

# CDL / CDLF

## Light Vertical Multistage Centrifugal Pump Installation & Operating Instructions



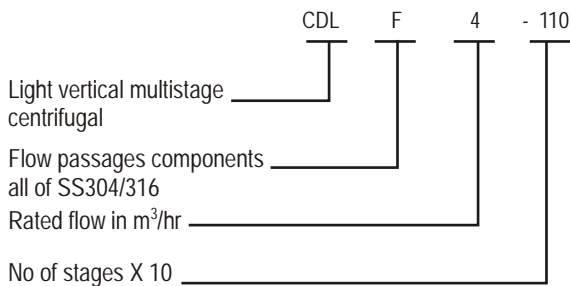
50 / 60Hz



Before beginning installation procedures, these installation and operation instructions should be studied carefully. The installation and operation should also be in accordance with local regulations and accepted codes of good practice.

## 1. Type Designation

See pump nameplate



## 3. Technical Data

- | Ambient Temperature  
Maximum +40°C
- | Liquid Temperature  
-15°C to +120°C
- | Minimum Inlet Pressure  
According to the NPSH curve
- | Maximum Inlet Pressure - See chart on page - 3
- | Electrical Data  
See motor nameplate
- | Dimensions and Weights  
see catalogue

## 2. Applications

The CDL, CDLF multistage in-line centrifugal pumps are designed for the following applications:

- | Municipal water supply and pressure boosting
- | Domestic water supply
- | Boiler feed and condensate systems
- | Cooling water systems
- | Irrigation and dewatering
- | Fire fighting
- | Washing plants and Washdown
- | Water treatment plants
- | Reverse Osmosis systems

### Pumped Liquid

Thin, non-explosive non-corrosive liquids, containing no solid particles or fibres.

When pumping liquids with a density and /or viscosity higher than that of water, motors with correspondingly higher outputs must be used, if required.

### MAX INLET PRESSURE

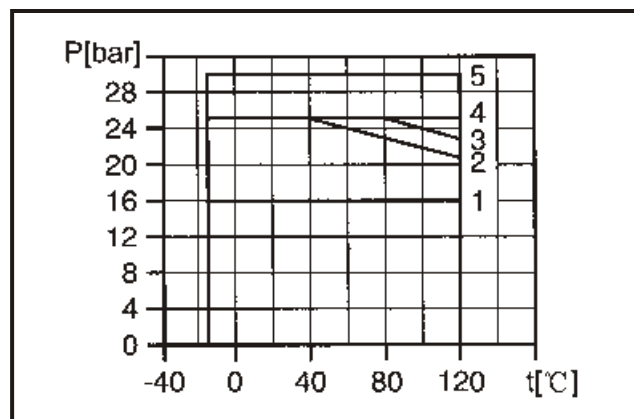
The maximum inlet pressure is shown in the table below. But the actual inlet pressure plus the value close pressure of the pump shall be lower than the max. allowable working pressure.

Model	Max inlet pressure
CDL, CDLF1	
CDL, CDLF1 - 20 ~ 1 - 80	6 [bar]
CDL, CDLF1 - 90 ~ 1 - 360	10 [bar]
CDL, CDLF2	
CDL, CDLF2 - 20	6 [bar]
CDL, CDLF2 - 30 ~ 2 - 110	10 [bar]
CDL, CDLF2 - 130 ~ 2 - 260	15 [bar]
CDL, CDLF3	
CDL, CDLF3 - 20 ~ 3 - 50	6 [bar]
CDL, CDLF3 - 60 ~ 3 - 290	10 [bar]
CDL, CDLF3 - 310 ~ 3 - 360	15 [bar]
CDL, CDLF4	
CDL, CDLF4 - 20	6 [bar]
CDL, CDLF4 - 30 ~ 4 - 100	10 [bar]
CDL, CDLF4 - 120 ~ 4 - 220	15 [bar]
CDL, CDLF8	
CDL, CDLF8 - 20/1 ~ 8 - 60	6 [bar]
CDL, CDLF8 - 80 ~ 8 - 200	10 [bar]
CDL, CDLF16	
CDL, CDLF16 - 20/1 ~ 16 - 60	6 [bar]
CDL, CDLF16 - 40 ~ 16 - 160	10 [bar]
CDL, CDLF32	
CDL, CDLF32 - 10-1 ~ 32 - 20 - 2	3 [bar]
CDL, CDLF32 - 20 ~ 32 - 40	4 [bar]
CDL, CDLF32 - 50 - 2 ~ 32 - 100	10 [bar]
CDL, CDLF32 - 110 - 2 ~ 32 - 140	15 [bar]
CDL, CDLF42	
CDL, CDLF42 - 10 - 1	3 [bar]
CDL, CDLF42 - 10 ~ 45 - 20	4 [bar]
CDL, CDLF42 - 30 - 2 ~ 45 - 50	10 [bar]
CDL, CDLF42 - 60 - 2 ~ 45 - 130 - 2	15 [bar]
CDL, CDLF65	
CDL, CDLF65 - 10 - 1 ~ 65 - 20 - 2	4 [bar]
CDL, CDLF65 - 20 - 1 ~ 65 - 30	10 [bar]
CDL, CDLF65 - 40 - 2 ~ 65 - 80 - 1	15 [bar]
CDL, CDLF85	
CDL, CDLF85 - 10 - 1 ~ 85 - 10	4 [bar]
CDL, CDLF85 - 20 - 2 ~ 85 - 30 - 2	10 [bar]
CDL, CDLF85 - 30 - 1 ~ 85 - 60	15 [bar]

### MAX WORKING PRESSURE

Model	Curve number
CDL, CDLF1	
CDL, CDLF1 - 20 ~ 1 - 230	1
CDL, CDLF1 - 250 ~ 1 - 360	2
CDL, CDLF2	
CDL, CDLF2 - 20 - 150	1
CDL, CDLF2 - 180 ~ 2 - 260	2
CDL, CDLF3	
CDL, CDLF3 - 20 ~ 3 - 230	1
CDL, CDLF3 - 250 ~ 3 - 360	2
CDL, CDLF4	
CDL, CDLF4 - 20 ~ 4 - 140	1
CDL, CDLF4 - 160 ~ 4 - 220	2
CDL, CDLF8	
CDL, CDLF8 - 20/1 ~ 8 - 120	1
CDL, CDLF8 - 140 ~ 8 - 220	3
CDL, CDLF16	
CDL, CDLF16 - 20 ~ 16 - 80	1
CDL, CDLF16 - 100 ~ 16 - 160	3
CDL, CDLF32	
CDL, CDLF32 - 10 ~ 1 - 32 - 70	1
CDL, CDLF32 - 80 - 2 ~ 32 - 120	4
CDL, CDLF32 - 130 ~ 32 - 140	5
CDL, CDLF42	
CDL, CDLF42 - 10 - 1 ~ 42 - 60	1
CDL, CDLF42 - 70 - 2 ~ 42 - 90	4
CDL, CDLF42 - 100 - 2 ~ 42 - 130 - 2	5
CDL, CDLF65	
CDL, CDLF65 - 10 - 1 ~ 65 - 50	1
CDL, CDLF65 - 60 - 2 ~ 65 - 80 - 1	4
CDL, CDLF85	
CDL, CDLF85 - 10 - 1 ~ 85 - 50 - 2	1
CDL, CDLF85 - 50 ~ 85 - 60	4

The following figure shows the limitation of pressure and temperature, which shall be kept within the region as shown in the figure





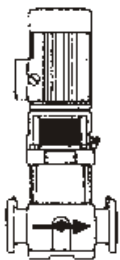
#### 4. Installation

The pump should be installed with the motor shaft vertical, (see fig.1) Ensure that an adequate supply of cool air reaches the motor cooling fan.

Arrows on the pump base show the direction of flow of liquid through the pump.

Counter flanges, gaskets, bolts, PJE and CLAMP coupling sets are available as accessories and have to be ordered separately.

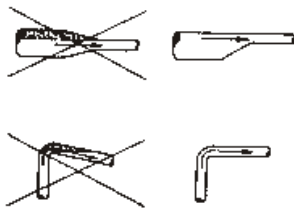
Fig.1



PJE and CLAMP coupling sets are available with threaded sockets or sockets for welding. Isolating valves should be fitted either side of the pump to prevent the system being drained if it is necessary to clean, repair or replace the pump.

Install the pipes in such a way that air locks are avoided, especially on the suction side of the pump. Correct pipework shown in fig.2.

Fig.2



Care should be taken while fitting the pipes so that any tension caused by variations in temperature does not affect the pump.

If the pump is installed with long pipes, these should be adequately supported before and after the pump. If there is any risk of the pump being choked by sediments, leaves, twigs, etc., measures should be taken to prevent this, A strainer should be fitted at the suction side of the pump.

In the case of installations in which the discharge pipe has been installed horizontally, or it slopes downwards away from the pump, which can or must be drained in certain periods, the pump should be protected against dry-running. This can be done by fitting a loop with a vacuum valve close to the pump, see Fig. 3.

The highest point of the loop should at least be in level with the lower edge of the pump motor.

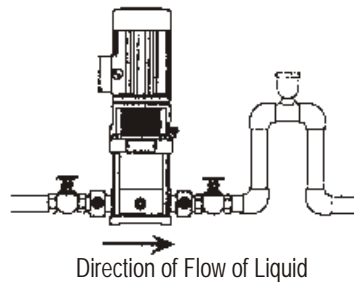
The discharge pipe can then be drained independently of the pump and vice versa.



The pump should not be run with a closed discharge valve as this will cause an increase in temperature / formation of steam in the pump which may cause damage to the pump.

If there is any danger of the pump running with a closed discharge valve, a minimum liquid flow through the pump should be ensured by connecting a bypass/ a drain to the discharge pipe. The drain can be connected to a tank...

Fig.3



Minimum Flow Rates for CDL

Type	Liquid Temperature	
	-15°C to +80°C	+80°C to +120°C
CDL 2	0.2m <sup>3</sup> /h	0.2m <sup>3</sup> /h
CDL 4	0.4m <sup>3</sup> /h	0.4m <sup>3</sup> /h
CDL 8	0.8m <sup>3</sup> /h	0.8m <sup>3</sup> /h
CDL 16	1.6m <sup>3</sup> /h	1.6m <sup>3</sup> /h

#### 5. Electrical Connections



Before removing the terminal box cover and before any removal / dismantling of the pump, make sure that the electricity supply has been switched off.

The electrical connections should be carried out by an authorized electrician in accordance with local regulations.

The pump must be connected to an external switch. The operating voltage and frequency are marked on the nameplate. Make sure that the motor is suitable for the electricity supply on which it will be used.

Single-phase motors incorporate a thermal switch and require no additional motor protection. Three-phase motors must be connected to a motor starter. The terminal box can be turned to four positions, in 90° step. If necessary, remove the coupling guards by means of screwdriver. Do not remove the coupling.

Remove the bolts securing to the motor and the coupling.