# A guide to select the correct bell-housing and drive coupling components

**DATA REQUIRED**

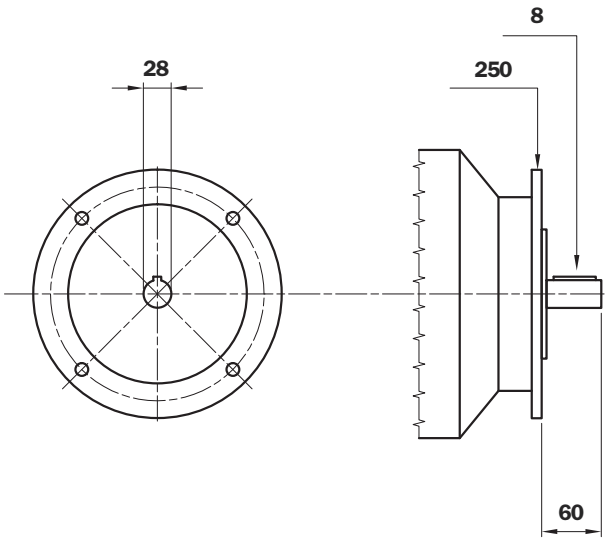
Electric motor power/motor size
Manufacturer and pump type

**TO VERIFY:**

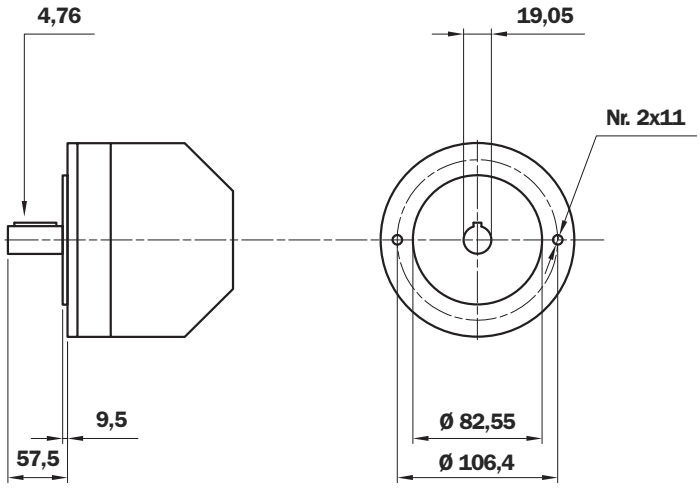
1 - Pump and motor shaft dimensions (see page 69)
2 - Shaft and flange pump (see pump data sheet)

Example:
- Electric motor 2 kW - 4 poles - Motor size 110/112
- Atos pump code PFE31 - Shaft 1

**Electric motor's dimension**




**Pump's dimensions**




**Bell-Housing's length calculation**

- H= 60 + 18 + 57,5 = 135,5 mm (18= Sp spider - see page 49)
- Choose type of bell-housing (LMC - LMS)
  - For LMC see tab. 3 at page 11
  - For LMS see tab. 21 at page 32
  - For MODUL 2/3 see at page 36

**Note:** The length of bell-housing must be ≥ than the length calculated (135,5 mm)

**Case A - solution with LMC bell-housing**

Tab. 3 at page 11 - for electric motor 2kW LMC 250
LMC 250 bell-housing with height ≥ 135,5 - LMC250AFSQ

- The bell-housing code must be completed with drilling pump code (see tab. 34 at page 47)
  For the specific case C= 82,5 - Nr. 2 holes M10: Code drilling 060
- Definitive bell-housing code **LMC250AFSQ060**

**Case B - solution with LMS bell-housing**

Tab. 21 at page 32 - for electric motor 2kW LMS 250
LMS 250 bell-housing with heigh ≥ 135,5 - LMS250AFSQ

- The bell-housing code must be completed with drilling pump code (see tab. 34 at page 47)
  For the specific case C= 82,5 - Nr. 2 holes M10: Code for. 060
- Definitive bell-housing code **LMS250AFSQ060**

## Choose coupling

- **Motor half-coupling** (see tab. 37 at page 50)

  - For electric motor GR 100/112, the half-coupling is **SGEA21M05060**

- **Spider** (see tab. 35 - 36 at page 49)

  - For SGEA21, EGE2 - EGE2RR
    (choose spider material on the base of the application, oil, temperature and cycle machine, etc.)

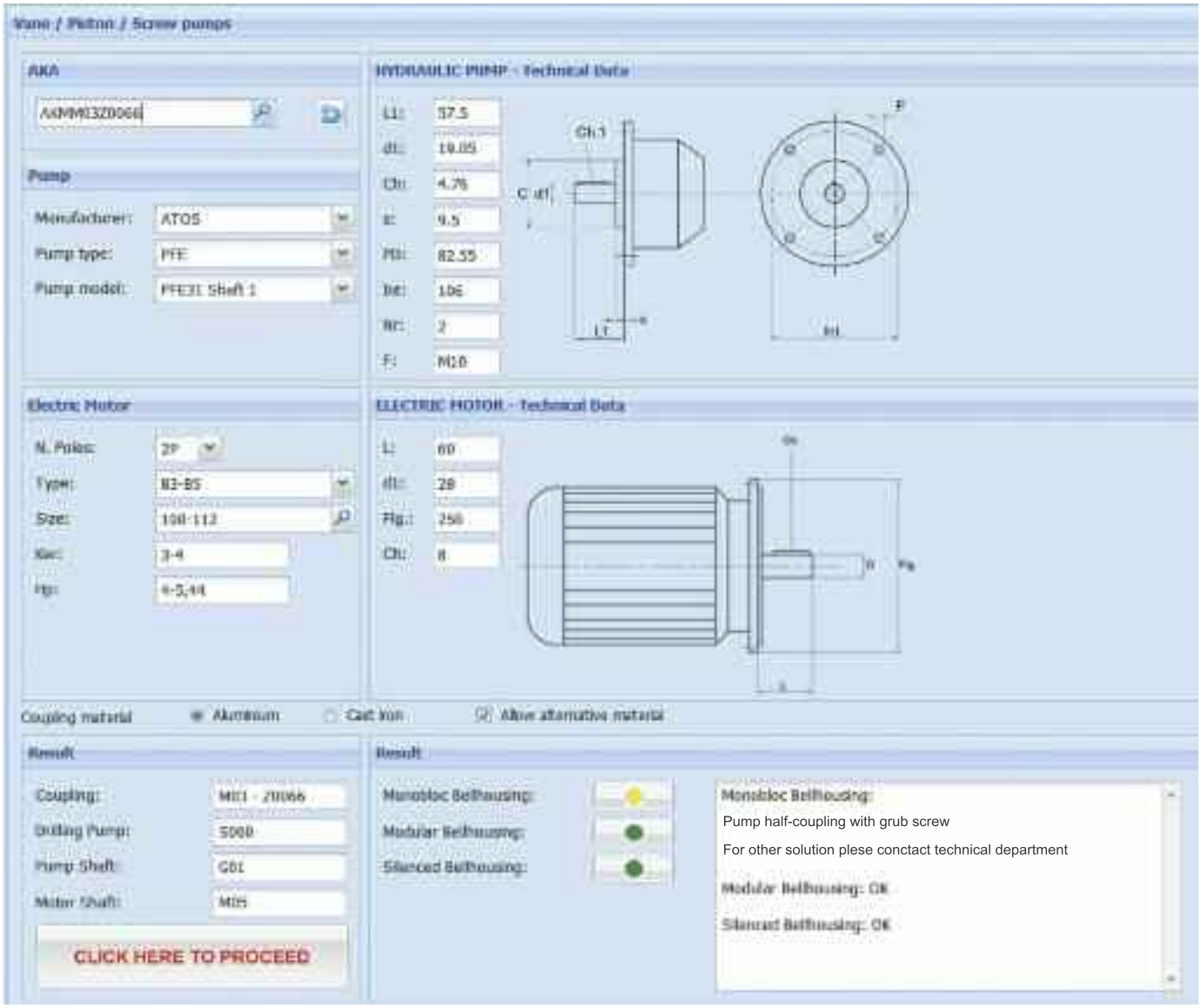
- **Pump half-coupling**

  - Choose the drilling code tab. 43 - 44 at page 53 for shaft 19,05 - Ch. 4,76 - code: **G01**

  - Half-coupling length = L BH lenght – THK Spider – THK Spigot
    LMC= 138 mm - 60 - 18 - 9,5= 50,5 mm
    LMS= 148 mm - 60 - 18 - 9,5= 60,5 mm

  - LMC - Choose the half-coupling's length on tab. 38 at page 50 ≤ 50,5 mm.
  - LMS - Choose the half-coupling's length on tab. 38 at page 50 ≤ 60,5 mm.
  - LMC - Availabe length for SGEA21= 50 mm
  - LMS - Availabe length for SGEA21= 60 mm
  - LMC=LMS - Code half-coupling code: **SGEA21G01050**

**Software for automatic calculation available on the web site www.mpfiltri.com - tools - software**




**Note: For multi pumps we recommend to use a specific support on the base of the pump's dimensions and weight.**

# Half-coupling SGE*** series

The half-couplings series SGE*** allow secure transmission between the electric motor and the driven side; they are able to absorb shocks and vibration, in addition to compensating radial misalignment, angular and axial.
The assembly of the couplings can be horizontal/vertical, withstanding vibration and load reversals.

The complete range of couplings are extrapolated from the on-line software, with a length equal than the shaft on which must be mounted and they are completed with grub screw for fixing located on the key.
Available for cilindrical shaft with metric and imperial dimensions as well for splined shafts as per specification DIN, ISO and SAE.

## Admissible misalignment radial, angular and axial

**Max admissible radial misalignment**

| Half coupling | R (mm) |
|---|---|
| **SGE * 01** | 0,5 |
| **SGE * 21** | 1,0 |
| **SGE * 31** | 1,0 |
| **SGE * 40** | 1,0 |
| **SGE * 51** | 1,5 |
| **SGE * 60** | 1,5 |
| **SGE * 80** | 2,0 |
| **SGE * 90** | 2,0 |

**Max admissible angular misalignment**

| Half coupling | β (°) |
|---|---|
| **SGE * 01** | 1,5° |
| **SGE * 21** | |
| **SGE * 31** | |
| **SGE * 40** | |
| **SGE * 51** | |
| **SGE * 60** | |
| **SGE * 80** | |
| **SGE * 90** | |

**Max admissible angular misalignment**

| Half coupling | A (mm) |
|---|---|
| **SGE * 01** | 2,0 |
| **SGE * 21** | 2,5 |
| **SGE * 31** | 3,0 |
| **SGE * 40** | 3,5 |
| **SGE * 51** | 3,5 |
| **SGE * 60** | 3,5 |
| **SGE * 80** | 4,0 |
| **SGE * 90** | 5,0 |

## Normative ATEX 94/9/CE

Half-couplings SGE*** series are available to use in hazardous area.
The couplings are certified according to ATEX 94/9/CE (ATEX 95).
Category certified 2G - area 1 and 2.
Other information available on our web site “www.mpfiltri.com”.

## MP Filtri couplings are developed with:

**CAD 3D**

**FEM (calculation)**

**Drawings 3D available on website www.mpfiltri.com at section TOOLS/2D-3D COMPONENTS**

The half-couplings SGE*** series are in conformity to normative **DIN 740/2**.
The max torque to transmit is always less than the max torque that the coupling can transmit.

## Examples verification of the coupling

**Torque transmitted by electric motor:**

**Mt**: 9560 x kW / rpm = Nm

**Me >** Mt x S = Nm

Where:

**Mt**: Torque transmitted by electric motor

**Me**: Torque transmitted by coupling (see table 14)

**kW**: Power of electric motor

**Rpm**: Revolutions per minute of electric motor

**S**: Service factor (see table 14)

## TABLE 1

| | |
|---|---|
| **Small pumps, uniform load, low operating pressures**<br>e.g. rotary action machine tools - 5/8 work cycles per hour | **1.3** |
| **Small pumps, uniform load, high working pressures**<br>e.g. lifting equipment - 120-150 work cycles per hour | **1.5** |
| **Pumps, non-uniform load**<br>e.g. lifting equipment - 280-300 work cycles per hour | **1.7** |

**Example**
Electric motor, 4 pole - 4 kW
hydraulic pump, uniform load, low operating pressure

**Mt**: 9560 x 4 / 1500 = 25.45 Nm

**Me >** 25.49 x 1.3 = 33 Nm

Half-coupling SGEA21 meets the above requirement.

Select the half-coupling of the calculated size from the motor half-couplings table.

**Note:** When selecting the coupling, remember that for pumps with splined shaft, only cast iron couplings of the SGEG series can be used.

Determine the size of the coupling according to the type of installation and application envisaged, on the basis of the following formulas and tables:

## TABLE 2

| | Half-coupling type | External diameter mm | Nominal torque Me - Nm | Maximum transmissible torque Me - Nm |
|---|---|---|---|---|
| ALUMINIUM | SGEA01 | 43 | 15 | 20 |
| | SGEA21 | 68 | 160 | 190 |
| | SGEA31 | 85 | 340 | 380 |
| | SGEA51 | 109,5 | 550 | 620 |
| CAST IRON | SGEG01 | 40 | 20 | 30 |
| | SGEG30 | 80 | 400 | 450 |
| | SGEG40 | 95 | 550 | 620 |
| | SGEG60 | 120 | 760 | 850 |
| | SGEG80 | 160 | 2200 | 2500 |
| | SGEG90 | 200 | 5500 | 6100 |
| STEEL | SGES40 | 95 | 550 | 620 |
| | SGES60 | 120 | 760 | 850 |
| | SGES80 | 160 | 2200 | 2500 |

Nominal and maximum torque values are referred to couplings assembled with standard flexible spiders of the **EGE**** series (see page 49).
Where higher torques are to be transmitted, use flexible spiders of the **EGE**RR** series (see page 49).

**Noise is a particularly pervasive problem so much so that there have been statutory regulations in place now for some years, designed to limit harmful occupational exposure. Many of the machines used in industry today are equipped with oil-hydraulic systems, which happen to be a major source of noise.**

### 1. Theory and definition of noise

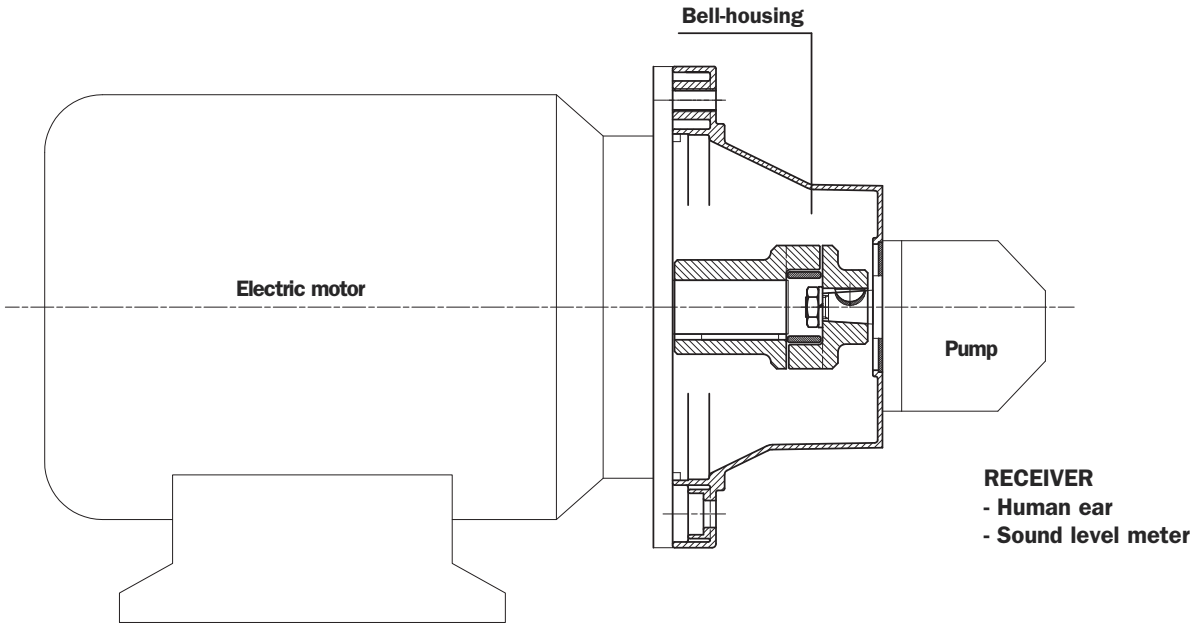
From a health and hygiene standpoint, noise can be defined as an unpleasant and undesirable sound, or an unpleasant and annoying or intolerable auditory sensation (noise being any sound phenomena that may be accompanied by sensations of disturbance and pain). By definition, acoustic phenomena are oscillatory in character, propagated in a flexible medium and causing pressure variations at the points, and the areas adjacent to those points, through which they pass.

### 2. Sound

Technically considered, certain elements must be present simultaneously for acoustic phenomena to occur:

- Sound source
- Transmission medium
- Receiver

**Motor and pump unit**




The **electric motor** and the **pump**, together with the drive coupling, are the **SOURCE OF THE NOISE**.
The **Bell-housing** is the noise transmission medium.
Depending on whether the monobloc bell-housing is a rigid or low noise type, there will be variations in the flexible properties of the transmission medium.
The acoustic phenomena are dissimilar in the two cases, given the differences in pressure variation and particle displacement.

# Assembly of motor and pump unit

**As mentioned in the presentation, low noise bell-housing will help to attenuate the transmission of vibrations and the emission of noise generated by the system.**
**Self-evidently, however, the mere adoption of a low noise bell-housing will achieve little unless the motor and pump are correctly installed on the machine, or on the tank of the hydralic power unit.**

## • Should be followed in order to achieve best possible results and correct installation:

### 1. Motor and pump unit mounted horizontally on oil tank lid

- The suction pipe attached to the pump must be rigid, and fitted using a resilient bulkhead flange of the FTA series, which helps to cushion the vibrations propagated between the pipe and the tank lid. If pipes need to be bent, the radius of curvature must be at least 3 times the pipe diameter. Do not use elbow fittings, as these will significantly increase pressure losses.

- The pressure pipeline of the pump must be flexible, and long enough to include bends with the minimum radius of curvature recommended by the manufacturer for the specified operating pressure.

- The return pipeline running from the service to the filter must be flexible. Where oil is returned directly to the tank of the hydraulic power unit through a rigid pipe, it is advisable to use a resilient bulkhead flange of the FTR series, which helps to cushion the vibrations propagated between the pipe and the tank lid.

- Anti-vibration devices (resilient mounts or damping rods) must be located under the feet of the electric motor or the PDM foot brackets, depending on the mounting position of the motor.

- The lids of hydraulic oil tanks must be sturdy enough to support the load they carry.

### 2. Motor and pump unit mounted horizontally on machine

- As a matter of good practice, the oil tank and motor-pump unit should be mounted on a single supporting frame of strength sufficient to support the load.

- If the hydraulic system is fitted with a side-mounted filter, the suction pipeline to the pump must be flexible, and long enough to include bends with the minimum radius of curvature recommended by the manufacturer.

- If the suction filter is not side mounted, the pipeline should be rigid and installed in conjunction with a compensating coupling.

- The pressure pipeline of the pump must be flexible, and long enough to include bends with the minimum radius of curvature recommended by the manufacturer for the specified operating pressure.

- The return pipeline running from the service to the filter must be flexible. Where oil is returned directly to the tank of the hydraulic power unit through a rigid pipe, it is advisable to use a resilient bulkhead flange of the FTR series, which helps to cushion the vibrations propagated between the pipe and the tank lid.

- Anti-vibration devices (resilient mounts or damping rods) must be located under the feet of the electric motor or the PDM foot brackets, depending on the mounting position of the motor.

**Note:** The above guidelines are indicative only, and subordinate to the solutions adopted ultimately by design engineers.

**In conclusion:** For best results, in any event, the motor-and-pump unit should be incorporated into the hydraulic system in such a way that no one component is rigidly associated with another, resulting in the propagation of vibration, and consequently noise.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 5.5 - 7.5 kW | 11 - 22 | 30 | 37 - 45 | 55 - 90 | 110 - 200 | 250 - 400 |
| | 7.5 - 10.2 Hp | 15 - 30 Hp | 40.80 Hp | 50.32 - 61.2 Hp | 75 - 125 Hp | 150 - 272 Hp | 340 - 544 Hp |
| | Size 225 - D.450 | Size 160/180 D.350 | Size 200 - D.350 | Size 225 - D.450 | Size 250/280 D.550 | Size 315 - D.660 | Size 355/400 D.800 |
| **MODUL 3** | AR*<br>Ø 190 Ø 85<br>BMT300 BMT350 — FR1*<br>Kit of assembly KVG5 (Q.ty 1) + Kit of assembly KVG1 (Q.ty 1) | | | | | | |
| | AD*<br>Ø 190 Ø 288 — Ø 140 Ø 288<br>BMT350 BMT400 BMT450 — FP5 FP6 FP7<br>Kit of assembly KVG5/7 (Q.ty 2) | | | | | | |
| **MODUL 2** | | | | | | Ø 288<br>BMT550 BMT660 BAD800 — FP6 FP7 (BAD800 ONLY FP7)<br>Kit of assembly KVG6/7 (Q.ty 1) | |
| | 5.5 - 7.5 kW | 11 - 22 | 30 | 37 - 45 | 55 - 90 | 110 - 200 | 250 - 400 |
| | 7.5 - 10.2 Hp | 15 - 30 Hp | 40.80 Hp | 50.32 - 61.2 Hp | 75 - 125 Hp | 150 - 272 Hp | 340 - 544 Hp |
| | Size 225 - D.450 | Size 160/180 D.350 | Size 200 - D.350 | Size 225 - D.450 | Size 250/280 D.550 | Size 315 - D.660 | Size 355/400 D.800 |

# ACCESSORIES

## The range of products is completed by a number of accessories, including:

**Foot brackets**, which serve to support the motor-and-pump unit in the event that the selected electric motor does not have mounting feet.

**Damping rings,** intended mainly for use with motor-pump units positioned vertically and with the pump submerged in the oil tank.

**Inspection covers**, facilitating the maintenance of oil tanks in hydraulic power units, without necessarily having to dismantle the unit.

**Aluminium tanks** of 10 litres capacity, allowing the assembly of a compact hydraulic power unit.

## Technical specifications

### ACCESSORIES

**Materials**

- **Foot bracket**
  Pressure diecast aluminium alloy.
- **Damping ring**
  Vulcanized aluminium.
- **Inspection covers**
  Pressure diecast aluminium alloy.
- **Tanks**
  Pressure diecast aluminium alloy.

**Temperature**

- -30°C ÷ +80°C
  For temperatures outside this range,
  contact the MP Filtri Technical and Sales Department.

**Compatibility with fluids**

- **Modular bell-housing components compatible for use with:**

  **Mineral oils**
  Types HH-HL-HM-HR-HV-HG, to ISO 6743/4 standard

  **Water based emulsions**
  Types HFAE – HFAS, to ISO 6743/4 standard

  **Water glycol**
  Type HFC, to ISO 6743/4 standard

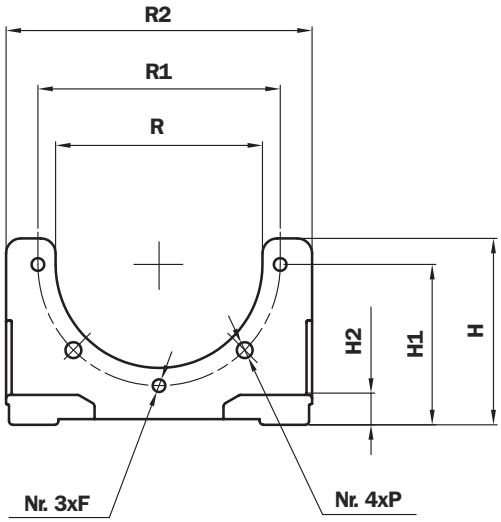
  **Ask for anodized version**

**Special Applications**

- **Any applications not covered by the normal indications contained in this catalogue must be evaluated and approved by the MP Filtri Technical and Sales Department.**

Made of pressure die-cast aluminium and featuring superior mechanical strength, these brackets are proportioned to support **UNEL - MEC** frame electric motors with **B5** mounting flange and no feet.
There are brackets available for a range of motors from **size 71, rated 0.37 kW,** up to **size 180 rated 22 kW**.
(For sizes other than those indicated in the table, contact the MP Filtri Technical and Sales Department).

As already indicated under the heading "**ASSEMBLY OF MOTOR AND PUMP UNIT**", foot brackets of the **PDM** series should be fitted preferably in conjunction with anti-vibration mounts.



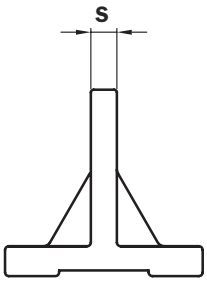




Fig. A

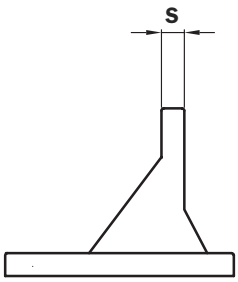
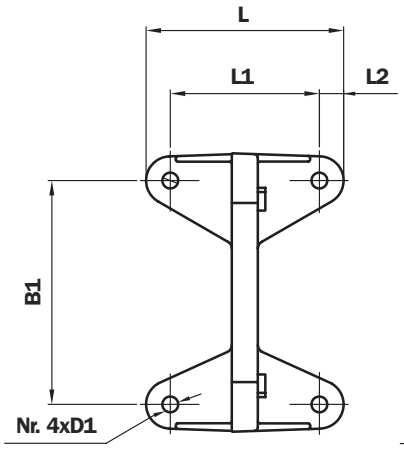
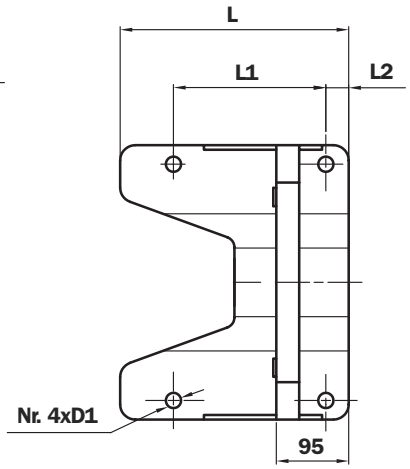



Fig. B



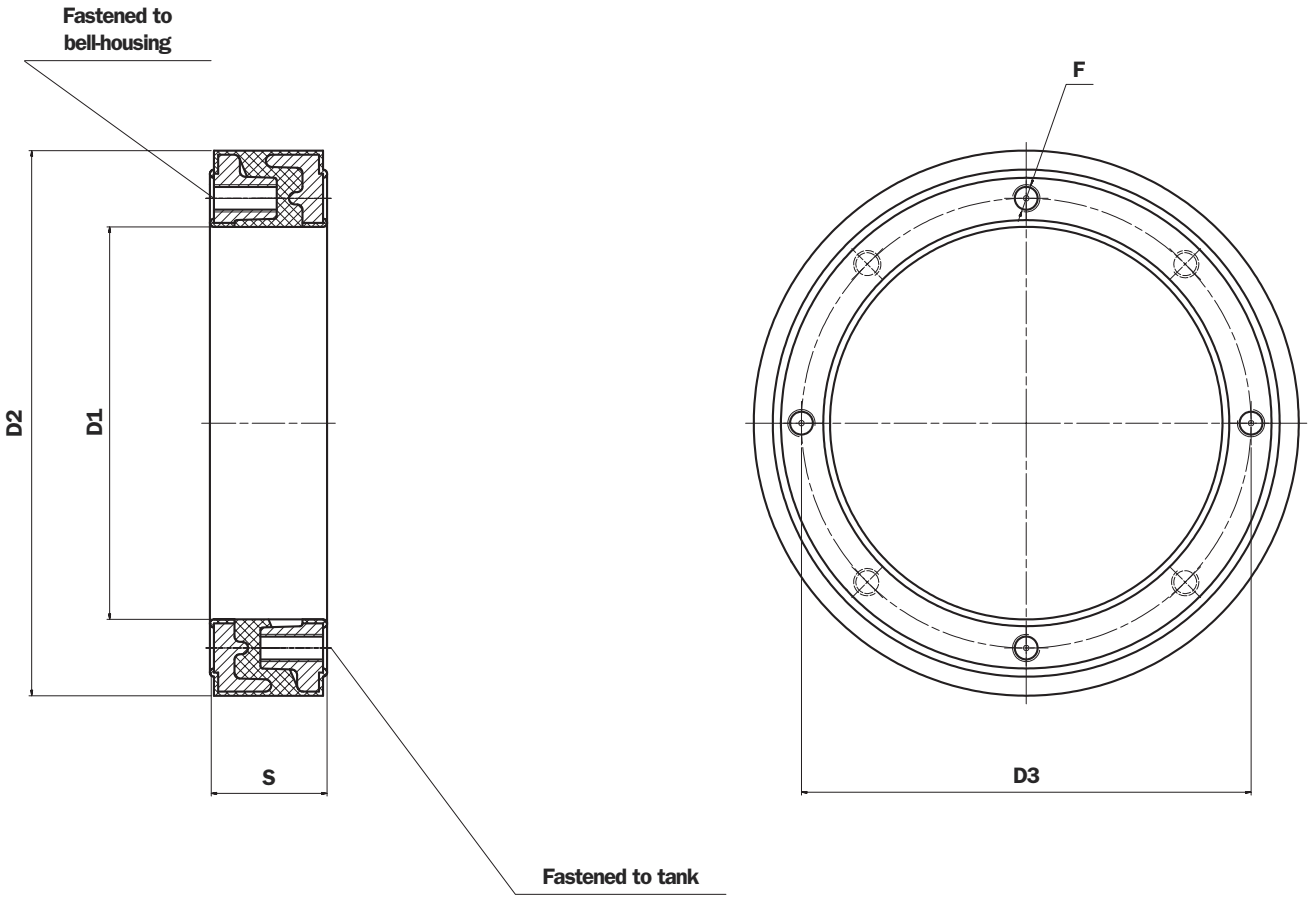




## TABLE 45

| Foot bracket | Fig. | B | B1 | R2 | L | L1 | L2 | H | H1 | H2 | R | R1 | S | P | D1 | F | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PDM A 160** | A | 160 | 135 | 180 | 106 | 80 | 13 | 100 | 86 | 16 | 111 | 130 | 14 | 8,5 | 8,5 | M8 | 0,45 |
| **PDM A 200** | A | 200 | 175 | 207 | 128 | 98 | 21 | 128 | 115 | 14 | 146 | 165 | 14 | 11 | 11,5 | M10 | 0,60 |
| **PDM A 250** | A | 250 | 220 | 262 | 172 | 130 | 21 | 157 | 145 | 18 | 191 | 215 | 16 | 13 | 13,5 | M12 | 1,20 |
| **PDM A 300** | A | 300 | 270 | 320 | 210 | 160 | 25 | 188 | 170 | 18 | 235 | 265 | 20 | 13 | 13,5 | M12 | 1,80 |
| **PDM A 350** | B | 350 | 310 | 360 | 300 | 200 | 30 | 220 | 200 | 30 | 261 | 300 | 30 | 18 | 13 | M16 | 4,80 |

# Damping rings

These vulcanized components consist of two aluminium rings embedded in oil-resistant rubber, which guarantee superior mechanical strength and are particularly suitable for vertically mounted motor-and-pump units.
Positioned between the bell-housing motor flange and the lid of the tank lid, they help to reduce the transmission of vibrations and the emission of noise generated by the system.
Damping rings provide a perfect hydraulic sealing actions by virtue of their special profile, which resembles an O-ring surrounded by a flange with fixing holes.
Rings are available for a range of motors frm **size 80, rated 0.5 kW,** up to **size 180 rated 22 kW.**
The noise level of the motor-pump unit can be reduced by as much as 5 dB 8A).




## TABLE 46

| Foot bracket | D1 | D2 | D3 | S | F | Weight (kg) |
|---|---|---|---|---|---|---|
| **ANM A 200** | 146 | 200 | 165 | 43 | M10 (depth: 16 mm) | 1,70 |
| **ANM A 250** | 190 | 250 | 215 | 48 | M12 (depth: 16 mm) | 2,53 |
| **ANM A 300** | 239 | 300 | 265 | 53 | M12 (depth: 16 mm) | 2,15 |
| **ANM A 350** | 260 | 350 | 300 | 62 | M16 (depth: 20 mm) | 3,95 |

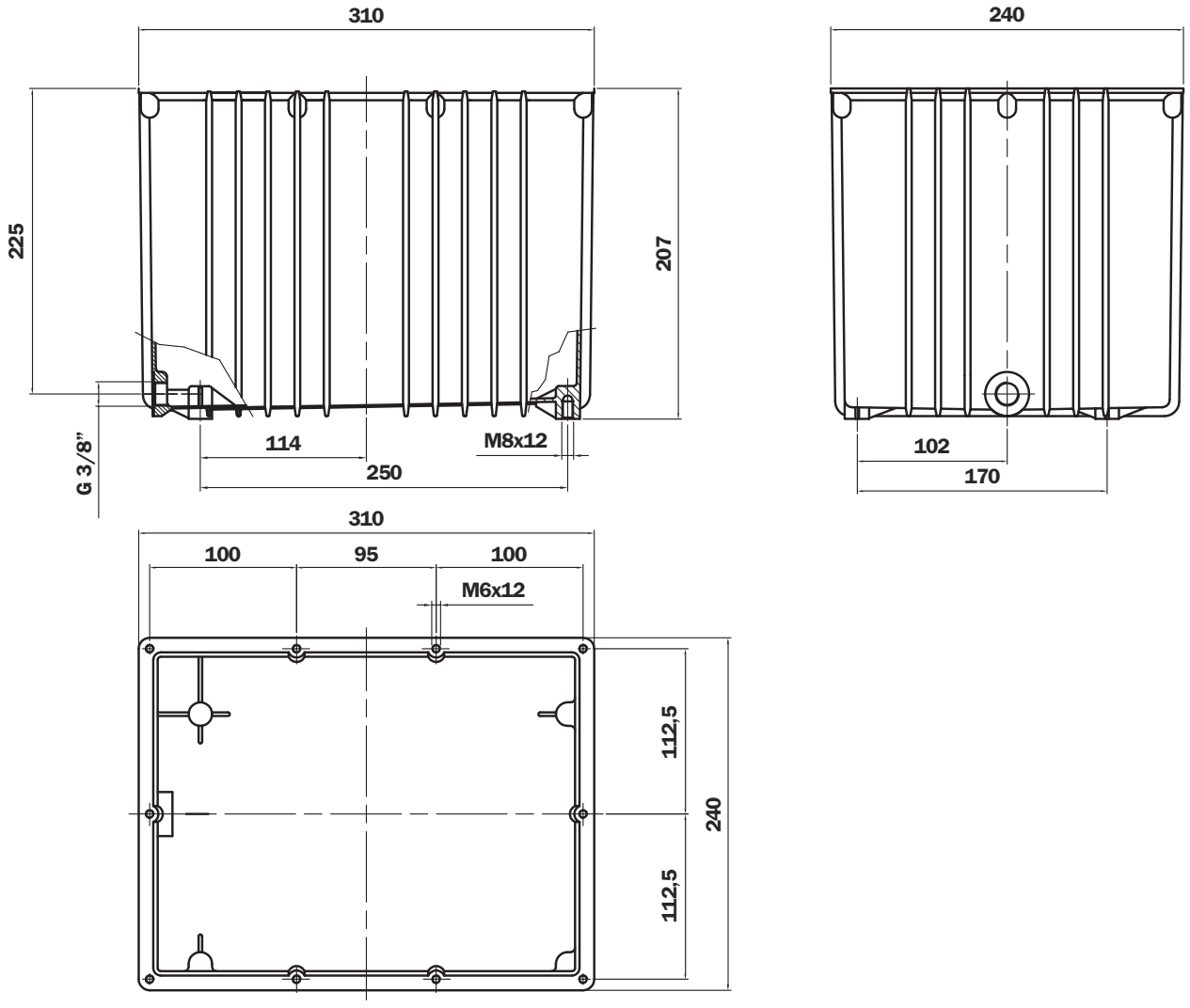
**Note:** For dimensions other than those indicated in the table, contact the MP Filtri Technical and Sales Department.

Made of pressure diecast aluminium alloy, these tanks feature superior strength and optimum design and are ideal for compact hydraulic power units.

Generously proportioned fins ensure efficient cooling.

The tank is supplied with:
- M6 threaded fixing holes for lid
- feet with M8 threaded fixing holes
- G 3/8" threaded drain hole

The lid is sealed by a gasket made of special paper, which must be ordered separately indicating code "GUS 10,0".




## TABLE 47

| Code | Weight (kg) |
|---|---|
| SE10LT | 3,95 |

# Inspection doors

These pressure diecast aluminium alloy doors offer superior mechanical strength and are manufactured to DIN 24339 standard. They provide easy access to the inside of the oil tank for inspection and cleaning purposes.

On request and for small quantities, to be agreed with MP Filtri Technical and Sales Department, inspection doors can be supplied with:

- Customer logo.
- Hole cut for visual level indicator.
- Hole cut for visual and electrical level indicator.
- Oil sample plug

## Technical specifications

**INSPECTION DOORS**

**Materials**

- **Inspection cover**
  Pressure diecast aluminium alloy/cast iron
- **Seal**
  Oil-resistant rubber, Shore A hardenss 70.

**Temperature**

- -30°C ÷ +80°C
  For temperatures outside this range,
  contact the MP Filtri Technical and Sales Department.

**Compatibility with fluids**

- **Components compatible for use with:**

  **Mineral oils**
  Types HH-LL-HM-HR-HV-HC, to ISO 6743/4 standard

  **Water based emulsions**
  Types HFAE – HFAS, to ISO 6743/4 standard

  **Water glycol**
  Type HFC, to ISO 6743/4 standard
  **Ask for anodized version**

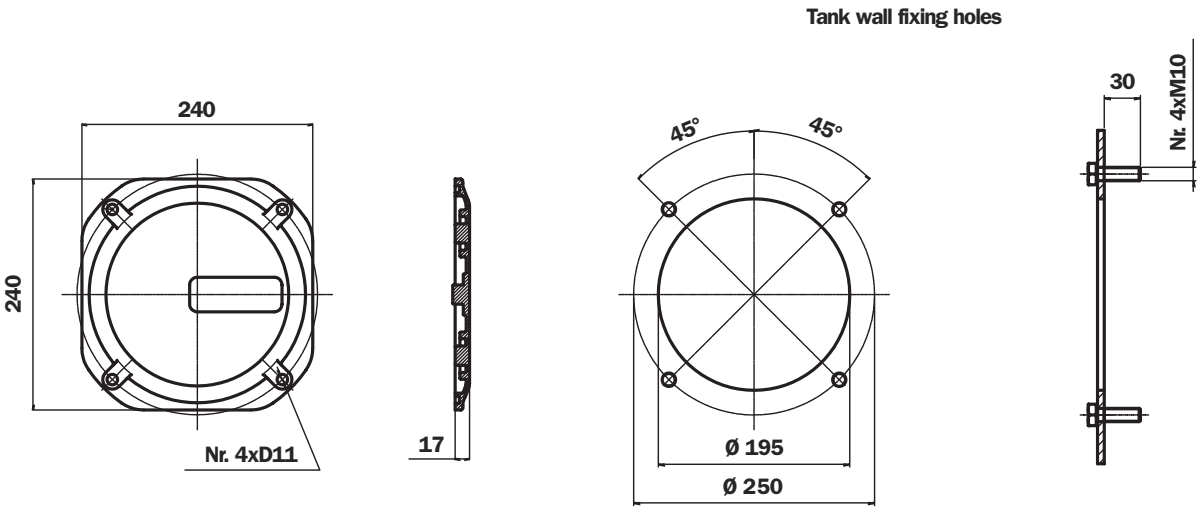
**Special Applications**

- **Any applications not covered by the normal indications contained in this catalogue must be evaluated and approved by the MP Filtri Technical and Sales Department.**

## Reminders for correct fitting of inspection covers

- **The thickness of the tank wall must be at least 4 mm or greater**
- **Observe the specified hole dimensions when drilling tank wall (see next page)**
- **Make certain that after welding stud screws or bolts, the tank wall does not present any noticeable deformation**
- **Thoroughly clean the surface of the wall on which the seal will be seated.**
- **Wet the seal with hydraulic oil to prevent the rubber from cracking**
- **Fit the seal carefully to the inspection cover**
- **Tighten the retaining nuts, torquing to 15 Nm**

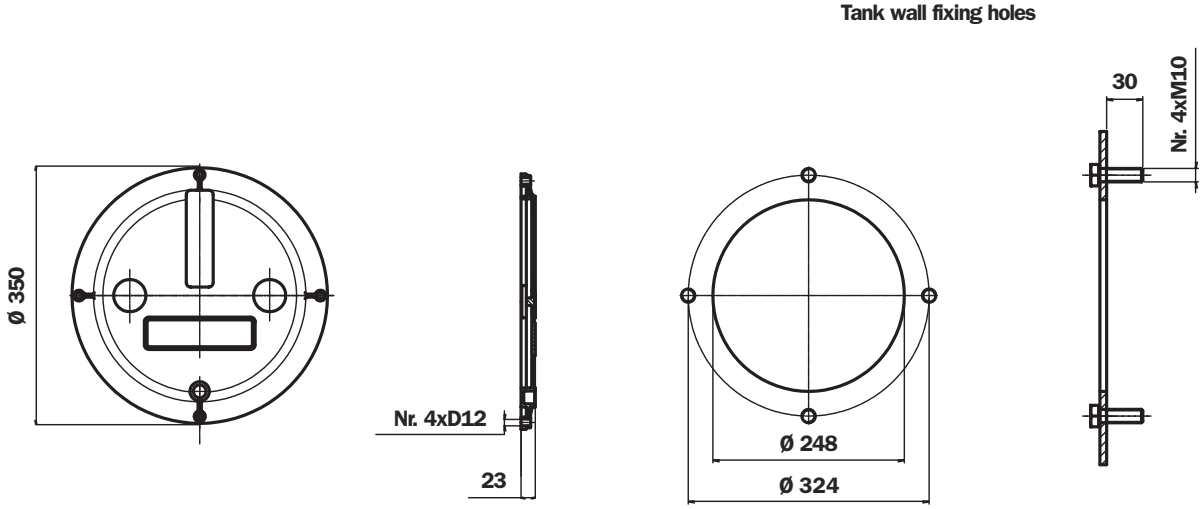
# 0B275




## TABLE 48

| Code | Weight (kg) |
|---|---|
| Door with MP Filtri 0B275P01 | 1,76 |
| Blank door 0B275P02 | |
| Seal GU0275NBR | |
| Seal FPM GU2750VTN | |

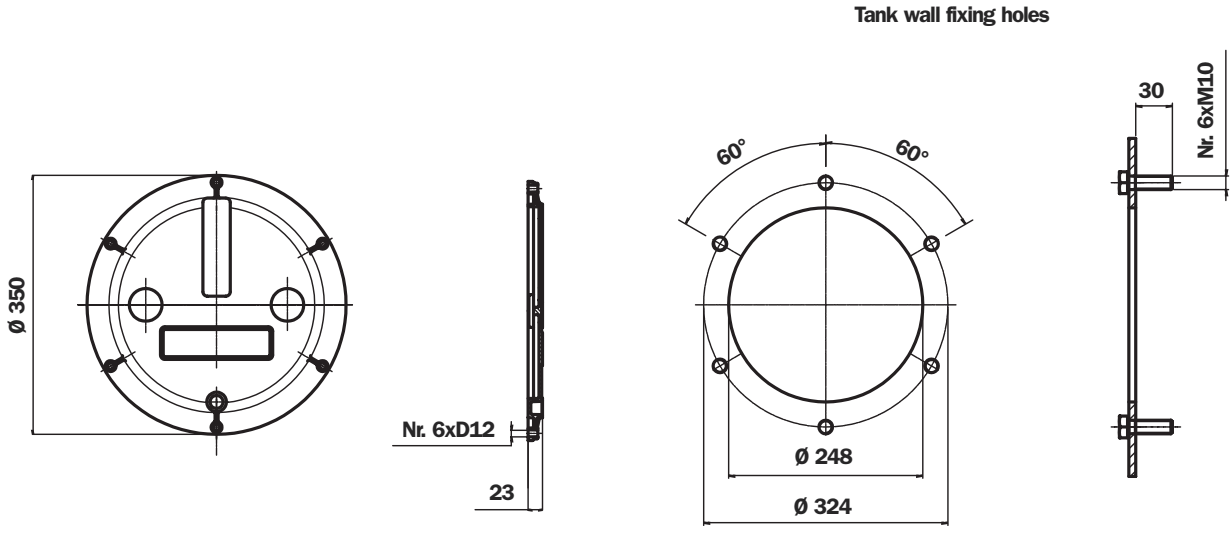
# 0B350




## TABLE 49

| Code | Weight (kg) |
|---|---|
| Door 0B350DIN000 | |
| Seal GU0350DINNBR | 1,80 |
| Seal FPM GU0350DINVTN | |

# 0B356




## TABLE 50

| Code | Weight (kg) |
|---|---|
| Door 0B356DIN000 | |
| Seal GU0350DINNBR | 1,80 |
| Seal FPM GU0350DINVTN | |

# 0B400

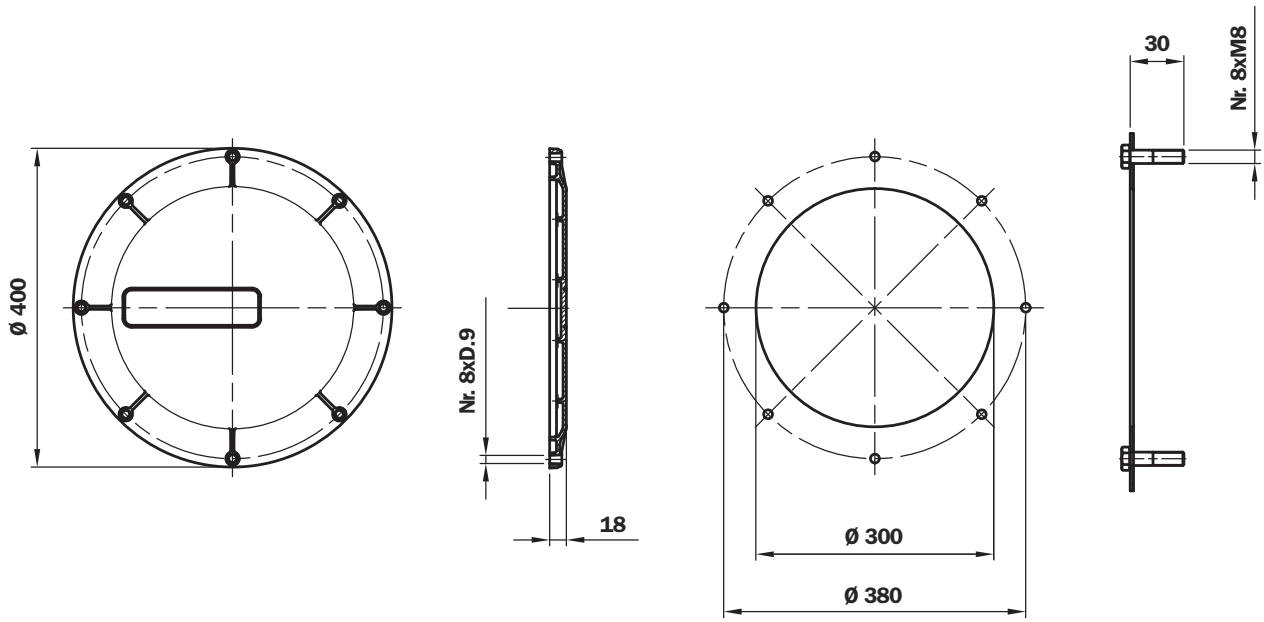



**TABLE 51**

| Code | Weight (kg) |
|---|---|
| Door with MP Filtri OB400P01 | 2,90 |
| Blank door OB400P02 | |
| Seal GU0400DINNBR | |
| Seal FPM GU0400DINVTN | |

# 0B475

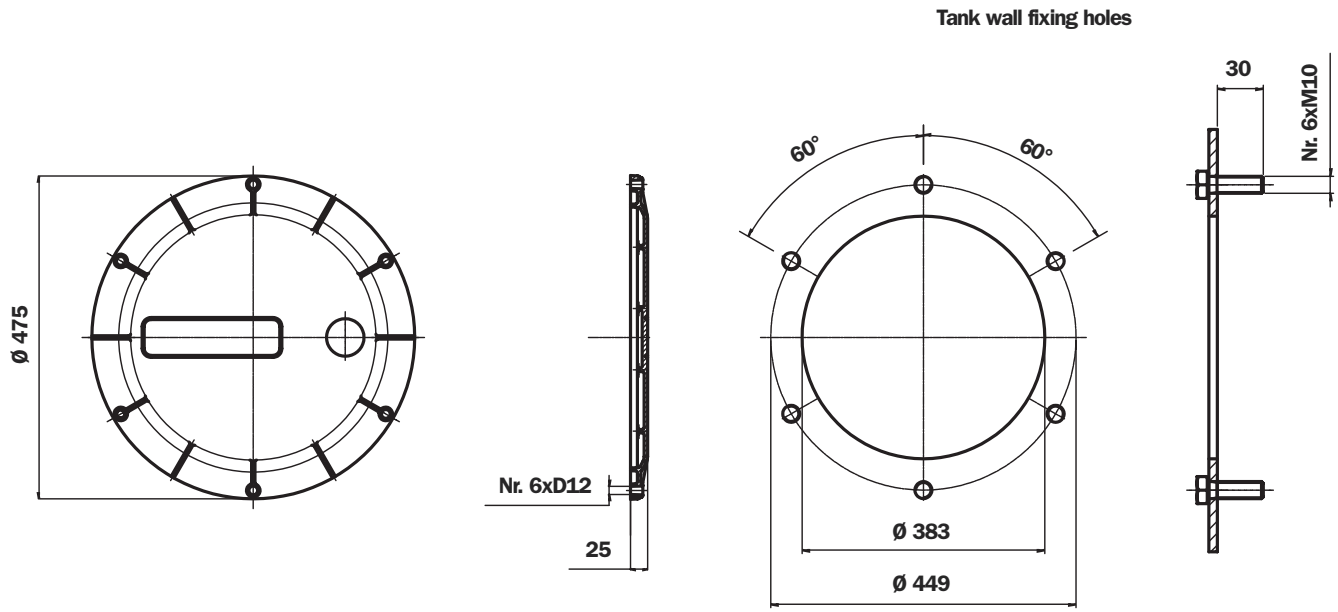


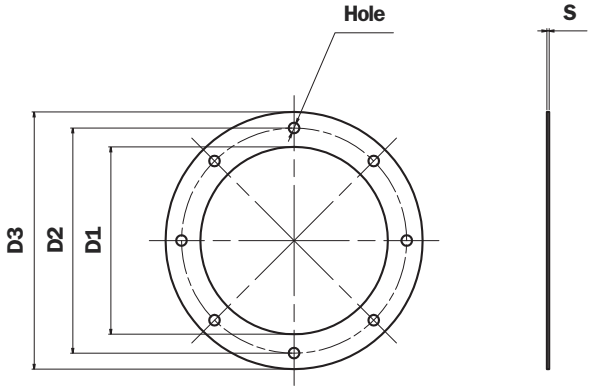

**TABLE 52**

| Code | Weight (kg) |
|---|---|
| Door with MP Filtri OB475P01 | 3,40 |
| Blank door OB475P02 | |
| Seal GU0475DINNBR | |
| Seal FPM GU0475DINVTN | |

# Seals

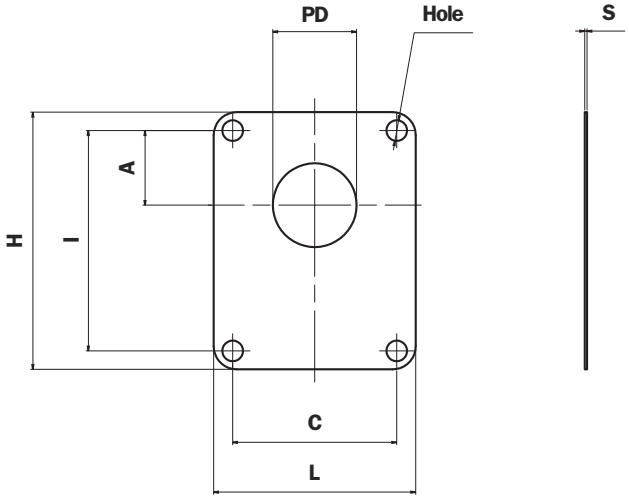
Seals made of special paper provide the sealing action between the lid of the oil tank and the bell-housing (motor interface) and between the bell-housing and the pump flange.

They are available for motors from size 63 rated **0.12 kW,** up to **size 180 rated 22 kW**, and for all gear pumps listed in this catalogue.




## TABLE 53

| Bell-housing code | Seals code | D1 | D2 | D3 | S | Hole |
|---|---|---|---|---|---|---|
| **LMC 120** | **GUM P 120** | 84 | 100 | 120 | 1 | 7 |
| **LMC 140** | **GUM P 140** | 96 | 115 | 140 | | 9 |
| **LMC 160** | **GUM P 160** | 110 | 130 | 160 | | 9 |
| **LMC 200** | **GUM P 200** | 145 | 165 | 200 | | 11 |
| **LMC 250** | **GUM P 250** | 190 | 215 | 250 | | 14 |
| **LMC 300** | **GUM P 300** | 234 | 265 | 300 | | 14 |
| **LMC 350** | **GUM P 350** | 260 | 300 | 350 | | 18 |



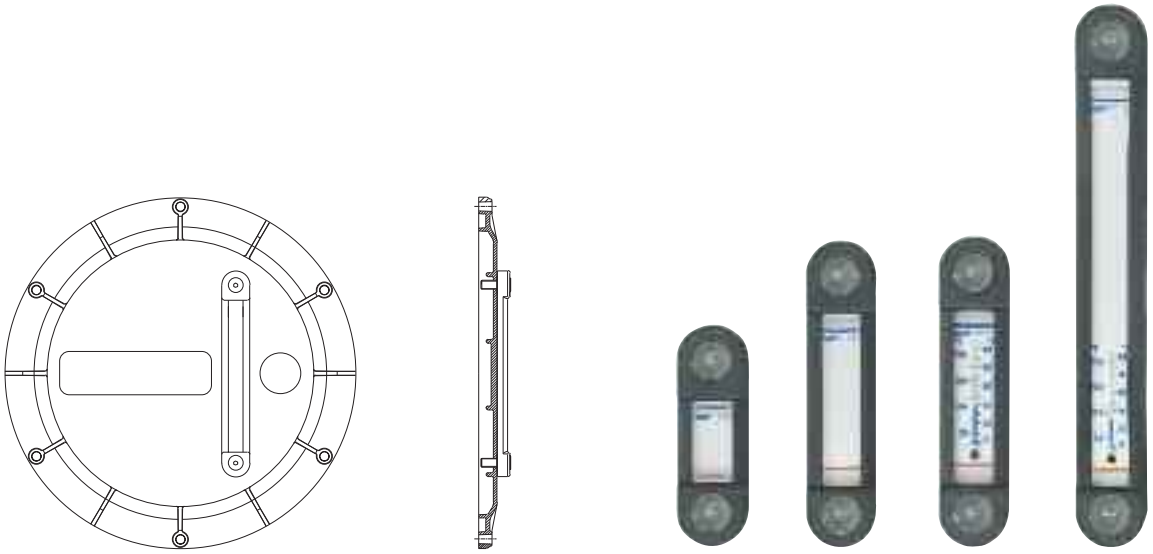

## TABLE 54

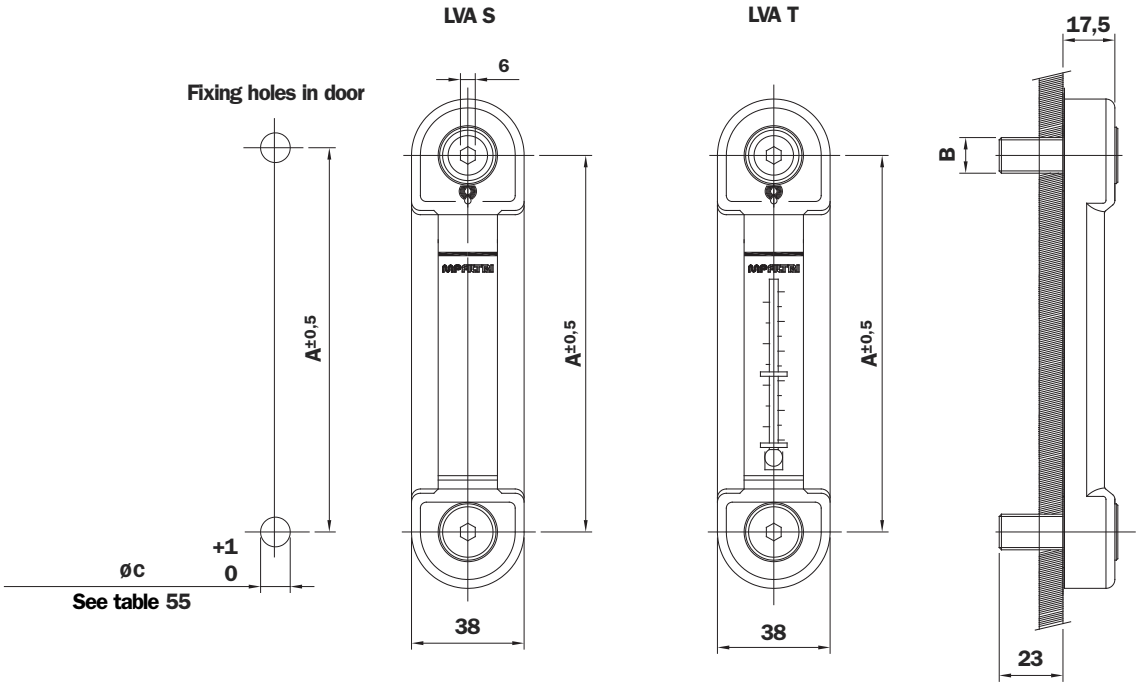
| Pump code | Seals code | PD | A | B | C | H | L | S | Hole |
|---|---|---|---|---|---|---|---|---|---|
| **FS05M** | **GUP P001** | 22 | 25.6 | 66 | - | 80 | 48 | 1 | 6.5 |
| **FS100** | **GUP P002** | 25.4 | 26.6 | 72 | 52.4 | 87 | 67 | | 6.5 |
| **FS1M0** | **GUP P003** | 30 | 24.5 | 73 | 56 | 85 | 68 | | 6.5 |
| **FS200** | **GUP P004** | 36.5 | 32.5 | 96 | 71.5 | 112 | 88 | | 8.5 |
| **FS300** | **GUP P005** | 50.8 | 43 | 128 | 98.5 | 148 | 118 | | 10.5 |
| **FSZBR** | **GUP P013** | 32 | 10.35 | 40 | 40 | 75 | 62 | | 8.5 |
| **FSZFR** | **GUP P014** | 80 | 34.5 | 100 | 72 | 118 | 90 | | 9 |

**Note:** Motor seals and pump seals must be ordered separately,
For seals with dimensions different to those indicated in tables 53 - 54, contact the MP Filtri Technical and Sales Department.

# Inspection door options

## Visual level indicators LVA series






### Preparing for to fit the level on request

| Code door | Code level |
|---|---|
| 0B275** | LVA 10** |
| 0B350** | LVA 10** |
| 0B356** | LVA 20** |
| 0B400** | LVA 10** |
| 0B475** | LVA 20** |
| | LVA 30** |

### TABLE 55

| | Dimensions | | |
|---|---|---|---|
| Size | A | B | øC |
| LVA 10 | 76 | M 10 | 11 |
| LVA 20 | 127 | M 12 | 13 |
| LVA 30 | 254 | M 12 | 13 |

**Materials:**
Transparent amorphous polyamide lens
Nylon guard
Seals: Series A-NBR - Series V-FPM

**Operating pressure:** Max 1 bar at +80°C
**Operating temperature:** From -25°C to +80°C
**Tightening torque:** 10 Nm max.
Mineral oils - Synthetic oils - Water base emulsions - Phosphoric esters

# LVA ordering information

**Visual level indicators**

**LVA**

| | 1 | 2 | | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| | ☐ | ☐ | P | ☐ | ☐ | ☐ |
| **Example: LVA** | **10** | **S** | | **A** | **M10** | **P01** |

**1 - Sizes**

- **10**
- **20**
- **30**

**2 - Accessories**

- **S** Without
- **T** With thermometer

**3 - Seals**

- **A** NBR
- **V** FPM

**4 - Options**

- **M10** M10 screws (standard for LVA 10)
- **M12** M12 screws (standard for LVA 20/30)

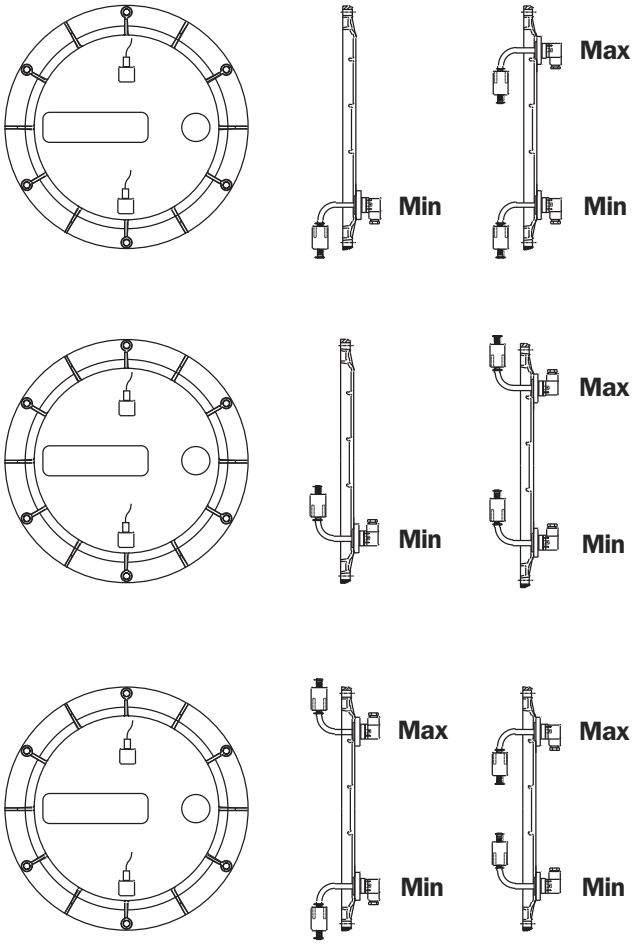
**5 - Customizations**

- **P01** Nameplate with MP
- **P02** Blank nameplate MP (Min. 1000 pcs)
- **Pxx** Customized (4 Min. 1000 pcs)

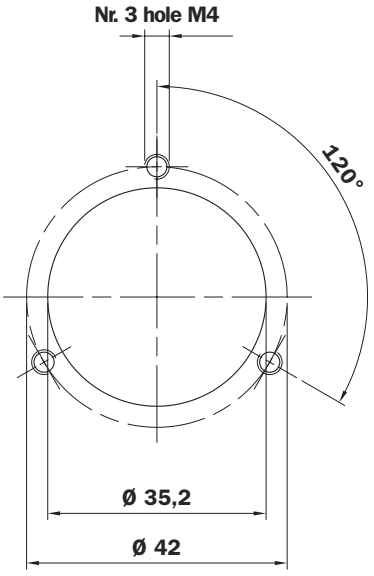
**Note: For customization features other than those indicated on this page, contact the MP Filtri Technical and Sales Department.**

# Inspection door options

## Electrical float level indicators LEG series




### Layout of fixing holes for LEG level indicator




**Note:** Arrange the holes according to the position of the level indicator

**Prepared for visual indicator - on request**

## Technical specifications

LEG series electrical level indicators are supplied with a 3-hole fixing flange and a reed switch having NC-NO contacts. Designed typically for installation on the vertical walls of oil tanks, these instruments can also be mounted to inspection doors of the OB475 series as indicators of minimum and maximum oil levels in the tank.

**DIN 43650 CONNECTOR**

**Materials**

- **Flange**
  Aluminum
- **Rod**
  Brass
- **Float**
  Nylon foam
- **Seals**
  A= NBR
  V= FPM

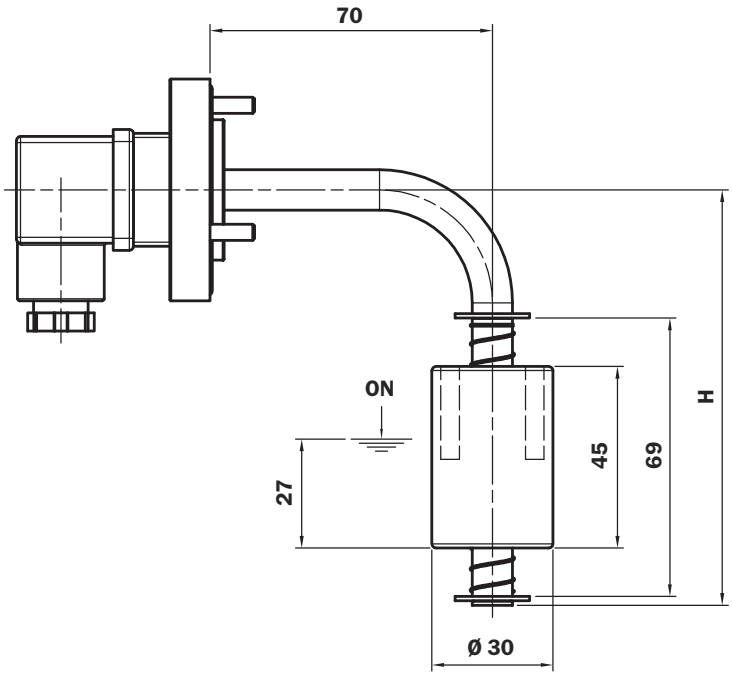
**Temperature**

- -15°C ÷ +80°C
  For temperatures outside this range,
  contact the MP Filtri Technical and Sales Department.

## Warning

To operate correctly, the float must be positioned vertically and at a minimum distance of 35 mm from walls made of ferrous metal.
To change the contact from NC to NO, simply turn the float upside down.
The electrical properties indicated are referred to resistive loads; for capacitive and inductive loads and incandescent lamps, use protection circuits.

# Inspection door options




**LEG 1 Float**


To invert the contact status from NO to NC and vice versa, simply invert the float.

| Length | H |
|---|---|
| **103** | 103 |
| **200** | 200 |
| **300** | 300 |
| **350** | 350 |

# LEG ordering information

**Electrical float level indicators series**

**LEG**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| **Example: LEG** | **A** | **102** | **2** | **A** | **1** | **A** | **F** | **S** | **P01** |

**1 - Tube material**

| | |
|---|---|
| **A** | Brass |

**2 - Length**

| |
|---|
| **102** |

**3 - Number of floats**

| | |
|---|---|
| **1** | Nr. 1 float |

**4 - Float material**

| | |
|---|---|
| **A** | Nylon foam |

**5 - Changeover contacts**

| | |
|---|---|
| **1** | NC |

**6 - Seals**

| | |
|---|---|
| **A** | NBR |
| **V** | FPM |

**7 - Type of fixing**

| | |
|---|---|
| **F** | 3 hole flange |

**8 - Electrical connection**

| | |
|---|---|
| **S** | DIN 43650 connector |

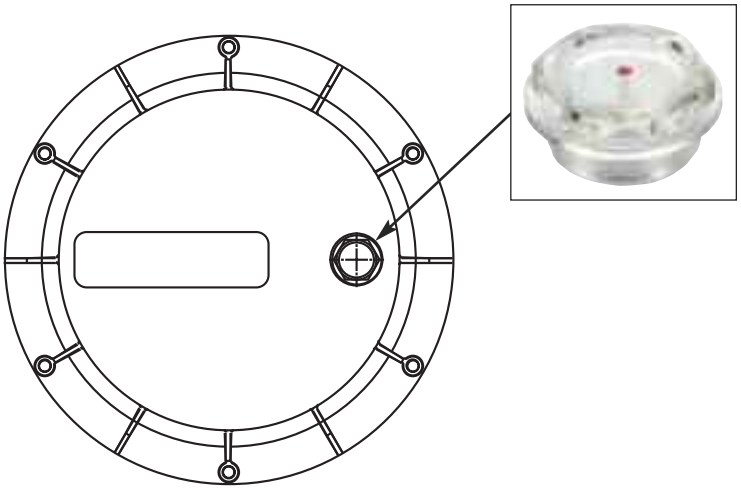
**9 - Options**

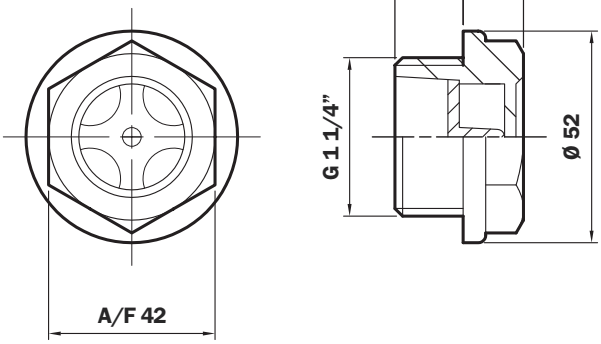
| | |
|---|---|
| **P01** | MP Filtri standard |
| **Pxx** | On request |

**Note: For customization features other than those indicated on this page, contact the MP Filtri Technical and Sales Department.**

# Inspection door options

## Visual level indicators code: LCP42NS

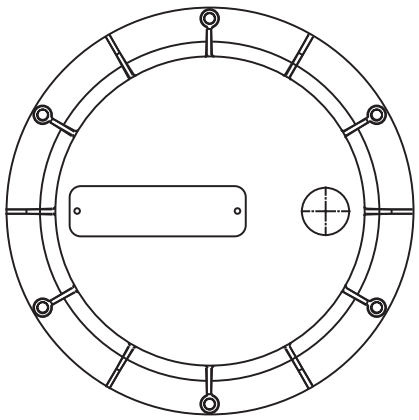





**Prepared for electrical indicator - on request**

## Customizing client

Nameplate with customer logo
Ordering information: **OB475LOGOP05**



The nameplates applied to the new inspection door are identical to those applied to the old door.
The difference with the new door is that nameplates are fixed with rivets 2 x Ø 4 mm.

**For ordering information codes, minimum order quantities, fixing hole positions and other details not indicated in this publication, contact the MP Filtri Technical and Sales Department.**

# Summary table, electric motors

## TABLE 56

| Power | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8-pole 50 Hz 750 rpm kW | | 6-pole 50 Hz 1000 rpm HP | | 4-pole 50 Hz 1500 rpm kW | | 2-pole 50 Hz 3000 rpm HP | | Frame kW | dimensions HP | code kW | Flange dimensions B5/V1 HP | B1/V18 size |
| | | 0.06 | 0,08 | 0,12 | 0,16 | 0,18 | 0,24 | **63** | 11x23 | M01 | 140 | |
| | | 0.09 | 0.12 | 0.18 | 0.24 | 0.25 | 0.34 | | | | | 90 |
| 0,09 | 0,12 | 0.18 | 0,24 | 0,25 | 0,34 | 0,37 | 0,50 | **71** | 14x30 | M02 | 160 | |
| 0,12 | 0,16 | 0.25 | 0.34 | 0.37 | 0.50 | 0.55 | 0.75 | | | | | 105 |
| 0,18 | 0,24 | 0.37 | 0,50 | 0,53 | 0,75 | 0,75 | 1,02 | **80** | 19x40 | M03 | 200 | |
| 0,25 | 0,34 | 0.55 | 0.75 | 0.75 | 1.02 | 1.10 | 1.50 | | | | | 120 |
| 0,37 | 0,50 | 0.75 | 1,02 | 1,10 | 1,50 | 1,50 | 2,04 | **90** | 24x50 | M04 | 200 | |
| 0,55 | 0,75 | 1.10 | 1.50 | 1.50 | 2.04 | 2.20 | 3.00 | | | | | 140 |
| 0,75 | 1,02 | 1,50 | 2,04 | 2,20 | 3,00 | 3,00 | 4,05 | **100** | 28x60 | M05 | 250 | |
| 1,50 | 2,04 | 2,20 | 3,00 | 4,00 | 5,44 | 4,00 | 5,44 | **112** | | | | 160 |
| 2,20 | 3,00 | 3,00 | 4,08 | 5,50 | 7,50 | 5,50 | 7,50 | **132** | 38x80 | M06 | 300 | |
| 3,00 | 4,08 | 5,50 | 7,50 | 7,50 | 10,20 | 7,50 | 10,20 | | | | | |
| 4,00 | 5,44 | 7,50 | 10,20 | 11,00 | 15,00 | 11,00 | 15,00 | **160** | 42x110 | M07 | 350 | |
| 7,50 | 10,20 | 11,00 | 15,00 | 15,00 | 20,40 | 18,00 | 25,16 | | | | | |
| 11,00 | 15,00 | 15 | 20,40 | 18,50 | 25,16 | 22,00 | 30,00 | **180** | 48x110 | M08 | 350 | |
| | | | | 22,00 | 30,00 | | | | | | | |
| 15,00 | 20,40 | 18,5 | 25,16 | 30,00 | 40,80 | 30,00 | 40,80 | **200** | 55x110 | M09 | 400 | |
| | | 22,00 | 30,00 | | | 37,00 | 50,32 | | | | | |
| | | | | | | 45,00 | 61,20 | **225** | 55x110 | M09 | 450 | |
| 18,50 | 24,18 | 30,00 | 40,80 | 37,00 | 50,32 | | | **225** | 60x140 | M10 | 450 | |
| 22,00 | 30,00 | | | 45,00 | 61,20 | | | | | | | |
| | | | | | | 55,00 | 74,80 | **250** | 60x140 | M10 | 550 | |
| 30,00 | 40,80 | 37,00 | 50,32 | 55,00 | 74,80 | | | **250** | 65x140 | M11 | 550 | |
| | | | | | | 75,00 | 102,00 | **280** | 65x140 | M11 | 550 | |
| | | | | | | 90,00 | 122,40 | | | | | |
| 37,00 | 50,32 | 45,00 | 61,20 | 75,00 | 102,00 | | | **280** | 75x140 | M12 | 550 | |
| 45,00 | 61,20 | 55,00 | 74,80 | 90,00 | 122,40 | | | | | | | |
| | | | | | | 110,00 | 148,60 | **315** | 65x140 | M11 | 660 | |
| | | | | | | 200,00 | 272,00 | | | | | |
| 55,00 | 74,80 | 75,00 | 102,00 | 110,00 | 149,60 | | | **315** | 80x170 | M13 | 660 | |
| 110,00 | 149,60 | 132,00 | 179,50 | 200,00 | 272,00 | | | | | | | |
| | | | | | | 250,00 | 340,00 | **355** | 75x140 | M12 | 800 | |
| | | | | | | 315,00 | 428,40 | | | | | |
| 132,00 | 178,52 | 160,00 | 217,80 | 250,00 | 340,00 | | | **355** | 95x170 | M15 | 800 | |
| 20,00 | 272,00 | 250,00 | 340,00 | 315,00 | 428,40 | | | | | | | |
| | | | | | | 355,00 | 482,80 | **400** | 80x170 | M13 | 800 | |
| | | | | | | 400,00 | 544,00 | | | | | |
| 250,00 | 340 | 315,00 | 428,40 | 355,00 | 482,80 | | | **400** | 100x210 | M16 | 800 | |
| | | | | 400,00 | 544,00 | | | | | | | |