



Submersible Pumps

(Channel Impeller) **CN/CN-MT/CNH·CNL Series**



“SUBMERSIBLE SLUDGE PUMP” ~ CN Series
— Suitable for transfer and discharge of Sludge
at sewage treatment plant

Features and Construction

Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.



Motor protector

Thermal protector (a built-in automatic reset type motor protector) or thermal switches are embedded to the motor winding.



Air-filled submersible motor

Shaft seal

A highly wear resistant double mechanical seal is employed. Besides, combined use of an oil seal further extends the life. (except for some models)



Discharge connection

The pump is automatically connected to the discharge pipe.

Impeller

The solid handling type channel impellers are fully adjusted in the factory to the dynamic/static balance.



Semi-open type

CN401T-501(T)-651-80-100-MT
CNL Series



Closed type

CNH100
CN150-MT
CN150

Improved Pump Efficiency and Solid-Handling Operation

ShinMaywa Submersible Pumps offer MANY ADVANTAGES.

Applications

- Treatment processes at onsite wastewater treatment systems
- Treatment processes at sewage-treatment plants and night-soil treatment plants
- Pumping stations in the sewerage / wastewater collection system
- As sanitary equipment for effluent from building facilities
- Draining stormwater from roads or underpass
- Treatment processes at industrial wastewater treatment facilities

Main Specifications

Handling liquid	Kind of liquid	Sewage water	
	Temperature	0.25-7.5 kW	0-40°C
		11-22 kW	0-32°C
Material	Cable	CNL	0-32°C
		0.25-7.5 kW	PVC insulated PVC sheathed cable
	Motor shaft	11-22 kW	EPR insulated PCP sheathed cable
			420J2 stainless steel
	Pump housing	0.25-7.5 kW	Gray iron casting (FC250)
		CNH100	Gray iron casting (FC200)
		CN150	Gray iron casting (FC250)
	Impeller	0.25-7.5 kW	Gray iron casting (FC250)
		CNH 11/15 kW	Gray iron casting (FC200)
		CN150 11/15kW	Gray iron casting (FC250)
		22kW	Spheroidal graphite iron casting (FCD500)
Electric motor	Type	Air-filled submersible induction motor	
	Insulation class	0.25-7.5 kW	Class F
		11-22 kW	Class F
	Enclosure	CNL	Class F
			IP68
	Phase	3-phase	
	Voltage	Several voltage between 200 and 480V	

Optional Specifications

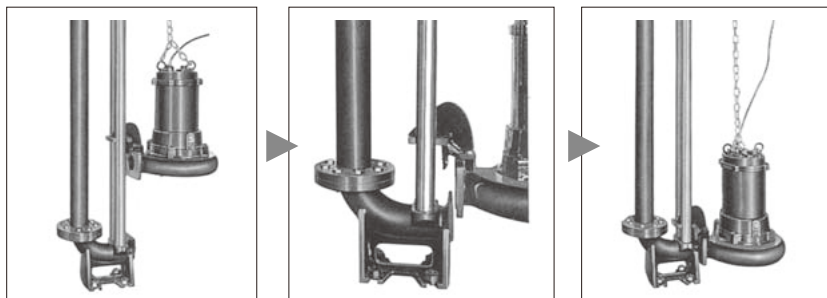
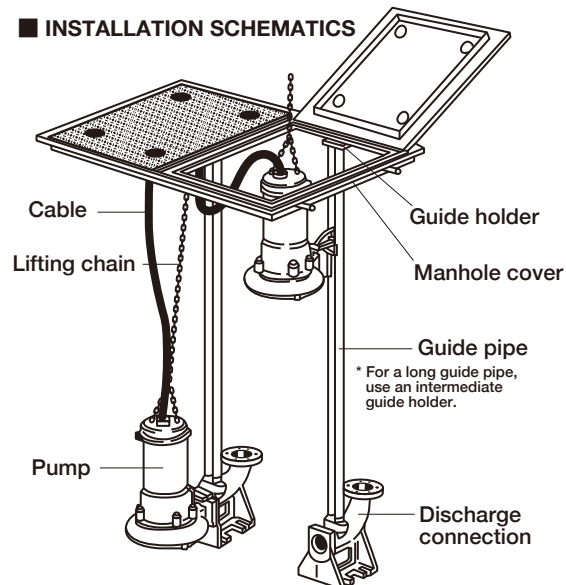
Motor insulation	11-22kW	Class F
	CNL	Class F
Cable extension	Cable length: 10 to 30 m (every 5m)	
Material change	Impeller	304 or 316 stainless steel casting
	Suction cover	304 or 316 stainless steel casting
	Lifting chain	304 or 316 stainless steel
Other	•For the availability of mounting motor protector(s) for each model, please contact us.	
	•For specifications other than the above, please contact us.	

GUIDE RAIL INSTALLATION SIMPLIFIES MAINTENANCE



One of the reasons for the popularity of ShinMaywa submersible pumps is the guide rail installation kit. When the pump is lowered along the guide rail (pipe), the pump is connected to the discharge pipe via the discharge connection and can be taken out of the pump pit just by being lifted up. No bolts, nuts or packing are used in the connected portion. This guide rail installation kit facilitates maintenance. There is no need to enter the pump pit, pump out sewage, or loosen or tighten the bolts in order to raise the pump.

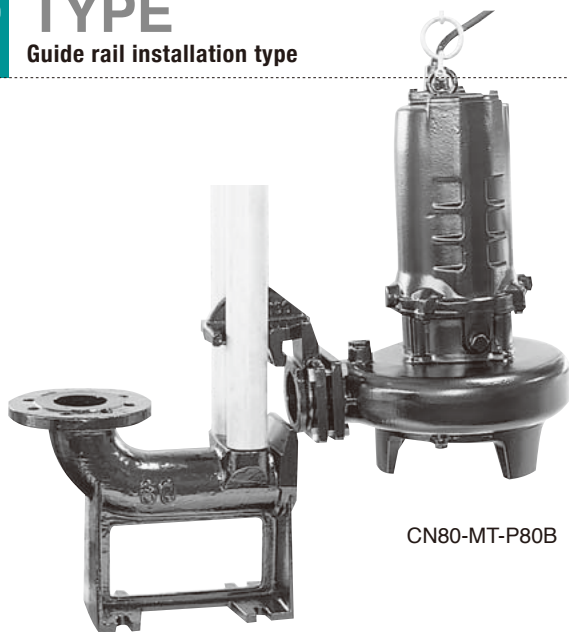
■ INSTALLATION SCHEMATICS



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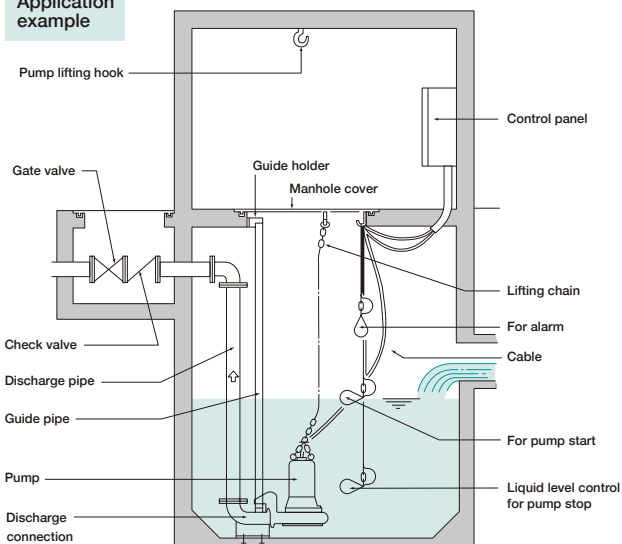
TYPE

Guide rail installation type



CN80-MT-P80B

Application example



F

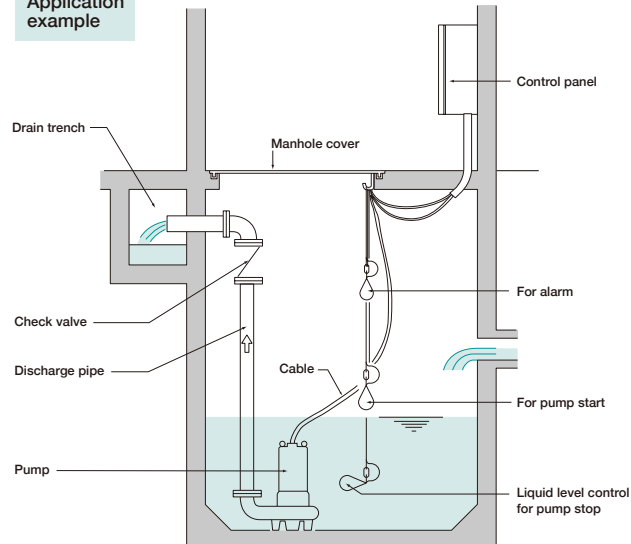
TYPE

Free standing type



CN80-MT-F80

Application example



CN/CN-MT/CNH Series

〈Discharge size〉 40~150mm

〈Rated output〉 0.25~22kW

〈Phase〉 3



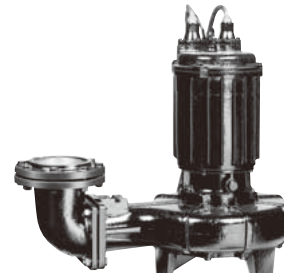
CN651-MT-P65



CN651-MT-F65



CN150-P150



CN150-F150

Standard Specifications

Discharge (mm)	Pump model	Installation kit No.		Rated output (kW)	No. of poles	Flow-Total head (m ³ /min–m)		Solid passage dia. (Soft solid) (mm)		Pump weight (kg)			
		Guide rail installation	Free standing			50Hz	60Hz	50Hz	60Hz				
40	CN401T-MT	P40	F40	0.25	2	0.1 –5.5	0.1 –5.5	21	20	17			
50	CN501T-MT	P50	F50	0.4	2	0.15 –6.0	0.15 –6.0	28	24	17			
	CN501-MT			0.75		0.2 –8.2	0.2 –7.5	30	29	18			
65	CN501T-MT	P65B	F65B	0.4	2	0.15 –6.0	0.15 –6.0	28	24	17			
	CN501-MT			0.75		0.2 –8.2	0.2 –7.5	30	29	18			
	CN651-MT	P65	F65	1.5	4	0.4 –10.6	0.4 –10.0	41	33	29			
	CN80-MT			2.2		0.8 –8.4	0.8 –8.6	54	51	58			
				3.7		[1] 1.0 –11.8	1.0 –11.8	53	54	70			
						[3] 0.8 –14.4							
80	CN651-MT	P80	F80	1.5	2	0.4 –10.6	0.4 –10.0	41	33	29			
	CN80-MT	2.2		0.8 –8.4		0.8 –8.6	54	51	58				
		3.7		[1] 1.0 –11.8		1.0 –11.8	53	54	70				
				[3] 0.8 –14.4									
	5.5			[1] 1.2 –12.9						[2] 1.2 –13.6	60	53	95
		[3] 0.9 –18.0		[4] 0.9 –18.0		54							
		CN100-MT		7.5		[1] 1.4 –15.2	[2] 1.4 –16.7	60	53	108			
	[3] 1.0 –21.8					[4] 1.0 –22.5	60	60					
100	CN80-MT	P100B	F100	2.2	4	0.8 –8.4	0.8 –8.6	54	51	58			
				3.7		[1] 1.0 –11.8	1.0 –11.8	53	54	70			
	5.5			[3] 0.8 –14.4									
				7.5		[1] 1.2 –12.9	[2] 1.2 –13.6	60	53	95			
	[3] 0.9 –18.0					[4] 0.9 –18.0	54						
	CN100-MT			7.5		[1] 1.4 –15.2	[2] 1.4 –16.7	60	53	108			
		[3] 1.0 –21.8	[4] 1.0 –22.5			60	60						
	CNH100	P100C	F100B	11		1.57 –22	1.58 –22	54	54	216			
				15		1.9 –26	1.86 –26	54	55	230			
				22		1.8 –35	1.96 –35	55	58	290			
150				CN150-MT	P150	F150	5.5	4	2.0 –10	1.96 –10	70	65	122
							7.5		2.48 –12	2.33 –12	75	70	134
11	2.54 –16	2.6 –16	64	57			215						
15	2.87 –19	3.0 –19	70	62			228						
22	3.6 –22	3.86 –22	76	67			326						

*The starting method is direct-on-line for 7.5 kW or less and star-delta for 11 kW and over. [] indicates the impeller number. Note: Please inform us of the pump model and installation kit number.

Standard Accessories

- Cable (7.5kW or less) 1pc.
- Cable (11kW or more) 3pcs.
- 6m for 0.75kW or less
- 8m for 1.5kW or more

Guide Rail Installation Kit

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

Discharge (mm)	Installation kit No.	Kit weight (kg)	Connection weight (kg)
40	P40	11	4.5
50	P50	11	4.5
65	P65B	20	14.5
	P65	24	15
80	P80	31.5	20.5
	P80B	31.5	18
100	P100B	40.5	27
	P100C	55	37
150	P150	60	42

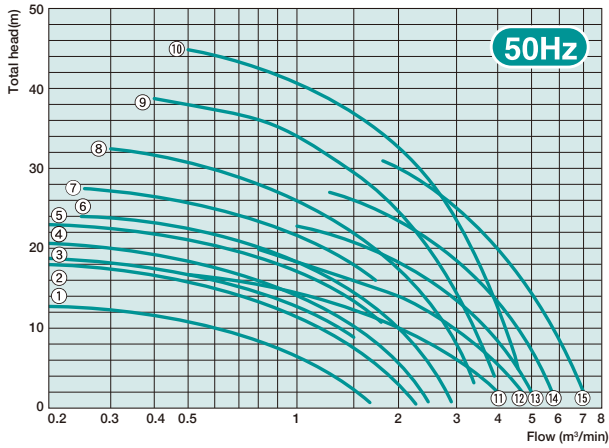
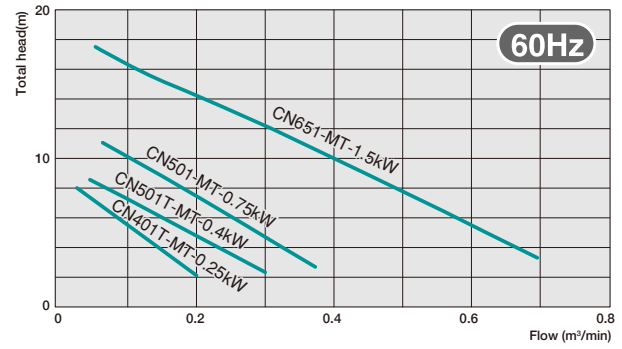
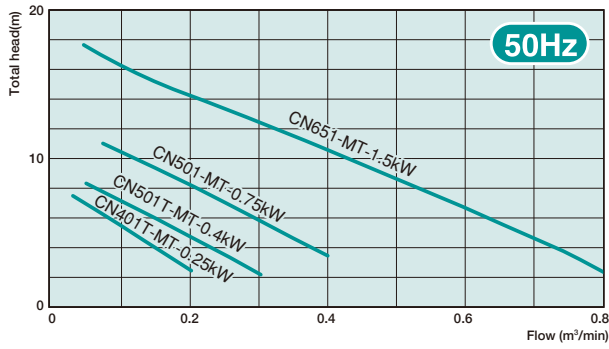
Free Standing Kit

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

Discharge (mm)	Installation kit No.	Kit weight (kg)
40	F40	☆
50	F50	☆
65	F65B	5.5
	F65	7
80	F80	9.5
100	F100	11
	F100B	12
150	F150	30

☆Built into the pump.

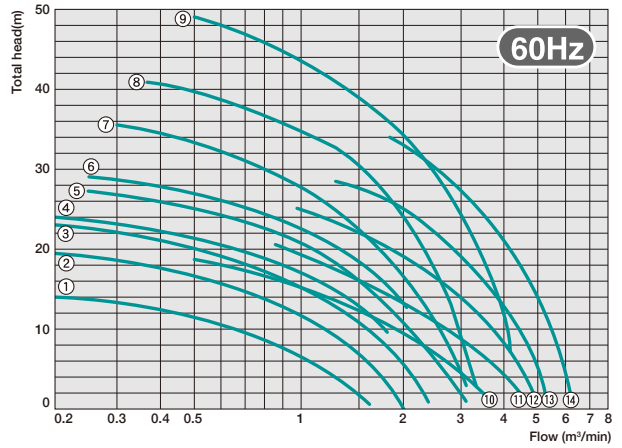
Performance Curves



- ① CN80-MT-2.2kW
② CN80-MT-3.7kW (1)
③ CN80-MT-3.7kW (3)
④ CN100-MT-5.5kW (1)
⑤ CN100-MT-5.5kW (3)
- ⑥ CN100-MT-7.5kW (1)
⑦ CN100-MT-7.5kW (3)
⑧ CNH100-11kW
⑨ CNH100-15kW
⑩ CNH100-22kW

- ⑪ CN150-MT-5.5kW
⑫ CN150-MT-7.5kW
⑬ CN150-11kW
⑭ CN150-15kW
⑮ CN150-22kW

() : indicates the impeller number.



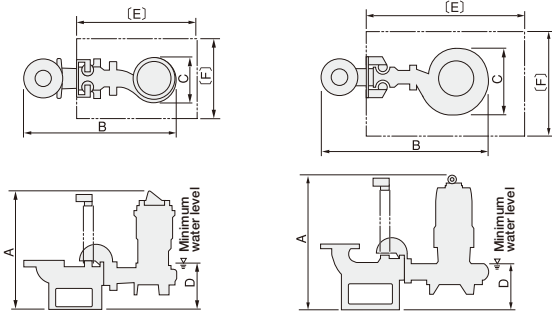
- ① CN80-MT-2.2kW
② CN80-MT-3.7kW
③ CN100-MT-5.5kW (2)
④ CN100-MT-5.5kW (4)
⑤ CN100-MT-7.5kW (2)
- ⑥ CN100-MT-7.5kW (4)
⑦ CNH100-11kW
⑧ CNH100-15kW
⑨ CNH100-22kW
⑩ CN150-MT-5.5kW

- ⑪ CN150-MT-7.5kW
⑫ CN150-11kW
⑬ CN150-15kW
⑭ CN150-22kW

() : indicates the impeller number.

Dimensions

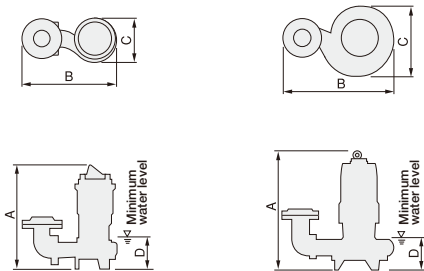
Guide rail installation type



Pump model	Installation kit No.	Rated output (kW)	A	B	C	D	E	F
CN401T-MT	P40	0.25	460	447	170	180	550	350
CN501T-MT	P50	0.4	460	447	170	180	550	350
CN501T-MT	P65B	0.75	460	520	170	180	550	350
CN651-MT	P65	1.5	530	663	192	215	550	350
	P80		570	739	192	255	550	350
	P65		584	754		220		
CN80-MT	P80B	2.2	624	830	292	260	600	500
	P100B			843				
	P65		645	773		220		
	P80B	3.7	685	849	331	260	700	600
	P100B			862				
CN100-MT	P80B	5.5	710	907	355			
	P100B			920		260	700	600
	P80B	7.5	755	922	387			
	P100B			935				
CNH100	P100C	11	861	1,110	486	335	900	700
		15						
		22	955	1,132	529			
CN150-MT	P150	5.5	779	1,094	400	325		
		7.5	824					
CN150		11 · 15	871	1,148	450	345	900	700
		22	967	1,188	489	345		

(unit:mm)

Free standing type



Pump model	Installation kit No.	Rated output (kW)	A	B	C	D
CN401T-MT	F40	0.25	414	249	170	135
CN501T-MT	F50	0.4	414	249	170	135
CN501T-MT	F65B	0.75	414	344	170	135
CN651-MT	F65	1.5	454	418	192	140
	F80			433		
	F65			509		
CN80-MT	F80	2.2	554	524	292	
	F100			541		
	F65			528		
	F80	3.7	615	543	331	
	F100			560		
CN100-MT	F80	5.5	640	601	355	
	F100			618		
	F80	7.5	685	616	387	190
	F100			633		
CNH100	F100B	11	782	848	486	255
		15				
		22	876	870	529	
CN150-MT	F150	5.5	713	836	400	260
		7.5	758			
CN150		11 · 15	805	890	450	280
		22	915	930	489	295

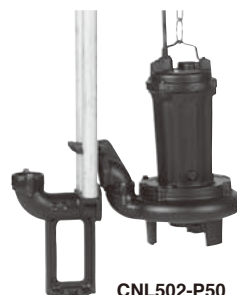
(unit:mm)

CNL Series

〈Discharge size〉 50~80mm
 〈Rated output〉 0.25~1.5kW
 〈Phase〉 3



**Built-in chopper
4-pole type**



CNL502-P50



CNL502-F50

Standard Specifications

Discharge (mm)	Pump model	Installation kit No.		Rated output (kW)	No. of poles	Flow-Total head (m³/min-m)		Solid passage dia. (Soft solid) (mm)		Pump weight (kg)
		Guide rail installation	Free standing			50Hz	60Hz	50Hz	60Hz	
50	CNL502	P50	F50	0.25	4	0.17-4.3	0.17-4.4	30	30	22
				0.4		0.23-4.8	0.23-4.6	35	35	29
				0.75		0.29-7.0	0.28-7.7	35	35	32
65	CNL502	P65B	F65B	0.4	4	0.23-4.8	0.23-4.6	35	35	29
				0.75		0.29-7.0	0.28-7.7	35	35	32
				1.5		0.60-7.8	0.56-8.1	46	46	50
80	CNL652	P80	F80	1.5	4	0.60-7.8	0.56-8.1	46	46	50

*The starting method is direct-on-line. Note: Please inform us of the pump model and installation kit number.

Standard Accessories

• Cable 1pc.

6m for under 0.75kW

8m for 1.5kW

Guide Rail Installation Kit

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

Discharge (mm)	Installation kit No.	Kit weight (kg)	Connection weight (kg)
50	P50	11	4.5
65	P65B	20	14.5
	P65	24	15
80	P80	31.5	20.5

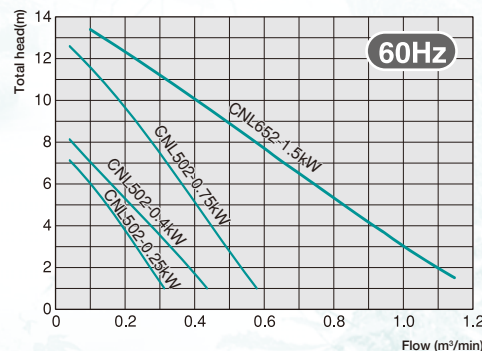
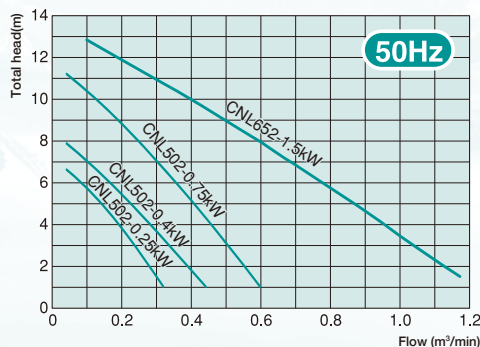
Free Standing Kit

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

Discharge (mm)	Installation kit No.	Kit weight (kg)
50	F50	☆
65	F65B	5.5
	F65	7
80	F80	9.5

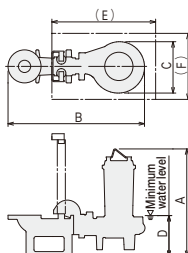
☆Built into the pump.

Performance Curves



Dimensions

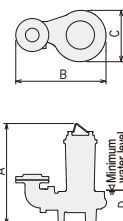
Guide rail installation type



Pump model	Installation kit No.	Rated output (kW)	A	B	C	D	E	F
CNL502	P50	0.25	421	490	207	160		
	P65B	0.4・0.75	473	510 583	253	165	550	350
CNL652	P65	1.5	570	724	273	215	550	350
	P80		610	800		255	600	500

(unit:mm)

Free standing type



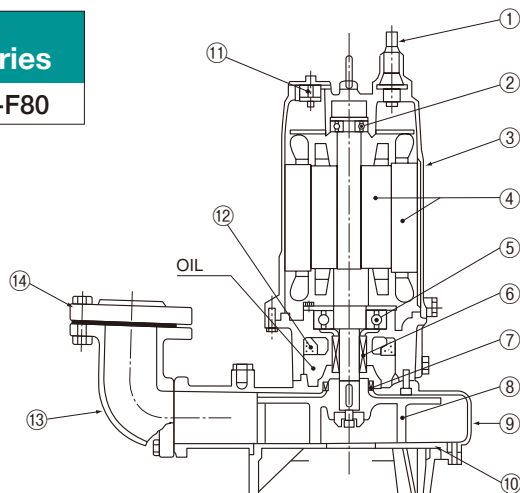
Pump model	Installation kit No.	Rated output (kW)	A	B	C	D
CNL502	F50	0.25	381	292	207	120
	F65B	0.4・0.75	449	312 407	253	140
CNL652	F65	1.5	535	479	273	180
	F80			494		

(unit:mm)

Sectional View

CN Series

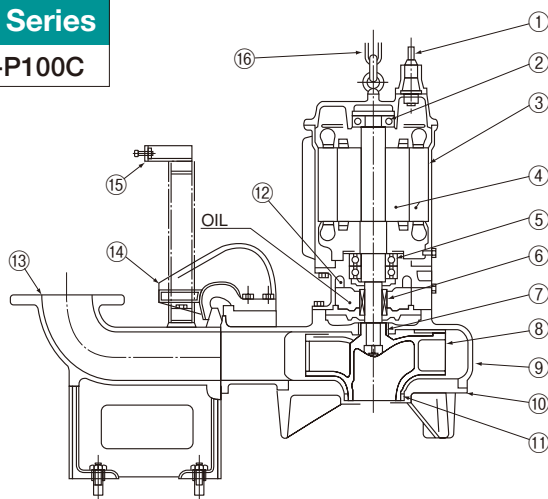
CN80-MT-F80



No.	Part Name	Material
1	Cable	PVC insulated PVC sheathed cable
2	Ball bearing (upper)	—
3	Stator housing	Gray iron casting (FC250)
4	Motor	Shaft: 420J2 stainless steel
5	Ball bearing (lower)	—
6	Mechanical seal	—
7	Oil seal	Acrylonitrile butadiene rubber
8	Impeller	Gray iron casting (FC250)
9	Pump housing	Gray iron casting (FC250)
10	Suction cover	Gray iron casting (FC250)
11	Thermal protector	—
12	Pressure equalizer	Foamed acrylonitrile butadiene rubber
13	Discharge flange	Gray iron casting (FC250)
14	Companion flange	Gray iron casting (FC250)

CNH Series

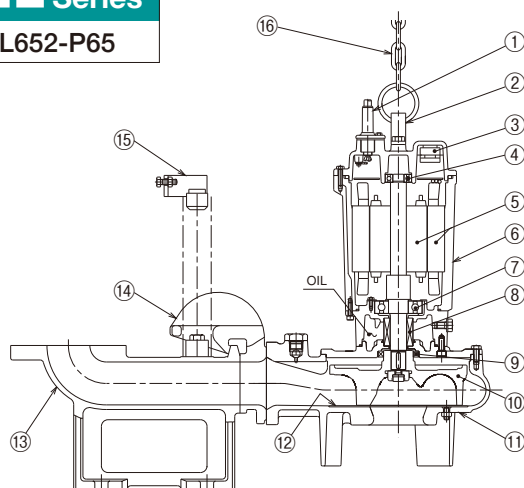
CNH100-P100C



No.	Part Name	Material
1	Cable	EPR insulated PCP sheathed cable
2	Ball bearing (upper)	—
3	Stator housing	Gray iron casting (FC200)
4	Motor	Shaft: 420J2 stainless steel
5	Ball bearing (lower)	—
6	Mechanical seal	—
7	Seal ring	Copper alloy casting (CAC406)
8	Impeller	11, 15 kW Gray iron casting (FC200)
		22 kW Spheroidal graphite iron casting (FCD500)
9	Pump housing	Gray iron casting (FC200)
10	Suction cover	Gray iron casting (FC200)
11	Wear ring	Copper alloy casting (CAC406)
12	Pressure equalizer	Foamed acrylonitrile butadiene rubber
13	Discharge connection	Gray iron casting (FC200)
14	Sliding bracket	Gray iron casting (FC200)
15	Guide holder	304 stainless steel casting
16	Lifting chain	Structural steel

CNL Series

CNL652-P65



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	—
9	Oil seal	Acrylonitrile butadiene rubber
10	Impeller	Gray iron casting (FC250)
11	Pump housing	Gray iron casting (FC250)
12	Chopper plate	304 stainless steel
13	Discharge connection	Gray iron casting (FC200)
14	Sliding bracket	Gray iron casting (FC200)
15	Guide holder	304 stainless steel casting
16	Lifting chain	Structural steel

Special Accessories

Liquid Level Regulators - All models are of an environmentally-friendly no-mercury structure.

LC "Level Switch"



MS "Mini Switch"



FV "Oval Float"



Features

LC Useful for potable water, wastewater and sewage containing suspended solids. Strong for corrosion or rust even when immersed in a corrosive liquid.

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

FV Useful for fresh water as well as wastewater not containing suspended solids. A single FV can 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		
Voltage		AC/DC30V or under		
Max operable current		5A	0.5A	0.6A
Cable length		6m, 13m, 20m (with cable extensions in 10m increments) MAX. length 100m		
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)		6m:1.2kg, 13m:1.6kg, 20m:2.0kg	0.6kg (MS11, 6m cable)	1.0kg (6m cable)
Material	Case	Polypropylene resin	ABS resin	Polypropylene resin
	Cable	PVC		
	Others	Chain: 304 stainless steel	Sinker:PVC Resin coating is applied to FC 150	Sinker:The FC200 is coated

Specifications and dimensions are subject to change without notice.

ShinMaywa Industries, Ltd.

Sales & Marketing Dept., Fluid Div. 3-2-43, Shitte, Tsurumi-ku, Yokohama, 230-0003, Japan
Phone : +81-45-584-1322 Fax : +81-45-575-2286
E-mail : global.pump@shinmaywa.co.jp

ShinMaywa (America), Ltd.

Head Quarters
10737 Gateway West, Suite 240,
El Paso, Texas 79935, U.S.A.
Phone : +1-915-594-9862
Fax : +1-915-594-9866
E-mail : info@shinmaywaamerica.com

North Carolina Branch
6135 Park South Drive, Suite 510
Charlotte, NC, 28210, U.S.A.
Phone : +1-704-945-7112
Fax : +1-704-945-7101
E-mail : pump@shinmaywaamerica.com

URL : <https://www.shinmaywa.co.jp/america/index.html>

ShinMaywa (Asia) Pte. Ltd.

8 Burn Road, #14-10 Trivex,
Singapore 369977
Phone : +65-6224-0728
Fax : +65-6224-9678
E-mail : asia.ad@shinmaywa.com.sg

ShinMaywa (Shanghai) Trading Co., Ltd.

201107 Building 6, Youleji City, Industrial Park, 333 Lane,
Zhujian Road Minhang, Shanghai, China
Phone : +86-21-5296-2966
Fax : +86-21-5296-2970
E-mail : shanghai@shinmaywa.co.jp



Prowinner Bangkok Co., Ltd.
30/1 Soi Ramkhamhaeng 182,
Minburi, Minburi, Bangkok 10510 Thailand
Phone : 02-1016637
E-Mail : sale@prowinnerbangkok.co.th
Web : www.prowinnerbangkok.co.th

ShinMaywa ONO PLANT

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