



FVM
VERTICAL MIXER
USER'S MANUAL

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1. GENERAL INFORMATION

a.IDENTIFICATION

The mixer is identified by means of plate stating its characteristics attached on the mixer. See Figure 1.1

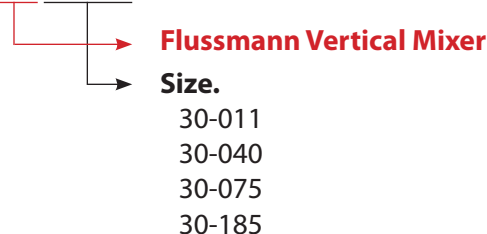
FLUSSMANN		CE					
Year	<input type="text"/>						
Model	<input type="text"/>		N°	<input type="text"/>			
kW	<input type="text"/>	min ⁻¹	<input type="text"/>	V	<input type="text"/>	Hz	<input type="text"/>
Qm ³ /h	<input type="text"/>	Hm	<input type="text"/>	Ø IMPELLER	<input type="text"/>		

Figure 1.1 Plate of Mixer

Example _____ :

Head assembly

FIM 30-011



b.DESRIPTION

The FVM series mixers are high shear vertical mixers that are mounted on the top part of the tank. To fix the mixer to the tank can be used a standard flange, a DIN 2632 PN10 flange or a rectangular flange. The standard head is slotted but there are two others designs in case that the process required them. Circulating or down thrust propellers can be fitted to the shaft in order to increase the mixture or to create a vortex. The shaft bottom part is guided by a bushing housed just above the head. Standard ones are supplied in PTFE but they may be made of other materials if the process required it. The sealing system consists of a V-ring and it is driven by a direct motor.

c.OPERATING PRINCIPLE

The rotor suctions the product from the lower part of the tank. After the product is suctioned, the product arrives at the rotor blades. The rotor blades push the product to the stator where it is sheared and then is expelled radially through holes stator at a high speed.

d.APPLICATION

Flussmann vertical mixers are ideal for processes that require particle reduction, dissolution, dispersion and emulsion. Given its sanitary design, these mixers are ideal for such demanding industries as the cosmetic, food and pharmaceutical sectors. They can also be used in other ones such as the adhesive, chemical, paints, and plastics industries.

2. MAINTENANCE

a. GENERAL MAINTENANCE

This mixer, as with any other machine, needs to be maintained. The instructions contained in this manual deal with the identification and replacement of the spare parts. These instructions have been drawn up by maintenance staff and are destined for those people who are responsible for supplying spare parts.



Maintenance work can only be carried out by qualified personnel that are trained and equipped with the necessary resources to carrying out this work.



ALWAYS disconnect the mixer before starting on any maintenance.

b. MAINTENANCE

- Inspect the mixer regularly.
- Do not fail to keep the mixer clean.
- Check the state of the motor.
- Check the V-ring.
- Check the bearing on completing every process. In the event of coming across excessive wear and tear, it must be changed.

c. LUBRICATION

The lubrication of the bearings of the motor will be carried out according to the manufacturer's instructions.

d. SPARE PARTS

To order spare parts is necessary to indicate the type and serial number included on the mixer's characteristics plate, as well as the position and description of the part as found in technical specifications.

3. DISASSEMBLY AND ASSEMBLY

a. DISASSEMBLY



Before disassembling , please disconnect the motor from the mixer.

- 1- Disassemble the mixer from its emplacement.
- 2- Clean and dry the mixer.
- 3- Unscrew and retire the rotor.
- 4- Remove the rotor nut and retire the rotor. Then, you can retire the rotor pin from the extreme of the shaft.
- 5- Remove the hexagonal screws with their flat washers to retire the stator, the lower flange and the bushing from the extreme of the shaft.
- 6- In case that the mixer has a down thrust propeller and recirculation remove them unscrewing the allen setscrews.
- 7- Remove the V-ring , the retaining ring and the sleeve.
- 8- Remove the pin of the shaft from the shaft complement and remove the shaft.
- 9- Remove the hexagonal screws with their flat washers and remove the motor. The shaft complement still will be fixed to the motor. Once the motor is removed, remove the O-rings from the shaft complement and then, remove the shaft complement unscrewing the allen setscrews.
- 10- Extract the countersunk screws to separate the structural rods from the upper flange.
- 11- Remove the countersunk screws and the lock washers to separate the structural rods from the upper flange.
- 12- Unscrew the structural rods from the coupling flange.

b. ASSEMBLY

- 1- Screw the structural rods to the coupling flange.
- 2- Place the structural rods to the upper flange and fix them with the countersunk screws.
- 3- Place, onto the motor shaft, the shaft complement and fix it with the allen setscrews.
- 4- Mount the motor on the upper flange and fix it with the hexagonal screws and their flat washers.
- 5- Situate the shaft in the internal part of the shaft complement. The correct situation of the shaft allows its fixation through the shaft pin.
- 6- Place the O-rings on the shaft complement.
- 7- Mount the sleeve on the shaft complement placing the retaining ring to avoid the displacement of the sleeve.
- 8- Place the V-ring.
- 9- In the case that the mixer has down thrust propellers and recirculation place them on the shaft in their corresponding situation and fix them with the allen setscrews.
- 10- Place the lower flange and the stator onto the coupling flange. These elements are fixed with the hexagonal screws and their flat washers.
- 11- Slide the bushing onto the shaft until it reaches up to the lower flange.
- 12- Place the rotor on the extreme of the shaft and with a spanner place at the shaft interface to avoid it turning, screw the rotor.
- 13- Mount the mixer in its emplacement.

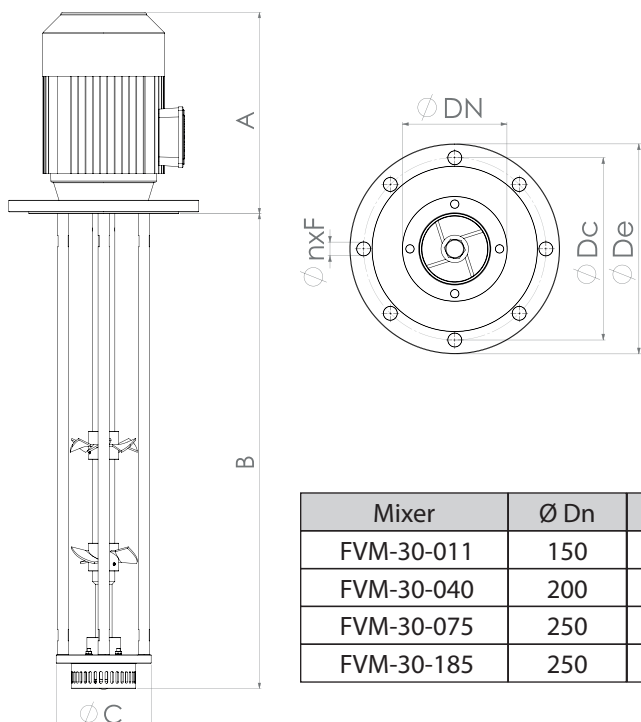
4. TECHNICAL SPECIFICATION

a. MATERIALS

Parts in contact with the product	AISI 316L
Bushing	PTFE
Other Optional Seal Materials	Consult your supplier
V-ring	NBR

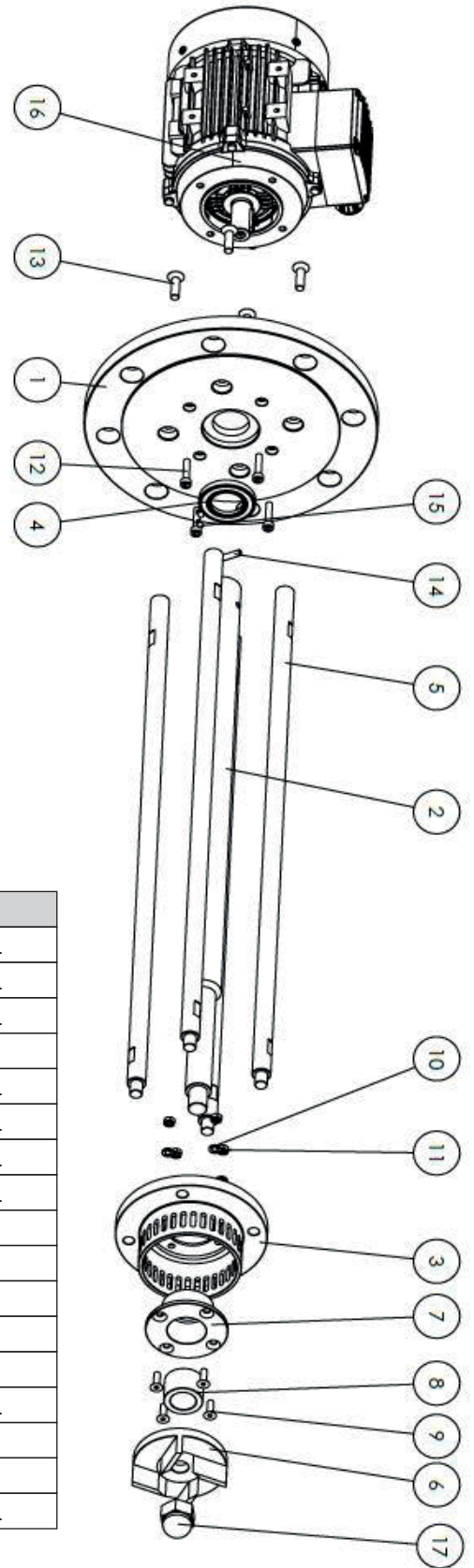
Mixer	1 cpu	3000 cpu	Additional agitation	Power [kw]	Speed [rpm]
FVM-30-011	300 L	100 L	200 L	1.1	3000
FVM-30-040	500 L	300 L	400 L	4	3000
FVM-30-075	1000 L	750 L	900 L	7.5	3000
FVM-30-185	1500 L	1000 L	1200 L	18.5	3000

b. WEIGHTS AND DIMENSIONS



Mixer	Ø Dn	Ø De	Ø Dc	n*f	A	B	C
FVM-30-011	150	285	240	4*11	258	750	125
FVM-30-040	200	340	295	4*13	355	850	170
FVM-30-075	250	395	350	4*13	450	1200	185
FVM-30-185	250	395	350	4*17,5	525	1400	210

c. DRAWING AND PARTS LIST



Position	Description	Quantity	Material
1	Flange	1	AISI 316L
2	Shaft	1	AISI 316L
3	Stator	1	AISI 316L
4	Lip Seal	1	EPDM
5	Structural Rod	4	AISI 316L
6	Rotor	1	AISI 316L
7	Bushing Unit	1	AISI 316L
8	Bushing	1	AISI 316L
9	Countersunk Screw	4	A2
10	Washer	4	A2
11	Nut	4	A2
12	Imbus Bolt	4	A2
13	Countersunk Screw	4	A2
14	Pin	1	AISI 316L
15	Setscrew	2	A2
16	Motor	1	-
17	Rotor Nut	1	AISI 316L