

Technology & innovation

WET/DRY RUNNING INTANK VERTICAL CANTILEVER SEALLESS PUMPS

TFV / TFO / TFP / TFQ SERIES



TI TOWN CHEMICAL PUMPS

INTANK VERTICAL CANTILEVER SEALLESS CHEMICAL PUMPS

CHEMICAL & HEAT RESISTANT · NO SEAL · NO FRICTION

WET/DRY RUNNING SEALLESS VERTICAL PUMPS

FEATURES :

- ① The pumps, made of highly chemical-resistant CFRPP, PVDF and FRPP, are excellent for resisting heat and corrosion from chemical solutions.
- ② The impellers are specially designed to prevent air from getting into the pumps to ensure efficient work and high performance.
- ③ The sealless design allows no friction when the pumps are working, so dry running or chemical liquid with particles will not cause malfunction of the pumps.
- ④ All of the major components of our pumps are injection molded to ensure precise performance.
- ⑤ The motors, which are protected by oil seals and vapor seal to resist corrosion from chemical vapors.



Applications :

- ① Combine with filters to transfer and circulate various plating solution.
- ② Work with high-temperature liquid or chemical liquids with particles (e.g.chemical copper, potassi magnate, plating gold liquid, electroless nickel plating solutions, etc.) under certain limitations.
- ③ Ideal for chemical circulation, PCB etching, waster water, scrubber and heat exchanging applications.
- ④ Transferring, circulating, and stirring all kinds of chemical liquids in various chemical reacting tanks and mixing tanks.

TFV (1)	$\frac{1}{8}$ (5)	V (8)	P (9)	T (11)*1	1 (13)					
TFP (2)	$\frac{1}{8}$ (5)	V (8)	P (9)	A (10)	T (11)*1	1 (13)				
TFV (1)	40 (3)	SK (4)	5 (6)	6 (7)	V (8)	P (9)	T (12)*2	3 (13)		
TFP (2)	40 (3)	SK (4)	5 (6)	6 (7)	V (8)	P (9)	A (10)	T (12)*2	4 (13)	

(1) Model TFV : In-tank Vertical pump with quadrilateral interface

TFO : In-tank Vertical pump with round interface

(2) Model TFP/TFQ : In-tank Vertical pump with P.P. mounting plate

(3) Outlet dimension : 40 mm

(4) Specific Gravity : SK=1.1 , SP=1.4 *3

(5) Motor power :

1/15 HP 、 $\frac{1}{8}$ HP 、 $\frac{1}{4}$ HP 、 $\frac{1}{3}$ HP 、 $\frac{1}{2}$ HP

(6) Motor power :

0=0.75HP 、 1=1HP 、 2=2HP 、 3=3HP

5=5HP 、 7.5=7.5HP 、 10=10HP

(7) Frequency : 5=50HZ , 6=60HZ

(8) Casing Oring : V=FKM(Viton) , E=EPDM

(9) Wet-end material : P=CFRPP , F=FRPP , K=PVDF

(10) Union socket (only for TFP series) :

A=ANSI PVC socket 、 D=DIN PP socket

J=JIS PVC socket

(11) Shaft sleeve :

* 1 : **Optional parts only available for 1/15 HP to $\frac{1}{2}$ HP**

None = Standard type

T = With Titanium shaft sleeve

(12) Clamp material :

* 2 : **Optional parts only available for 5HP , 7.5HP & 10HP**

None = Standard type (below 3HP)

S = SUS316 , T = Titanium

(13) Motor Voltages Specific :

1 = 1Ø 110/220V 、 3 = 3Ø 220/380V

4 = 3Ø 220/440V 、 T = special SPEC.

* 3 : **Adjustable customization**

specification for specific gravity above 1.4 .

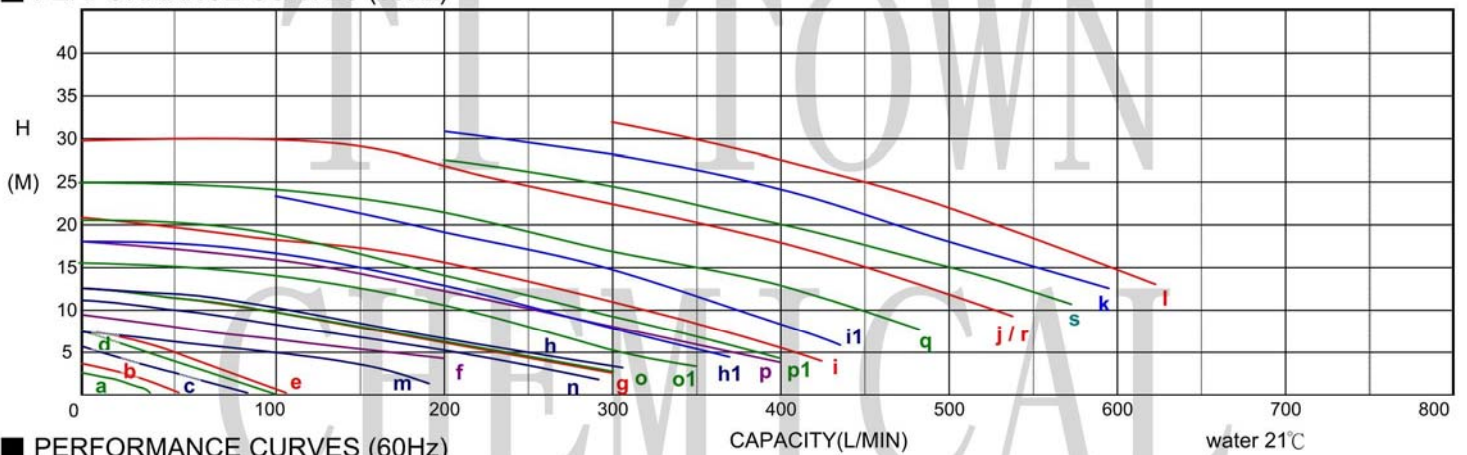
TFV/TFP SPECIFICATION (1/15 HP ~ 1/2 HP)

Model	Curve		Specific gravity	HP	In/Outlet (FPT/FPT)	Max.Flow (L/min)		Max.Head (M)		Weight (KG)
	50HZ	60HZ				50HZ	60HZ	50HZ	60HZ	
TFV/TFP 1/15	a	A	1.3	1/15	20×16	40	50	2.2	3.5	4.8
TFV/TFP 1/8	b	B	1.3	1/8	25×20	54	68	2.9	4.6	5
TFV/TFP 1/4	c	C	1.3	1/4	25×20	90	106	5	7.4	8
TFV/TFP 1/3	d	D	1.3	1/3	25×25	100	120	6.4	9.6	8.2
TFV/TFP 1/2	e	E	1.3	1/2	25×25	110	130	7.9	11.5	8.3

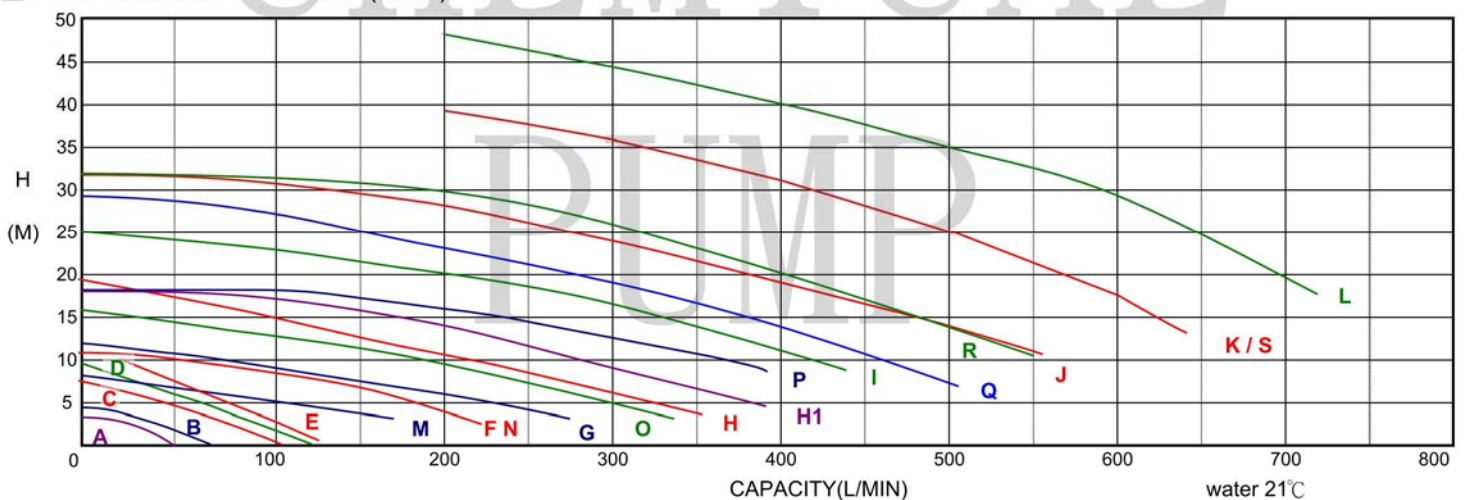
TFV/TFO/TFP SPECIFICATION (3/4 HP ~ 10 HP)

Model	Curve		Specific gravity	HP	In/Outlet (FPT/MPT)	Max.Flow (L/min)		Max.Head (M)		Weight (KG)
	50HZ	60HZ				50HZ	60HZ	50HZ	60HZ	
TFV/TFP 25SK-0	f	F	1.1	3/4	40×25	200	200	9.2	11	19
TFV/TFP 40SK-1	g	G	1.1	1	50×40	250	300	12.8	12.2	20
TFV/TFP 40SK-2	h	H	1.1	2	50×40	310	360	13	18.5	24
TFV/TFO/TFP 40SKH-2	h1	H1	1.1	2	50×40	370	395	18.2	17.8	38
TFV/TFO/TFP 40SK-3	i	I	1.1	3	50×40	400	430	21	25.8	40
TFV/TFO/TFP 40SKH-3	i1		1.1	3	50×40	435		25		40.5
TFV/TFO/TFP 40SK-5	j	J	1.1	5	50×40	550	570	30	31.5	50
TFV/TFO/TFP 40SK-7.5	k	K	1.1	7.5	50×40	600	650	33	42	61
TFV/TFO/TFP 40SK-10	l	L	1.1	10	50×40	650	720	37	49	67
TFV/TFP 25SP-0	m	M	1.4	3/4	40×25	190	180	7.2	8	19
TFV/TFP 40SP-1	n	N	1.4	1	50×40	290	230	11.1	11	20
TFV/TFP 40SP-2	o	O	1.4	2	50×40	310	340	12.8	16	24
TFV/TFO/TFP 40-SPH-2	o1		1.4	2	50×40	350		15.1		38
TFV/TFO/TFP 40SP-3	p	P	1.4	3	50×40	400	380	19.5	19	40
TFV/TFO/TFP 40SPH-3	p1		1.4	3	50×40	400		20.5		40.5
TFV/TFO/TFP 40SP-5	q	Q	1.4	5	50×40	500	500	25	28.8	50
TFV/TFO/TFP 40SP-7.5	r	R	1.4	7.5	50×40	550	550	30	32	61
TFV/TFO/TFP 40SP-10	s	S	1.4	10	50×40	600	650	30	41.2	67

PERFORMANCE CURVES (50Hz)



PERFORMANCE CURVES (60Hz)



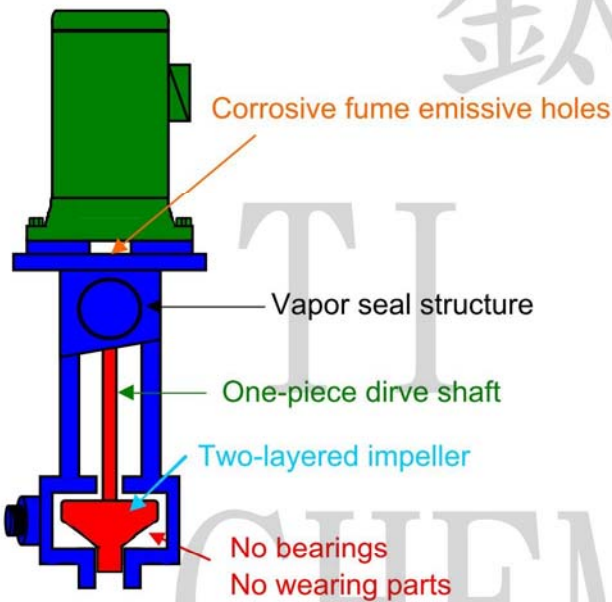
SPECIAL SEALLESS STRUCTURE AND SIX IMPORTANT FEATURES

1 Special Long Shaft of the Motor

The ONE-PIECE long shaft of the motor is one of the most critical parts of a vertical pump, for it decides the life of a pump. Our special motor are coated with corrosion-resistant paint, fit flawlessly inside our pumps, and can prolong the life of the pumps.

2 Sealless Structure

Our special design, which allows a 1.5 - 2.0 mm gap between the body and the impeller of a pump, has no friction while the pump is working. The special features of the two-layered impeller control and reduce the air and fluid intake, helping the pump function smoothly.



TFV series



TFO series

3 Dry Running Allowable

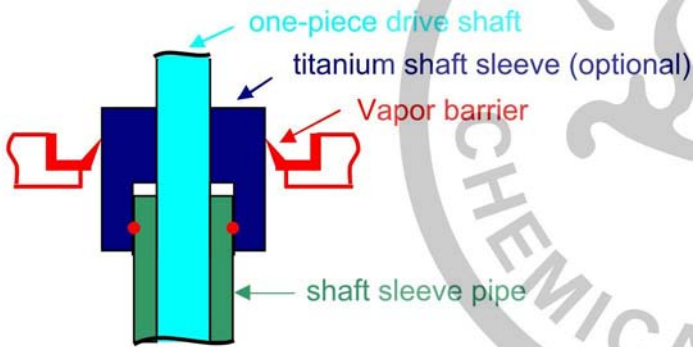
Because there is no friction between the body and impeller, our pumps excellently withstand dry running for long periods without damage.



TFP series

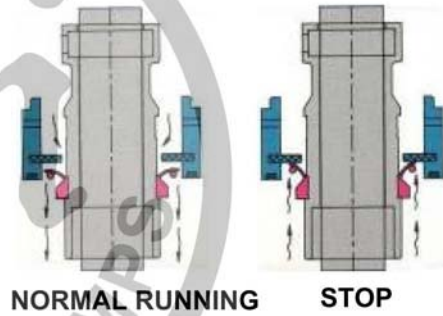
LEADING TO THE VERTICAL PUMP'S HIGH PERFORMANCE

4 a Vapor Seal Structure For small sizes (1/2 HP and below)



Vapor barrier protects motor from corrosive emissions

4 b Vapor Seal Structure for the larger sizes (3/4 HP and above)



When the motor is operating, the lid of the vapor seal (it is shown in pink in the pictures above), is forced open by centrifugal force, thus no friction results.

Once the motor stops, the lid bounces back to completely stop any leakage of chemical vapor.

Moreover for each motor are protected by oil seal which are located in front of bearing will protect motor against the corrosive vapor.

5 Wide Range of Working Temperature

Carbon fiber reinforced PP (CFRPP), glass fiber PP (FRPP) and PVDF, these are applicable for chemical pumps widely, the range of resistant heat as follows :

(water)

Operating range	CFRPP	0°C~95°C
	FRPP	0°C~80°C
	PVDF	-20°C~95°C

6 High Corrosion Resistant

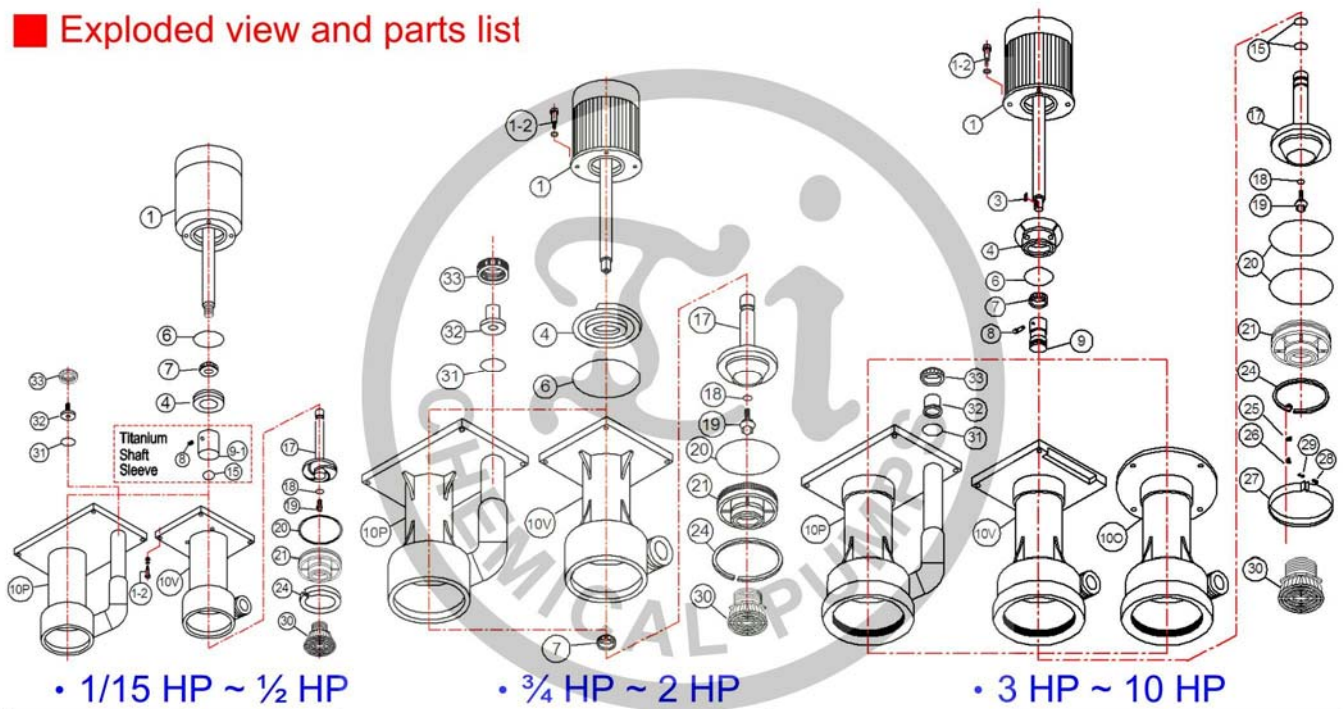
CFRPP (carbon fiber reinforced PP), FRPP (glass fiber PP) and PVDF there are three kinds of material which use injecting mold for whole set.

To ensure own high resistant corrosion and high resistant heat.



**Customer made
TFQ series**

Exploded view and parts list



PN	Parts name	material
1	Motor with Long Shaft	Fc+AL+SUS
1-2	Bolts	SUS
3	Key	SUS
4	Seal Case	PP+ceramic
6	Seal Case O-ring	FKM / EPDM
7	Vapor Seal	FKM
8	Bolts	SUS
9	Seal Holder	PP
* 9-1	Seal Holder	Titanium
10 V	TFV Pump Column	FRPP / CFRPP / PVDF
10 O	TFO Pump Column	FRPP / CFRPP / PVDF
10 P	TFP Pump Column	FRPP / CFRPP / PVDF
15	Impeller Sleeve O-ring	FKM / EPDM
17	Impeller	FRPP / CFRPP / PVDF
18	Impeller Nut O-ring	FKM / EPDM
19	Impeller Nut	FRPP / CFRPP / PVDF
20	Casing O-ring	FKM / EPDM
21	Pump Casing	FRPP / CFRPP / PVDF
24	C-clip	FRPP / CFRPP / PVDF
25	Gap Spacer	FRPP / CFRPP / PVDF
26	Bolt	CPVC / PVDF
★ 27	Clamp	SUS / Titanium
★ 28	Bolt	SUS / Titanium
★ 29	Nuts	SUS / Titanium
◎ 30	Inlet Strainer	PP
31	Union O-ring	FKM / EPDM
32	Union Connector	PP / PVC / PVDF
33	Union Nut	FRPP

* Optional parts. Only available for Titanium Shaft Sleeve. (available for 1/15 HP to 1/2 HP)

★ Optional parts. Only available for 5HP 、 7.5HP & 10HP.

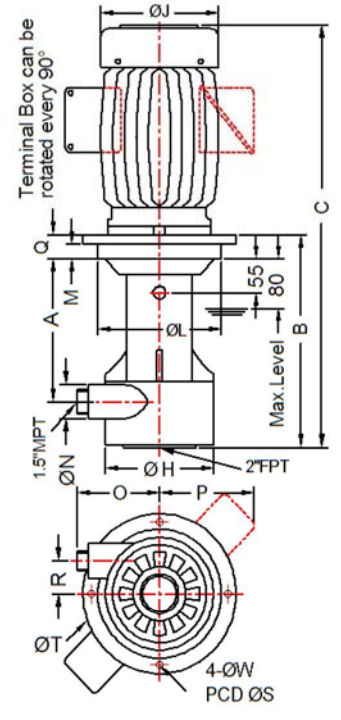
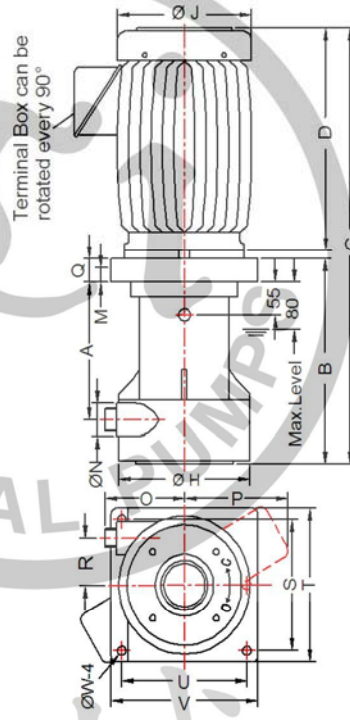
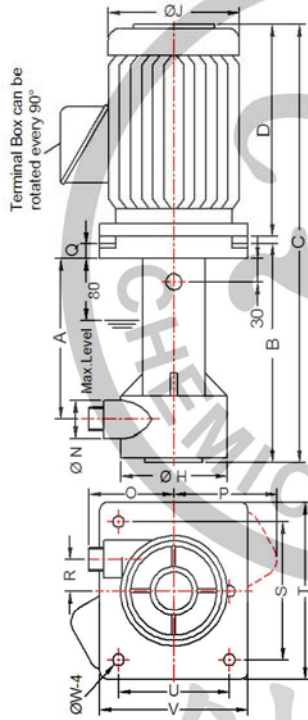
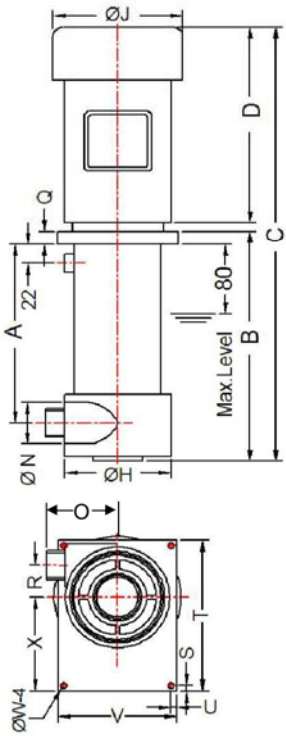
◎ Optional parts (available for 3/4" 、 1" 、 1 1/2" 、 2" MPT)

■ A. TFV 1/15-1/2 HP DIMENSION

■ B. TFV 3/4-2 HP DIMENSION

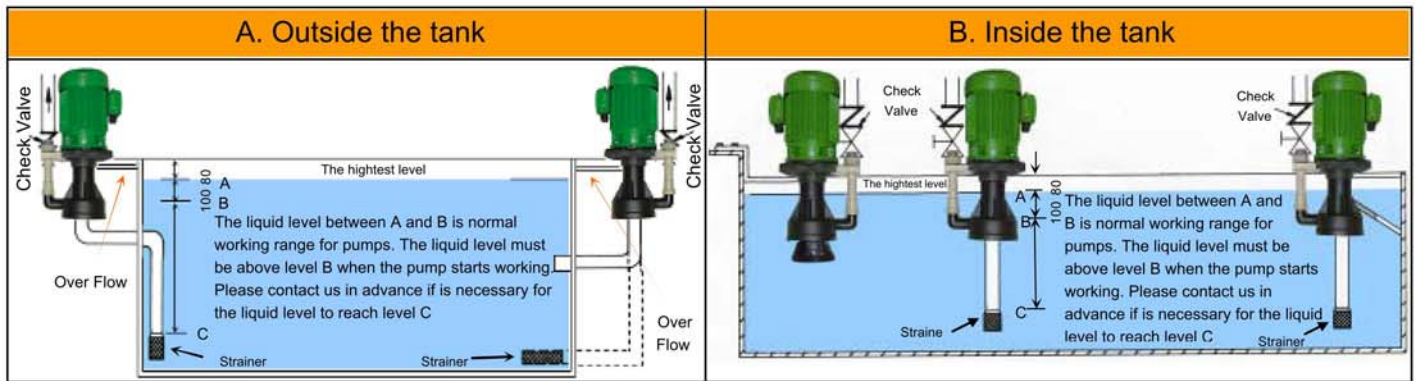
■ C. TFV 2-10 HP DIMENSION

■ D. TFO-2-10HP DIMENSION



Model	FIG. NO.	A	B	C*	ØH	J*	L	M	ØN	O	P**	Q	R	S	T	U	V	ØW	X
TFV-1/15	A	205	263	428	90	103			34	66		15	28.5	6	165	6	125	6	102.5
TFV-1/8		205	263	441	90	103			34	66		15	28.5	6	165	6	125	6	102.5
TFV-1/4		205	263	471	110	134			47	75		15	35	6	165	6	125	6	102.5
TFV-1/3		205	263	481	110	134			47	75		15	35	6	165	6	125	6	102.5
TFV-1/2		205	263	491	110	134			47	75		15	35	6	165	6	125	6	102.5
TFV-25SK/SP-0	B	208	283	535	144	177			49	115	140	20	41	180	230	150	200	15	
TFV-40SK/SP-1&2		208	283	535	144	177			49	115	140	20	41	180	230	150	200	15	
TFV-40SKH/SPH-2	C	231	344	680	183	200			56	140	160	40	54	222	260	222	260	15	
TFV-40SK/SP-3		231	344	680	183	200			56	140	160	40	54	222	260	222	260	15	
TFV-40SKH/SPH-3		231	344	680	233	200			56	140	160	40	79.5	222	260	222	260	15	
TFV-40SK/SP-5		231	344	729	233	238			56	140	180	40	79.5	222	260	222	260	15	
TFV-40SK/SP-7.5		231	344	754	233	238			56	140	180	40	79.5	222	260	222	260	15	
TFV-40SK/SP-10		231	344	779	233	238			56	140	180	40	79.5	222	260	222	260	15	
TFO-40SKH/SPH-2	D	231	344	680	183	200	189	25	56	140	178	40	54	224	250				14
TFO-40SK/SP-3		231	344	680	183	200	189	25	56	140	178	40	54	224	250				14
TFO-40SKH/SPH-3		231	344	680	233	200	189	25	56	140	178	40	54	224	250				14
TFO-40SK/SP-5		231	344	729	233	238	189	25	56	140	202	40	79.5	224	250				14
TFO-40SK/SP-7.5		231	344	754	233	238	189	25	56	140	202	40	79.5	224	250				14
TFO-40SK/SP-10		231	344	779	233	238	189	25	56	140	202	40	79.5	224	250				14

EXAMPLE



Faulty piping

Optional Accessories

NOTED !	TB series filter
<p data-bbox="92 660 486 694">Please don't use pumps like this!</p>	<p data-bbox="774 1008 1340 1041">pump inlet strainer ($\frac{3}{4}$", 1", 1 $\frac{1}{2}$" & 2" MPT)</p>

Specifications listed below are preferred when ordering

- | | |
|------------------------|---|
| 1. Working Liquid | name/concentration/sp.gr./viscosity |
| 2. Working Temperature | °C |
| 3. Flow Rate | Liter /Min. or m ³ /Hr |
| 4. Head | head of inlet and outlet |
| 5. Impurities | percentage contained/Max. Diameter |
| 6. Height of Liquid | -max. liquid height in the tank
-range of liquid height during operating
-the initial liquid height for pump starting |
| 7. Motor Spec. | type/voltage/cycle/indoor or outdoor/explosion-proof |

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