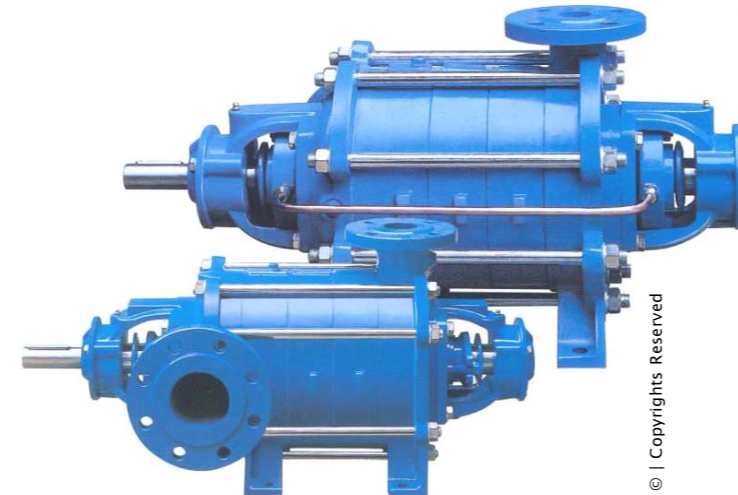


# Hydra+

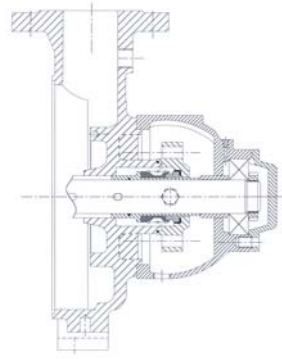


## H D Multistage Centrifugal Pump

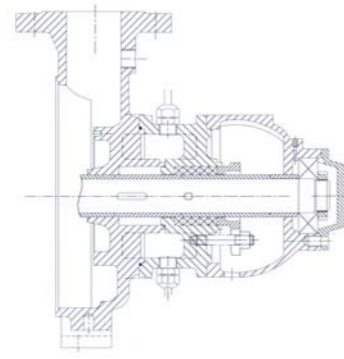
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### Shaft Seal

Depending on the applications, Hydra+ offers various shaft sealing options for specific requirements.

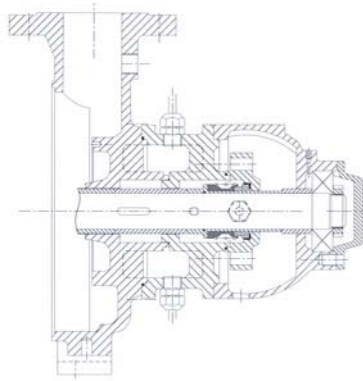


> Version S1.07.0  
Single **Mechanical Seal**, Self-flushing

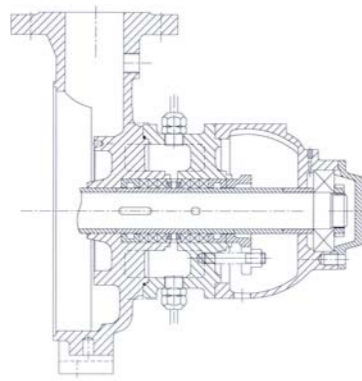


> Version P1.01.1  
**Gland Packing** with External Cooling

> Version S1.09.0  
Single **Mechanical Seal**, with External Flushing

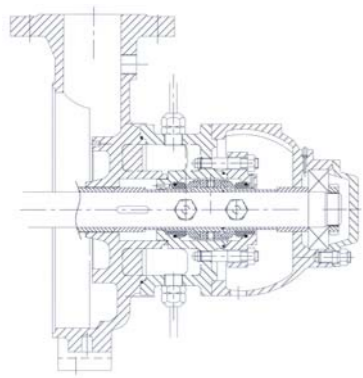


> Version S1.07.1  
Single **Mechanical Seal**,  
Self-flushing & with External Cooling

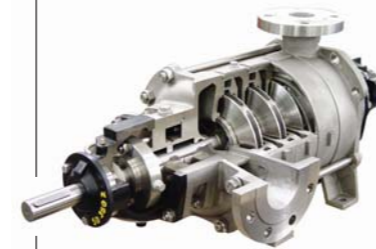
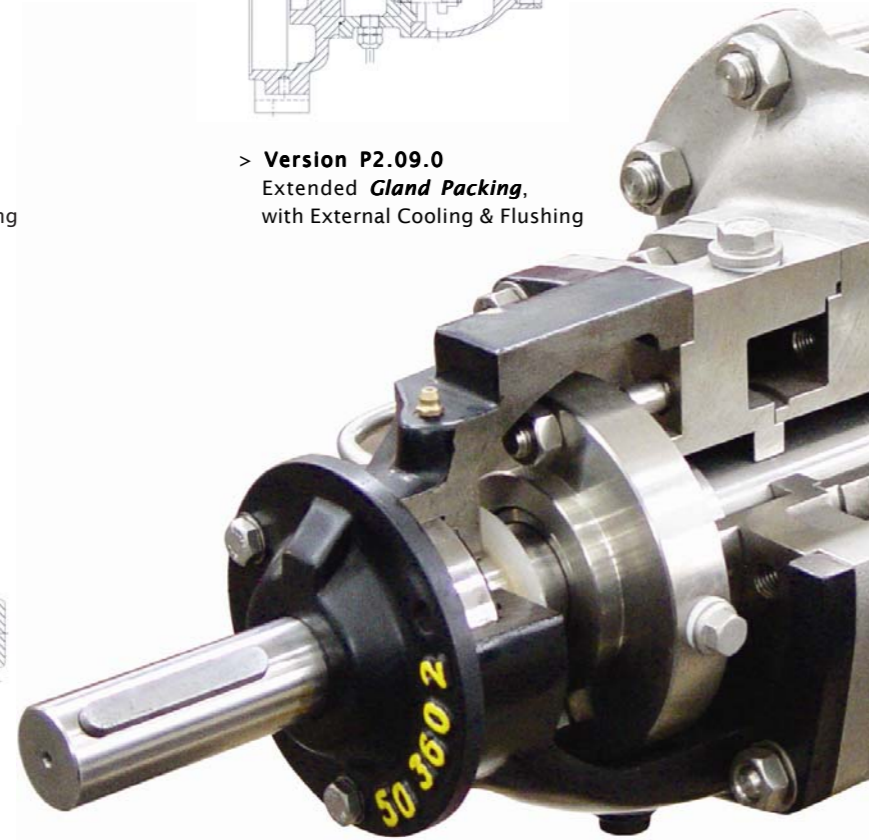


> Version P2.09.0  
Extended **Gland Packing**,  
with External Cooling & Flushing

> Version S1.09.1  
Single **Mechanical Seal**, with  
External Cooling & Flushing



> Version D1.09.1  
Double **Mechanical Seal**, with  
External Cooling & Flushing



▲  
A cut-away model of Hydra+ in complete 316 stainless steel construction.

### General

**MONOFLU 'HydraPlus' or 'Hydra +' series** is a multi-stage ring section designed for medium to high head applications. The range covers 10 sizes, up to 13 stages for most sizes. The versatile and modular design, increase the level of interchangeability of parts between the various models-sizes of pumps.

**DESIGN EXCELLENCE** | Optimum hydraulic design, ensuring minimum number of stages, hence reducing shaft length and distance between bearings. This resulted in minimum pump wear, thus extending its operating reliability and life efficiency.

Where space is a constraint, *Hydra+* can be vertically mounted (Model HDV) with no compromise in its performance.

### Design Features

**MOUNTING & CASINGS** | The pump casing is divided into sections perpendicular to the shaft axis. The radial fits of the vertically split sections gives ease in disassembly & reassembly of pumps during maintenance. External tie-rods holds together the suction & discharge casings, the intermediate casings and diffusers, and are sealed by means of o-rings. The mounting feet are integrally cast on at the bottom of the suction & delivery casings for pump discharge larger than 65mm. For smaller sizes, mounting feet at suction end is cast on the first stage casing which enable different suction branch positions.

**IMPELLERS & WEAR RINGS** | The impellers are radial flow, enclosed-type design. They are individually hydraulic balanced. Replaceable wear rings are fitted on every stage, hence increase maintainability.

**SHAFT SEALINGS** | Shaft sealings are available in two variants - 'gland packing rings' or mechanical seals (single or double type), and these come with options including, external flushing and/or cooling.

**BEARINGS** | The shaft is supported by grease-lubricated cylindrical roller bearing at the drive-end of the pump, and double-row deep-groove ball bearing at the pressure-side.

### Applications

**BUILDING SERVICES** | General water transfer; pressure supply booster systems; fire protection (fighting) & water feature applications.

**INDUSTRIAL** | Hot & cold water circulation; pumping condensate & boiler feeding; machine cooling; process water; marine & shipbuilding; and other manufacturing processes.

**MINING** | Mine general water supply; mine dewatering; generation of power; mining process.

**AGRICULTURAL & FARMING** | Horticultural irrigation & sprinkler sys.

**MUNICIPAL WATER SUPPLY**

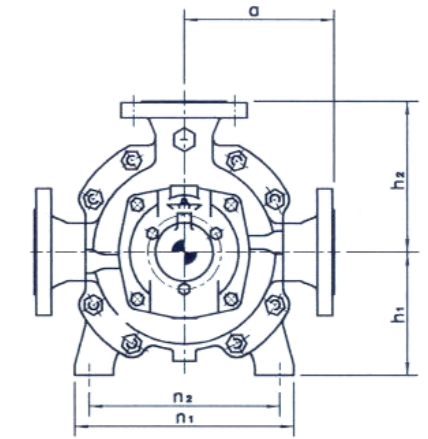
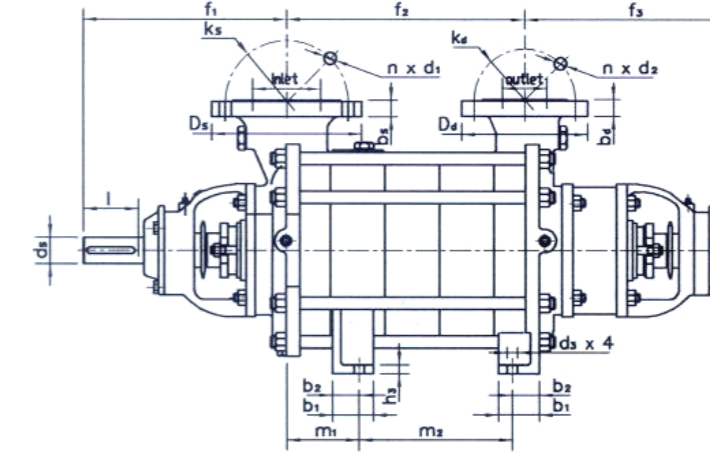


<  
*HydraPlus, Model HD(V) | Vertically mounted version. Ideal configuration when installation space is a constraint.*

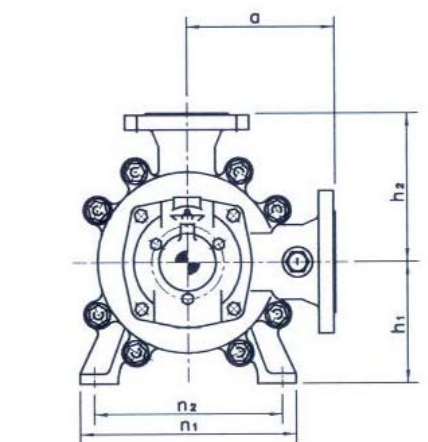
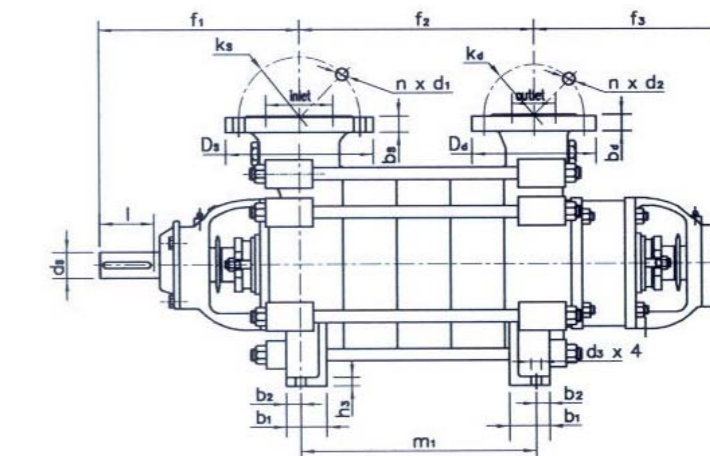
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...engineering flow in our life

### Dimensions

▪ HD25 | HD32 | HD40 | HD50 | HD65



▪ HD80 | HD100 | HD125 | HD150 | HD200



Pump models	Max. stages		Nominal flange size		Dimensions																							
	2-pole	4-pole	Inlet	Outlet	Ramp	Foot mounting			Shaft end			Flanges																
					a	f1	f2	f3	h1	h2	b1	b2	m1	m2	n1	n2	h3	d	d1	Ds	Ks	Bs	md1	Qd	kd	#	md2	
HD 25	13	13	40	25	160	230	118+55(N-2)	247	132	160	45	25	65	53+55(N-2)	250	215	12	15	28	60	150	110	20	4xØ18	115	85	18	4xØ18
HD 32	11	12	50	32	180	230	118+55(N-2)	247	160	180	45	25	65	53+55(N-2)	280	245	14	15	28	60	165	125	22	4xØ18	140	100	20	4xØ18
HD 40	09	12	65	40	180	265	135+60(N-2)	274	160	180	50	30	77	55+60(N-2)	280	245	12	15	32	80	185	145	20	4xØ18	150	110	20	4xØ18
HD 50	08	11	80	50	200	260	153+65(N-2)	279	160	200	55	35	65	63+65(N-2)	280	245	12	15	32	80	200	160	22	8xØ18	165	125	22	4xØ18
HD 65	06	10	100	65	220	300	190+80(N-2)	319	180	220	60	40	105	65+80(N-2)	320	280	14	15	38	80	220	180	24	8xØ18	185	145	24	4xØ18
HD 80	-	11	100	80	220	300	190+80(N-2)	319	180	220	60	28	-	160+80(N-2)	320	280	14	15	38	80	220	180	24	8xØ18	200	160	22	8xØ18
HD 100	-	10	125	100	300	290	197+95(N-2)	343	212	300	75	45	197+95(N-2)	-	400	340	16	20	38	80	250	210	26	8xØ18	220	180	28	8xØ18
HD 125	-	06	150	125	350	350	235+115(N-2)	404	250	350	85	45	235+115(N-2)	-	480	410	20	24	42	90	285	240	26	8xØ23	250	210	25	8xØ18
HD 150	-	05	200	150	425	410	295+140(N-2)	475	300	425	110	60	295+140(N-2)	-	600	515	20	24	48	110	340	295	26	8xØ23	285	240	26	8xØ23
HD 200	-	03	250	200	480	490	365+170(N-2)	553	355	480	140	75	365+170(N-2)	-	710	620	28	28	55	140	395	350	28	12xØ23	340	295	33	8xØ23

Remark | Above dimensions are for reference only. Dimension of actual pumps may deviate slightly.

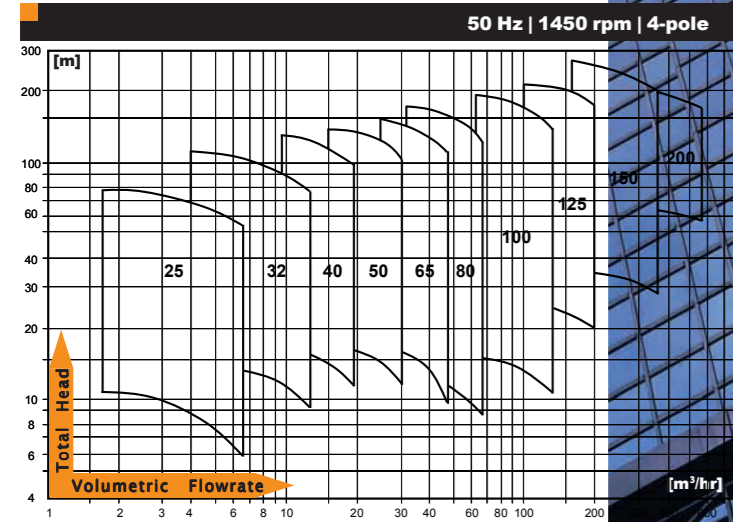
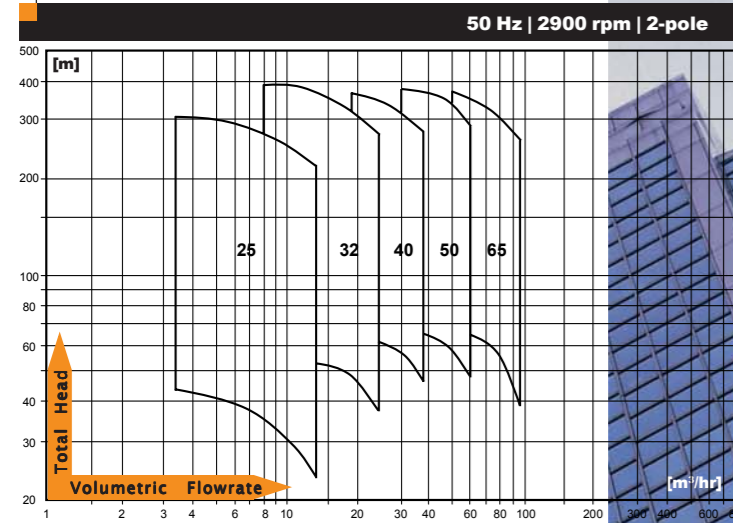
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### Performance Range

Performance tested to ISO 9906 Class II  
| Test water temperature of 20°C



### Pump | Operating limits & data

<b>Liquid handled</b>	Clean water or slightly-aggressive liquid compatible to pump material of construction.
<b>Working pressure</b>	<b>HD(V)25 to HD(V)65</b> Up to 40 bar [-10°C ~ 120°C] Up to 30 bar [-120°C ~ 190°C] <b>HD(V)80 to HD(V)200</b> Up to 30 bar [-10°C ~ 120°C] Up to 27 bar [-120°C ~ 190°C]
<b>Flowrate</b>	Maximum capacity up to 139 litres/sec (500 m³/hr).
<b>Discharge head</b>	Maximum discharge pressure up to 395 metres (39 bar).
<b>Operating temperature</b>	Up to 105°C ~ 140°C, with standard shaft seals and optional cooling. From 140°C to 190°C, with special seals and cooling arrangements.
<b>Operating speed</b>	Nominal operating speed up to 3 000 r.p.m. at 50Hz, and 3 600 r.p.m. at 60Hz.
<b>Flanges</b>	In accordance to ISO7005.2:1998

### Construction & Description

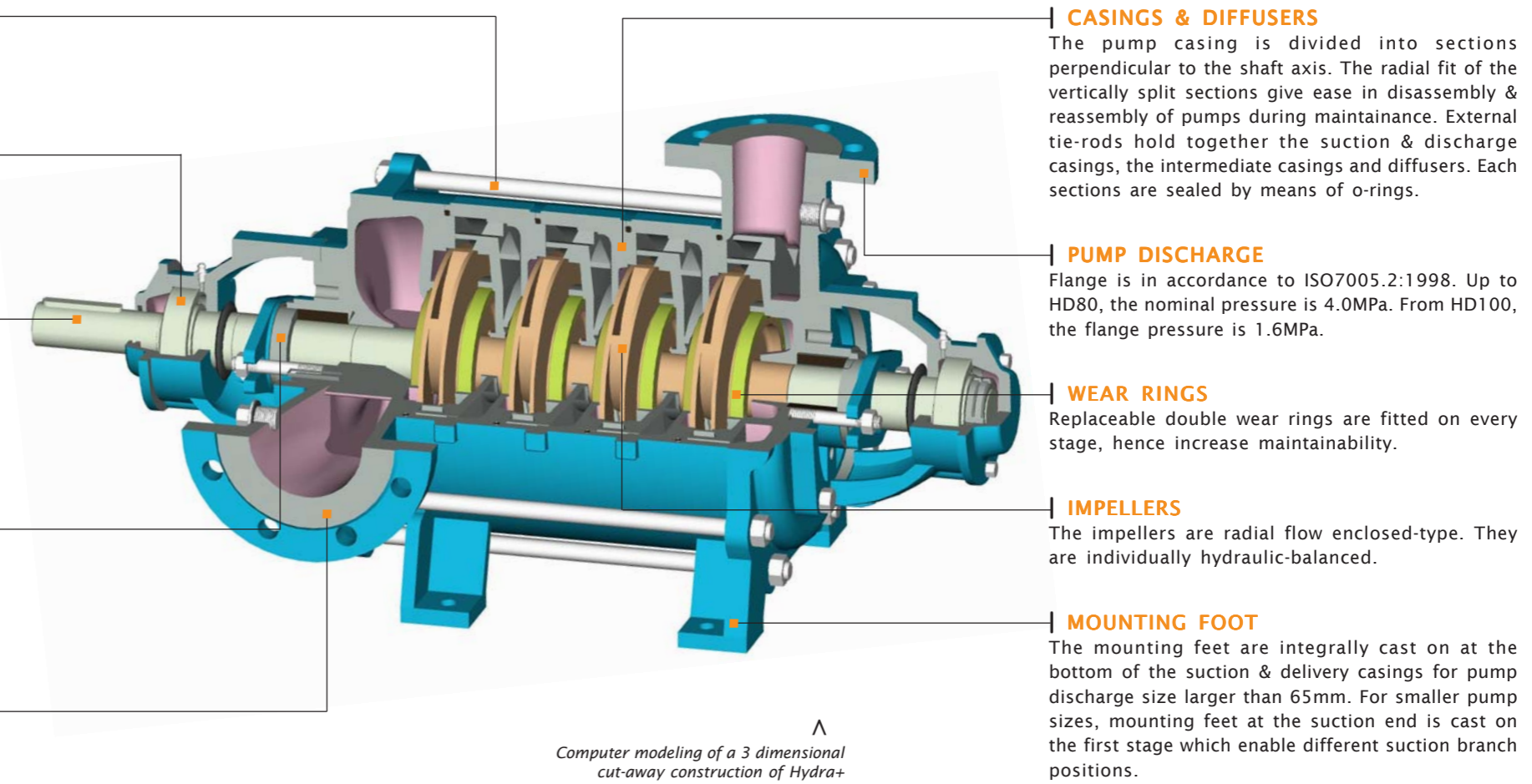
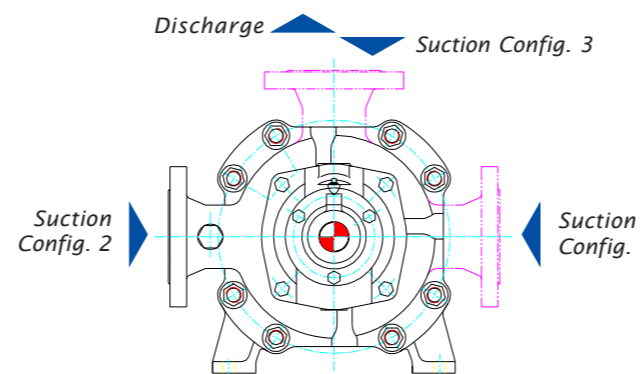
**TIE RODS**  
External tie-rods hold together the suction & discharge casings, the intermediate casings and diffusers.

**BEARINGS**  
The shaft is supported by sturdy, grease lubricated cylindrical roller bearing at the drive-end of the pump, and double-row deep-groove ball bearing at the pressure-side.

**SHAFT**  
Optimum hydraulic design, ensuring minimum number of stages, hence reducing shaft length and distance between bearings. Machined in high quality 420 stainless steel material as standard. Available as options, are 316SS and duplex stainless steel.

**SHAFT SEALS**  
Shaft sealing are available in two variants - 'gland packing rings' or mechanical seals (single or double type), and come with options including external flushing and/or cooling.

**PUMP SUCTION (FLANGE CONNECTIONS)**  
Flanges standard is in accordance to ISO7005.2:1988. *Hydra+* offers flexibility in configuring the orientation of the pump suction connection, adapting to the system pipeline. Suction branch normally arranged horizontally towards the right when viewed from the drive end (config. 1), whilst the discharge branch is radially upwards. For models HD25 to HD65, suction branch can be positioned towards the left when pump incorporates only two stages (config. 2), and can even be directed upwards when the number of stages is more than two (config. 3). V



**CASINGS & DIFFUSERS**  
The pump casing is divided into sections perpendicular to the shaft axis. The radial fit of the vertically split sections give ease in disassembly & reassembly of pumps during maintenance. External tie-rods hold together the suction & discharge casings, the intermediate casings and diffusers. Each sections are sealed by means of o-rings.

**PUMP DISCHARGE**  
Flange is in accordance to ISO7005.2:1998. Up to HD80, the nominal pressure is 4.0MPa. From HD100, the flange pressure is 1.6MPa.

**WEAR RINGS**  
Replaceable double wear rings are fitted on every stage, hence increase maintainability.

**IMPELLERS**  
The impellers are radial flow enclosed-type. They are individually hydraulic-balanced.

**MOUNTING FOOT**  
The mounting feet are integrally cast on at the bottom of the suction & delivery casings for pump discharge size larger than 65mm. For smaller pump sizes, mounting feet at the suction end is cast on the first stage which enable different suction branch positions.

Material of construction				
Parts	Execution EW	Execution EY	Execution EZ	Execution EB
<b>Casing [suction discharge stages]</b>	Cast iron GG25   AS 1830/T260   BS 1452Gr260			Cast stainless steel AS 2074   BS 1504Gr316
<b>Impeller</b>	Cast iron GG25 AS 1830/T260   BS 1452Gr260	Bronze (Gunmetal)   AS 1565/836   BS1400 LG2		Cast stainless steel AS 2074   BS 1504Gr316
<b>Wear ring</b>	Bronze (Gunmetal)   AS 1565/836   BS1400 LG2			Cast stainless steel AS 2074   BS 1504Gr316
<b>Diffuser</b>	Cast iron GG25   AS 1830/T260   BS 1452Gr260	Bronze (Gunmetal) AS 1565/836   BS1400 LG2		Cast stainless steel AS 2074   BS 1504Gr316
<b>Shaft</b>	Stainless steel 420   AS 1444/420   BS 970Gr.420 S37			Stainless steel 316 AS 1444/316   BS 970Gr.316 S16
<b>Shaft sleeve</b>	Stainless steel 420   AS 1444/420   BS 970Gr.420 S37			Stainless steel 316 AS 1444/316   BS 970Gr.316 S16
<b>Shaft seal</b>	Gland packing   Carbon fiber packing Mechanical seal   Silicon carbide-Silicon carbide-NBR OR Carbon-silicon carbide-EPDM	4506L Soft packing Carbon-Silicon carbide-FPM		

Note: AS - Australian Standard | BS: British Standard  
Remarks: For more comprehensive pump construction material, and equivalent material specification, refer to MONOFLO Pumps technical data sheets