

## **Magnetic drive pumps**

Magnetic drive pumps with an excellent balance  
of features and performance



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



The MXM series of pumps have now been added to the lineup 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.

## Better withstanding difficult operating conditions

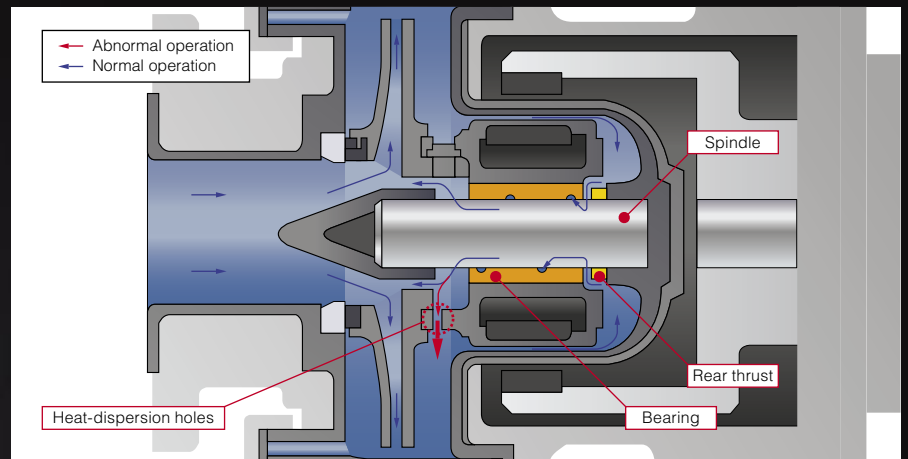
The proven non-contact system and self-radiating bearing structure deliver substantial improvements in tolerance of dry running and poor suction conditions

### 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 or air ingress into the suction. By preventing contact, the rear thrust ring minimizes heat generation to prevent melting of plastic parts.

### Self radiation structure (Patented) (International patent applied)

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.



MXM545



MXM542

# Significantly improved safety and durability



## Exceptional corrosion resistance

The MXM series employ optimum anti-corrosive materials such as carbon fiber reinforced ETFE (CFRETFE), fine 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.



Cover+Front casing

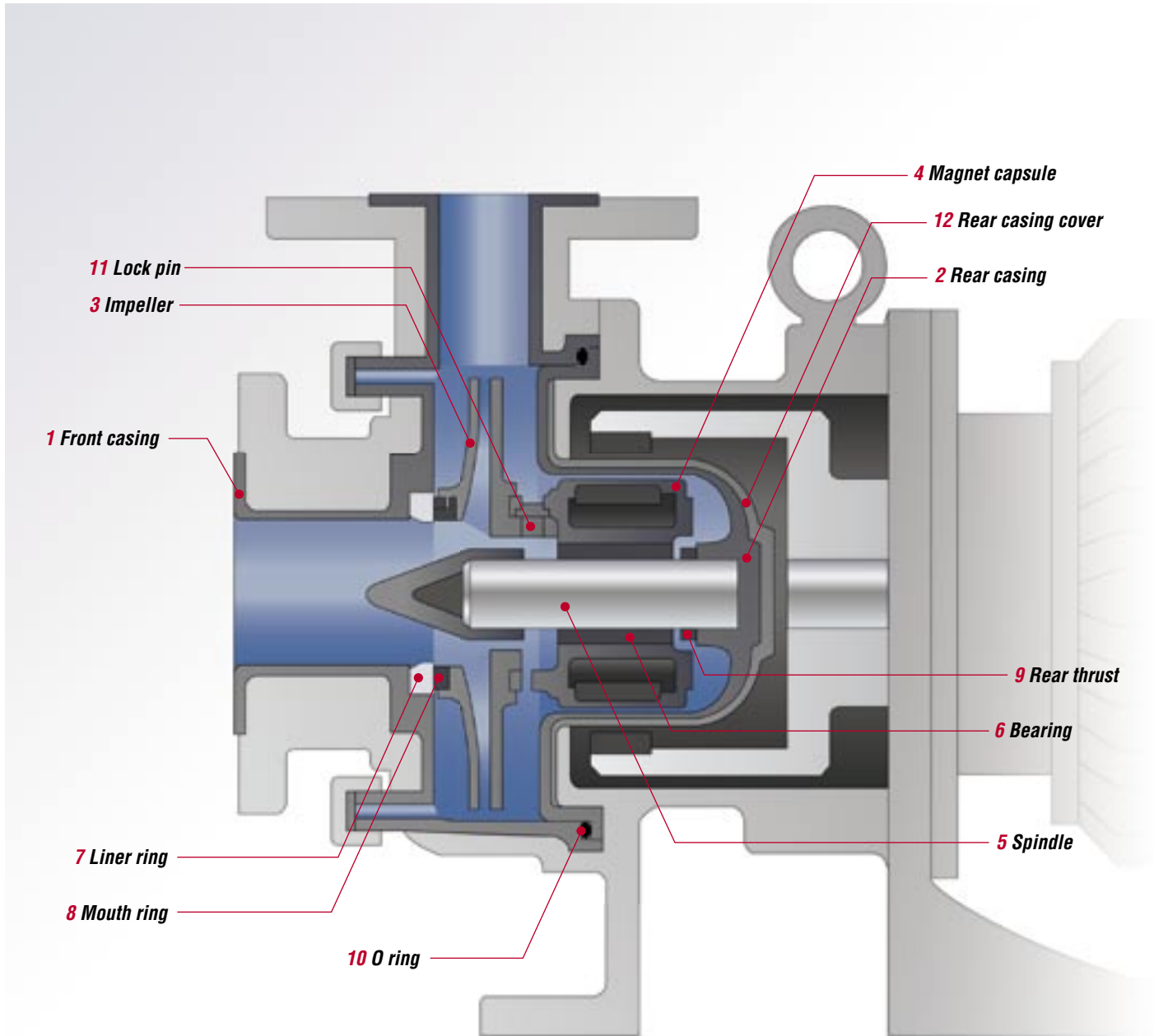
## Enhanced safety

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 MXM 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

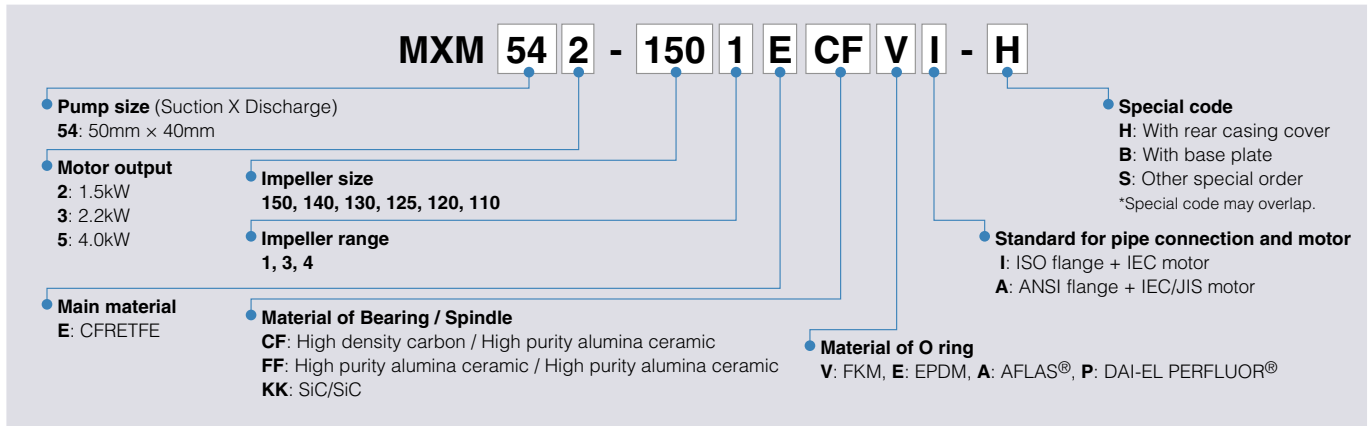
**Construction and materials**



**Wet-end 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		CFRPFA		
10 O ring		FKM/EPDM/AFLAS® / DAI-EL PERFLUOR®		
11 Lock pin		CFRETFE		
12 Rear casing cover		FRP		

## Pump identification



## Specifications

50Hz

Model	Pump size Suction X Discharge	Impeller size	Capacity L/min	Head m	Motor Output kW
MXM54-1 (Impeller range 1)	50mm X 40mm	150	200	18	1.5/2.2/4.0
		140	200	18.5	
		120	200	14.5	
MXM54-3 (Impeller range 3)		150	300	20.5	
		140	300	19.5	
		130	300	17	
MXM54-4 (Impeller range 4)		110	300	10.5	
		150	400	25	
		140	400	20.5	
		125	400	15.5	
		110	400	9.5	

Note: Liquid temp. range: -10 to 105 °C (10 to 105 °C when AFLAS® O-ring is used.)

### 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

Impeller systems 1 and 3: 20 L/min.

Impeller system 4: 50 L/min.

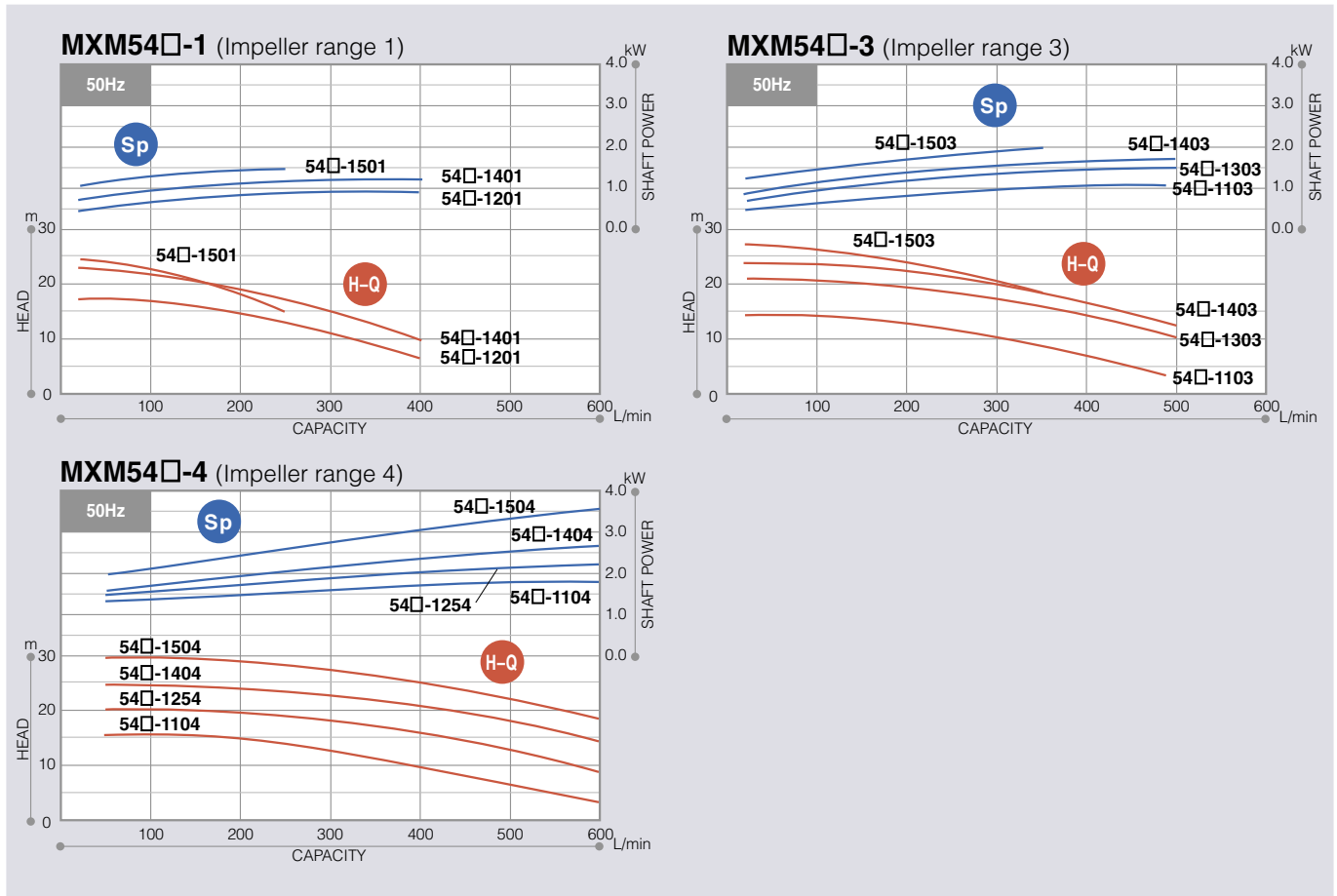
(4) The pressure resistance of the pump is 0.7MPa.

(5) FF material models

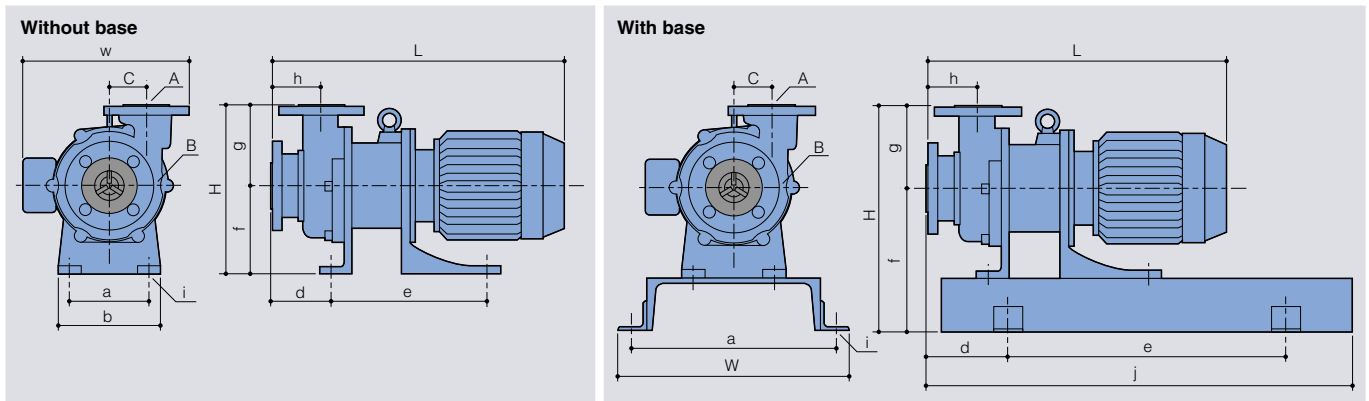
- Liquid should be 1mPa·s or more.

- HQ performance is somewhat different from CF/KK models. For detail, please contact with us.

**Performance curves (50Hz)**



**Dimensions in mm**



**Without base**

Model	W	H	L	A	B	a	b	c	d	e	f	g	h	i	Mass kg Less motor
MXM542	294	295	517	40	50	140	180	65	106	275	155	140	87	4-ø14	25
MXM543			589												30
MXM545	306														

**With base**

Model	W	H	L	A	B	a	c	d	e	f	g	h	i	j	Mass kg Less motor
MXM542	400	385	517	40	50	350	65	140	480	245	140	87	4-ø19	735	55
MXM543			589												60
MXM545															

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

## 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

50/60Hz

Model		DR-20
Motor power		380 to 440V three phase
Applied motor		0.75 to 15kW
Power control		100 to 240V single phase
Power	V	200 to 240V ±10% single phase
	Input	3.5W
Detective current		0.5 to 32.0A
Current transformer(CT)		Built-in
Outer dimension		D80 X W153 X H122

### Iwaki process magnetic drive pump series

#### MDE SERIES

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



MDE125

#### Specifications

- Max. discharge capacity: 4.0m<sup>3</sup>/min
- Max. head: 55m
- Main materials: ETFE, PFA, SiC
- Liquid temp. range: 0 to 100°C

#### MX/MX-F SERIES

Withstands difficult operating conditions and offers high efficiency



MX-F402

#### Specifications

- Max. discharge capacity: 500 L/min
- Max. head: 35m
- Main materials: GFRPP, CFRETFE
- Liquid temp. range: 0 to 80°C

#### MDM SERIES

Magnetic drive process pumps with dry running capability



MDM32(PFA type)

#### Specifications

- Max. discharge capacity: 1.4m<sup>3</sup>/min
- Max. head: 74m
- Main materials: CFRETFE/PFA
- Liquid temp. range: -20 to 105°C(CFRETFE), -20 to 150°C(PFA)

#### SMX SERIES

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



SMX-441

#### Specifications

- Max. discharge capacity: 345 L/min
- Max. head: 18m
- Main materials: GFRPP
- Liquid temp. range: 0 to 80°C