IWAKI

Magnetic drive pumps

MX-F

Chemically resistant magnetic drive pumps which can tolerate severe operating conditions

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, liquid is circulated under pressure between the spindle and bearing to reduce friction heat transmission and prevent thermal deformation. (Except MX-F100)

Non-contact structure

The drive magnet and driven magnet are carefully positioned so that their strong magnetic field limits rear thrust contact of the magnet capsule parts, even during dry running. As a result, heat generation is greatly reduced and liquid circulation is maintained. (Except MX-F100)

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, internal leakage is kept to a minimum and overall hydraulic efficiency is enhanced. (Except MX-F400)

ETFE available for aggressive chemicals

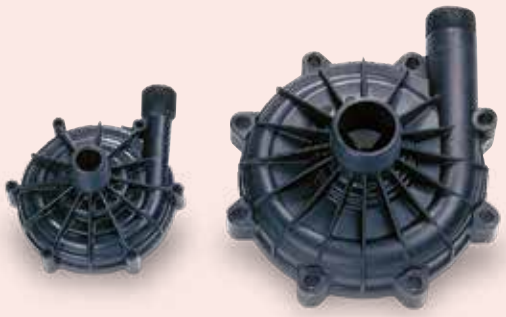
Carbon fiber reinforced CFRETFE can be used for a variety of application having a superior chemical compatibility.

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.

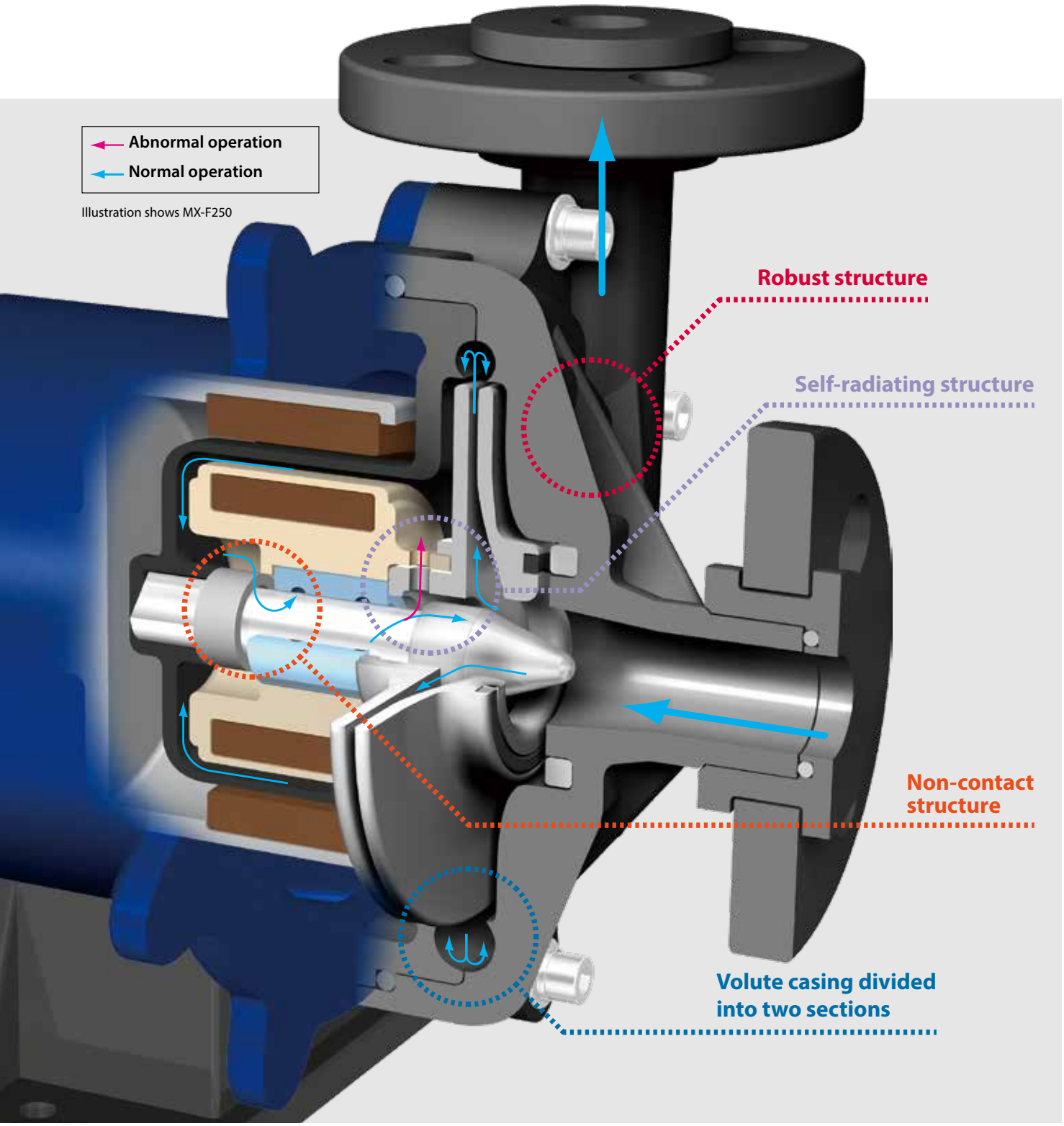


Lap joint flanges

New for this series or size - can be rotated to match the end users piping alignment with ease.

MX-F403

MX-F401

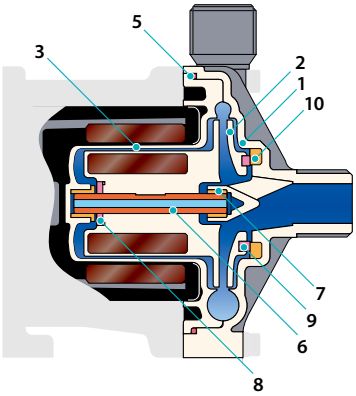


MX-F250

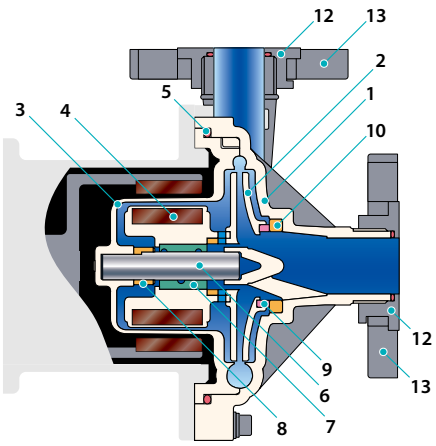
MX-F100

Wet end materials

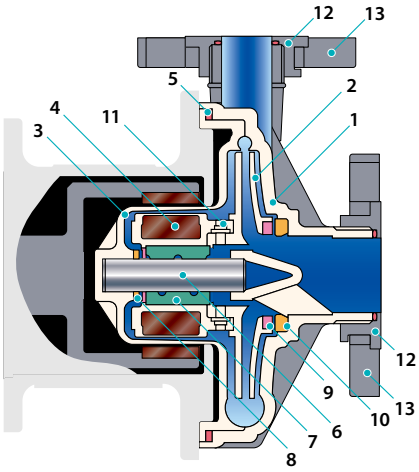
MX-F100



MX-F250 to F401



MX-F402 to F403



Model	MX-F100		MX-F250 to F401			MX-F402 to F403		
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 1	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		
12 Inner flange	-		CFRETFE					
11 Outer flange	-		GFRPP			GFRPP		

Note 1: O-ring made of AFLAS® are also available

Pump identification

MX-F100

MX-F **100** **RV** **M** **Y** - **32**
1 2 3 4 5 6

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

2 Pump size
100 : G1X G1 260W

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
FL : Flange connection
Not for Lap joint type

5 Impeller mark
MX-F **Y** : 50Hz / 60Hz **Z** : 60Hz only

6 Motor
No mark : 1 phase 100V
11 : 1 phase 110V **32** : 3 phase 200V/220V
13 : 1 phase 220V/240V **34** : 3 phase 400/440V

MX-F250 to 403

MX-F **400** **CFV** **T** **C** - **L** **2** **S**
1 2 3 4 5 6 7 8

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

2 Pump size
250 : 25A X 25A 0.4kW
251 : 25A X 25A 0.75kW
400 : 40A X 40A 0.4kW
401 : 40A X 40A 0.75kW
402 : 50A X 40A 1.5kW
403 : 50A X 40A 2.2kW

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

4 Impeller mark
MX-F **T**, **V**, **W** 5 : 50Hz only **X**,**Y**,**Z** 6 : 60Hz only

5 Motor specification
No mark : TEFC indoor
C : TEFC outdoor **A** : Increased safety type (Except 2.2kW type)

6 Flange type
No mark : Flange type **L** : Lap joint type

7 Motor
2 : 3phase 200/200/220V
3 : 3phase 220/380V (Only 250, 251, 400, 401)Note1
4 : 3phase 380 to 440VNote2 (Only 250, 251, 400, 401)Note1
6 : 3phase 380V (Only 402, 403)
7 : 3phase 400/400/440V (Only 402, 403)
8 : 3phase 415V (Only 402, 403)
9 : 3phase 460V
Note1 : 3 and 4 are reserved for a dedicated motor, while a general-purpose motor is assigned an ID number from among 6 through 8.
Note2 : Frequency 380: 50/60Hz, 400: 50/60Hz, 415: 50Hz, 440: 60Hz

8 Special specification:
No mark : Standard **S** : Order-made specification

Specifications

50/60Hz

Model	Connection Suction X Discharge	Limit of specific gravity Note 1	Standard capacity L/min - m	Maximum capacity L/min	Motor kW	Mass kg
MX-F100 Y	G1 x G1 Note 2	1.9 / 1.2	70 - 5.8 / 9.0	110 / 125	0.26	8.5
MX-F100 Z		- / 1.8	70 - - / 5.8	- / 110		
MX-F250 T/X	25A x 25A	1.2	50 - 11.7 / 11.8	150 / 160	0.4	13.5
MX-F250 V/Y		1.5	50 - 9.1 / 9.5	145 / 150		
MX-F250 W/Z		1.8 to 2.0	50 - 6.4 / 7.5	126 / 132		
MX-F251 T/X	25A x 25A	1.2	80 - 15.7 / 17.7	150	0.75	22
MX-F251 V/Y		1.5	80 - 12.2 / 14.1	150		
MX-F251 W/Z		1.8 to 2.0	80 - 9.4 / 11.5	120 / 140		
MX-F400 T/X	40A x 40A	1.2	100 - 10.1 / 9.3	250	0.4	13.5
MX-F400 V/Y		1.5	100 - 8.1 / 7.6	230		
MX-F400 W/Z		1.8 to 2.0	100 - 5.5 / 6.3	210		
MX-F401 T/X	40A x 40A	1.2	150 - 12.8 / 12.6	270 / 280	0.75	22
MX-F401 V/Y		1.5	150 - 10.8 / 10.4	260		
MX-F401 W/Z		1.8 to 2.0	150 - 8.1 / 6.9	240 / 230		
MX-F402 T/X	50A x 40A	1.2	200 - 18.3 / 18.5	440	1.5	38
MX-F402 V/Y		1.5	200 - 16 / 15.2	430		
MX-F402 W/Z		1.8 to 2.0	200 - 12.5 / 11.7	410 / 400		
MX-F403 T/X	50A x 40A	1.2	250 - 22.8 / 23.1	510	2.2	43
MX-F403 V/Y		1.5	250 - 19.4 / 19.2	500		
MX-F403 W/Z		1.8 to 2.0	250 - 15.3 / 14.7	470 / 480		

Note1: The specific gravity limit varies with the discharge. For details, please contact us.
Note2: 26mm tube connection option available on the MX-F100.

Common specifications

• Range of liquid temperature : 0 to 80˚C (10 to 80˚C in case AFLAS® 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 ºC.
Keep a margin (3% of curves) when selecting the pump.

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

Applicable motor output

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

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.

$$NPSHa \geqq NPSHr + \frac{0.5\ m}{\text{Allowance}}$$

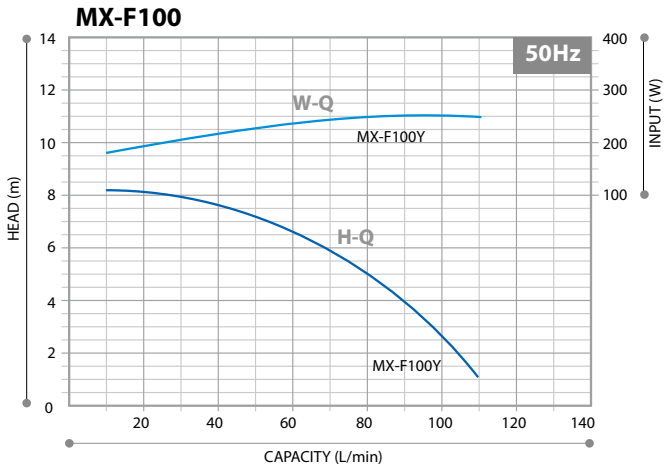
$$NPSHa = 10^6 \times \frac{(Pa - Pv)}{\rho\, g} \pm hs - hfs$$

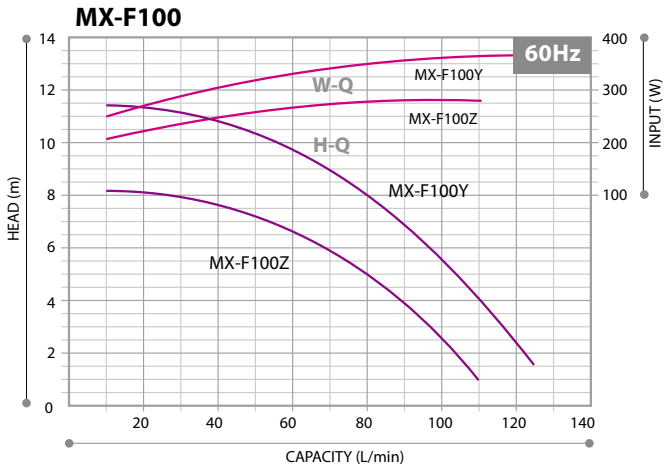
5. Maximum withstand pressure

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

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 (9.8m/sec²)

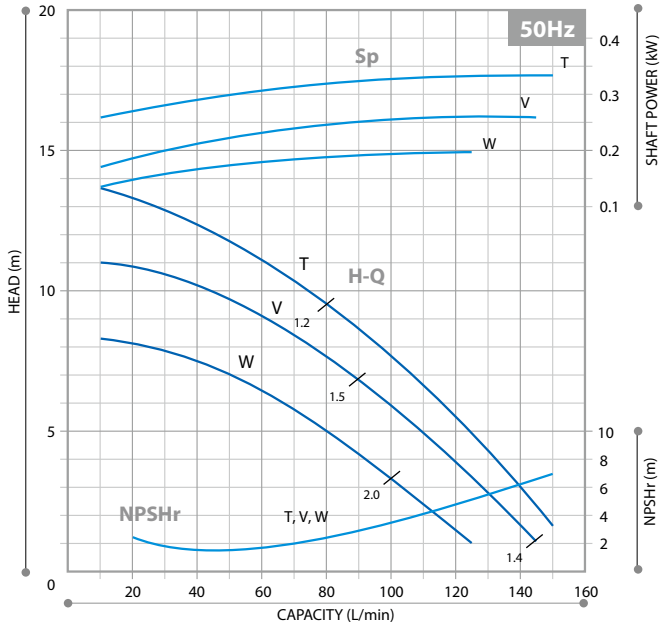
Performance curves



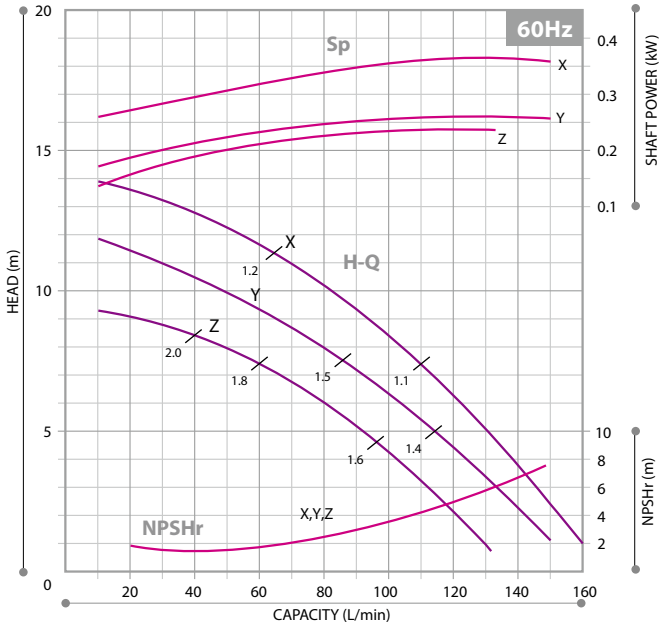


Performance curves

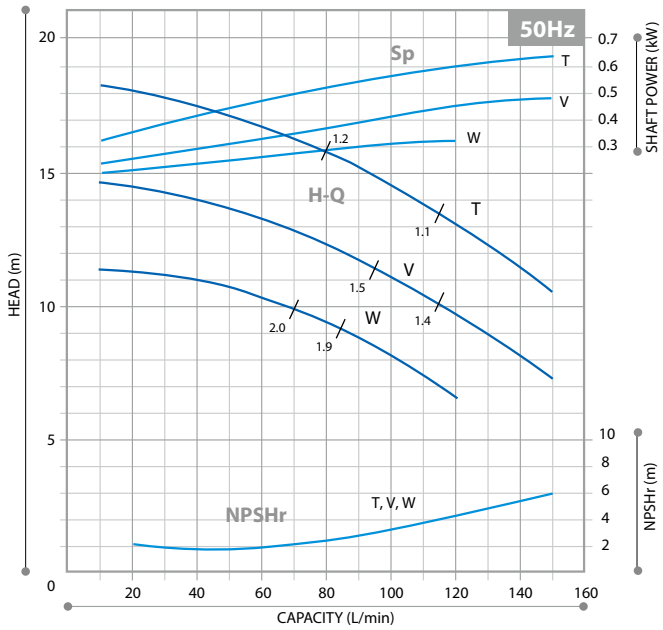
MX-F250



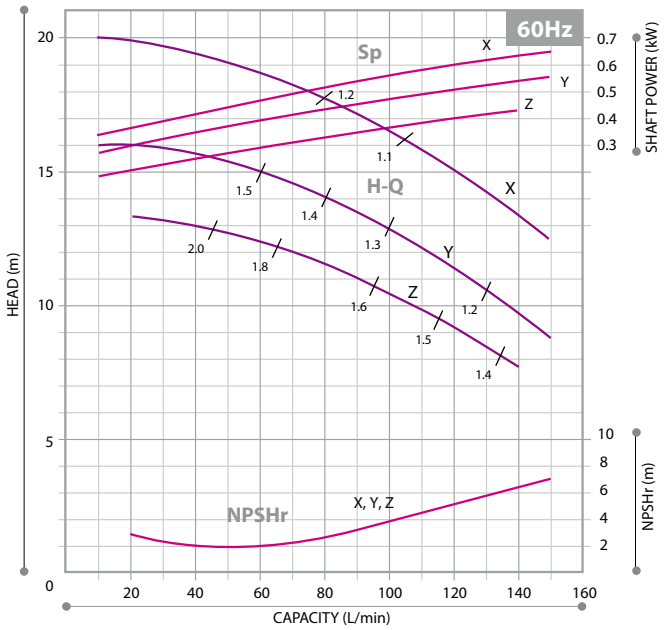
MX-F250



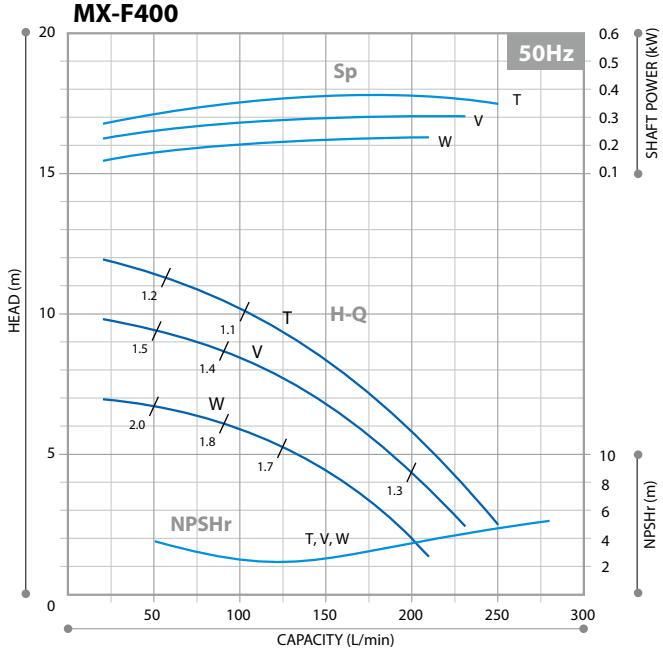
MX-F251



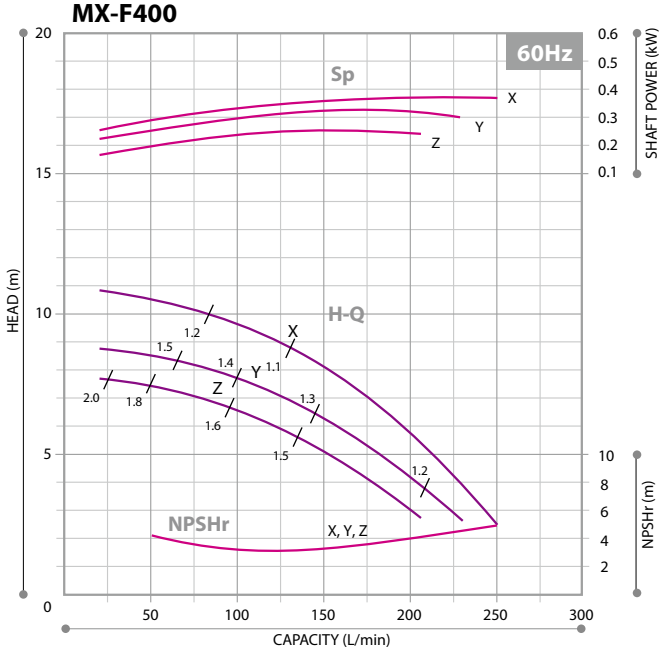
MX-F251



MX-F400



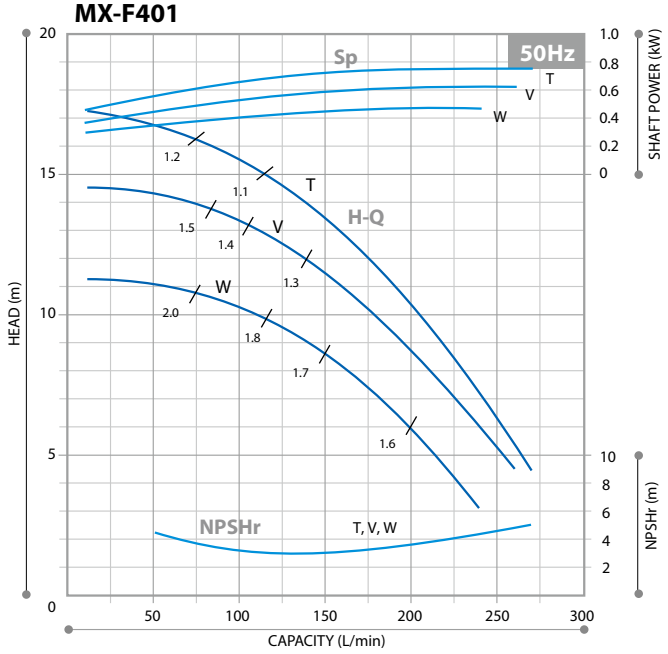
MX-F400



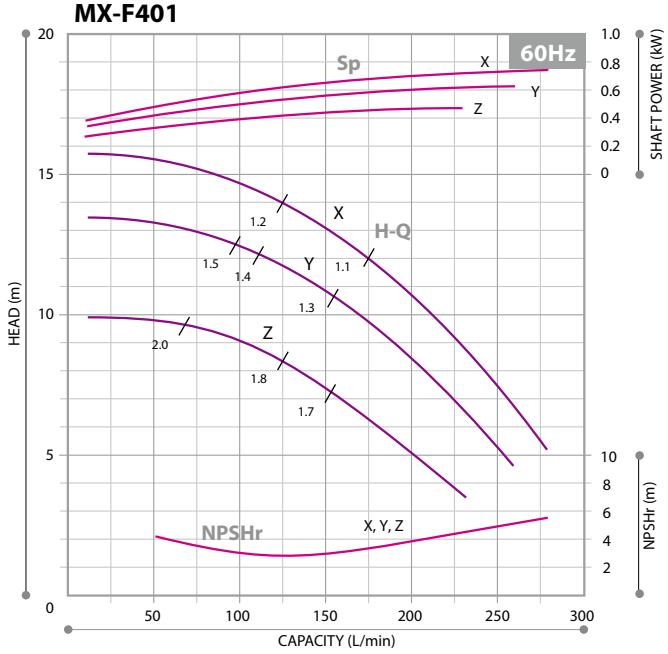
Note: The specific gravity limit described in the head is only a guide and please contact us for details.

Performance curves

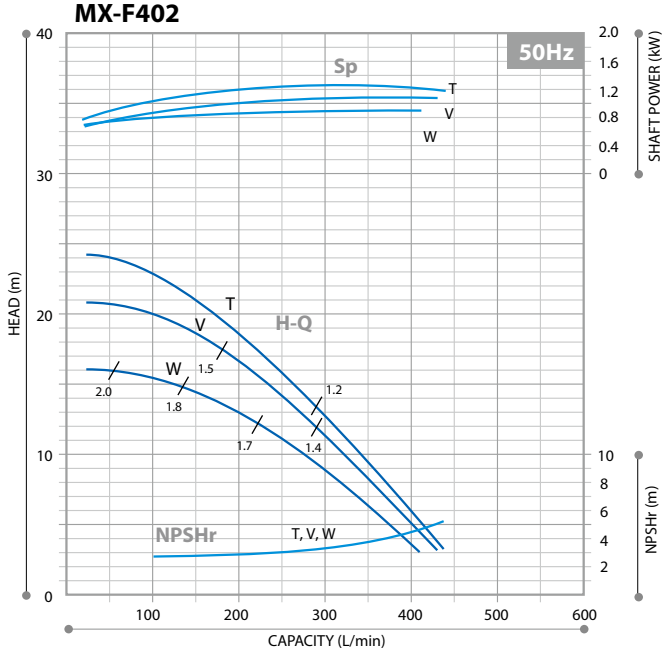
MX-F401



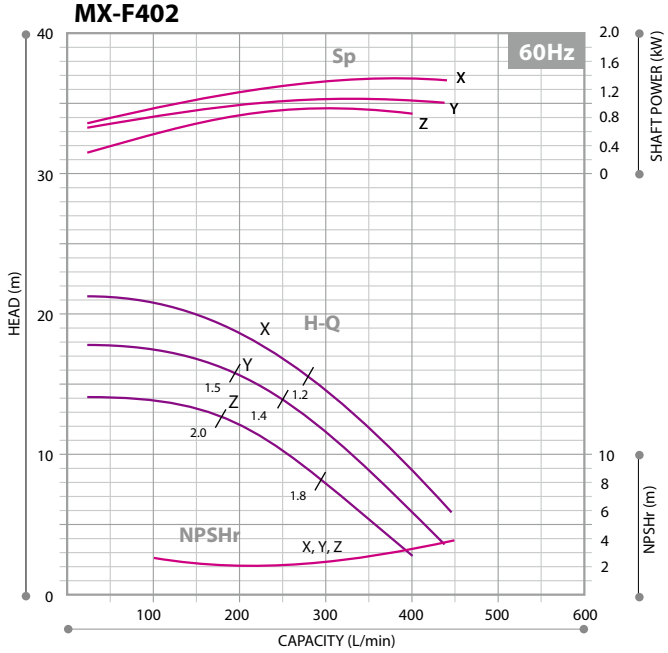
MX-F401



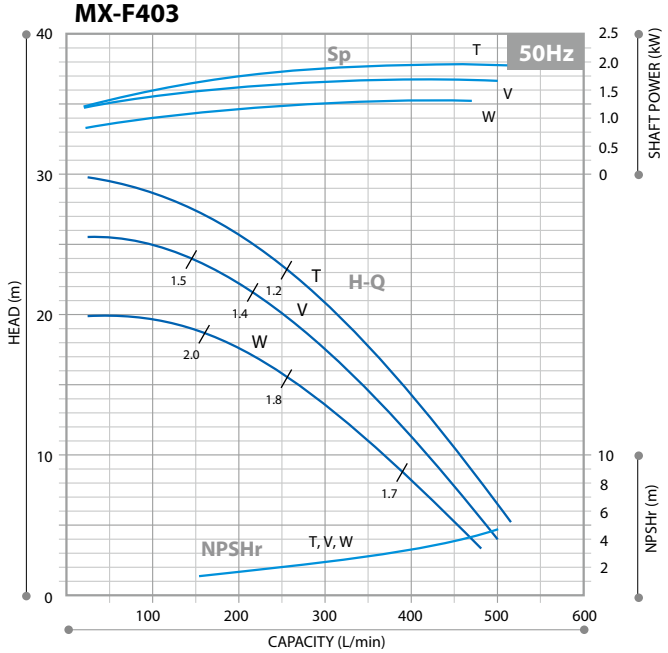
MX-F402



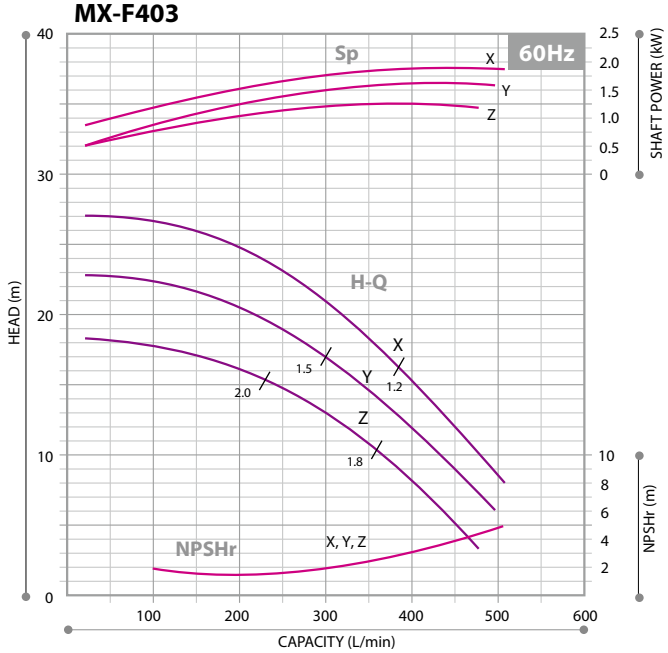
MX-F402



MX-F403

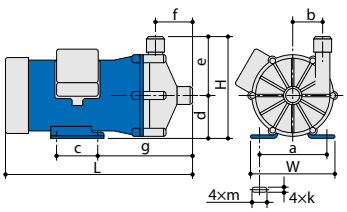


MX-F403

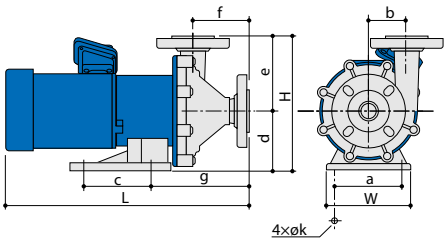


Dimensions

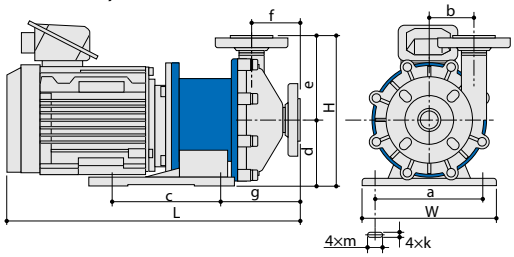
MX-F100



MX-F250 to F401



MX-F402, F403



in mm

Models	W	H	L	a	b	c	d	e	f	g	k	m
MX-F100	150	175	319.5	110	51	70	75	100	65	162	9	27
MX-F250	160	255	411	130	65	130	115	140	90	163	12	-
MX-F251	160	255	446	130	65	130	115	140	90	171	12	-
MX-F400	140	225	411	110	54	98	95	130	87	150	12	-
MX-F401	160	255	459	130	72	130	115	140	103	184	12	-
MX-F402	260	280	514	208	80	200	120	160	89	157	14	36
MX-F403	260	280	543	208	80	200	120	160	89	157	14	36

Note: The dimensions 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	Two analog, one digital, one temperature input and one current input
Easy operation	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	Visible indication of current operating status
Logging capability	Data log feature for preventative maintenance scheduling
Communication	RS485 external communication capability

Specifications

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

Union joint

Special purpose union joints are available. Material : PVC/Heat resistant PVC

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The Netherlands	**: IWAKI Europe GmbH** (Netherlands Branch)	TEL: (31)74 2420011	FAX: (49)2154 925448
Italy	**: IWAKI Europe GmbH** (Italy Branch)	TEL: (39)0444 371115	FAX: 0444 335350
Spain	**: IWAKI Europe GmbH** (Spain Branch)	TEL: (34)93 37 70 198	FAX: 93 47 40 991
Poland	**: IWAKI Europe GmbH** (East Europe Branch)	TEL: (48)12 347 0755	FAX: 13 67 20 30
Belgium	**: IWAKI Belgium N.V.**	TEL: (32)13 67 02 00	FAX: 12 347 0900
Denmark	**: IWAKI Nordic A/S**	TEL: (45)48 24 2345	
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France	**: IWAKI France S.A.**	TEL: (33)1 69 63 33 70	FAX: 1 64 49 92 73
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China (Guangzhou)	**: GFTZ IWAKI Engineering & Trading Co., Ltd.**	TEL: (86)20 84350603	FAX: 20 84359181
China (Shanghai)	**: IWAKI Pumps (Shanghai) Co., Ltd.**	TEL: (86)21 6272 7502	FAX: 21 6272 6929
Korea	**: IWAKI Korea Co.,Ltd.**	TEL: (82)2 2630 4800	FAX: 2 2630 4801
Taiwan	**: IWAKI Pumps Taiwan Co., Ltd.**	TEL: (886)2 8227 6900	FAX: 2 8227 6818
Thailand	**: IWAKI (Thailand) Co.,Ltd.**	TEL: (66)2 322 2471	FAX: 2 322 2477

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.