

ShinMaywa

Submersible Pumps

(Vortex Type)

CV/CVH·CVS·CVC·CVM Series



Non-Clogging Vortex Type

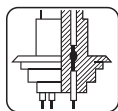
Even sewage containing foreign matter hardly "clog" or cause "entanglement" in the pump

There are **MANY ADVANTAGES** with ShinMaywa Submersible Pump.

●Features and Construction

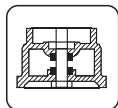
Cable entry with core wire seal

The core wire seal at the cable entry shuts the water out from penetrating into the motor chamber through the core wires even if the cable tip is immersed in water or the sheath is damaged.



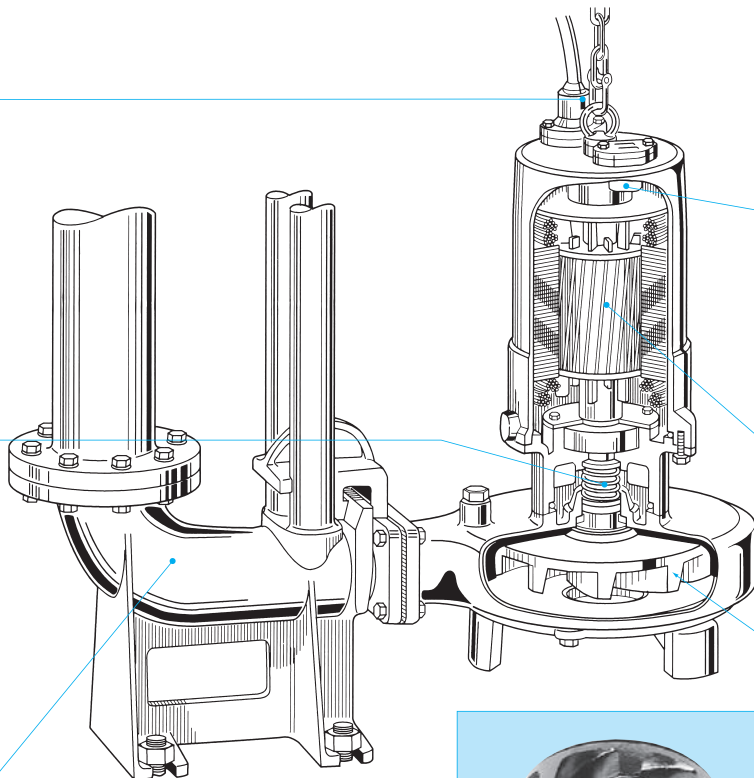
Shaft seal

A highly wear resistant silicon carbide double mechanical seal positively prevents the water from penetrating into the motor chamber. Besides, combined use of an oil seal further extends the service life of the mechanical seal.



Discharge connection

When the guide rail installation type submersible pump is lowered along the guide pipe, the pump is automatically connected to the discharge pipe with the discharge connection.



Applications

For sewage and wastewater containing a lot of fibrous solids

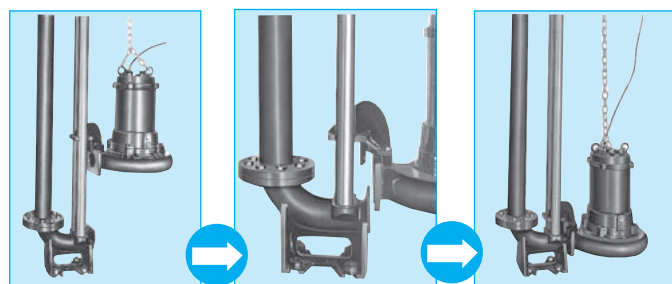
- For pump stations in the sewerage/wastewater collection system.
- For transferring/discharging sludge and scum at industrial wastewater treatment plants.
- For transferring/discharging wastewater and sludge at food processing factories or livestock production facilities.
- For use in the raw water tank and/or flow equalization tank at night soil treatment plants.
- For use in the raw water tank and/or flow equalization tank at onsite wastewater treatment systems.

Features of vortex type

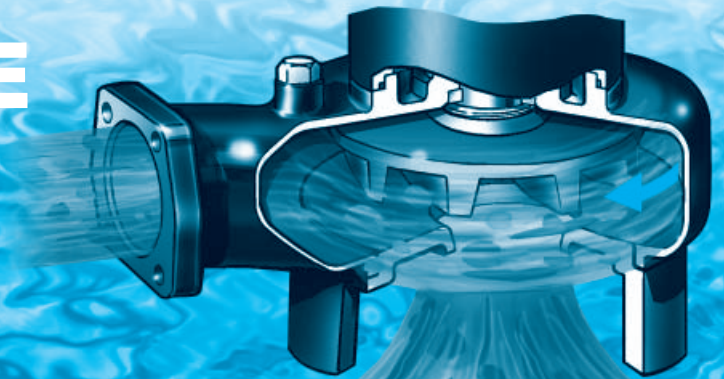
As illustrated, vortex impeller provides a broad area for passage, thereby eliminating the possible clogging, winding and/or entanglement of solids, fibrous solids, etc.

Sewage or sludge does not directly pass through the interior of an impeller. As a result, the vortex impeller scarcely abrades while showing an excellent level of durability.

Guide rail installation type

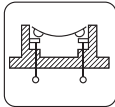


VORTEX TYPE



Motor protector

A built-in automatic-reset type motor protector (thermal protector or thermal switches) positively protects the motor from burnout due to overload, locked up impeller and open phase.



Motor

Dry type motor with Class E (or Class F) insulation is employed.

Impeller

A vortex impeller most suitable for each application is employed. Also, dynamic and static balance of impeller are adjusted.

CV/ CVH

2-Pole
(0.15 to 1.5kW)
4-Pole
(5.5 to 22kW)

Discharge size(mm)	40	50	65	80	100	150
Rated output(kW) 0.15						
0.25						
0.4		•	•			
0.75		•	•			
1.5		•	•	•		
5.5						•
7.5						•
11					•	•
15					•	•
22					•	•

CV/CVH

CVS

2-Pole

Discharge size(mm)	40	50	65	80	100	150
Rated output(kW) 0.15						
0.25	•	•				
0.4		•				
0.75		•				
1.5			•	•		
2.2			•	•		
3.7			•	•	•	
5.5				•	•	
7.5				•	•	
11				•	•	
15					•	
22						

CVS

CVC

4-Pole

Discharge size(mm)	40	50	65	80	100	150
Rated output(kW) 0.15						
0.25		•				
0.4		•	•			
0.75		•	•			
1.5			•	•		
2.2			•	•	•	
3.7			•	•	•	
5.5				•	•	
7.5				•	•	
11						
15						
22						

CVC

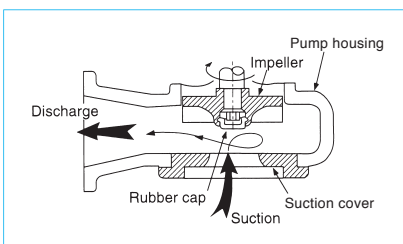
CVM

4-Pole

Solid passage dia.:
100% of discharge size
(except for CVM150)

Discharge size(mm)	40	50	65	80	100	150
Rated output(kW) 0.15						
0.25						
0.4		•				
0.75		•				
1.5			•	•	•	
2.2			•	•	•	
3.7			•	•	•	
5.5				•	•	
7.5				•	•	
11						•
15						
22						

CVM



CV/CVH Series

<Discharge size> 50 to 150mm
<Rated output> 0.4 to 1.5kW/5.5 to 22kW

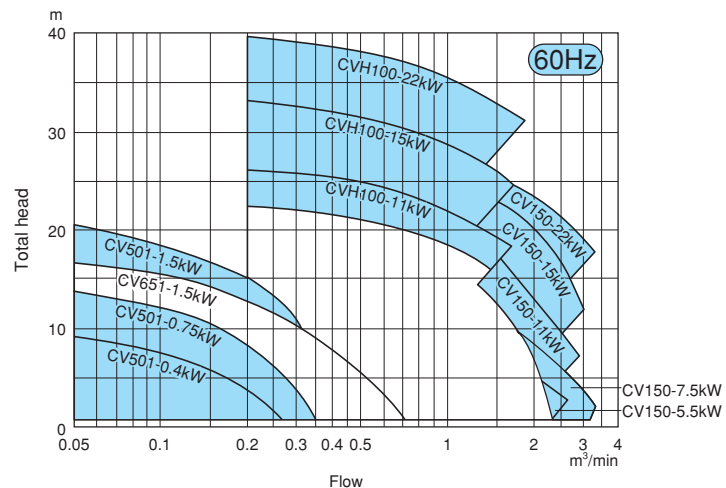
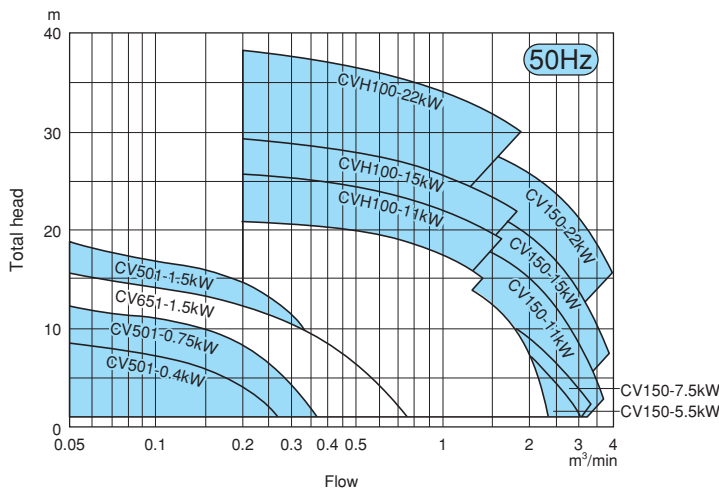
2-Pole
(0.15 to 1.5kW)
4-Pole
(5.5 to 22kW)



Standard Specifications

Discharge mm	Pump model	Installation kit No.		Rated output kW	No. of poles	Flow—Total head		Solid passage dia. (Soft solid) mm		Pump weight kg
		Guide rail installation	Free standing			50Hz m ³ /min — m	60Hz m ³ /min — m	50Hz	60Hz	
50	CV501T	P50	F50	0.4	2	0.15 — 5.9	0.15 — 5.9	30	30	17
	0.75			0.2 — 8.5		0.2 — 8.5	29	32	18	
	1.5			0.2 — 14.7		0.2 — 15.2	32	31	26	
65	CV501T	P65B	F65B	0.4	2	0.15 — 5.9	0.15 — 5.9	30	30	17
	0.75			0.2 — 8.5		0.2 — 8.5	29	32	18	
	1.5			0.2 — 14.7		0.2 — 15.2	32	31	26	
	CV651	P65	F65	1.5	2	0.4 — 8.7	0.4 — 8.2	42	42	29
80	CV651	P80	F80	1.5	2	0.4 — 8.7	0.4 — 8.2	46	46	29
100	CVH100	P100C	F100B	11	4	0.8 — 23	0.86 — 23	36	36	192
				15		0.94 — 26	0.9 — 29			208
				22		1.05 — 34	0.92 — 36			262
150	CV150	P150	F150	5.5	4	1.6 — 8.9	1.3 — 8.6	58	58	120
				7.5		1.9 — 9.4	1.6 — 10.5			132
				11		1.9 — 16	1.67 — 16			185
				15		2.15 — 19	2.05 — 20	48	48	197
				22		2.75 — 23	2.15 — 23			256

Performance Curves



CVS Series

<Discharge size> 40 to 100mm
<Rated output> 0.25 to 11kW

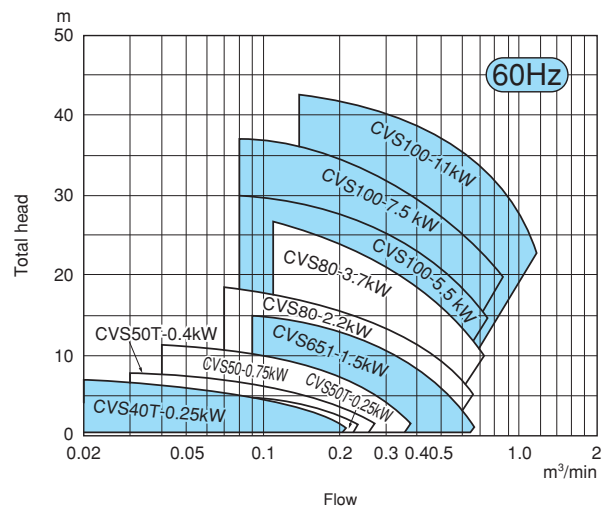
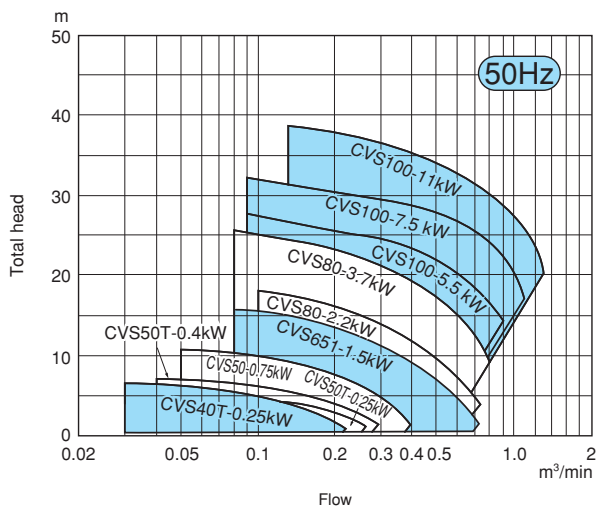
2-Pole



Standard Specifications

Discharge mm	Pump model	Installation kit No.		Rated output kW	Flow—Total head		Solid passage dia. (Soft solid) mm		Pump weight kg
		Guide rail installation	Free standing		50Hz	60Hz	50Hz	60Hz	
					m ³ /min — m	m ³ /min — m			
40	CVS401T	P40	F40	0.25	0.10 — 5.0	0.09 — 4.9	14	14	17
50	CVS501T	P50	F50	0.25	0.14 — 4.0	0.12 — 4.0	22	22	17
				0.4	0.14 — 5.3	0.14 — 5.0	18	18	18
	CVS501			0.75	0.17 — 8.5	0.17 — 8.3	18	18	21
65	CVS651	P65	F65	1.5	0.42 — 9.0	0.38 — 9.0	16	16	28.5
	CVS80	P65	F65	2.2	0.44 — 11.0	0.42 — 11.0	17	17	46
				3.7	0.51 — 17.0	0.47 — 17.0			55
80	CVS651	P80	F80	1.5	0.42 — 9.0	0.38 — 9.0	16	16	28.5
	CVS80	P80	F80	2.2	0.44 — 11.0	0.42 — 11.0	17	17	46
				3.7	0.51 — 17.0	0.47 — 17.0			55
				5.5	0.45 — 22.7	0.40 — 23.6			22
	CVS100	P80	F80	7.5	0.55 — 27.2	0.45 — 28.5	92		
11	0.60 — 33.0	0.60 — 35.6	120						
100	CVS80	P100	F100	3.7	0.51 — 17.0	0.47 — 17.0	17	17	55
	CVS100	P100	F100	5.5	0.45 — 22.7	0.40 — 23.6	22	22	82
				7.5	0.55 — 27.2	0.45 — 28.5			92
				11	0.60 — 33.0	0.60 — 35.6			120

Performance Curves



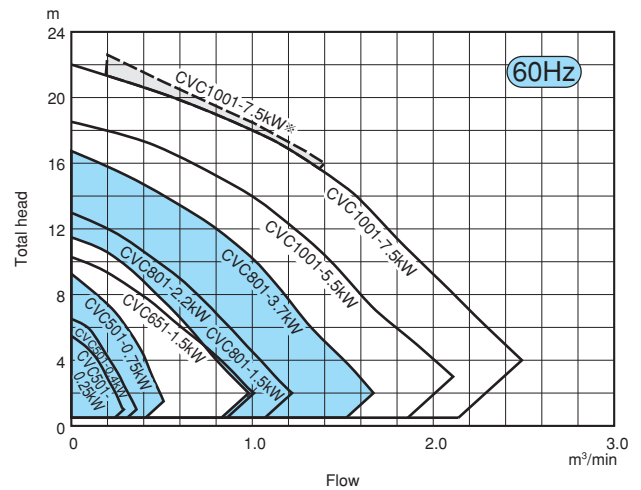
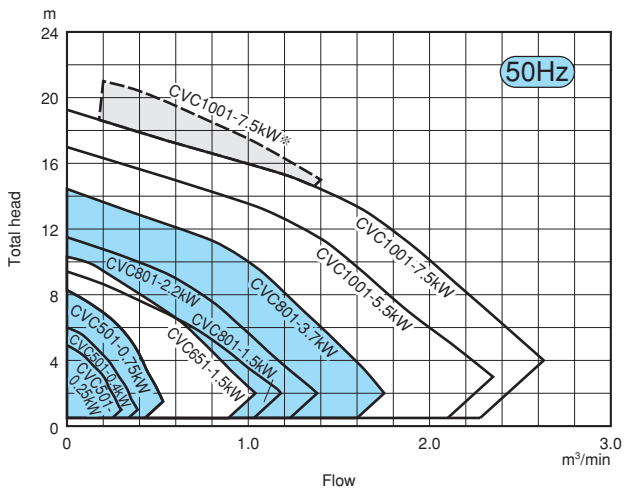
4-Pole



Standard Specifications

Discharge mm	Pump model	Installation kit No.		Rated output kW	Flow—Total head		Solid passage dia. (Soft solid) mm		Pump weight kg
		Guide rail installation	Free standing		50Hz m ³ /min — m	60Hz m ³ /min — m	50Hz	60Hz	
50	CVC501	P50	F50	0.25	0.19 — 3.1	0.19 — 3.1	35	35	22
				0.4	0.18 — 4.4	0.18 — 4.6			25
				0.75	0.23 — 6.5	0.23 — 7.1			28
65	CVC501	P65B	F65B	0.4	0.18 — 4.4	0.18 — 4.6	35	35	25
				0.75	0.23 — 6.5	0.23 — 7.1			28
	CVC651	P65	F65	1.5	0.45 — 7.6	0.45 — 8.2	46	46	45
				3.7	0.8 — 11.3	0.8 — 11.9			69
	CVC801	P65	F65	1.5	0.52 — 7.0	0.52 — 6.7	56	56	45
				2.2	0.6 — 8.9	0.6 — 8.9			57
3.7				0.8 — 11.3	0.8 — 11.9	69			
7.5				1.3 — 14.8	1.3 — 16.0	105			
80	CVC651	P80	F80	1.5	0.45 — 7.6	0.45 — 8.2	46	46	45
				3.7	0.8 — 11.3	0.8 — 11.9			69
	CVC801	P80B	F80	1.5	0.52 — 7.0	0.52 — 6.7	56	56	45
				2.2	0.6 — 8.9	0.6 — 8.9			57
	CVC1001	P80B	F80	5.5	1.2 — 12.2	1.2 — 12.2	70	70	95
				7.5	1.3 — 14.8	1.3 — 16.0			105
100	CVC801	P100B	F100	2.2	0.6 — 8.9	0.6 — 8.9	56	56	57
				3.7	0.8 — 11.3	0.8 — 11.9			69
	CVC1001	P100B	F100	5.5	1.2 — 12.2	1.2 — 12.2	70	70	95
				7.5	1.3 — 14.8	1.3 — 16.0			105

Performance Curves



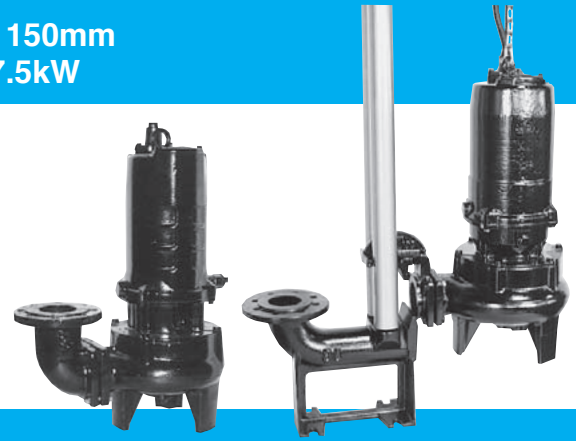
※ Upon consultation

CVM Series

<Discharge size> 50 to 150mm
<Rated output> 0.4 to 7.5kW

4-Pole

Solid passage dia. :
100% of discharge size
(except for CVM150)



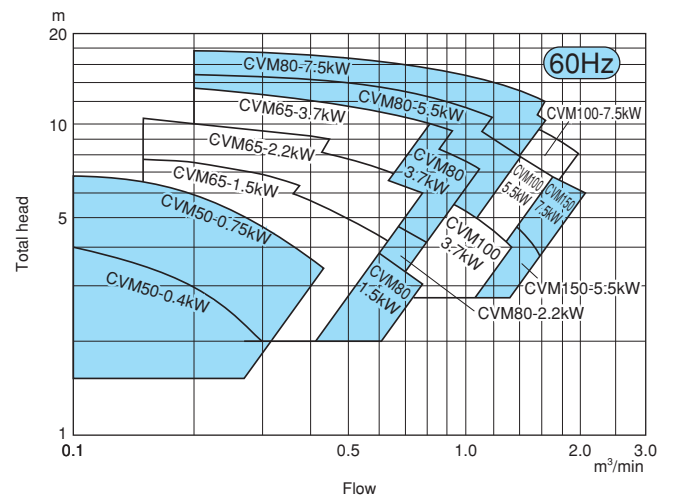
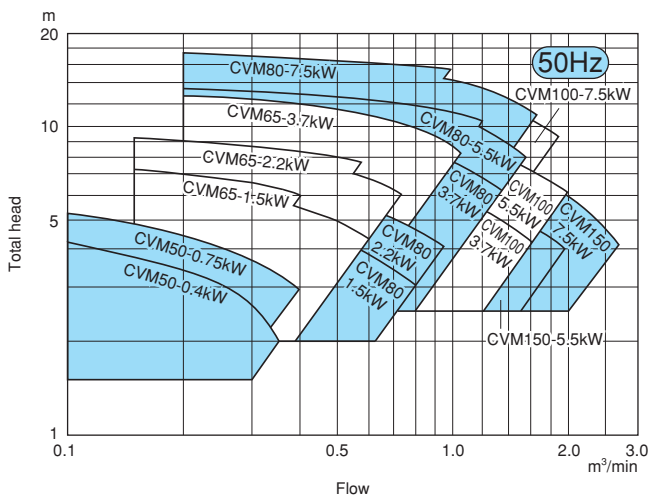
Standard Specifications

Discharge mm	Pump model	Installation kit No.		Rated output kW	Flow—Total head		Solid passage dia. (Soft solid) mm		Pump weight kg
		Guide rail installation	Free standing		50Hz m ³ /min — m	60Hz m ³ /min — m	50Hz	60Hz	
50	CVM50	P50	F50	0.4	0.18 — 3.55	0.17 — 3.3	50	50	25
				0.75	0.23 — 4.1	0.22 — 5.7			26
65 (80)	CVM65	P65 (P80)	F65 (F80)	1.5	[1] 0.21 — 6.9	[2] 0.20 — 7.5	65	65	43
				2.2	[3] 0.37 — 5.8	[4] 0.33 — 6.1			55
				3.7	[1] 0.28 — 8.8	[2] 0.20 — 10.0			69
80 (100)	CVM80	P80B (P100B)	F80 (F100)	1.5	[5] 0.2 — 6.5	[6] 0.16 — 6.9	80	80	46
				2.2	[7] 0.42 — 4.7	[8] 0.40 — 4.9			58
				3.7	[5] 0.26 — 7.2	[4] 0.25 — 7.5			72
				5.5	[7] 0.45 — 5.9	[6] 0.38 — 5.8			93
				7.5	[1] 0.42 — 11.0	[2] 0.46 — 11.2			106
100	CVM100	P100C	F100B	3.7	[3] 0.66 — 9.2	[4] 0.57 — 10.0	100	100	73
				5.5	[5] 0.62 — 10.8	[6] 0.44 — 12.0			97
				7.5	[7] 1.02 — 8.9	[8] 0.86 — 9.4			111
150	CVM150	P150	F150	5.5	[5] 0.52 — 14.6	[6] 0.80 — 13.2	125	125	107
				7.5	[7] 0.96 — 12.0	[8] 1.05 — 11.8			123
					[7] 0.51 — 7.6	[8] 0.55 — 7.3			
					[9] 0.80 — 6.5	[10] 0.64 — 6.2			
					[9] 0.92 — 9.4	[8] 0.78 — 9.7			
					[11] 1.32 — 7.6	[10] 1.04 — 8.1			

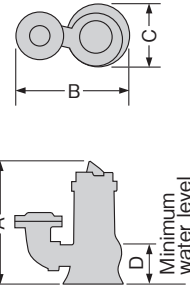
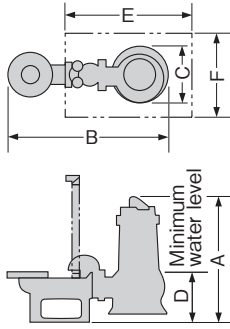
(80),(100) : Also available with solid passage dia. of 65 and 80mm respectively.

[] : Impeller No.

Performance Curves



Dimensions



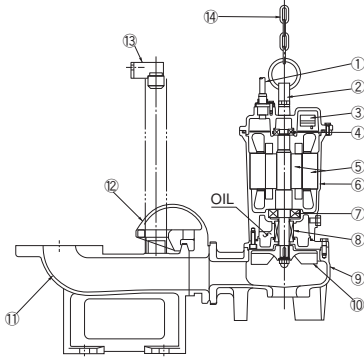
Guide rail installation

Free standing

		Pump model	Installation kit No.	Rated output kW	A	B	C	D	E	F					
CV CVH	CV501(T)	P50	P65B	0.4 · 0.75	461	427	156	180	550	350					
		500													
	CV501	P50	P65B	1.5	501	448	176	195	550	350					
		521													
	CV651	P65	P80	1.5	539	627	182	235	550	350					
		579				703		275							
	CVH100	P100C	11			861	1,110	486	335	900					700
			15												
			22			955									
	CV150	P150	5.5			779	1,094	400	325	900					700
7.5			814												
11			871			1,148					450	345			
15			967			1,188					489				
CVS	CVS401T	P40	0.25	441	443	188	170	550	350						
	CVS501(T)	P50	0.25	441	443	188	175	550	350						
			0.4 · 0.75	461											
	CVS651	P65 P80	1.5	516	663	192	200	550	350						
				556	739		240								
	CVS80	P65 P80 P100	2.2	581	697	266	200	550	350						
			3.7	622											
			2.2	621										773	240
			3.7	662											
	3.7	662	786	240											
CVS100	P80 P100	5.5	698	803	248	255	700	600							
		7.5	733												
		11	814						836	284					
		5.5	698						816	248					
7.5	733	849	284	174											
CVC	CVC501	P50	0.25	437	490	204	180	550	350						
			0.4	499	497	228	195								
			0.75												
	CVC651	P65B	0.4	570	228	195	550	350							
			0.75												
	CVC801	P65 P80B P100B	1.5	587	670	247	235	550	350						
			2.2	610	736	297	250			600	500				
			3.7	672	736	297	250			600	500				
			1.5	632	769	253	285			550	350				
			2.2	650	812	297	290			600	500				
3.7			712	825	297	290	600			500					
CVC1001	P80B P100B	2.2	650	825	297	290	600	500							
		3.7	712												
		5.5	758						850	334	305	700	600		
7.5	793														
5.5	758	863													
7.5	793														
CVM	CVM50	P50	0.4 · 0.75	506	475	188	195	550	350						
	CVM65	P65	1.5	601	637	219	245	550	350						
			2.2	625	687	238	260								
			3.7	687	696	257									
			1.5	641	713	219	285							300	
	2.2	665	763	238											
	3.7	727	772	257											
	CVM80	P80B P100B	1.5	659	758	230	300	550	350						
			2.2	673	769	249	310							600	500
			3.7	735	777	267									
5.5			765	830	292	310	700			600					
7.5			800	841	313										
1.5			659	771	230	300	600			500					
2.2			673	782	249										
3.7			735	790	267	310	700			600					
5.5	765	843	292												
7.5	800	854	313												
CVM100	P100C	3.7	803	817	280	375	600	500							
		5.5	841	851	310	385	700	600							
		7.5	869	873	332	380									
CVM150	P150	5.5	854	907	304	400	700	600							
7.5	881	921	331	390											
	CV501(T)	F50	0.4 · 0.75	415	229	156	135								
		F65B			324										
	CV501	F50	1.5	455	250	176	150								
		F65B			345										
	CV651	F65	1.5	474	382	182	170								
		F80			397										
	CVH100	F100B	11			782	848	486	255						
			15												
			22			876				870	529				
			5.5			713				836	400	260			
7.5	748														
CV150	F150	11			804	890	450	280							
		15													
		22			901				930	489					
		0.25			370				245	188	100				
CVS501(T)	F50	0.25	383	245	188	115									
		0.4 · 0.75	403												
CVS651	F65 F80	1.5	440	418	192	125									
				433											
CVS80	F65 F80 F100	2.2	538	452	266	160									
		3.7	579												
		2.2	538				467								
		3.7	579												
3.7	579	484													
CVS100	F80 F100	5.5	616	497	248	175									
		7.5	651												
		11	733				529	284	175						
		5.5	616				514	248	175						
7.5	651														
11	733	529	284	175											
CVC501	F50	0.25	391	292	204	135									
		0.4	453	299	228	150									
		0.75													
		0.4	394												
CVC651	F65 F80	1.5	526	425	247	175									
				440											
CVC801	F65 F80 F100	1.5	557	448	253	210									
		2.2	574	490	297	215									
		3.7	636												
		1.5	557	463	253	210									
		2.2	574	505	297	215									
		3.7	636												
2.2	574	523	600	500											
3.7	636														
CVC1001	F80 F100	5.5	702	544	334	250									
		7.5	737												
		5.5	702				561								
		7.5	737												
	CVM50	F50	0.4 · 0.75	486	277	188	170								
		F65			1.5			572	392	219					
	CVM65	F65	2.2	595	442	238	230								
			3.7	657	451	257									
			1.5	572	407	219	230								
			2.2	595	457	238									
	3.7	657	466	257											
	CVM80	F80	1.5	615	452	230	260								
			2.2	630	462	249	265								
			3.7	692	471	267									
5.5			722	523	292	265									
7.5			757	534	313										
1.5			573	470	230	260									
2.2			630	480	249	265									
3.7			692	489	267										
5.5	722	541	292	265											
7.5	757	552	313												
CVM100	F100	3.7	740	515	280	315									
		5.5	778	549	310	325									
		7.5	806	571	332	315									
CVM150	F150	5.5	828	649	304	375									
		7.5	856	663	331	365									

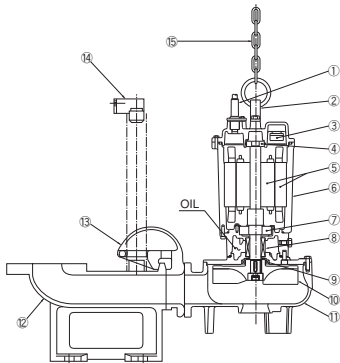
Sectional View

CV651



No.	Part Name	Material
1	Cable	PVC insulated PVC sheathed cable
2	Handle	304 stainless steel
3	Thermal protector	—
4	Ball bearing(upper)	—
5	Motor	Shaft:420J2 stainless steel
6	Stator housing	Gray iron casting (FC200)
7	Ball bearing(lower)	—
8	Mechanical seal	Upper SiC/SiC Lower SiC/SiC
9	Pump housing	Gray iron casting (FC200)
10	Impeller	Gray iron casting (FC200)
11	Discharge connection	Gray iron casting (FC200)
12	Sliding bracket	Gray iron casting (FC200)
13	Guide holder	304 stainless steel casting
14	Lifting chain	Structural steel

CVC651



No.	Part Name	Material
1	Cable	PVC insulated PVC sheathed cable
2	Handle	304 stainless steel
3	Thermal protector	—
4	Ball bearing(upper)	—
5	Motor	Shaft:420J2 stainless steel
6	Stator housing	Gray iron casting (FC200)
7	Ball bearing(lower)	—
8	Mechanical seal	Upper SiC/SiC Lower SiC/SiC
9	Oil seal	Acrylonitrile butadiene rubber (NBR)
10	Impeller	Gray iron casting (FC200)
11	Pump housing	Gray iron casting (FC200)
12	Discharge connection	Gray iron casting (FC200)
13	Sliding bracket	Gray iron casting (FC200)
14	Guide holder	304 stainless steel casting
15	Lifting chain	Structural steel

Guide rail installation kit

- Discharge connection
- Guide holder (with bolts and nuts)
- Sliding bracket
- Lifting chain (6m)

Discharge mm	Installation kit No.	Pump model				Weight (kg)	
		CV/CVH	CVS	CVC	CVM	Kit	Connection
40	P40	—	CVS40T	—	—	11	4.5
50	P50	CV501(T)	CVS50(T)	CVC501	CVM50	11	4.5
65	P65B	CV501(T)	—	CVC501	—	20	14.5
	P65	CV651	CVS651 CVS80	CVC651 CVC801	CVM65	24	15
80	P80	CV651	CVS651 CVS80	CVC651	CVM65	31.5	20.5
	P80B	—	—	CVC801 CVC1001	CVM80	31.5	18
100	P100	—	CVS80 CVS100	—	—	40.5	27
	P100B	—	—	CVC801 CVC1001	CVM80	40.5	27
	P100C	CVH100	—	—	CVM100	55	37
150	P150	CV150	—	—	CVM150	60	42

Free standing kit

- Discharge flange
- Companion flange (with bolts, nuts and gasket)

Discharge mm	Installation kit No.	Pump model				Kit weight (kg)
		CV/CVH	CVS	CVC	CVM	
40	F40	—	CVS40T	—	—	★
50	F50	CV501(T)	CVS50(T)	CVC501	CVM50	★
65	F65B	CV501(T)	—	CVC501	—	5.5
	F65	CV651	CVS651 CVS80	CVC651 CVC801	CVM65	7
80	F80	CV651	CVS651 CVS80 CVS100	CVC651 CVC801 CVC1001	CVM65 CVM80	9.5
100	F100	—	CVS80 CVS100	CVC801 CVC1001	CVM80	11
	F100B	CVH100	—	—	CVM100	12
150	F150	CV150	—	—	CVM150	30

★ : Built into the pump

Standard Specifications

Handling liquid	Kind of liquid	Wastewater and sewage or Water including sludge
Material	Cable	0.15 to 7.5kW 11 to 22kW
		PVC insulated PVC sheathed cable EPR insulated PCP sheathed cable
	Motor shaft	420J2 stainless steel
	Pump housing	Gray iron casting (FC200)
Impeller	CVM65-80-100-150	Spheroidal graphite iron casting (FCD500)
	Other models	Gray iron casting (FC200)
Electric motor	Type	Air-filled submersible induction motor
	Insulation class	Class E(or Class F)
	Enclosure	IP68
	Phase	3
	Rated voltage	Several voltage between 200 and 480V

Optional Specifications

Cable extension	Length of cable 15-20-30m		
Material change	Pump series	CV/CVH-CVS	CVC-CVM
	Impeller	304 stainless steel casting	304 stainless steel casting High chromium iron casting
	Suction cover	304 stainless steel (casting)	—
	Lifting chain	304 stainless steel	

Standard Accessories

- Cable (0.15 to 7.5kW)1pc.
(11 to 22kW)3pcs.
- 6m for 0.15 to 0.75kW
- 8m for 1.5 to 22kW

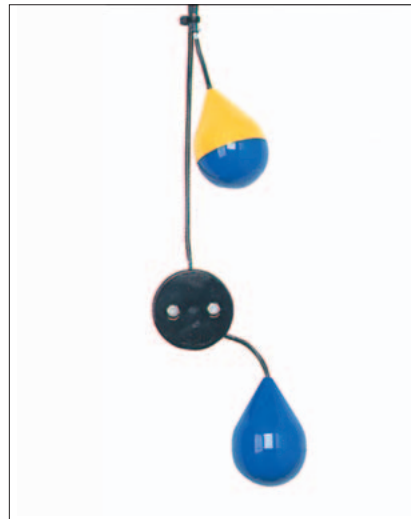
Special Accessories

Liquid Level Regulators - All models are non-mercury structure for earth environment.

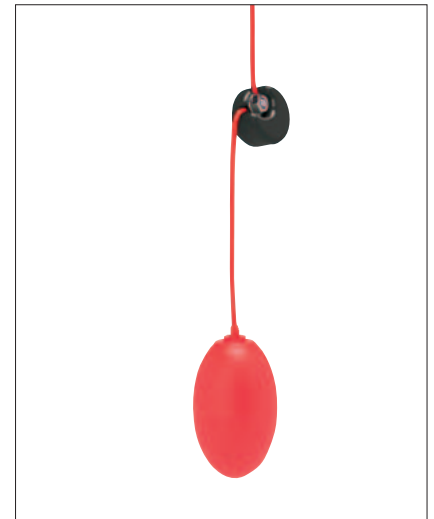
LC "Level Switch"



MS "Mini Switch"



FV "Oval Float"



Features

LC Useful for drinking water, waste water and sewage containing the suspended solids. Hardly affected by corrosion or rust even if it is immersed in a corrosive liquid for a long time.

MS Useful for waste water and sewage containing a few suspended solids. The MS is available in two types, MS11 (single float) and MS21 (double float).

FV Useful for the fresh water as well as waste water not containing suspended solids. A single FV is able to control both the upper and lower liquid levels.

Specifications

Model		LC12	MS11, MS21	FV11
Switch		Micro switch	Reed switch	Reed switch
Specific gravity of liquid		0.95~1.15	0.95~1.10	0.95~1.10
Liquid temperature		0~60°C	0~40°C	0~60°C
Voltage		AC/DC30V or under		
Current		5A or under	0.5A or under	0.6A
Cable length		6m, 13m, 20m, 30m, 40m, 50m (further cable extension at interval of 10m)		
Cable type		0.75mm ² ×3 cores, Flat Type	0.2mm ² ×2 cores×O.D.4.7mm	0.5mm ² ×2 cores×O.D.5.8mm
Weight (including cable)		1.2kg (6m cable)	0.6kg (MS11, 6m cable)	1.0kg (6m cable)
Material	Case	Polypropylene resin	ABS resin	Polypropylene resin
	Cable	PVC sheathed code (VCTFK)	PVC resin (soft type)	PVC resin (soft type)
	Others	Chain: 304 stainless steel	Sinker: Cast iron with PVC resin coating	Sinker: Cast iron

Specifications and dimensions are subject to change without notice.

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ShinMaywa ONO PLANT

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