

# Technical Data

Pump Name

OPTIMA M

|          |            |            |           |
|----------|------------|------------|-----------|
| Customer | Date       | 2021-12-06 | Company   |
| Contact  | Item no.   |            | Issued by |
| Phone    | Project    |            | Phone     |
| E-mail   | Project ID |            | E-mail    |

## Requested data

|   |                           |      |                        |                    |          |        |
|---|---------------------------|------|------------------------|--------------------|----------|--------|
| 1 | Pump type                 |      | SUBMERSIBLE SUMP PUMPS | Fluid              |          | Water  |
| 2 | Number of pumps / Reserve |      | 1 / 0                  | Liquid temperature | °C       | 20     |
| 3 | Flow                      | m³/h |                        | Kin. viscosity     | mm²/s    | 1.005  |
| 4 | Head                      | m    |                        | Vapour pressure    | bar      | 0.0234 |
| 5 | Geodetic head             | m    |                        | PH value           |          |        |
| 6 | Inlet pressure (pin)      | bar  | 0                      | Density            | kg/m³    | 998.3  |
| 7 | Available system NPSH     |      |                        | Solids             | Weight % | 0      |
| 8 | Ambient temperature       | °C   | 20                     |                    |          |        |

## Pump

|    |                      |                |                                |                                   |           |          |     |
|----|----------------------|----------------|--------------------------------|-----------------------------------|-----------|----------|-----|
| 9  | Pump Name            |                | OPTIMA M                       | Frequency                         | Hz        | 50       |     |
| 10 | Design               |                | SUBMERSIBLE SUMP PUMPS         | Installation type                 |           | STANDARD |     |
| 11 | Manufacturer         |                | EBARA                          | Impeller Diameter                 | Max.      | mm 80    |     |
| 12 | Speed                | 1/min          | 2800                           |                                   | Designed  | mm       | 80  |
| 13 | No. of Stage         |                | 1                              |                                   | Min.      | mm       | 80  |
| 14 | Connection           | Suction side   | Strainer                       | Flow                              | Operating | m³/h     |     |
| 15 | Connection           | Discharge side | UNI ISO 228                    |                                   | Max-      | m³/h     | 9   |
| 16 | Max Working Pressure | bar            |                                |                                   | Min-      | m³/h     | 1.2 |
| 17 | Shut-off head        | bar            | 0.74                           | Head                              | Operating | m        |     |
| 18 | Total weight         | kg             | See the table of "Dimensions". |                                   | - (Qmax.) | m        | 1.5 |
| 19 | Shaft power          | kW             |                                |                                   | - (Qmin.) | m        | 7.1 |
| 20 |                      |                |                                | Max. Shaft Power at max. impeller | kW        |          |     |
| 21 | Required pump NPSH   | m              |                                | Efficiency                        | %         |          |     |

## Materials

|    |          |  |   |  |  |  |
|----|----------|--|---|--|--|--|
| 22 | Impeller |  | PPE+PS glass fiber reinforced                 |  |  |  |
| 23 | Casing   |  | AISI 304                                      |  |  |  |
| 24 | Shaft    |  | AISI 303+AISI 303 ceramic coated shaft sleeve |  |  |  |
| 25 |          |  |   |  |  |  |
| 26 |          |  |   |  |  |  |
| 27 |          |  |   |  |  |  |

## Motor

|    |                      |       |   |                  |    |     |
|----|----------------------|-------|---|------------------|----|-----|
| 28 | Manufacturer         |       | EPE Standard                                | Insulation class |    | F   |
| 29 | Type                 |       | OPTIMA M_230_Single Phase                   | Phases           |    | 1~  |
| 30 | Specific design      |       | Submersible dry type / 50 Hz / Pole pairs 1 | Frame size       |    |     |
| 31 | Rated power          | kW    | 0.25  | Weight           | kg |     |
| 32 | Number of poles      |       | 2   | Electric voltage | V  | 230 |
| 33 | Speed                | 1/min | 2800  | Electric current | A  | 1.9 |
| 34 | Degree of protection |       | IP 68                                       |                  |    |     |
| 35 |                      |       |   |                  |    |     |

## Remarks

# Performance Curve

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## Requested data

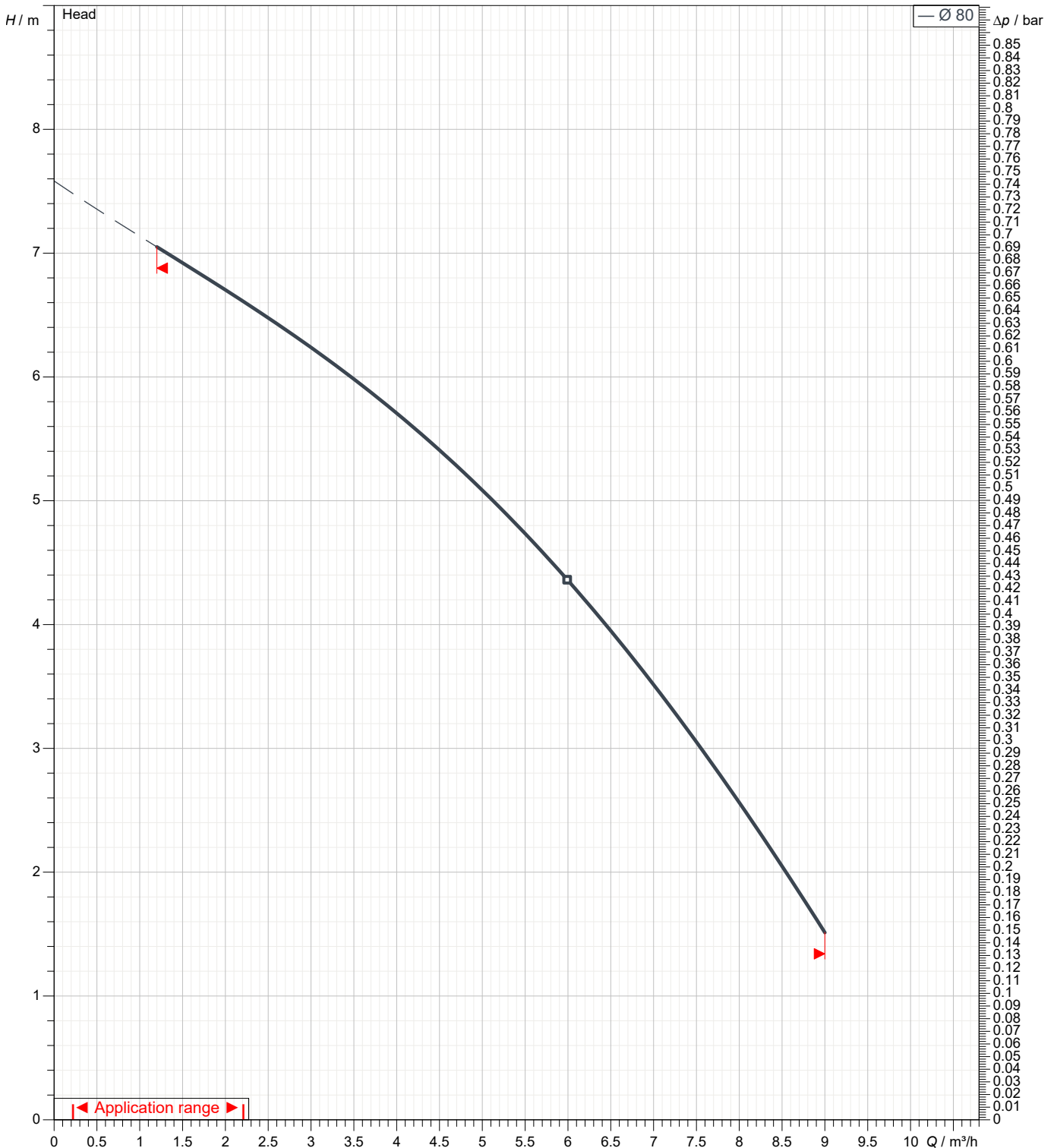
|   |               |                   |  |
|---|---------------|-------------------|--|
| 1 | Flow          | m <sup>3</sup> /h |  |
| 2 | Head          | m                 |  |
| 3 | Geodetic head | m                 |  |

## Pump

|                            |                   |                 |       |      |
|----------------------------|-------------------|-----------------|-------|------|
| Operating Flow             | m <sup>3</sup> /h | Frequency       | Hz    | 50   |
| Operating Head             | m                 | Number of poles |       | 2    |
| Impeller diameter designed | mm                | Speed           | 1/min | 2800 |

Test standard: ISO 9906:2012 - Grade3B

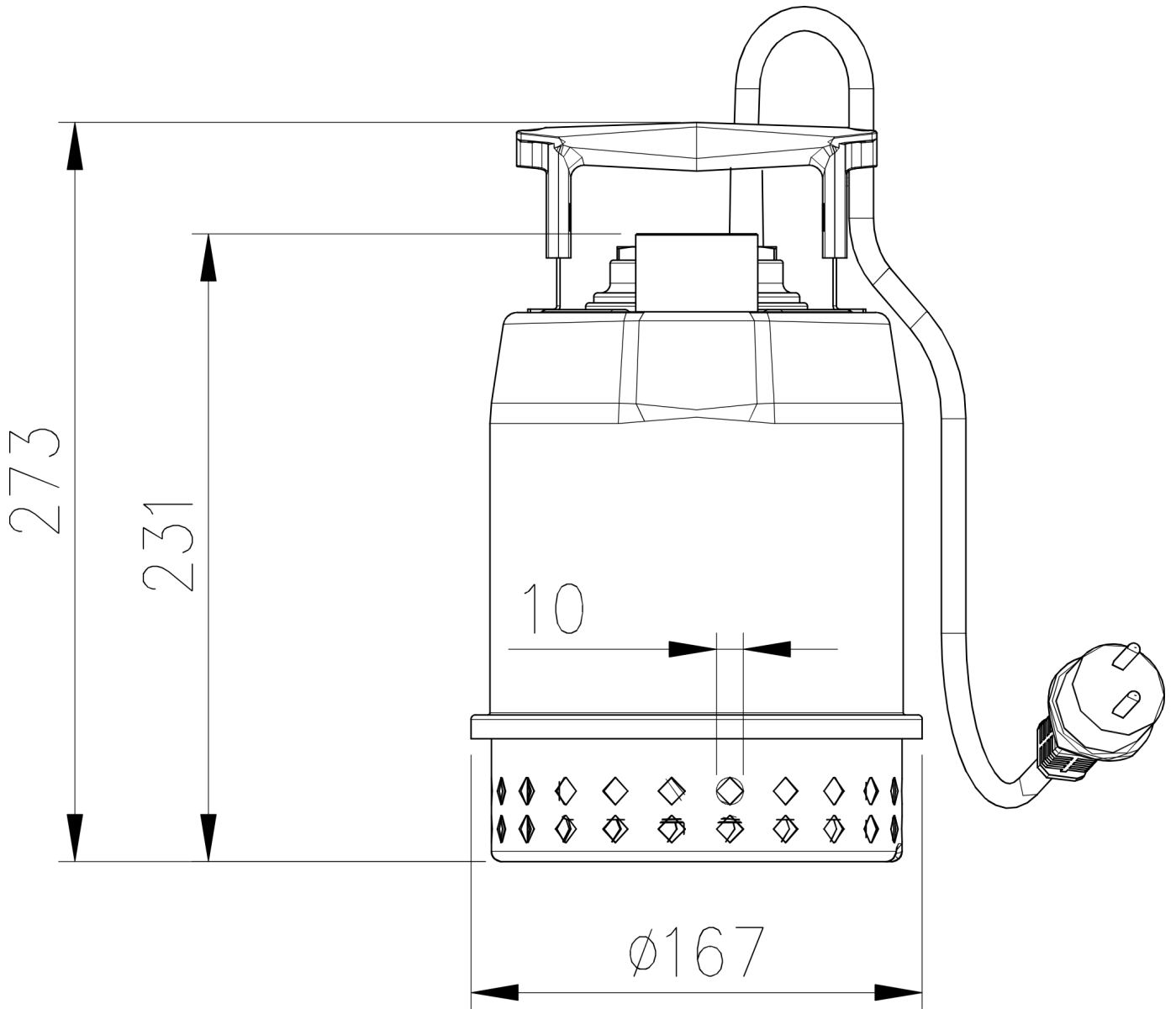
Water; 20°C; 998.3kg/m<sup>3</sup>; 1mm<sup>2</sup>/s



# Dimensions

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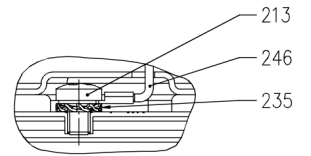
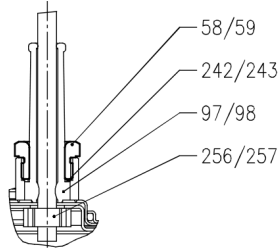


| Dimensions in mm |             |        |  |  |  |  |  |  |
|------------------|-------------|--------|--|--|--|--|--|--|
| 1                | Weight PUMP | 4,2 kg |  |  |  |  |  |  |
| 2                |             |        |  |  |  |  |  |  |
| 3                |             |        |  |  |  |  |  |  |
| 4                |             |        |  |  |  |  |  |  |
| 5                |             |        |  |  |  |  |  |  |
| 6                |             |        |  |  |  |  |  |  |
| 7                |             |        |  |  |  |  |  |  |
| 8                |             |        |  |  |  |  |  |  |
| 9                |             |        |  |  |  |  |  |  |
| 10               |             |        |  |  |  |  |  |  |
| 11               |             |        |  |  |  |  |  |  |
| 12               |             |        |  |  |  |  |  |  |
| 13               |             |        |  |  |  |  |  |  |
| 14               |             |        |  |  |  |  |  |  |
| 15               |             |        |  |  |  |  |  |  |

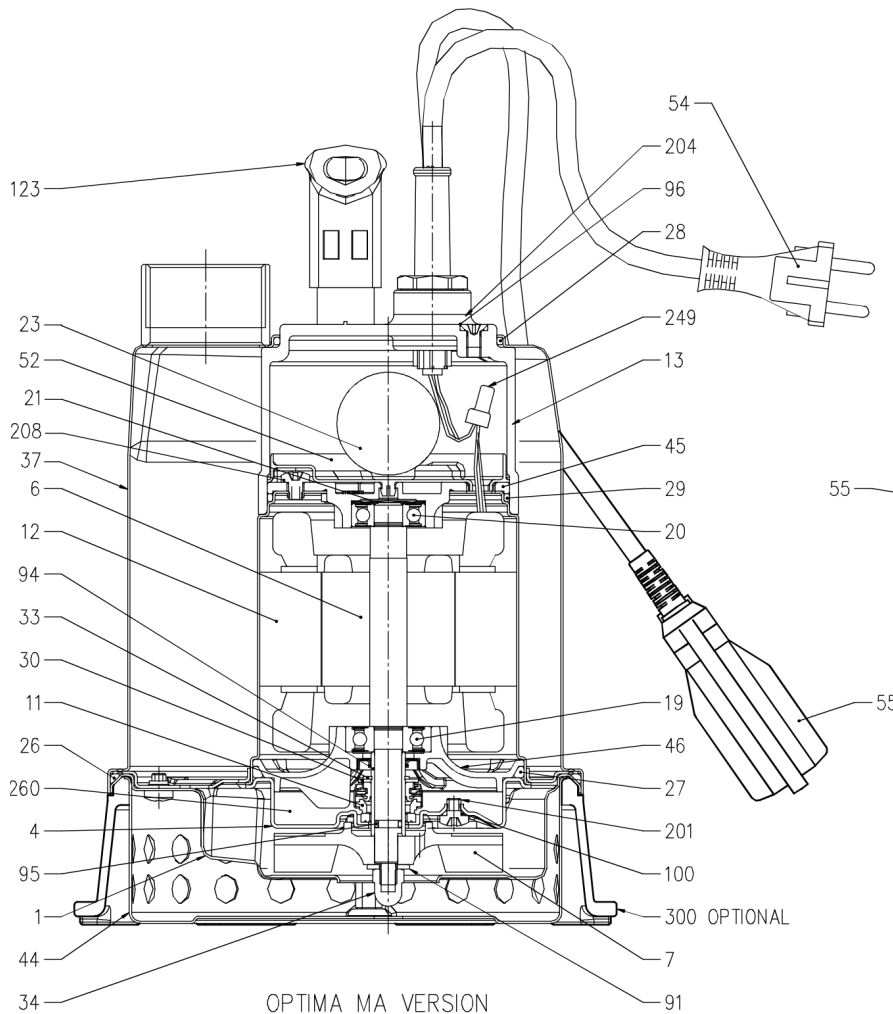
# (1/4) Construction

Pump name OPTIMA M

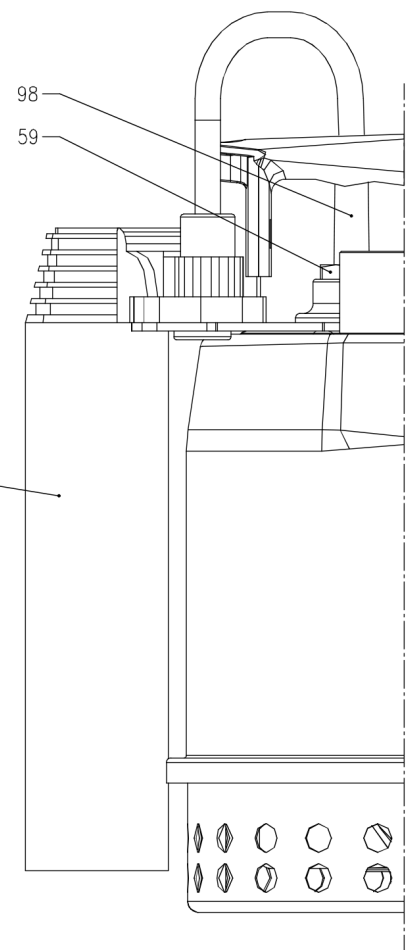
|          |                 |           |
|----------|-----------------|-----------|
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| E-mail   | Project ID      | E-mail    |



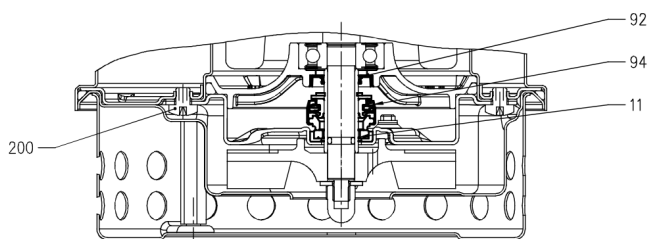
GROUND WIRE



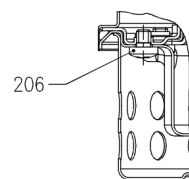
OPTIMA MA VERSION



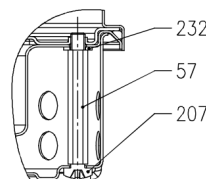
OPTIMA MS VERSION



MOTOR FIXING



SUCTION COVER  
FIXING



STRAINER FIXING

**(2/4)****Construction**Pump name **OPTIMA M**

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| E-mail   | Project ID |            | E-mail    |

| N°  | PART NAME                  | MATERIAL                            | DIMENSIONS  | STANDARD | Q.TY  |
|-----|----------------------------|-------------------------------------|-------------|----------|-------|
| 1   | Suction cover              | EN 1.4301 (AISI 304)                | -           | -        | 1     |
| 4   | Casing cover               | EN 1.4301 (AISI 304)                | -           | -        | 1     |
| 6   | Shaft with rotor           | EN 1.4305 (AISI 303)                | -           | -        | 1     |
| 7   | Impeller                   | PPE+PS-HI-GF20                      | -           | -        | 1     |
| 11  | Mechanical seal [1]        | [1]                                 | [1]         | -        | 1     |
| 12  | Motor frame with stator    | EN 1.4301 (AISI 304)                | -           | -        | 1     |
| 13  | Motor cover                | PP-GF30 class V-0                   | -           | -        | 1     |
| 19  | Lower ball bearing         | -                                   | -           | -        | 1     |
| 20  | Upper ball bearing         | -                                   | -           | -        | 1     |
| 21  | Adjusting ring             | -                                   | -           | -        | 1     |
| 23  | Capacitor                  | -                                   | -           | -        | 1     |
| 26  | O-ring                     | NBR                                 | 159,5x3     | -        | 1     |
| 27  | O-ring                     | NBR                                 | 88,5x3,53   | -        | 1     |
| 28  | O-ring                     | NBR                                 | 75,87x2,62  | -        | 1     |
| 29  | O-ring                     | NBR                                 | 75,87x2,62  | -        | 1     |
| 30  | Washer                     | EN 1.4301 (AISI 304)                | 12x21x1     | -        | 1     |
| 33  | Seeger ring                | Carbon steel TC80                   | 12          | UNI 7435 | 1     |
| 34  | Impeller nut               | A2 - 70 UNI 7323                    | M6          | UNI 5721 | 1     |
| 37  | Outer casing               | EN 1.4301 (AISI 304)                | -           | -        | 1     |
| 44  | Strainer                   | EN 1.4301 (AISI 304)                | -           | -        | 1     |
| 45  | Upper bearing housing      | EN 1706 AC-46000 D                  | -           | -        | 1     |
| 46  | Lower bearing housing      | EN 1706 AC-46000 D                  | -           | -        | 1     |
| 52  | Terminal insulating base   | PA6 class V-0                       | -           | -        | 1     |
| 54  | Power cable                | -                                   | -           | -        | 1     |
| 55  | Switch [2] [3]             | -                                   | -           | -        | 1     |
| 57  | Spacer                     | EN 1.4301 (AISI 304)                | -           | -        | 2     |
| 58  | Power cable connector      | PA66-GF30                           | -           | -        | 1     |
| 59  | Switch cable connector [2] | PA66-GF30                           | -           | -        | 1     |
| 91  | Washer                     | EN 1.4301 (AISI 304)                | -           | -        | 1     |
| 92  | Lip seal                   | NBR                                 | 22x12x4     | -        | 1     |
| 94  | Shaft sleeve               | EN 1.4305 (AISI 303) ceramic coated | -           | -        | 1     |
| 95  | O-ring                     | NBR                                 | 6,07x1,78   | -        | 1     |
| 96  | O-ring                     | NBR                                 | 4,48x1,78   | -        | 1     |
| 97  | Power cable boot           | NBR                                 | -           | -        | 1     |
| 98  | Switch cable boot [2]      | NBR                                 | -           | -        | 1     |
| 100 | O-ring                     | NBR                                 | 4,48x1,78   | -        | 1     |
| 123 | Handle                     | PP                                  | -           | -        | 1     |
| 200 | Screw                      | A2 - 70 UNI 7323                    | M5x6        | UNI 7687 | 4     |
| 201 | Screw                      | A2 - 70 UNI 7323                    | M5x6        | UNI 7687 | 1     |
| 204 | Screw                      | A2 - 70 UNI 7323                    | M5x6        | UNI 7687 | 1     |
| 206 | Screw                      | A2 - 70 UNI 7323                    | M5x6        | UNI 7687 | 3     |
| 207 | Screw                      | A2 - 70 UNI 7323                    | M5x6        | UNI 7687 | 2     |
| 208 | Screw                      | A2 - 70 UNI 7323                    | M5x6        | UNI 7687 | 3     |
| 213 | Screw                      | A2 - 70 UNI 7323                    | M4x6        | UNI 7687 | 1     |
| 232 | Washer                     | PA6                                 | 5,5x10x1    | -        | 2     |
| 235 | Washer                     | Zinked Steel                        | 4           | UNI 8842 | 1     |
| 242 | Washer                     | EN 1.4301 (AISI 304)                | 13,4x15,9x1 | -        | 1     |
| 243 | Washer [2]                 | EN 1.4301 (AISI 304)                | 13,4x15,9x1 | -        | 1     |
| 246 | Ground wire                | -                                   | -           | -        | 1     |
| 249 | Cap Terminal               | -                                   | -           | -        | 4     |
| 256 | Cable holder               | -                                   | -           | -        | 1     |
| 257 | Cable holder [2]           | -                                   | -           | -        | 1     |
| 260 | Oil                        | Esso Marcol 152                     | -           | -        | 40 cc |
| 300 | Minimum suction system [4] | Thermoplastic elastomer vulcanizate | -           | -        | -     |

[1] See CONSTRUCTION 4

[2] Only for automatic version

[3] It could be floating or magnetic type

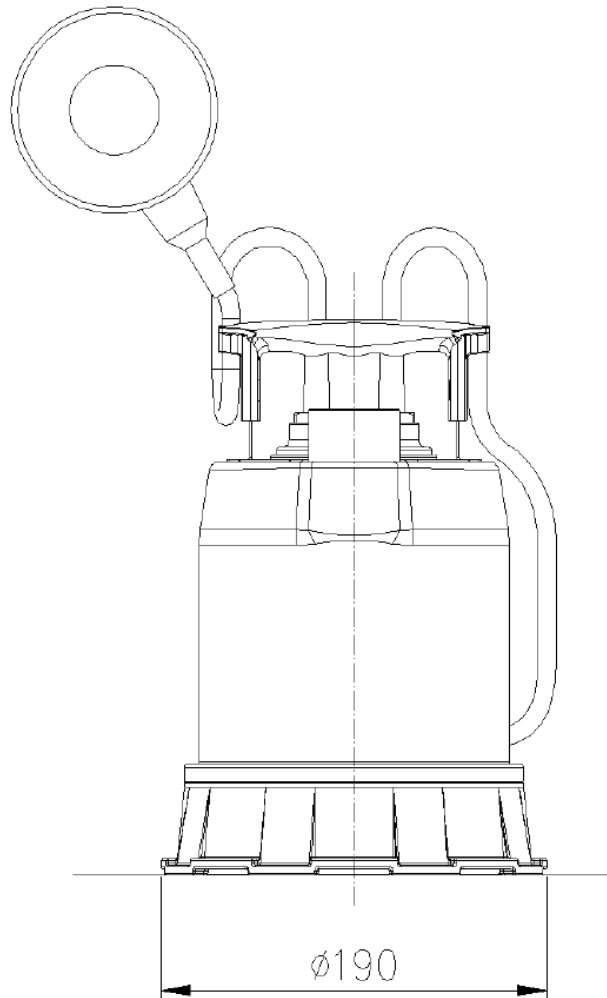
[4] See CONSTRUCTION 3

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# Construction

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| Customer | Date 2021-12-06 | Company   |
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| LEVEL                            |       |
|----------------------------------|-------|
| Minimum starting suction level   | 10 mm |
| Minimum suction level capability | 3 mm  |

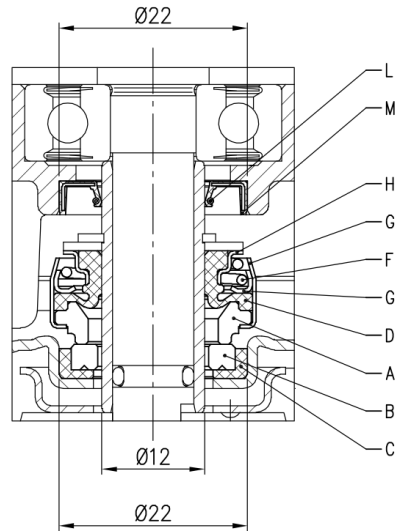
| COMPATIBILITY |         |    |    |
|---------------|---------|----|----|
| Type pumps    | Version |    |    |
|               | M       | MA | MS |
| OPTIMA        | ✓       | ✓  | x  |

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# Construction

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| REF | PART NAME            | MATERIAL<br>Standard version |
|-----|----------------------|------------------------------|
| A   | Rotary seal ring     | Carbon graphite              |
| B   | Stationary seal ring | Ceramic                      |
| C   | Gasket               | NBR                          |
| D   | Bellows              | NBR                          |
| F   | Self driving spring  | EN 1.4301 (AISI 304)         |
| G   | Frame                | EN 1.4301 (AISI 304)         |
| H   | Retainer ring        | EN 1.4301 (AISI 304)         |
| L   | Spring               | EN 1.4318 (AISI 302)         |
| M   | Lip                  | NBR                          |