C       |
| 3 | Flow                      | m³/h                     | Kin. viscosity     | mm²/s    |
| 4 | Head                      | m                        | Vapour pressure    | bar      |
| 5 | Geodetic head             | m                        | PH value           |          |
| 6 | Inlet pressure (pin)      | bar                      | Density            | kg/m³    |
| 7 | Available system NPSH     |                          | Solids             | Weight % |
| 8 | Ambient temperature       | °C                       |                    |          |

## Pump

|    |                      |                           |                                   |           |              |      |
|----|----------------------|---------------------------|-----------------------------------|-----------|--------------|------|
| 9  | Pump Name            | EVMSG45 11-0F5HQ1BEG E/45 | Frequency                         | Hz        | 50           |      |
| 10 | Design               | VERTICAL MULTISTAGE PUMP  | Installation type                 |           | Round flange |      |
| 11 | Manufacturer         | EBARA                     | Impeller Diameter                 | Max.      | mm           |      |
| 12 | Speed                | rpm                       |                                   | 2970      | Designed     | mm   |
| 13 | No. of Stage         |                           |                                   | 11        | Min.         | mm   |
| 14 | Connection           | Suction side              | Flow                              | Operating | m³/h         |      |
| 15 | Connection           | Discharge side            |                                   | Max-      | m³/h         |      |
| 16 | Max Working Pressure | bar                       |                                   | 35        | Min-         | m³/h |
| 17 | Shut-off head        | bar                       | 28.91                             | Head      | Operating    |      |
| 18 | Total weight         | kg                        | See the table of "Dimensions".    |           | - (Qmax.)    | m    |
| 19 | Shaft power          | kW                        |                                   |           | - (Qmin.)    | m    |
| 20 |                      |                           | Max. Shaft Power at max. impeller | kW        | 42.00        |      |
| 21 | Required pump NPSH   | m                         | Efficiency                        | %         |              |      |

## Materials

|    |                     |                              |  |  |
|----|---------------------|------------------------------|--|--|
| 22 | Impeller            | AISI 304                     |  |  |
| 23 | Intermediate casing | AISI 304                     |  |  |
| 24 | Bottom casing       | Cast Iron EN GJL-250 EN 1561 |  |  |
| 25 | Casing cover        | AISI 304                     |  |  |
| 26 | Shaft               | AISI 304                     |  |  |
| 27 | O-ring              | EPDM                         |  |  |

## Motor

|    |                      |                                     |                  |                  |    |
|----|----------------------|-------------------------------------|------------------|------------------|----|
| 28 | Manufacturer         | ATB                                 | Insulation class | F                |    |
| 29 | Type                 | TEFC_EVMS45 11-0/45_400_Three Phase | Phases           | 3~               |    |
| 30 | Specific design      | IE3 / 50 Hz / Pole pairs 1          | Frame size       | 225              |    |
| 31 | Rated power          | kW                                  | 45               | Weight           | kg |
| 32 | Number of poles      |                                     | 2                | Electric voltage | V  |
| 33 | Speed                | rpm                                 | 2960             | Electric current | A  |
| 34 | Degree of protection |                                     | IP56             |                  |    |
| 35 |                      |                                     |                  |                  |    |

## Remarks

# Performance Curve

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## Requested data

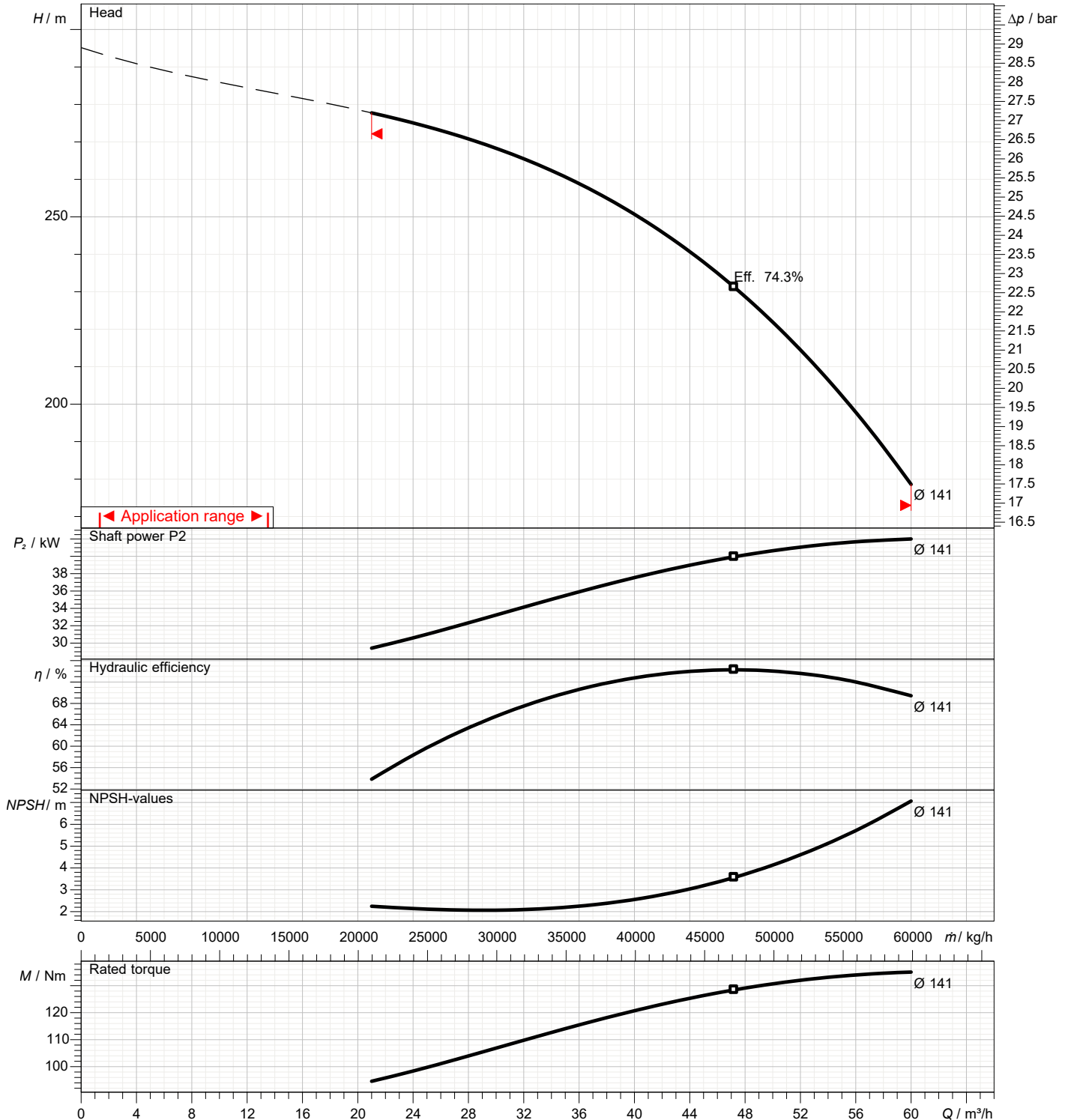
|   |               |      |  |
|---|---------------|------|--|
| 1 | Flow          | m³/h |  |
| 2 | Head          | m    |  |
| 3 | Geodetic head | m    |  |

## Pump

|                            |      |     |                 |     |      |
|----------------------------|------|-----|-----------------|-----|------|
| Operating flow             | m³/h |     | Frequency       | Hz  | 50   |
| Operating head             | m    |     | Number of poles |     | 2    |
| Impeller diameter designed | mm   | 141 | Speed           | rpm | 2970 |

Test standard: ISO 9906:2012 - Grade3B

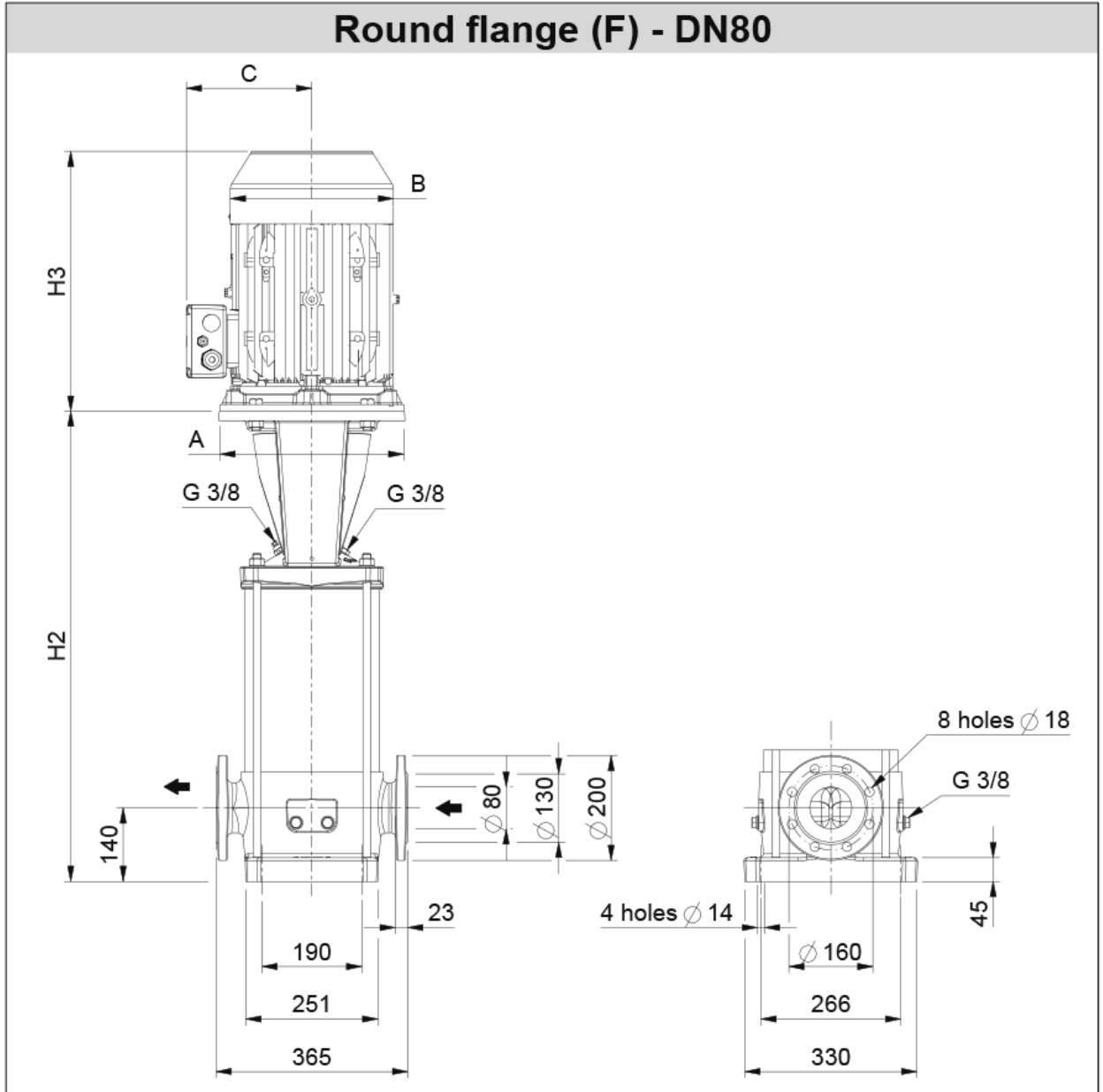
Water; 20°C; 998.3kg/m³; 1mm²/s



# Dimensions

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|----------|--|-----------|
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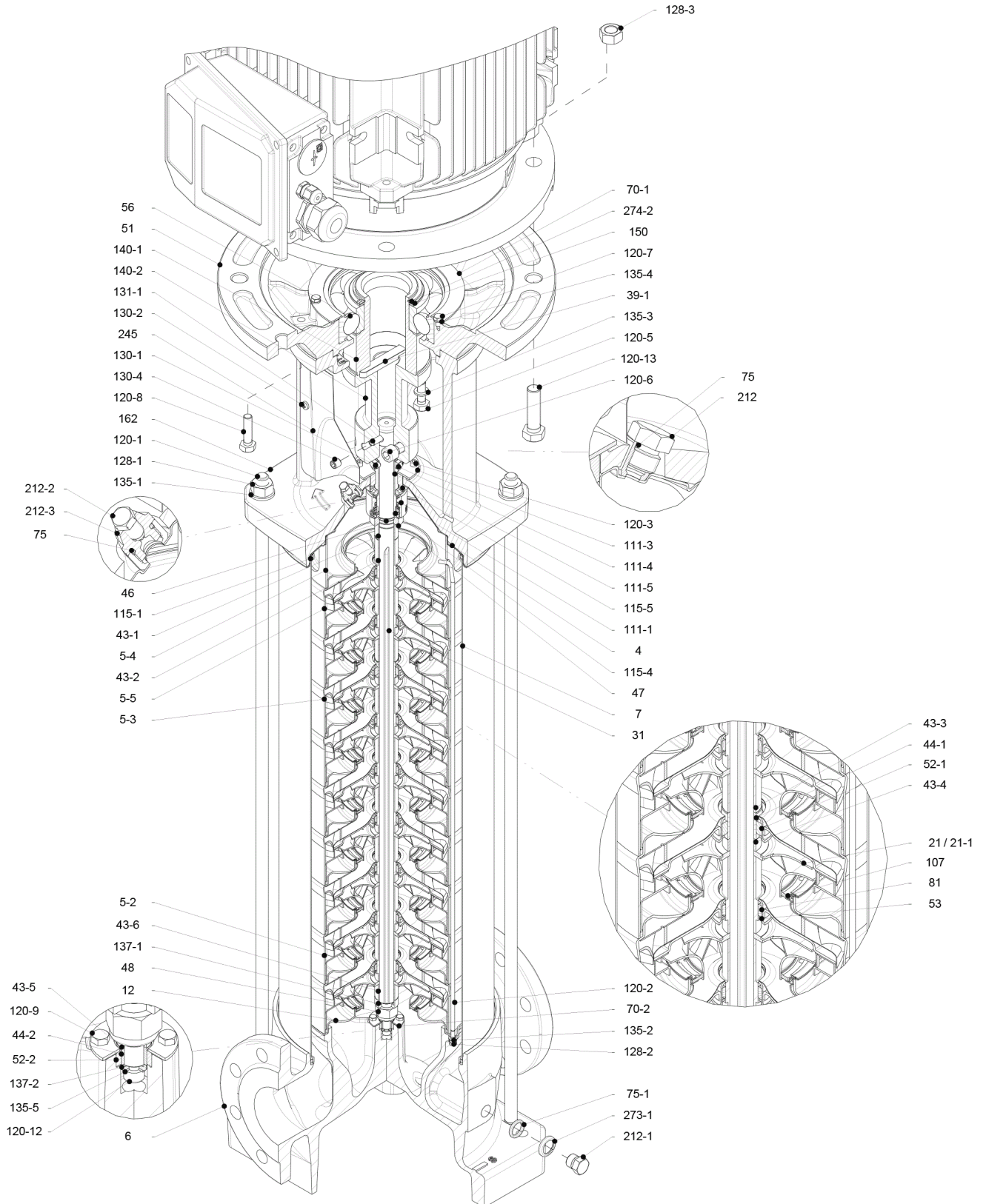
| Dimensions in |                 | mm     |  |  |  |  |  |  |
|---------------|-----------------|--------|--|--|--|--|--|--|
| 1             | A               | Dia450 |  |  |  |  |  |  |
| 2             | B               | 449    |  |  |  |  |  |  |
| 3             | C               | 335    |  |  |  |  |  |  |
| 4             | H2              | 1417   |  |  |  |  |  |  |
| 5             | H2+H3           | 2183   |  |  |  |  |  |  |
| 6             | Weight P&M (kg) | 527.9  |  |  |  |  |  |  |
| 7             |                 |        |  |  |  |  |  |  |
| 8             |                 |        |  |  |  |  |  |  |
| 9             |                 |        |  |  |  |  |  |  |
| 10            |                 |        |  |  |  |  |  |  |
| 11            |                 |        |  |  |  |  |  |  |
| 12            |                 |        |  |  |  |  |  |  |
| 13            |                 |        |  |  |  |  |  |  |
| 14            |                 |        |  |  |  |  |  |  |
| 15            |                 |        |  |  |  |  |  |  |

(1/3)

# Construction

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|          |  |           |
|----------|--|-----------|
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| Phone    | Project  | Phone     |
| E-mail   | Project ID Proiect redenumit 2024-06-14 17:13:34 | E-mail    |



(2/3)

# Construction

Pump Name **EVMSG45 11-0F5HQ1BEG E/45**

|          |            |                                       |           |
|----------|------------|---------------------------------------|-----------|
| Customer | Date       | 2024-06-14                            | Company   |
| Contact  | Item no.   |                                       | Issued by |
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| N°     | PART NAME                               | MATERIAL<br>EVMSG                             | DIMENSIONS   | STANDARD | QTY |
|--------|---|---|--------------|----------|-----|
| 4      | Casing cover                            | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 5-2    | Intermediate casing                     | EN 1.4301 (AISI 304)                          |              |          | 9   |
| 5-3    | Intermediate casing with bearing        | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 5-4    | Discharge casing                        | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 5-5    | Top intermediate casing                 | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 6      | Bottom casing                           | Cast Iron EN GJS 400-15 EN 1563               |              |          | 1   |
| 7      | Outer casing                            | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 12     | Suction cover                           | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 21     | Impeller                                | EN 1.4301 (AISI 304)                          |              |          | 11  |
| 31     | Shaft                                   | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 39-1   | Coupling key above 37 kW                | Carbon Steel                                  |              |          | 1   |
| 43-1   | Shaft sleeve (mechanical seal)          | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 43-2   | Shaft sleeve (intermediate)             | EN 1.4301 (AISI 304)                          |              |          | 10  |
| 43-3   | Shaft sleeve (bearing)                  | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 43-4   | Shaft sleeve (adjustment)               | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 43-5   | Shaft sleeve (last stage)               | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 43-6   | Shaft sleeve (adjustment)               | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 44-1   | Shaft sleeve bearing                    | Tungsten carbide                              |              |          | 1   |
| 44-2   | Shaft sleeve (bearing)                  | Tungsten carbide                              |              |          | 1   |
| 46     | Ring (mechanical seal)                  | EN 1.4404 (AISI 316L)                         |              |          | 1   |
| 47     | Ring holder                             | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 48     | Impeller nut                            | EN 1.4301 (AISI 304) with inox insert         |              |          | 1   |
| 51     | Motor adapter above 37 kW               | Cast Iron EN GJL250 EN 1561                   |              |          | 1   |
| 52-1   | Sleeve bearing                          | Tungsten carbide                              |              |          | 1   |
| 52-2   | Bearing sleeve (bottom casing)          | Tungsten carbide                              |              |          | 1   |
| 53     | Bush holder                             | EN 1.4301 (AISI 304)                          |              |          | 11  |
| 56     | Ball bearing above 37 kW                | 6315 ZZ C3                                    |              |          | 1   |
| 70-1   | Ring for ball bearing above 37 kW       | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 70-2   | Ring for bearing sleeve                 | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 75     | O-Ring (priming plug)                   | EPDM / FPM *                                  | Ø12.37x2.62  | OR 3050  | 2   |
| 75-1   | O-Ring (drainage plug)                  | EPDM / FPM *                                  |              |          | 4   |
| 81     | Bush                                    | PTFE  |              |          | 10  |
| 107    | Liner ring                              | EN 1.4301 (AISI 304) + PPS                    |              |          | 11  |
| 111-1  | Mechanical seal                         | --- **  |              |          | 1   |
| 111-3  | Mechanical seal flange                  | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 111-4  | Seal holder                             | EN 1.4404 (AISI 316L)                         |              |          | 1   |
| 111-5  | Mechanical seal cartridge sleeve        | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 115-1  | O-Ring (outer casing)                   | EPDM / FPM *                                  | Ø240.66x5.34 | OR 6945  | 2   |
| 115-4  | O-Ring (cartridge sleeve)               | EPDM / FPM *                                  | Ø23.39x3.53  | OR 4093  | 1   |
| 115-5  | O-Ring (seal flange)                    | EPDM / FPM *                                  | Ø44.04x3.53  | OR 4175  | 1   |
| 120-1  | Tie rod                                 | EN 1.4057 (AISI 431)                          |              |          | 4   |
| 120-2  | Tie rod (stage)                         | EN 1.4301 (AISI 304)                          |              |          | 2   |
| 120-3  | Screw (seal flange)                     | A2-70   | M5x12        | ISO 4762 | 4   |
| 120-5  | Screw (extension coupling) above 37 kW  | Galvanized steel 8.8 strength class ISO 898/1 | M10x30       | ISO 4017 | 4   |
| 120-6  | Screw (pump coupling) above 37 kW       | Galvanized steel 8.8 strength class ISO 898/1 | M12x30       | ISO 4762 | 2   |
| 120-7  | Screw (ball bearing) above 37 kW        | Galvanized steel 8.8 strength class ISO 898/1 | M6x10        | ISO 4017 | 3   |
| 120-8  | Screw (motor adapter) above 37 kW       | Galvanized steel 8.8 strength class ISO 898/1 | M10x40       | ISO 4017 | 4   |
| 120-9  | Screw (bottom casing)                   | A2-70   | M5x8         | ISO 4017 | 4   |
| 120-12 | Screw (shaft)                           | A2-70   | M6x16        | ISO 4762 | 1   |
| 120-13 | Screw for motor MEC 200-225             | Galvanized steel 8.8 strength class ISO 898/1 | M16x60       | ISO 4014 | 8   |
| 128-1  | Nut (tie rod)                           | A2-70 UNI 7323 with                           | M16          | ISO 4032 | 4   |
| 128-2  | Nut (casing tie rod)                    | A2-70   | M5           | ISO 4032 | 4   |
| 128-3  | Nut (motor) MEC 160-180-200-225         | Galvanized steel                              | M16          | ISO 4032 | 8   |
| 130-1  | Set screw                               | EN 1.4301 (AISI 304)                          | M6x8         | ISO 4026 | 3   |
| 130-2  | Screw for coupling guard                | A2-70   | M5x6         | UNI 7687 | 4   |
| 130-4  | Set screw (pump coupling) above 37 kW   | Galvanized steel                              | M10x10       | ISO 4026 | 1   |
| 131-1  | Pin for shaft above 5.5 kW              | Carbon Steel                                  | Ø8X50        | ISO 2338 | 1   |
| 135-1  | Washer (tie rod)                        | EN 1.4301 (AISI 304)                          | Ø16          | ISO 7089 | 4   |
| 135-2  | Washer (casing tie rod)                 | EN 1.4301 (AISI 304)                          | Ø5.1         | UNI 1751 | 2   |
| 135-3  | Washer (extension coupling) above 37 kW | Galvanized steel                              | Ø10.2        | UNI 1751 | 4   |
| 135-4  | Washer (ball bearing) above 37 kW       | Plated carbon steel                           | Ø6.1         | UNI 1751 | 3   |
| 135-5  | Washer (impeller nut)                   | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 137-1  | Impeller spacer                         | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 137-2  | Shaft spacer                            | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 140-1  | Extension coupling above 37 kW          | Carbon Steel                                  |              |          | 1   |
| 140-2  | Coupling above 37 kW                    | Carbon Steel                                  |              |          | 1   |
| 150    | Spacer (snap ring) above 37 kW          | Carbon Steel                                  |              |          | 1   |
| 162    | Motor bracket up to 30 kW               | Cast Iron EN GJS 400-15 EN 1563               |              |          | 1   |
| 212    | Priming plug                            | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 212-1  | Drainage plug                           | EN 1.4301 (AISI 304)                          |              |          | 4   |
| 212-2  | Venting plug                            | EN 1.4401 (AISI 316)                          |              |          | 1   |
| 212-3  | Priming plug                            | EN 1.4301 (AISI 304)                          |              |          | 1   |
| 245    | Coupling guard                          | EN 1.4301 (AISI 304)                          |              |          | 2   |
| 273-1  | Washer (drainage plug)                  | EN 1.4301 (AISI 304)                          |              |          | 4   |
| 274-2  | C-type snap ring (coupling) above 37 kW | Carbon Steel TC80                             | Ø75          | UNI 7435 | 1   |

\* EPDM (standard)  
FPM (option)

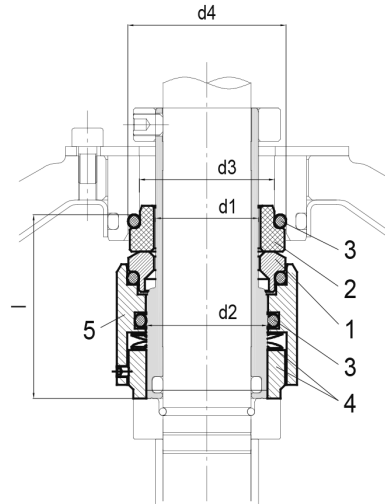
\*\* see CONSTRUCTION 3/3

(3/3)

# Construction

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|----------|------------|---------------------------------------|-----------|
| Customer | Date       | 2024-06-14                            | Company   |
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- Standard

| Type key | Availability | Max operating pressure | Max operating temperature | Shaft seal type |      | Shaft seal material |      |                 |      |            |      |                    |        |      |  |
|----------|--------------|------------------------|---------------------------|-----------------|------|---------------------|------|-----------------|------|------------|------|--------------------|--------|------|--|
|          |              |                        |                           | Cartridge       |      | 1                   |      | 2               |      | 3          |      | 4                  |        | 5    |  |
|          |              |                        |                           | Type            | Code | Rotating part       | Code | Stationary part | Code | Elastomers | Code | Compression spring | Collar | Code |  |
| HQ1BEG   | ●            | 25/35 bar              | - 30°C to + 140°C         | Balanced        | (H)  | SiC                 | (Q1) | Carbon          | (B)  | EPDM       | (E)  | AISI 316           | (G)    |      |  |

| Max operating pressure | d1 [mm] | d2 [mm] | d3 [mm] | d4 [mm] | l [mm] |
|------------------------|---------|---------|---------|---------|--------|
| 35 bar                 | 28      | 33      | 37      | 43      | 50     |