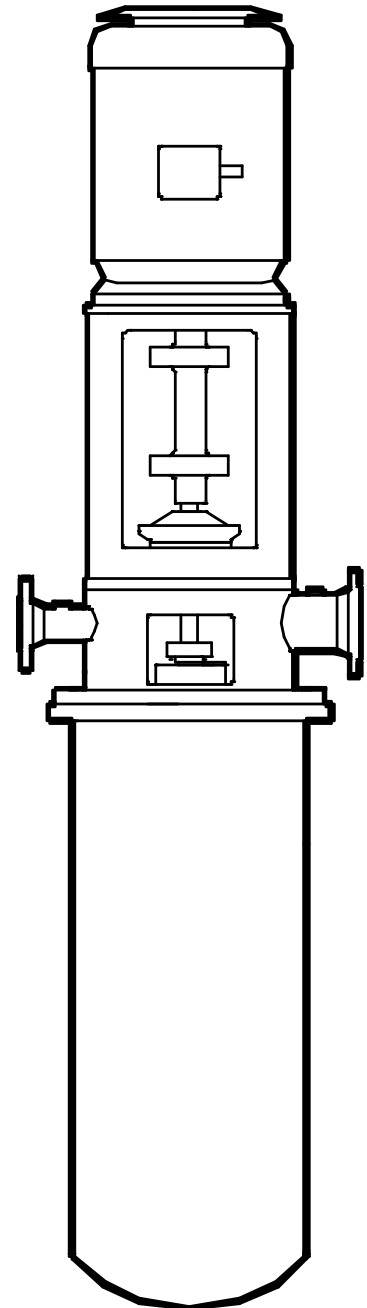




# **APIFLO-V** Series

## Vertical Multistage Barrel Pump



**Capacity:** up to 800m<sup>3</sup>/h (50Hz) 2.4~1080 m<sup>3</sup>/h (60Hz)

**Head:** up to 800 (50Hz) 7.2~195m (60Hz)

**Pressure:** up to 10 MPa

**Temperature:** -80~+150 °C

**Application:**

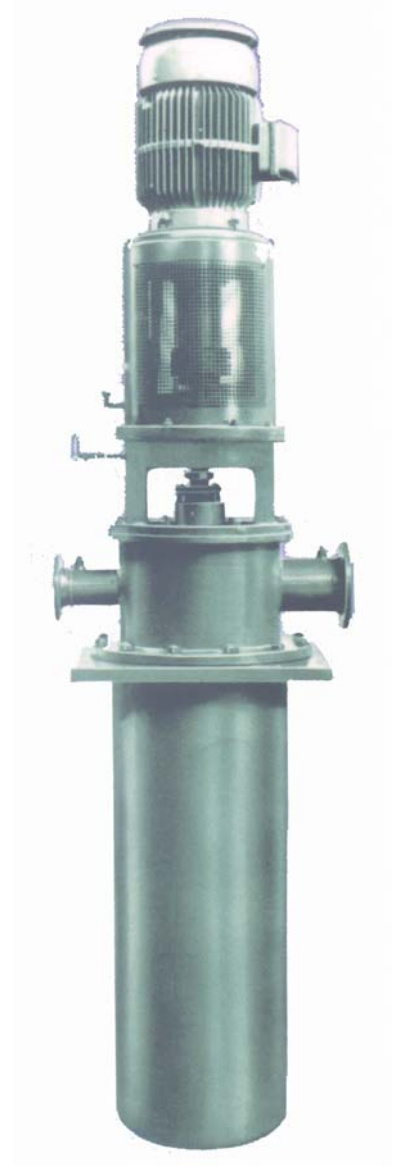
For various clean or contaminated, low or high temperature minor corrosive liquid.

Mainly employed in refinery, petrochemicals, cryogenic industry, pipeline booster, offshore platform and LPG Plant.



## 1 General

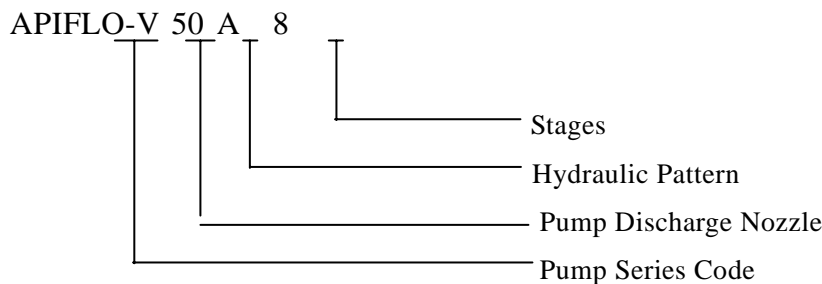
- ◇ Vertical multistage barrel type, radial-split. Suction impeller, section ring type of diffuser, suction type of impeller that enhances the ability of anti-cavitations.
- ◇ Axial forces are balanced by balancing disk, the residual axial forces are borne by antifriction thrust bearings.
- ◇ Outer casing contains the suction pressure; the pump depth will be determinate according to the requirements of available NPSH.
- ◇ APIFLO-V pumps can be applied as multistage sump pumps, tank pumps and pipeline pumps.
- ◇ Independent self-circulation auto-lubricating device for enlarged oil chamber of bearing housing.
- ◇ Single or tandem cartridge type of mechanical seals can be applied.  
Gas lubricating seal can also be applied



## 2 Rotation direction

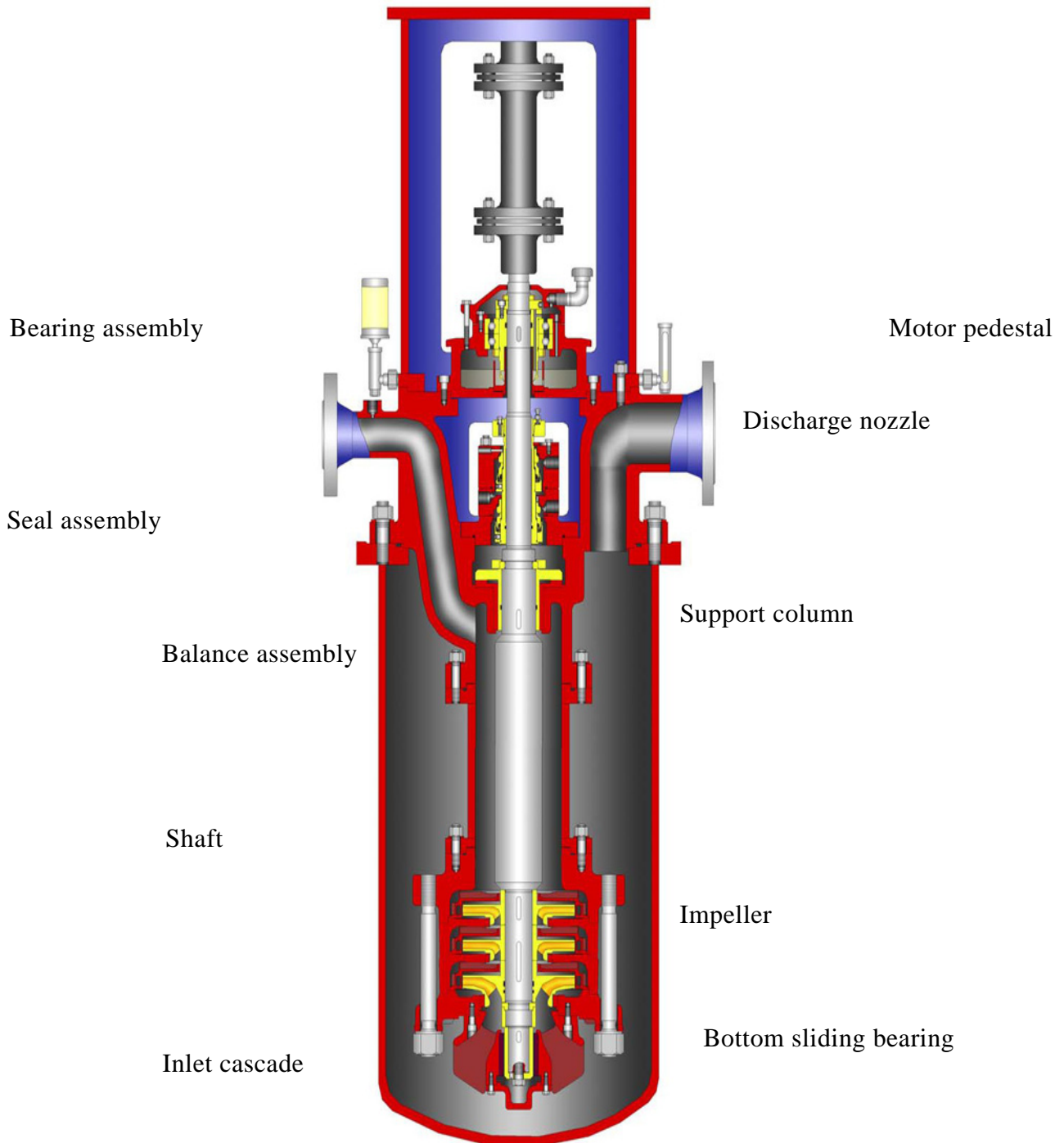
Counterclockwise viewed from the drive-end.

## 3 Designation





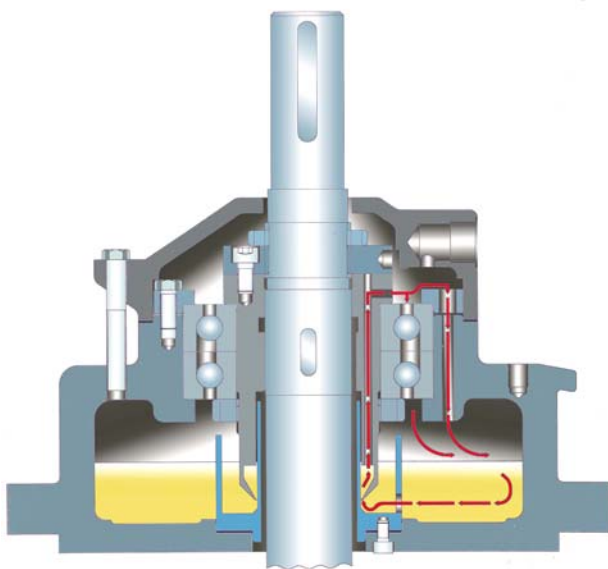
**4 Cross section drawing**



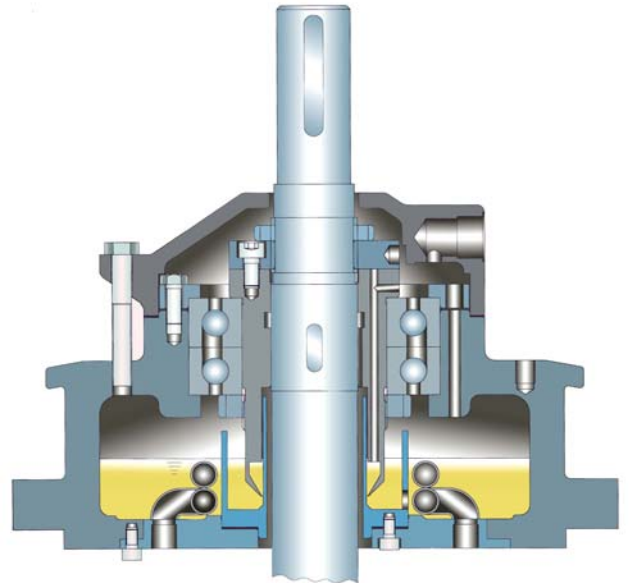


## 5 Bearing and lubrication

- ◇ Matched bearings bear the residual axial force and weight of rotors.
- ◇ Lubricant auto cycle system ensure the effective lubricating of bearings and constant temperature of lubricant to prolong the bearing's life.
- ◇ Cooling device can be applied when the handled liquid's temperature above 100°C.
- ◇ Enlarged oil chamber can accommodate sufficient lubricating oil.
- ◇ The design of oil barrier sleeve can not only reserve the oil in the oil chamber but also prevent the oil from rotating due to the rotation of shaft and bearing sleeve. Thus the concave oil surface can be avoided, so the actual oil position can be seen from the liquid indicator outside the chamber.
- ◇ Bearing assembly can be removed and remounted as one-piece part, which is easy to be maintained.



Lubricant auto-circulating system



Oil cooling device (Optional)

## 6 Motor pedestal

- ◇ The bearing, sealing assembly and balance assembly can be maintained without the removal of pedestal and motor.
- ◇ The alignment of motor and pump can be obtained by the adjusting bolts.

## 7 Suction and discharge nozzle

- ◇ The pump's axial length is greatly decreased
- ◇ Maintenance convenience.

## 8 Balance assembly

- ◇ Balance disk is applied to absorb the axial force.
- ◇ To throttle the flow, decrease the loss of volume and ensure the hydraulic parameters.
- ◇ To decrease the seal chamber pressure.
- ◇ Not easy to be blocked during the operation.

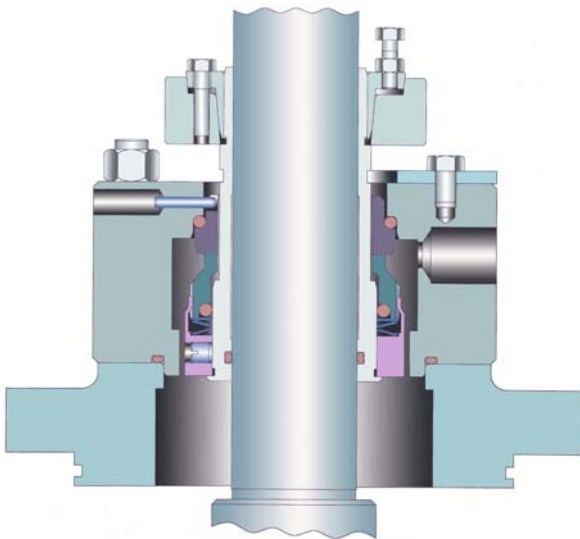
## 9 Shaft

- ◇ Rigid shaft, no joints.

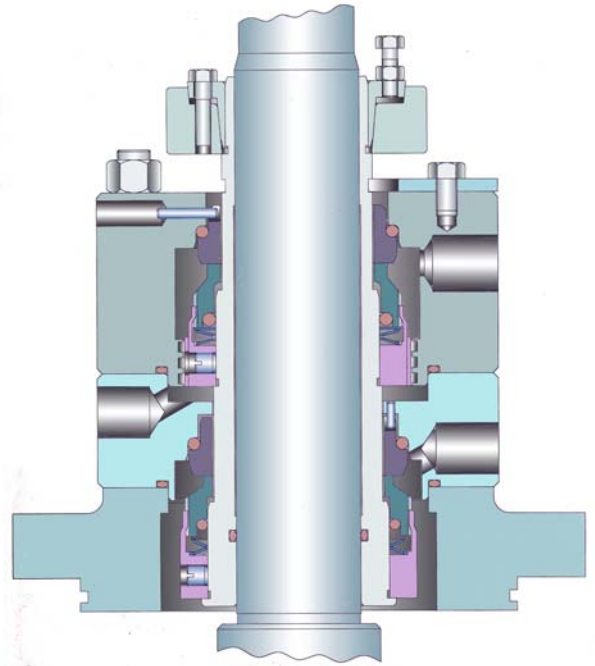


## 10 Shaft sealing

- ◇ Integral shaft sealing with cartridge design.
- ◇ Various seal arrangements are available, such as single and tandem.
- ◇ Gas-lubricated seal can be applied, if required.
- ◇ Gas-lubricated seal can be of double type (back to back or face to face), tandem (two stages or three stages)
- ◇ Emergency seals are applied for gas-lubricated seal.
  - a: Maintenance without draining away the handled liquid
  - b: Keep and save the gas during the long-term stop of pump.
  - c: Prevent the leakage of sealed liquids if gas not sufficient.



Single seal



Tandem seal

## 11 Impeller

- ◇ First impeller is of suction type that enhances the anti-cavitations performance of pump.
- ◇ First impeller is fixed with split collars, having good coaxially.
- ◇ Alternative hydraulic patterns can be applied to enlarge the range of high efficiency, which ensure the high efficiency for the full series of pump.

## 12 Inducer

- ◇ Inducer is optional to enhance the anti-cavitations performance of pump

## 13 Inlet cascade

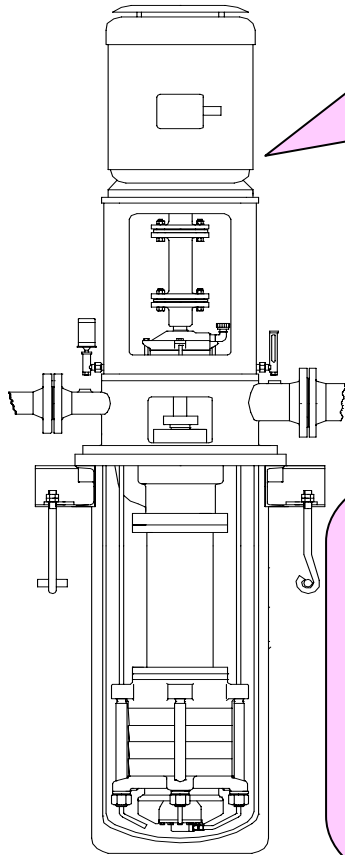
- ◇ Prevent the vortex at the suction to improve the suction conditions.

## 14 Bottom sliding bearing

- ◇ Fluid dynamic bearing with less vibration.
- ◇ Low velocity, low abrasion, easy to maintain.

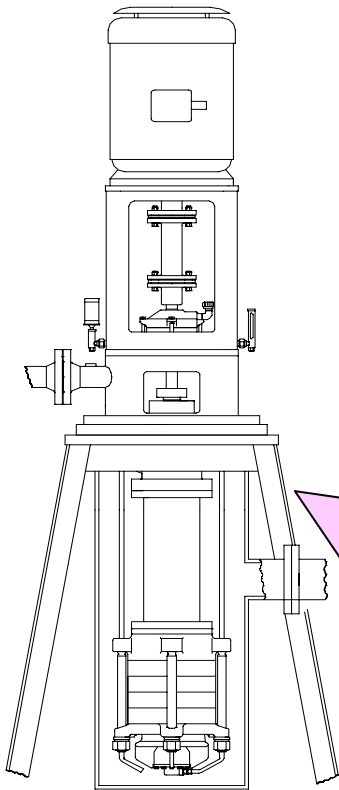
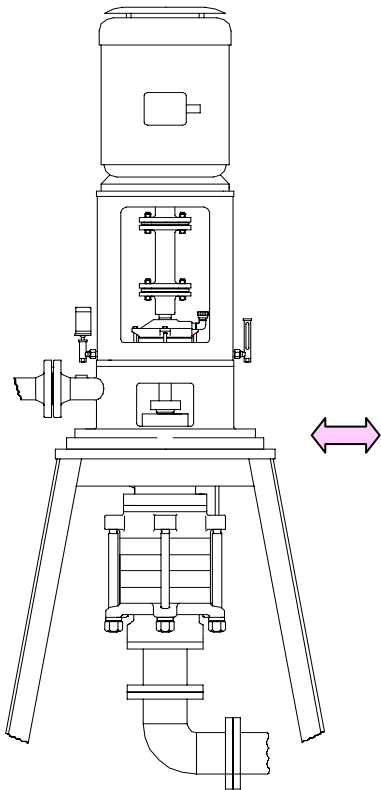
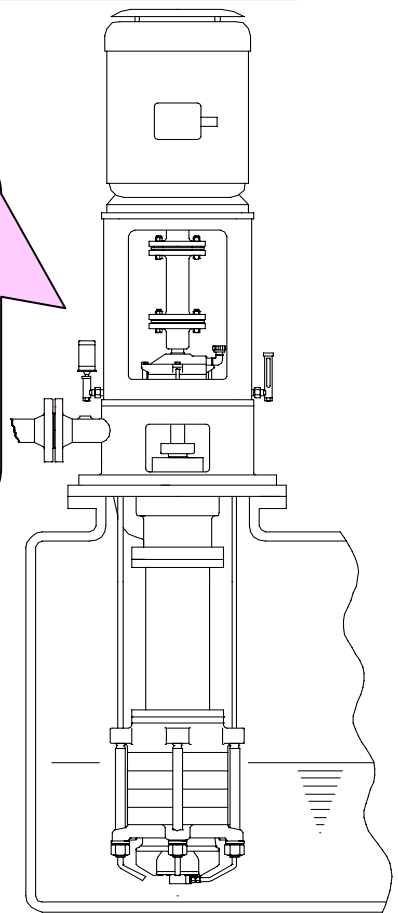


**15 Cross section drawing**



**APIFLO-V**  
 Standard design  
 Suitable for most applications of vertical barrel pumps  
 In-line suction and discharge nozzles locate above the base plate, so pumps can be used as standard pipeline pump.  
 The barrel only carries the suction pressure. Base plate can be welding type or flat type according to the space or customer's requirements.  
 Substituting pipe to drain away the pumped liquid is available.

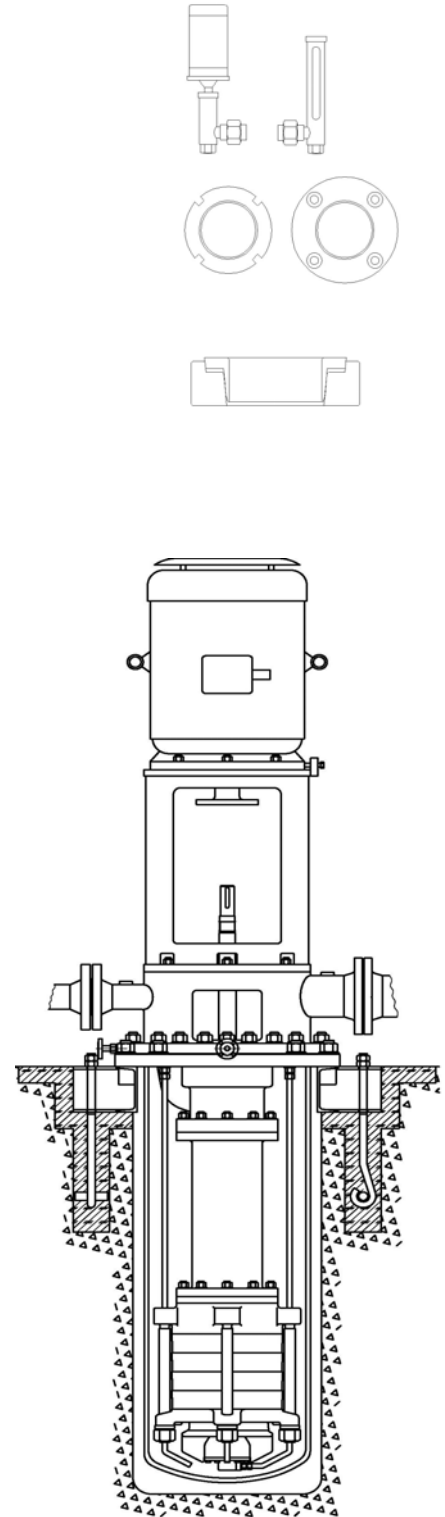
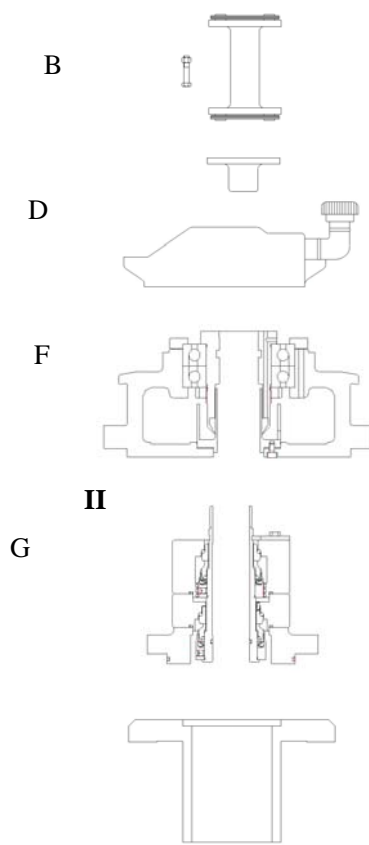
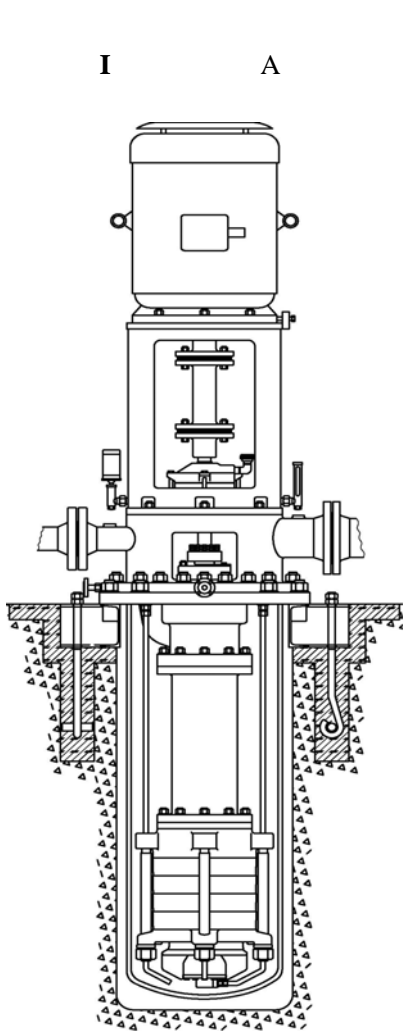
**APIFLO-VV**  
 Tank pump and sump pump  
 Can be used as standard tank pump.  
 Can be used as booster transfer pump.  
 Can be used as standard sump pump.  
 Discharge nozzle is above mounting flange that can meet the user's requirements.



**APIFLO-VF**  
 Flange connection type  
 Meet the space requirements,  
 Discharge nozzle is above mounting flange, suction nozzle can be located at any point.



## 16 Easy and quick maintenance



- I ----- Pump status before maintenance
- II ----- Pump status after the removal of bearing assembly,  
Seal assembly and balance assembly.
- A ----- Coupling spacer
- B ----- Bearing housing accessories
- C ----- Bearing cover
- D ----- Lock nut and adjusting nut
- E ----- Bearing assembly
- F ----- Seal fixture assembly
- G ----- Cartridge type seal assembly
- H ----- Balance disk



17 Performance coverage (50Hz)

