

TEXEL® Corrosion-Resistant Pumps



JQA-2348
JQA-EM4095

TEXEL® Vertical Centrifugal Pumps

VEP • VEM • VEH • VSP • VET • SPL



◀ VEM series
(Made of PVDF)



◀ VEP series
(Made of G-PP)

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Made of G-PP



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Made of G-PP



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Made of PVDF/PP



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Made of PVC



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Made of PVDF/PP



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Features of vertical pumps

- Idling possible (No sliding parts are used.)
- Dynamic seal (Gas seal and rib structure)
- Horizontal installation space can be saved.
- Applicable with slurry containing liquids.
- Cost has been reduced by using a small number of consumable parts.
- Fluororesin pumps are corrosion-resistant. (Chromic acid, hydrofluoric acid, etc.)

Applications of vertical pumps

- For circulation of chemicals in etching machines, etc.
- For circulation of plating liquids such as chromium, nickel and copper
- For circulation of pickling liquids for wire drawing
- For circulation of liquids for waste gas absorbing towers
- Applicable as circulation pump. Can be installed both inside and outside of tank
- For liquid feed from pits



Custom-made pumps

To meet various customer needs, SEIKOW Chemical & Machinery offers custom-made pumps other than the standard series shown in this catalog. Some examples of special design pumps are described in the general capacity chart. An outline of our special design pumps is as follows.

① VSF series

- Specific design that uses FRP as the main material of the pump body
- Suction nozzle diameter: 25 to 300 A
- Maximum discharge rate: 10,000 L/min
- Overall length of tank (From base to discharge center): 1,250 mm (Including submerged bearing)

② VSX series (Tank outline only)

- High pump head pump, guarded with cast casing
- Suction nozzle diameter: 50 to 200 A
- Maximum pump head: 50 m

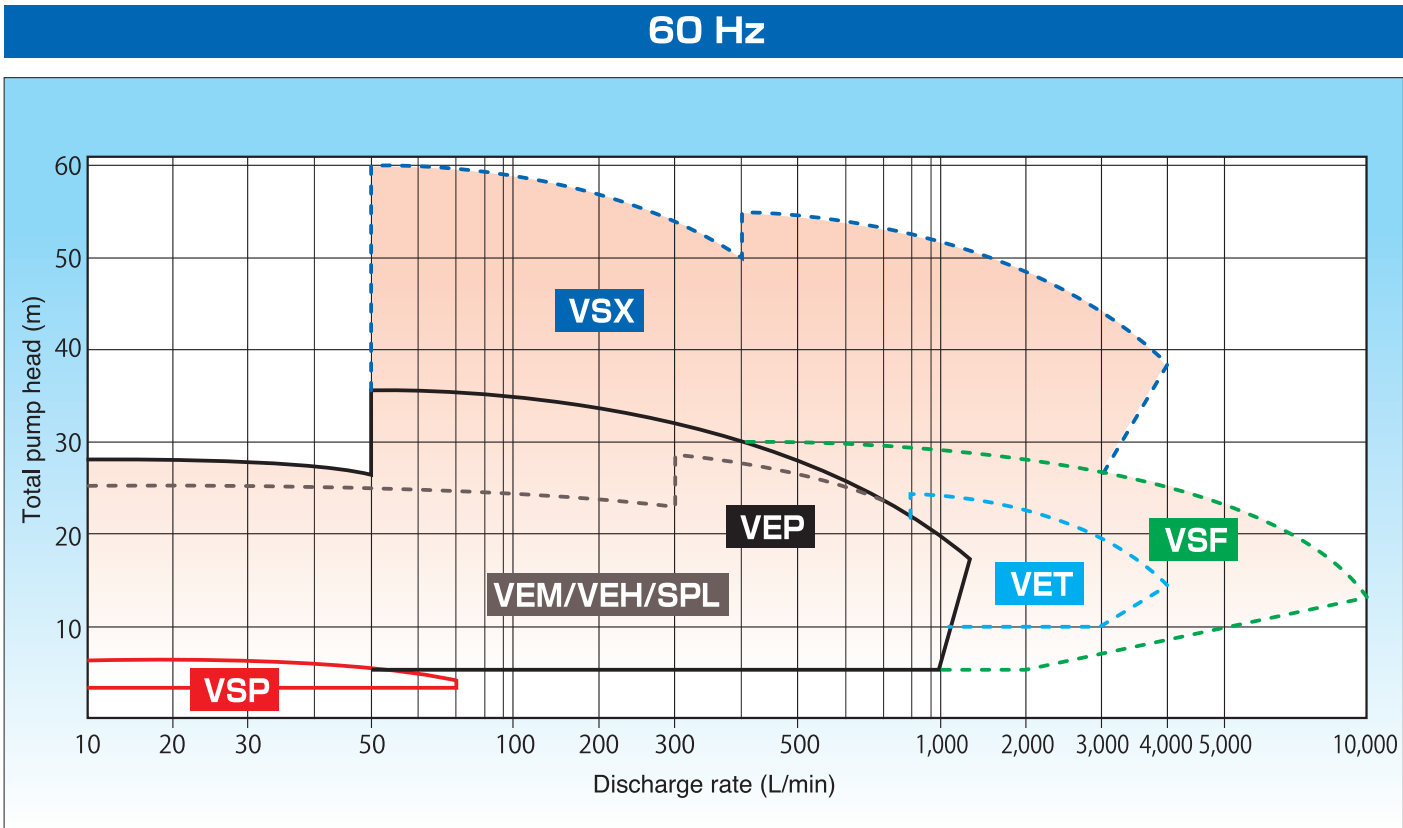
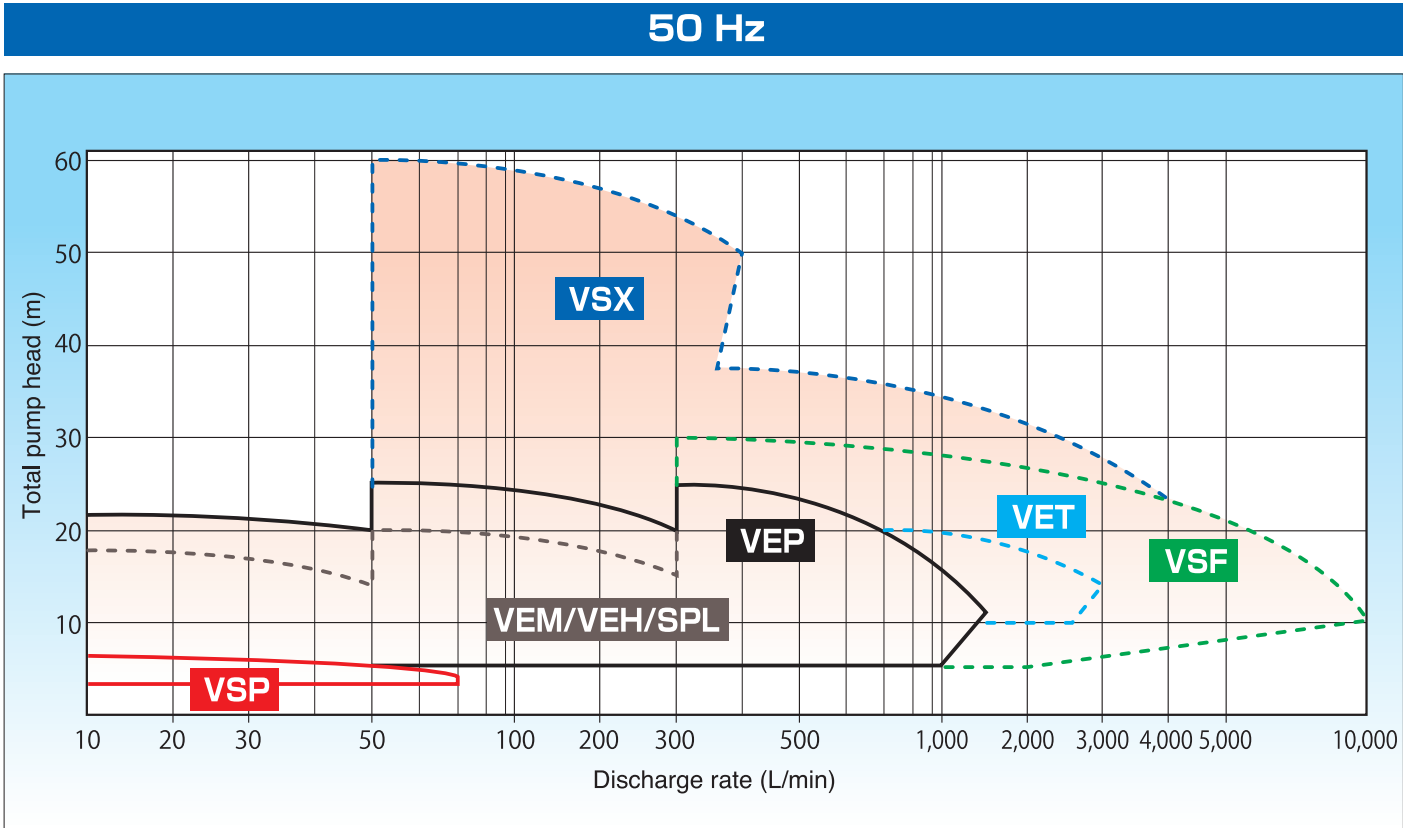
③ VET series

- Specific design that uses FRP as the main material of the pump body
- Suction nozzle diameter: 150 A
- Maximum discharge rate: 4,000 L/min
- Advantageous in cost performance

We also manufacture vertical pumps made of ultra-high density polyethylene that provide excellent wear resistance, and vertical pumps made of SUS that are intended for fields that resin pumps cannot withstand.

These types are referred to as examples. If you have any concerns about volute pumps, contact SEIKOW Chemical Engineering & Machinery.

General Capacity Chart



Necessary Information for Inquiries and Orders

- | | |
|--|--|
| ① Installation location: Inside or outside of tank | ④ Pump head or pressure: m, kgf/cm ² , MPa |
| ② Minimum and maximum water levels at startup | ⑤ Liquid temperature, specific gravity of liquid, density of liquid, viscosity of liquid, mixture of fine powder in liquid |
| ③ Flow rate: "L/min" or "m ³ /hr" | ⑥ Voltage, frequency, motor type |

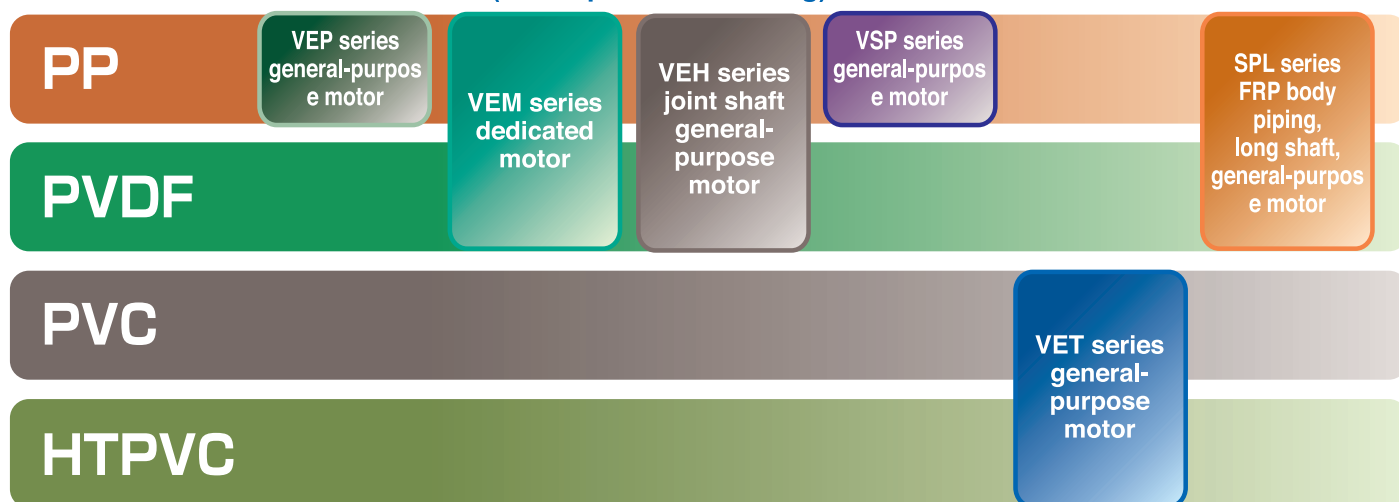
Pump Materials and Characteristics

Types and specifications of vertical pumps

Type	Major characteristics	Main material	Heat resistant temperature (°C)	Nozzle diameter range (A)	Maximum capacity (L/min)	Motor output (kW)
VEP	Injection molded	G-PP	80	25–100	1,400	0.75–7.5
VEM	Short delivery period, Molding	PVDF	90	25–100	1,400	0.75–7.5
VEH	Installation of VEM general-purpose motor	PVDF	90	25–100	1,400	0.75–7.5
VSP	Injection molded, Small size	G-PP	80	25	60	0.2–0.4
VET	Short shaft, High pump head of 30 m, Large flow rate	PVC/HTPVC	50/80	25–150	4,000	0.75–18.5
SPL	For drain pit, Long shaft type	PVDF/FRP	80	25–100	1,400	2.2–22

● G-PP: Glass fiber reinforced polypropylene

Main material classification chart (For impeller and casing)



Parts material table

Parts Material Type	Body piping					O-ring		Shaft sleeve					Dedicated motor	General-purpose motor	Long shaft
	PP	PVDF	PVC	HTPVC	FRP	FPM	EPDM	PP	PVDF	PVC	HTPVC	FEP			
VEP	●					●	●	●						●	
VEM	●	●				●	●	●	●				●		
VEH	●	●				●	●	●	●					●	
VSP	●					●	●	●						●	
VET			●	●		●	●			●	●			●	
SPL					●	●	●					●		●	●

Characteristics of materials

Material	PP	PVDF	PVC	HTPVC	FRP
Characteristics					
Continuous operating temperature (°C)	80	150	50	80	90
Specific gravity	0.91	1,75	1,45	1.65	1,40
Tensile strength (MPa)	33	55	54	60	95
Corrosion resistance	Acid	⊙	⊙	⊙	⊙
	Alkaline	⊙	▲	⊙	⊙
	Organic solvent	▲	▲	✗	✗

- Description of symbols
- : Excellent
 - : Good
 - ▲ : Precautions in use required
 - × : Not applicable

Applicable chemicals for each material

- PP : Chemicals except for organic solvent, sodium hypochlorite, aqua regia and chromic acid
- PVDF : Chemicals except for organic solvent, sodium hydroxide, potassium hydroxide and 98% sulfuric acid
- PVC : Chemicals except for organic solvent (Up to 50°C)
- HTPVC : Chemicals except for organic solvent (Up to 80°C)
- FRP : Chemicals except for organic solvent, hydrofluoric acid, concentrated sulfuric acid and chromic acid

● For details, refer to "Corrosion Resistance Table" (p. 21).

VEP Series



Standard specifications

Structure

Drive: Direct drive motor
 Gas seal: V-ring
 Pump body piping: G-PP
 Casing: Integrated molded volute type
 Impeller: Closed type (Shaft sleeve integrated)
 Operating temperature range: PP: 0 to 80°C
 Rotating direction: Clockwise
 (When viewed from the motor side)
 Flange: Equivalent to JIS 10K RF
 Motor: 2-pole induction motor with
 general-purpose flange, for outdoor use

Model identification

VEP - 040 3 F 02 A N N A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨

① Name

② Nozzle diameter

025: 25A × 25A 040: 40A × 40A
 050: 50A × 50A 065: 65A × 65A
 080: 80A × 80A 100: 100A × 100A

③ Frame No.

④ O-ring material

F: FPM E: EPDM Z: Other

⑤ Motor output

01: 0.75 kW 02: 1.5 kW
 03: 2.2 kW 05: 3.7 kW
 07: 5.5 kW 10: 7.5 kW

⑥ Body material: G-PP

⑦ Installation condition

T: Outside of tank N: Inside of tank (PVC)*
 R: Inside of tank (Other than PVC)

* Indicates materials of suction strainer, discharge pipe and bed plate.

⑧ Flange type

F: Flange type N: Tread type*

* If either the suction or discharge side is of flange type, it is indicated as "F".

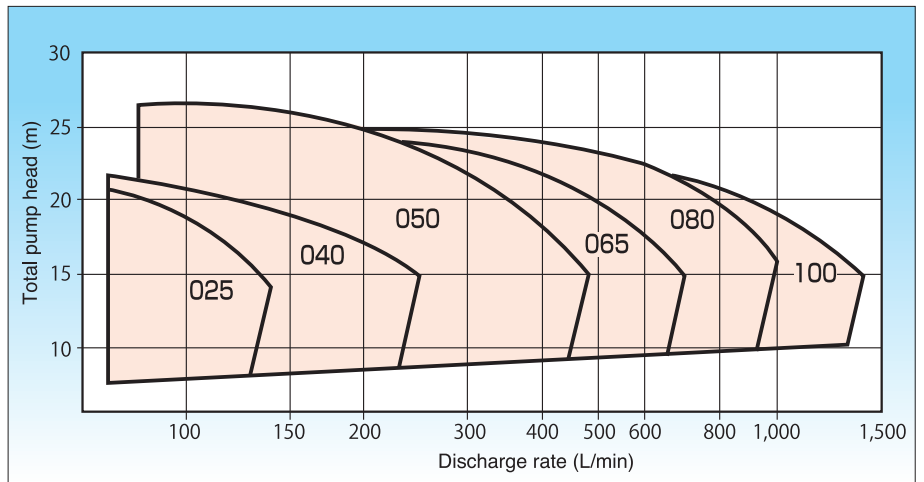
⑨ Connection bolt material

A: PP Blank: SUS304 Z: Other

Applications

- For circulation of chemicals in etching machines, etc.
- For circulation of plating liquids such as nickel and copper
- For circulation of pickling liquids for wire drawing
- For circulation of waste gas absorbing liquids
- Applicable as circulation pump. Can be installed both inside and outside tank.
- Other than the above, applicable for liquid feed from pits

50 Hz model capacity chart

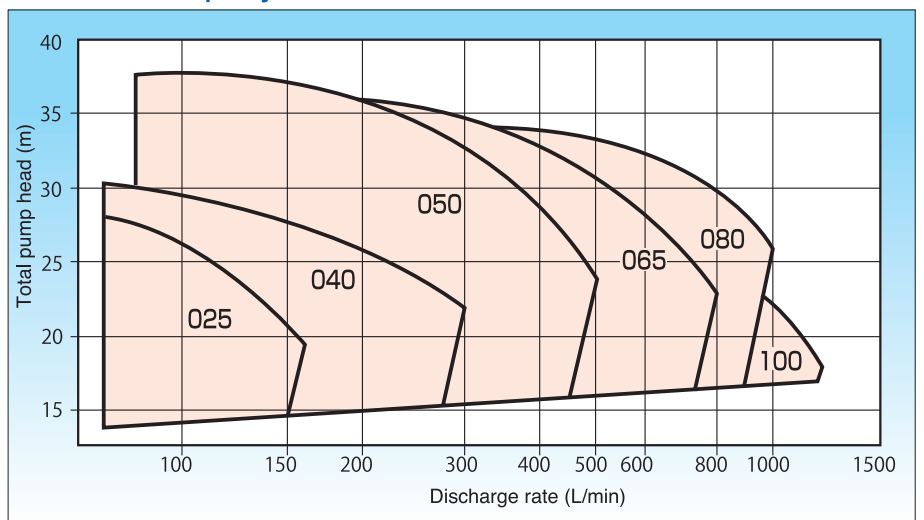


50 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)
VEP-0251	25	60	10
VEP-0253		60	14
VEP-0255		90	15
VEP-0401	40	150	9
VEP-0403		200	15
VEP-0405		240	15
VEP-0501		290	10
VEP-0503	50	300	15
VEP-0505		350	20
VEP-0651	65	400	12
VEP-0653		500	15
VEP-0655		500	18
VEP-0801	80	700	10
VEP-0803		800	15
VEP-0805		900	16
VEP-1001	100	1,000	10
VEP-1003		1,200	15

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

60 Hz model capacity chart



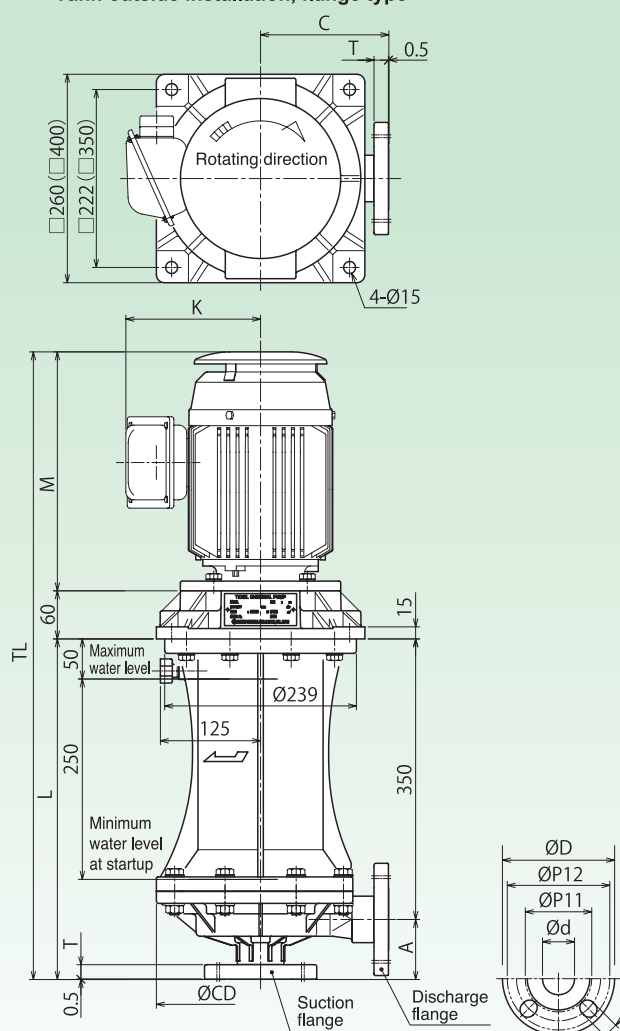
60 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)
VEP-0252	25	50	12
VEP-0254		70	23
VEP-0256		100	23
VEP-0402	40	200	15
VEP-0404		200	22
VEP-0406		240	23
VEP-0502		300	15
VEP-0504	50	350	22
VEP-0506		400	28
VEP-0652	65	500	18
VEP-0654		600	20
VEP-0656		600	26
VEP-0802	80	800	15
VEP-0804		800	24
VEP-0806		800	29
VEP-1002	100	1,200	15

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

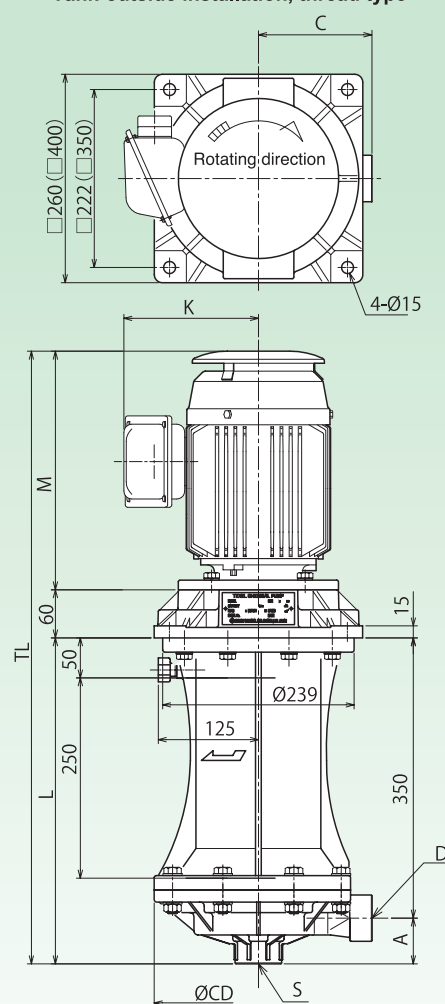
■ Dimensional drawing for tank-outside installation type

● Tank-outside installation, flange type



- In the drawing, () indicates dimensions of the VEP-080/100.
- For nozzle diameters 25 to 65: 0.75 to 3.7 kW × 2P (TEFC)
- For nozzle diameters 80 to 100: 5.5 to 7.5 kW × 2P (TEFC)
- Dimensions of M, K and TL vary depending on motor manufacturer and type.
- The suction and discharge flanges have slots that meet ANSI/DIN/JIS standards.

● Tank-outside installation, thread type



- In the drawing, () indicates dimensions of the VEP-080/100.
- For nozzle diameters 25 to 65: 0.75 to 3.7 kW × 2P (TEFC)
- For nozzle diameters 80 to 100: 5.5 to 7.5 kW × 2P (TEFC)
- Dimensions of M, K and TL vary depending on motor manufacturer and type.
- The suction and discharge flanges have parallel internal threads for piping.

■ Dimensions table for tank-outside installation type

Model	Flange type	Body				Suction/Discharge flange								Body weight (kg)
		A	L	C	φCD	S	D	φd	φP11	φP12	φD	T	N-φZ	
VEP-025	F	75	425	180	(260)	—	—	25	65	109	125	16	4-19	12
	N	57	407	142	(260)	G1"	G1"	—	—	—	—	—	—	
VEP-040	F	75	425	180	(260)	—	—	40	83	128	140	18	4-19	12
	N	57	407	142	(260)	G1" 1/2"	G1" 1/2"	—	—	—	—	—	—	
VEP-050	F	88	438	175	(280)	—	—	50	101	144	155	20	4-19	13
	N	64	414	151	(280)	G2"	G2"	—	—	—	—	—	—	
VEP-065	F	88	438	175	(280)	—	—	65	121	163	175	22	4-19	13
	N	64	414	151	(280)	G2" 1/2"	G2" 1/2"	—	—	—	—	—	—	
VEP-080	F	128	478	240	(336)	—	—	80	131	178	185	22	8-19	20
	N	104	454	216	(336)	G3"	G3"	—	—	—	—	—	—	
VEP-100	F	128	478	240	(336)	—	—	100	156	211	229	22	8-19	20
	N	104	454	216	(336)	G4"	G4"	—	—	—	—	—	—	

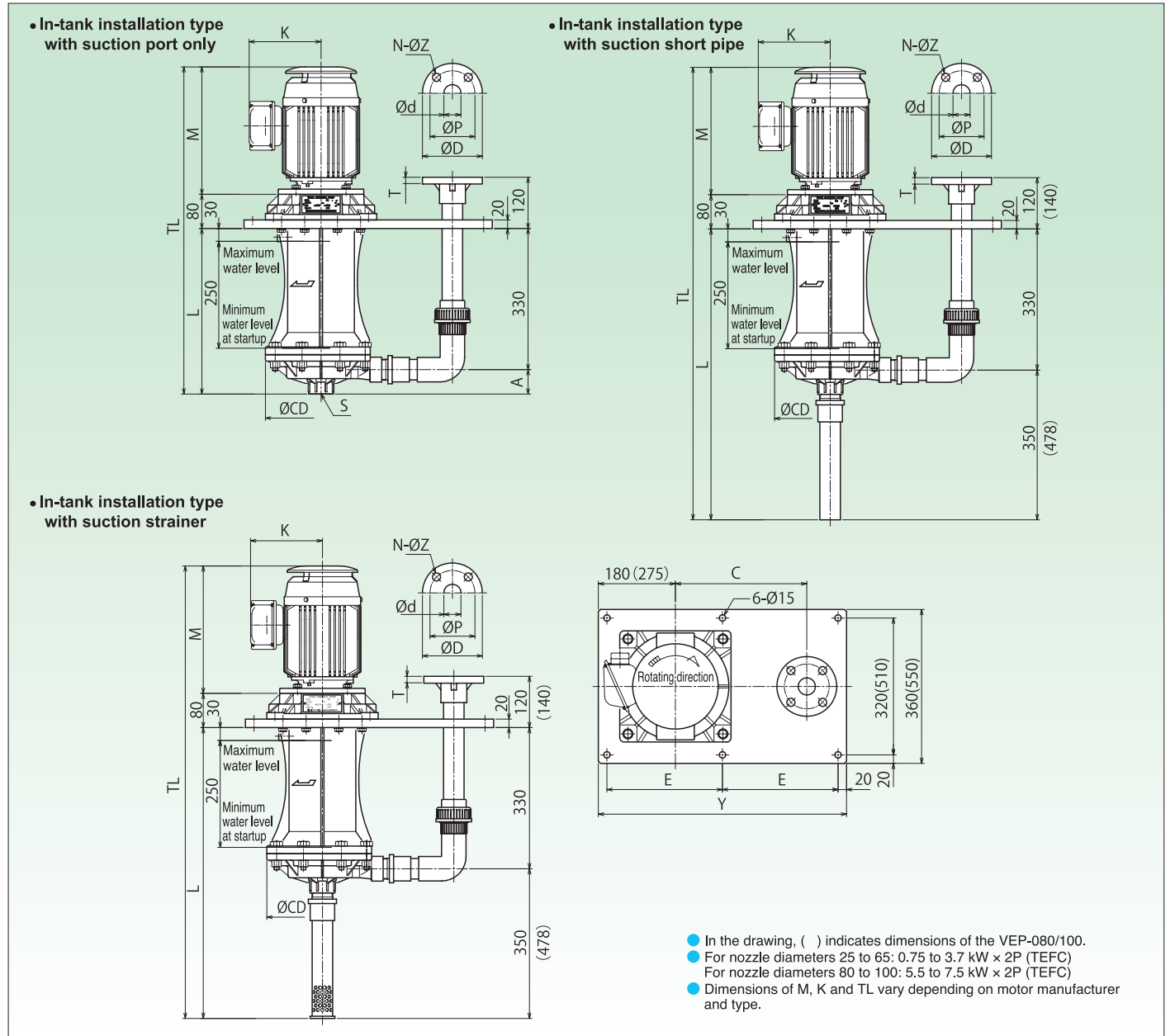
■ Motor weight table

Motor output (kW)	0.75	1.5	2.2	3.7	5.5	7.5
Weight (kg)	19	27	27	51	73	73

The motor weight is not included in the body weight.

VEP Series

■ Dimensional drawing for in-tank installation type



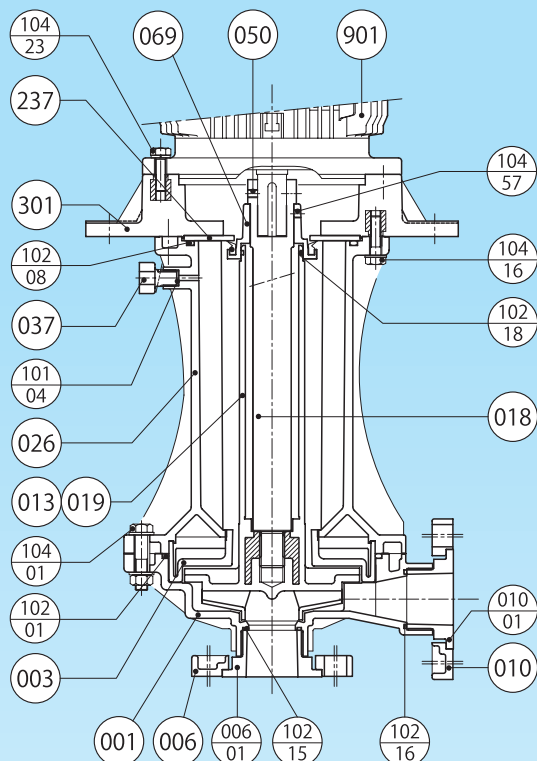
■ Dimensions table for in-tank installation type

Model	Type	Body						Suction port	Discharge flange					Body weight (kg)
		A	L	C	φCD	E	Y	S	φd	φP	φD	T	N - φZ	
VEP-025	Suction port only	57	387	267	(260)	245	530	G1"	25	90	125	15	4-19	16
VEP-040		57	387	307	(260)	270	580	G1" 1/2"	40	105	140	16	4-19	18
VEP-050		64	398	345	(280)	295	630	G2"	50	120	155	20	4-19	19
VEP-065		64	398	359	(280)	305	650	G2" 1/2"	65	140	175	22	4-19	20
VEP-080		104	434	415	(336)	380	800	G3"	80	150	185	22	8-19	36
VEP-100		104	434	487	(336)	430	900	G4"	100	175	210	22	8-19	42
VEP-025	With suction short pipe	—	680	267	(260)	245	530	—	25	90	125	15	4-19	16
VEP-040		—	680	307	(260)	270	580	—	40	105	140	16	4-19	18
VEP-050		—	680	345	(280)	295	630	—	50	120	155	20	4-19	19
VEP-065		—	680	359	(280)	305	650	—	65	140	175	22	4-19	20
VEP-080		—	808	415	(336)	380	800	—	80	150	185	22	8-19	36
VEP-100		—	808	487	(336)	430	900	—	100	175	210	22	8-19	42
VEP-025	With suction strainer	—	680	267	(260)	245	530	—	25	90	125	15	4-19	16
VEP-040		—	680	307	(260)	270	580	—	40	105	140	16	4-19	18
VEP-050		—	680	345	(280)	295	630	—	50	120	155	20	4-19	19
VEP-065		—	680	359	(280)	305	650	—	65	140	175	22	4-19	20
VEP-080		—	808	415	(336)	380	800	—	80	150	185	22	8-19	36
VEP-100		—	808	487	(336)	430	900	—	100	175	210	22	8-19	42

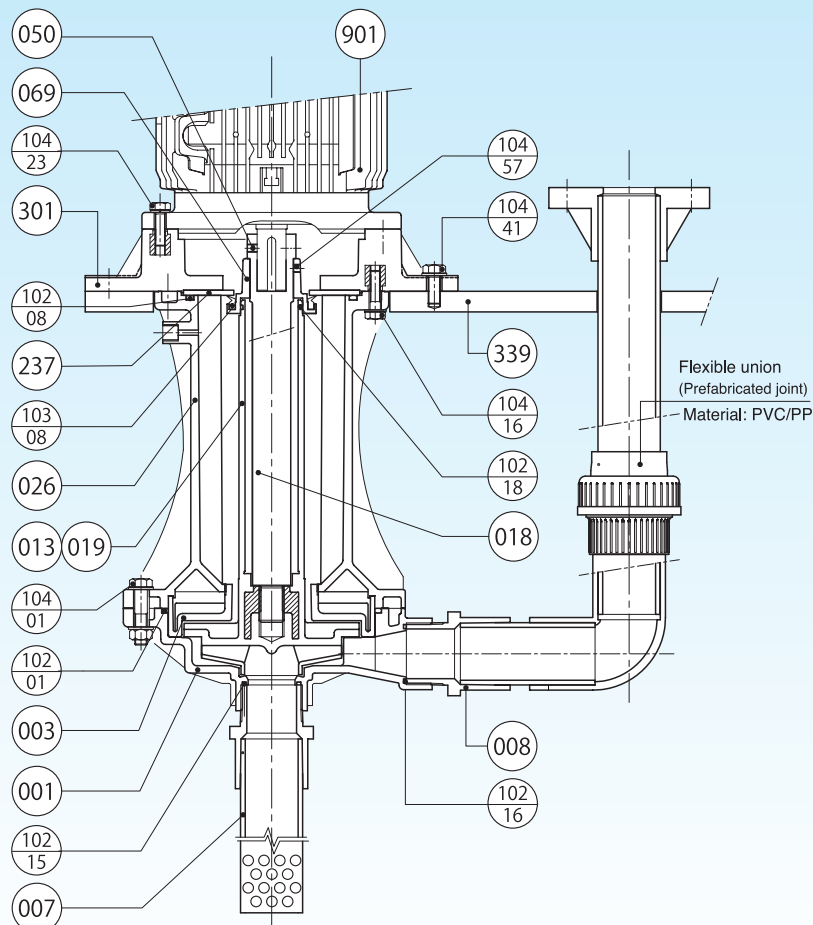
The motor weight is not included in the body weight.

Cross-section structural drawing

• Tank-outside installation type



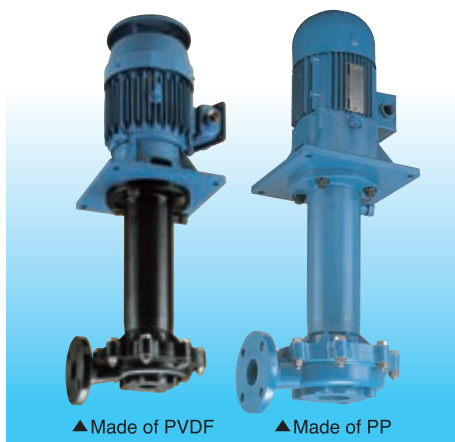
• In-tank installation type



Part No.	Part name	Material	Q'ty
001	Casing	G-PP	1
003	Casing cover ring	G-PP	1
006	Suction flange	G-PP	1
006-01	Suction flange adaptor	G-PP	1
010	Discharge flange	G-PP	1
010-01	Discharge flange adaptor	G-PP	1
013	Impeller (Shaft sleeve integrated)	G-PP	1
018	Main shaft	S45C	1
019	Shaft sleeve	PP	1
026	Pump body piping	G-PP	1
037	Air vent plug	PP	1
050	Main shaft set screw	SCM	2
069	Gas seal support	G-PP	1
101-04	Gasket (Air vent plug)	FPM	1
102-01	O-ring (Casing)	FPM/EPDM	1
102-08	O-ring (Gas seal plate)	EPDM	1
102-15	O-ring (Suction flange)	FPM/EPDM	1
102-16	O-ring (Discharge flange)	FPM/EPDM	1
102-18	O-ring (Gas seal support)	EPDM	1
103-08	Gas seal (V-ring)	FPM	1
104-01	Casing bolt/nut	SUS304	1 set
104-16	Pump body piping bolt	SUS304	8
104-23	Motor bolt	SUS304	4
104-57	Gas seal support set screw	SCM	2
237	Gas seal plate	C-PTFE	1
301	Motor base	G-PP	1
901	Motor		1

Part No.	Part name	Material	Q'ty
001	Casing	G-PP	1
003	Casing cover ring	G-PP	1
007	Suction strainer	PVC/PP	1 set
008	Discharge pipe	PVC/PP	1 set
013	Impeller (Shaft sleeve integrated)	G-PP	1
018	Main shaft	S45C	1
019	Shaft sleeve	PP	1
026	Pump body piping	G-PP	1
050	Main shaft set screw	SCM	2
069	Gas seal support	G-PP	1
102-01	O-ring (Casing)	FPM/EPDM	1
102-08	O-ring (Gas seal plate)	EPDM	1
102-15	O-ring (Suction flange)	FPM/EPDM	1
102-16	O-ring (Discharge flange)	FPM/EPDM	1
102-18	O-ring (Gas seal support)	EPDM	1
103-08	Gas seal (V-ring)	FPM	1
104-01	Casing bolt/nut	PP	1 set
104-16	Pump body piping bolt	SUS304	8
104-23	Motor bolt	SUS304	4
104-41	Base plate bolt	SUS304	4
104-57	Gas seal support set screw	SCM	2
237	Gas seal plate	C-PTFE	1
301	Motor base	G-PP	1
339	Base plate	PVC	1
901	Motor		1

VEM Series



Standard specifications

Structure

- Drive: Direct drive motor
- Gas seal: Double seal using V-ring and air ring
- Pump body piping: High rigidity plastic type with metal insert
- Casing: Integrated molded volute type
- Impeller: Closed type (Shaft sleeve integrated)
- Operating temperature range:
 - PP: 0 to 80°C
 - PVDF: 0 to 90°C
- Rotating direction: Clockwise
(When viewed from the motor side)
- Flange: Equivalent to JIS 10K FF
- Motor: 2-pole induction motor with dedicated flange, for outdoor use
- Paint color: Equivalent to Munsell 2.5B4/8 (Motor)

Model identification

VEM - 025 1 F 01 P N A

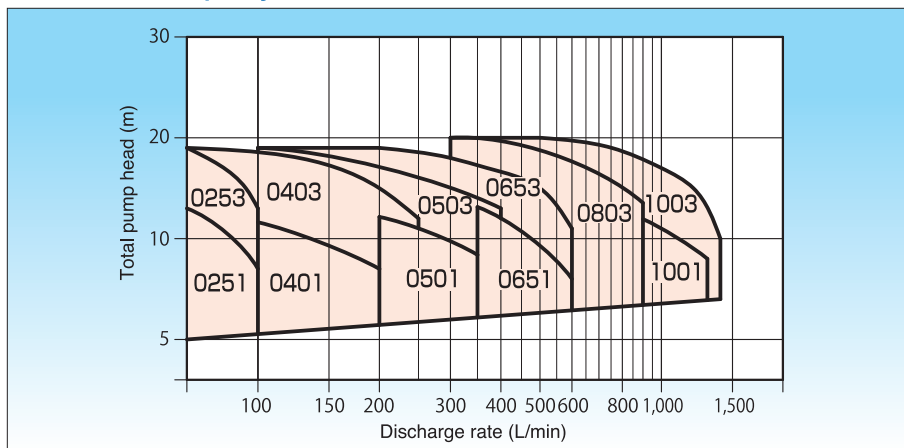
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- ① Name ② Nozzle diameter ③ Frame No.
- ④ O-ring material
F: FPM E: EPDM
- ⑤ Motor output
01: 0.75 kW 02: 1.5 kW
03: 2.2 kW 05: 3.7 kW
07: 5.5 kW 10: 7.5 kW
- ⑥ Body material (casing, body piping, etc.) and length under neck
P: Made of PP, Length under neck: 400 mm
K: Made of PP, Length under neck: 275 mm
M: Made of PVDF, Length under neck: 400 mm
S: Made of PVDF, Length under neck: 275 mm
- ⑦ Installation condition
T: Outside of tank N: Inside of tank (PVC)*
R: Inside of tank (Other than PVC)
* Indicates materials of suction strainer, discharge pipe and bed plate.
- ⑧ Material of bolts inside tank
A: PP P: PVDF
(Blank: SUS)

Applications

- For circulation of chemicals in etching machines, etc.
- For circulation of plating liquids such as chromium, nickel, copper and electroless plating
- For circulation of pickling liquids for wire drawing
- For circulation of waste gas absorbing liquids
- Applicable as circulation pump. Can be installed both inside and outside tank.
- Other than the above, applicable for liquid feed from pits

50 Hz model capacity chart



50 Hz model specifications table

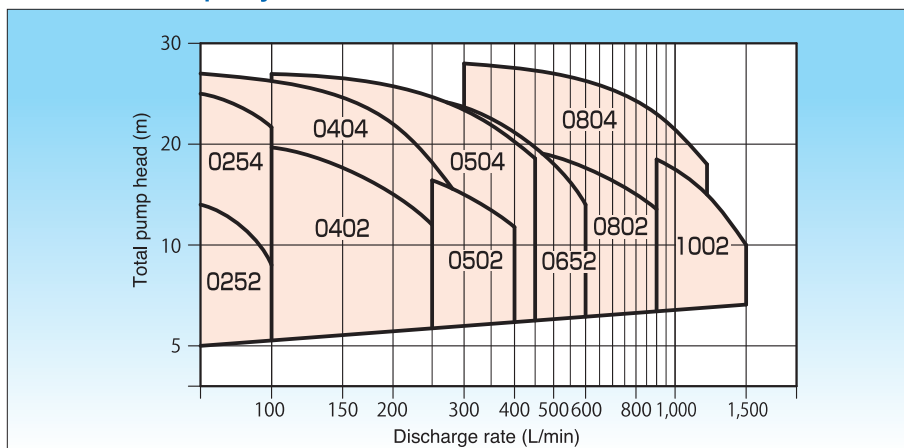
Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
VEM-0251	25	60	10	0.75
VEM-0253		50	14	1.5
VEM-0401	40	150	9	0.75
VEM-0403		200	15	1.5
VEM-0501	50	290	10	1.5
VEM-0503		300	15	2.2
VEM-0651	65	400	12	2.2
VEM-0653		500	15	3.7
VEM-0803	80	800	15	5.5
VEM-1001	100	1,000	10	5.5
VEM-1003		1,200	15	7.5

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

Model	Applicable motor (kW)
VEM-0251-0653	0.75, 1.5, 2.2, 3.7
VEM-0803-1003	5.5, 7.5

Only a dedicated motor (full-closed, outer fan type for outdoor use) can be used.

60 Hz model capacity chart



60 Hz model specifications table

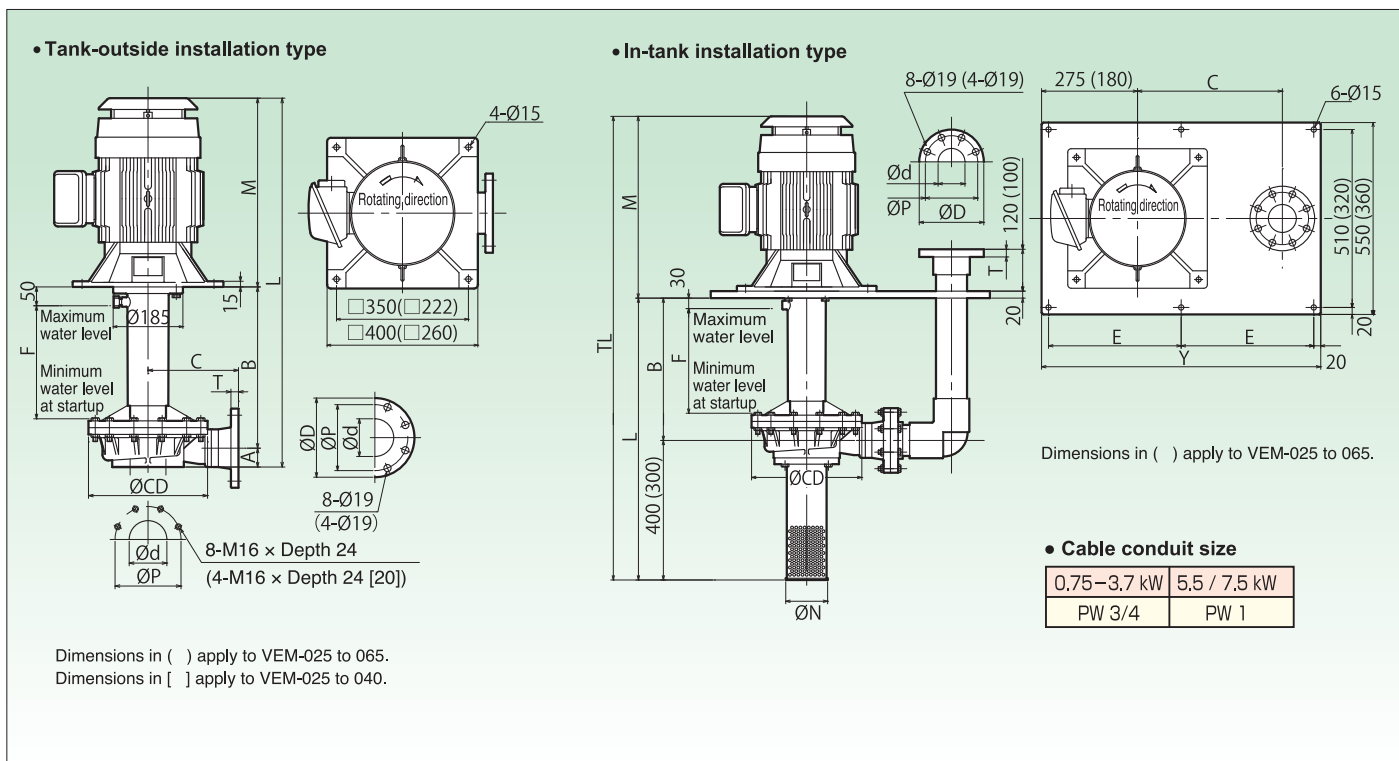
Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
VEM-0252	25	50	12	0.75
VEM-0254		70	23	1.5
VEM-0402	40	200	15	1.5
VEM-0404		200	22	2.2
VEM-0502	50	300	15	2.2
VEM-0504		350	22	3.7
VEM-0652	65	500	18	3.7
VEM-0802	80	800	15	5.5
VEM-0804		800	24	7.5
VEM-1002	100	1,200	15	7.5

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

Model	Applicable motor (kW)
VEM-0252-0652	0.75, 1.5, 2.2, 3.7
VEM-0802-1002	5.5, 7.5

Only a dedicated motor (full-closed, outer fan type for outdoor use) can be used.

■ Dimensional drawing



■ Dimensions table for tank-outside installation type

Model	Motor (kW)	A	B		F		L		C	M	φCD	φd	φP	φD	T
			K/S type	P/M type	K/S type	P/M type	K/S type	P/M type							
VEM-025	0.75	25	275	400	175	300	691	816	160	356	240	25	90	125	16
	1.5	25	275	400	175	300	729	854	160	391	240	25	90	125	16
	2.2	25	275	400	175	300	729	854	160	391	240	25	90	125	16
VEM-040	0.75	25	275	400	175	300	691	816	160	356	240	40	105	140	16
	1.5	25	275	400	175	300	729	854	160	391	240	40	105	140	16
	2.2	25	275	400	175	300	729	854	160	391	240	40	105	140	16
	3.7	25	275	400	175	300	777	902	160	458	240	40	105	140	16
VEM-050	1.5	38	275	400	175	300	745	867	175	391	260	50	120	155	16
	2.2	38	275	400	175	300	742	867	175	391	260	50	120	155	18
	3.7	38	275	400	175	300	790	915	175	458	260	50	120	155	18
VEM-065	2.2	38	275	400	175	300	724	867	175	391	260	65	140	175	18
	3.7	38	275	400	175	300	790	915	175	458	260	65	140	175	18
VEM-080	5.5	50	—	428	—	300	—	982	240	499	310	77	150	185	20
	7.5	50	—	428	—	300	—	982	240	499	310	77	150	185	20
VEM-100	5.5	50	—	428	—	300	—	982	240	499	310	100	175	210	20
	7.5	50	—	428	—	300	—	982	240	499	310	100	175	210	20

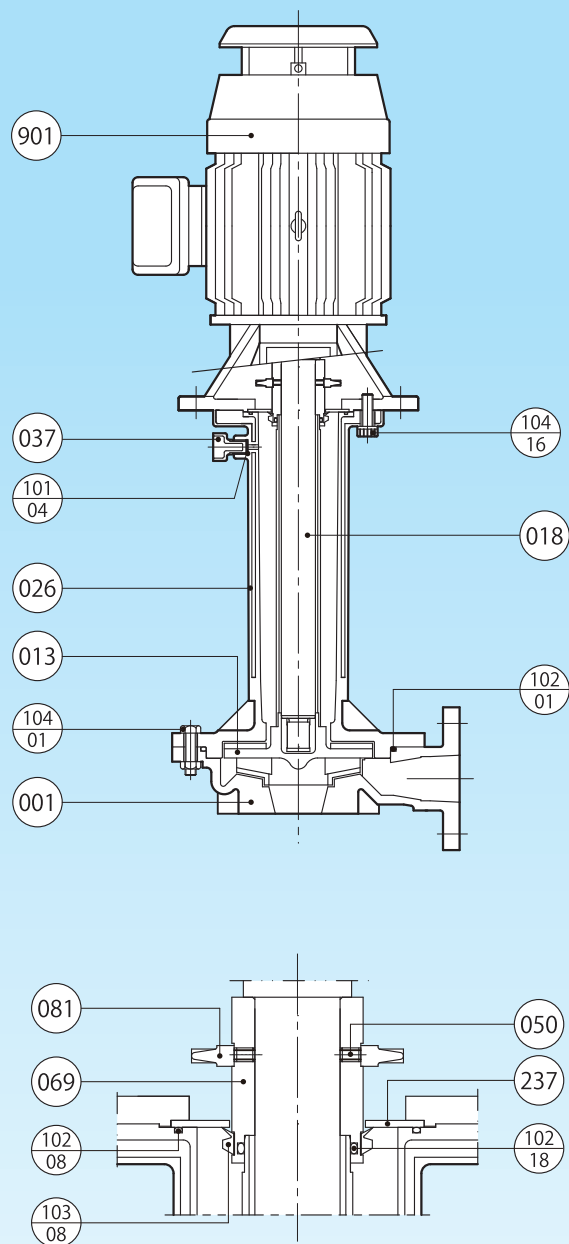
■ Dimensions table for in-tank installation type

Model	Motor (kW)	B		F		L		TL		C	M	φCD	φN	E	Y	φd	φP	φD	T
		K/S type	P/M type	K/S type	P/M type	K/S type	P/M type	K/S type	P/M type										
VEM-025	0.75	255	380	175	300	555	680	931	1056	267	376	240	58	245	530	25	90	125	16
	1.5	255	380	175	300	555	680	966	1091	267	411	240	58	245	530	25	90	125	16
	2.2	255	380	175	300	555	680	966	1091	267	411	240	58	245	530	25	90	125	16
VEM-040	0.75	255	380	175	300	555	680	931	1056	307	376	240	58	270	580	40	105	140	16
	1.5	255	380	175	300	555	680	966	1091	307	411	240	58	270	580	40	105	140	16
	2.2	255	380	175	300	555	680	966	1091	307	411	240	58	270	580	40	105	140	16
VEM-050	0.75	255	380	175	300	555	680	1033	1158	307	478	240	58	270	580	40	105	140	16
	1.5	255	380	175	300	555	680	966	1091	175	391	260	86	295	630	50	120	155	16
	2.2	255	380	175	300	555	680	966	1091	175	391	260	86	295	630	50	120	155	18
VEM-065	3.7	255	380	175	300	555	680	1033	1158	175	438	260	86	295	630	50	120	155	18
	2.2	255	380	175	300	555	680	966	1091	175	391	260	86	305	650	65	140	175	18
VEM-080	3.7	255	380	175	300	555	680	1033	1158	175	438	260	86	305	650	65	140	175	18
	5.5	—	408	—	300	—	808	—	1327	240	475	310	124	380	800	77	150	185	20
VEM-100	7.5	—	408	—	300	—	808	—	1327	240	475	310	124	380	800	77	150	185	20
	5.5	—	408	—	300	—	808	—	1327	240	475	310	124	430	900	100	175	210	20
	7.5	—	408	—	300	—	808	—	1327	240	475	310	124	430	900	100	175	210	20

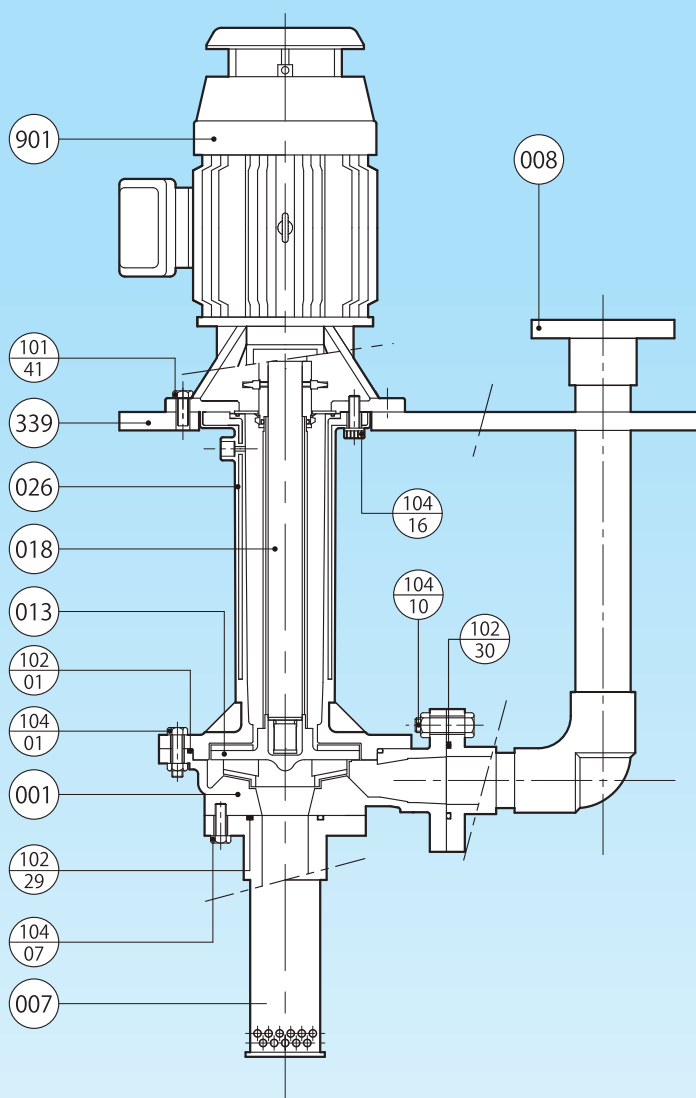
VEM Series

Cross-section structural drawing

• Tank-outside installation type



• In-tank installation type



Part No	Part name	Material	Q'ty
001	Casing	PVDF/PP	1
007	Suction strainer	PVC(HT.PVC)	1
008	Discharge pipe	PVC(HT.PVC)	1
013	Impeller (Shaft sleeve integrated)	PVDF/PP	1
018	Main shaft	S45C	1
026	Pump body piping	PVDF/PP	1
050	Gas seal support set screw	SUS304	1 set
069	Gas seal support	PP	1
081	Air ring	EPDM	1
101-04	Gasket (Air vent plug)	FPM	1
102-01	O-ring (Casing)	EPDM	1
102-08	O-ring (Gas seal plate)	EPDM	1

Part No.	Part name	Material	Q'ty
102-18	O-ring (Gas seal support)	EPDM	1
102-29	O-ring (Suction strainer)	FPM/EPDM	1
102-30	O-ring (Discharge pipe)	FPM/EPDM	1
103-08	V-ring (Gas seal)	FPM	1
104-01	Casing bolt/nut	PVDF/PP	1 set
104-07	Suction strainer bolt	PVC(HT.PVC)	1 set
104-10	Discharge pipe bolt/nut	PVDF/PP	1 set
104-16	Pump body piping bolt	PPS	1 set
104-41	Head plate bolt	SUS304	1 set
237	Gas seal plate	C-PTFE	1
339	Bed plate	PVC	1
901	Motor		1

* ● 007: Exchangeable with suction short pipe.

● 104-01: For tank outside installation, SUS304 is used.

VEH Series



Standard specifications

Structure

- Drive: Direct drive motor
- Gas seal: Double seal using V-ring and air ring
- Pump body piping: High rigidity plastic type with metal insert
- Casing: Integrated molded volute type
- Impeller: Closed type (Shaft sleeve integrated)

Operating temperature range:

- PP: 0 to 80°C
- PVDF: 0 to 90°C

Rotating direction: Clockwise

(When viewed from the motor side)

Flange: Equivalent to JIS 10K FF

Motor: 2-pole induction motor of general-purpose flange type for outdoor use

Paint color: Equivalent to Munsell 2.5B4/8 (Metal, such as bed plate)

Model identification

VEH - 025 1 F 01 P N A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Name ② Nozzle diameter ③ Frame No.

④ O-ring material

E: EPDM F: FPM

⑤ Motor output

01: 0.75 kW 02: 1.5 kW

03: 2.2 kW 05: 3.7 kW

07: 5.5 kW 10: 7.5 kW

⑥ Body material (casing, body piping, etc.) and length under neck

P: Made of PP, Length under neck: 400 mm

K: Made of PP, Length under neck: 275 mm

M: Made of PVDF, Length under neck: 400 mm

S: Made of PVDF, Length under neck: 275 mm

C: Made of PP, Length under neck: 350 mm

V: Made of PVDF, Length under neck: 350 mm

⑦ Installation condition

T: Outside of tank N: Inside of tank (PVC)*

R: Inside of tank (Other than PVC)

* Indicates materials of suction strainer, discharge pipe and bed plate.

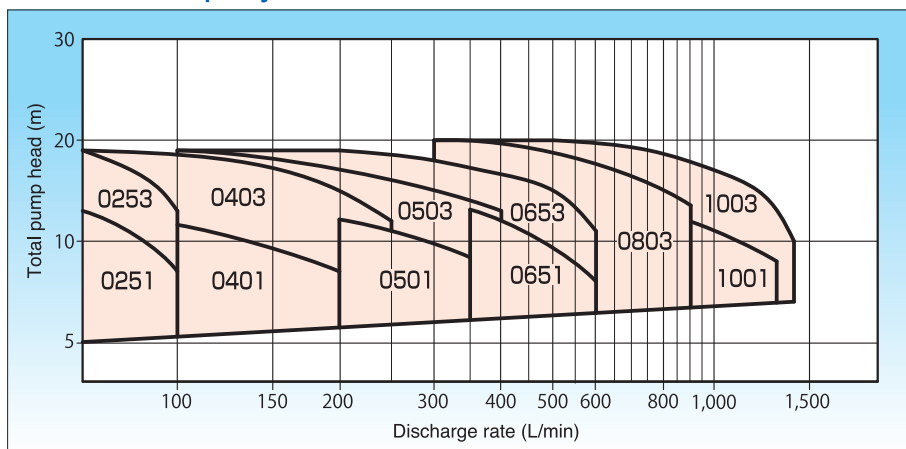
⑧ Material of bolts inside tank

A: PP P: PVDF

(Blank: SUS)

* The C/V type is applicable with nozzle diameters 80 and 100 only.

50 Hz model capacity chart



50 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
VEH-0251	25	60	10	0.75
VEH-0253		50	14	1.5
VEH-0401	40	150	9	0.75
VEH-0403		200	15	1.5
VEH-0501	50	290	10	1.5
VEH-0503		300	15	2.2
VEH-0651	65	400	12	2.2
VEH-0653		500	15	3.7
VEH-0803	80	800	15	5.5
VEH-1001	100	1,000	10	5.5
VEH-1003		1,200	15	7.5

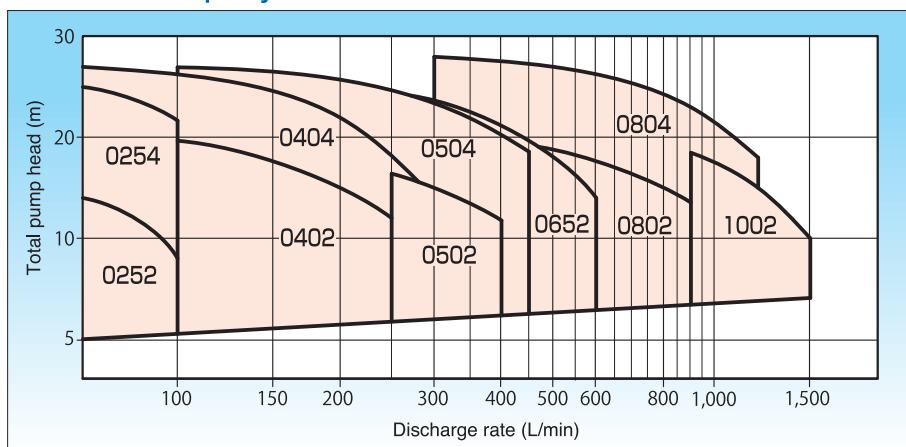
50 Hz model applicable motors

Model	Applicable motor (kW)
VEH-0251-0653	0.75, 1.5, 2.2, 3.7
VEH-0803-1003	5.5, 7.5

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

Motor: For fully-closed outer fan type for outdoor use

60 Hz model capacity chart



60 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
VEH-0252	25	50	12	0.75
VEH-0254		70	23	1.5
VEH-0402	40	200	15	1.5
VEH-0404		200	22	2.2
VEH-0502	50	300	15	2.2
VEH-0504		350	22	3.7
VEH-0652	65	500	18	3.7
VEH-0802	80	800	15	5.5
VEH-0804		800	24	7.5
VEH-1002	100	1,200	15	7.5

60 Hz model applicable motors

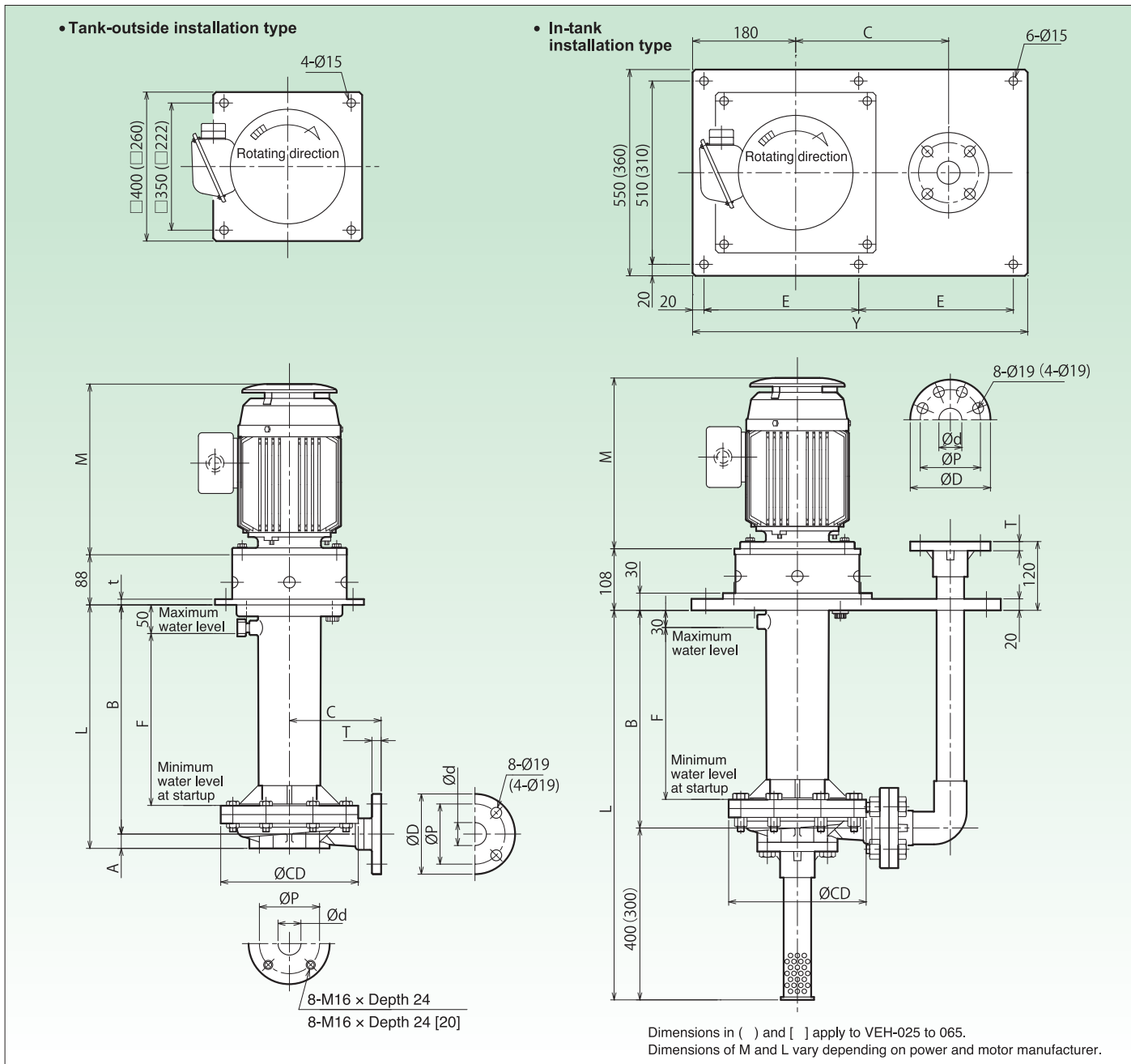
Model	Applicable motor (kW)
VEH-0252-0652	0.75, 1.5, 2.2, 3.7
VEH-0802-1002	5.5, 7.5

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

Motor: For fully-closed outer fan type for outdoor use

VEH Series

■ Dimensional drawing



■ Dimensions table for tank-outside installation type

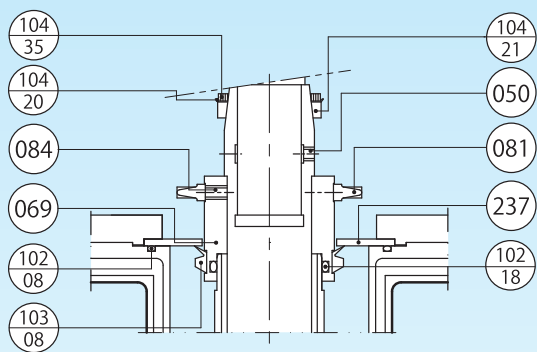
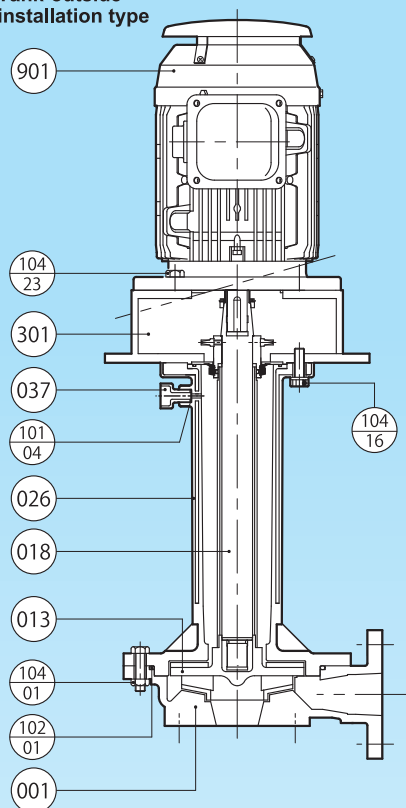
Model	A	B		F		L		C	ØCD	Ød	ØP	ØD	T	t
		K/S	P/M, C/V	K/S	P/M, C/V	K/S	P/M, C/V							
VEH-025	25	275	400	175	300	300	425	160	240	25	90	125	15	10
VEH-040	25	275	400	175	300	300	425	160	240	40	105	140	16	10
VEH-050	38	275	400	175	300	313	438	175	260	50	120	155	20	10
VEH-065	38	275	400	175	300	313	438	175	260	65	140	175	20	10
VEH-080	50	—	350	—	250	—	400	240	310	77	150	185	20	14
VEH-100	50	—	350	—	250	—	400	240	310	100	175	210	20	14

■ Dimensions table for in-tank installation type

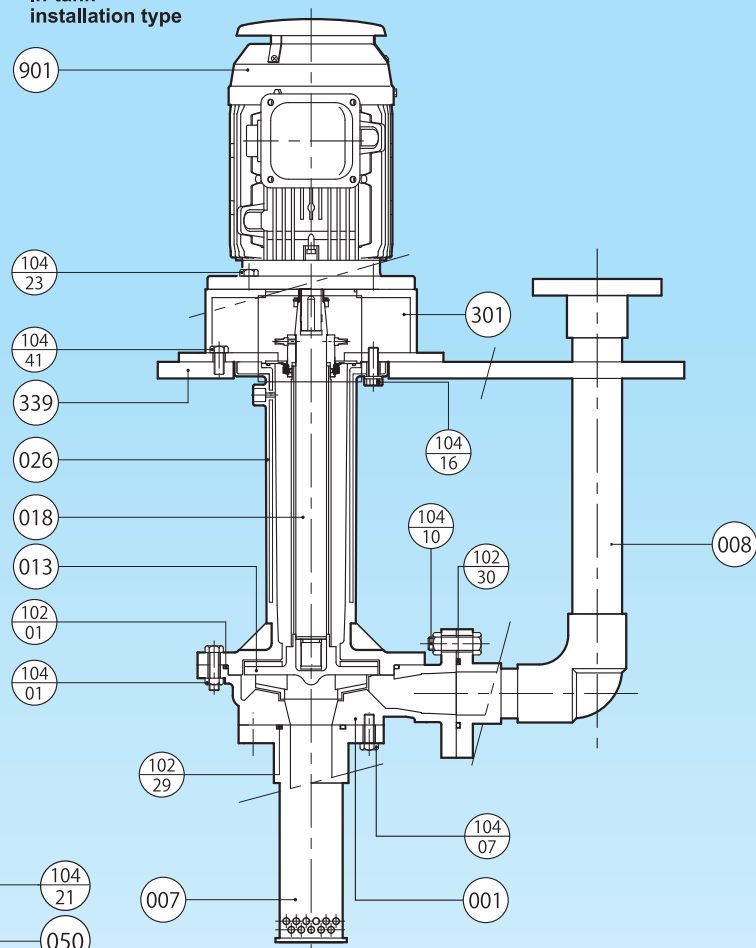
Model	B		F		L		C	φCD	E	Y	φd	φP	φD	T
	K/S	P/M, C/V	K/S	P/M, C/V	K/S	P/M, C/V								
VEH-025	255	380	175	300	555	680	267	240	245	530	25	90	125	15
VEH-040	255	380	175	300	555	680	307	240	270	580	40	105	140	16
VEH-050	255	380	175	300	555	680	345	260	295	630	50	120	155	20
VEH-065	255	380	175	300	555	680	359	260	305	650	65	140	175	20
VEH-080	—	330	—	250	—	730	415	310	380	800	80	150	185	22
VEH-100	—	330	—	250	—	730	487	310	430	900	100	175	210	22

Cross-section structural drawing

Tank-outside installation type



In-tank installation type



Part No.	Part name	Material	Q'ty
001	Casing	PVDF/PP	1
007	Suction strainer	PVC/HTPVC	1
008	Discharge pipe	PVC/HTPVC	1
013	Impeller (Shaft sleeve integrated)	PVDF/PP	1
018	Main shaft	S45C	1
026	Pump body piping	PVDF/PP	1
037	Air vent plug	PVDF/PP	1
050	Main shaft set screw	SUS304	1 set
069	Gas seal support	PP	1
081	Air ring	EPDM	1
084	Gas seal support set screw	SUS304	1 set
101-04	Gasket (Air vent plug)	FPM	1
102-01	O-ring (Casing)	FPM/EPDM	1
102-08	O-ring (Gas seal plate)	EPDM	1
102-18	O-ring (Gas seal support)	EPDM	1
102-29	O-ring (Suction pipe)	FPM/EPDM	1
102-30	O-ring (Discharge pipe)	FPM/EPDM	1

Part No.	Part name	Material	Q'ty
103-08	V-ring (Gas seal)	FPM	1
104-01	Casing bolt/nut	PVDF/PP	1 set
104-07	Suction pipe bolt	PVC/HTPVC	1 set
104-10	Discharge pipe bolt/nut	PVDF/PP	1 set
104-16	Pump body piping bolt	PPS	1 set
104-20	Rolling bearing washer	SS400	1
104-21	Shaft joint ring	S45C	1
104-23	Motor bolt	SUS304	1 set
104-35	Rolling bearing nut	SS400	1
104-41	Bed plate bolt	SUS304	1 set
237	Gas seal plate	C-PTFE	1
301	Bed	SS400	1
339	Bed plate	PVC	1
901	Motor		1

* 007: Exchangeable with suction short pipe.

104-01: For tank outside installation, SUS304 is used.

VSP Series



Standard specifications

Structure

Drive: Direct drive motor
 Gas seal: V-ring
 Main material: G-PP
 Operating temperature range: 0 to 80°C
 Rotating direction: Clockwise
 (When viewed from the motor side)
 Flange: Equivalent to JIS 10K FF
 Motor: 2-pole induction motor of general-purpose flange type for outdoor use

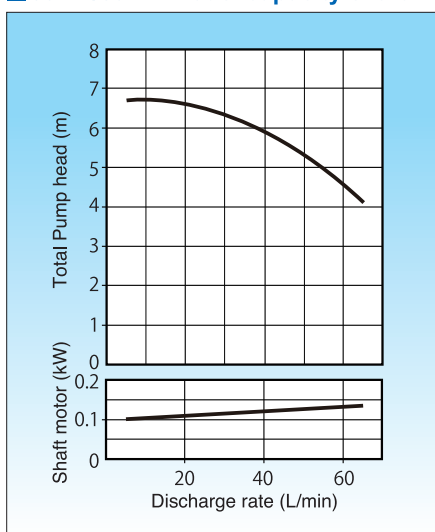
Model identification

VSP - 025 1 F OA A Z

① ② ③ ④ ⑤ ⑥ ⑦

- ① Name ② Nozzle diameter
 ③ Frame No. 1: 50 Hz 2: 60 Hz
 ④ O-ring material
 F: FPM E: EPDM Z: Other
 ⑤ Motor output:
 OA: 0.2 kW OO: 0.4 kW
 ⑥ Body material: A: G-PP
 ⑦ Customized specification:
 Z: Using non-standard parts

50 Hz/60 Hz model capacity chart



Features

- Compact, light-weight weight: 12 kg
- Discharge pipe connection can be changed. (Prefabricated joint is available.)
- Pump installation and replacement are easy.

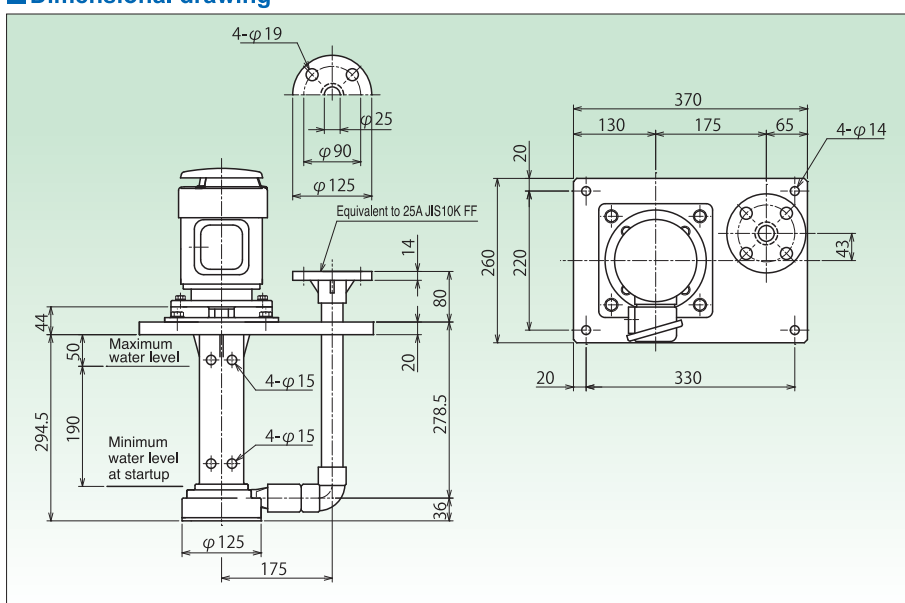
Standard specifications (Same for 50/60 Hz)

Discharge rate	Total pump head
50 L/min	5 m

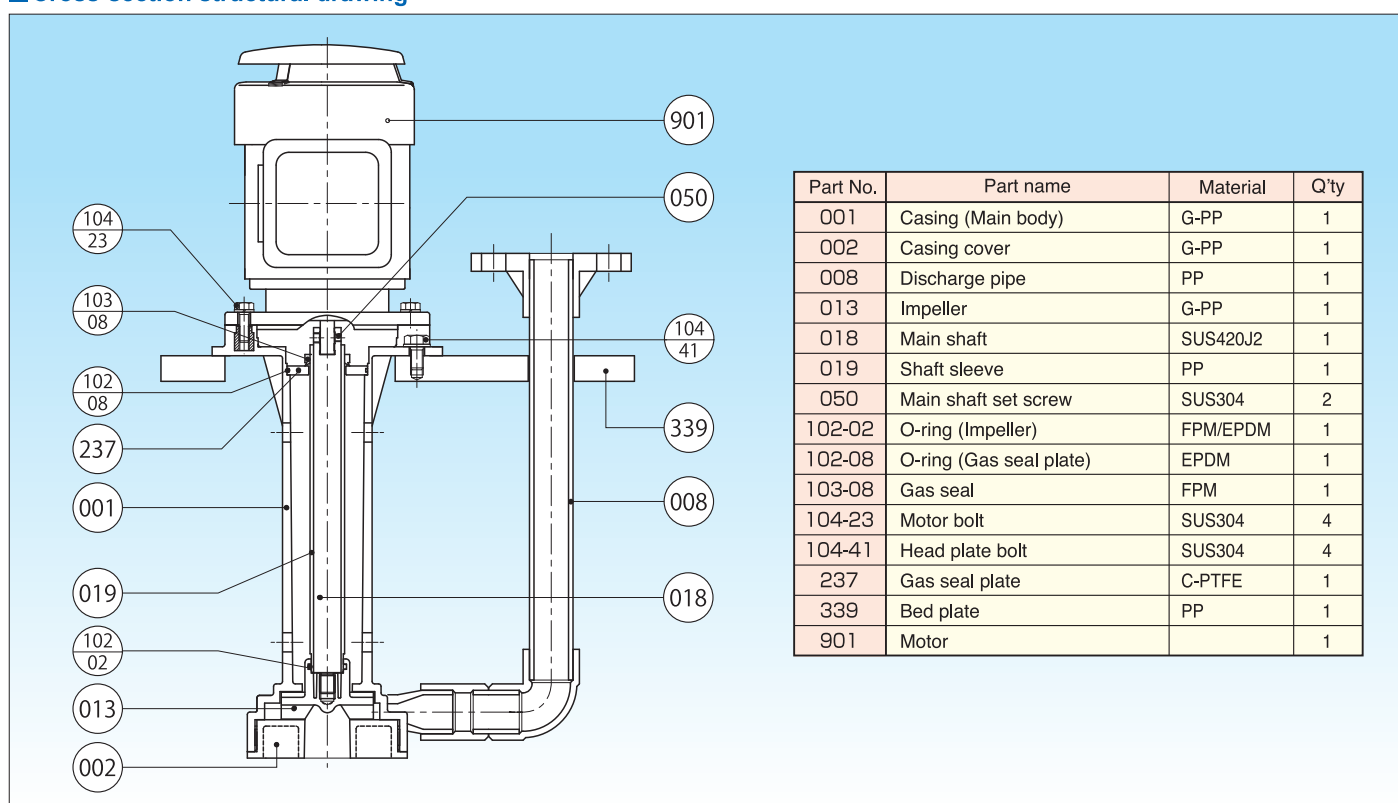
Applications

- For circulation of chemicals in etching machines, etc.
- For circulation of plating liquids such as nickel and copper
- For circulation of pickling liquids for wire drawing
- For circulation of liquids for small scrubbers
- Applicable for liquid feed from pits, etc.

Dimensional drawing



Cross-section structural drawing



VET Series



Standard specifications

Structure

Drive: Direct drive motor

Gas seal: V-ring

Pump body piping: PVC/HT.PVC

Casing: PVC/HT.PVC

Impeller: Closed type

Operating temperature range:

PVC: 0 to 50°C

HT.PVC: 0 to 80°C

Rotating direction: Clockwise

(When viewed from the motor side)

Flange: Equivalent to JIS 10K FF

Motor: 2-pole induction motor of general-purpose flange type for outdoor use

Paint color: Equivalent to Munsell 2.5B4/8
(Metal such as steel)

Model identification

VET - 025 2 F 02 S T

① ② ③ ④ ⑤ ⑥ ⑦

① Name ② Nozzle diameter ③ Frame No.

④ O-ring material

F: FPM E: EPDM

⑤ Motor output

01: 0.75 kW 02: 1.5 kW

03: 2.2 kW 05: 3.7 kW

07: 5.5 kW 10: 7.5 kW

15: 11 kW 20: 15 kW

⑥ Body material (Casing, Pump body piping, etc.)

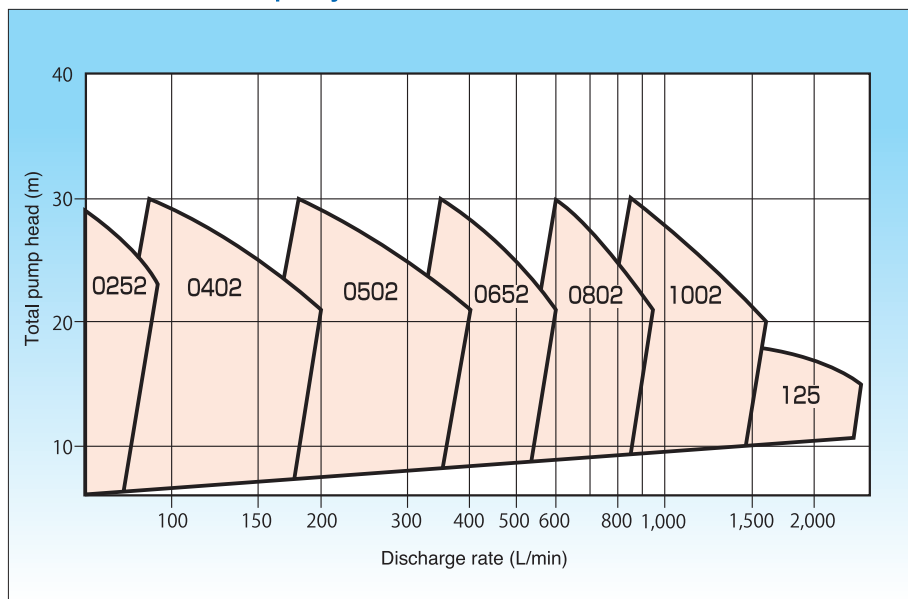
S: PVC

H: HT.PVC

⑦ Installation condition

T: Outside of tank

50 Hz/60 Hz model capacity chart



50 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
VET-0252	25	60	25	1.5
VET-0402	40	150	25	2.2
VET-0502	50	300	25	3.7
VET-0652	65	500	25	5.5
VET-0802	80	800	25	11
VET-1002	100	1,200	25	15
VET-125	125	2,400	15	15

Motor output is given for liquids with a specific gravity of 1.0 at the target point.
For the pump with 125 mm nozzle diameter, only 4P is available.

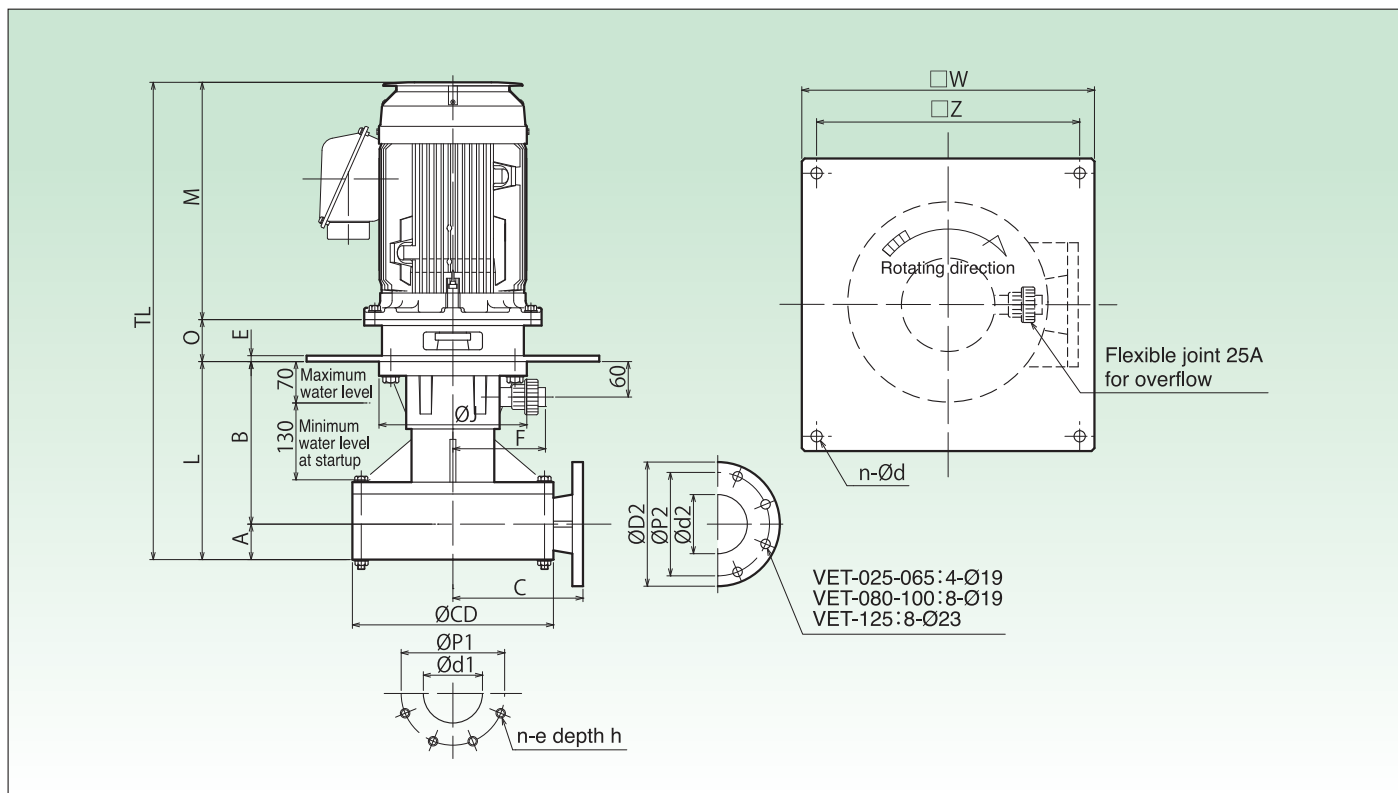
60 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
VET-0252	25	60	25	1.5
VET-0402	40	150	25	2.2
VET-0502	50	300	25	3.7
VET-0652	65	500	25	5.5
VET-0802	80	800	25	11
VET-1002	100	1,200	25	15
VET-125	125	2,400	15	15

Motor output is given for liquids with a specific gravity of 1.0 at the target point.
For the pump with 125 mm nozzle diameter, only 4P is available.

VET Series

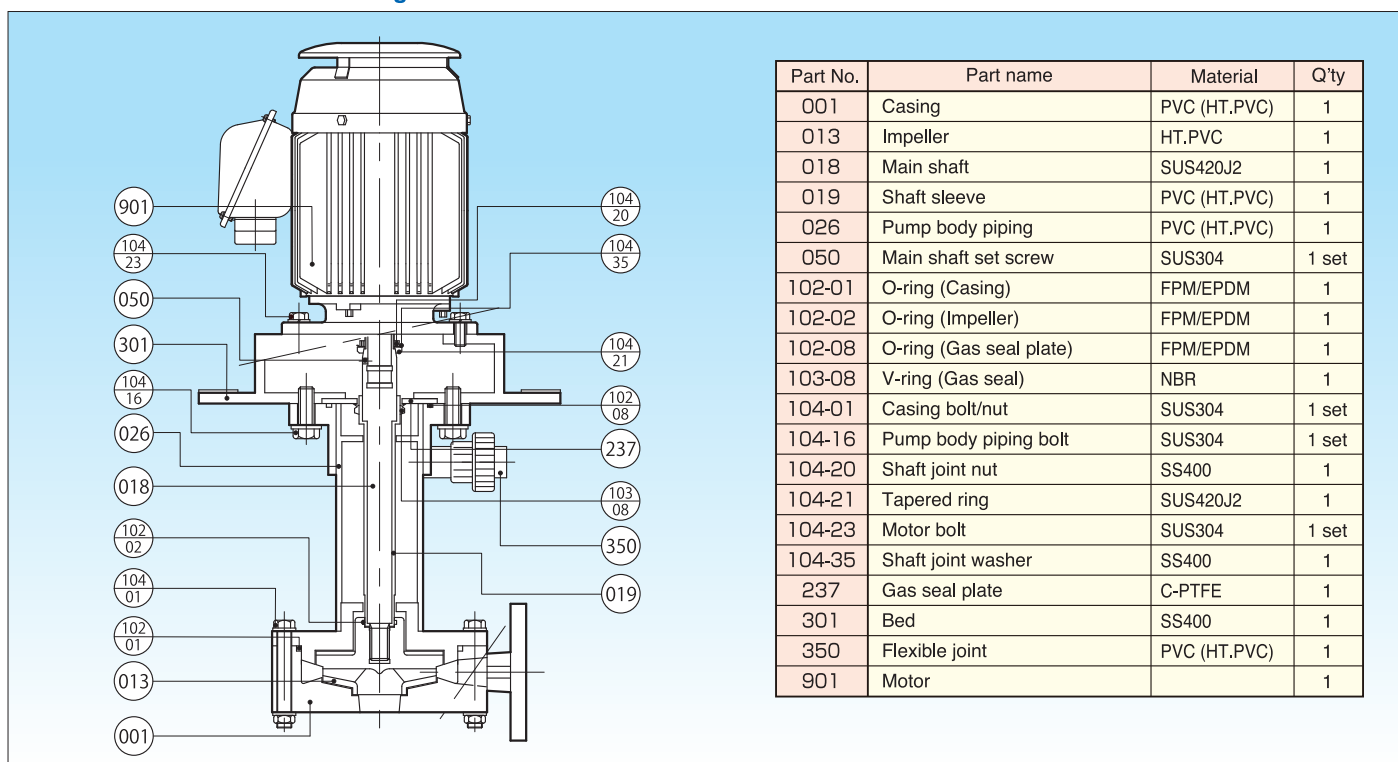
■ Dimensional drawing



■ Dimensions table for tank-outside installation type

Model	Motor (kW)	A	B	C	E	F	L	O	φCD	J	φd1	φP1	n-e depth h	φd2	φP2	φD2	W	Z	n-φd
VET-0252	1.5	41	275	155	14	130	316	71	230	185	25	90	4-M16 Depth18	25	90	125	370	330	4-φ15
VET-0402	2.2	41	275	165	14	130	316	71	245	185	40	105	4-M16 Depth20	40	105	140	370	330	4-φ15
VET-0502	3.7	50	275	180	14	145	325	71	280	210	51	120	4-M16 Depth20	50	120	155	370	330	4-φ15
VET-0652	5.5	50	275	205	10	155	325	71	320	250	67	140	4-M16 Depth24	65	140	175	470	420	4-φ15
VET-0802	11	50	275	220	12	165	325	100	345	280	77	150	4-M16 Depth16	77	150	185	495	445	4-φ19
VET-1002	11	60	275	240	12	165	335	100	380	280	100	175	4-M16 Depth25	100	175	210	530	480	4-φ19
VET-125	11/15	87	500	330	15	210	587	90	500	330	150	240	4-M20 Depth29	125	210	250	700	650	4-φ19

■ Cross-section structural drawing



SPL Series



Standard specifications

Structure

Drive: Direct shaft coupling type

Gas seal: V-ring

Pump body piping: FRP

Casing: Integrated molded volute type

Impeller: Closed type (Shaft sleeve integrated)

Operating temperature range:

PP: 0 to 80°C

PVDF: 0 to 90°C

Rotating direction: Clockwise

(When viewed from the motor side)

Flange: Equivalent to JIS 10K FF

Motor: 2-pole induction motor with general-purpose flange, for outdoor use

Paint color: Equivalent to Munsell 2.5B4/8
(Metal parts, such as bed)

Model identification

SPL - 025 1 F 03 P N A

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Name ② Nozzle diameter ③ Frame No.

④ O-ring material

F: FPM E: EPDM

⑤ Motor output

03: 2.2 kW 05: 3.7 kW

07: 5.5 kW 10: 7.5 kW

15: 11 kW 20: 15 kW

25: 18.5 kW

⑥ Body material (casing, impeller, etc.)

P: Made of PP

M: Made of PVDF

⑦ Installation condition

T: Outside of tank N: Inside of tank (PVC)*

R: Inside of tank (Other than PVC)

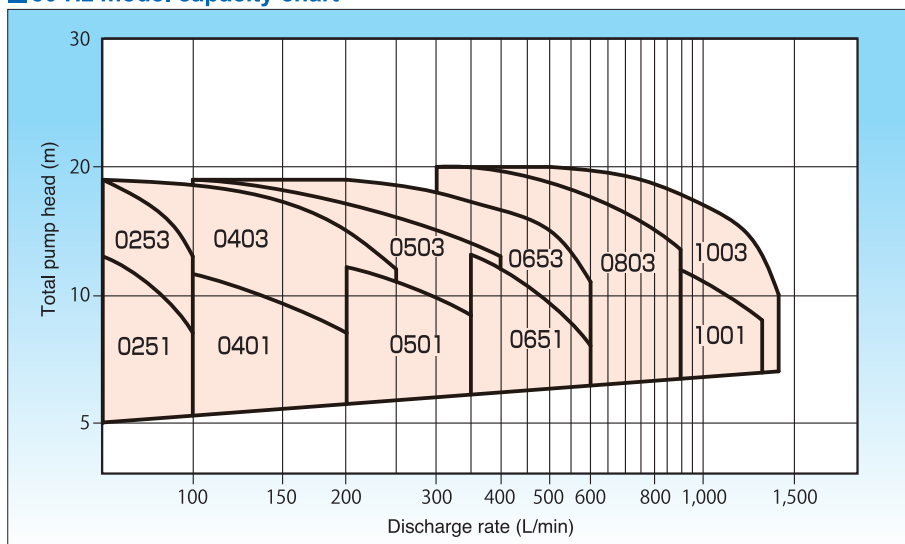
* Indicates materials of suction strainer, discharge pipe and bed plate.

⑧ Material of bolts inside tank

A: PP P: PVDF

(Blank: SUS)

50 Hz model capacity chart

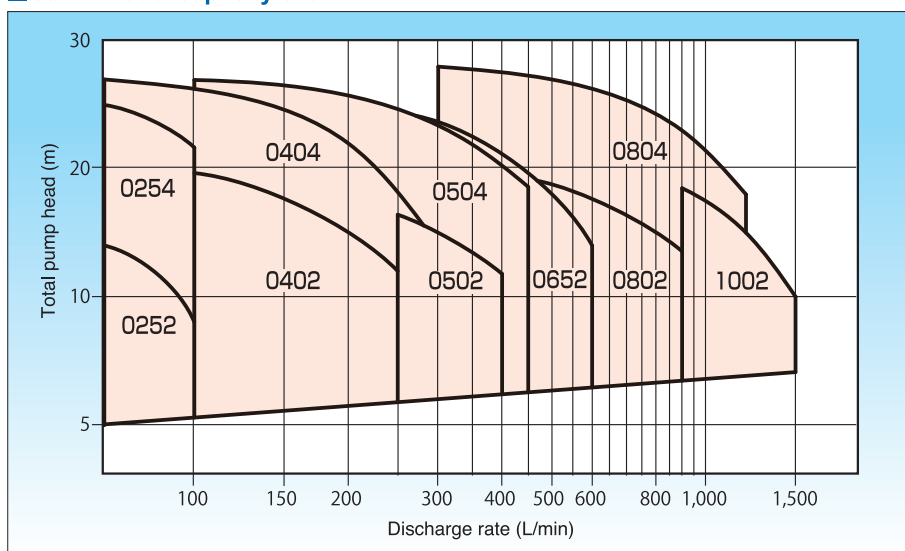


50 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
SPL-0251	25	60	10	2.2
SPL-0253		50	14	2.2
SPL-0401	40	150	9	2.2
SPL-0403		200	15	3.7
SPL-0501	50	290	10	3.7
SPL-0503		300	15	3.7
SPL-0651	65	400	12	3.7
SPL-0653		500	15	5.5
SPL-0803	80	800	15	7.5
SPL-1001	100	1,000	10	7.5
SPL-1003		1,200	15	11

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

60 Hz model capacity chart



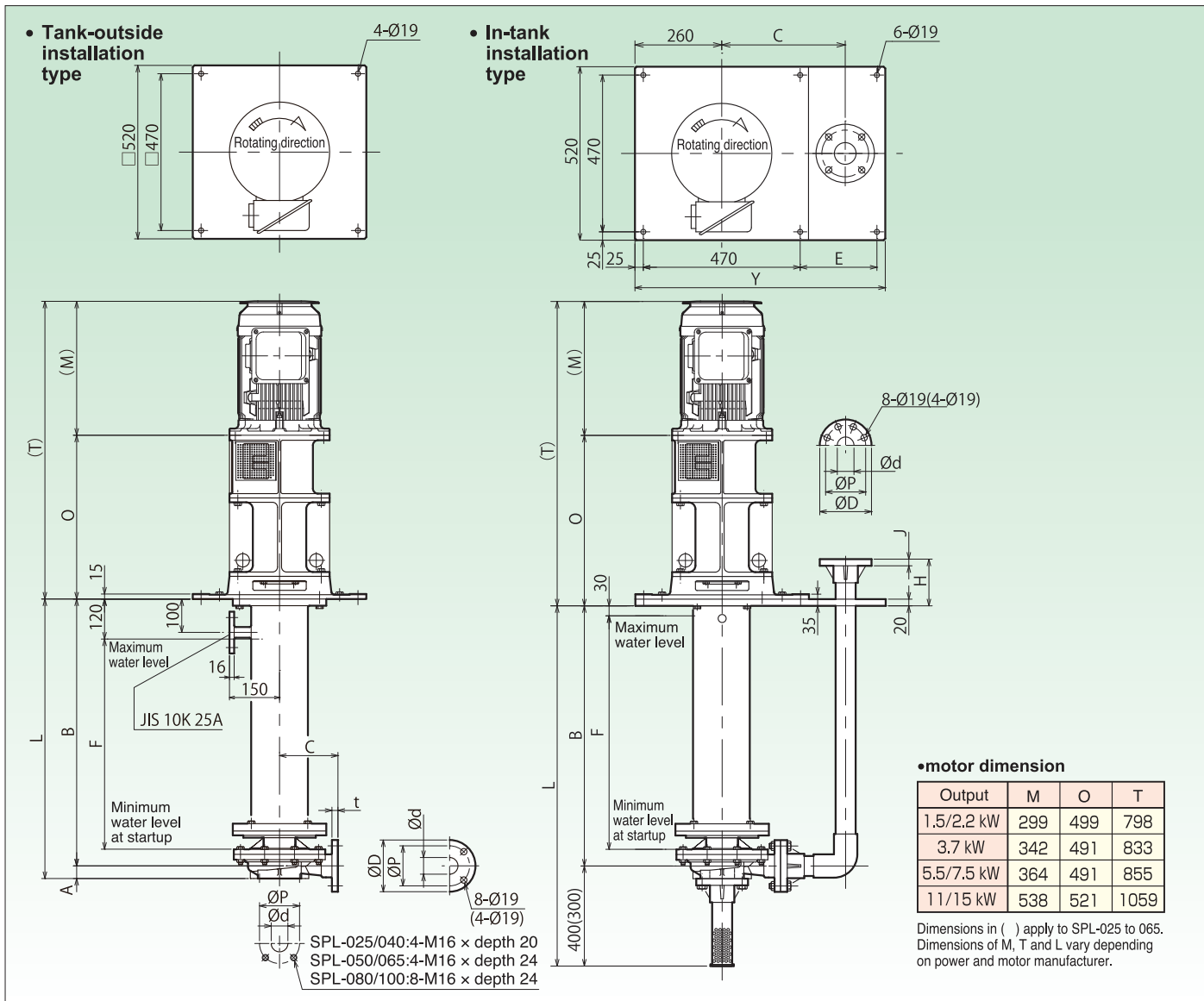
60 Hz model specifications table

Model	Nozzle diameter (mm)	Discharge rate (L/min)	Total pump head (m)	Motor output (kW)
SPL-0252	25	50	12	2.2
SPL-0254		70	23	3.7
SPL-0402	40	200	15	3.7
SPL-0404		200	22	3.7
SPL-0502	50	300	15	5.5
SPL-0504		350	22	5.5
SPL-0652	65	500	18	5.5
SPL-0802	80	800	15	7.5
SPL-0804		800	24	11
SPL-1002	100	1,200	15	11

Motor output is given for liquids with a specific gravity of 1.0 at the target point.

SPL Series

■ Dimensional drawing



■ Dimensions table for tank-outside installation type

600 type	A	B	F	L	C	φd	φP	φD	t
SPL-025	25	600	430	625	160	25	90	125	16
SPL-040	25	600	430	625	160	40	105	140	16
SPL-050	38	600	430	638	175	50	120	155	18
SPL-065	38	600	430	638	175	65	140	175	18
SPL-080	50	600	430	650	240	80	150	185	20
SPL-100	50	600	430	650	240	100	175	210	20

800 type	A	B	F	L	C	φd	φP	φD	t
SPL-025	25	800	630	825	160	25	90	125	16
SPL-040	25	800	630	825	160	40	105	140	16
SPL-050	38	800	630	838	175	50	120	155	18
SPL-065	38	800	630	838	175	65	140	175	18
SPL-080	50	800	630	850	240	80	150	185	20
SPL-100	50	800	630	850	240	100	175	210	20

1000 type	A	B	F	L	C	φd	φP	φD	t
SPL-025	25	1000	830	1025	160	25	90	125	16
SPL-040	25	1000	830	1025	160	40	105	140	16
SPL-050	38	1000	830	1038	175	50	120	155	18
SPL-065	38	1000	830	1038	175	65	140	175	18
SPL-080	50	1000	830	1050	240	80	150	185	20
SPL-100	50	1000	830	1050	240	100	175	210	20

■ Dimensions table for in-tank installation type

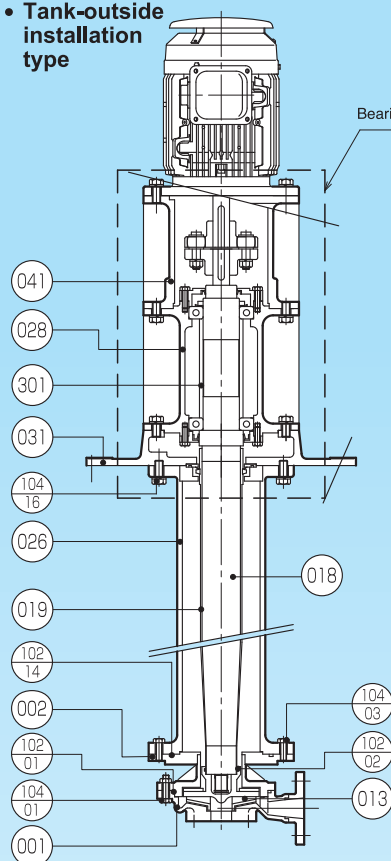
600 type	B	F	L	C	E	Y	H	φd	φP	φD	J
SPL-025	580	500	880	370	180	700	120	25	90	125	15
SPL-040	580	500	880	370	180	700	120	40	105	140	16
SPL-050	580	500	880	370	230	750	120	50	120	155	20
SPL-065	580	500	880	370	230	750	120	65	140	175	22
SPL-080	580	500	980	400	280	800	140	80	150	185	22
SPL-100	580	500	980	400	280	800	140	100	175	210	22

800 type	B	F	L	C	E	Y	H	φd	φP	φD	J
SPL-025	780	700	1080	370	180	700	120	25	90	125	15
SPL-040	780	700	1080	370	180	700	120	40	105	140	16
SPL-050	780	700	1080	370	230	750	120	50	120	155	20
SPL-065	780	700	1080	370	230	750	120	65	140	175	22
SPL-080	780	700	1180	400	280	800	140	80	150	185	22
SPL-100	780	700	1180	400	280	800	140	100	175	210	22

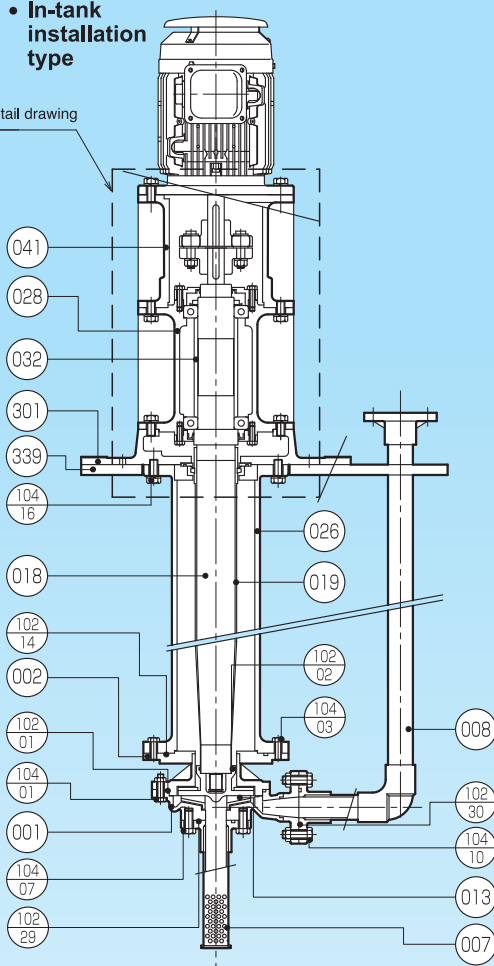
1000 type	B	F	L	C	E	Y	H	φd	φP	φD	J
SPL-025	980	900	1280	370	180	700	120	25	90	125	15
SPL-040	980	900	1280	370	180	700	120	40	105	140	16
SPL-050	980	900	1280	370	230	750	120	50	120	155	20
SPL-065	980	900	1280	370	230	750	120	65	140	175	22
SPL-080	980	900	1380	400	280	800	140	80	150	185	22
SPL-100	980	900	1380	400	280	800	140	100	175	210	22

Cross-section structural drawing

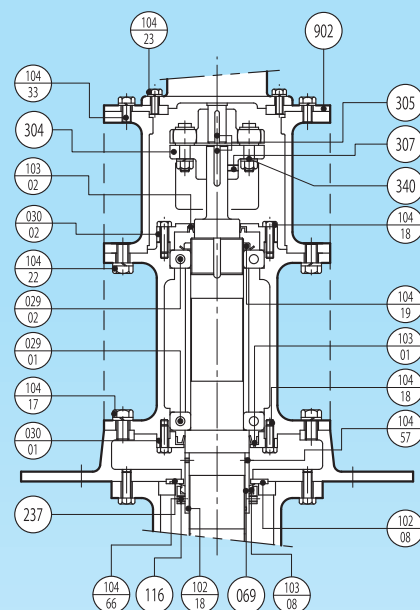
Tank-outside installation type



In-tank installation type



Bearing detail drawing



Part No.	Part name	Material	Q'ty
001	Casing	PVDF/PP	1
002	Casing cover	PVDF/PP	1
007	Suction strainer	PVC/HTPVC	1
008	Discharge pipe	PVC/HTPVC	1
013	Impeller	PVDF/PP	1
018	Main shaft	S45C	1
019	Shaft sleeve	FEP	1
026	Pump body piping	FRP	1
028	Bracket	FC200	1
029-01	Bearing (P side)	SUJ2	1
029-02	Bearing (M side)	SUJ2	1
030-01	Bearing cover (P side)	SS400	1
030-02	Bearing cover (M side)	SS400	1
032	Distance piece	SS400	1
041	Motor base	FC200	1
069	Gas seal support	HTPVC	1
102-01	O-ring (Casing)	FPM/EPDM	1
102-02	O-ring (Impeller)	FPM/EPDM	1
102-08	O-ring (Gas seal plate)	EPDM	1
102-14	O-ring (Casing cover)	FPM/EPDM	1
102-18	O-ring (Gas seal support)	EPDM	1
102-29	O-ring (Suction pipe)	FPM/EPDM	1
102-30	O-ring (Discharge pipe)	FPM/EPDM	1
103-01	Oil seal (P side)	FPM	1

Part No.	Part name	Material	Q'ty
103-02	Oil seal (M side)	FPM	1
103-08	V-ring (Gas seal)	FPM	1
104-01	Casing bolt/nut	PVDF/PP	1 set
104-03	Casing cover bolt	PVDF/PP	1 set
104-07	Suction strainer bolt	PVC/HTPVC	1 set
104-10	Discharge pipe bolt/nut	PVDF/PP	1 set
104-16	Pump body piping bolt	PPS	1 set
104-17	Bracket bolt	SUS304	1 set
104-18	Bearing cover bolt	SUS304	1 set
104-19	Rolling bearing nut/washer	SS400	1 set
104-22	Motor base bolt	SUS304	1 set
104-23	Motor bolt	SUS304	1 set
104-33	Motor liner bolt	SUS304	1 set
104-57	Gas seal support bolt	SUS304	1 set
104-66	Gas seal stopper bolt	PVDF	1 set
116	Seal stopper	HTPVC	1
237	Gas seal plate	C-PTFE	1
301	Bed	FC200	1
304	Coupling	FC200	1 set
305	Coupling key	SUS304	1 set
307	Coupling set screw	SCM	1 set
339	Bed plate	PVC	1
340	Coupling pin/rubber	SS400 · NBR	1 set
902	Motor liner	SS400	1

* ● 007: Exchangeable with suction short pipe.

● 104-01/104-03: For tank outside installation, SUS304 is used.

Corrosion Resistance Table

This corrosion resistance table is based on corrosion resistance of pump main materials. Please refer to this table as reference for selecting the best product for your application.

Chemical name	Molecular formula	Density (%)	Maximum operating temperature (°C)					
			PP	PVDF	PVC	FRP	FPM	EPDM
Adipic acid	HOOC(CH ₂) ₄ COOH	sat.	80	90	60	—	80	60
Acetaldehyde	CH ₃ CHO	100	NR	NR	NR	NR	bp	—
Acetonitrile	CH ₃ CN		—	50	—	NR	—	NR
Acetone	CH ₃ COCH ₃	100	60	NR	NR	NR	NR	bp
Ammoniacal liquor	NH ₄ OH	40	60	60	40	—	NR	60
Isopropyl alcohol	(CH ₃)CHOH	100	100	60	60	50	60	60
Ethyl alcohol	C ₂ H ₅ OH	100	80	bp	40	25	bp	bp
Aluminium chloride	AlCl ₃	sat.	80	90	40	98	90	80
Ammonium chloride	NH ₄ Cl	sat.	100	90	60	98	90	80
Potassium chloride	KCl		100	90	60	98	90	80
Calcium chloride	CaCl ₂	sat.	100	90	60	98	90	60
Ferrous chloride	FeCl ₂	sat.	—	90	40	98	90	80
Sodium chloride	NaCl		—	90	60	98	90	—
Benzyl chloride	C ₆ H ₅ CH ₂ Cl	100	—	80	—	—	—	—
Magnesium chloride	MgCl ₂	sat.	—	90	40	98	80	80
Dichloromethane	CH ₂ Cl ₂		—	NR	NR	NR	NR	NR
Hydrochloric acid	HCl	10	40	90	60	80	90	60
		30	40	80	40	65	80	—
		36★	40	bp	40	65	80	—
Chlorine water			NR	90	40	80	90	NR
Aqua regia			NR	NR	NR	NR	40	NR
Phosphorus oxychloride	POCl ₃		20	NR	NR	—	NR	NR
Formic acid	HCOOH	90	20	80	20	30	NR	80
Xylene	C ₆ H ₄ (CH ₃) ₂		NR	90	NR	NR	NR	NR
Citric acid		10	100	90	40	98	90	80
Glycolic acid	HOCH ₂ COOH	sat.	20	NR	—	98	NR	NR
Chromic acid	CrO ₃	40	NR	80	40	—	80	—
		50	NR	50	NR	—	50	—
Chloroform	CHCl ₃	100	NR	60	NR	—	60	NR
Acetic acid	CH ₃ COOH	10	100	60	60	98	NR	40
		30	60	40	60	80	NR	40
		50	60	40	40	80	NR	40
		80	—	NR	20	30	NR	NR
Ethyl acetate	CH ₃ CO ₂ C ₂ H ₅	100	20	NR	NR	NR	NR	NR
Butyl acetate	CH ₃ COO(CH ₂) ₃ CH ₃	100	NR	NR	NR	NR	NR	NR
Sodium hypochlorite	NaClO	5	NR	90	40	60	90	NR
		15	NR	90	40	60	80	NR
Carbon tetrachloride	CCl ₄		NR	60	NR	—	60	NR
Cyclohexane	C ₆ H ₁₂	100	20	80	NR	—	40	NR
Dimethylamine	(CH ₃)NH	100	60	NR	NR	—	NR	NR
Potassium bromide	KBr		60	90	60	—	90	80
Hydrobromic acid	HBr	50	60	90	40	—	80	40
Methylene bromide	CH ₂ Br ₂		—	bp	NR	—	20	NR
Bromine water	Br ₂ / H ₂ O	sat.	NR	80	20	—	40	NR
Nitric acid	HNO ₃	10	20	80	60	—	90	—
		30	20	80	40	—	80	NR
		50	NR	50	20	—	80	NR
		80	NR	NR	NR	—	NR	NR

Chemical name	Molecular formula	Density (%)	Maximum operating temperature (°C)					
			PP	PVDF	PVC	FRP	FPM	EPDM
Ammonium acetate	HNO ₄ NO ₃		60	90	40	—	90	60
Aluminium hydroxide	Al(OH) ₃	sat.	100	90	60	80	80	60
Potassium hydroxide	KOH	50	60	40*	—	50	NR	80
		sat.	—	—	—	—	—	—
Sodium hydroxide	NaOH	10	100	50*	60	70	NR	80
		50	100	40*	60	80	NR	80
Magnesium hydroxide	Mg(OH) ₂	sat.	—	80	60	98	90	80
Ammonium carbonate	(NH ₄) ₂ CO ₃	sat.	100	90	60	70	90	80
Calcium carbonate	CaCO ₃	sat.	—	90	60	80	90	60
Sodium carbonate	Na ₂ CO ₃	sat.	100	90	60	—	90	80
Sodium thiosulfate	Na ₂ S ₂ O ₃		60	90	—	—	60	60
Trichloroethylene	C ₂ H ₃ Cl ₃		NR	60	NR	NR	40	NR
Trichloroacetic acid	CCl ₃ COOH	10	—	90	NR	98	NR	NR
		50	60	NR	NR	98	NR	NR
Toluene	CH ₃ C ₆ H ₅		NR	NR	NR	NR	90	NR
Nitrobenzene	C ₆ H ₅ NO ₂		60	NR	NR	NR	60	NR
Oleum	H ₂ SO ₄ +SO ₃		NR	NR	NR	—	NR	NR
Arsenic acid	H ₃ AsO ₄ l / 2H ₂ O	30	—	—	—	40	—	—
		75	—	—	—	40	—	—
		sat.	80	80	20	40	60	40
Glacial acetic acid	CH ₃ COOH		40	NR	(NR)	NR	NR	NR
Ammonium Fluoride	NH ₄ F	sat.	—	90	—	60	60	60
potassium fluoride	KF		—	90	60	60	90	80
Hydrofluoric acid	HF	30★	60	90	—	NR	60	NR
		55★	60	90	—	NR	—	—
		70★	20	40	—	NR	NR	NR
Hexane	CH ₃ (CH ₂) ₄ CH ₃		20	bp	20	70	60	bp
Benzene	C ₆ H ₆	100	NR	NR	NR	NR	NR	NR
Boric acid	H ₃ BO ₃	sat.	100	90	60	98	90	60
Formaldehyde	HCHO	37	—	50	40	70	60	60
Methanol	CH ₃ OH	100	60	bp	20	NR	NR	60
Sulfuric acid	H ₂ SO ₄	30	60	90	60	80	80	—
		60	60	90	60	80	80	—
		80	40	80	40	25	60	NR
		90	NR	80	20	NR	60	NR
Aluminum sulfate	Al ₂ (SO ₄) ₃	98	NR	50*	NR	NR	50	NR
		25	—	—	—	98	—	—
		sat.	80	90	60	98	80	60
Copper sulfate	CuSO ₄	sat.	—	90	60	98	90	80
Nickel sulfate	NiSO ₄	sat.	—	90	60	98	90	80
Phosphoric acid	H ₃ PO ₄	30	60	—	60	—	—	—
		50	60	90	60	—	90	80
		85	60	90	40	98	90	80
Calcium phosphate	Ca ₃ (PO ₄) ₂	sat.	—	90	—	—	—	—

Description of codes: —: No data available, NR: Inapplicable, bp: Liquid boiling point

Cautions

- For use with mixed liquids or solid-containing liquids, contact us for more information.
- For items indicated with*, contact our sales office.
- Corrosion resistance given in this table indicates the allowable operating temperature of each material, not the allowable operating temperature of the pump body.
- Densities indicated with ★ are not applicable with glass fiber reinforced polypropylene (G-PP).

Handling Precautions

Handling precautions

- It is very dangerous if you use our pumps improperly, as with other equipment running at high speed and high pressure. Particularly when handling highly corrosive or hazardous chemicals, use thorough caution.
- The pump body is made of resin only. When carrying the pump, avoid gripping the pump flange.
- The vertical pump impeller is of screw type. Running the pump in reverse causes damage to the pump. When checking the rotating direction, be sure to run the pump without fluid, or remove the coupling pin.

Precautions in piping work

- To connect piping to the pump, it is recommended that flexible joints be attached to prevent excessive force from being applied to each flange. Tighten the flange connection bolts on the suction and discharge sides of the pump evenly with appropriate torque. Avoid tightening the bolts excessively. Support the connected pipes on the flange or a point near the pump so that the pipe load is borne by the supports.
- Support the foundation and piping securely to prevent vibrations during pump operation. When doing so, make sure that foundation and piping loads are not applied to the pump body. If load is applied to the pump body, it can cause chemical leaks and damage to the pump.

Precautions when installing suction piping

If air enters the pump during operation, abnormal vibrations or choking occurs, and can cause the pump to malfunction.

- During pump operation, ensure the liquid level in the tank is 2D (twice the nozzle diameter) or higher (submergence) so that the pump does not suck air from the suction port nozzle.
- Make sure that the suction port nozzle is located at 2D or farther distance from both the tank wall surface and bottom surface so that the nozzle does not touch them and chemical liquid enters the suction port nozzle evenly from the whole periphery.
- Install the suction pipe at upward incline (gradient of approx. 1/50) from the suction water surface to the pump, to prevent air from remaining in the suction pipe.

Precautions when installing discharge piping

- Be sure to provide a flow control valve for the discharge pipe.
- If reverse flow occurs or the actual pump head is high when the pump is stopped, a check valve is required to prevent backflow and water hammering. However, it is possible that air remains trapped downstream of the check valve during startup. In this case, it is recommended that an air vent pipe and valve be provided.

Warranty

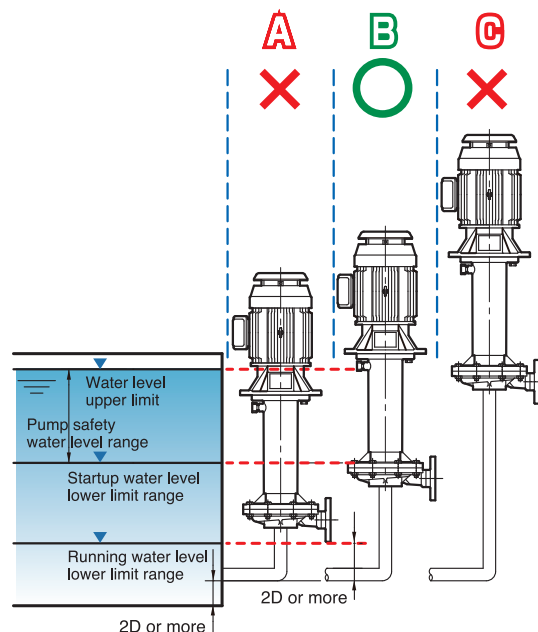
The warranty period for TEXEL pumps is one (1) year from the completion of delivery. If trouble occurs with a pump due to a defect attributable to us, it shall be repaired free of charge.

Trouble in any of the following cases is outside of the scope of warranty, even within the above warranty period.

- Trouble caused by improper handling during installation work after delivery
- Trouble caused by deficiencies in the pump base or foundation, or improper fastening method of the pump

- Trouble caused by improper piping work
- Trouble caused by any usage outside of pump specifications
- Trouble caused by abnormal external forces or pressures above the allowable range, high temperature or corrosive gas
- Trouble caused by improper operation or handling of the pump, or failure to properly maintain and manage the pump
- Trouble caused by natural disasters or force majeure

Precautions in operation



A Operation is disabled.

Since the water level in the suction tank is higher than the “pump safety water level range,” chemical liquid enters the motor.

B Operation is enabled.

Since the water level in the suction tank is within the “pump safety water level range,” the pump normally operates.

C Operation is disabled.

Since the water level in the suction tank is lower than the “Pump safety water level range,” liquid does not fill the pump casing, thus preventing pumping operation.

Precautions during operation

- To control the discharge rate, be sure to use the valve on the discharge side.
- Run the pump at the specified discharge rate and pump head. Do not run the pump at extremely small or large discharge rates.
- Use caution with the discharge pressure, suction pressure, flow rate and current value. Often, abnormal fluctuation or a reduction in these values may be caused by clogging on the suction side by solid matter or air sucked into the pump.

Maintenance and management

Failure to properly maintain and manage the pump may cause various troubles, such as degraded quality of pumped liquids and unstable liquid feed.

Pumps must be maintained and managed according to the “instruction manual” provided by us. Maintenance and inspections require special knowledge, expertise and tools. To order maintenance and inspection, contact our maintenance section or a specialized service company.

Maintenance and management at user's cost

We have an internal maintenance department to meet various user needs for pump maintenance and management. Users can contract maintenance and management of our pumps if required, regardless whether the pumps are newly installed or existing.

When contracted, we inspect, diagnose and clean your pumps every year to detect trouble at an early stage, and report results of our services properly in the form of a “Periodic inspection/diagnosis report.”



Seikow Chemical Engineering & Machinery, Ltd. is an ISO 9001 certified company, operates Quality Management System on pumps, fans/blowers and environmental equipment products and accredited by ISO 14001 Environmental Management System.

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