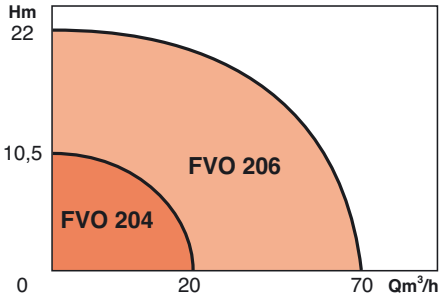
FVO 204

SUBMERSIBLE PUMPS
Lifting of domestic waste water
2 poles – 50 Hz

OPERATING LIMITS

Flow up to :	**20 m^3/h**
head up to :	**10 m CE**
Temperature range :	**3 to + 35°C**
Max. depth of immersion :	**5 m**
Max. particle size :	**Ø 40 mm**
DN Discharge port:	**40 mm (Rp1"1/2)**



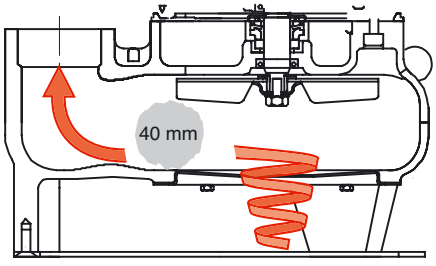
APPLICATIONS

Lifting of domestic waste water:
- sewage water,
- rainwater laden with mud and non-rigid particles with traces of hydrocarbons or detergents.

For :
- homes,
- garages,
- car parks,
- restaurants,

ADVANTAGES

- **Suitable for small sumps: reduced size and vertical outlet opening.**
- **Reliability: double seal (mechanical seal + lip seal) and vortex impeller.**
- **Safe if occasionally operated out of water.**
- **Long-lasting: rugged materials.**
- **Automatic operation: float switch built in (1~ version) ; in option (3~ version).**
- **No special maintenance. The impeller is quickly dismantled for easy cleaning. Reduced weight.**
- **Delivered ready to plug in (1~ version).**
- **Silent.**
- **Easy connection: Outlet offset**



VORTEX
impeller

FVO 204 MF

FVO 204

DESIGN

• Hydraulic part

- Monobloc, single-chamber centrifuge.
- Axial suction under casing.
- Vertical outlet.
- Rp1"1/2 threaded port.
- Vortex impeller (reachable thanks to a detachable strainer).
- Double seal around the shaft by mechanical seal and lip seal.

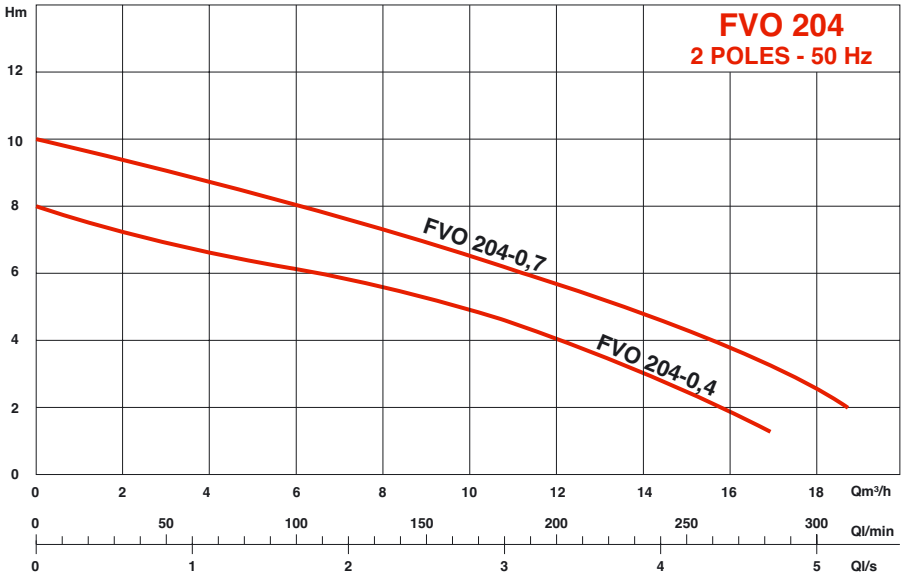
• Motor

- Submersible to semi-submersible.
- Oil-bath.
- single-phase version: automatic start and stop by float switch, thermal protection by built-in sensor with automatic reset, built in capacitor.
- 3-phase version : thermal protection must be provided.
- Float, cable and capacitor are exchangeable.

In both single and three-phase, provide a switch and fuse box to protect against running dry.

Speed of rotation :	2900 rpm
Winding	1~: 230V
	3~: 400V
Frequency :	50 Hz
Insulation class :	130 (B)
Protection index :	IP 68

HYDRAULIC PERFORMANCE



OPERATING PRINCIPLE

S1 Continuous	immerged	200 h/year
S2 Occasional		10 min
S3 Periodic		25%

Starting frequency :

- recommended: 20 Starts/hr,
- maximum: 50 Starts/hr

STANDARD CONSTRUCTION

Main parts	Material
Pump casing	Cast iron EN GJL 200
Motor casing	Stainless steel 304
Motor shaft	Stainless steel 416
Intake platform	Stainless steel 304
Vortex impeller	Stainless steel
Mechanical seal	Carbon/Alumina

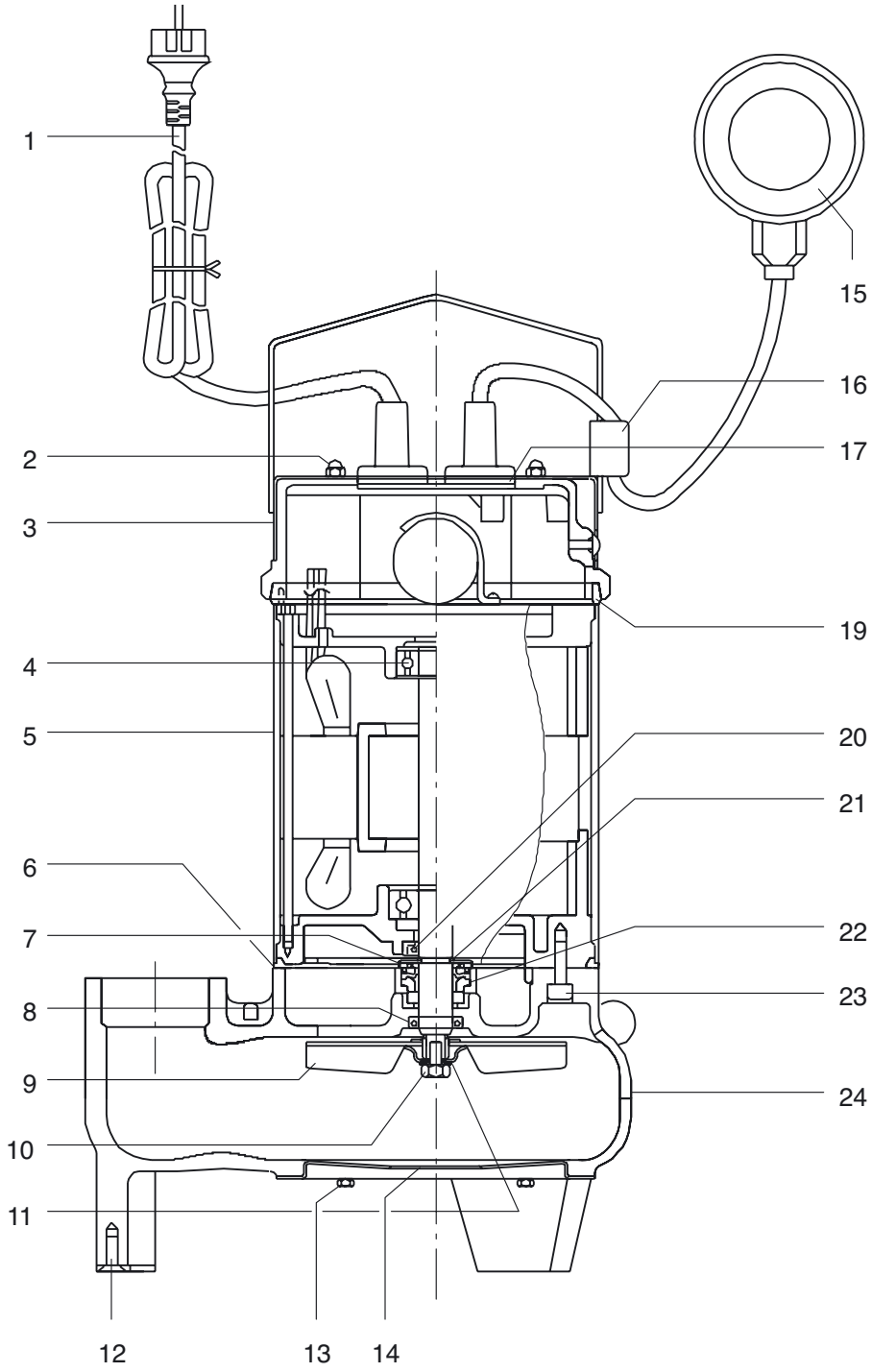
IDENTIFICATION

FVO 2 04-0,4 - MFP

- Index of range : Cast iron Vortex
- Number of poles : 2 pole
- DN in cm
- Power of the motor in kW
- M : 1~ T : 3~
- With float
- Portable version with 10 m of cable

SECTIONAL VIEW (FVO 204-0.6MF)

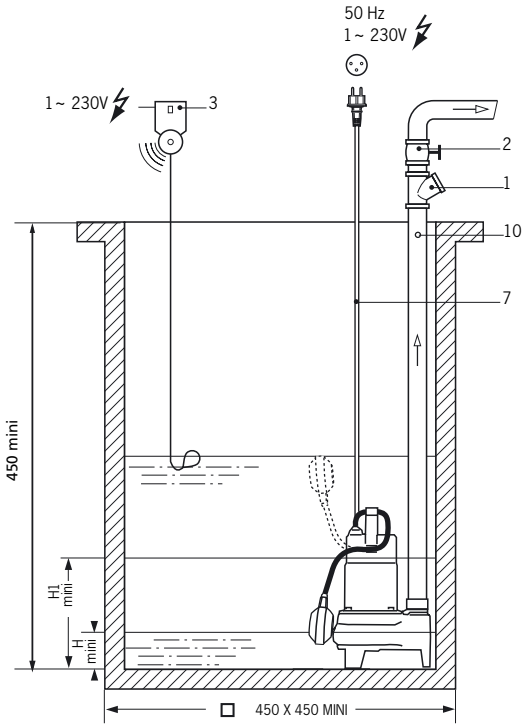
1 - Electrical cable
2 - Cap nut
3 - Cover with handle
4 - Ball bearing
5 - Motor casing
6 - Sealed cover to oil tank
7 - Oil tank seal
8 - Circlips
9 - Impeller
10 - Screw
11 - Washer
12 - Screw
14 - Suction port
15 - Float switch
16 - Cable holder
17 - Cable entry seal
18 - Capacitor
19 - Motor housing seal
20 - Shaft gasket
21 - Circlip
22 - Mechanical seal
23 - Motor casing connection screw
24 - Pump casing
25 - Seal
26 - Base plate



FVO 204

PRINCIPLES OF INSTALLATION

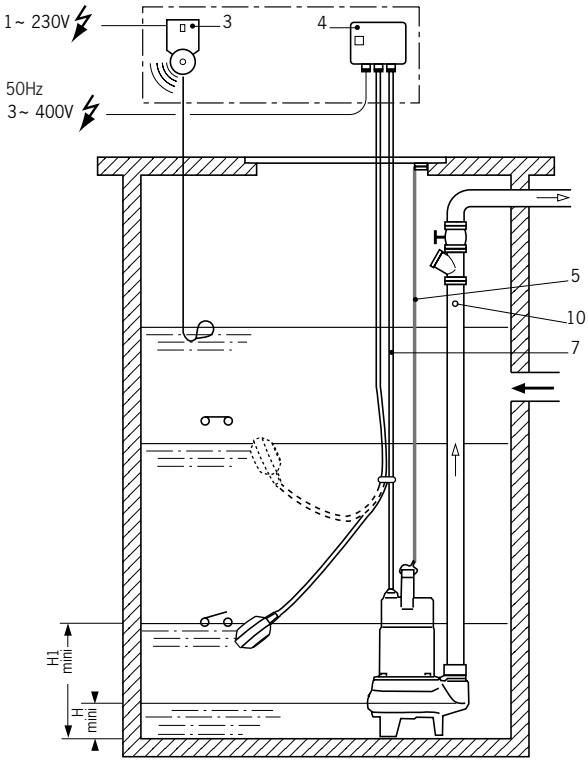
• **Simplified installation** - FVO 204 with single-phase motor and float.

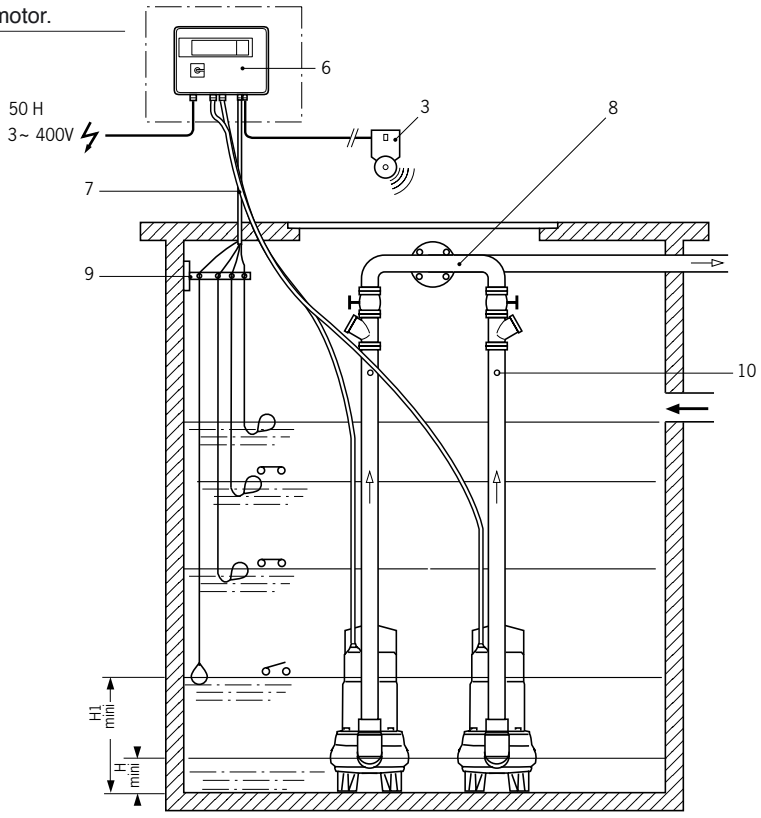


1 - Non-return valve suited to the fluid being pumped.
2 - Isolating valve.
3 - Audible overflow alarm.
4 - Control box
5 - Rope (not supplied).
6 - Control box EC Drain
7 - Electric cable length 5 m.
8 - Manifold to couple two pumps.
9 - Wall console for passage of control cables.
10 - Drain hole needs making.

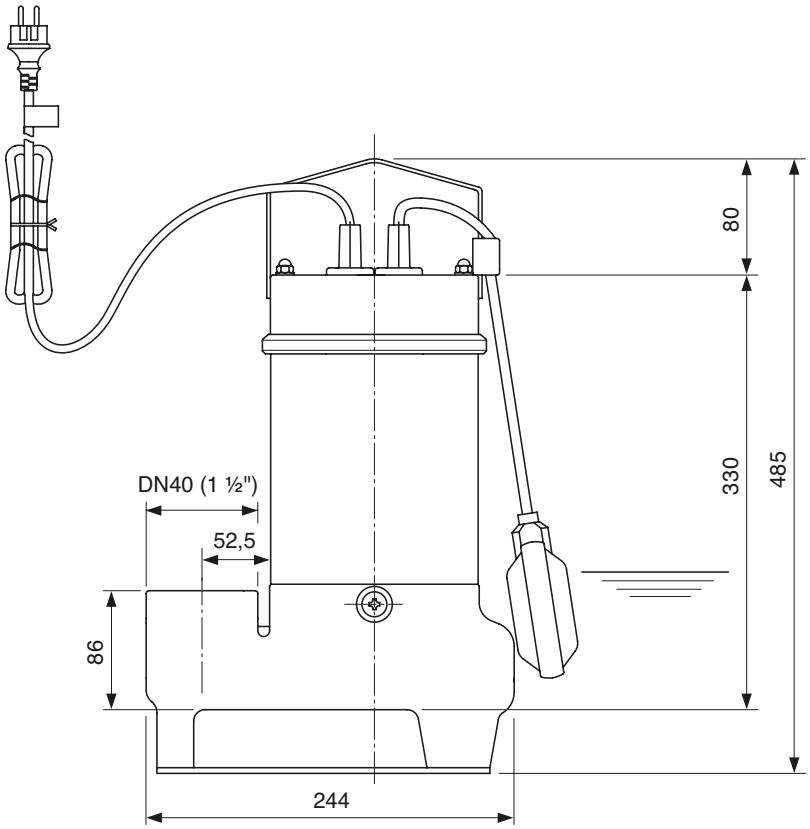
In discontinuous service H minimum = 90 mm
In continuous service H1 minimum = 230 mm

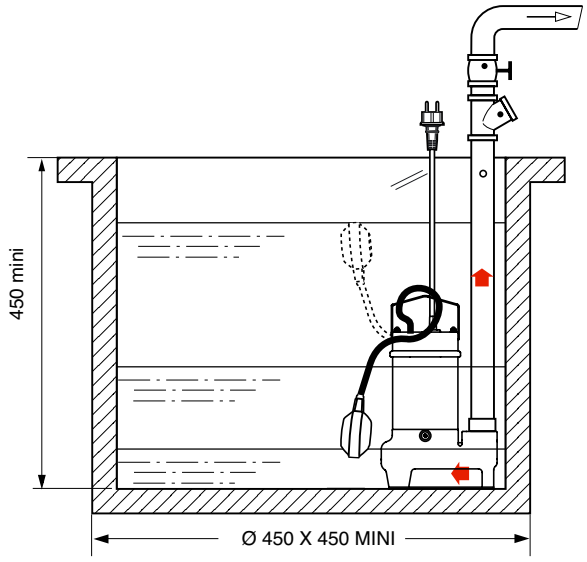
• **Fixed installations** - With 1 or 2 FVO 204s for three-phase motor.





ELECTRICAL CHARACTERISTICS AND DIMENSIONS





ORDER REFERENCE	P2	P1 kW		I A		Capacitor	Cable length	DNR	Free passage	Mass
		1~230V	3~400V	1~230V	3~400V	1~230V	mm		mm	kg
FVO 204-0.4-MF	0,6	0,8	0.8	3,6	1,7	22µF	5 / 10	R1"1/2	40	19 / 20
FVO 204-0.7-MF	0,75	1,0	0.92	5,3	2,2	22µF	5 / 10	R1"1/2	40	19 / 20

FVO 204

ACCESSORIES

Single-phase and three-phase motor

- Rope (not supplied by Salmson).
- Ball-type non-return valve (Ref: PRC-4004712).
- Isolating valve (Ref.: 4015489)
- Audible overflow alarm "ALARMSON" (Réf.: 2529590)
- Manifold to couple two pumps (not supplied by Salmson).
- Wall console for passage of control cables (Ref.: 4013188

FVO 204 Three phase

lifting of muddy water

- **Single pump installation (three-phase):**

-Control box EC-Drain 1x4,0 + 2 floats NIVO 430

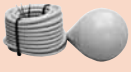
- **Two-pump installation:**

-Control box EC Drain 2x4,0 + 2 floats NIVO 430

CONTROL BOXES

Boxes to control and protect

Models	YN 3000	YN 7000	EC-DRAIN
			
Application	Control based on level sensor (IPAE) in sump (not supplied)	Control of any type of pump (borehole, submersible, or booster)	Control Level for a fixed installation (in wet or dry pit)
Number of pumps			
1 pump	YN3100	YN7100	EC-DRAIN 1x4,0
2 pumps	YN3200	-	EC-DRAIN 2x4,0
Characteristics			
1x230V	yes	yes	yes
3x230V	no	yes	yes
3x400V	yes	yes	yes
Max power per pump	4Kw	11Kw	4Kw
Intensity			
Single-phase	0,3 to 12A	1 to 23A	1,5 to 12A
Three-phase	0,3 to 10A	1 to 23A	1,5 to 12A
Frequency	50/60Hz	50/60Hz	50/60Hz
IP	IP65	IP54	IP54
Level Controllers			
Float switch	yes	yes	yes
1 pump	3	1 or 2	2
2 pumps	4	no	3
IPAE piezometric sensor	yes	-	-
Level electrode	-	2 included	-

Level controllers		INSTALLATION			cable length
		Deep sump installation	**Mobile installation**	**Fixed installation**	in meters
Regulation by level electrodes		**recommended**	not possible	possible	sold by meter
Clear water : float EUROFLOT 423		not possible	**recommended**	possible	10 or 20
Waste water : float NIVO 430		not possible	possible	possible	10 or 20
IPAE piezometric sensor		possible	possible	**recommended**	10 or 30

FEATURES

a) electrical

- 1~ 230V – 50 Hz.

Permanent capacitor and thermal protection by sensor built into the pump. Connection to mains supply by standard plug, 2 poles + earth.

- 3~ 400V – 50 Hz.

In single and in three-phase provide a switch box and protection against running dry.

b) Installation

- Fixed installation in sump.
- Motor axis always vertical.
- Rigid piping.

c) Packaging

- Single and three-phase pumps delivered in recyclable cardboard case, with 5 or 10 m cable and handle.
- Single-phase pump delivered with or without float switch and electric plug.

d) Maintenance

- See recommended spares (•) or following kits:

-"Seal" Kit: mechanical seal + lip seal and gaskets. (All versions).

-"Cables and float" Kit: cmains cable with plug + float cable and connector, all factory-assembled. (THREE-PHASE Version).

-"Electrical mains cable" Kit: câble d'alimentation électrique sans prise + electric mains cable without factory-assembled plug + connector. (THREE-PHASE Version).