



AMCAL
INDUSTRIAL PUMP SOLUTIONS

Tweelindenstraat 13
8810 Lichtervelde

pompen@amcal.be
+32 51 72 44 72



**Chemically Resistant Magnetic Drive Pumps
Which Can Tolerate Severe Operating Conditions**

**Magnetic Drive Pumps
MX-F**

The Heart of Industry

Chemically Resistant Magnetic Drive Pumps Which Can Tolerate Severe Operating Conditions



Self-Radiating Structure

Through heat-dispersion holes provided in the fixed portions of the impeller and the magnet capsule, the liquid around the spindle and the bearing is forced to circulate so that heat generated by sliding can be reduced effectively. Thus, thermal deformation and melt are prevented. (Except MX-F100)

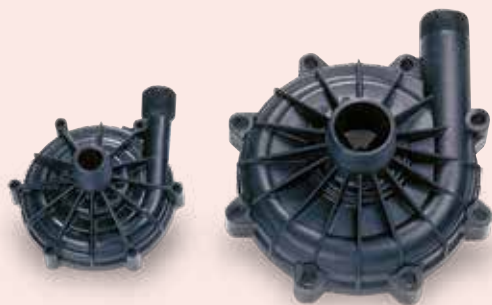


Robust Structure

All stress bearing portions, such as the front and rear casings, are reinforced by means of ribs to improve the pressure resistance and the mechanical strength of the pump.

The bearing is not only fixed by conventional press fit but is also sandwiched between the abutting portion in the depth of the magnet capsule and the rear end of the impeller to improve its reliability under high temperature. (Except MX-F100)

MX-F402 and F403 models: an unplugging preventive lock pin is adopted for ensuring more steady securing.



ETFE Available for Aggressive Chemicals

Carbon fiber reinforced CFRETFE can be used for a variety of application having a superior chemical compatibility.



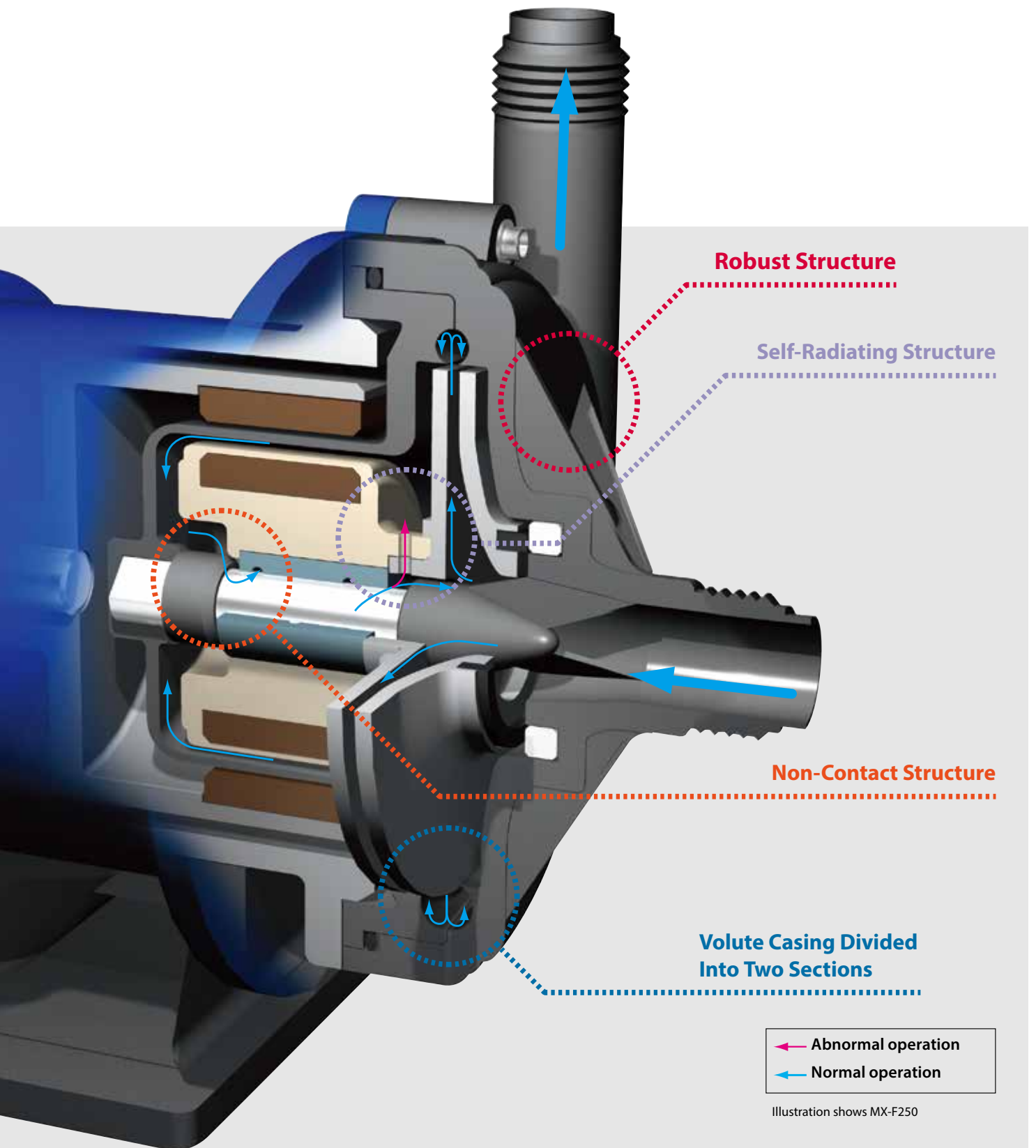
Volute Casing Divided Into Two Sections

The MX-F series is the first resin magnet pump which uses the pump casing divided into the front casing and the rear casing to form a vortex chamber as an ideal form. Therefore, the internal leak phenomenon, which means that the liquid getting out of the impeller returns to the pump casing and is suppressed to a minimum and the liquid is efficiently guided to the discharge port to enhance overall efficiency. (Except MX-F400)



Non-Contact Structure

By installing the driving magnet and the driven magnet in an inventive way, the movement of the magnet capsule is controlled by magnetic force to prevent the rear thrust and the rear portion of the bearing coming into contact with each other continuously even during dry running. This structure reduces heat generation and secures lubricant routes. (Except MX-F100)



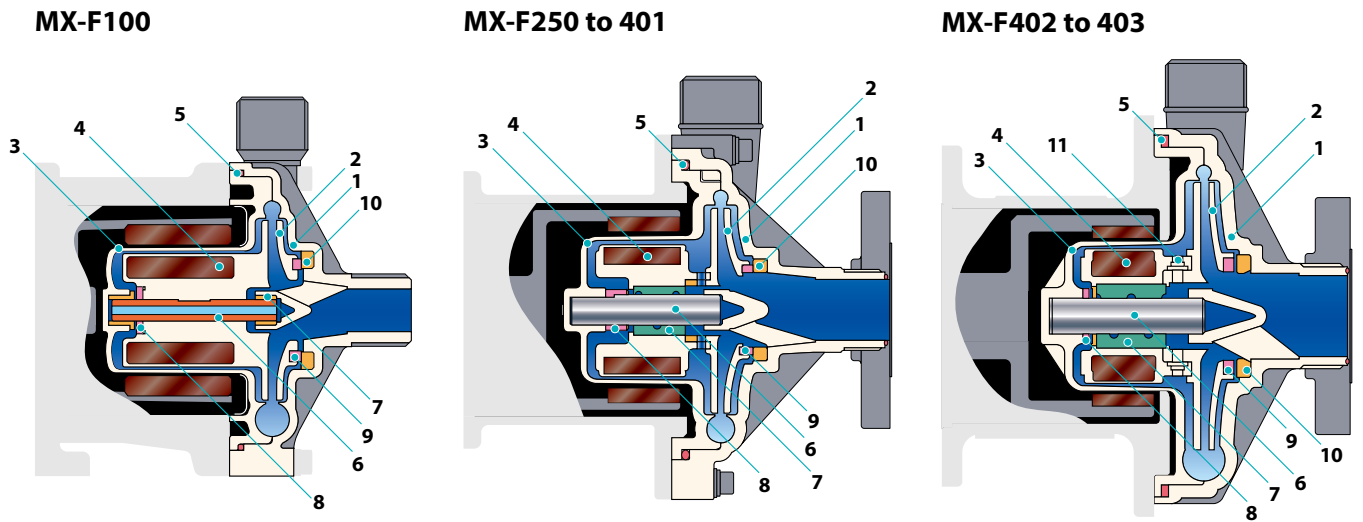
MX-F250



MX-F402



Wet end Materials



Model	MX-F100		MX-F250 to 401			MX-F402 to 403		
Mark	RV/RE	KV/KE	CFV/CFE	RFV/RFE	KKV/KKE	CFV/CFE	RFV/RFE	KKV/KKE
1 Front casing	CFRETFE		CFRETFE			CFRETFE		
2 Impeller								
3 Rear casing								
4 Magnet capsule								
5 O ring ^{Note}	FKM(EPDM)		FKM(EPDM)			FKM(EPDM)		
6 Spindle	High purity alumina ceramic	SiC	High purity alumina ceramic		SiC	High purity alumina ceramic		SiC
7 Bearing	PTFE(with filler)	SiC	High density carbon	PTFE (with filler)	SiC	High density carbon	PTFE (with filler)	SiC
8 Rear thrust	High purity alumina ceramic	SiC(Front & Rear)	CFRETFE			CFRETFE		
9 Mouth ring	PTFE(with filler)	-	PTFE(with filler)		SiC	PTFE(with filler)		SiC
10 Thrust/Liner ring	High purity alumina ceramic	-	High purity alumina ceramic		SiC	High purity alumina ceramic		SiC
11 Lock pin	-		-			CFRETFE		

Note: An O rings made of FEPM are also available.

Pump Identification

MX-F100

MX-F100RVMY

1

2

3

4

5

1 Series symbol
MX-F : Material of Casing/CFRETFE

2 Pump size
100 : G1X G1 260 W

3 Materials of Bearing/O ring
MX-F RV, RE : PTFE(with filler)/FKM(EPDM)
KV, KE : SiC/FKM(EPDM)

4 Connection
M : Thread connection

5 Impeller
MX-F Y : 50Hz

MX-F250 to 403

MX-F401CFVTE-S

1

2

3

4

5

6

1 Series symbol
MX-F : Material of Casing/CFRETFE

2 Pump size
250 : G1 X G1 0.37 kW
251 : G1 X G1 0.75 kW
400 : G1 1/2 X G1 1/2 0.37 kW
401 : G1 1/2 X G1 1/2 0.7 5kW
402 : G2 X G1 1/2 1.5 kW
403 : G2 X G1 1/2 2.2 kW

3 Material of Bearing/Spindle/O ring
MX-F CFV, CFE : High density carbon/
High purity alumina ceramic/FKM(EPDM)
RFV, RFE : PTFE(with filler)/High purity alumina ceramic/
FKM(EPDM)
KKV,KKE : SiC/SiC/FKM(EPDM)

4 Impeller mark
T, T2 ^{Note}, V, W : 50Hz

5 Motor specification
E : IEC motor

6 Special specification:
No mark : Standard
S : Order-made specification

Note: "T2" means exclusive for IE2 motor. Applicable models are MX-400/401.

Specifications

50Hz

Model	Impeller	Connection Suction X Discharge	Limit of specific gravity ^{Note2}	Standard capacity L/min - m	Maximum capacity L/min	Motor kW	Mass ^{Note3} kg
MX-F100 ^{Note 1}	Y	G1 x G1	1.9	70 - 5.8	110	0.26	8.5
MX-F250	T	G1 x G1	1.2	50 - 11.7	150	0.37	8.0
MX-F250	V	G1 x G1	1.5	50 - 9.1	145	0.37	8.0
MX-F250	W	G1 x G1	1.8 to 2.0	50 - 6.4	126	0.37	8.0
MX-F251	T	G1 x G1	1.2	80 - 15.7	150	0.75	8.0
MX-F251	V	G1 x G1	1.5	80 - 12.2	150	0.75	8.0
MX-F251	W	G1 x G1	1.8 to 2.0	80 - 9.4	120	0.75	8.0
MX-F400	T	G1 1/2 x G1 1/2	1.2	100 - 10.1	250	0.37	6.5
MX-F400	T2	G1 1/2 x G1 1/2	1.2	100 - 9.0	250	0.37	6.5
MX-F400	V	G1 1/2 x G1 1/2	1.5	100 - 8.1	230	0.37	6.5
MX-F400	W	G1 1/2 x G1 1/2	1.8 to 2.0	100 - 5.5	210	0.37	6.5
MX-F401	T	G1 1/2 x G1 1/2	1.2	150 - 12.8	270	0.75	10.5
MX-F401	T2	G1 1/2 x G1 1/2	1.2	150 - 12.8	270	0.75	10.5
MX-F401	V	G1 1/2 x G1 1/2	1.5	150 - 10.8	260	0.75	10.5
MX-F401	W	G1 1/2 x G1 1/2	1.8 to 2.0	150 - 8.1	240	0.75	10.5
MX-F402	T	G2 x G1 1/2	1.2	200 - 18.3	440	1.5	14.0
MX-F402	V	G2 x G1 1/2	1.5	200 - 16	430	1.5	14.0
MX-F402	W	G2 x G1 1/2	1.8 to 2.0	200 - 12.5	410	1.5	14.0
MX-F403	T	G2 x G1 1/2	1.2	250 - 22.8	510	2.2	15.0
MX-F403	V	G2 x G1 1/2	1.5	250 - 19.4	500	2.2	15.0
MX-F403	W	G2 x G1 1/2	1.8 to 2.0	250 - 15.3	470	2.2	15.0

Note 1: MX-F100 performance data and Mass kg are based on using Iwaki standard motor.

The motor to be mounted is an IEC motor.

Note 2: The specific gravity limit varies with the discharge. For details, please contact us.

Note 3: Less motor except MX-F100.

Common specifications

• Range of liquid temperature : 0 to 80°C (10 to 80°C in case FEPM O rings are used.) • Range of ambient temperature : 0 to 40°C.

Precautions for pump selection

1. The performance curves on this catalogue are based on clean water of 20°C.
Keep a margin (3% of the curves) when selecting the pump.

2. For the MX-F250 or larger models, select a proper impeller size according to specific gravity. Always keep 10% allowance to motor output.

Applicable motor output

$$Sp \times S.G \times (1.1) \leq \text{Motor output} \\ \text{Allowance}$$

3. The magnetic drive pump is not durable for a long time in closed-discharge operation. Always keep the minimum flow.

Minimum flow

MX-F100, 250, 251, 400, 401: 10 L/min
MX-F402, 403: 20 L/min

4. NPSH validation
Observe the following for the prevention of cavitation.

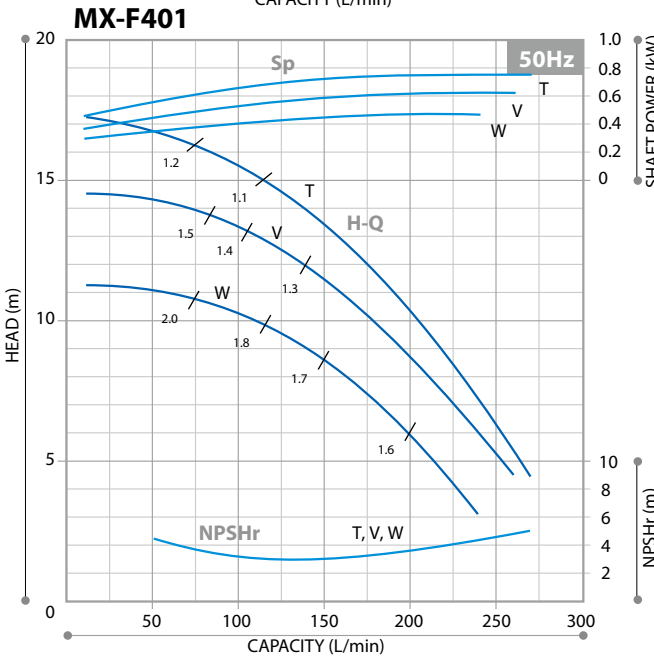
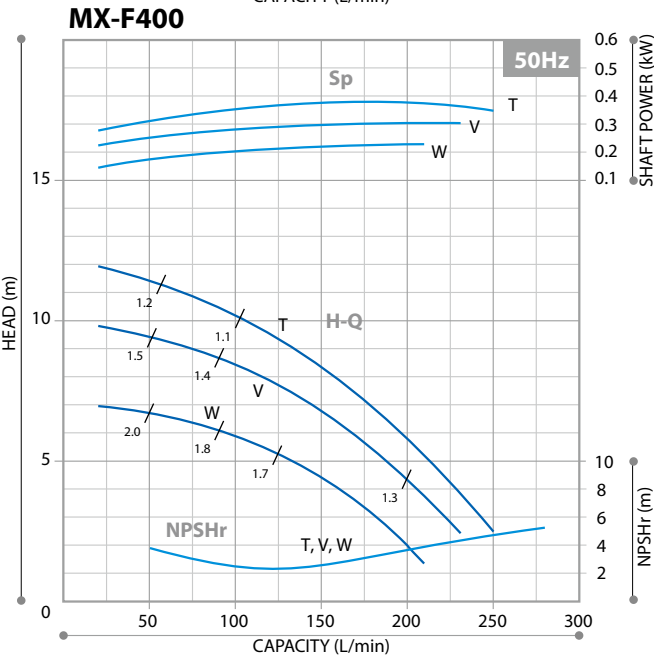
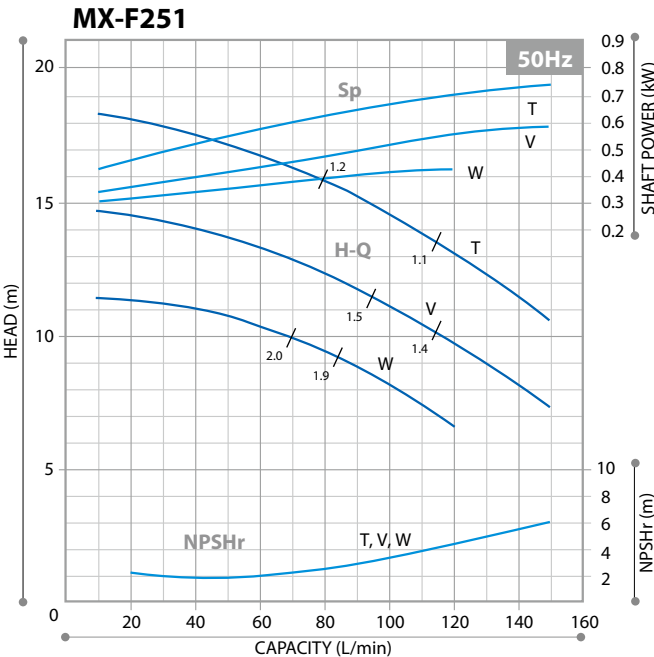
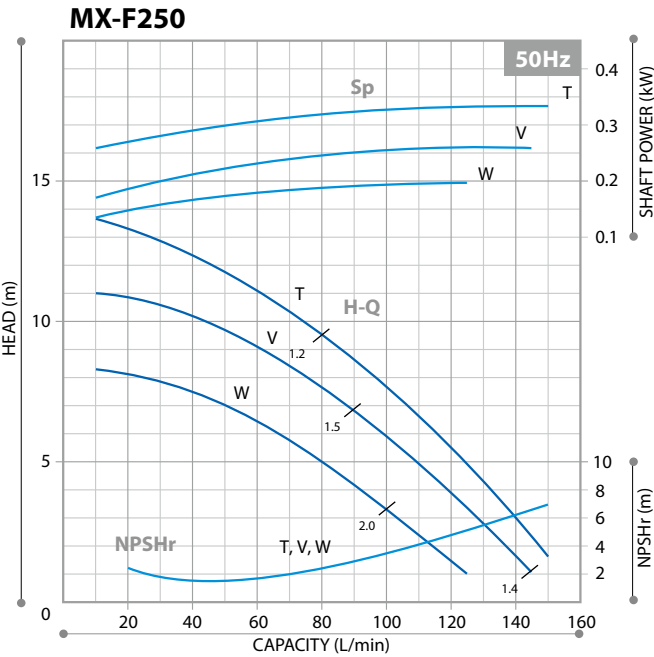
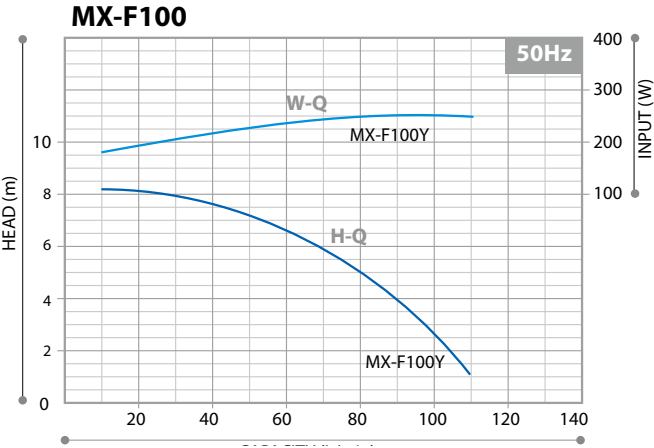
$$NPSHa \geq NPSHr + 0.5 \text{ m} \\ \text{Allowance} \\ NPSHa = \frac{(Pa - Pv) \times 10^6}{\rho g} \pm hs - hfs$$

5. Maximum withstand pressure

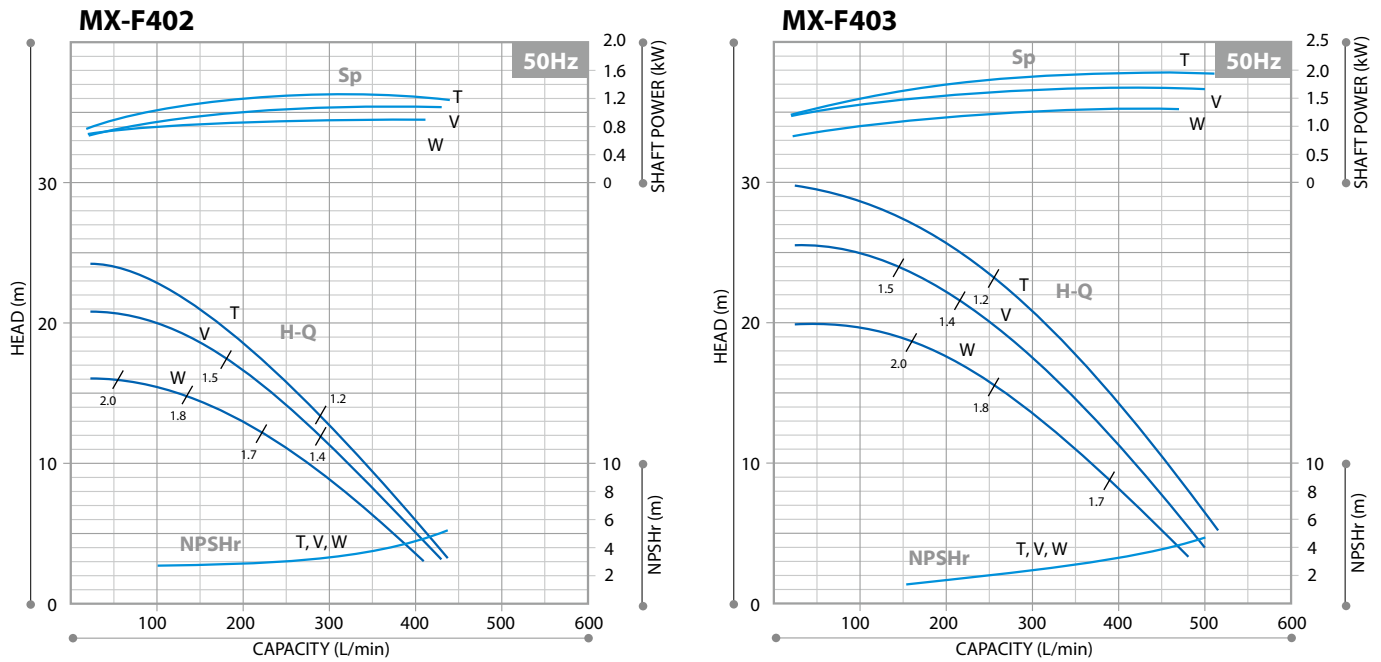
MX-F100: 0.19 MPa MX-F400: 0.22 MPa
MX-F250: 0.25 MPa MX-F401: 0.28 MPa
MX-F251: 0.33 MPa MX-F402: 0.43 MPa
MX-F403: 0.43 MPa

NPSHa: Net Positive Suction Head Available (m)
NPSHr: Net Positive Suction Head Required (m)
Pa: Pressure on the suction liquid level (MPa)
(Absolute pressure)
Pv: Pressure of saturated vapor (MPa)
hs: Static suction head (m)
hfs: Suction pipe resistance (m)
 ρ : Liquid density (kg/m³)
g: G-force (9.8 m/sec²)

Performance Curves

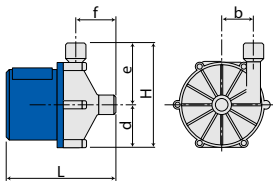


Note: The specific gravity limit described in the head is only a guide and please contact us for details.

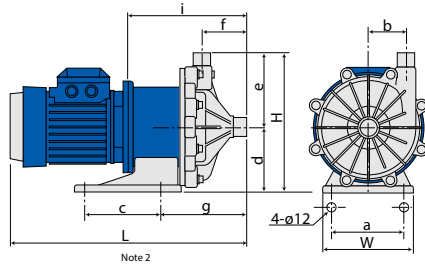


Dimensions (mm)

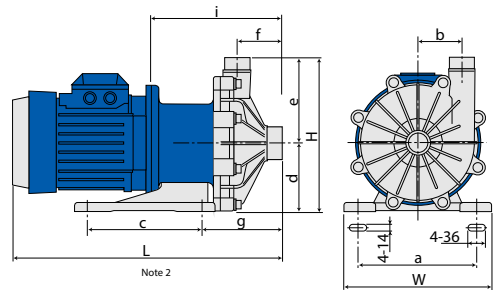
MX-F100^{Note 1}



MX-F250 to 401



MX-F402, 403



Models	W	H	L	a	b	c	d	e	f	g	i
MX-F100	-	169	177	-	51	-	69	100	65	-	-
MX-F250	160	247.5	-	130	65	130	115	132.5	82.5	155.5	213.5
MX-F251	160	247.5	-	130	65	130	115	132.5	82.5	163.5	225.5
MX-F400	140	219	-	110	54	98	95	124	81	144	215
MX-F401	160	249	-	130	72	130	115	134	97	178	240
MX-F402 to 403	260	274	-	208	80	200	120	154	83	151	235

Note 1: The MX-100 outer dimensions are without a motor. For the motor mounting dimensions, please contact us.

Note 2: The dimensions L may differ with the type of motor installed.

Optional Accessories

IWAKI Pump Protector DRN Series

Detects Unusual Pump Operating Conditions Including Dry-Running and Overload

The DRN model protects equipment (including pumps) from damage!

Minimizes production downtime.

Identifies possible causes of alarms so they can be investigated and addressed.

Multiple Input
Easy operation

Two analog, one digital, one temperature input and one current input
Equipped with EASY setup mode to remember the operation status and set the lower/upper limit values, as well as AUTO setup mode

Bar graph
Logging capability
Communication

Visible indication of current operating status
Data log feature for preventative maintenance scheduling
RS485 external communication capability



Specifications

Model	DRN-01	DRN-02
Amperometric range	0.5 to 30.00 A	5.0 to 200.0 A
Unit's source voltage	AC100 to 240 V 50/60Hz 10 VA	
Operating temperature	0 to 40°C	
Operating humidity	35 to 85%RH	

IWAKI Process Magnetic Drive Pump Series

MX Series

Withstands Difficult Operating Conditions and Offers High Efficiency

Max. discharge capacity: 500 L/min
Max. discharge head: 35 m
Main materials: GFRPP



SMX Series

Versatile Self-Priming Magnetic Drive Pump with Enhanced Durability Under Abnormal Operation

Max. discharge capacity: 440 L/min
Max. head: 25.5 m
Main materials: GFRPP, CFRETFE



MXM Series

Magnetic Drive Pumps with an Excellent Balance of Features and Performance

Max. discharge capacity: 600 L/min
Max. head: 29 m
Main materials: CFRETFE



MDM Series

Magnetic Drive Processing Pump with Dry Running Capability

Max. discharge capacity: 1800 L/min
Max. head: 74 m
Main materials: CRETFE, PFA



IWAKI CO., LTD. 6-6 Kanda-Sudacho 2-chome Chiyoda-ku Tokyo 101-8558 Japan TEL : (81)3 3254 2935 FAX : 3 3252 8892

IWAKI has global net work.
Please find your distributor location at

www.iwakipumps.jp

European Headquarter
Germany
The Netherlands (Netherlands Branch)
Italy (Italy Branch)
Spain (Spain Branch)
Poland (East Europe Branch)
Denmark
Finland
Norway
Sweden
Belgium
France

IWAKI Europe GmbH
IWAKI Europe GmbH
IWAKI Europe GmbH
IWAKI Europe GmbH
IWAKI Europe GmbH
IWAKI Nordic A/S
IWAKI Suomi Oy
IWAKI Norge AS
IWAKI Sverige AB
IWAKI Belgium N.V.
IWAKI France S.A.

TEL: (49)2154 9254 0
TEL: (49)2154 9254 50
TEL: (31)74 2420011
TEL: (39)0445 561219
TEL: (34)934 741 638
TEL: (48)12 347 0755
TEL: (45)48 242345
TEL: (358)10 201 0490
TEL: (47)23 38 49 00
TEL: (46)8 511 72900
TEL: (32)13 670200
TEL: (33)1 69 63 33 70

FAX: (49)2154 9254 48
FAX: (49)2154 9254 55
FAX: (49)2154 9254 48
FAX: (39)0445 569088
FAX: (34)934 741 638
FAX: (48)12 347 0900

FAX: (32)13 672030
FAX: (33)1 64 49 92 73

U.S.A.
Brazil
China (Shanghai)
China (Hong Kong)
China (Guangzhou)
China (Shenzhen)
Singapore
Indonesia (Indonesia Office)
Malaysia
Korea
Taiwan
Thailand
Australia

IWAKI America Inc.
IWAKI Do Brasil Comercio De Bombas Hidraulicas LTDA.
IWAKI Pumps (Shanghai) Co., Ltd.
IWAKI Pumps Co., Ltd.
GFIZ IWAKI Engineering & Trading Co., Ltd.
IWAKI Pumps (Shenzhen) Co., Ltd.
IWAKI Singapore Pte Ltd.
IWAKI Singapore Pte Ltd.
IWAKI SDN. BHD.
IWAKI Korea Co., Ltd.
IWAKI Pumps Taiwan Co., Ltd.
IWAKI (Thailand) Co., Ltd.
IWAKI Pumps Australia Pty Ltd.

TEL: (1)508 429 1440
TEL: (55)19 3244 5900
TEL: (86)21 6272 7502
TEL: (852)2607 1168
TEL: (86)20 84350603
TEL: (86)0755 8656 3696
TEL: (65)6316 2028
TEL: (62)21 6906606
TEL: (60)3 7803 8807
TEL: (82)2 6238 4800
TEL: (886)2 8227 6900
TEL: (66)2 322 2471
TEL: (61)2 9899 2411

FAX: (1)508 429 1386
FAX: (55)19 3244 5900
FAX: (86)21 6272 6929
FAX: (852)2607 1000
FAX: (86)20 84359181
FAX: (65)6316 3221
FAX: (62) 21 6906612
FAX: (60)3 7803 4800
FAX: (82)2 6238 4801
FAX: (886)2 8227 6818
FAX: (66)2 322 2477
FAX: (61)2 9899 2421

() Country codes

Caution for safety use:
Before use of pump, read instruction manual carefully to use the product correctly. Actual pumps may differ from the photos. Specifications and dimensions are subject to change without prior notice. For further details please contact us.

Legal attention related to export.

Our products and/or parts of products fall in the category of goods contained in control list of international regime for export control. Please be reminded that export license could be required when products are exported due to export control regulations of countries.

The posting and copying from this catalogue without permission is not accepted firmly.