



IWAKI  
MAGNETIC  
DRIVE  
PUMPS

**MXM**



Patent

JAPAN / U.S.A. / TAIWAN / EU / CHINA

Solutions for chemical handling applications



### Better withstanding difficult operating conditions

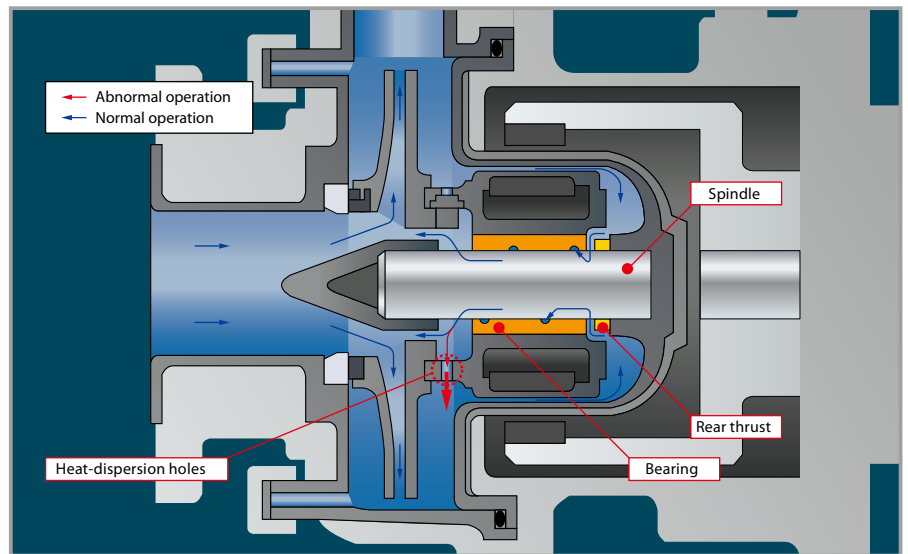
The proven non-contact system and self-radiating bearing structure deliver substantial improvements in tolerance of dry running and poor suction conditions.

#### Non contact system

Unlike conventional magnetic drive pumps, the MXM series are designed to prevent contact between the bearing and the rear thrust faces, even during dry running. By preventing contact, the rear thrust ring minimizes heat generation to prevent melting of plastic parts.

#### Self radiation structure (PAT.)

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.



# Magnetic drive pumps with an excellent balance of features and performance

The MXM series of pumps have now been added to the line-up of Iwaki's magnetic drive process pumps, which have earned high acclaim and the trust of users all around the world. The new MXM series feature an excellent balance of the characteristics required of chemical pumps, including corrosion resistance, durability and safety. They employ a non-contact, self-radiating bearing structure to better withstand difficult operating conditions. The advent of the MXM series has further expanded the array of choices offered by Iwaki's process magnetic drive pumps.

## Exceptional corrosion resistance

The MXM series employ optimum anti-corrosive materials such as carbon fiber reinforced ETFE (CFRETFE), high quality ceramic and carbon for parts that come in contact with liquid. The most suitable impeller size and motor output can be selected for the required liquid property.



Impeller+Magnet capsule



Spindle+Bearing

## Robust structure

The pumps have an external armour of high strength ductile cast iron for use in heavy duty chemical process applications. The sealing performance between the front casing and the rear casing is drastically enhanced by our original structure (patent pending), offering high reliability.



Cover+Front casing

## Enhanced safety

The MXM features a unique rear casing shape designed to prevent stress concentration. This increases both the pump's pressure resistance and the mechanical strength of the spindle support. The high temperature model uses a dual structure incorporating an FRP rear casing cover. In addition to further increasing the pump's pressure resistance, it improves safety with dual containment preventing liquid leakage in the event of unexpected damage to the rear casing.



Rear casing+Rear casing cover (Option)



MXM545



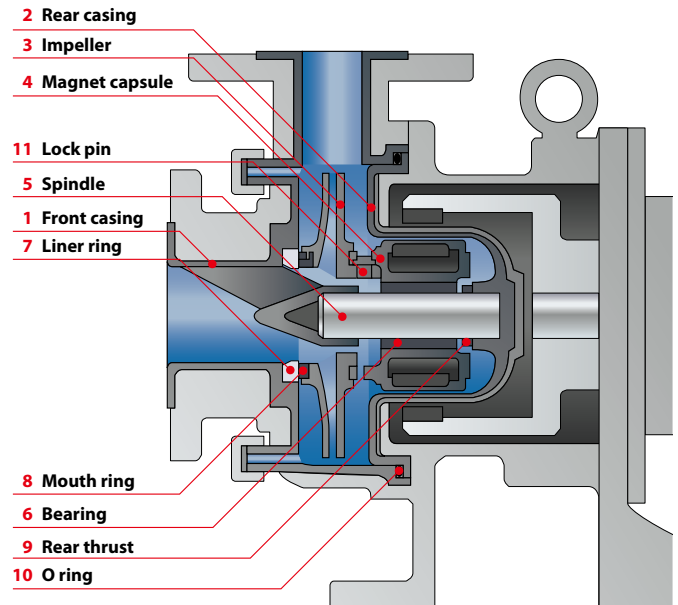
MXM542



## Construction and materials

Part	Material code	CF	FF	KK
1 Front casing	CFRETFE			
2 Rear casing				
3 Impeller				
4 Magnet capsule				
5 Spindle	High-purity alumina ceramic			SiC
6 Bearing	High-density carbon	High-purity alumina ceramic		
7 Liner ring	High-purity alumina ceramic			
8 Mouth ring	PTFE with filler			
9 Rear thrust	MXM22/44: CFRETFE, MXM54: CFRPFA			
10 O ring	FKM/EPDM/AFLAS®/ DAI-EL PERFLUORO®			
11 Lock pin	Note	CFRETFE		

Note: 54 type only



## Specifications (50Hz)

Model	Pump size Suction × Discharge	Impeller size	Capacity L/min	Head m
MXM22 (Impeller range 1)	25mm × 25mm	100	150	7.5
		090	150	5.5
		070	150	2.5
MXM22 (Impeller range 2)		105	150	8
MXM44 (Impeller range 1)	40mm × 40mm	115	200	9.5
		110	200	8
		100	200	6
		090	200	5
		130	200	12
MXM54 (Impeller range 1)	50mm × 40mm	150	200	18.5
		140	200	17
		120	200	13.5
MXM54 (Impeller range 3)	50mm × 40mm	150	300	20
		140	300	18.5
		130	300	16.5
		110	300	10.5
		150	400	25
MXM54 (Impeller range 4)	50mm × 40mm	140	400	20.5
		125	400	15.5
		110	400	9.5
		110	400	9.5

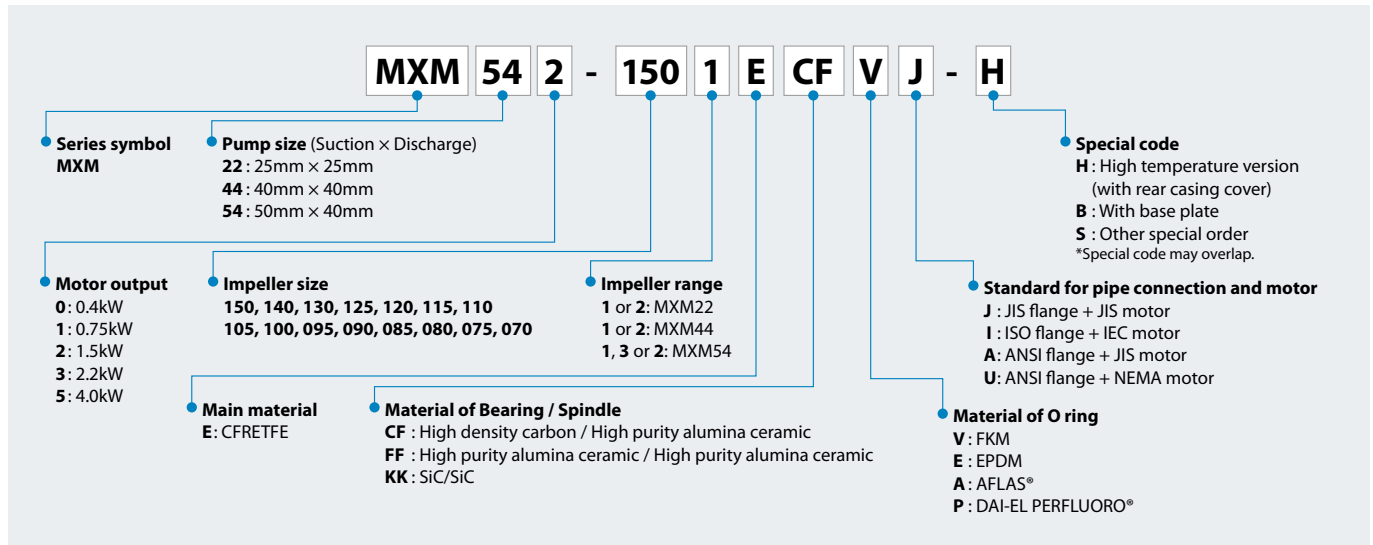
Note1: Liquid temp. range

Standard: -10 to 90 °C High temp. version (with rear casing cover): -10 to 105 °C (10 to 105 °C when AFLAS® O ring is used)

Note2: Max operating pressure

Standard MXM22: 0.2MPa, MXM44: 0.3MPa, MXM54: 0.45MPa High temp. version (with rear casing cover): 0.7MPa

## Pump identification



## Notes for selection

(1) The performance curves in this catalogue represent the data measured using clear water at 20 °C.

(2) Choose the pump model suited to the liquid gravity.

Make sure that the motor output is at least five to ten percent higher than theoretically required.

$$\text{Shaft power (Sp)} \times \text{liquid gravity} \times 1.1 < \text{Motor output}$$

(Note) The shaft power (Sp) increases in proportion to the liquid gravity.

As the viscosity rises, the shaft power is higher while the head and the discharge are lower.  
The power and the performance need to be adjusted.

(3) No magnetic drive pump supports continuous closed running. Be sure to ensure the minimum flow volume.

- Minimum flow volume
  - MXM22/44 : 10 L/min.
  - MXM54 Impeller range 1, 2 and 3 : 20 L/min.
  - Impeller range 4 : 50 L/min.

(4) The pressure resistance of the pump is as follows.

Be sure to ensure that the internal pressure of the pump does not exceed the value specified below.

- Standard model -10 °C to 90 °C (without rear casing cover)
  - MXM22: 0.2MPa, MXM44: 0.3MPa, MXM54: 0.45MPa
- High temperature version -10 °C to 105 °C (with rear casing cover)
  - : 0.7MPa

(5) FF material models

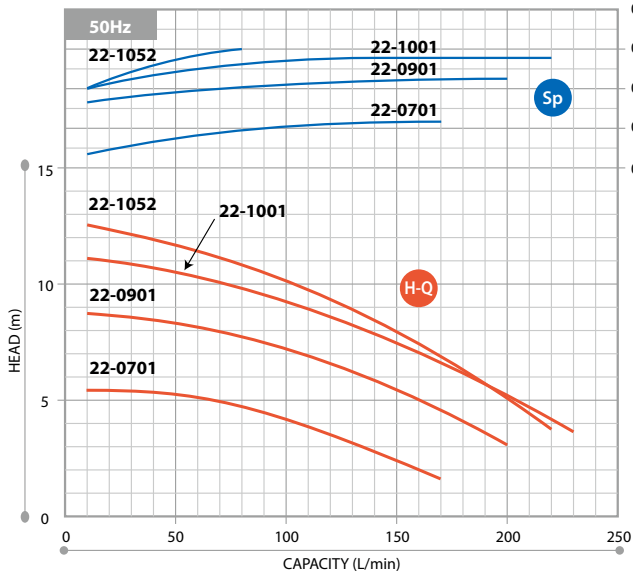
- Liquid should be 1m Pa-s (cP) or more.
- HQ performance is somewhat different from CF/KK models. If you need to know the detail, please contact with us.

(6) Deliberate prolonged dry running or entrained air operation is not recommended.

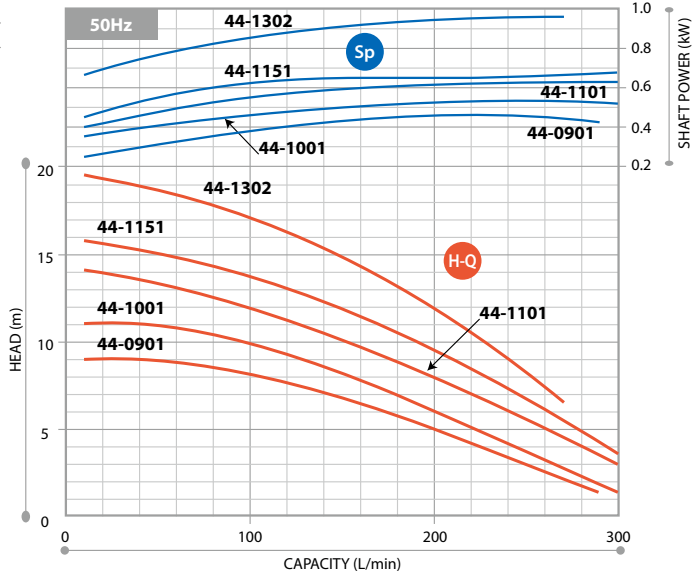
- The CF type has a degree of tolerance to dry running and operation with entrained air in the liquid.
- The KK type has the same degree of tolerance as the CF type under operation with entrained air in the liquid, but not allowed to run dry.
- The FF type is not allowed to run dry or operation with entrained air.

# Performance curves

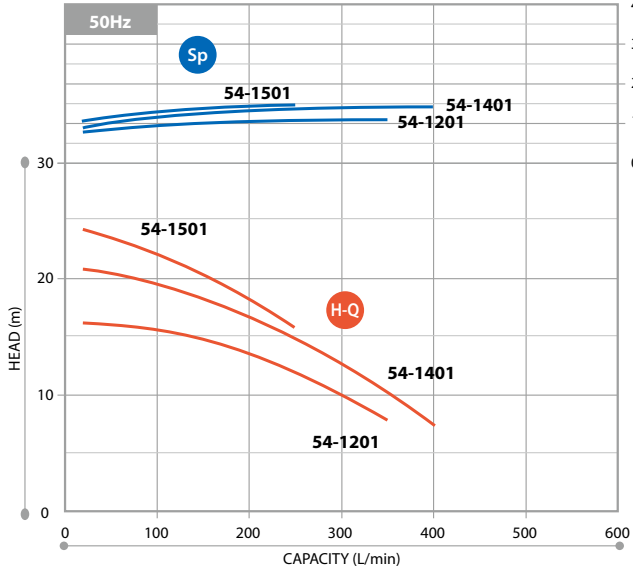
**MXM22**



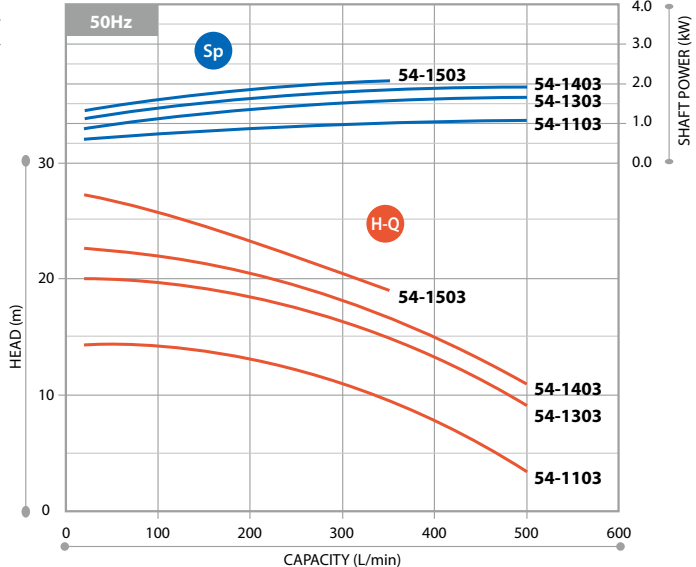
**MXM44**



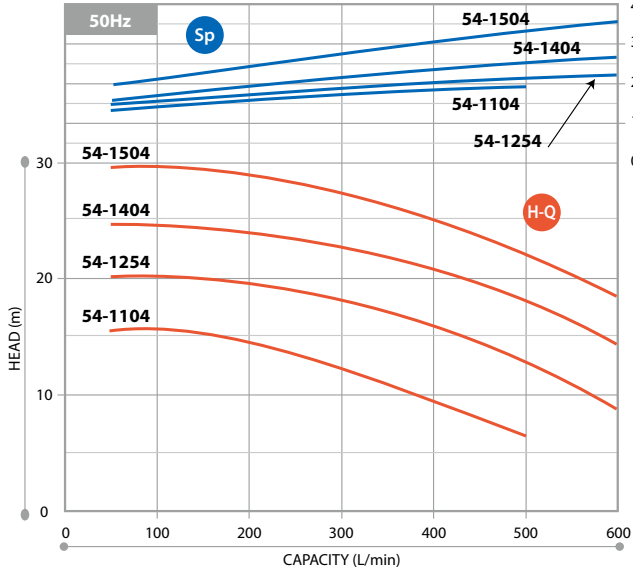
**MXM54 (Impeller range 1)**



**MXM54 (Impeller range 3)**



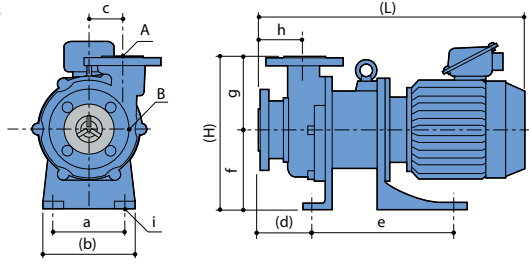
**MXM54 (Impeller range 4)**



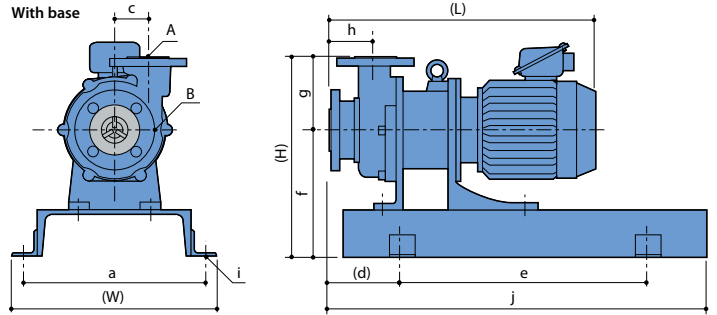
The shaft power curves shown above are calculated by using our standard test motor. Contact us for detail.

Dimensions in mm

Without base



With base

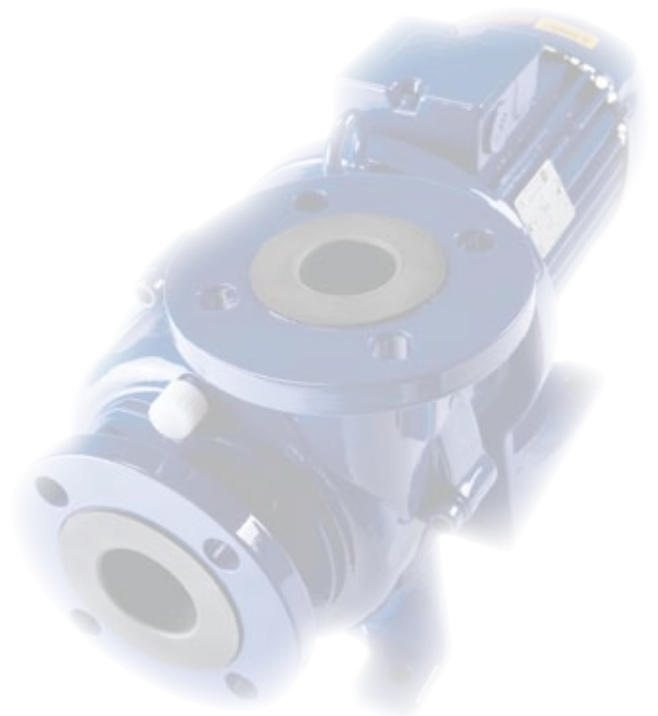


Without base

Model	(H)	(L)	A	B	a	(b)	c	(d)	e	f	g	h	i	
MXM220	237	453	25A	25A	110	150	51	95	143	115	122	88	4-ø12	
MXM220-H		475							165					
MXM221		470							165					
MXM221-H														
MXM441	275	485	40A	40A	130	170	58	113	250	135	140	106	4-ø14	
MXM441-H		498												
MXM442		535												
MXM442-H														
MXM542	295	515	40A	50A	140	180	65	106	275	155	140	87	4-ø14	
MXM543		544												
MXM545		589												

With base

Model	(W)	(H)	(L)	A	B	a	c	d	e	f	g	h	i	j
MXM220	300	317	453	25A	25A	250	51	130	220	195	122	88	4-ø19	450
MXM220-H			475											
MXM221			470											
MXM221-H														
MXM441	350	365	485	40A	40A	300	58	130	260	225	140	106	4-ø19	489
MXM441-H			498											
MXM442			535											
MXM442-H														
MXM542	400	385	515	40A	50A	350	65	140	480	245	140	87	4-ø19	735
MXM543			544											
MXM545			589											



## Optional accessories

### Iwaki dry running protector DR series

Model DR is electric current sensing type dry running protector. It detects the decreased load current (lower limit) to stop the pump when it runs dry or runs with air sucking in. It can detect over-load, too.

- Current figure to be set is indicated on LCD.
- Both top/bottom figures can be set.  
Top:Over-load  
Bottom:Dry running, air sucking-in operation, operation with suction side closed
- Built-in current transformer
- DIN rail mounting
- It is unable to use DR when inverter is employed in the system.



DR-20

#### Specification

50Hz

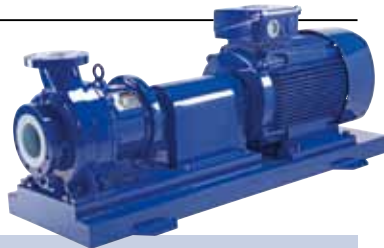
Model	DR-10	DR-20
Motor power	200 to 240V three phase	380 to 440V three phase
Applied motor	0.4 to 7.5kW	0.75 to 15kW
Power control	100 to 240V single phase	
Power	V	100V ±10%single phase
	Input	200 to 240V ±10%single phase
Detective current	0.5 to 32.0A	
Current transformer(CT)	Built-in	
Outer dimension in mm	D80 X W153 X H122	

Note: The dry run protector can not be used along with inverter.

## IWAKI Process Magnetic Drive Pump Series

### MDW SERIES

The world largest-class fluoroplastic magnetic drive pump



#### Specifications

- Max.discharge capacity: 300 m<sup>3</sup>/hr
- Max.head: 98 m
- Main materials: ETFE, PFA
- Liquid temp. range: -10 to 105 °C(ETFE)  
-10 to 120 °C(PFA)

### MDE SERIES

The most reliable, large-sized magnetic drive pump designed for process use



#### Specifications

- Max.discharge capacity: 240 m<sup>3</sup>/hr
- Max.head: 55 m
- Main materials: ETFE, PFA
- Liquid temp. range: 0 to 100 °C

### MDM SERIES

Magnetic drive process pumps with dry running capability



#### Specifications

- Max.discharge capacity: 84 m<sup>3</sup>/hr
- Max.head: 74 m
- Main materials: CFRETFE, PFA
- Liquid temp. range: -20 to 105 °C (CFRETFE)  
-20 to 150 °C (PFA)

### MX/MX-F SERIES

Withstands difficult operating conditions and offers high efficiency



#### Specifications

- Max.discharge capacity: 30.6 m<sup>3</sup>/hr
- Max.head: 35 m
- Main materials: GFRPP, CFRETFE
- Liquid temp. range: 0 to 80 °C

### SMX/SMX-F SERIES

Versatile self-priming magnetic drive pump with enhanced durability under abnormal operation



#### Specifications

- Max.discharge capacity: 26.4 m<sup>3</sup>/hr
- Max.head: 25.5 m
- Main materials: GFRPP, CFRETFE
- Liquid temp. range: 0 to 80 °C

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( )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.

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