

Magnetic drive pumps

MDH series



The patented pin point contact system gives dry running capabilities to the pump.

Iwaki's pump technology has produced an innovative magnetic drive pump which incorporates an extremely high resistance to dry running. By employing the newly developed pin point contact system, dry running which was unavailable with previous models is now a feature on the new magnetic drive pump series. The MDH/-F series, with its increased durability and reliability, will further demonstrate its usefulness and convenience as corrosion resistant pumps for the middle flow ranges.

Dry running is possible with a pin point contact system

Up to one hour of continuous dry running is possible due to the pin point contact system which minimizes the heat generated by bearing surfaces during dry running.

Note: Dry running is possible with carbon bearing type (D type) only.

Excellent corrosion resistance

The casings, impeller assembly and magnet capsule of MDH pump are made of polypropylene and those of MDH-F are made of fluoro-resin. Other wet-end parts are made of highly corrosion resistant materials such as carbon, ceramics and the like. The pumps can handle most types of chemicals including acids and alkalis.

Excellent durability

The resin parts for MDH are reinforced with glass fiber and MDH-F is reinforced with carbon fiber for the purpose of enhancing durability. In addition, sufficient consideration was given to the mechanical strength and the safety of the spindle.

Simple structure

The pump unit's simple structure consists of only a few parts. The assembly and disassembly procedures for maintenance purposes are very easy and simple.



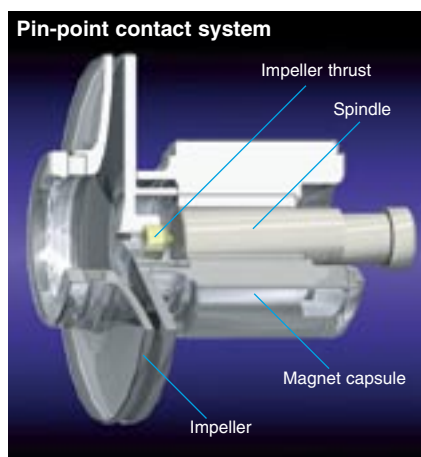
MDH-F401

MDH-400

Pin-point contact system

In a no-thrust condition due to dry run, only the impeller thrust surface and spindle fore edge come in contact. The magnet capsule never touches the rear casing.

This "pin point" contact between impeller and spindle thrust surfaces significantly minimizes friction, and therefore heat generation.



Patents
Europe/Japan/Taiwan/U.S.A./Korea



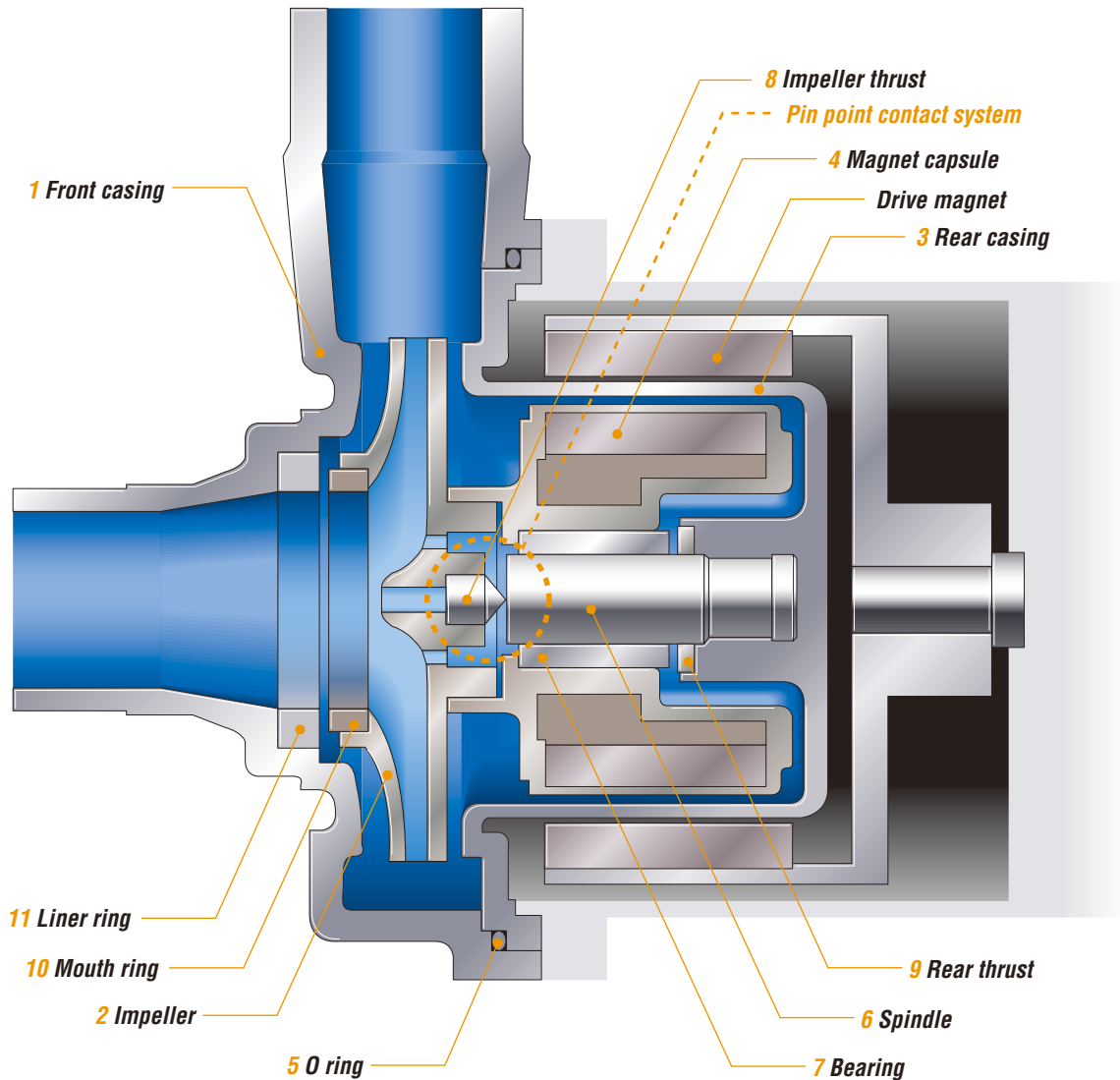
Actual pumps may differ from the photos.



MDH-425

MDH-F422

Construction and materials



Wet-end materials

Name of part	Model	MDH-400, 401, 422, 423, 425		MDH-F400, 401, 422, 423	
		CV-D	RV-E	CFV-D	AAV-E
1 Front casing		GFRPP		CFRETFE	
2 Impeller		GFRPP		CFRETFE	
3 Rear casing		GFRPP		CFRETFE	
4 Magnet capsule		PP		CFRETFE	
5 O ring	Note 1	FKM		FKM	
6 Spindle		Alumina ceramic		High purity alumina ceramic	High purity alumina ceramic
7 Bearing		Carbon	PTFE	High density carbon	High purity alumina ceramic
8 Impeller thrust		Alumina ceramic		High purity alumina ceramic	
9 Rear thrust		High purity alumina ceramic		High purity alumina ceramic	
10 Mouth ring		PTFE		PTFE	
11 Liner ring		Alumina ceramic		High purity alumina ceramic	Alumina ceramic

Note 1. AFLAS® and EPDM O ring can be included upon request. For more details, inquire at your nearest Iwaki representative or dealer.

Note 2. The material for MDH-F400,401AA is alumina ceramic.

Impeller thrust

When dry running happens, the impeller thrust and the spindle front face come into contact.



Alumina ceramic High-purity Alumina ceramic

Spindle

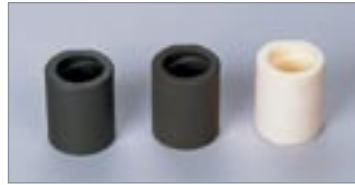
The spindle is integrally molded with the rear casing to form a cantilever structure. Without any supporting boss in the suction port, the operational efficiency of the pump is increased and the NPSHr is reduced.



High-purity Alumina ceramic Alumina ceramic

Bearing

The bearing is a one-piece and press-fit type.



PTFE Carbon High-purity Alumina ceramic

Magnet capsule

High-power magnets are totally encased in the resin to provide sufficient corrosion resistance and torque.



For MDH For MDH-F

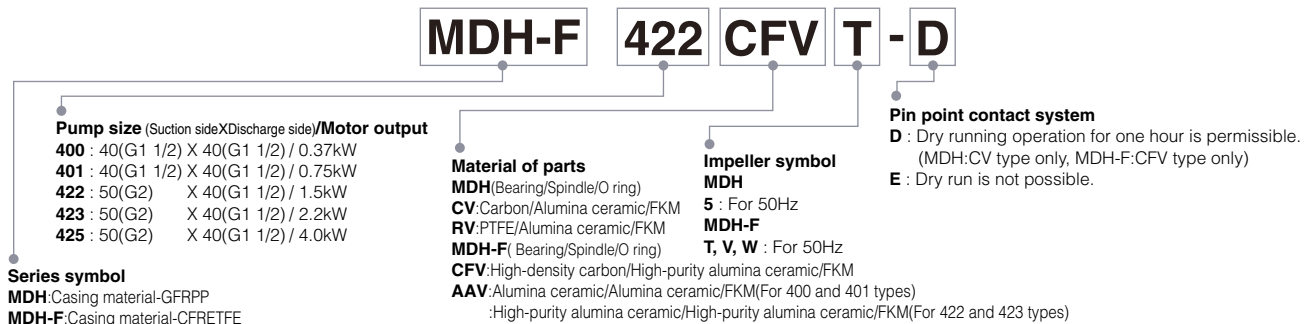
Impeller

The impeller is a closed type designed for maximum efficiency. Three different impeller sizes are designed as standard for MDH-F, which adds greater latitude in handling liquids of high specific gravity.



For MDH For MDH-F

Pump identification



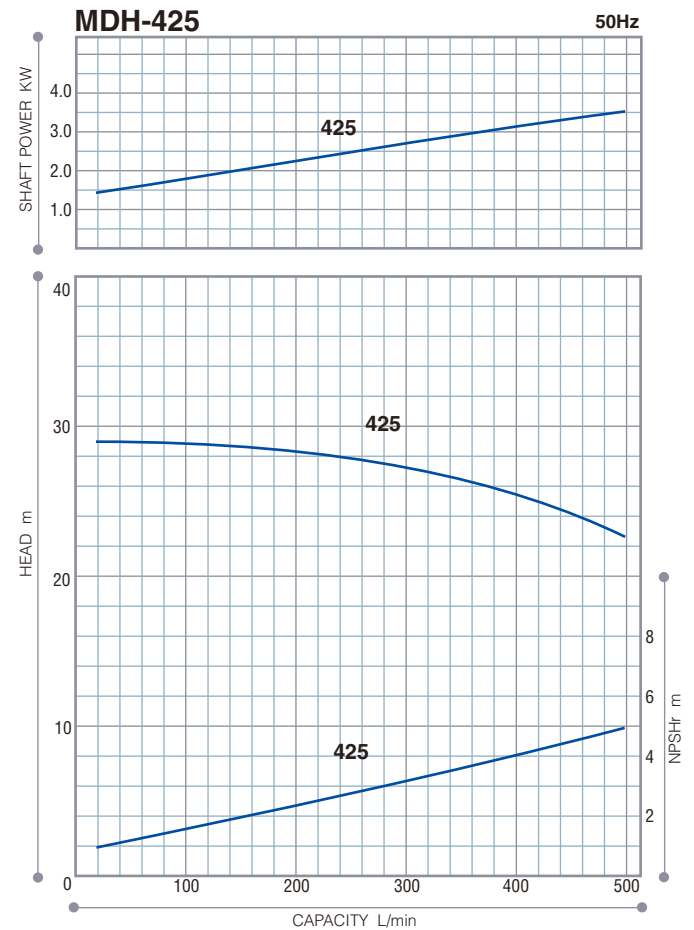
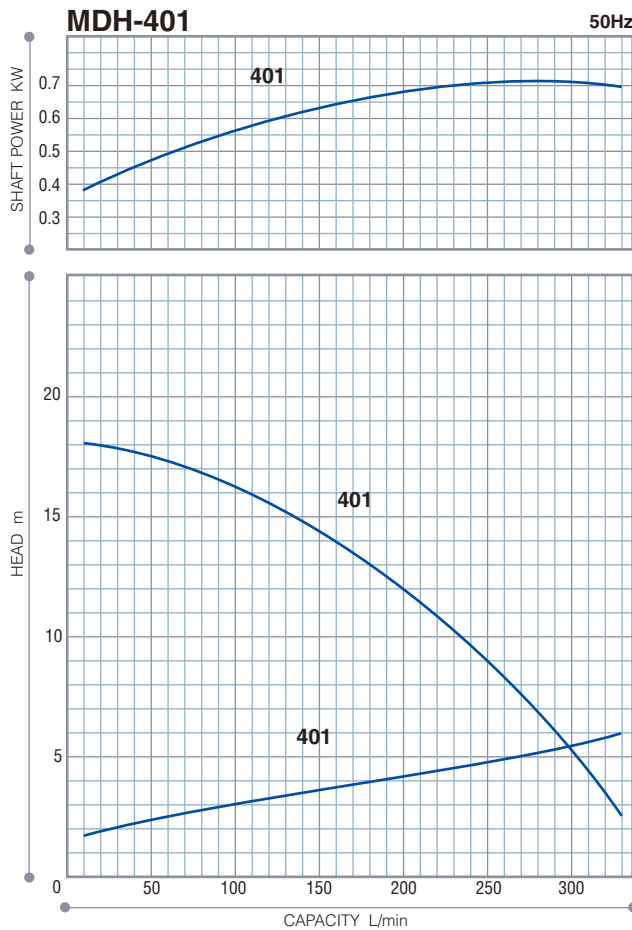
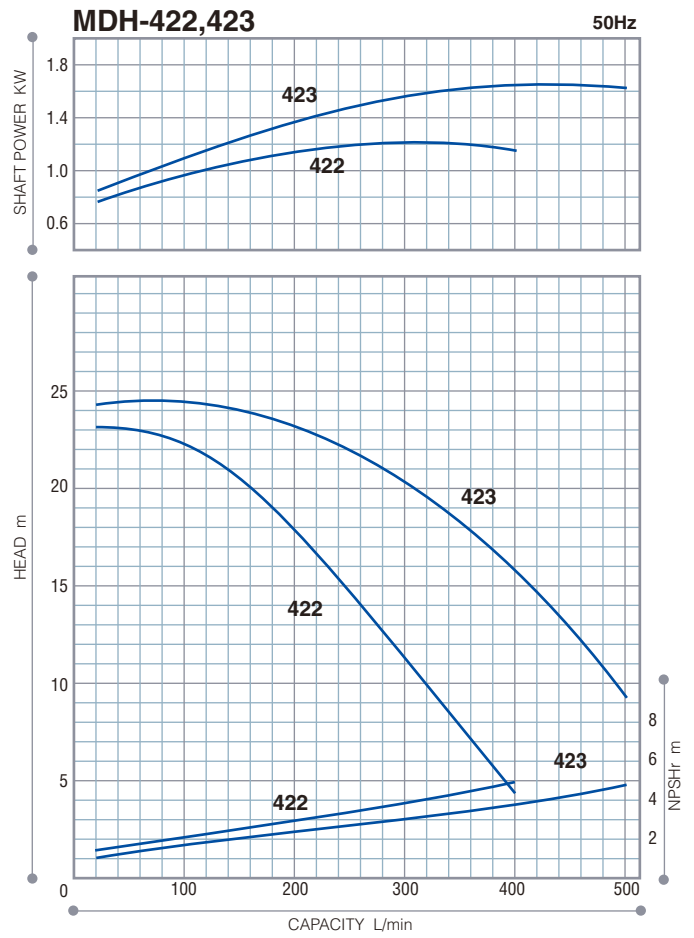
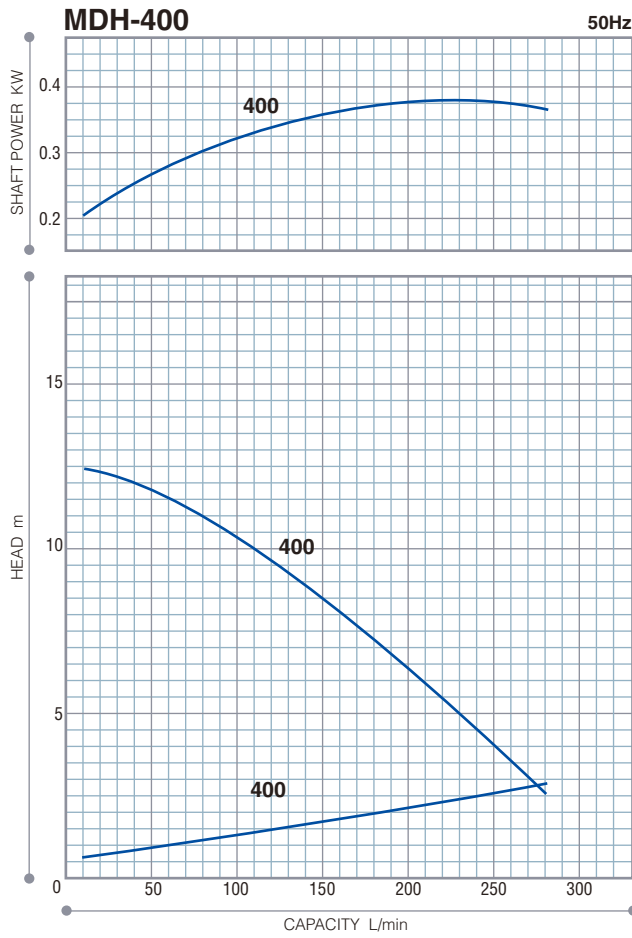
Specifications

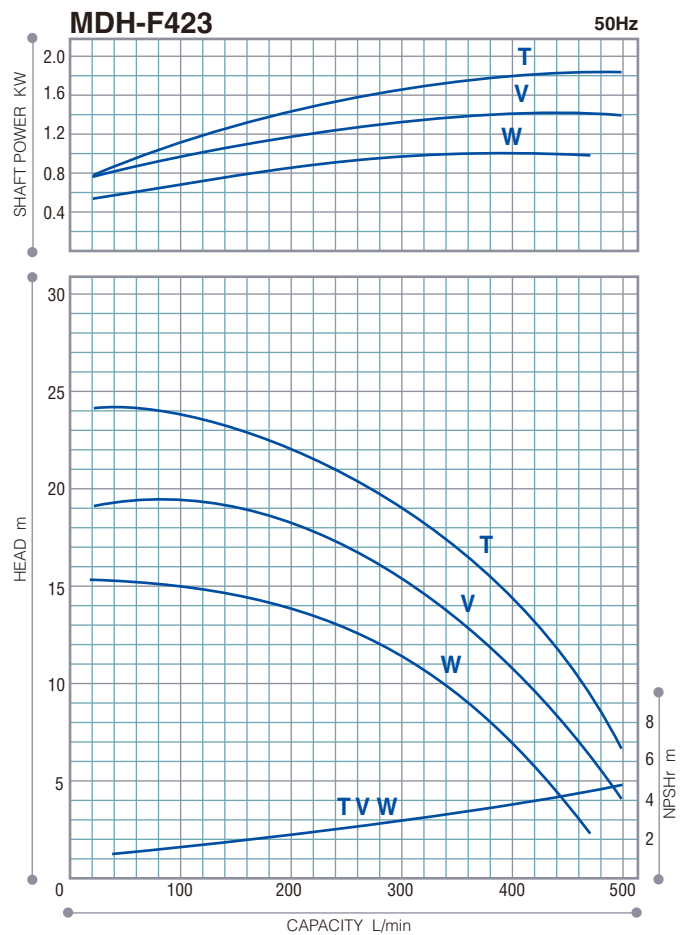
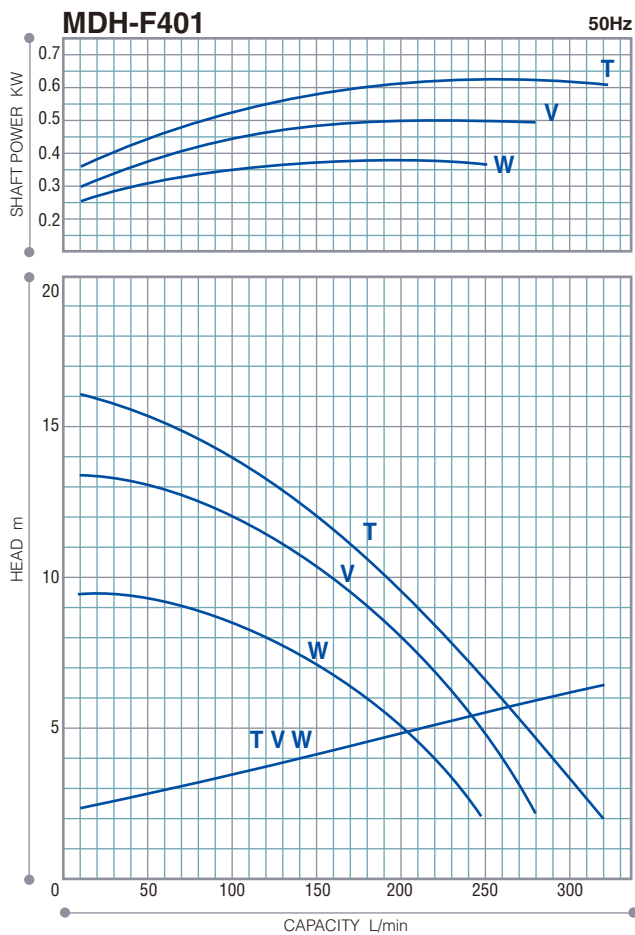
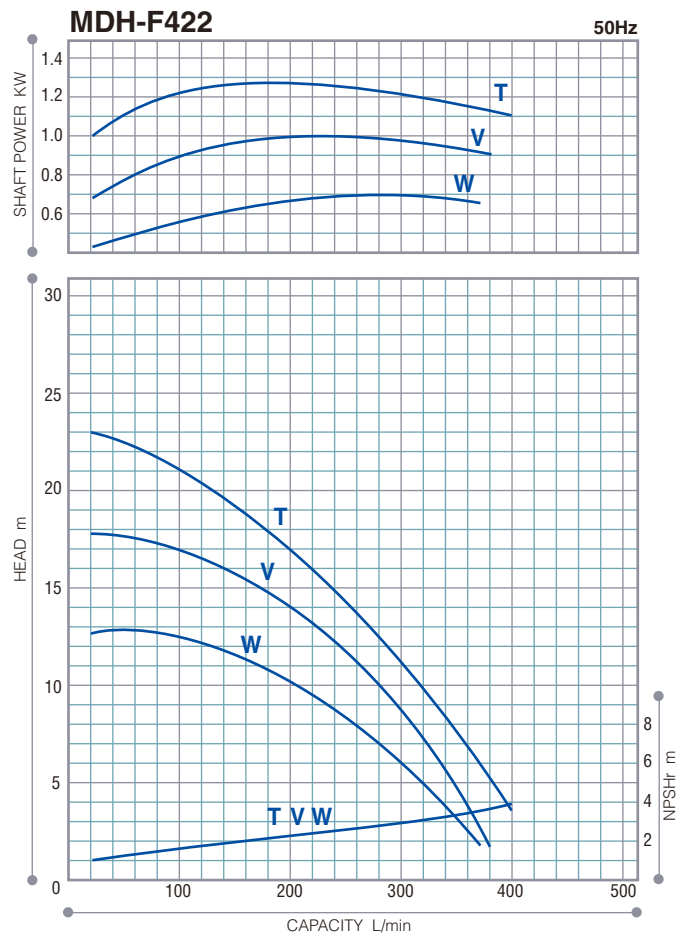
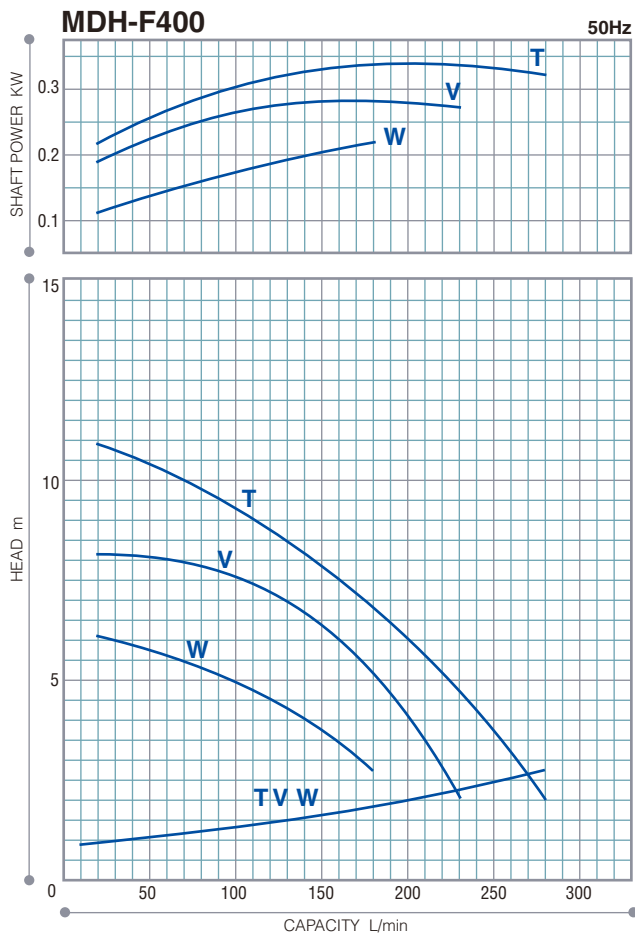
50Hz

Model	Nominal bore size Suction X Discharge	Impeller size	Specific gravity limit	Min. capacity - Max. Head L/min - m	Standard capacity L/min - m	Max. capacity L/min	Motor output kW
MDH-400	G 1 1/2 X G 1 1/2 (40 X 40)	5	1.0	10 - 12.5	150 - 8.5	280	0.37 2P
MDH-401			1.0	10 - 18.0	200 - 12.0	330	
MDH-422	G 2 X G 1 1/2 (50 X 40)		1.2	20 - 23.0	200 - 18.5	400	1.5 2P
MDH-423			1.2	20 - 24.0	300 - 20.5	500	2.2 2P
MDH-425			1.0	50 - 29.0	400 - 25.5	600	4.0 2P
MDH-F400	G 1 1/2 X G 1 1/2 (40 X 40)	T	1.2	10 - 11.0	150 - 8.0	280	0.37 2P
		V	1.5	10 - 8.1	150 - 6.5	230	
		W	2.0	10 - 6.3	150 - 4.0	210	
MDH-F401	G 1 1/2 X G 1 1/2 (40 X 40)	T	1.2	10 - 16.0	200 - 9.5	320	0.75 2P
		V	1.5	10 - 13.2	200 - 8.0	280	
		W	2.0	10 - 9.5	200 - 5.0	250	
MDH-F422	G 2 X G 1 1/2 (50 X 40)	T	1.2	20 - 23.0	200 - 17.5	400	1.5 2P
		V	1.5	20 - 18.0	200 - 15.0	380	
		W	2.0	20 - 12.5	200 - 10.0	370	
MDH-F423	G 2 X G 1 1/2 (50 X 40)	T	1.2	20 - 24.0	300 - 19.5	500	2.2 2P
		V	1.5	20 - 19.0	300 - 15.5	500	
		W	2.0	20 - 15.0	300 - 11.5	470	

• The specific gravity limit indicated above is the value at the max. shaft power level and the liquid viscosity of 1 mPa • s(1cP). • Liquid temperature range : 0 to 80°C • Slurry : Inquire of your nearest Iwaki representative or dealer. • Flange type is available on request. Nominal size(mm) is shown in ().

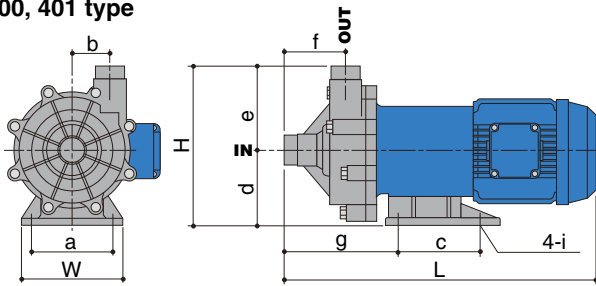
Performance curves





Dimensions in mm

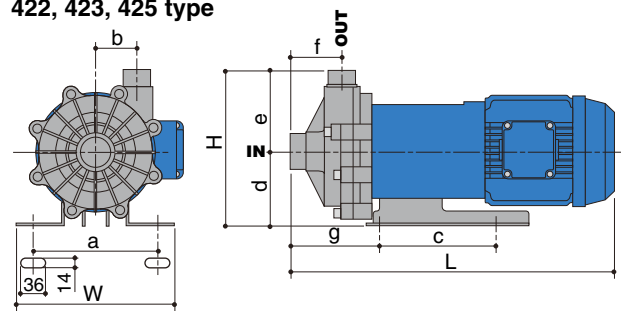
400, 401 type



L = The dimension with IWAKI original motor.

Model	W	H	L	a	b	c	d	e	f	g	i
MDH-F-400	140	210	388	110	51	98	95	115	81	136	O.D.12
MDH-F-401	160	248	482	130	57.5	130	115	133	97.5	178	O.D.12

422, 423, 425 type



L = The dimension with IWAKI original motor.

Model	W	H	L	a	b	c	d	e	f	g
MDH-F-422	260	249	533	208	65	200	115	134	83	148
MDH-F-423	260	249	533	208	65	200	115	134	83	148
MDH-425	260	269	601	230	65	261	135	134	83	150

Iwaki dry running protector DR series (Option)

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.

Specification

Model	DR-20	
Motor power	380 to 440V	
Applied motor	0.75 to 15kW	
Power	V	200 to 240V 10% shingle phase
45-65Hz	Input	3.5W
Detective current	0.5 to 32.0A	
Current transformar(CT)	Built-in	
Current range	Auto	4.4/17.6/32A
	Manual	2.2/4.4/8.8/11/17.6/26.4/32A
Ambient	Temperature:0 to 40°C Humidity:RH40 to 85%	
Outer dimension	D80 X W153 X H110	



DR-20

- 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