

BRISTOL

Fire Engineering

Since 1974

STANDARD FIRE PUMP TECHNICAL SUBMITTAL

DUTY POINT: **750** GPM @ 8 BAR

CLIENT: INTERNATIONAL

CENTRE FOR SAFECTY &

www.bristol-fire.com

FIRE-EGYPT

BRISTOL



PRODUCT SCHEDULE

	Vendor Ref. No.	Doc. Seq. No. 02	Revision No. 0
Project Name: FIRE PUMP SET - 750 GPM @ 8 BAR			

DATA SHEET

MAIN ELECTRIC PUMP	
BRAND	BRISTOL
MODEL	80-260
CAPACITY	750 GPM
HEAD	8 BAR
PUMP CASING	CAST IRON
IMPELLER	CAST IRON
SHAFT	STAINLESS STEEL
SHAFT SEAL	MECH. SEAL
MOTOR	FACTORY CHOICE
VOLTAGE	415V,50HZ, 3PH
POWER	75HP
SPEED	2930RPM
INSULATION	CLASS F
STANDBY DIESEL PUMP	
BRAND	BRISTOL
MODEL	80-260
CAPACITY	750 GPM
HEAD	8 BAR
PUMP CASING	CAST IRON
IMPELLER	CAST IRON
SHAFT	STAINLESS STEEL
SHAFT SEAL	MECH. SEAL
ENGINE	POWER
VOLTAGE	12VDC
POWER	71HP
SPEED	3000RPM
JOCKEY PUMP	
MODEL	RV 4
IMPELLER	STAINLESS STEEL
SHAFT	STAINLESS STEEL
PRESSURE SWITCH	DANFOSS

LIST OF SUB VENDORS

BRISTOL



SUB -VENDOR LIST

S.NO	ITEM	SUPPLIER
1	ELECTRIC MOTOR	: FACTORY CHOICE
2	DIESEL ENGINE	: HALOTOP
3	JOCKEY PUMP	: RV/ZIRANTEC

FIRE PUMP DATA SHEET



FIRE PUMP SET

APPLICATION

SINGLE STAGE CENTRIFUGAL PUMP



Fire Protection	Drainage
Heat and Ventilating	Water Treatment and Supply
Refrigeration	Irrigation
Air Conditioning	Transfer
Plumbing	Factory Pumping
Food and Drink	Process Industry
Manufacture	
Circulating	Petroleum Products
Water Pressure Boosting	General Industry

MATERIAL OF CONSTRUCTION

Casing	Cast Iron
Impeller	Cast Iron
Shaft	SS420
Shaft Nut	SS304
Shaft Sleeve	SS420
Mechanical Seal	SS304
Plug	SS304

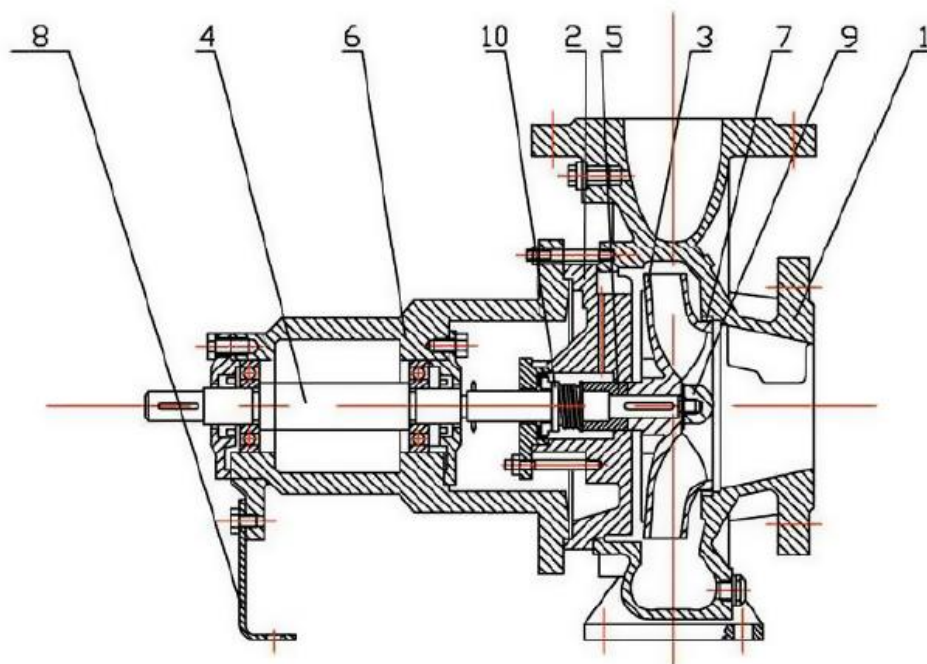
BRISTOL



FIRE PUMP SET

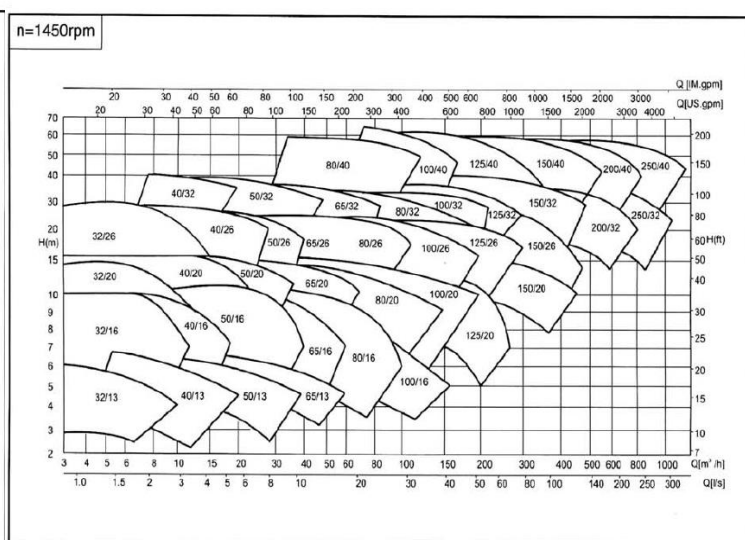
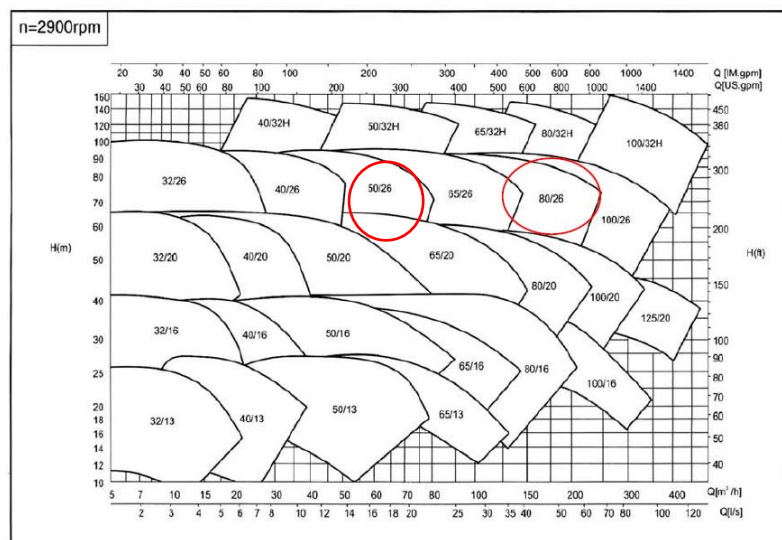
TECHNICAL DETAILS

SINGLE STAGE CENTRIFUGAL PUMP



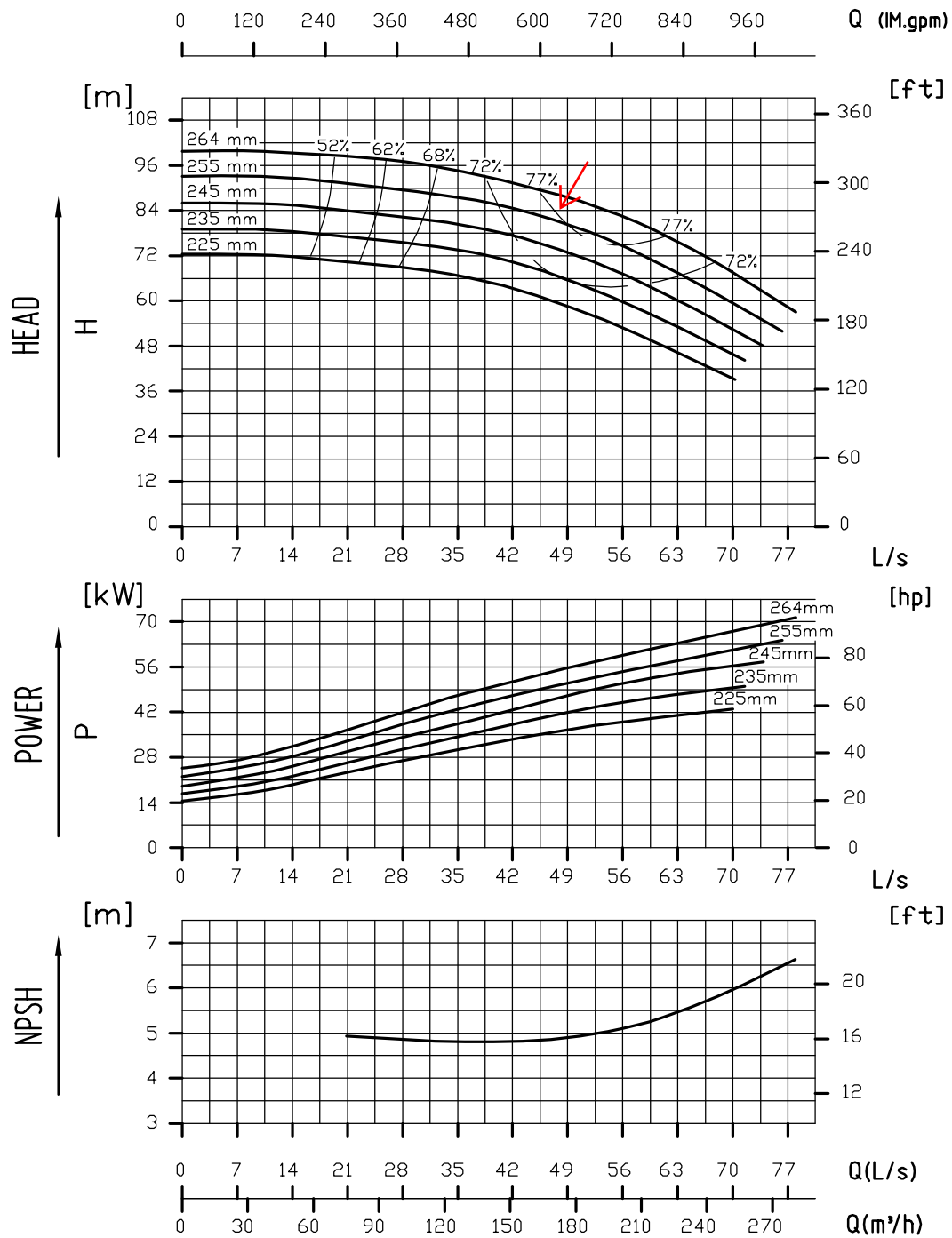
- 1.Pump Casing
- 2.Casing Cover
- 3.Impeller
- 4.Shaft
- 5.Shaft Sleeve
- 6.Bearing Bracket
- 7.Casing Ring
- 8.Support Feet
- 9.Impeller Nut
- 10.Mechanical Seal

SELECTION RANGE CHART



80-260

2900 l/min



BRISTOL



ELECTRIC MOTOR DATA SHEET

INTERN

International Electric Motors Pty. Ltd.

MOTORS

ISO9002



EMC



HEAVY DUTY INDUSTRIAL Y SERIES RANGE

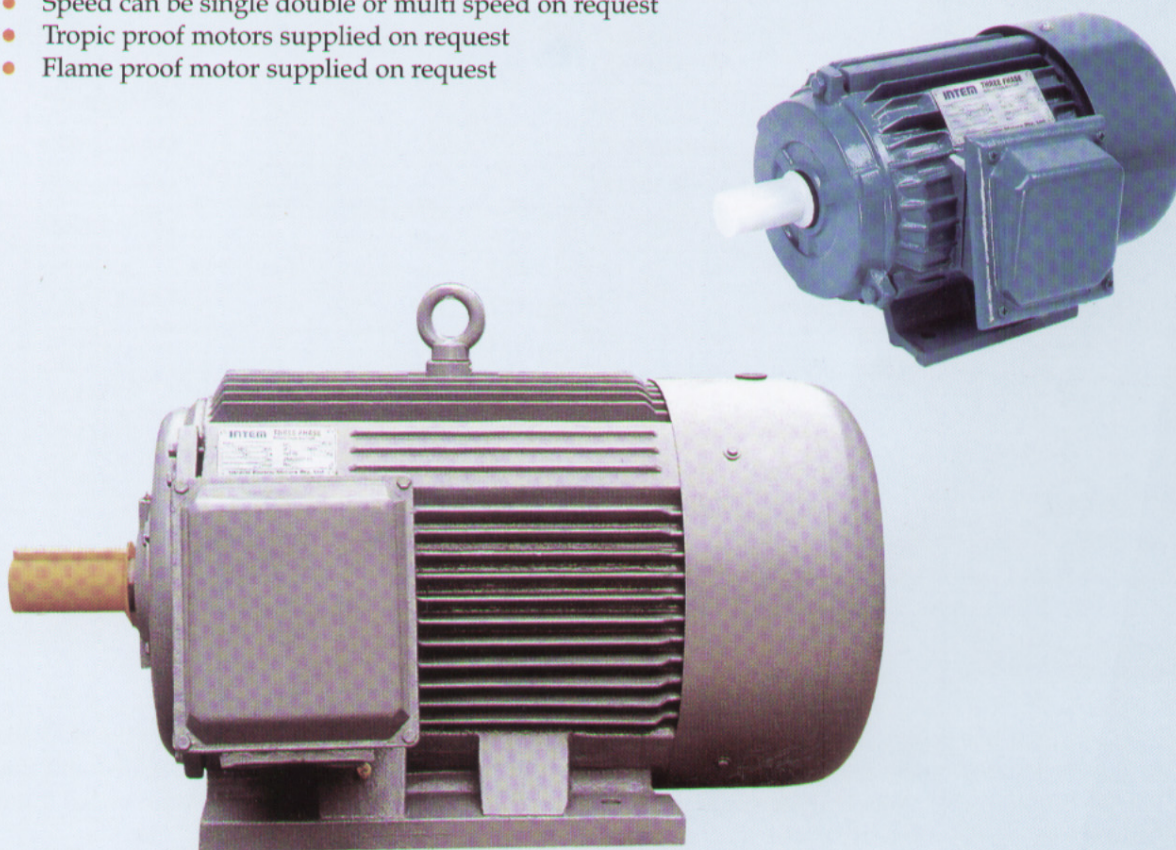
This range of motors are made to IEC standards and incorporate many fine features. These are superior motors that can be used in a multitude of applications in the commercial industrial building service and water treatment fields where superior service quality and reliability is demanded.

MOTOR FEATURES

- Utilise IP44 enclosure, IP54 and IP55 is available on request
- Class B insulation with class F on request
- Motors are made with IC0141 cooling
- Motors are made for continuous S1 duty
- Motors have high start torque
- Motors have high efficiency
- Y connection to 3 KW
- ▲ connection from 4 to 315 KW
- Voltages on request (220/380V, 380/660V, 220/340V, 220/440, 400/415V)
- Frequency 50 or 60 Hz
- Speed can be single double or multi speed on request
- Tropic proof motors supplied on request
- Flame proof motor supplied on request

CUSTOMER BENEFITS

- ♦ Water dust and vermin resistant
- ♦ Quiet operation
- ♦ Corrosion resistant
- ♦ Reliable in country, city or factory environments
- ♦ Very low vibration
- ♦ Very low power consumption
- ♦ Superior life



Model	Rated Output		Full Load				75% Load		50% Load		Ist/IN Locked current	Tst/TN Locked torque	TM/IN max torque	Moment of Inertia Kgm ²	Net weight (B3) Kg	
			Speed (r.p.m.)	Current (A)	Eff. (%)	Power factor (cosϕ)	Eff. (%)	Power factor (cosϕ)	Eff. (%)	Power factor (cosϕ)						
	KW	HP									Rated current	Rated torque	Rated torque			
380V 50Hz Synchronous Speed 3000r/min(2poles)																
Y801-2	0.75	1	2830	1.81	75	0.84	73.8	0.79	71.6	0.68	6.5	2.2	2.3	0.00075	17	
Y802-2	1.1	1.5		2.52	77	0.86	76.5	0.81	74.0	0.71				0.00090	18	
Y90S-2	1.5	2	2840	3.44	78	0.85	77.5	0.80	76.0	0.71	0.0012			22		
Y90L-2	2.2	3		4.83	80.5	0.86	79.7	0.82	77.6	0.73	0.0014			26		
Y100L-2	3.0	4	2870	6.39	82	0.87	81.3	0.83	79.3	0.74	0.0029			35		
Y112M-2	4.0	5.5	2890	8.17	85.5	0.88	84.8	0.83	82.8	0.73	0.0055			45		
Y132S1-2	5.5	7.5	2900	11.1			84.9	0.86	83.0	0.79	0.0109			67		
Y132S2-2	7.5	10		15.0	86.2		85.5	0.86	83.0	0.79	0.0126			71		
Y160M1-2	11	15	2930	21.8	87.2		86.5	0.86	84.5	0.79	0.0377			118		
Y160M2-2	15	20		29.4	88.2		87.6	0.85	86.0	0.80	0.0449			130		
Y160L-2	18.5	25	2940	35.5	89		88.5	0.86	87.2	0.81	0.055	150				
Y180M-2	22	30		42.2			88.1	0.87	86.7	0.81	0.075	175				
Y200L1-2	30	40	2950	56.9	90		88.7	0.86	87.1	0.79	0.124	227				
Y200L2-2	37	50		69.8	90.5		89.7	0.86	87.5	0.80	0.139	255				
Y225M-2	45	60	2970	83.9	91.5		0.89	90.4	0.87	88.3	0.82	0.233	320			
Y250M-2	55	75		103		92		90.6	0.86	88.6	0.82	0.312	389			
Y280S-2	75	100		139	92	91.0		0.86	89.0	0.82	0.579	520				
Y280M-2	90	125		166	92.5	91.4		0.86	89.4	0.84	0.675	577				
Y315S-2	110	150		2980	203	93.5		91.4	0.86	89.7	0.84	1.18	980			
Y315M-2	132	180			242			93	91.8	0.87	90.1	0.84	1.82	1080		
Y315L1-2	160	220			292			93.5	91.9	0.87	90.2	0.84	2.08	1160		
Y315L2-2	200	270			365			94.5	92.3	0.87	90.6	0.84	2.64	1210		
Y355M-2	250	340			444			94.5	DATA ON REQUEST				7.0	1.2	2.48	1760
Y355L-2	315	430			556			95					7.1		3.36	1900
380V 50Hz Synchronous Speed 1500r/min(4poles)																
Y801-4	0.55	0.75	1390	1.51	73	0.76	71.5	0.66	68.5	0.52	6.0	2.4	2.3	0.0018	17	
Y802-4	0.75	1		2.01	74.5		73.0	0.67	68.0	0.56				0.0021	18	
Y90S-4	1.1	1.5	1400	2.75	78	0.78	77.0	0.71	73.5	0.58	6.5	2.3		0.0021	23	
Y90L-4	1.5	2		3.65	79	0.79	77.5	0.72	75.5	0.61				0.0027	27	
Y100L1-4	2.2	3	1430	5.03	81	0.82	80.3	0.74	78.2	0.61	7.0	2.2		0.0054	35	
Y100L2-4	3.0	4		6.82	82.5	0.81	81.6	0.75	79.3	0.63				0.0067	38	
Y112M-4	4.0	5.5	1440	8.77	84.5	0.82	83.3	0.76	81.8	0.64				0.0095	49	
Y132S-4	5.5	7.5		11.6	85.5	0.84	84.2	0.78	81.2	0.68				0.0214	67	
Y132M-4	7.5	10	1460	15.4	87	0.85	86.1	0.80	82.6	0.70				0.0296	80	
Y160M-4	11	15		22.6	88	0.84	87.4	0.79	85.1	0.68				0.0747	124	
Y160L-4	15	20	30.3	88.5	0.85	87.8	0.80	85.9	0.69	0.0918			147			
Y180M-4	18.5	25	1470	35.9	91	0.86	89.9	0.81	87.8	0.71			2.2	0.139	169	
Y180L-4	22	30		42.5	91.5		90.7	0.81	89.4	0.72				0.158	184	
Y200L-4	30	40	56.8	92.2	0.87	91.3	0.82	89.5	0.73	0.262				241		
Y225S-4	37	50	70.4	91.8		91.1	0.84	89.6	0.78	0.406	300					
Y225M-4	45	60	1480	84.2	92.3	0.88	91.6	0.85	90.2	0.79	0.469	330				
Y250M-4	55	75		103	92.6		91.5	0.84	90.1	0.76	0.66	400				
Y280S-4	75	100		140	92.7	91.7	0.84	90.3	0.77	1.12	546					
Y280M-4	90	125		164	93.5	92.4	0.85	90.7	0.81	1.46	620					
Y315S-4	110	150		201	94.5	92.3	0.86	90.4	0.82	3.11	1000					
Y315M-4	132	180		240		94	92.8	0.86	90.5	0.82	3.62	1100				
Y315L1-4	160	220	289	0.89		93.2	0.86	91.2	0.82	4.13	1140					
Y315L2-4	200	270	361			93.2	0.86	91.2	0.82	4.73	1190					
Y355M-4	250	340	1485	459	94.7	0.87	DATA ON REQUEST				1.4	6.28	1800			
Y355L-4	315	430		576	95.2							7.77	1940			

BRISTOL



FIRE PUMP SET

ELECTRIC MOTOR

APPLICATION

Metric Efficient Line Aluminum and Metric Premium Line Cast-iron IEC Motors

UAE-Qatar-Bahrain-Kuwait-Egypt



Three Phase, IEC Motors IE2 Eff. Type MELA (Aluminum Frame), IE3 Eff. Type MPLC (All Cast-iron), IP55 Severe Duty, 50°C Ambient

UAE-Qatar-Bahrain-Kuwait-Egypt

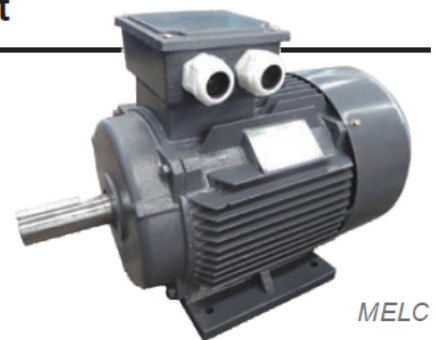
APPLICATIONS:

For severe duty environments found in the pulp & paper, lumber, aggregates, mining, chemical and other industries.

FEATURES:

- Comply with IEC 60034, 60038, 60072 and IE2 and IE3 efficiency standards
- 50°C ambient, continuous duty
- Altitude 1000 m
- Sealed bearings of same size on both ends Frame 80 to 160
- Regreasable bearings of the same size on both ends Frame 180 to 355
- Grease type Polyrex-EM
- Corrosion resistant mill & chemical duty paint RAL 7024 Grey
- VPI, Class F insulation system, 80K (°C) rise at full load on sine wave power
- Stainless steel nameplate and zinc plated hardware
- Shaft seal ring for IP55 protection
- Lifting provisions
- Multi-mounting position F3-F1-F2 on MELA, F3 mounting Only on MPLC

- Frequency 50Hz
- 230v / 415v $\pm 10\%$ 50 Hz From 0.75 to 2.2 Kw
- 380v -5%, 400v $\pm 10\%$, 415v+5% From 3 to 315 Kw
- Suitable for DOL start 230V Δ & 415 v Y (up to 2.2 Kw), 380- 400V Δ above
- Suitable for wye-delta start 380-415v from 3Kw and up
- Winding connection: 230V Δ / 400 v Y and 380- 415V Δ / 690v-720V Y
- Winding Protection: Dandong PTC (1 per phase) from 110KW and Up
- 6 Leads connection Y Δ with Conduit box suitable for 6 terminals
- Single Voltage nameplated @ 50Hz only
- CE mark on nameplate
- Field convertible flange FF & FT kits available



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ELECTRIC MOTOR

TECHNICAL DETAILS

KW	HP	Pole	IEC Frame	Catalog #	Model #	DS-Sym	Weight Kg	List		
				Motors F3 Mounting Position only on MPLC				B3	B5	B14
11	15	2	160M1	MPL11P1T	PLC531	IE3UA	106	1553	1630	1661
		4	160M	MPLC11P2T	PLC532	IE3UA	114	1598	1677	1709
		6	160L	MPLC11P3T	PLC533	IE3UA	135	1873	1967	2004
15	20	2	160M2	MPL15P1T	PLC534	IE3UA	118	1648	1730	1763
		4	160L	MPLC11P2T	PLC535	IE3UA	133	1791	1880	1916
		6	180L	MPLC11P3T	PLC536	IE3UA	180	2161	2270	
18.5	25	2	160L	MPLC19P1T	PLC537	IE3UA	130	1778	1867	1902
		4	180M	MPLC19P2T	PLC538	IE3UA	168	2566	2695	
		6	200L1	MPLC19P3T	PLC539	IE3UA	220	2732	2869	
22	30	2	180M	MPLC22P1T	PLC540	IE3UA	178	2383	2502	
		4	180L	MPLC22P2T	PLC541	IE3UA	188	2594	2724	
		6	200L2	MPLC22P3T	PLC542	IE3UA	230	2976	3125	
30	40	2	200L1	MPLC30P1T	PLC543	IE3UA	220	2789	2929	
		4	200L	MPLC30P2T	PLC544	IE3UA	243	3204	3364	
		6	225M	MPLC30P3T	PLC545	IE3UA	277	3972	4171	
37	50	2	200L2	MPLC37P1T	PLC546	IE3UA	233	2882	3026	
		4	225S	MPLC37P2T	PLC547	IE3UA	282	3896	4091	
		6	250M	MPLC37P3T	PLC548	IE3UA	360	4605	4835	
45	60	2	225M	MPLC45P1T	PLC549	IE3UA	300	3791	3981	
		4	225M	MPLC45P2T	PLC550	IE3UA	312	4232	4444	
		6	280S	MPLC45P3T	PLC551	IE3UA	470	6238	6549	
55	75	2	250M	MPLC55P1T	PLC552	IE3UA	389	5153	5410	
		4	250M	MPLC55P2T	PLC553	IE3UA	403	5471	5744	
		6	280M	MPLC55P3T	PLC554	IE3UA	538	6800	7140	
75	100	2	280S	MPLC75P1T	PLC555	IE3UA	482	6796	7135	
		4	280S	MPLC75P2T	PLC556	IE3UA	550	7922	8318	
		6	315S	MPLC75P3T	PLC557	IE3UA	814	10764	11302	
90	125	2	280M	MPLC90P1T	PLC558	IE3UA	536	7636	8018	
		4	280M	MPLC90P2T	PLC559	IE3UA	640	8225	8636	
		6	315M	MPLC90P3T	PLC560	IE3UA	877	11851	12444	
110	150	2	315S	MPLC110P1T	PLC561	IE3UA	802	11399	11969	
		4	315S	MPLC110P2T	PLC562	IE3UA	838	11712	12297	
		6	315L1	MPLC110P3T	PLC563	IE3UA	988	14368	15086	
132	175	2	315M	MPLC132P1T	PLC564	IE3UA	946	12172	12780	
		4	315M	MPLC132P2T	PLC565	IE3UA	980	13386	14055	
		6	315L2	MPLC132P3T	PLC566	IE3UA	1116	15596	16376	
160	200	2	315L	MPLC160P1T	PLC567	IE3UA	990	13397	14067	
		4	315L	MPLC160P2T	PLC568	IE3UA	1022	14064	14767	
		6	355M1	MPLC160P3T	PLC569	IE3UA	1506	21013		
185	250	2	315L	MPLC185P1T	PLC570	IE3UA	1050	11521	12097	
		4	315L	MPLC185P2T	PLC571	IE3UA	1100	14117	14823	
		6	355M2	MPLC185P3T	PLC572	IE3UA	1550	19205		
200	270	2	315L	MPLC200P1T	PLC573	IE3UA	1095	14932	15678	
		4	315L	MPLC200P2T	PLC574	IE3UA	1160	15834	16626	
		6	355M3	MPLC200P3T	PLC575	IE3UA	1596	23529		
250	340	2	355M2	MPLC250P1T	PLC576	IE3UA	1760	25471		
		4	355M2	MPLC250P2T	PLC577	IE3UA	1605	23184		
		6	355L3	MPLC250P3T	PLC578	IE3UA	1847	27193		
315	430	2	355L2	MPLC315P1T	PLC579	IE3UA	1850	27631		
		4	355L2	MPLC315P2T	PLC580	IE3UA	1780	25378		
		6								

BRISTOL



DIESEL ENGINE DATA SHEET

BRISTOL



FIRE PUMP SET

DIESEL ENGINE

Halotop®

RADIATOR SERIES

***Halotop Power,
Powering the Future***



- ▶ High Speed Diesel Engine
- ▶ Pump Set for Fire Fighting
- ▶ Fire Fighting Pump System

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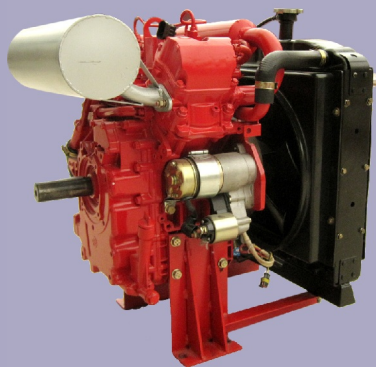
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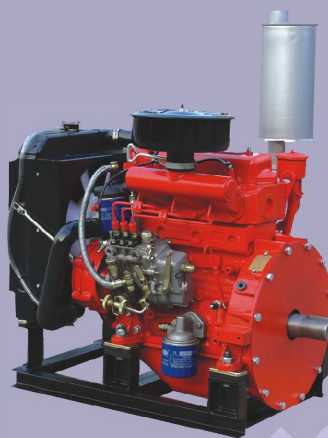
Halotop®

Halotop Power, Powering the Future

2 Cylinder Diesel Engine
8-19HP



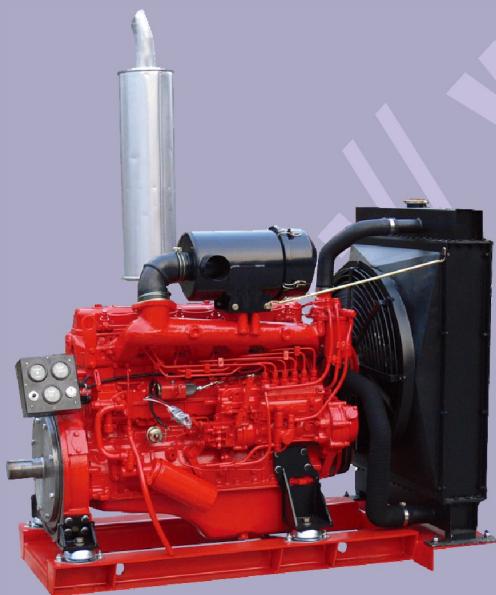
3 Cylinder Diesel Engine
27HP



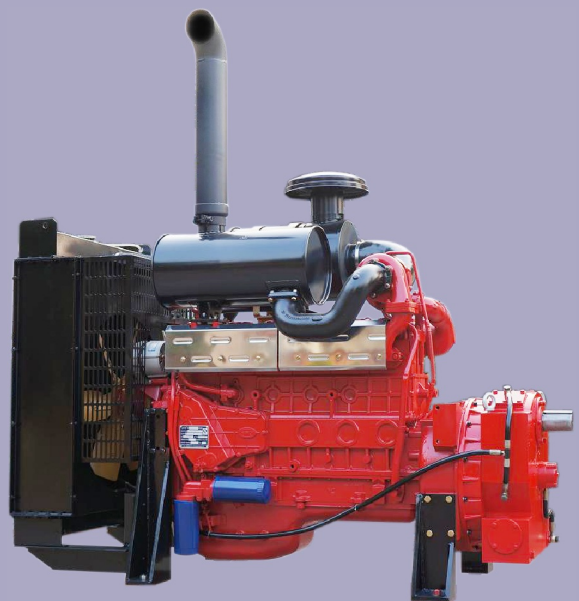
4 Cylinder Diesel Engine
38HP-110HP



6 Cylinder Diesel Engine
130HP-170HP



6 Cylinder Diesel Engine
204HP-374HP



BRISTOL



JOCKEY PUMP DATA SHEET



VERTICAL MULTISTAGE CENTRIFUGAL PUMP

PRODUCT INTRODUCTION

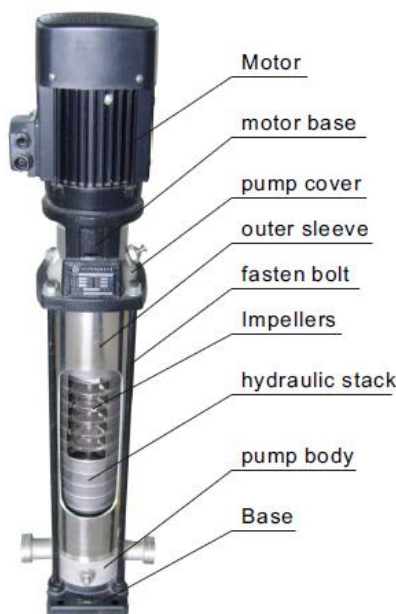


RV, RVA
Vertical Multistage Centrifugal Pump
50Hz

Pump

RVA and RV are non-selfpriming vertical multistage centrifugal pump, the pumps are available with standard motor, the inlet and outlet are located at the pump bottom at the same plane (inline type). All pumps are equipped with a maintenance-free mechanical seal set of the cartridge type.

Fig.1 RVA



Motor

RVA and RV are fitted with a totally enclosed, fan-cooled, 2-pole, three-phase standard motor. From 0.37kW to 2.2kW, are also available with single-phase motor. (1*220-230V/240V).

Motor Protection

Single-phase motor have a built-in thermal overload switch. Three-phase motors must be connected to a motor protective circuit breaker according to local regulations.

Ambient temperature

Ambient temperature: maximum +40°C, if the ambient temperature exceeds +40°C, or the pump is installed at an altitude exceeding 1000 meters, the motor must not be fully loaded due to the risk of overheating. Overheating may result from excessive ambient temperatures or the low density and consequently low cooling effect of the air.

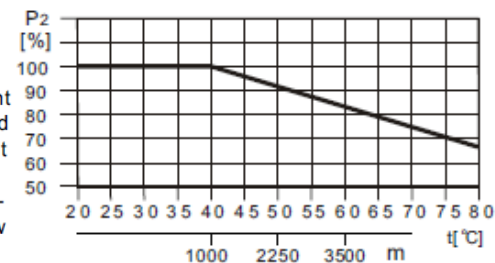
In such cases, it may be necessary to use a motor with a higher rated output.

Viscosity

The pumping of liquids with densities or kinematic viscosities higher than those of water will cause a considerable pressure drop, a drop in the hydraulic performance and a rise in the power consumption.

In such situations the pump should be fitted with a larger motor, if in doubt, contact.

Fig.3 Relationship between motor output (P2) and temperature



Example:

From the Fig.3, the pump is installed at an altitude exceeding 3500 meters, P2 will decrease to 88%, if the ambient temperature is up to 70°C, P2 will decrease to 78%.

Terminal box positions

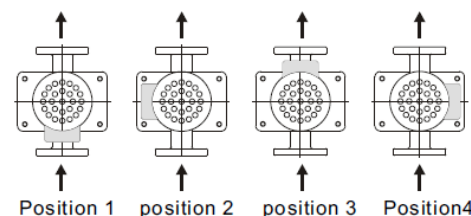
As standard the terminal box is mounted on the suction side of the pump, meanwhile, 0°, 90°, 180°, 270° could be adjusted according to the following proceeding:

1. If necessary, disassembling the protective cover of the shaft connector, but did not disassembling the shaft connector.
2. Disassembling the motor fixation screws.
3. Turn the motor to the required direction.
4. Fasten the motor screws.
5. Install the shaft connector's protective cover.

The voltage and frequency are marked on the label, the correct power should be confirm with the label before usage.

To ensure the electric connection is conformity to the drawing marked on the label inside the terminal box.

Fig2. Terminal box positions



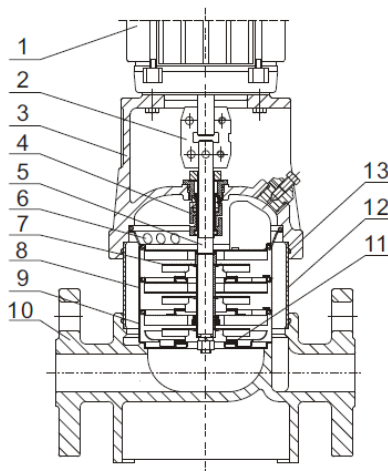


VERTICAL MULTISTAGE CENTRIFUGAL PUMP

TECHNICAL DETAILS

RV1,2,3,4,5

Sectional drawing

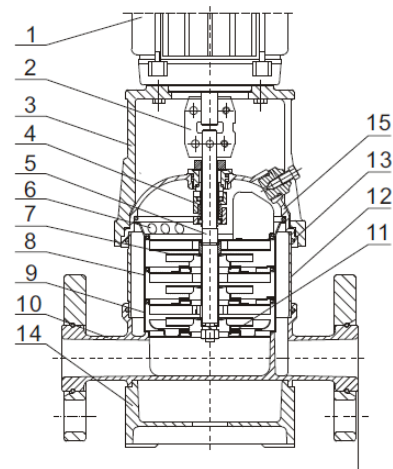


Material RV

No.	Description	Material	EN/DIN	AISI/ASTM
1	Motor			
2	Shaft connector			
3	Pump head	Cast iron	EN-JL1030	ASTM25B
4	Mechanical seal			
5	Shaft	S.S		AISI420
6	Outlet	S.S	1.4301	AISI304
7	Impeller	S.S	1.4301	AISI304
8	Hydraulic stack	S.S	1.4301	AISI304
9	Inlet	S.S	1.4301	AISI304
10	Pump body	Cast iron	EN-JL1030	ASTM25B
11	Neck ring	PTFE		
12	Outer sleeve	S.S	1.4301	AISI304
13	O-ring	EPDM/FKM		

RVA1,2,3,4,5

Sectional drawing



Material RVA

No.	Description	Material	EN/DIN	AISI/ASTM
1	Motor			
2	Shaft connector			
3	Pump head	Cast iron	EN-JL1030	ASTM25B
4	Mechanical seal			
5	Shaft	S.S	1.4057	AISI431
6	Outlet	S.S	1.4301	AISI304
7	Impeller	S.S	1.4301	AISI304
8	Hydraulic stack	S.S	1.4301	AISI304
9	Inlet	S.S	1.4301	AISI304
10	Pump body	S.S	1.4301	AISI304
11	Neck ring	PTFE		
12	Outer sleeve	S.S	1.4301	AISI304
13	O-ring	EDM/FKM		
14	Bottom base	Cast iron	EN-JL1030	ASTM25B
15	Pump cover	S.S	1.4301	AISI304

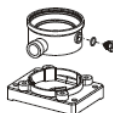


VERTICAL MULTISTAGE CENTRIFUGAL PUMP

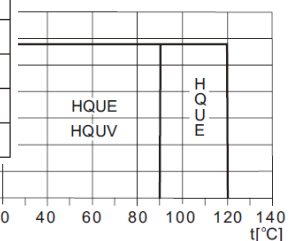
PRODUCT INTRODUCCION

Operating and inlet pressures

Maximum operating pressure and temperature range

	DIN-FGJ	UNION	PJE
			
	Max. permissible operating pressure	Liquid temperature range	
RV,RVA1	25bar	-20 °C to +104 °C	
RV,RVA2	25bar	-20 °C to +104 °C	
RV,RVA3	25bar	-20 °C to +104 °C	
RV,RVA4	25bar	-20 °C to +104 °C	
RV,RVA5	25bar	-20 °C to +104 °C	
RV,RVA10-1 → RV,RVA10-10	16bar	-20 °C to +104 °C	
RV,RVA10-12 → RV,RVA10-17	25bar	-20 °C to +104 °C	
RV,RVA15-1 → RV,RVA15-8	16bar	-20 °C to +104 °C	
RV,RVA15-9 → RV,RVA15-12	25bar	-20 °C to +104 °C	
RV,RVA20-1 → RV,RVA20-7	16bar	-20 °C to +104 °C	
RV,RVA20-8 → RV,RVA20-10	25bar	-20 °C to +104 °C	
RV,RVA32-1-1 → RV,RVA32-5	16bar	-20 °C to +104 °C	
RV,RVA32-6-2 → RV,RVA32-8	25bar	-20 °C to +104 °C	
RV,RVA32-9-2 → RV,RVA32-10-2	30bar	-20 °C to +104 °C	
RV,RVA45-1-1 → RV,RVA45-4	16bar	-20 °C to +104 °C	
RV,RVA45-5-2 → RV,RVA45-6-1	25bar	-20 °C to +104 °C	
RV,RVA45-6 → RV,RVA45-7	30bar	-20 °C to +104 °C	
RV,RVA64-1-1 → RV,RVA64-3	16bar	-20 °C to +104 °C	
RV,RVA64-4-2 → RV,RVA64-5-2	25bar	-20 °C to +104 °C	
RV,RVA90-1-1 → RV,RVA90-3	16bar	-20 °C to +104 °C	
RV,RVA90-4-2	25bar	-20 °C to +104 °C	

ge of standard shaft seals



Applies to clean water and water with glycol liquids.



VERTICAL MULTISTAGE CENTRIFUGAL PUMP

PRODUCT INTROUDUCION

Selection and sizing

Calculation of the inlet pressure "H" is recommended in these situations :

- the liquid temperature is high.
- the flow is significantly higher than the rated flow.
- water is drawn from depths.
- water is drawn through long pipes.

inlet conditions are poor. to avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump.

The maximum suction lift "H" in metres head can be calculated as follows:

$$H = P_b * 10.2 - NPSH - H_f - H_v - H_s$$

P_b = Barometric pressure in bar.
(Barometric pressure can be set to 1 bar).
In closed systems, P_b indicates the system pressure in bar.

NPSH = Net positive suction Head in metres head.
(To be read from the NPSH curve at the highest flow the pump will be delivering).

H_v = Vapour pressure (unit:m).
(To be read from the vapour pressure scale).

H_s = safty margin=minimum 0.5 metres head.

If the "H" calculted is positive, the pump can operate at a suction lift of maximum "H" metres head. If the "H" calculted is negative, an inlet pressure of minimum "H" metres head is required.

Example:

$P_b = 1 \text{ bar}$

pump model: RVA 10, 50Hz

flow: $10 \text{ m}^3/\text{h}$

NPSH(P36 reference: 2.1 metres head.

liquid temperature: $+50^\circ\text{C}$

H_v (reference picture 4): 1.3 metres head.

$H = P_b * 10.2 - NPSH - H_f - H_v - H_s$

$H = 1 * 10.2 - 2.1 - 3.0 - 1.3 - 0.5 = 3.3 \text{ (metres)}$

It means the pump can operate at a suction lift of maximum 3.3 metres head.

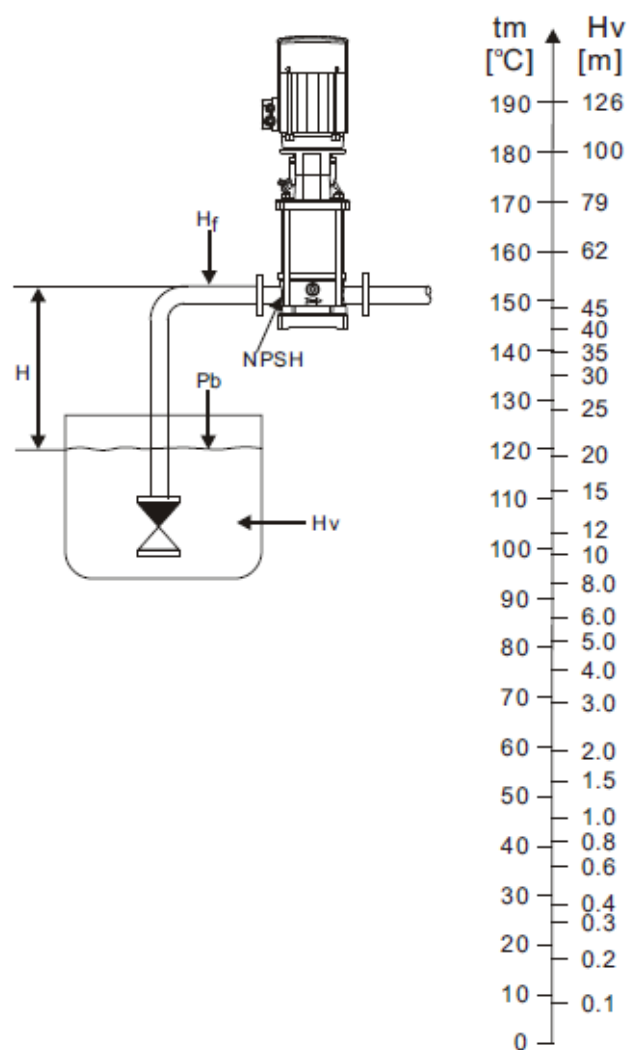
exchaged meter head to bar:

1 metre head = $1 * 0.0981 = 0.0981 \text{ bar}$

exchaged metre head to kpa:

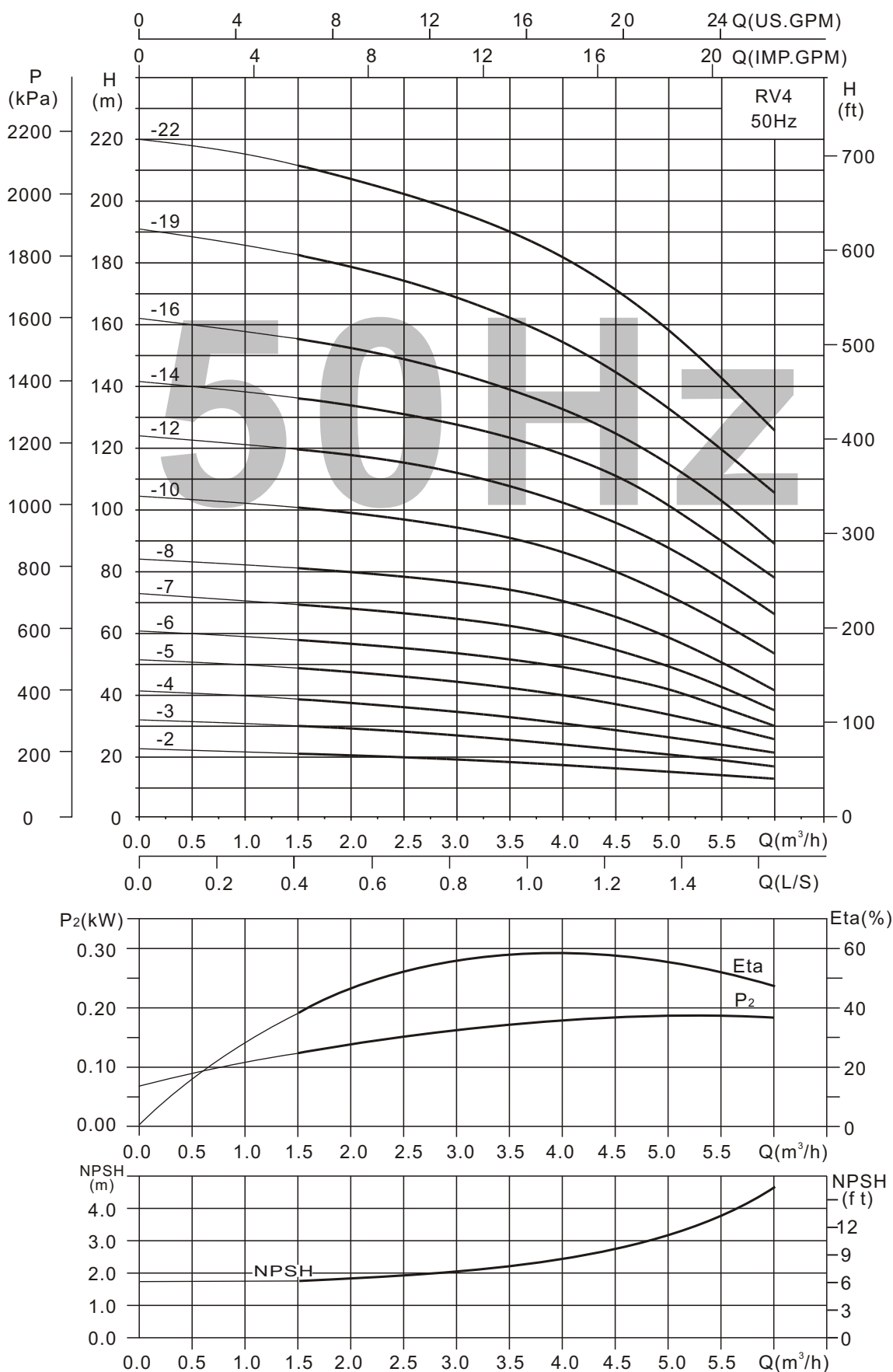
1 metre head = $1 * 9.81 = 9.81 \text{ kpa}$.

Fig.13 Mimimum inlet pressure-NPSH



Performance Curve

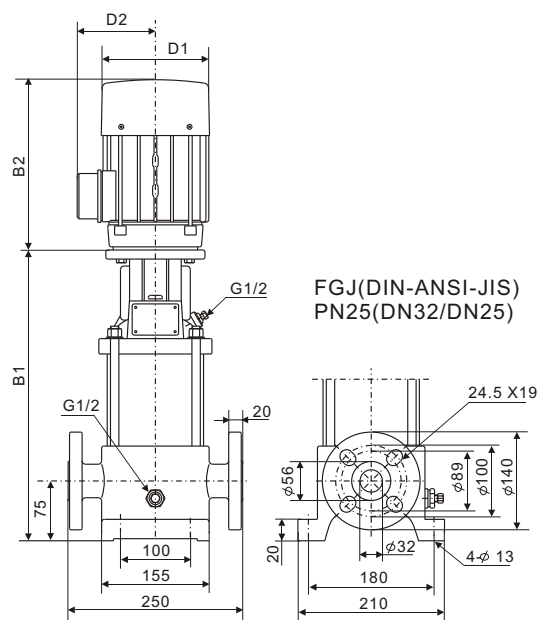
RV4-50Hz



Performance table

Model	Power P ₂ (kW)	Q (m ³ /h)	1.0	2.0	3.0	4.0	4.5	5.0	5.5	6.0
RV4-2	0.37	H (m)	22	21	19.5	18	17	16	14	13
RV4-3	0.55		31	29.5	28	24	22	21	19	18
RV4-4	0.75		40	38	35	31	29	27	24	22
RV4-5	1.1		50	48	44	40	38	34	30	26
RV4-6	1.1		59	57	53	49	45	41	36	30
RV4-7	1.5		71	69	65	59	55	50	43	36
RV4-8	1.5		83	80	78	71	65	59	51	42
RV4-10	2.2		103	100	95	87	80	79	73	54
RV4-12	2.2		122	119	113	103	96	88	78	68
RV4-14	3.0		139	134	128	118	111	102	90	79
RV4-16	3.0		158	153	145	134	126	116	103	89
RV4-19	4.0		186	180	170	155	145	133	117	98
RV4-22	4.0		216	208	197	182	172	159	143	126

Installation sketch



Dimensions and weights

Model	Dimensions(mm)					Weight (kg)
	B1	B2	B1+B2	D1	D2	
RV4-2	262	205	467	133	102	25
RV4-3	280	205	485	133	102	25
RV4-4	299	205	504	133	102	26
RV4-5	322	241	563	154	111	26
RV4-6	340	241	581	154	111	28
RV4-7	358	241/293	599/651	154	111	33
RV4-8	376	241/293	617/669	154	111	33
RV4-10	420	275/293	695/713	177	116	35
RV4-12	456	275/293	731/749	177	116	35
RV4-14	492	275/293	767/785	177	116	38
RV4-16	528	275/293	803/821	197	116	38
RV4-19	602	305	907	197	148	48
RV4-22	656	305	961	197	148	53