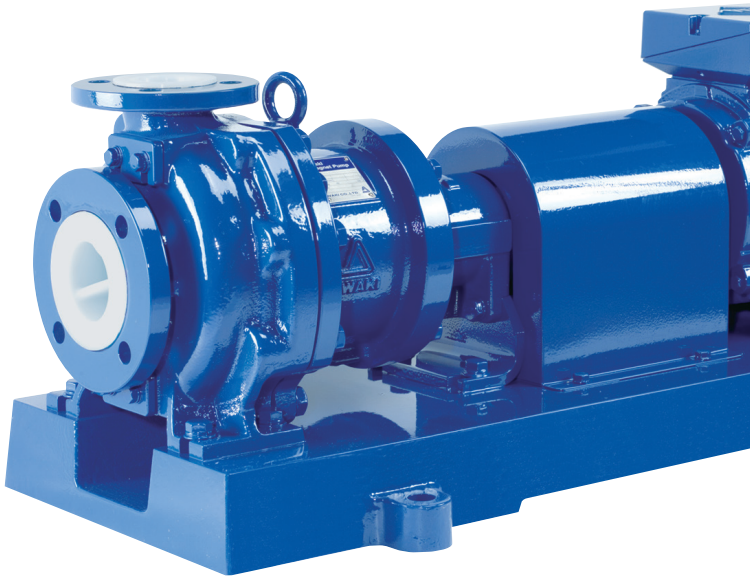
IWAKI

Long coupling type

IWAKI MAGNETIC DRIVE PUMPS

MDM



Patent

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

Solutions for chemical handling applications

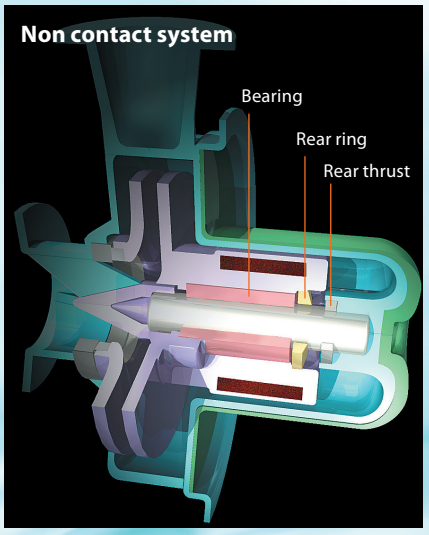
Magnetic drive process pump resistant to

The MDM Series of Magnetic drive process pumps have wetted parts made of fluororesin. Natural PFA and being standard materials of construction. The MDM features a unique mechanism which gives a greatly improved performance against abnormal condition (Non contact system). Applications cover a wide range of chemical process duties from acid to alkali together with high purity chemicals for the semiconductor industry.

Unique design prevents abnormal running

(Non contact system) (PAT.)

The pump design features a mechanism to withstand abnormal condition. High magnet power of the rare earth magnets prevents the magnet capsule coming into contact with the thrust ring of the rear casing, thus preventing melting of fluororesin components due to heat generation. This greatly improves resistance against abnormal condition in comparison with conventional magnetic drive pumps made of fluororesin.



PFA available in standard models

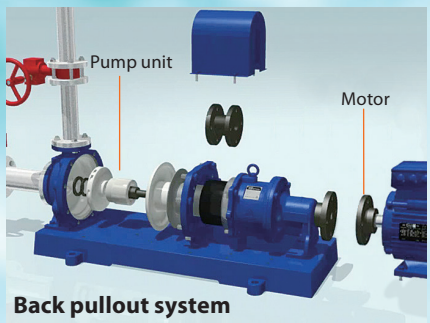
PFA linings can be supplied to meet many varying duties. PFA being a natural unfilled material generates fewer contaminants and makes it ideally suited for transfer of high purity chemicals.

Highly durable structure

A ductile cast iron shell adds strength and durability to the outer peripheral surfaces of the fluororesin pump module. The rear casing which is placed under the highest stress is protected by a rear casing cover made from fibre reinforced plastic. This gives sufficient strength and eliminates the eddy current loss caused by the rotating magnetic field. Should it come into contact with the drive magnet unit, no spark would be generated and a high level of safety would be maintained.

Back pullout system

In order to facilitate inspection and maintenance, this series employs the back pullout system. This enables one to conduct inspections internally and replace parts without removing piping. The pump is designed to include safety measures that can prevent the liquid from leaking when the foot support (bracket) is pulled back.



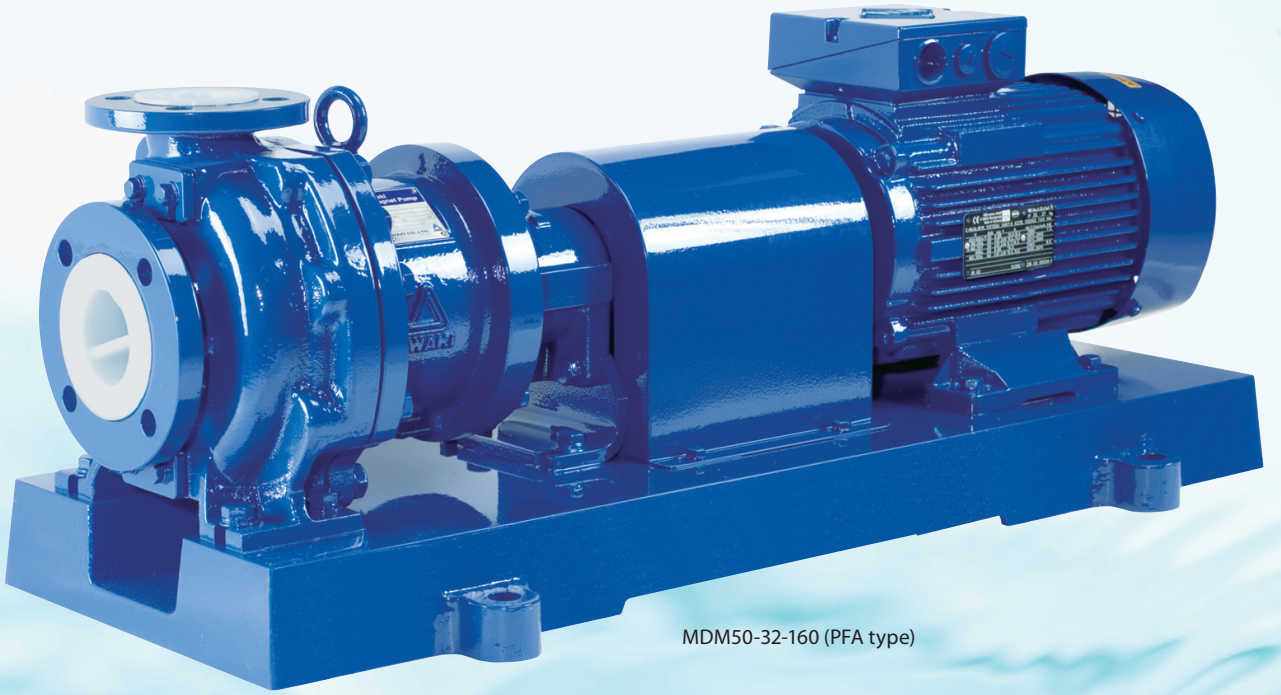
Back pullout system

abnormal condition

Compliance with ISO standards (ISO2858/DIN EN22858)

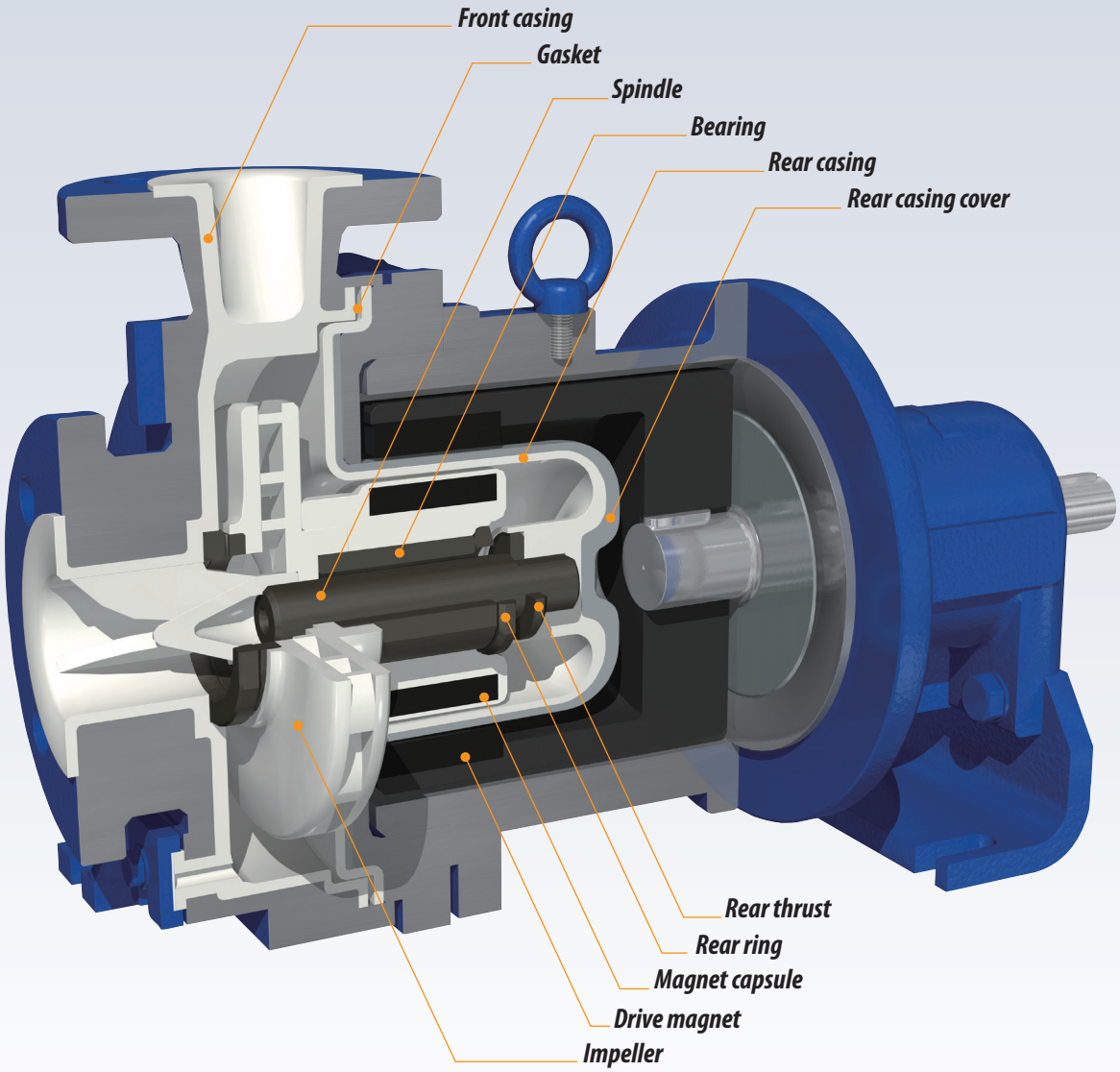
The pump with a common base comply with ISO Standards in regard to piping connection.

Note 1: For compatibility in size with other series of our magnet pumps, please call us.
Note 2: ANSI and JIS standards are also available.
For details, please call us.



MDM50-32-160 (PFA type)

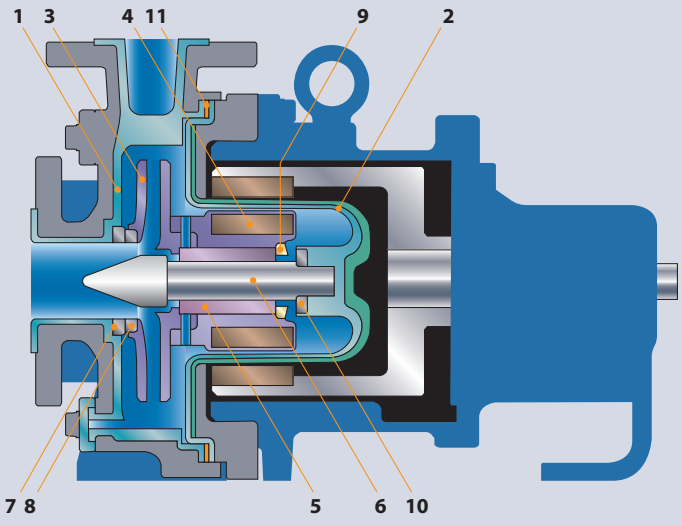
Construction



Wet-end materials

1	Front casing	PFA
2	Rear casing (Note 1)	
3	Impeller	
4	Magnet capsule	
5	Bearing	SiC
6	Spindle	
7	Liner ring	
8	Mouth ring	
9	Rear ring	
10	Rear thrust	PTFE
11	Gasket	

Note 1: Rear casing of MDM50-32-200 for over 80˚C application is special construction (PAT.).



Front casing

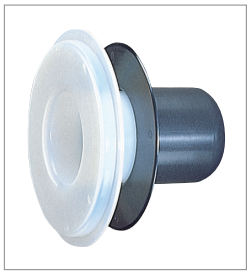
The ductile cast iron casing is a one-piece moulding with natural PFA fluororesin lining integrally moulded. This construction is free from contamination and ideal for transfer of clean liquids or with less particle generation.

Impeller

Closed type impellers are designed to give high efficiency. To ensure positive fixing of impeller to magnet capsule a spline system together with a pin fixing is employed. This prevents the impeller from moving axially off the magnet capsule (PAT.). MDM50-32-200 models now have impellers capable of reaching max. heads of 74 meters (50Hz) to widen the range of application.

Rear casing
Rear casing cover

The fluororesin rear casing is strengthened by the outer rear casing cover which is manufactured in fibre reinforced plastic capable of withstanding a pressure of 1.6 MPa.
This structure also eliminates any eddy current losses due to a rotating magnetic field. It also prevents sparks from being produced should the rear casing come into contact with the drive magnet unit.
A newly developed triple-layer casing (PAT.) is used for the high head models all long coupling type when liquid temperature exceeds 80˚C. Since the front and rear casing are bolted together from the front casing side liquid does not leak out when the foot support (bracket) is pulled back.



Rear casing
with rear casing cover

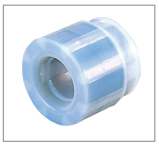
Rear ring

As a precaution against abnormal running, for example cavitation or air entering the pump where the magnet capsule could move axially backwards a rear ring and thrust ring have been incorporated. The rear ring is designed to give minimal heat generation from contact and therefore heat generation is greatly reduced compared to conventional designs. This prevents surrounding fluororesin from melting. (PAT.)

Rear Thrust

The rear thrust withstands axial loads encountered from abnormal operation, it also minimizes heat generation.

Magnet capsule



High magnet strength rare earth magnets are totally encapsulated with fluororesin mouldings. Magnets are small and lightweight which increases the efficiency of the pump. Taking advantage of the high magnetic strength its new design of "Non contact system"(PAT.) was developed to protect pump from abnormal condition.

Spindle

Both ends of the spindle are supported by the front casing and the rear casing (the fixed spindle type). Material is SiC.

Bearing

SiC gives high resistance to abrasion. Bearings can be individually replaced.

Gasket

A PTFE shrouded gasket is used to enhance sealing performance and corrosion resistance.

Specifications

2 pole motor type

Model	Pump size Suction X Discharge	Impeller diameter	Capacity L/min	Head m	Motor kW
MDM50-32-160	50mm X 32mm	165	208	35.0	4.0, 5.5 or 7.5
		160		34.5 Note1	
		150		28.5	
		140		25.0	
		130		20.5	
		120		17.0	
MDM50-32-200	50mm X 32mm	225	208	70.0	5.5, 7.5, 11 or 15
		220		67.5	
		210		60.0	
		200		54.0	
		190		47.0	
		180		41.5	
		170		38.0	
		160		32.0	
MDM65-40-160	65mm X 40mm	165	417	33.0	4.0, 5.5 or 7.5
		160		32.5 Note2	
		150		27.0	
		140		22.5	
		130		18.0	
		120		15.0	
		110		12.0	
MDM80-50-160	80mm X 50mm	165	833	38.5	5.5, 7.5, 11, 15
		160		35.5	
		150		31.0	
		140		26.5	
		130		22.0	
		120		17.5	
		110		13.5	

Note1: For long coupling type, head is 34.5m.
Note2: For long coupling type, head is 32.5m.

4 pole motor type

Model	Pump size Suction X Discharge	Impeller dia.	Capacity L/min	Head m	Motor kW
MDM50-32-160	50 mm X 32 mm	170	200	7.5	1.5, 2.2, 4.0
MDM50-32-200	50 mm X 32 mm	225	200	15.0	1.5, 2.2, 4.0, 5.5
MDM65-40-160	65 mm X 40 mm	170	300	7.0	1.5, 2.2, 4.0
MDM80-50-160	80 mm X 50 mm	170	500	8.0	1.5, 2.2, 4.0, 5.5

Common Specifications

• Temperature range of liquid handled	-20 to 150˚C Note1	• Allowable maximum pressure	1.6 MPa
• Allowable slurry (KK type only)	Please contact us.	• Standard color of paint	Ultra marine blue RAL5002

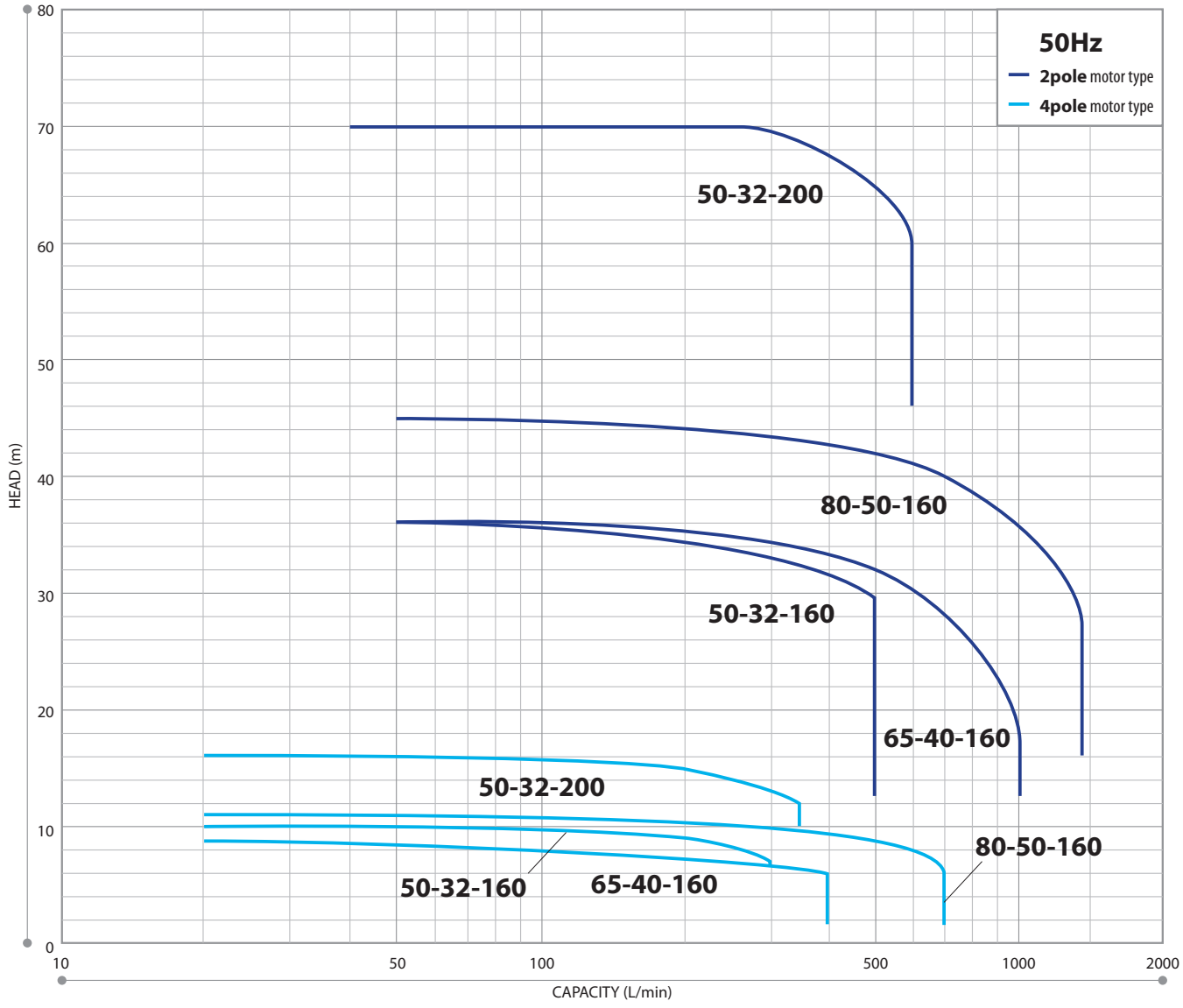
Note1: Please contact us when handling liquid temperature is outside range of 0˚C to 120˚C.
Should your requirement be beyond the specs. shown in this catalog, please contact your nearest Iwaki distributor.

Pump identification

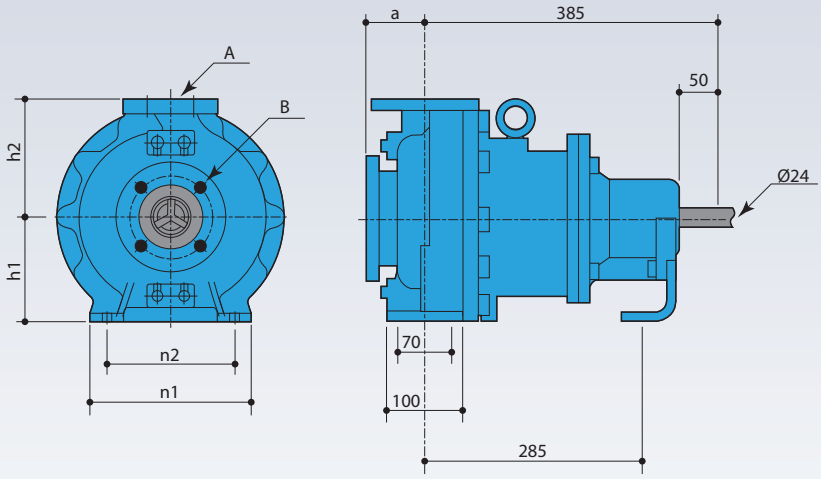
MDM 65 - 40 - 160 P KK C 075 I - D 2 H

- **Pump size** (Suction X Discharge)
  50 - 32: 50mm X 32mm
  65 - 40: 65mm X 40mm
  80 - 50: 80mm X 50mm
- **Impeller size**
  160, **200**mm
- **Wet-end main material**
  P: PFA
- **Material of Bearing / Spindle**
  KK: SiC/SiC
- **Type of motor**
  C: Long coupling type
- **Motor output**
  022: 2.2kW **040**: 4.0kW **055**: 5.5kW
  075: 7.5kW(2P) **110**: 11kW(2P) **150**: 15kW(2P)
- **Standard for pipe connection and motor**
  I: ISO flange + IEC motor
- **Special version**
  A: Without drain + With base
  S: Without drain + With base + Special version
  D: With drain + With base
  X: With drain + With base + Special version
- **Special code**
  H: 80 to 120˚C
  (Applicable model: Flange motor type:
  MDM25-3, MDM32-2 All sizes of long coupling type)
  T: 120 to 150˚C
- **Motor pole**
  2: 2 pole **4**: 4 pole

Performance curves



Dimensions



in mm

Model	a	h1	h2	n1	n2	A	B	Mass kg Less motor
MDM50-32-160	80	132	160	240	190	32	50	70
MDM50-32-200		160	180					80
MDM65-40-160		132	160			40	65	70
MDM80-50-160	100	160	180	265	212	50	80	80

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 45-65Hz	V		200 to 240V 10% shingle phase
	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 in mm			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

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