

**ShinMaywa**

# Lightweight Submersible Pumps

**NORUS**

**The combination of "engineering plastic" and "stainless steel" makes the pumps lighter in weight and greater in toughness.**



# New Generation of Pumps

# NORUS

The combination of "engineering plastic" and "stainless steel" makes the pumps lighter in weight and greater in toughness.

## Air vent valve

A ball-shaped air vent valve installed at the bottom of the companion flange releases air that resides in the pump chamber, thereby preventing an air lock.

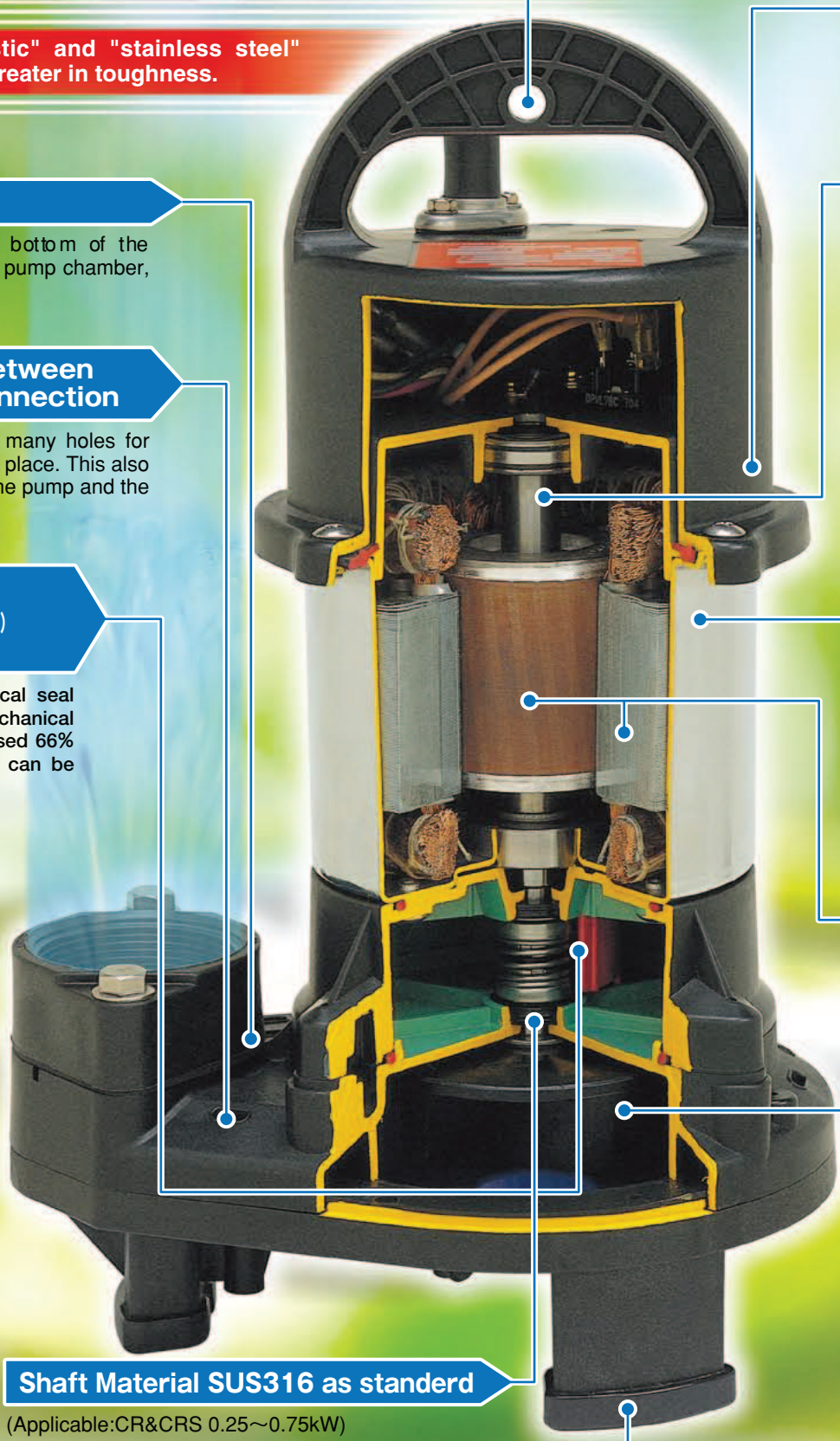
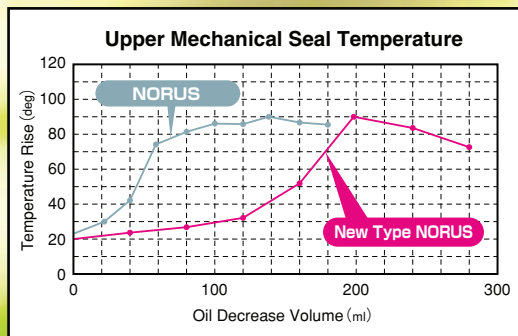
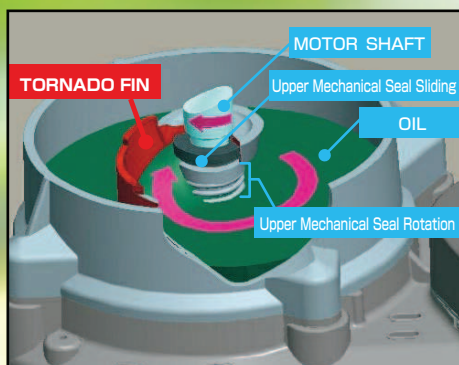
## Prevention of water leakage between the pump and the automatic connection

The top of the pump chamber is provided with many holes for releasing air, thereby stably installing the pump in place. This also serves to prevent the leakage of water between the pump and the automatic connection.

## TORNADO FIN

Achieved long life of mechanical seal (Over 0.25kW)  
(Applicable : CR & CRS 0.25~0.75kW)

Equipped with TORNADO FIN to cool mechanical seal chamber temperature so that deterioration of mechanical seal can be prevented. Also, oil volume is increased 66% (from 240cc to 400cc), therefore, more long life can be achieved.



## Shaft Material SUS316 as standard

(Applicable:CR&CRS 0.25~0.75kW)

## Rubber protector fitted to important parts

The important parts which are made of a special-grade resin having high impact strength are provided with a rubber protector to further improve against impact resistance.

## One-point lifting for easy installation

The pump can be easily hanged up and down using a single hole in the handle.

## Screws which hardly become loose

The use of glass fiber and a specially designed screw taking into consideration the pump deformation with the lapse of time and due to heat prevents the leakage of water caused by loose screws.

## Excellent corrosion resistance

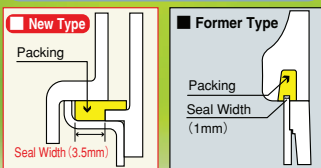
SUS 304 and engineering plastic are also used for the stator casing and wet part, offering better corrosion resistance than the cast iron ones in conventional models. As a result, the "NORUS" of pumps achieves good corrosion resistance even under severer working conditions. In addition, the "NORUS" is hardly damaged by rust. Normally, only maintenance required of the "NORUS" is washing.

## Seamless Stator Casing Structure

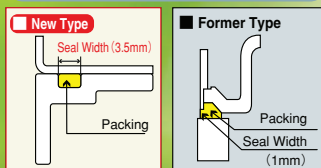
No welded area, improved corrosion resistance by enlarged seal width  
(Applicable : CR & CRS 0.15~0.75kW)

Seamless stator casing structure is employed by press process so that no welded area on stator casing to prevent rust from junction.  
Also, packing seal width is enlarged to prevent rust between gap.

### Upper Motor Seal



### Lower Motor Seal



## Tough against dry operation

Continuous dry operation for 30 minutes is realized by employing motor with few rises in heat. "NORUS" is designed for longer operating life by suppressing rise in heat of bearing.

## Wear resistant vortex impeller which is hardly clogged with foreign matter

Model CR and CRS employ a vortex type impeller. Since the vortex impeller reduces the tangling of fibrous matter, the CR series is comparable or superior in pumping performance to conventional vortex type pumps. The impeller is made of engineering plastic having excellent wear resistance. It is more than 100 times as strong as impellers made of ordinary ABS resin against the wear caused by sand, detergents, solids, etc. contained in sludge. Therefore, the "NORUS" can be used even in raw water containing considerable amounts of solids.



**Impeller made of engineering plastic**  
After 200 hours of pump operation Loss of impeller weight:3.3%



**Impeller made of ordinary ABS resin**  
After 24 hours of pump operation Loss of impeller weight:46%

\*Test condition:Pump was operated in 600 liters of water containing 120 kg of s and.

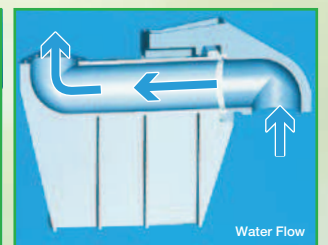
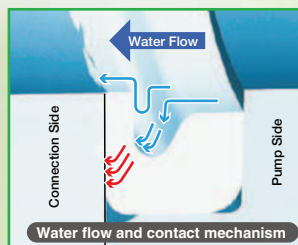
## Principal Specifications

Applicable liquid	Liquid type	Waste water or raw water containing sludge	
	Liquid temperature	0~40°C	
Material	Pump shaft	CR	0.1~0.15kW:SUS420J2
		CRS	0.25~0.75kW:SUS316
			1.5~2.2kW:SUS304
	CRC	0.4~2.2kW:SUS304	
Stator casing	SUS304		
Pump casing	Engineering Plastic (reinforced with glass fiber)		
Impeller			
Structure	Impeller	Vortex:CR,CRS Closed:CRC	
	shaft seal	Double mechanical seal Wet side:SiC x SiC Motor side: Ceramic x Carbon (0.1~0.75kW) SiC x SiC (1.5~2.2kW)	
Motor	Type	Air filled-type submersible induction motor	
	Insulation class	Class E	
	Phase	Single phase (0.1~0.4kW)	Three phase (0.15~2.2kW)
	Starting method	Condenser-run	Direct

## High Pumping Capability with Automatic Connection

Line up with auto-connecting type for easy installation and maintenance.

Anti floating mechanism is provided for connection. Also, in combination with special packing to prevent water leakage so that pumping loss is prevented.



## Lightweight Submersible Pump

# CR

High passing capability type materialized as a result of giving priority to the smooth passing of foreign matter

## Application

- For treating raw water at water treatment plants, etc.
- For controlling liquid flow rate
- For returning sludge



[Actual Size]  
Debris Passage Dia

### 35mm

0.15~0.75kW

[Actual Size]  
Debris Passage Dia

### 46mm

1.5~2.2kW



Non-Auto-Operation



Auto-Operation

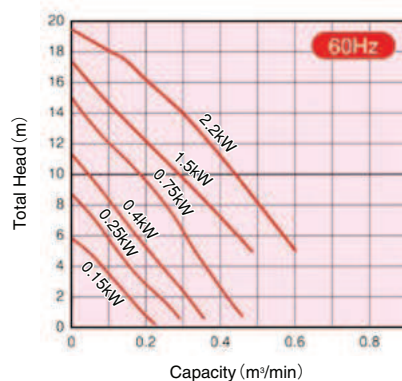
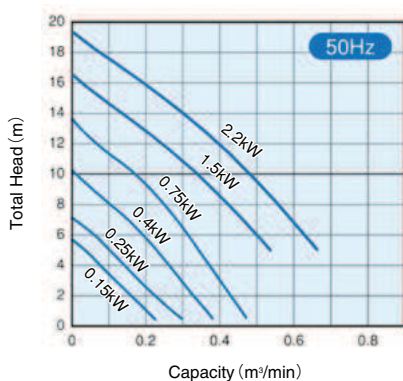


Auto-Alternate Operation

## Standard Specifications

Bore mm	Pump Model				Connection Part No.		Phase	Output kW	Capacity - Total Head		Weight (kg)	
	Non-Auto-Operation	Auto-Operation	Auto-Alternate Operation		Auto-Connecting	Free Standing			m <sup>3</sup> /m in-m		CR	CR-D CR-W
			Pair Designation	Pump No. 1+Pump No. 2					50Hz	60Hz		
50	CR501S	CR501DS	CR501DWS	CR501WS+CR501DS	P50RL	F50	1	0.15	0.1 - 3.5	0.1 - 3.5	5.5	6.0
								0.25	0.13 - 4.5	0.13 - 4.8	7.0	7.5
								0.4	0.16 - 6.8	0.16 - 6.4	8.2	8.7
	CR501T	CR501DT	-	-			3	0.15	0.1 - 3.5	0.1 - 3.5	4.9	5.4
								0.25	0.13 - 4.5	0.13 - 4.8	6.3	6.8
								0.4	0.16 - 6.8	0.16 - 6.4	7.4	7.9
	CR501	CR501D	-	-				0.75	0.22 - 8.8	0.22 - 8.9	8.8	9.3
65	CR65	-	-	-	P65N R	F65N	3	1.5	0.35 - 9.8	0.30 - 9.7	16	-
	CR80	-	-	-				2.2	0.35 - 13.0	0.35 - 12.6	19	-
80	CR65	-	-	-	P80N R	F80N	3	1.5	0.35 - 9.8	0.30 - 9.7	16	-
	CR80	-	-	-				2.2	0.35 - 13.0	0.35 - 12.6	19	-

## Performance Curves



## Standard Accessories

- Cable(5m) 0.15~0.75kW ... 1
- Cable(8m) 1.5~2.2kW ... 1
- Float switch ... 1 (for type D/W)
- Screw coupling ... 1
- Spare nameplate ... 1

## Auto-connection set

- Connection
- Guide holder (with bolts & nuts)
- Sliding bracket
- Lifting chain
- Shackle

※ 0.15~0.75kW Performance Curves show Free Standing type.

Lightweight Submersible Pump

# CRS

Universal type with improved passing capability and pumping performance available

● Application

- For treating raw water at water treatment plants, etc.
- For controlling liquid flow rate
- For returning sludge



[Actual Size] Debris Passage Dia  
**20mm**  
0.1~0.25kW

[Actual Size] Debris Passage Dia  
**25mm**  
0.4~0.75kW

[Actual Size] Debris Passage Dia  
**30mm**  
1.5~2.2kW



Non-Auto-Operation



Auto-Operation

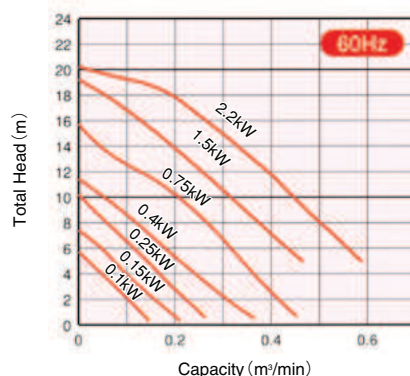
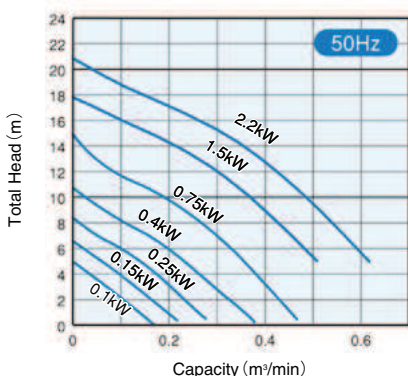


Auto-Alternate Operation

## Standard Specifications

Bore mm	Pump Model				Connection Part No.		Phase	Output kW	Capacity - Total Head		Weight (kg)		
	Non-Auto-Operation	Auto-Operation	Auto-Alternate Operation		Auto-Connecting	Free Standing			m <sup>3</sup> /min in - m		CRS	CRS-D CRS-W	
			Pair Designation	Pump No.1+Pump No.2					50Hz	60Hz			
32	CRS32I S	CRS32I DS	CRS32I DWS	CRS32I WS + CRS32I DS	P32RL	F32	1	0.1	0.08 - 2.9	0.08 - 3.2	4.5	5.0	
								0.15	0.1 - 3.9	0.1 - 3.9	5.4	5.9	
40	CRS40I S	CRS40I DS	CRS40I DWS	CRS40I WS + CRS40 I DS	P40RL	F40	1	0.15	0.1 - 3.9	0.1 - 3.9	5.4	5.9	
								0.25	0.13 - 5.3	0.13 - 5.4	6.9	7.4	
	CRS40I T	CRS40I DT	CRS40I DWT	CRS40I WT + CRS40 I DT				3	0.15	0.1 - 3.9	0.1 - 3.9	4.8	5.3
									0.25	0.13 - 5.3	0.13 - 5.4	6.2	6.7
50	CRS50I S	CRS50I DS	CRS50I DWS	CRS50I WS + CRS50I DS	P50RL	F50	1	0.4	0.16 - 7.2	0.16 - 6.8	8.1	8.6	
								0.75	0.16 - 7.2	0.16 - 6.8	7.3	7.8	
	CRS50I T	CRS50I DT	CRS50I DWT	CRS50I WT + CRS50I DT				3	0.4	0.22 - 9.2	0.22 - 9.4	8.7	9.2
									0.75	0.22 - 9.2	0.22 - 9.4	8.7	9.2
65	CRS65	CRS65D	CRS65D W	CRS65W + CRS65D	P65NR	F50N	3	1.5	0.4 - 9.9	0.4 - 7.8	16	16.5	
								1.5	0.35 - 10.5	0.30 - 10.5	16	16.5	
	CRS80	CRS80D	CRS80D W	CRS80W + CRS80D				3	2.2	0.35 - 14.1	0.35 - 13.4	19	19.5
									2.2	0.35 - 14.1	0.35 - 13.4	19	19.5
80	CRS65	CRS65D	CRS65D W	CRS65W + CRS65D	P80NR	F80N	3	1.5	0.35 - 10.5	0.30 - 10.5	16	16.5	
								1.5	0.35 - 10.5	0.30 - 10.5	16	16.5	
	CRS80	CRS80D	CRS80D W	CRS80W + CRS80D				3	2.2	0.35 - 14.1	0.35 - 13.4	19	19.5
									2.2	0.35 - 14.1	0.35 - 13.4	19	19.5

## Performance Curves



## Standard Accessories

- Cable (5m) 0.1~0.75kW .....1
- Cable (8m) 1.5~2.2kW .....1
- Float switch .....1 (for type D/W)
- Screw coupling .....1
- Spare nameplate .....1

## ● Auto-connection set

- Connection
- Guide holder (with bolts & nuts)
- Sliding bracket
- Lifting chain
- Shackle

※ 0.1~0.75kW Performance Curves show Free Standing type.



Lightweight Submersible Pump

# CRC

High pump head with closed impeller

[Actual Size]



Debris Passage Dia

## 7mm

0.4·0.75kW

[Actual Size]



Debris Passage Dia

## 12mm

1.5·2.2kW

### Application

- For use at water treatment facilities, etc. to suppress foaming or to discharge treated waste water
- For use to discharge rain water or spring water from underground passages, etc.
- For use to drain buildings, factories, basements, etc.



Non-Auto-Operation



Auto-Operation

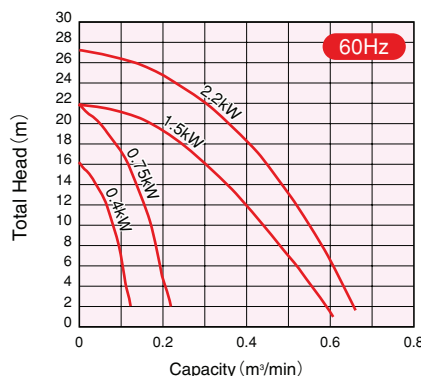
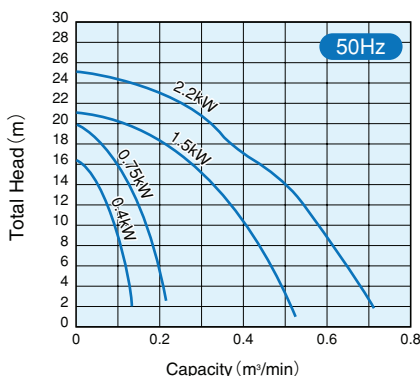


Auto-Alternate Operation

## Standard Specifications

Bore mm	Pump Model				Connection Part No.		Phase	Output kW	Capacity—Total Head		Weight (kg)	
	Non-Auto-Operation	Auto-Operation	Auto-Alternate Operation		Auto-Connecting	Free Standing			m <sup>3</sup> /min—m		CRC	CRC-D CRC-W
			Pair Designation	Pump No.1+Pump No.2					50Hz	60Hz		
40	CRC40S	CRC40DS	—	—	P40RH	F40	1	0.4	0.05 — 14.2	0.05 — 14.0	8.9	9.4
	CRC40T	CRC40DT	—	—					0.05 — 14.2	0.05 — 14.0		
50	CRC50	CRC50D	—	—	P50RH	F50	3	0.75	0.10 — 16.0	0.10 — 17.0	10.2	10.7
			CRC50DW	CRC50W+CRC50D					P50NR	F50N		
65	CRC50	CRC50D	CRC50DW	CRC50W+CRC50D	P65NR	F65N	3	1.5	0.2 — 18.2	0.2 — 18.4	16	16.5
	CRC65	CRC65D	CRC65DW	CRC65W+CRC65D					0.3 — 20.6	0.3 — 21.3		
80	CRC65	CRC65D	CRC65DW	CRC65W+CRC65D	P80NR	F80N	3	2.2	0.3 — 20.6	0.3 — 21.3	19	19.5

## Performance Curves



## Standard Accessories

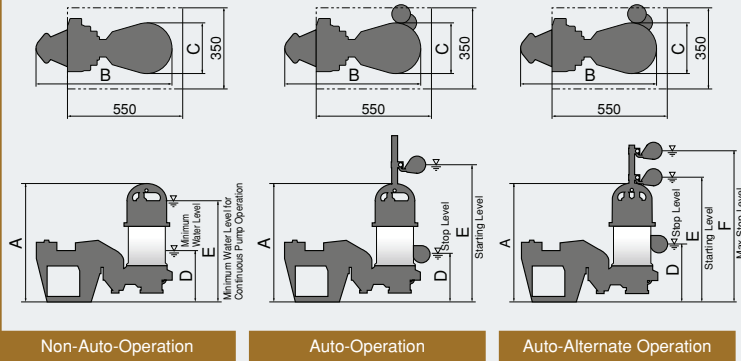
- Cable (5m) 0.4·0.75kW ... 1
- Cable (8m) 1.5·2.2kW ... 1
- Screw coupling ... 1
- Spare nameplate ... 1
- Float switch ... 1 (for type D/W)

### Auto-connection set

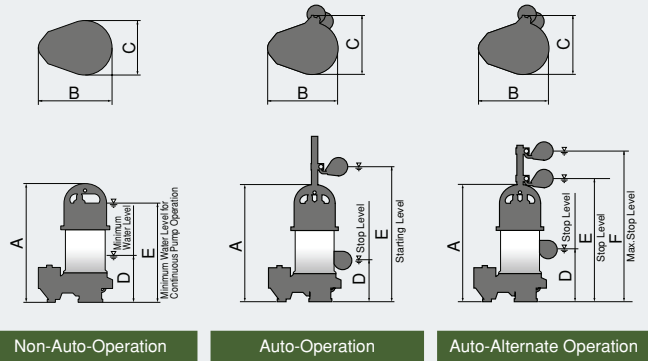
- Connection
- Guide holder (with bolts & nuts)
- Sliding bracket
- Lifting chain
- Shackle

# Dimensions

## Auto Connecting Type



## Free Standing Type



Unit:mm

### Auto-Connecting Type

	Pump Model	Connection Part No.	Output (kW)	A	B	C	D	E	F	
Non-Auto-Operation	CR	CR501S/T P50RL	0.15	395	436	144	165	345	-	
			0.25	409	470	175				
			0.4							
		CR501	0.75	536	621	203	200	470		
		CR65	1.5							
	CR80	2.2	561	490						
	CRS	CRS321S P32RL	0.15*1	395 (409)	436 (470)	144 (175)	165	345	-	
			0.25	409	470	175				
		CRS401S/T P40RL	0.4							
		CRS501S/T P50RL	0.75							
		CRS501	1.5	536	621	203	200	470		
		CRS65	2.2	561	490					
		CRC	CRC40S/T P40RH	0.4	417	452	177	160		360
	0.75			436	380					
	CRC50 P50NR/65NR		1.5	536	621	203	200	470		
2.2			561	490						
Auto-Operation	CR-D CR501DS/T P50RL	CR501DS/T	0.15	395	436	171	165	530	-	
			0.25	409	470	202				
			0.4							
		CR501D	0.75	409	470	202				
	CRS321DS P32RL	0.15*1	395 (409)				436 (470)	171 (202)	165	530
	CRS401DS/T P40RL	0.25								
	CRS501DS/T P50RL	0.4	536	621	203	205	765			
	CRS501D	0.75						790		
	CRS65D	1.5	561	790						
	CRS80D	2.2	561	790						
	CRC-D	CRC40DS/T P40RH	0.4	417	452	195	170	570	-	
			0.75	436						765
		CRC50D P50NR/65NR	1.5	536	621	203	205	765		
			2.2	561	790					
	Auto-Alternate Operation	CR-W CR501WS P50RL	CR501WS	0.15	395	436	171	200	480	610
0.25				409	470	202				
0.4										
CRS-W		CRS321WS P32RL	CRS401WS/T P40RL	0.15*1	395 (409)	436 (470)	171 (202)	200	480	610
				0.25	409	470	202			
		CRS501WS/T P50RL	0.4							
		CRS501W	0.75	536				621	203	240
		CRS65W	1.5							
		CRS80W	2.2	561	720	800				
		CRC-W	CRC50W P50NR/65NR	CRC65W P65NR/80NR	1.5	536	621	203	240	695
2.2					561	720	800			

Unit:mm

### Free Standing Type

	Pump Model	Connection Part No.	Output (kW)	A	B	C	D	E	F		
CR	CR501S/T F50	F50	0.15	380	206	144	150	330	-		
			0.25	394	240	175					
			0.4	398						155	335
	CR501	0.75	517	295	203	180	450				
	CR65	1.5									
	CR80	2.2						542		470	
CRS	CRS321S F32	F32	0.1	352 (366)	206 (240)	144 (175)	105	305	-		
			0.15*1				125				
	CRS401S/T F40	F40	0.25	366	240	175	135	315			
			0.4	379							
	CRS501S/T F50	F50	0.75	485	295	203	150	420			
			CRS501							1.5	510
	CRC	CRC40S/T F40	F40	0.4	389	245	177	130		350	-
				0.75	408			150			
CRC50 F50N/65N		F50	1.5	485	295	203	150	420			
			2.2	510					440		
CR-D	CR501DS/T F50	F50	0.15	380	206	171	150	515	-		
			0.25	394	240	202					
			0.4	398						155	520
	CR501D	0.75	409	470	202						
CRS321DS F32	0.1	352 (366)				206 (240)	171 (202)	105	480		
CRS401DS/T F40	0.15*1	125				490					
CRS-D	CRS501DS/T F50	F50	0.4	379	240	202	135	500			
			0.75	379					135	500	
	CRS65D F50N/65N/80N	F50	1.5	485	300	203	155	715			
			2.2	510					740		
	CRS80D	2.2	510	740							
	CRC-D	CRC40DS/T F40	F40	0.4	389	245	195	140	540	-	
0.75				408	155						740
CRC50D F50N/65N		F50	1.5	485	300	203	155	715			
			2.2	510					740		
CR-W	CR501WS F50	F50	0.15	380	206	171	185	460	590		
			0.25	394	240	202					
			0.4	398						190	470
	CRS-W	CRS321WS F32	F32	0.1	352 (366)	206 (240)	171 (202)	140	430	560	
				0.15*1				160			440
		CRS401WS/T F40	F40	0.25	366	240	202	170	450	580	
0.4				379							
CRS501WS/T F50		F50	0.75	485	300	203	190	645	725		
			CRS501W							1.5	
CRS65W	2.2	510	670	750							
CRC-W	CRC50W F50N/65N	F50	1.5	485	300	203	190	645	725		
			2.2	510						670	750
	CRS80W	2.2	510	670	750						

\*1 ( ) : CRS401S 1Phase - 200V or Over  
CRS401T 3Phase - 380V or Over



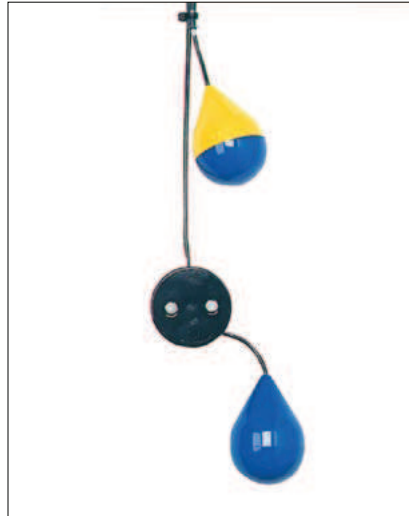
# Special Accessories

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

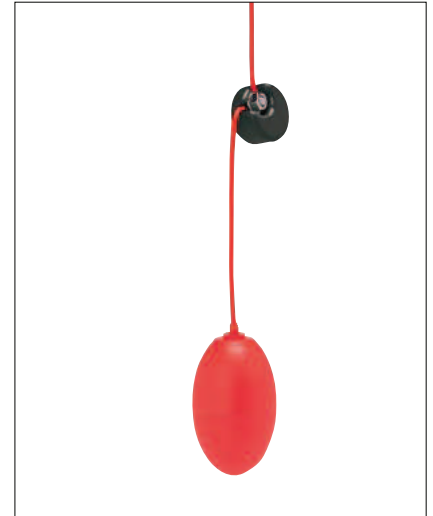
**LC** "Level Switch"



**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	Lead Switch	Lead Switch
Specific gravity of liquid	0.95~1.15	0.95~1.10	0.95~1.10
Liquid Temp	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 <sup>2</sup> ×3 cores, Flat Type	0.2mm <sup>2</sup> ×2 cores×φ4.7mm	0.5mm <sup>2</sup> ×2 cores×φ5.8mm
Weight (including cable)	1.2kg (6m cable)	0.6kg (MS11, 6m cable)	1.0kg (6m cable)
Material	Case	Polypropylene resin	ABS resin
	Cable	VCTFK	PVC resin (soft type)
	Others	Chain: SUS304	Sinker: Cast iron with PVC resin coating

Specifications and dimensions are subject to change without notice.

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**ShinMaywa ONO PLANT**

ISO 9001(No.956445)/ISO 14001(No.771888)