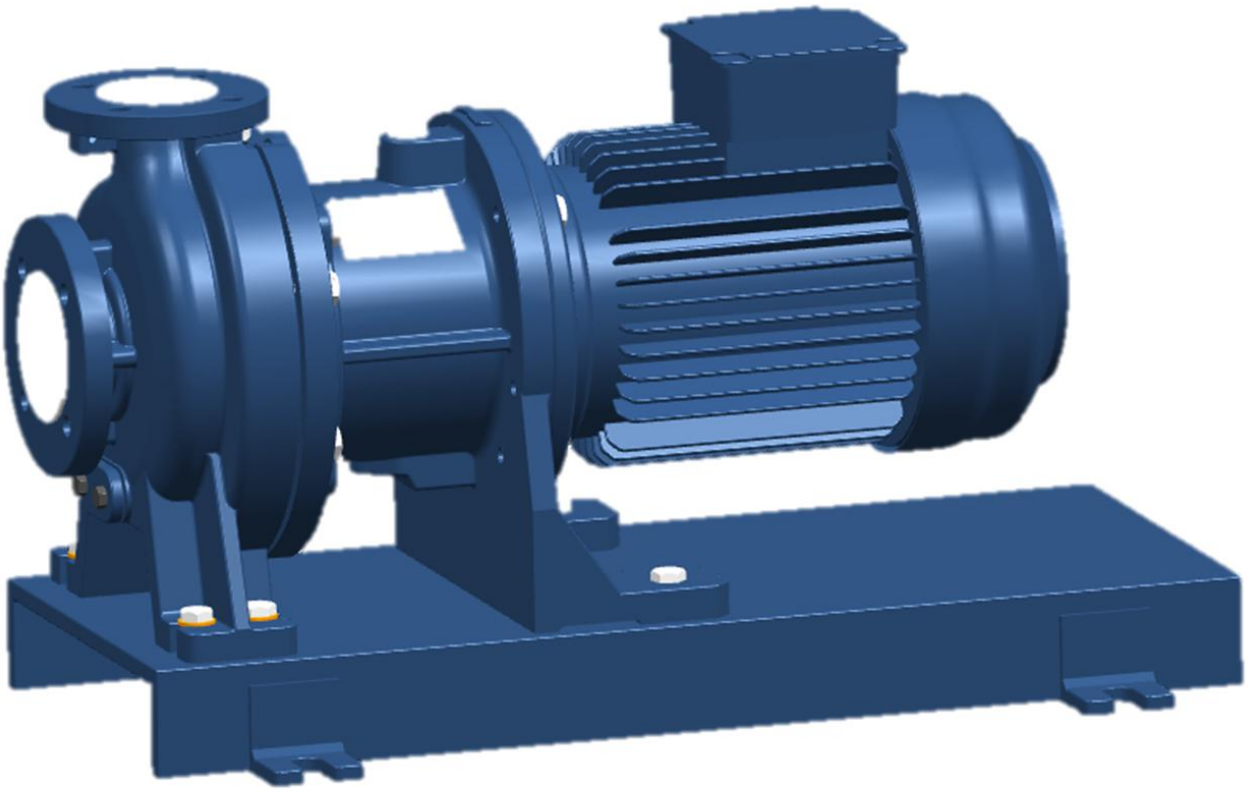
TMM

Series

Corrosion-Resistant Fluorine-lined Magnetic Pump

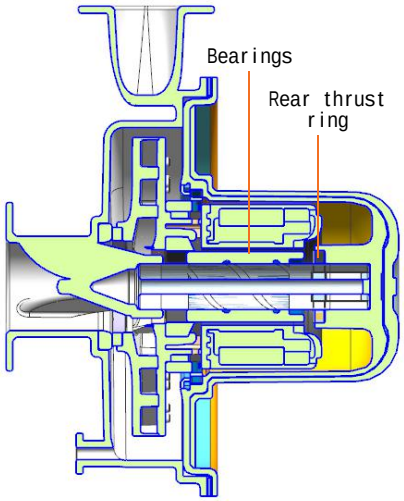


Corrosion-resistant fluorine-lined magnetic pump

The TMM series magnetic pump uses fluoroplastic, with the main materials being Natural PFA and CFRETFE. The unique heat dissipation structure of the TMM series greatly enhances the pump's durability under abnormal conditions such as dry running and gas entrainment. It can be widely used in various chemical processes for transporting strong acid and strong alkali liquids,as well as acidic and alkaline waste liquids containing particulate impurities. It can also be used for transporting high-purity chemicals and ultra-pure water in the semiconductor industry.

Unique dry running heat dissipation design

The design features of the pump have dry running mechanical properties. The strong magnetic force of the rare earth magnets prevents contact between the magnetic capsule and the rear thrust ring. The unique patented heat dissipation flow channel structure design allows the cooling bearings and shaft to carry away excess heat, thus preventing the melting of fluoroplastic components due to overheating. Compared to traditional fluoroplastic magnetic pumps, the dry running performance has been greatly improved.



Uses ETFE and PFA

The resin materials used are carbon fiber reinforced ETFE (CFRETFE)and PFA lining, especially with PFA using NEW PFA grade or higher pure materials, minimizing the leaching of contaminants, making it very suitable for transporting highly corrosive high-purity chemical liquids.

Highly durable structure

The ductile iron outer shell increases the mechanical strength and durability of the pump. The plastic rear shell, which is under the greatest stress, is protected by a fiber-reinforced plastic rear shell reinforcement cover, thus achieving sufficient strength. The rear shell reinforcement cover also eliminates eddy current losses caused by the rotating magnetic field. Even if the rear shell comes into contact with the active magnet, it will not produce sparks or fluid leaks, thus maintaining a high level of safety.

Anti-miscellaneous structure

The unique inner and outer ring design effectively prevents particulate impurities from entering the magnetic capsule chamber, avoiding friction and heat generation between the magnetic capsule and the rear shell due to particles, thus reducing heat generation. This design, compared to traditional designs, can prevent particles from entering and blocking friction, thereby preventing damage and leakage caused by melting of fluoroplastic components due to overheating.

High Pressure Head

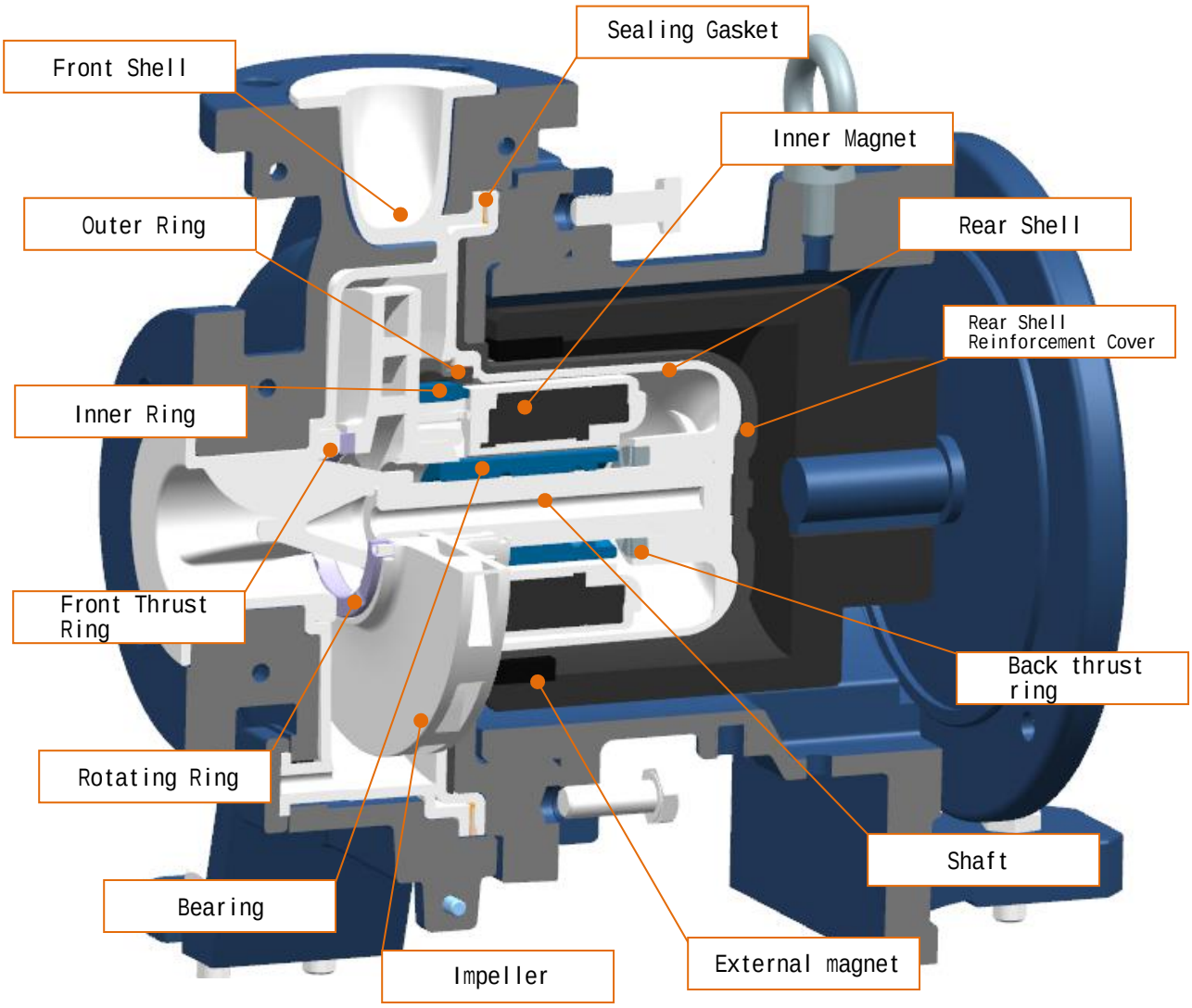
The maximum pressure head of the TMM series can reach **70 meters** (50Hz) and **102 meters** (60Hz).

Complies with JIS standards

The pump has a universal pipeline interface that complies with JIS standards.

Note: ANSI and ISO standard size specifications are also available

Structural Diagram



Material Selection

	Front shell	Back shell	Impeller	Magnetic capsule	Bearing	Shaft	Static ring	Rotating ring	Rear thrust ring	Sealing gasket	Inner ring	Outer ring
ESS	CFRETFE				SSiC				PTFE	PTFE	SSiC	
ASS	PFA								SSiC			

ETFE Front Shell

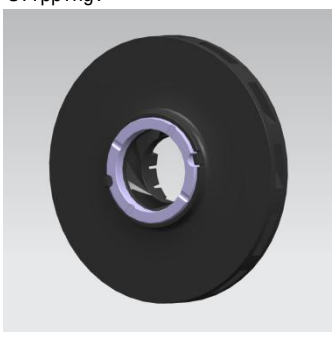
The front shell made of enhanced carbon fiber ETFE (CFRETFE) combines strong mechanical strength with excellent corrosion resistance. The ductile iron outer shell further enhances the pump's mechanical strength and durability.

PFA Type Front Shell

The interior of the ductile iron outer shell is integrally molded with Natural PFA fluoroplastic (NEWPFA grade or above), providing strong pressure resistance. This structure has no impurity precipitation, making it an ideal choice for transporting high-purity liquids.

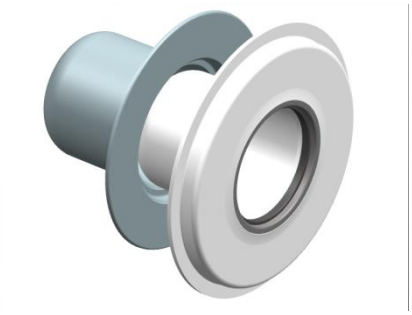
Impeller

The TMM series adopts a high-efficiency closed impeller design. To securely fix the impeller to the magnetic capsule, a snap-fit connection is used to prevent axial movement of the impeller away from the magnetic capsule and to prevent slipping.



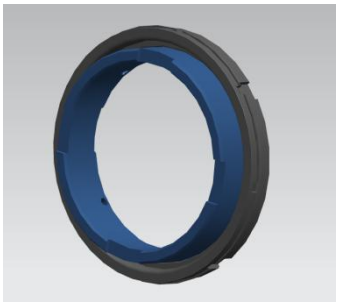
Rear Shell & Rear Shell Reinforcement Cover

The rear shell made of fluoroplastic is reinforced by a fiber-reinforced plastic rear shell reinforcement cover, allowing for a pressure resistance of up to 1.0MPa. This structure eliminates eddy current losses caused by the rotating magnetic field, and even if the rear shell comes into contact with the active magnet, no sparks will be generated.
Additionally, since the front and rear shells are bolted together through the front shell, allowing easier disassembly and not prone to leakage.



Anti-pollution inner and outer ring

The design of the anti-pollution inner and outer ring can effectively prevent particulate impurities from entering the magnetic capsule chamber, avoiding friction and heat generation between the magnetic capsule and the rear shell due to particles.
Compared to traditional designs, this design can reduce heat generation, thereby preventing the melting of fluoroplastic components due to overheating.

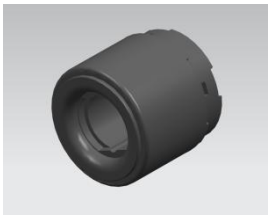


Seal gasket

The gasket is covered with PTFE, which has strong corrosion resistance and excellent sealing properties.

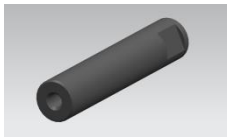
Magnetic Capsule

Powerful rare earth magnets are integrally molded from fluoroplastic,ensuring no demagnetization and high corrosion resistance. The compact and lightweight rare earth magnets improve the pump's efficiency. The anti-idling heat dissipation structure fully utilizes the strong magnetic force of the rare earth magnets, preventing abnormal operation and extending service life.



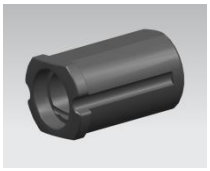
Shaft

The two ends of the shaft core are supported by the front and rear shells. Made of silicon carbide SSIC material, it has strong corrosion resistance, heat and wear resistance, impact resistance, and a long lifespan.



Bearing

The bearing is made of silicon carbide SSIC material. The unique heat dissipation channel design has strong corrosion resistance, heat and wear resistance, impact resistance, and a long lifespan.



Model Identification

TMM 50-40 - 150 A E SS F__ _ 075 Y J - D 2 B P _ _

1 2 3 4 5 6 7 8 9 10 11 12 13

1	Inlet & Outlet	40-25: 40A*25A 50-40: 50A*40A 65-50: 65A*50A 80-65: 80A*65A	7	Motor output power	004:0.4kW(4P) 007:0.75kW(4P) 015:1.5kW 022:2.2kW 037:3.7kW 055:5.5kW 075:7.5kW(2P) 110:11kW(2P) 150:15kW(2P) 185:18.5kW(2P) (60Hz only)
			8	Install Anti-pollution Ring	Y: Install Anti-pollution Ring N: Do not install Anti-pollution Ring
2	Impeller Diameter	100mm～225mm	9	Flange interface and motor standards	J: JIS standard flange + JIS standard motor A: ANSI standard flange + JIS standard motor G: ISO standard flange + IEC standard motor
3	Impeller series code	A, B, C	10	Base	D: With base L: No base
4	Motor terminal material	E: CFRETFE A:PFA	11	Number of poles	2:2 poles 4:4 poles
5	Bearing/Shaft material	SS:SiC/SiC	12	Special Code	B: Standard Type D: Special Customization
6	Motor Type	F: Flange Mounting	13	Motor Type	P: Standard Motor F: Explosion-proof Motor

Specifications

2-Pole Motor Model

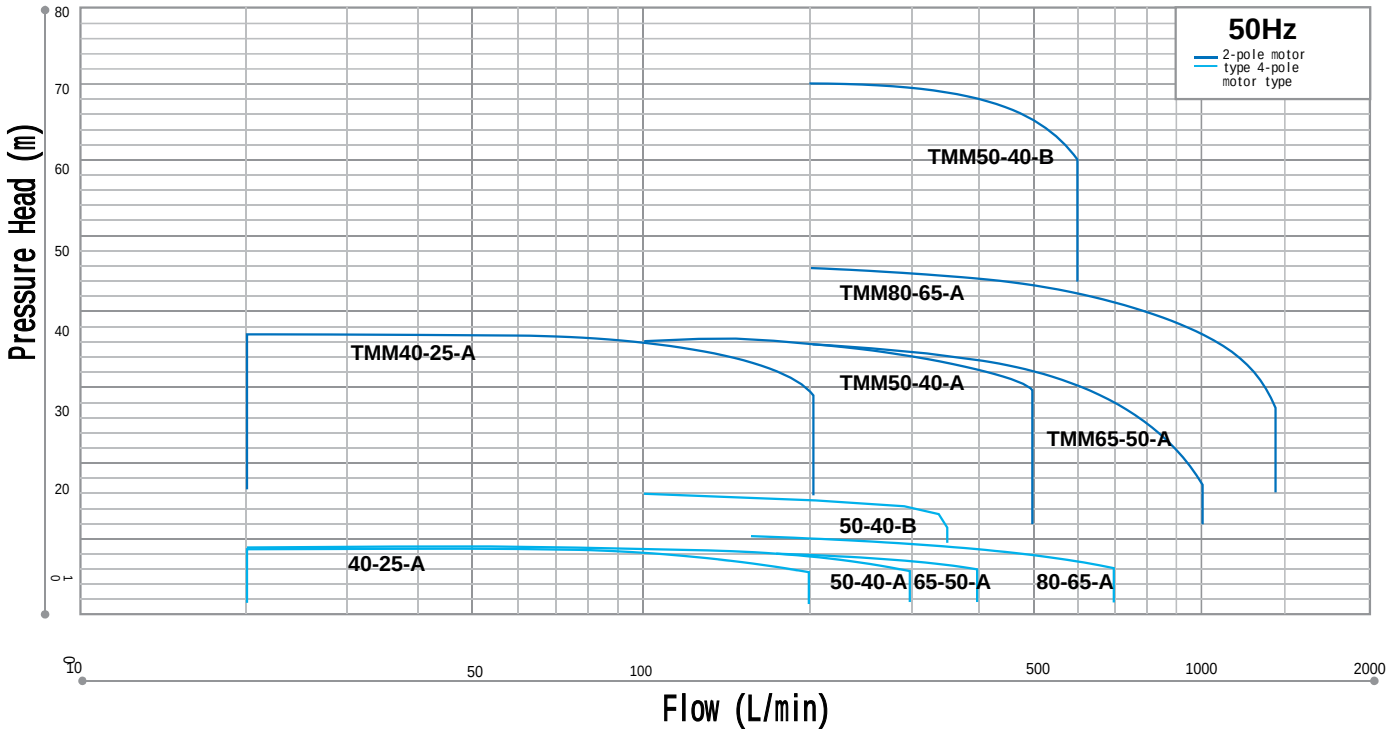
Model	Inlet × Outlet	50Hz			60Hz			Motor power (kW)
		Impeller Diameter	Flow Rate (L/min)	Head (m)	Impeller diameter	Flow Rate (L/min)	Head (m)	
TMM40-25-A (Impeller Series Code A)	40A X 25A	165	100	35.5	140	100	36.0	1.5, 2.2
		160		33.5	130		29.5	
		150		29.0	120		24.5	
		140		25.0	110		20.0	
		130		20.5	100		15.5	
TMM50-40-A (Impeller series code A)	50A X 40A	165	208	35.0	145	250	38.0	3.7, 5.5, 7.5
		160		32.5	140		34.5	
		150		28.5	130		29.0	
		140		25.0	120		24.0	
		130		20.5	110		19.5	
		120		17.0	—		—	
TMM50-40-B (Impeller series code B)	50A X 40A	225	208	70.0	225	250	102.0	5.5,7.5, 11, 15 or 18.5 (only 60Hz)
		220		67.5	220		98.0	
		210		60.0	210		87.0	
		200		54.0	200		78.0	
		190		47.0	190		68.0	
		180		41.5	180		60.5	
		170		38.0	170		53.0	
		160		32.0	160		45.0	
TMM65-50-A	65A X 50A	165	417	33.0	160	500	44.5	3.7, 5.5, 7.5
		160		31.0	150		38.0	
		150		27.0	140		33.0	
		140		22.5	130		27.0	
		130		18.0	120		21.5	
		120		15.0	110		18.5	
		110		12.0	—		—	
TMM80-65-A	80A X 65A	165	833	38.5	160	1000	51.0	5.5, 7.5, 11, 15 or 18.5 (only 60Hz)
		160		35.5	150		44.5	
		150		31.0	140		37.0	
		140		26.5	130		31.5	
		130		22.0	120		26.0	
		120		17.5	110		20.0	
		110		13.5	—		—	

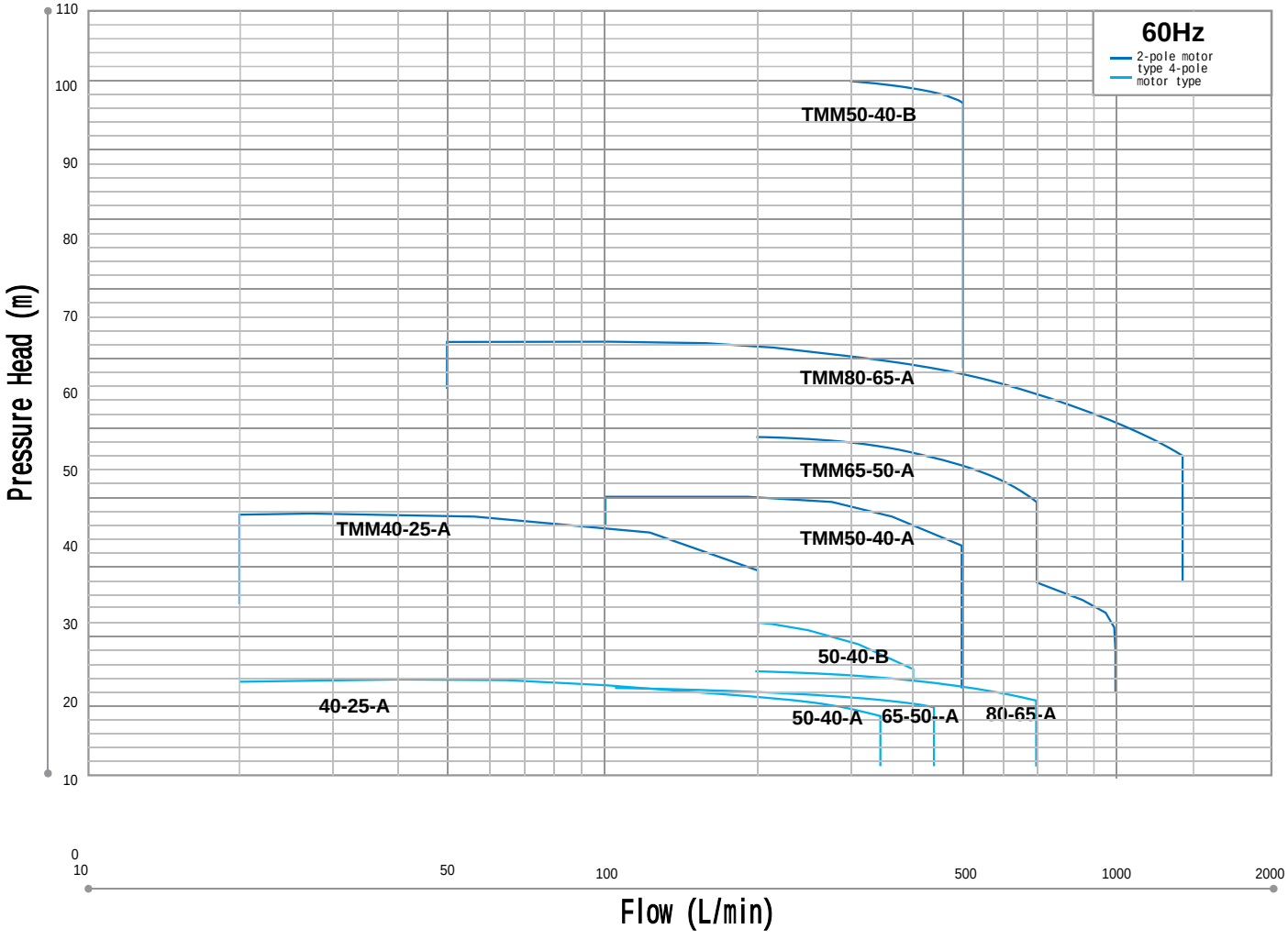
4-pole motor model

Model	Inlet x Outlet	50Hz			60Hz			Motor power (kW)
		Impeller diameter	Flow Rate (L/min)	Head (m)	Impeller diameter	Flow Rate (L/min)	Head (m)	
TMM40-25-A (Impeller series code A)	40A X 25A	170	50	8.5	170	50	12	0.4, 0.75
TMM50-40-A (Impeller series code A)	50A X 40A	170	200	7.5	170	200	11	1.5, 2.2, 3.7
TMM50-40-B (Impeller series code B)	50A X 40A	225	200	15	225	200	22	1.5, 2.2, 3.7, 5.5
TMM65-50-A	65A X 50A	170	300	7.0	170	300	11	1.5, 2.2, 3.7
TMM80-65-A	80A X 65A	170	500	8.0	170	500	13	1.5, 2.2, 3.7, 5.5

Temperature range of the liquid	ETFE type: -20°C to 105°C PFA type: -20°C to 150°C	Note 1	Standard Motor	2 poles, 3 phases, outdoor type, flange-mounted motor	
Maximum pressure strength	1.0MPa (TMM-40-25-A and TMM-50-40-B are 1.6MPa)		Standard coating color	Blue RAL5011	

Note 1: If the material is PFA and the temperature of the conveyed liquid is below 0°C or above 120°C, do notify during order

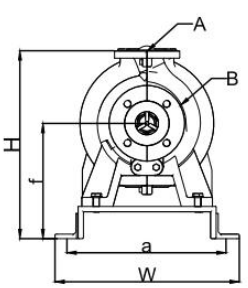

50Hz
2-pole motor
type 4-pole
motor type
Pressure Head (m)
80
70
60
50
40
30
20
10
0
TMM50-40-B
TMM80-65-A
TMM40-25-A
TMM50-40-A
TMM65-50-A
50-40-B
40-25-A
50-40-A
65-50-A
80-65-A
10
50
100
500
1000
2000
Flow (L/min)

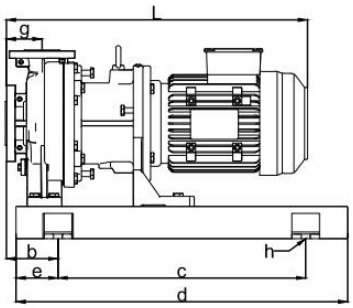

60Hz
2-pole motor
type 4-pole
motor type
Pressure Head (m)
110
100
90
80
70
60
50
40
30
20
10
0
TMM50-40-B
TMM80-65-A
TMM65-50-A
TMM40-25-A
TMM50-40-A
50-40-B
40-25-A
50-40-A
65-50--A
80-65-A
10
50
100
500
1000
2000
Flow (L/min)

External dimensions

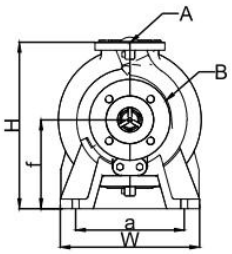
2-pole motor type

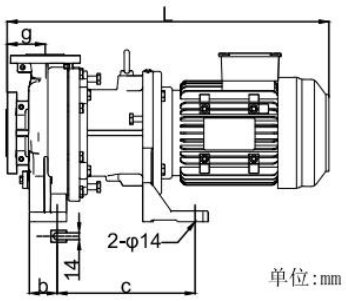
With base





Without base





With base

Model	Motor	W	H	L	a	b	c	d	e	f	g	h	A	B	Weight kg
TMM40-25-A	1.5kW	400	400	515	350	135	480	710	115	240	80	4-ø19	25	40	80
	2.2kW														
TMM50-40-A	3.7kW	400	410	625	350	150	540	800	130	250	80	4-ø19	40	50	115
	5.5kW			689											135
	7.5kW														
TMM50-40-B	5.5kW	400	430	689	350	150	540	800	130	250	80	4-ø19	40	50	150
	7.5kW														155
	11kW	480	500	842	430	170	600	900	150	320					220
	15kW														230
	18.5kW			864											240
TMM65-50-A	3.7kW	400	410	625	350	150	540	800	130	250	80	4-ø19	50	65	115
	5.5kW			689											135
	7.5kW														
TMM80-65-A	5.5kW	400	430	709	350	170	540	800	130	250	100	4-ø19	65	80	145
	7.5kW														
	11kW	480	500	862	430	190	600	900	150	320					210
	15kW														220
	18.5kW			884											230

Without base

Model	Motor	W	H	L	a	b	c	f	g	A	B	Weight kg
TMM40-25-A	1.5kW	180	310	515	130	100	150	150	80	25	40	55
	2.2kW											
TMM50-40-A	3.7kW	280	340	625	220	90	285	180	80	40	50	90
	5.5kW			689			365					105
	7.5kW											
TMM50-40-B	5.5kW	280	360	689	220	90	365	180	80	40	50	120
	7.5kW											125
	11kW		410	842			450	230				170
	15kW											180
	18.5kW			864								190
TMM65-50-A	3.7kW	280	340	625	220	90	285	180	80	50	65	85
	5.5kW			689			365					105
	7.5kW											
TMM80-65-A	5.5kW	280	360	709	220	110	365	180	100	65	80	120
	7.5kW											
	11kW		410	862	220	110	450	230				165
	15kW											175
	18.5kW			884								185

Exploded view