

VRL, VRLI, VRLN VERTICAL MULTISTAGE CENTRIFUGAL PUMPS



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ROLU PUMPS

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60 HZ BOOKLET



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PRODUCT DATA

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS

INTRODUCTION



FEATURES AND BENEFITS

- 1. High efficiency
- 2. Reliability
- 3. Service friendly
- 4. Space – saving
- 5. Suitable for slightly aggressive liquids

APPLICATIONS

- 1. Washing system
- 2. Cooling and air conditioning system
- 3. Water treatment system
- 4. Fire fighting system
- 5. Industrial plants
- 6. Boiler feeding systems

TECHNICAL DATA

Flow ‘Ø’	Max 180m³/h
Head “H”	Max 230m
Liquid Temperature	-40 °C to +180 °C

ROLU VRL ,VRLI,VRLN pump is a non – self priming, vertical multistage centrifugal pump.

The in – line design enables the pump to be installed in a horizontal one – pipe system where the suction and discharge ports are in the same horizontal plane and have the same pipe dimensions. This design provides a more compact pump design and pipe work.

ROLU VRL ,VRLI,VRLN pumps come with various pump sizes and various numbers of stages to provide the flow and the pressure required.

ROLU VRL ,VRLI,VRLN pumps are suitable for a variety of applications from pumping of potable water to pumping of chemicals. The pumps are therefore used in a wide diversity of pumping systems where the performance and material of the pump meet specific demands.

The pump unit consists of optimized hydraulics, various types of connections, an outer sleeve, a top and various other parts. **ROLU VRL ,VRLI,VRLN** pumps are available in various material versions according to the pumped liquid.

PRODUCT DATA

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS

APPLICATIONS	VRL, VRLI	VRLN
WATER SUPPLY		
Filtration & transfer at waterworks	◆	◇
Distribution from waterwork	◆	◇
Pressure boosting in mains	◆	◇
Pressure boosting in high-rise building, hotels, hospitals etc.	◆	◇
Pressure boosting for industrial water supply	◆	◇
INDUSTRY		
<u>Pressure Boosting In-</u>		
Process water system	◆	◆
Washing & cleaning system	◆	◆
Vehicle washing tunnel	◆	◇
Fire fighting tunnel	◆	
<u>Liquid Transfer In-</u>		
Cooling & air-conditioning	◆	◇
Boiler feed & condensate system	◆	◇
Machine tool	◆	◆
Aqua farming	◆	◇
<u>Transfer Of-</u>		
Oils & alcohols	◆	◆
Acids & alkalis		◆
Glycol & coolents	◆	
WATER TREATMENT		
Ultra-filtration system		◆
Reverse osmosis system		◆
Softening ionising		◆
Distillation system		◆
Separators	◆	◆
Swimming baths		◆
IRRIGATION		
Field irrigation	◆	◇
Sprinkler irrigation	◆	◇
Drip-feed irrigation	◆	◇

◆ Recommended version ◇ Alternative version

PRODUCT RANGE

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS

PRODUCT RANGE

Range	VRL, VRLI, VRLN 1s	VRL, VRLI, VRLN 1	VRL, VRLI, VRLN 3	VRL, VRLI, VRLN 5	VRL, VRLI, VRLN 10	VRL, VRLI, VRLN 15	VRL, VRLI, VRLN 20	VRL, VRLN 32	VRL, VRLN 45	VRL, VRLN 64	VRL, VRLN 90	VRL, VRLN 120	VRL, VRLN 150
Nominal flow rate (m³/h)	1	1.2	3.6	6	12	18	24	38	54	77	108	140	180
Temperature range (°C)	-30 to +120 °C												
Temperature range (°C) - on request	-40 to +180 °C											-	-
Max pump efficiency (%)	35	49	59	67	70	72	72	76	78	79	80	74	70
Flow rate (m³/h)	0.4 - 1.3	0.8 - 2.9	1.4 - 5.4	3 - 10.2	6 - 16	10 - 29	13 - 35	18 - 48	26 - 70	36 - 102	54 - 146	60 - 160	75 - 180
Motor power (kW)	0.37-1.1	0.37-3	0.37-4	0.55-5.5	0.75-11	1.5-18.5	2.2-18.5	2.2-30	5.5-45	7.5-45	11-45	11-75	11-75
Max pressure (bar)	23	24	24	24	25	24	21	27	26	18	16	19	16
High pressure (bar) - On request	-	48	42	48	47	47	47	40	40	36	33	37	31
Flange	DN 25/32	DN 25/32	DN 25/32	DN 25/32	DN 40	DN 50	DN 50	DN 65	DN 80	DN 100	DN 100	DN 125	DN 125

PERFORMANCE RANGE OF VRL , VRLI , VRLN

TYPE OF KEYS & CONSTRUCTION

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS



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TYPE KEYS VRL , VRLI , VRLN

Example

VRLN- 45 - (S) - 2 - 2

Type range (VRL, VRLI, VRLN)

Flow rate (m³/hr)

All impellers with reduced Diameter only (VRL, VRLI, VRLN 1s)

Number of impellers

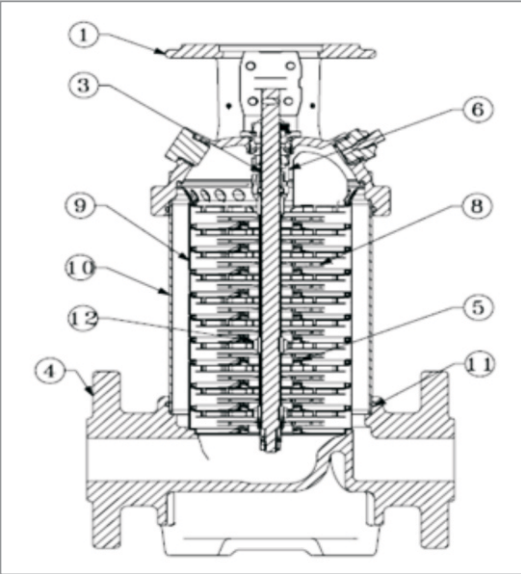
Number of reduced diameter

Impellers (VRL, VRLN 32, 45, 64, 90, 120 & 150)

TYPE OF KEYS & CONSTRUCTION

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS

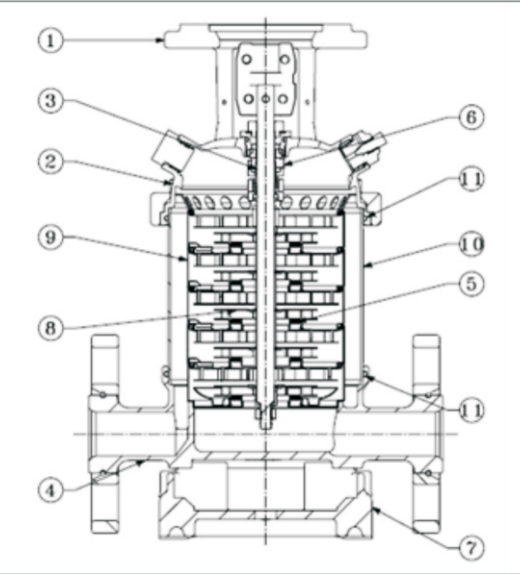
Sectional drawing VRL
1s, 3, 5, 10, 15 & 20



Materials VRL

Pos	Designation	Material
1	Pump head	Cast iron
3	Pump shaft	Duplex
4	Pump base	Cast iron
5	Neck ring	PTFE
6	Mech. Seal	
8	Impeller	SS 304
9	Chamber	SS 304
10	Outer sleeve	SS 304
11	O-ring	EPDM/FKM
12	Chamber bush	PTFE

Sectional drawing VRLI, VRLN
1s, 3, 5, 10, 15 & 20



Materials VRL I, VRL N

Pos	Designation	Material VRLI	Material VRLN
1	Pump head	Cast iron	
2	Pump head cover	SS 304	SS 316
3	Pump shaft	Duplex	Duplex
4	Pump base	Cast iron	SS 316
5	Neck ring	PTFE	
6	Mech. Seal	Cartridge type	
7	Base plate	Cast iron	
8	Impeller	SS 304	AISI 316
9	Chamber	SS 304	AISI 316
10	Outer sleeve	SS 304	AISI 316
11	O-ring	EPDM/FKM	

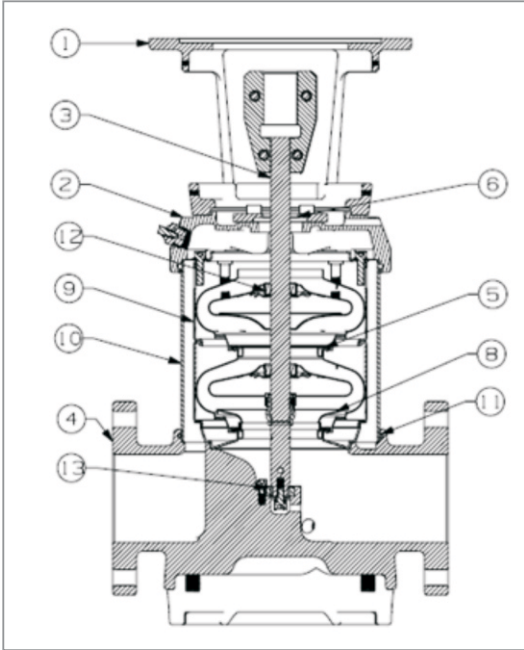
TYPE OF KEYS & CONSTRUCTION

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS



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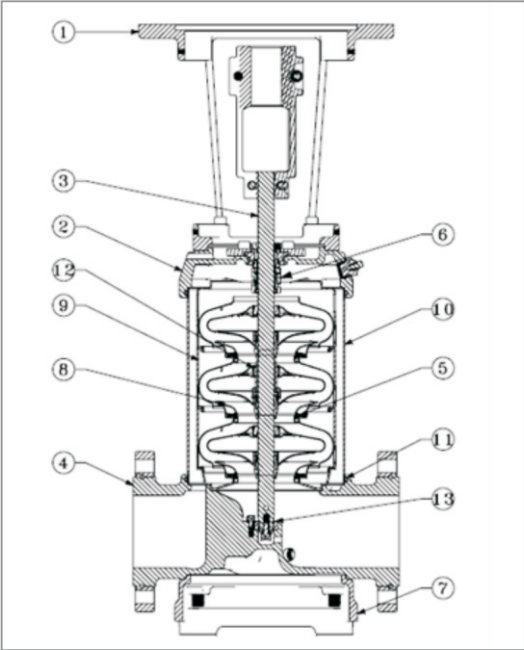
Sectional drawing VRL
32, 45, 64 & 90



Materials VRL

Pos	Designation	Material
1	Pump head	Cast iron
2	Pump head cover	SS 304
3	Pump shaft	Duplex
4	Pump base	Cast Iron
5	Neck ring	PTFE
6	Mech. Seal	
8	Impeller	SS 304
9	Chamber	SS 304
10	Outer sleeve	SS 304
11	O-ring	EPDM/FKM
12	Chamber bush	Bronze
13	Pump base bush	Tungsten

Sectional drawing VRLN
32, 45, 64 & 90

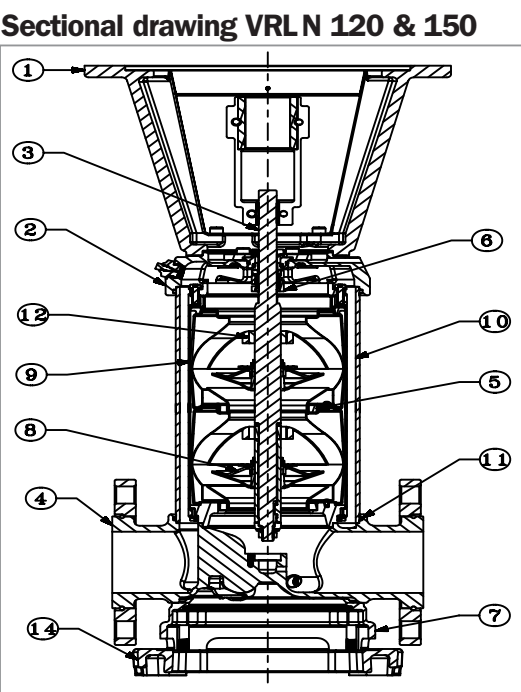


Materials VRL N

Pos	Designation	Material
1	Pump head	Cast iron
2	Pump head cover	SS 316
3	Pump shaft	Duplex
4	Pump base	SS 316
5	Neck ring	PTFE
6	Mech. Seal	
7	Base plate	Cast iron
8	Impeller	SS 316
9	Chamber	SS 316
10	Outer sleeve	SS 316
11	O-ring	EPDM/FKM
12	Chamber bush	Bronze
13	Pump base bush	Tungsten

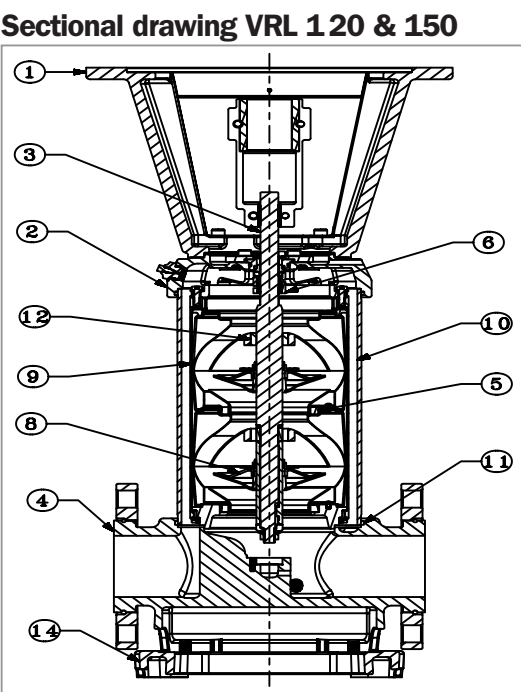
TYPE OF KEYS & CONSTRUCTION

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS



Materials VRL N 120 & 150

Pos	Designation	Material
1	Pump head	Cast iron
2	Pump head cover	SS 316
3	Pump shaft	Duplex
4	Pump base	SS 316
5	Neck ring	PTFE
6	Mech. Seal	
7	Base Plate	Cast iron
8	Impeller	SS 316
9	Chamber	SS 316
10	Outer sleeve	SS 316
11	O-ring	EPDM/FKM
12	Chamber bush	Bronze
13	Pump base bush	Tungsten
14	Pump base plate	Cast iron



Materials VRL 120 & 150

Pos	Designation	Material
1	Pump head	Cast iron
2	Pump head cover	SS 304
3	Pump shaft	Duplex
4	Pump base	Cast iron
5	Neck ring	PTFE
6	Mech. Seal	
7	Impeller	SS 304
8	Chamber	SS 304
9	Outer sleeve	SS 304
10	O-ring	EPDM/FKM
11	Chamber bush	Bronze
12	Pump base bush	Tungsten
13	Pump base plate	Cast iron

OPERATING AND INLET PRESSURES

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS



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Maximum Inlet Pressure

The following table shows the maximum permissible inlet pressure. However, the current inlet pressure + the pressure against a closed valve must always be lower than the maximum permissible operating pressure.

If the maximum permissible operating pressure is exceeded, the conical bearing in the motor may be damaged and the life of the shaft seal reduced.

Maximum inlet Pressure

VRL, VRLI, VRLN 1S		
1S-2	1S-27	10 (bar)
VRL, VRLI, VRLN 1		
1-2	1-25	10 (bar)
1-27		15 (bar)
VRL, VRLI, VRLN 3		
3-2	3-15	10 (bar)
3-17	3-25	15 (bar)
VRL, VRLI, VRLN 5		
5-2	5-9	10 (bar)
5-10	5-24	15 (bar)
VRL, VRLI, VRLN 1 0		
10-1	10-5	8 (bar)
10-6	10-17	10 (bar)
VRL, VRLI, VRLN 1 5		
15-1	15-2	8 (bar)
15-3	15-12	10 (bar)
VRL, VRLI, VRLN 20		
20-1		8 (bar)
20-2	20-10	10 (bar)
VRL, VRLN 32		
32-1-1	32-2	4 (bar)
32-3-2	32-6	10 (bar)
31-7-2	32-10-2	15 (bar)
VRL, VRLN 45		
45-1-1	45-1	4 (bar)
45-2-2	45-3	10 (bar)
45-4-2	45-7	15 (bar)
VRL, VRLN 64		
64-1-1		4 (bar)
64-1	64-2-1	10 (bar)
64-2	64-5-2	15 (bar)
VRL, VRLN 90		
90-1-1	90-2-2	10 (bar)
90-2-1	90-4-2	15 (bar)
VRL, VRLN 120		
120-1		10 (bar)
120-2-2	120-3	15 (bar)
120-4-1	120-5-23	20 (bar)
VRL, VRLN 1 50		
150-1-1		10 (bar)
150-1	150-2	15 (bar)
150-3-2	150-4-2	20 (bar)

Electric - Motor

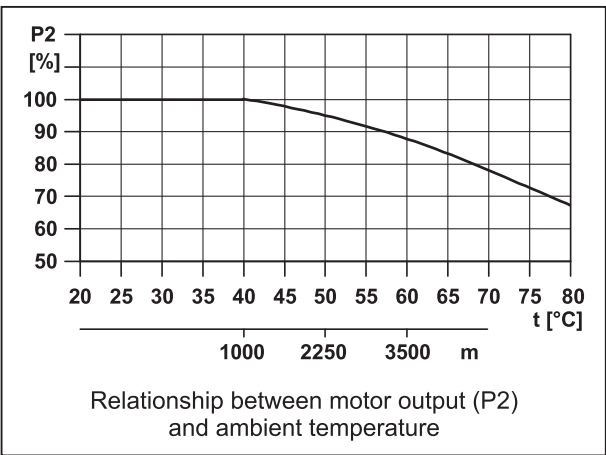
Totally enclosed (TEFC) two-pole NEMA motor - 3600 RPM

Mounting designation	C-face (NEMA "TC" flange) - all ratings	
Frame size 60 Hz, 2 pole	Up to 5 HP : 184TC	10 HP : 215TC
	7.5 HP : 213TC	15 HP and above : NEMA standard T-frame
Insulation class	F	
Enclosure class	IP 55 / TEFC	
Standard voltages 60 Hz	1 x 200-240 V	3 x 380-440 V Star/Delta

Ambient Temperature

Ambient temperature: maximum +40C.

If the ambient temperature exceeds + 40C or if the motor is located 1000 meters above sea level, the motor output (P2) must be reduced due low cooling effect of the air. In such cases, it may be necessary to use a motor with a higher output.



CONVERSION

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS

CONVERSION TABLE

Volume		Conversion of centigrade to Fahrenheit degree.	
1 Imperial Gallon (UK)	-	4.546 Litres	$F = (9C/5) + 32$
1 U.S. Gallon	-	3.785 Litres	
Discharge Rate		Conversion of Fahrenheit to centigrade degree.	
1 Imperial Gallon/Minute	-	4.546 LPM	$C = F - 32(5/9)$
1 U.S. Gallon/Minute	-	3.785 LPM	
1m3/hr	-	1000 LPH	
1cu feet	-	28.32 Litres	Speed (N)
1m3/hr	-	16.67 LPM	$120 \times \text{frequency (f)}$
1Litre/Second	-	60 LPM	RPM Ns =
Pressure		No. of pole pairs (p)	
1 Atmospheric Pressure	-	1.033 kg/cm ²	Where,
	-	14.7 lb/in ² (PSI)	RPM- Revolution per Minute
	-	1.03 kg/cm ²	P - No. of pole pairs
	-	33.9 feet of wc	F - Frequency (Hz)
1kg/cm2	-	10 mwc	
	-	14.22 PSI	
	-	1 bar	
Power			
1HP (SI)	-	0.746 kW	
	-	746 W	
1HP (Metric)	-	0.736 kW	
	-	736 W	
1 kW	-	1000 W	
1 Unit	-	1 kW or 1000 W	
1va	-	1 W	
Length			
1 inch	-	25.4 mm	
	-	2.54 cm	
1 meter	-	39.36 inch	
	-	3.281 feet	
	-	1000 mm	
1 foot	-	304.8 mm	
	-	12 inch	
1 Acre	-	0.404 Hectare	
1 Hectare	-	2.47 Acre	

SELECTION AND SIZING

VERTICAL MULTISTAGE CENTRIFUGAL PUMPS



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SELECTION OF PUMP

Minimum inlet pressure – NPSH

Calculation of the inlet pressure “H” is recommended when...

- 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 cavitations, make sure that there is a minimum pressure on the suction side of pump. The maximum suction lift “H” in meters head can be calculated as follows:

$H = pb \times 10.2 - NPSH - H_f - H_v - H_s$

Pb=Barometric pressure in bar.
(Barometric pressure can be sent to 1 bar).
In closed systems, pb indicates the system pressure in bar.

NPSH= Net Positive Suction Head in meters head.
(To be read from the NPSH curve at the highest flow the pump will be delivering.)

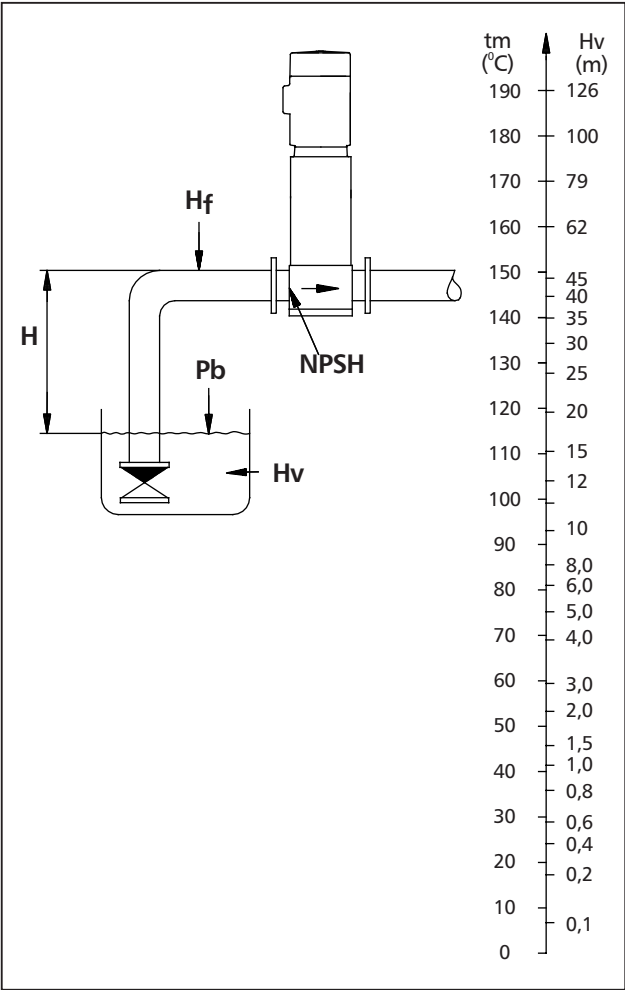
H_f=Friction loss in suction pipe in meters head.
(At the highest flow the pump will be delivering.)

H_v=Vapor pressure in meters head.
(To be read from the vapor pressure scale.
“H_v” depends on the liquid temperature “T_m”).

H_s=Safety margin = minimum 0.5 meters head.

If the “H” calculated is positive, the pump can operate at a suction lift of maximum “H” meters head.

If the “H” calculated is negative, an inlet pressure of minimum “H” meters head is required.



Note: In order to avoid cavitation never, select a pump whose duty point lies too far to the right on the NPSH curve. Always check the NPSH value of the pump at the highest possible flow.

PERFORMANCE CURVES

VRL 1s

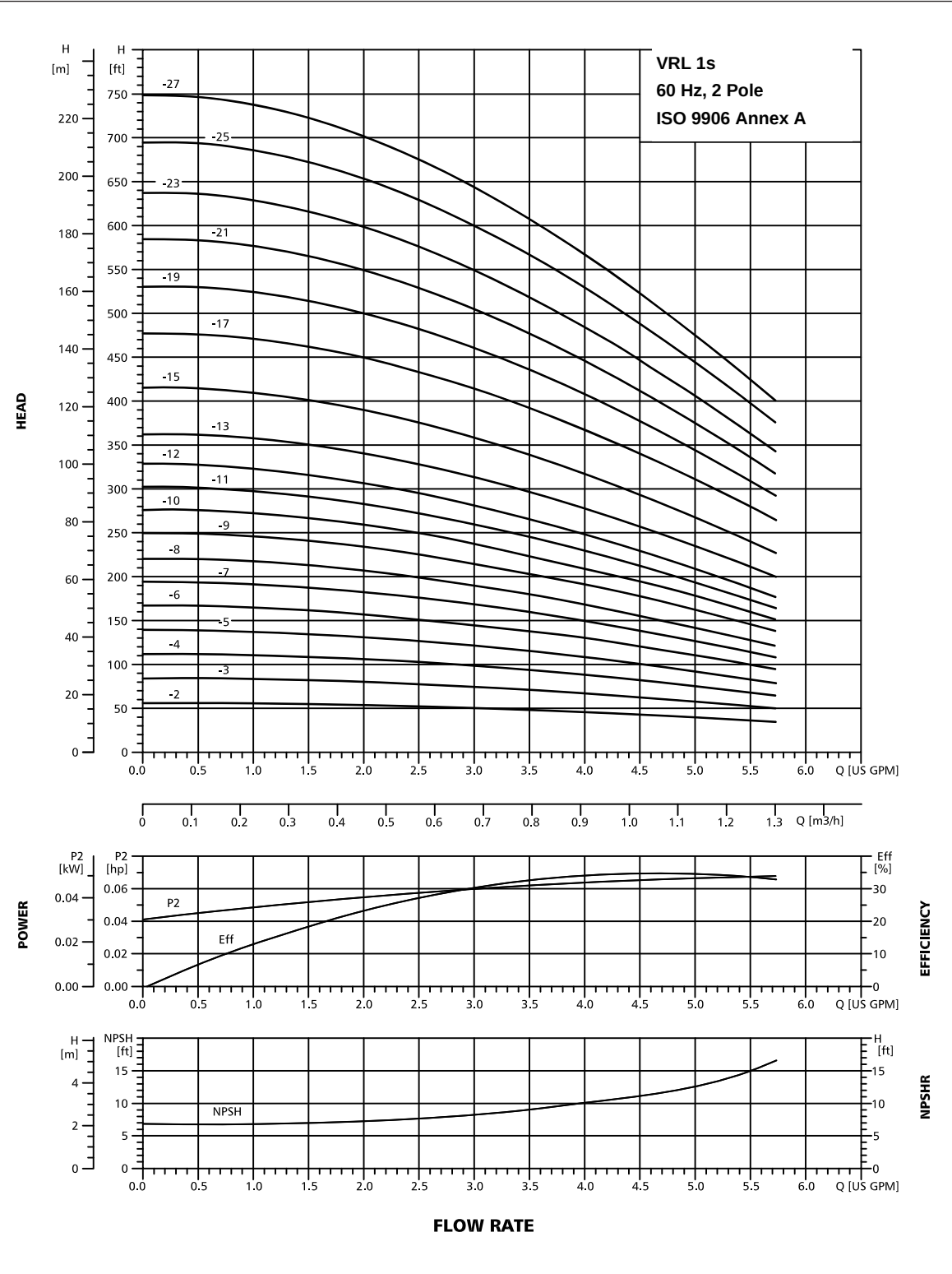
TECHNICAL DATA

VRL 1s

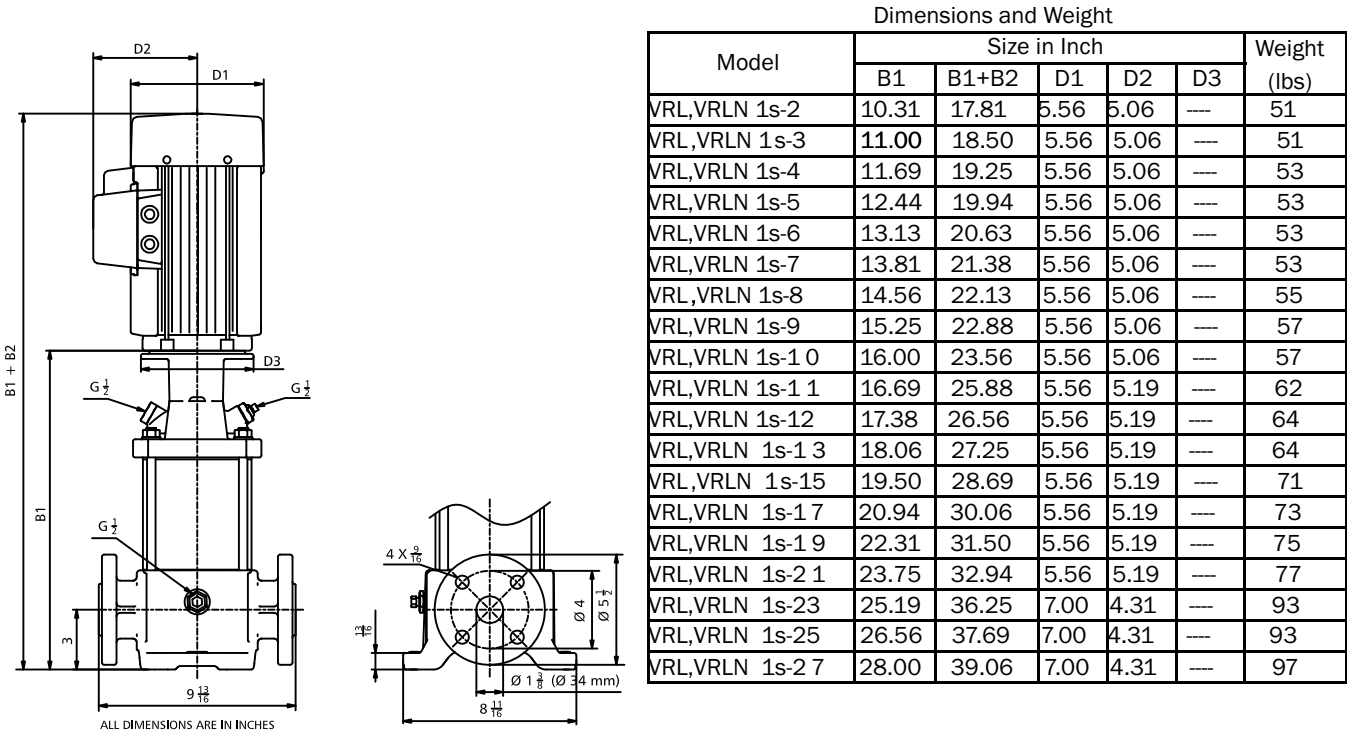


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	0.1	0.3	0.5	0.7	0.9	1.1	1.3
				US GPM	0	0.4	1.3	2.2	3.1	4.0	4.8	5.7
VRL,VRLN 1s-2	0.37	0.5	1.50-1.44/0.87-0.83	Head (Mtr.)	17	17	17	16	15	14	13	10
VRL,VRLN 1s-3	0.37	0.5	1.50-1.44/0.87-0.84		26	26	25	24	23	21	17	15
VRL,VRLN1s-4	0.37	0.5	1.50-1.44/0.87-0.85		34	34	33	32	30	27	24	20
VRL,VRLN1s-5	0.37	0.5	1.50-1.44/0.87-0.86		42	42	41	39	37	33	28	24
VRL,VRLN 1s-6	0.37	0.5	1.50-1.44/0.87-0.87		51	51	49	47	44	40	35	28
VRL,VRLN1s-7	0.37	0.5	1.50-1.44/0.87-0.88		59	59	57	55	51	46	40	33
VRL,VRLN1s-8	0.55	0.75	2.15-2.05/1.25-1.20		67	67	65	62	57	52	44	36
VRL,VRLN 1s-9	0.55	0.75	2.15-2.05/1.25-1.21		76	76	74	70	65	58	51	42
VRL,VRLN 1s-1 0	0.55	0.75	2.15-2.05/1.25-1.22		84	84	82	77	71	64	76	45
VRL,VRLN 1s-1 1	0.75	1	2.95-2.75/1.70-1.60		92	92	90	85	78	70	60	50
VRL,VRLN 1s-12	0.75	1	2.95-2.75/1.70-1.61		100	100	97	92	85	76	66	54
VRL,VRLN 1s-1 3	0.75	1	2.95-2.75/1.70-1.62		110	110	108	102	95	85	74	61
VRL,VRLN 1s-1 5	1.1	1.5	4.15-4.00/2.40-2.30		126	126	123	117	108	97	84	70
VRL,VRLN 1s-1 7	1.1	1.5	4.15-4.00/2.40-2.31		145	145	142	135	125	113	97	80
VRL,VRLN 1s-1 9	1.1	1.5	4.15-4.00/2.40-2.32		161	161	157	150	139	125	108	89
VRL,VRLN 1s-2 1	1.1	1.5	4.15-4.00/2.40-2.33		178	178	174	165	152	137	117	96
VRL,VRLN 1s-23	1.5	2	5.35-4.70/3.10-2.70		194	194	189	180	166	148	127	105
VRL,VRLN 1s-25	1.5	2	5.35-4.70/3.10-2.71		212	212	206	196	181	162	140	114
VRL,VRLN 1s-2 7	1.5	2	5.35-4.70/3.10-2.72		227	227	22	211	194	174	149	122

- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRLI, VRLN 1s

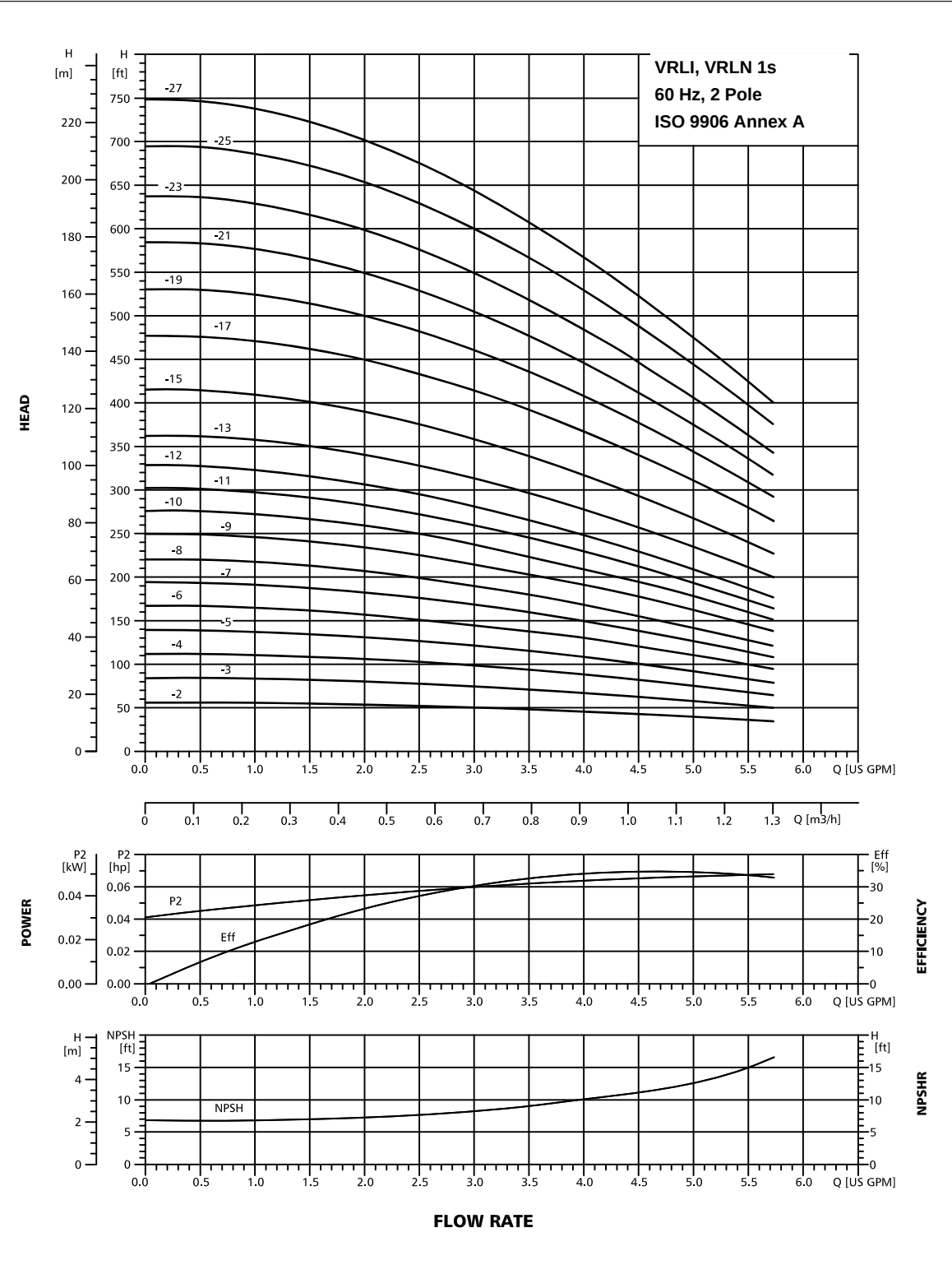
TECHNICAL DATA

VRLI, VRLN 1s

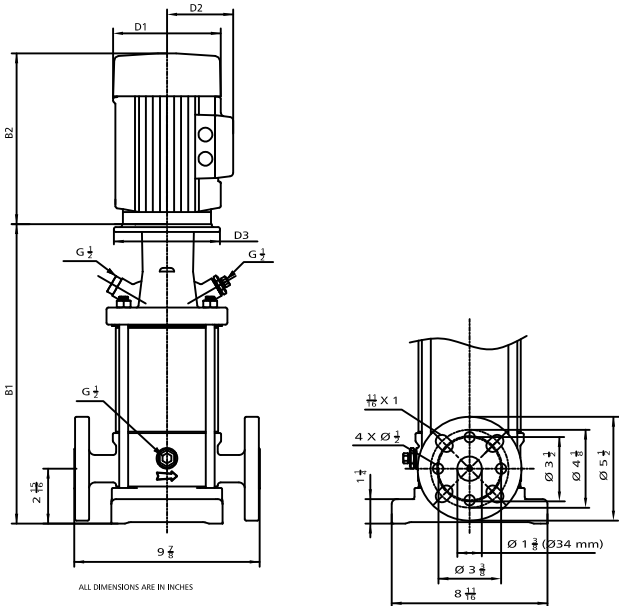


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (lbs)
	B1	B1+B2	D1	D2	D3	
VRLI, VRLN 1S-2	11.13	17.88	5.56	5.06	–	44
VRLI, VRLN 1S-3	11.13	18.63	5.56	5.06	–	46
VRLI, VRLN 1S-4	11.81	19.31	5.56	5.06	–	46
VRLI, VRLN 1S-5	12.56	20.00	5.56	5.06	–	46
VRLI, VRLN 1S-6	12.44	20.75	5.56	5.06	–	49
VRLI, VRLN 1S-7	13.94	21.50	5.56	5.06	–	49
VRLI, VRLN 1S-8	14.69	22.13	5.56	5.06	–	51
VRLI, VRLN 1S-9	15.38	22.88	5.56	5.06	–	53
VRLI, VRLN 1S-10	16.06	23.56	5.56	5.06	–	53
VRLI, VRLN 1S-11	16.81	25.88	5.56	5.19	–	60
VRLI, VRLN 1S-12	17.50	26.56	5.56	5.19	–	60
VRLI, VRLN 1S-13	18.19	27.25	5.56	5.19	–	60
VRLI, VRLN 1S-15	19.63	28.69	5.56	5.19	–	66
VRLI, VRLN 1S-17	21.00	30.06	5.56	5.19	–	68
VRLI, VRLN 1S-19	22.50	31.50	5.56	5.19	–	71
VRLI, VRLN 1S-21	24.06	32.94	5.56	5.19	–	73
VRLI, VRLN 1S-23	25.56	36.25	7.00	4.31	–	88
VRLI, VRLN 1S-25	26.94	37.69	7.00	4.31	–	90
VRLI, VRLN 1S-27	28.38	39.06	7.00	4.31	–	93

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h US GPM	0	0.1	0.3	0.5	0.7	0.9	1.1	1.3
					0	0.4	1.3	2.2	3.1	4.0	4.8	5.7
VRLI, VRLN 1S-2	0.37	0.5	1.50-1.44/0.87-0.83	Head (Mtr.)	17	17	17	16	15	14	13	10
VRLI, VRLN 1S-3	0.37	0.5	1.50-1.44/0.87-0.84		26	26	25	24	23	21	17	15
VRLI, VRLN 1S-4	0.37	0.5	1.50-1.44/0.87-0.85		34	34	33	32	30	27	24	20
VRLI, VRLN 1S-5	0.37	0.5	1.50-1.44/0.87-0.86		42	42	41	39	37	33	28	24
VRLI, VRLN 1S-6	0.37	0.5	1.50-1.44/0.87-0.87		51	51	49	47	44	40	35	28
VRLI, VRLN 1S-7	0.37	0.5	1.50-1.44/0.87-0.88		59	59	57	55	51	46	40	33
VRLI, VRLN 1S-8	0.55	0.75	2.15-2.05/1.25-1.20		67	67	65	62	57	52	44	36
VRLI, VRLN 1S-9	0.55	0.75	2.15-2.05/1.25-1.21		76	76	74	70	65	58	51	42
VRLI, VRLN 1S-10	0.55	0.75	2.15-2.05/1.25-1.22		84	84	82	77	71	64	76	45
VRLI, VRLN 1S-11	0.75	1	2.95-2.75/1.70-1.60		92	92	90	85	78	70	60	50
VRLI, VRLN 1S-12	0.75	1	2.95-2.75/1.70-1.61		100	100	97	92	85	76	66	54
VRLI, VRLN 1S-13	0.75	1	2.95-2.75/1.70-1.62		110	110	108	102	95	85	74	61
VRLI, VRLN 1S-15	1.1	1.5	4.15-4.00/2.40-2.30		126	126	123	117	108	97	84	70
VRLI, VRLN 1S-17	1.1	1.5	4.15-4.00/2.40-2.31		145	145	142	135	125	113	97	80
VRLI, VRLN 1S-19	1.1	1.5	4.15-4.00/2.40-2.32		161	161	157	150	139	125	108	89
VRLI, VRLN 1S-21	1.1	1.5	4.15-4.00/2.40-2.33		178	178	174	165	152	137	117	96
VRLI, VRLN 1S-23	1.5	2	5.35-4.70/3.10-2.70		194	194	189	180	166	148	127	105
VRLI, VRLN 1S-25	1.5	2	5.35-4.70/3.10-2.71		212	212	206	196	181	162	140	114
VRLI, VRLN 1S-27	1.5	2	5.35-4.70/3.10-2.72		227	227	22	211	194	174	149	122

- VRLI, VRLN standar d voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 1

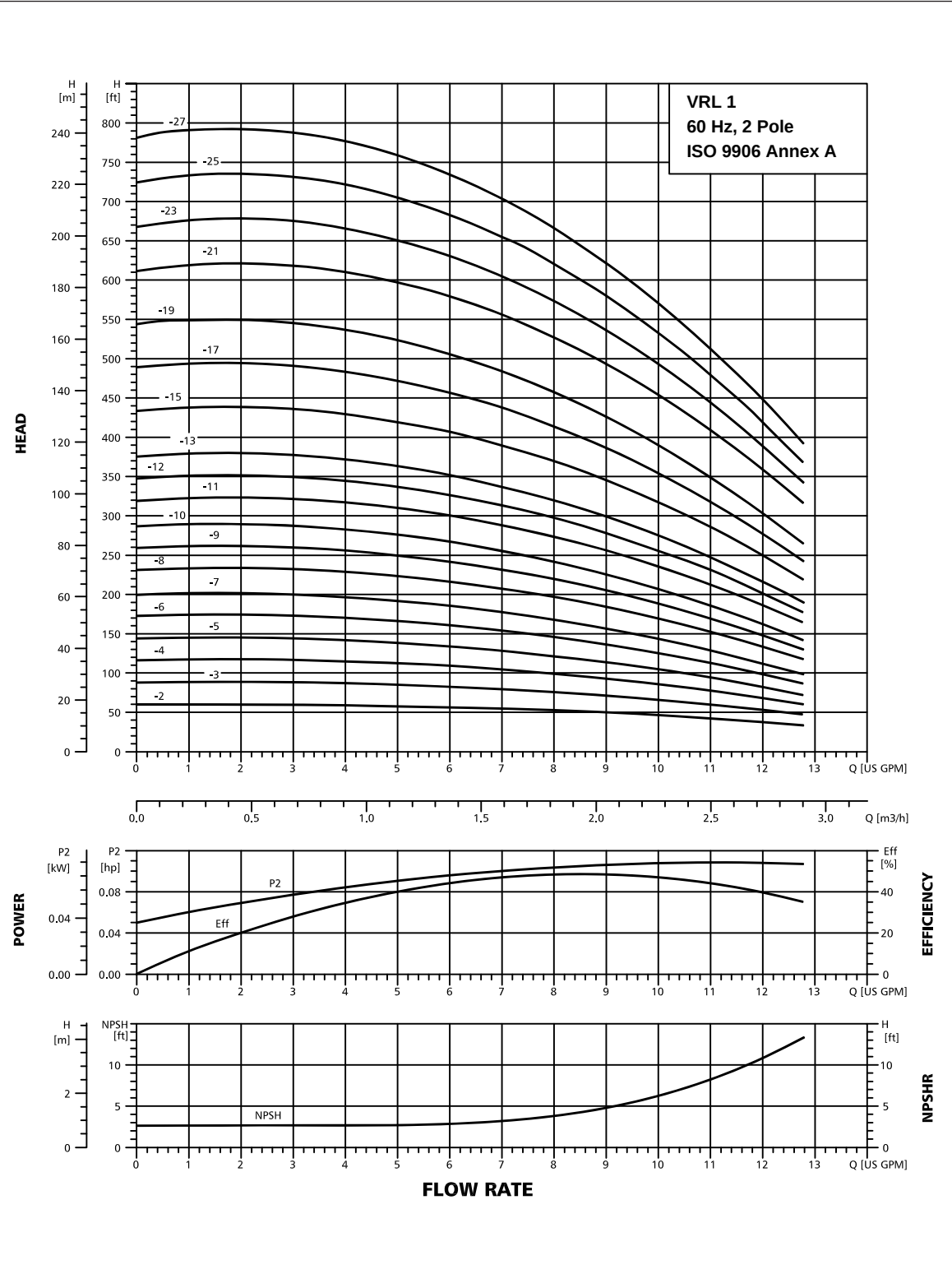
TECHNICAL DATA

VRL 1

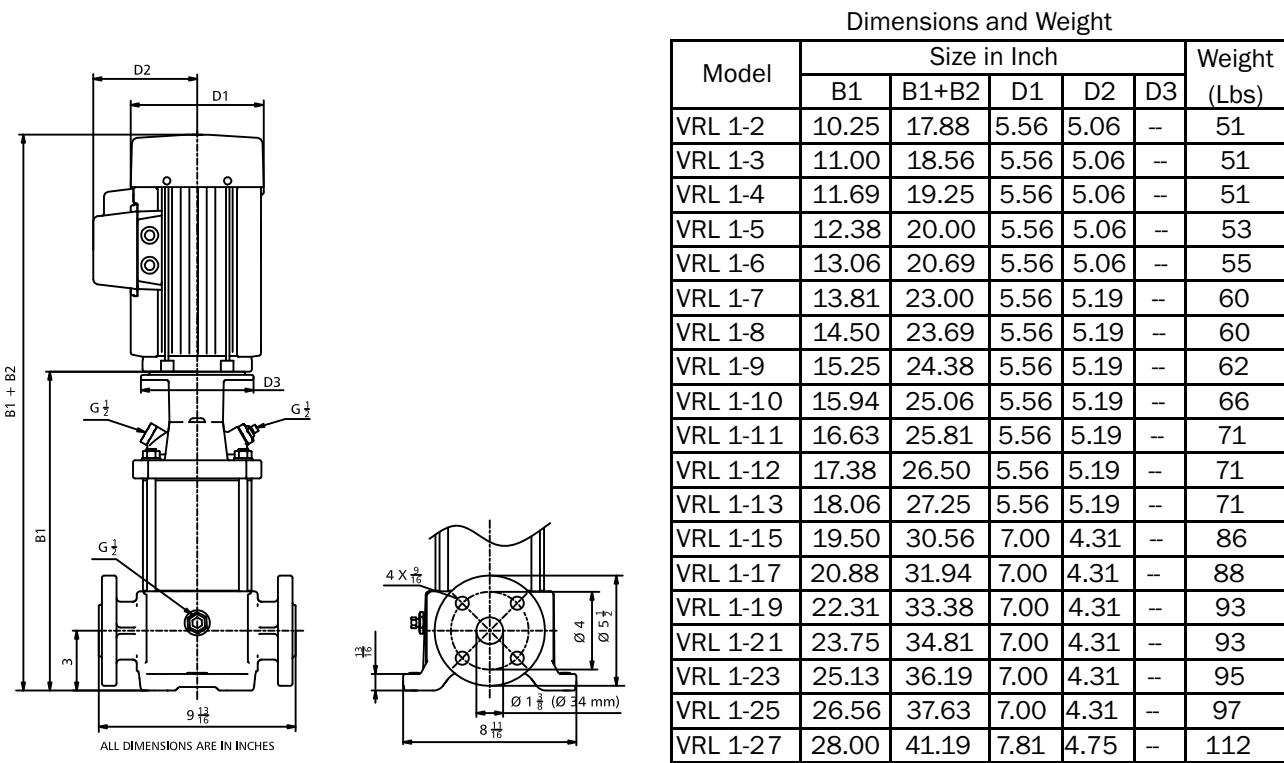


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	0.4	0.8	1.2	1.6	2	2.4	2.8
				US GPM	0	2	4	5	7	9	11	12
VRL 1-2	0.37	0.5	1.50-1.44/0.87-0.83	Head (Mtr.)	18	18	18	17	16	15	13	11
VRL 1-3	0.37	0.5	1.50-1.44/0.87-0.84		27	27	27	26	24	22	18	15
VRL 1-4	0.37	0.5	1.50-1.44/0.87-0.85		35	36	35	34	32	28	25	20
VRL 1-5	0.55	0.75	2.15-2.05/1.25-1.20		43	44	43	41	39	35	30	24
VRL 1-6	0.55	0.75	2.15-2.05/1.25-1.21		52	53	52	50	47	42	36	28
VRL 1-7	0.75	1	2.95-2.75/1.70-1.60		61	62	60	57	54	48	42	32
VRL 1-8	0.75	1	2.95-2.75/1.70-1.61		70	71	70	67	63	57	48	38
VRL 1-9	0.75	1	2.95-2.75/1.70-1.62		79	80	79	75	70	64	54	43
VRL 1-10	1.1	1.5	4.15-4.00/2.40-2.30		87	88	86	84	77	70	60	47
VRL 1-11	1.1	1.5	4.15-4.00/2.40-2.31		107	109	107	94	87	79	67	54
VRL 1-12	1.1	1.5	4.15-4.00/2.40-2.32		101	102	101	102	95	86	74	57
VRL 1-13	1.1	1.5	4.15-4.00/2.40-2.33		114	116	114	110	102	92	79	63
VRL 1-15	1.5	2	5.35-4.70/3.10-2.70		132	134	132	126	118	106	91	72
VRL 1-17	1.5	2	5.35-4.70/3.10-2.71		149	151	148	143	133	119	102	80
VRL 1-19	2.2	3	7.70-6.35/4.45-3.70		165	167	165	158	147	132	112	87
VRL 1-21	2.2	3	7.70-6.35/4.45-3.71		186	189	187	180	169	152	131	104
VRL 1-23	2.2	3	7.70-6.35/4.45-3.72		203	206	205	196	184	165	142	112
VRL 1-25	2.2	3	7.70-6.35/4.45-3.73		220	224	222	213	199	179	154	121
VRL 1-27	3	4	10.80-9.35/6.20-5.40		239	241	239	229	214	192	164	130

- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

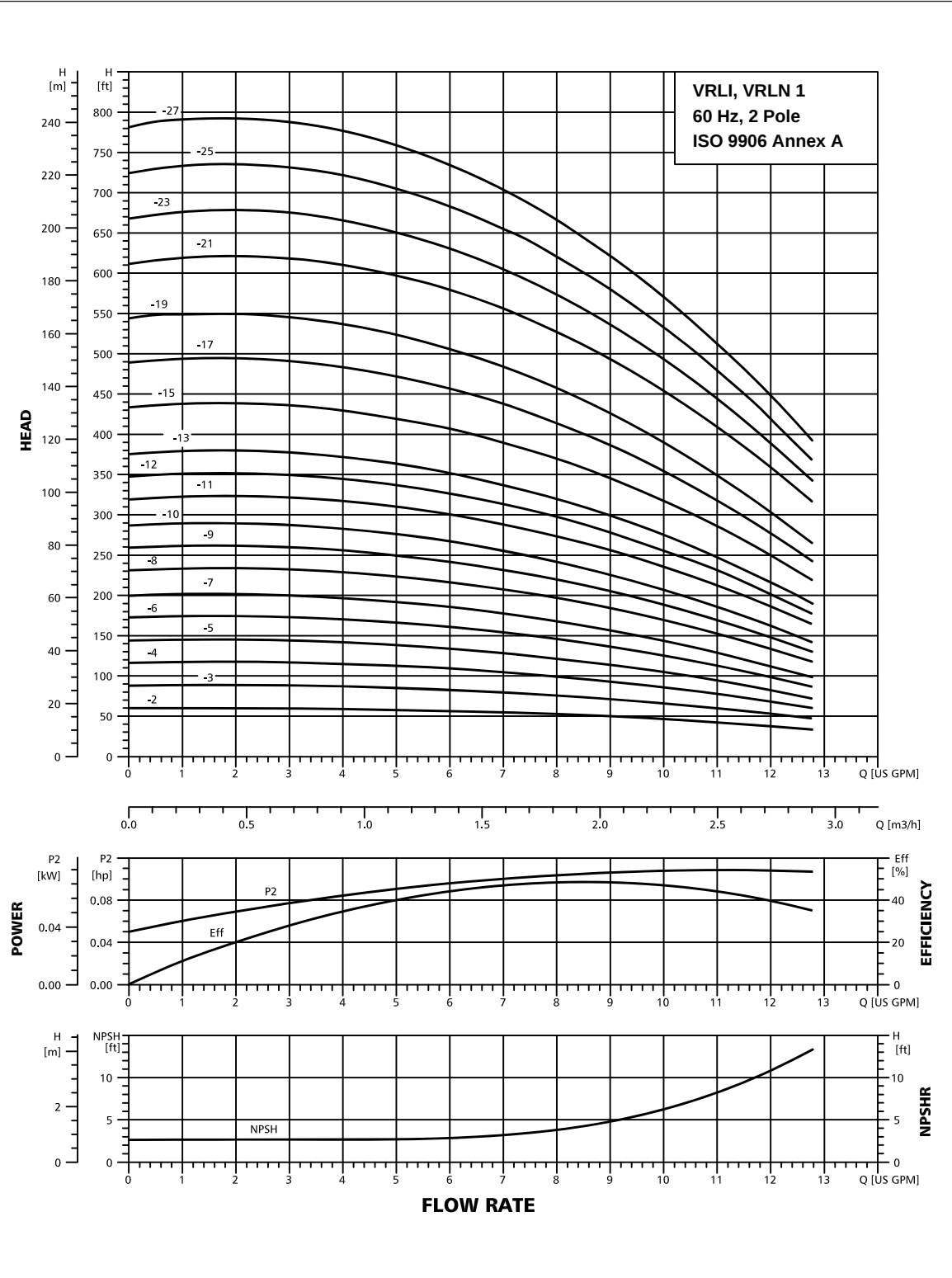
PERFORMANCE CURVES

VRLI, VRLN 1

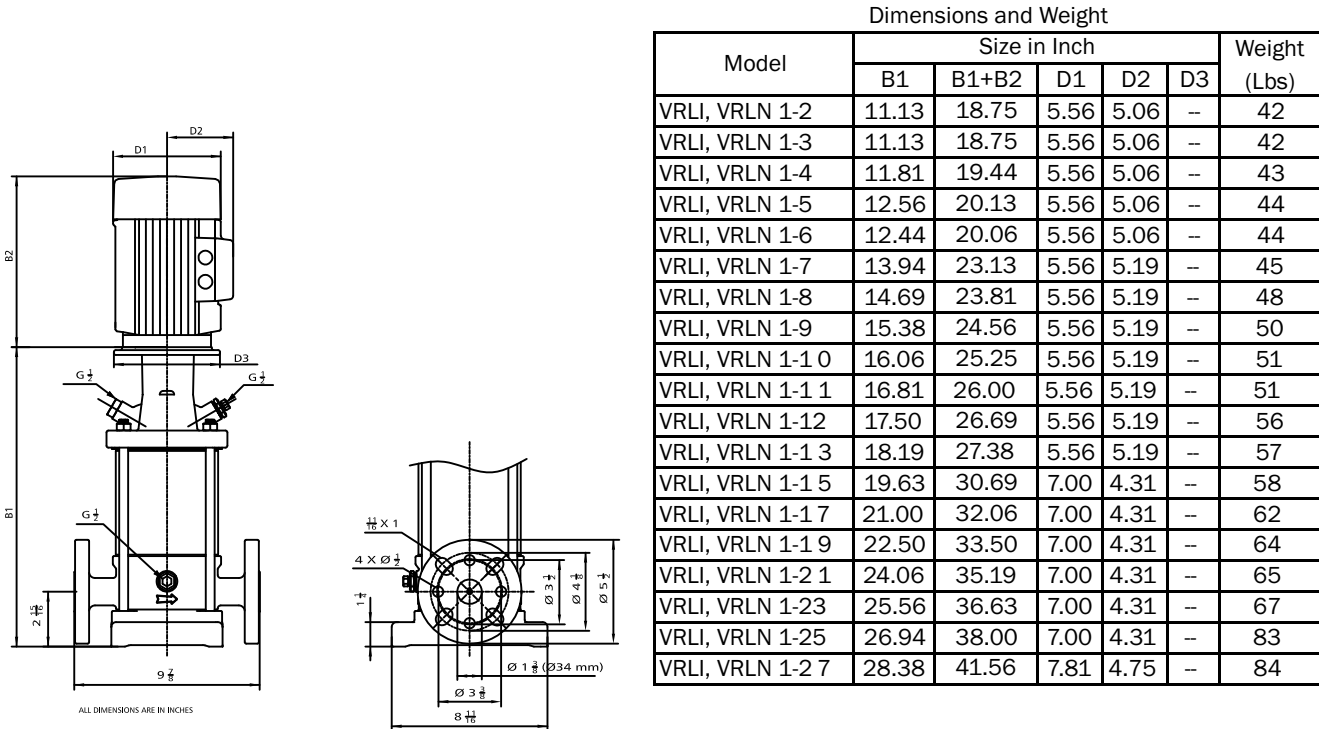
TECHNICAL DATA

VRLI, VRLN 1

PERFORMANCE CURVESPRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h US GPM	0	0.4	0.8	1.2	1.6	2	2.4	2.8
					0	2	4	5	7	9	11	12
VRLI, VRLN 1-2	0.37	0.5	1.50-1.44/0.87-0.83	Head (Mtr.)	18	18	18	17	16	15	13	11
VRLI, VRLN 1-3	0.37	0.5	1.50-1.44/0.87-0.84		27	27	27	26	24	22	18	15
VRLI, VRLN 1-4	0.37	0.5	1.50-1.44/0.87-0.85		35	36	35	34	32	28	25	20
VRLI, VRLN 1-5	0.55	0.75	2.15-2.05/1.25-1.20		43	44	43	41	39	35	30	24
VRLI, VRLN 1-6	0.55	0.75	2.15-2.05/1.25-1.21		52	53	52	50	47	42	36	28
VRLI, VRLN 1-7	0.75	1	2.95-2.75/1.70-1.60		61	62	60	57	54	48	42	32
VRLI, VRLN 1-8	0.75	1	2.95-2.75/1.70-1.61		70	71	70	67	63	57	48	38
VRLI, VRLN 1-9	0.75	1	2.95-2.75/1.70-1.62		79	80	79	75	70	64	54	43
VRLI, VRLN 1-1 0	1.1	1.5	4.15-4.00/2.40-2.30		87	88	86	84	77	70	60	47
VRLI, VRLN 1-1 1	1.1	1.5	4.15-4.00/2.40-2.31		107	109	107	94	87	79	67	54
VRLI, VRLN 1-1 2	1.1	1.5	4.15-4.00/2.40-2.32		101	102	101	102	95	86	74	57
VRLI, VRLN 1-1 3	1.1	1.5	4.15-4.00/2.40-2.33		114	116	114	110	102	92	79	63
VRLI, VRLN 1-1 5	1.5	2	5.35-4.70/3.10-2.70		132	134	132	126	118	106	91	72
VRLI, VRLN 1-1 7	1.5	2	5.35-4.70/3.10-2.71		149	151	148	143	133	119	102	80
VRLI, VRLN 1-1 9	2.2	3	7.70-6.35/4.45-3.70		165	167	165	158	147	132	112	87
VRLI, VRLN 1-2 1	2.2	3	7.70-6.35/4.45-3.71		186	189	187	180	169	152	131	104
VRLI, VRLN 1-2 3	2.2	3	7.70-6.35/4.45-3.72		203	206	205	196	184	165	142	112
VRLI, VRLN 1-2 5	2.2	3	7.70-6.35/4.45-3.73		220	224	222	213	199	179	154	121
VRLI, VRLN 1-2 7	3	4	10.80-9.35/6.20-5.40		239	241	239	229	214	192	164	130

- VRLI, VRLN standar d voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 3

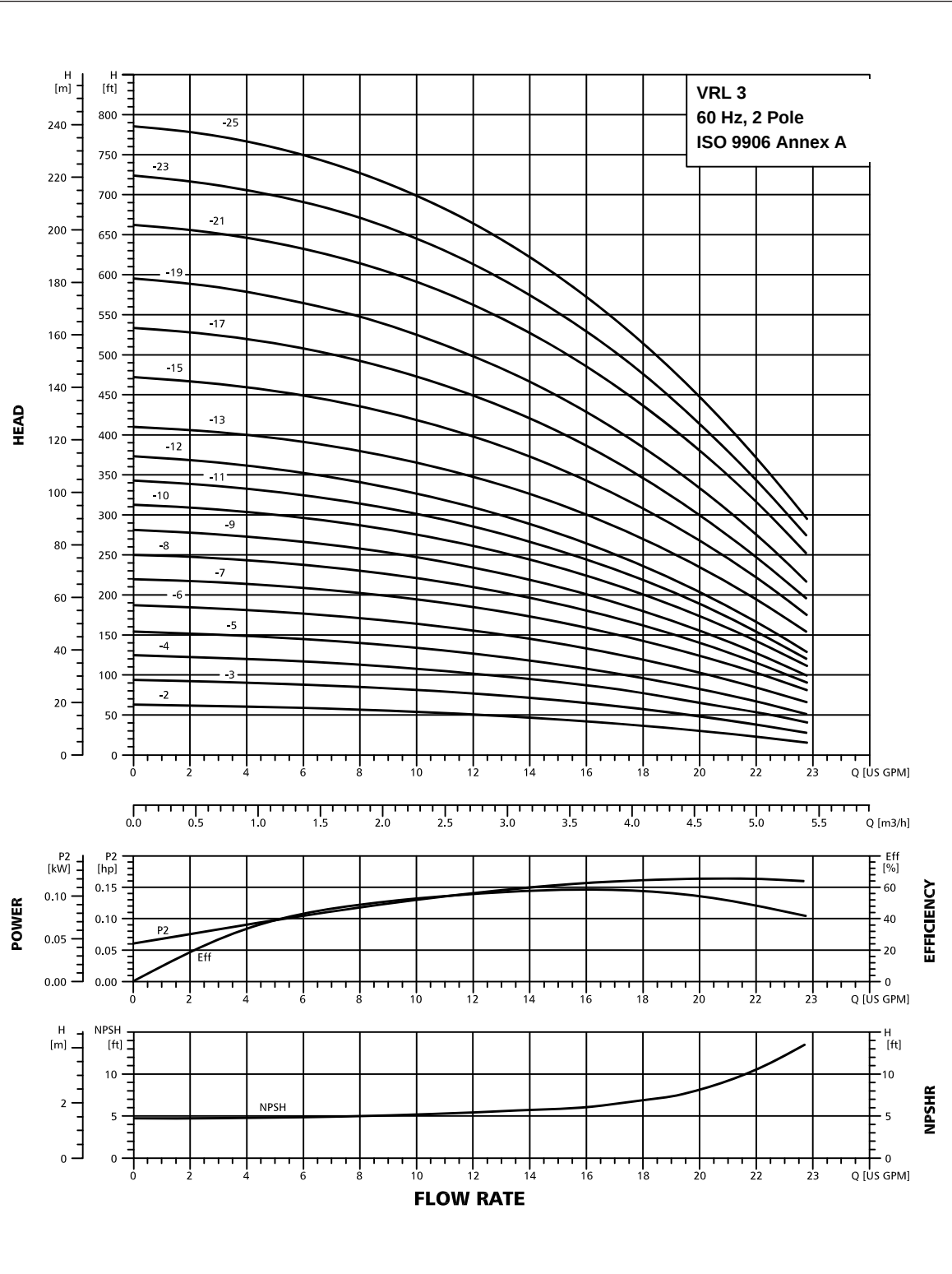
TECHNICAL DATA

VRL 3

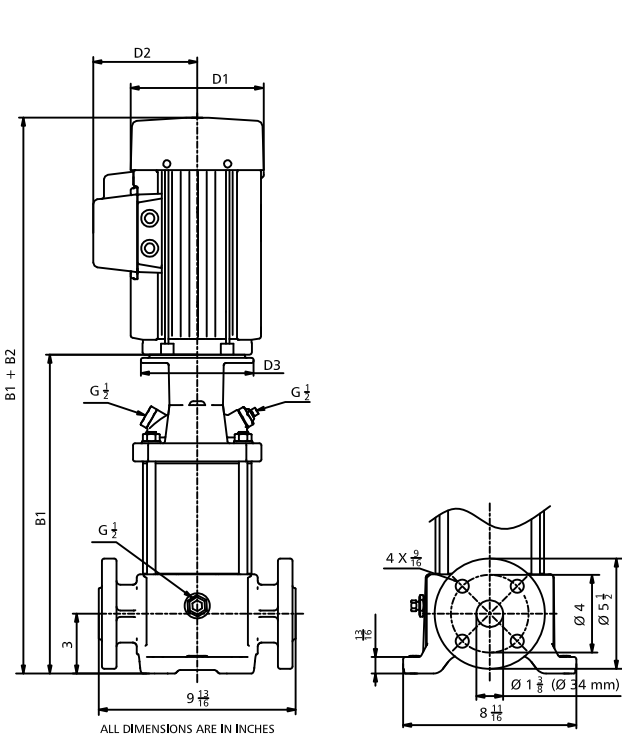


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 3-2	10.50	18.06	5.56	5.06	--	51
VRL 3-3	11.19	18.81	5.56	5.06	--	53
VRL 3-4	11.94	19.50	5.56	5.06	--	53
VRL 3-5	12.63	21.81	5.56	5.19	--	57
VRL 3-6	13.31	22.50	5.56	5.19	--	64
VRL 3-7	14.00	23.25	5.56	5.19	--	64
VRL 3-8	14.75	23.94	5.56	5.19	--	64
VRL 3-9	15.44	26.50	7.00	4.31	--	82
VRL 3-10	16.19	27.25	7.00	4.31	--	82
VRL 3-11	16.88	27.94	7.00	4.31	--	84
VRL 3-12	17.56	28.63	7.00	4.31	--	86
VRL 3-13	18.31	29.38	7.00	4.31	--	88
VRL 3-15	19.00	30.06	7.00	4.31	--	90
VRL 3-17	20.44	31.50	7.00	4.31	--	106
VRL 3-19	21.81	35.00	7.81	4.75	--	108
VRL 3-21	23.25	36.44	7.81	4.75	--	108
VRL 3-23	24.69	37.88	7.81	4.75	--	108
VRL 3-25	26.06	41.63	8.88	7.50	--	130

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	0.7	1.4	2.1	2.8	3.5	4.2	4.9
				US GPM	0	3	6	9	12	15	18	22
VRL 3-2	0.37	0.5	1.50-1.44/0.87-0.83	Head (Mtr.)	19	18	17	16	15	13	10	7
VRL 3-3	0.55	0.75	2.15-2.05/1.25-1.20		28	27	26	25	23	20	16	12
VRL 3-4	0.55	0.75	2.15-2.05/1.25-1.20		38	37	36	33	30	27	23	17
VRL 3-5	0.75	1	2.95-2.75/1.70-1.60		47	46	44	42	38	34	28	22
VRL 3-6	1.1	1.5	4.15-4.00/2.40-2.30		57	56	54	51	47	42	35	27
VRL 3-7	1.1	1.5	4.15-4.00/2.40-2.30		67	66	64	60	55	50	42	33
VRL 3-8	1.1	1.5	4.15-4.00/2.40-2.30		76	75	72	68	63	56	57	36
VRL 3-9	1.5	2	5.35-4.70/3.10-2.70		86	84	81	77	70	63	53	40
VRL 3-10	1.5	2	5.35-4.70/3.10-2.70		95	93	90	85	79	70	59	45
VRL 3-11	1.5	2	5.35-4.70/3.10-2.70		104	102	98	94	86	76	65	48
VRL 3-12	2.2	3	7.70-6.35/4.45-3.70		114	101	107	101	93	83	70	53
VRL 3-13	2.2	3	7.70-6.35/4.45-3.70		125	123	119	103	105	94	80	62
VRL 3-15	2.2	3	7.70-6.35/4.45-3.70		144	141	136	130	120	107	91	71
VRL 3-17	2.2	3	7.70-6.35/4.45-3.70		163	160	155	142	135	120	102	79
VRL 3-19	3	4	10.80-9.35/6.20-5.40		181	178	171	163	150	134	114	88
VRL 3-21	3	4	10.80-9.35/6.20-5.40		202	198	192	183	170	152	129	100
VRL 3-23	3	4	10.80-9.35/6.20-5.40		220	216	210	200	185	165	144	109
VRL 3-25	4	5.5	13.60-11.80/7.80-6.80		240	235	227	216	200	179	152	118

- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRLI, VRLN 3

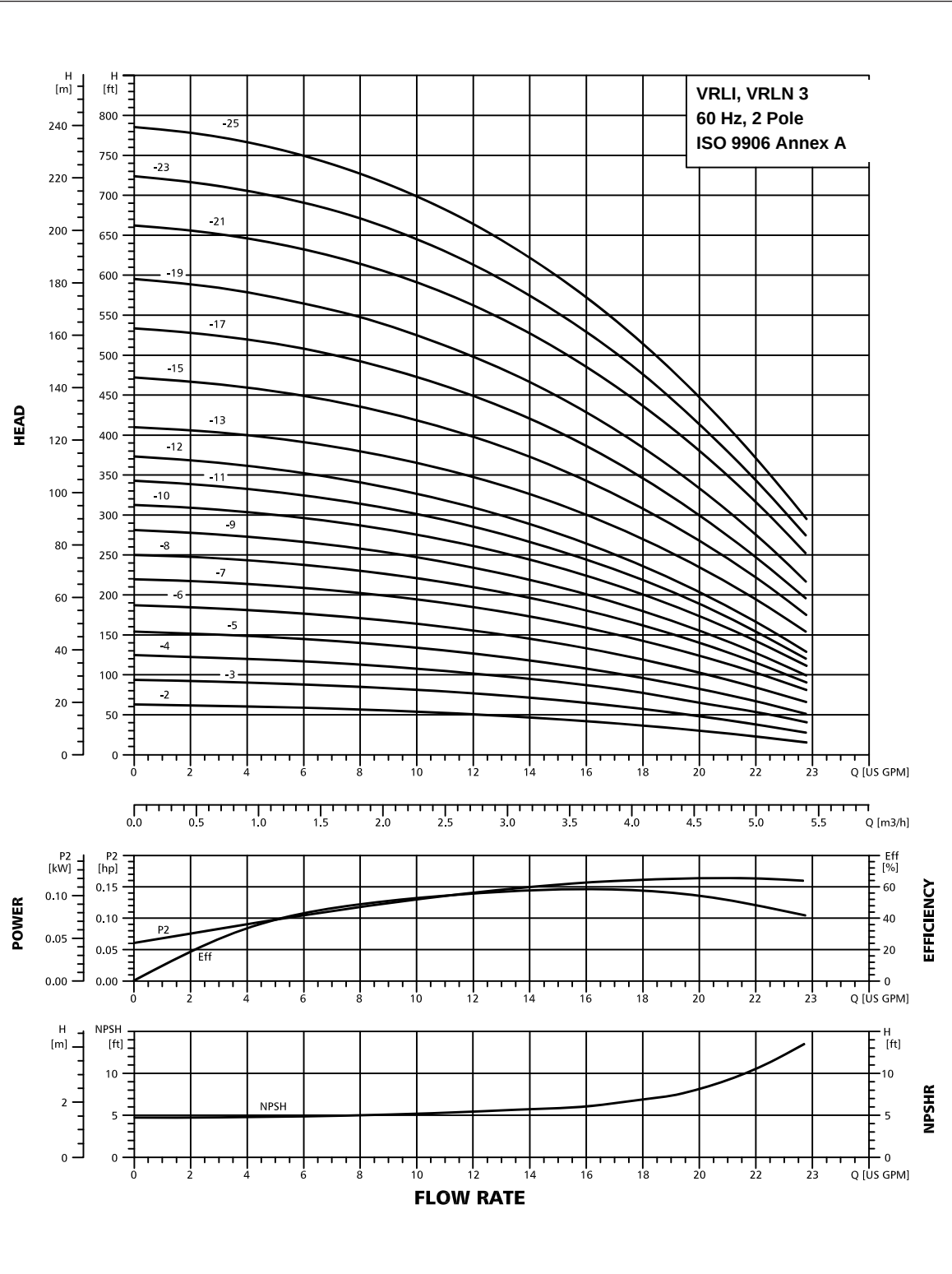
TECHNICAL DATA

VRLI, VRLN 3

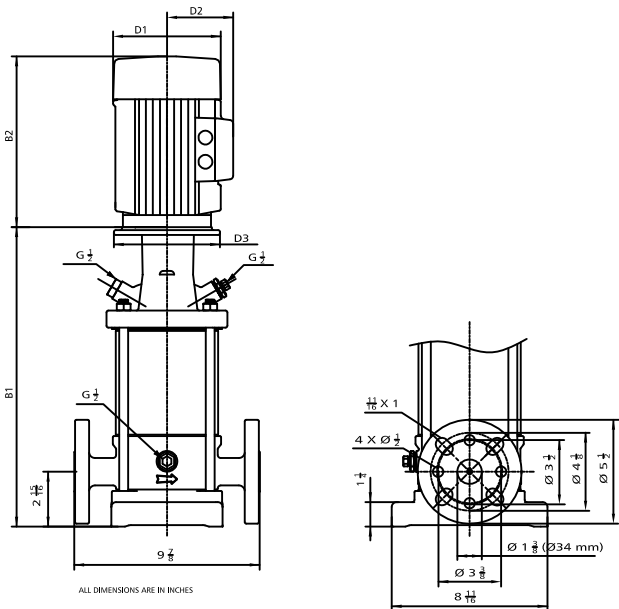


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLI, VRLN 3-2	10.63	18.19	5.56	5.06	--	44
VRLI, VRLN 3-3	11.31	18.94	5.56	5.06	--	46
VRLI, VRLN 3-4	12.00	19.63	5.56	5.06	--	49
VRLI, VRLN 3-5	12.75	21.94	5.56	5.19	--	53
VRLI, VRLN 3-6	13.44	22.63	5.56	5.19	--	60
VRLI, VRLN 3-7	14.19	23.31	5.56	5.19	--	60
VRLI, VRLN 3-8	14.88	24.06	5.56	5.19	--	62
VRLI, VRLN 3-9	15.56	26.63	7.00	4.31	--	77
VRLI, VRLN 3-1 0	16.31	27.38	7.00	4.31	--	77
VRLI, VRLN 3-1 1	17.00	28.06	7.00	4.31	--	77
VRLI, VRLN 3-1 2	17.69	28.75	7.00	4.31	--	79
VRLI, VRLN 3-1 3	18.44	29.50	7.00	4.31	--	82
VRLI, VRLN 3-1 5	19.06	30.19	7.00	4.31	--	84
VRLI, VRLN 3-1 7	20.56	31.63	7.00	4.31	--	84
VRLI, VRLN 3-1 9	21.94	35.13	7.81	4.75	--	101
VRLI, VRLN 3-2 1	23.38	36.56	7.81	4.75	--	101
VRLI, VRLN 3-2 3	24.81	38.00	7.81	4.75	--	104
VRLI, VRLN 3-2 5	26.19	41.75	8.88	7.50	--	126

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	0.7	1.4	2.1	2.8	3.5	4.2	4.9
				US GPM	0	3	6	9	12	15	18	22
VRLI, VRLN 3-2	0.37	0.5	1.50-1.44/0.87-0.83	Head (Mtr.)	19	18	17	16	15	13	10	7
VRLI, VRLN 3-3	0.55	0.75	2.15-2.05/1.25-1.20		28	27	26	25	23	20	16	12
VRLI, VRLN 3-4	0.55	0.75	2.15-2.05/1.25-1.20		38	37	36	33	30	27	23	17
VRLI, VRLN 3-5	0.75	1	2.95-2.75/1.70-1.60		47	46	44	42	38	34	28	22
VRLI, VRLN 3-6	1.1	1.5	4.15-4.00/2.40-2.30		57	56	54	51	47	42	35	27
VRLI, VRLN 3-7	1.1	1.5	4.15-4.00/2.40-2.30		67	66	64	60	55	50	42	33
VRLI, VRLN 3-8	1.1	1.5	4.15-4.00/2.40-2.30		76	75	72	68	63	56	57	36
VRLI, VRLN 3-9	1.5	2	5.35-4.70/3.10-2.70		86	84	81	77	70	63	53	40
VRLI, VRLN 3-1 0	1.5	2	5.35-4.70/3.10-2.70		95	93	90	85	79	70	59	45
VRLI, VRLN 3-1 1	1.5	2	5.35-4.70/3.10-2.70		104	102	98	94	86	76	65	48
VRLI, VRLN 3-12	2.2	3	7.70-6.35/4.45-3.70		114	101	107	101	93	83	70	53
VRLI, VRLN 3-1 3	2.2	3	7.70-6.35/4.45-3.70		125	123	119	103	105	94	80	62
VRLI, VRLN 3-1 5	2.2	3	7.70-6.35/4.45-3.70		144	141	136	130	120	107	91	71
VRLI, VRLN 3-1 7	2.2	3	7.70-6.35/4.45-3.70		163	160	155	142	135	120	102	79
VRLI, VRLN 3-1 9	3	4	10.80-9.35/6.20-5.40		181	178	171	163	150	134	114	88
VRLI, VRLN 3-2 1	3	4	10.80-9.35/6.20-5.40		202	198	192	183	170	152	129	100
VRLI, VRLN 3-23	3	4	10.80-9.35/6.20-5.40		220	216	210	200	185	165	1440	109
VRLI, VRLN 3-25	4	5.5	13.60-11.80/7.80-6.80		240	235	227	216	200	179	152	118

- VRLI, VRLN standar d voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 5

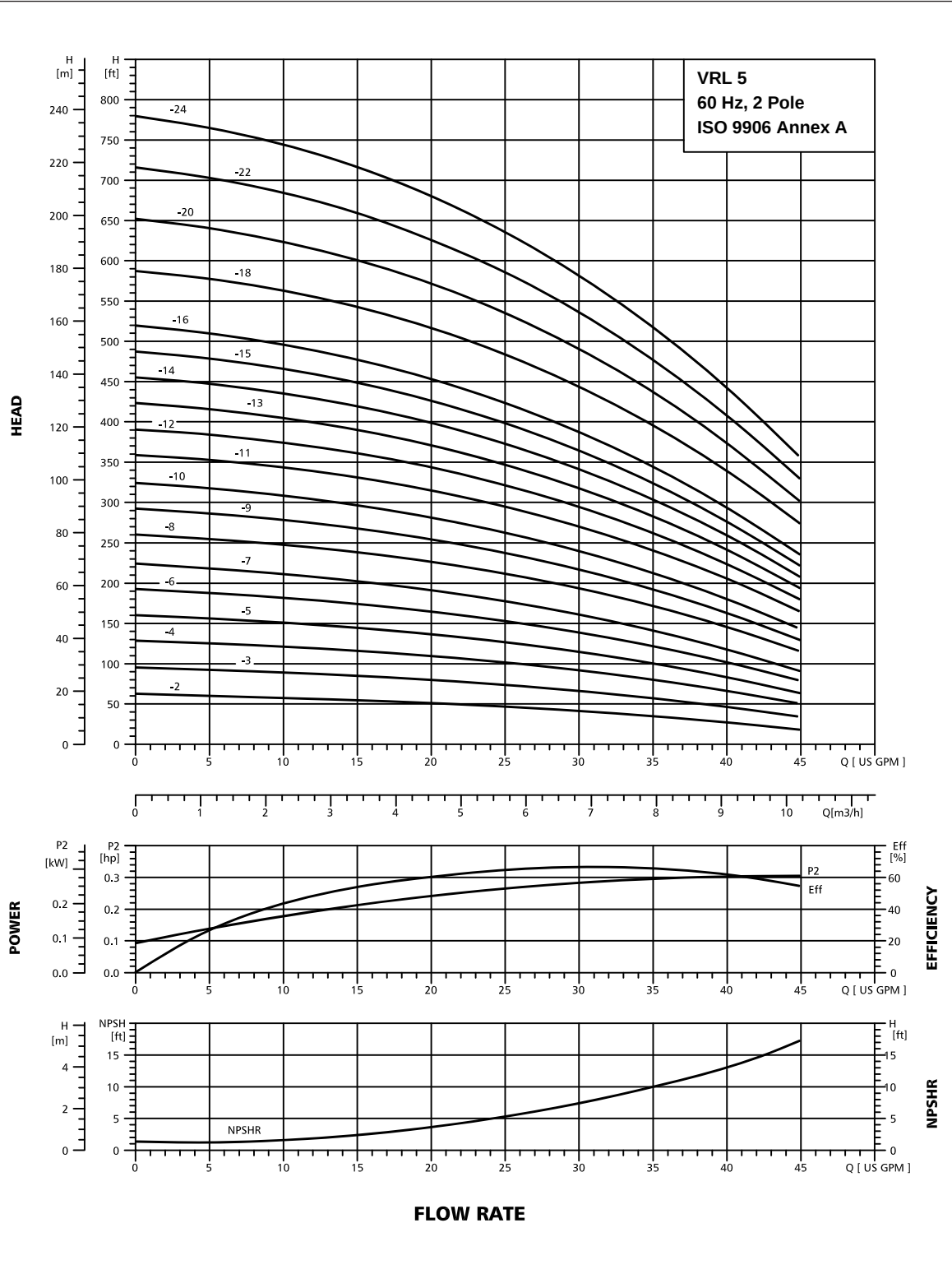
TECHNICAL DATA

VRL 5

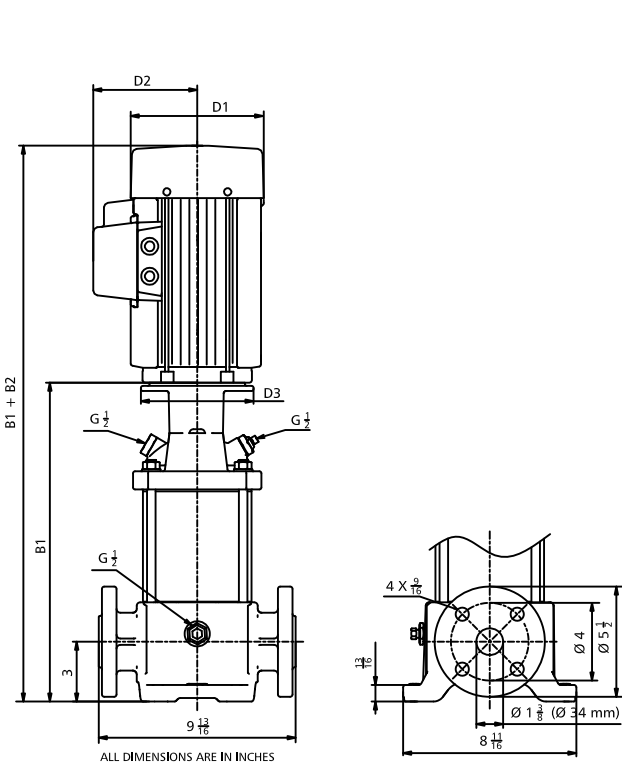


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 5-2	11.13	18.75	5.56	5.06	--	51
VRL 5-3	12.19	21.38	5.56	5.19	--	62
VRL 5-4	13.25	22.44	5.56	5.19	--	62
VRL 5-5	14.31	25.38	7.00	4.38	--	79
VRL 5-6	15.38	26.44	7.00	4.38	--	82
VRL 5-7	16.44	27.50	7.00	4.38	--	84
VRL 5-8	17.50	28.56	7.00	4.38	--	84
VRL 5-9	18.56	29.63	7.00	4.38	--	86
VRL 5-10	19.63	32.81	7.81	4.75	--	101
VRL 5-11	20.69	33.88	7.81	4.75	--	101
VRL 5-12	21.75	34.94	7.81	4.75	--	104
VRL 5-13	22.81	38.31	8.88	7.50	9.88	123
VRL 5-14	23.88	39.38	8.88	7.50	9.88	126
VRL 5-15	24.94	40.44	8.88	7.50	9.88	128
VRL 5-16	26.00	41.50	8.88	7.50	9.88	128
VRL 5-18	28.13	44.44	8.88	7.50	11.81	163
VRL 5-20	30.25	46.56	8.88	7.50	11.81	165
VRL 5-22	32.38	48.69	8.88	7.50	11.81	168
VRL 5-24	34.50	50.81	8.88	7.50	11.81	196

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	US GPM	0	1.5	3	4.5	6	7.5	9	10
						0	7	13	20	26	33	40	44
VRL 5-2	0.55	0.75	2.15-2.05/1.25-1.20	Head (Mtr.)		19	18	17	16	13	11	8	6
VRL 5-3	1.1	1.5	4.15-4.00/2.40-2.30			29	27	26	24	22	18	14	11
VRL 5-4	1.1	1.5	4.15-4.00/2.40-2.30			39	37	36	34	30	26	20	16
VRL 5-5	1.5	2	5.35-4.70/3.10-2.70			48	47	45	41	37	32	26	20
VRL 5-6	2.2	3	7.70-6.35/4.45-3.70			58	57	54	50	45	40	32	25
VRL 5-7	2.2	3	7.70-6.35/4.45-3.70			68	66	63	58	53	45	36	29
VRL 5-8	2.2	3	7.70-6.35/4.45-3.70			79	77	74	69	63	55	45	37
VRL 5-9	2.2	3	7.70-6.35/4.45-3.70			89	86	83	77	70	61	50	42
VRL 5-10	3	4	10.80-9.35/6.20-5.40			99	96	92	86	78	68	56	46
VRL 5-11	3	4	10.80-9.35/6.20-5.40			109	107	103	96	88	76	64	53
VRL 5-12	3	4	10.80-9.35/6.20-5.40			119	156	112	105	95	84	69	57
VRL 5-13	4	5.5	13.60-11.80/7.80-6.80			129	126	120	114	103	90	75	62
VRL 5-14	4	5.5	13.60-11.80/7.80-6.80			139	145	129	122	111	97	80	66
VRL 5-15	4	5.5	13.60-11.80/7.80-6.80			148	145	139	130	119	104	85	70
VRL 5-16	4	5.5	13.60-11.80/7.80-6.80			158	154	147	138	126	110	90	75
VRL 5-18	5.5	7.5	18.40-16.20/10.60/9.30			179	175	163	158	144	126	105	87
VRL 5-20	5.5	7.5	18.40-16.20/10.60/9.30			199	194	186	174	159	140	115	96
VRL 5-22	5.5	7.5	18.40-16.20/10.60/9.30			217	213	204	191	174	153	126	105

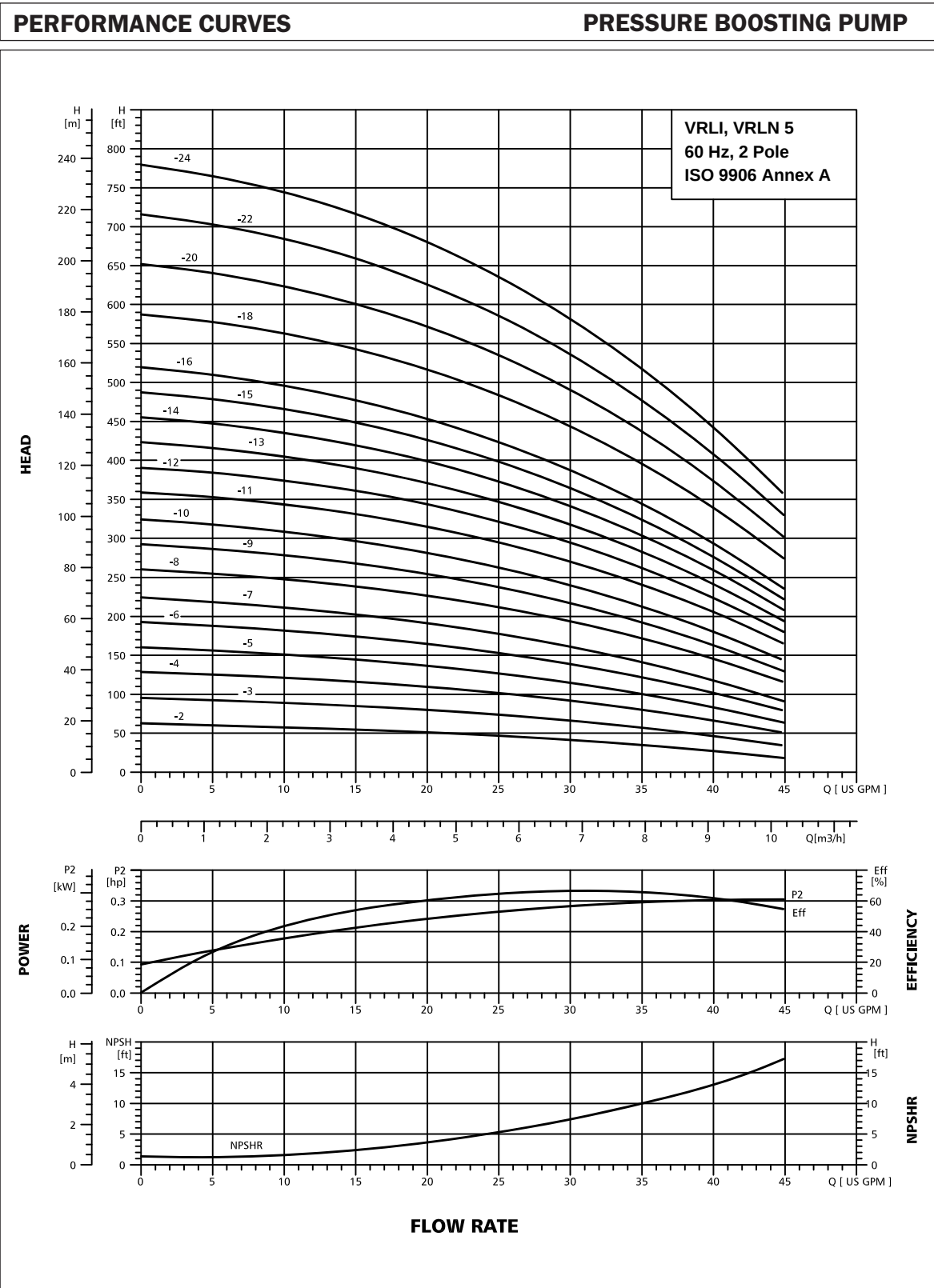
- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

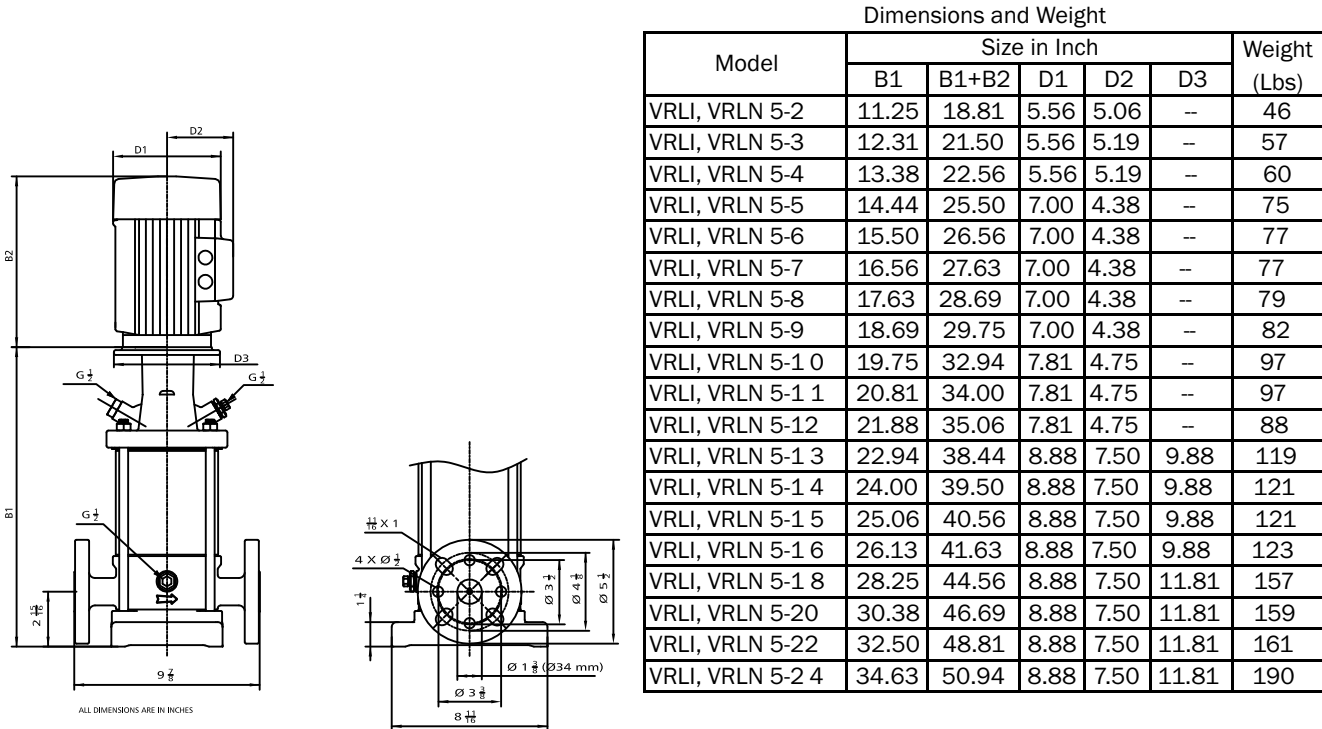
VRLI, VRLN 5

TECHNICAL DATA

VRLI, VRLN 5



DIMENSIONAL, SKETCH & PERFORMANCE



PERFORMANCE TABLE

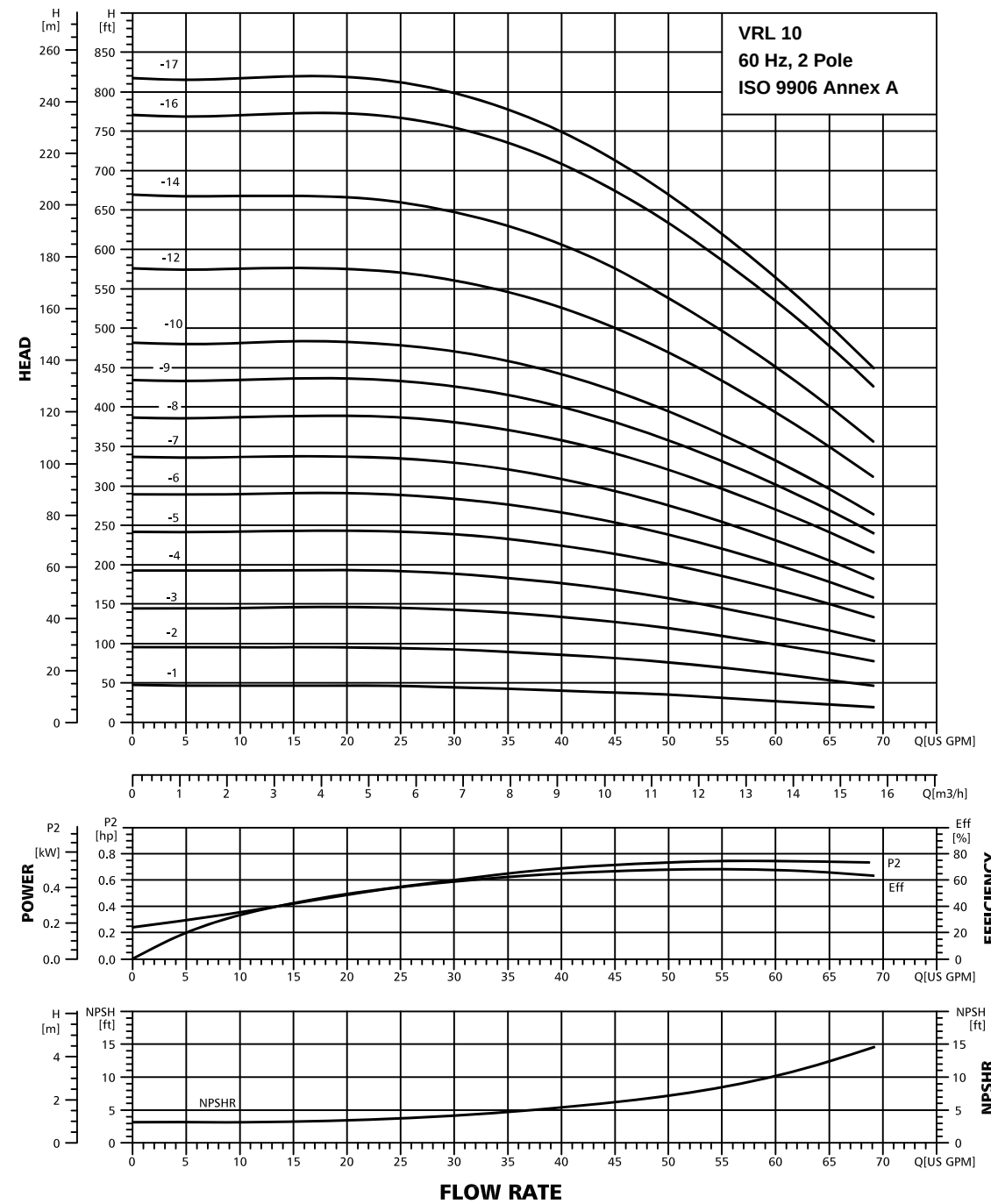
Model	kW	HP	Amp.	m³/h US GPM	0	1.5	3	4.5	6	7.5	9	10
					0	7	13	20	26	33	40	44
VRLI, VRLN 5-2	0.55	0.75	2.15-2.05/1.25-1.20	Head (Mtr.)	19	18	17	16	13	11	8	6
VRLI, VRLN 5-3	1.1	1.5	4.15-4.00/2.40-2.30		29	27	26	24	22	18	14	11
VRLI, VRLN 5-4	1.1	1.5	4.15-4.00/2.40-2.30		39	37	36	34	30	26	20	16
VRLI, VRLN 5-5	1.5	2	5.35-4.70/3.10-2.70		48	47	45	41	37	32	26	20
VRLI, VRLN 5-6	2.2	3	7.70-6.35/4.45-3.70		58	57	54	50	45	40	32	25
VRLI, VRLN 5-7	2.2	3	7.70-6.35/4.45-3.70		68	66	63	58	53	45	36	29
VRLI, VRLN 5-8	2.2	3	7.70-6.35/4.45-3.70		79	77	74	69	63	55	45	37
VRLI, VRLN 5-9	2.2	3	7.70-6.35/4.45-3.70		89	86	83	77	70	61	50	42
VRLI, VRLN 5-1 0	3	4	10.80-9.35/6.20-5.40		99	96	92	86	78	68	56	46
VRLI, VRLN 5-1 1	3	4	10.80-9.35/6.20-5.40		109	107	103	96	88	76	64	53
VRLI, VRLN 5-12	3	4	10.80-9.35/6.20-5.40		119	156	112	105	95	84	69	57
VRLI, VRLN 5-1 3	4	5.5	13.60-11.80/7.80-6.80		129	126	120	114	103	90	75	62
VRLI, VRLN 5-1 4	4	5.5	13.60-11.80/7.80-6.80		139	145	129	122	111	97	80	66
VRLI, VRLN 5-1 5	4	5.5	13.60-11.80/7.80-6.80		148	145	139	130	119	104	85	70
VRLI, VRLN 5-1 6	4	5.5	13.60-11.80/7.80-6.80		158	154	147	138	126	110	90	75
VRLI, VRLN 5-1 8	5.5	7.5	18.40-16.20/10.60/9.30		179	175	163	158	144	126	105	87
VRLI, VRLN 5-20	5.5	7.5	18.40-16.20/10.60/9.30		199	194	186	174	159	140	115	96
VRLI, VRLN 5-22	5.5	7.5	18.40-16.20/10.60/9.30		217	213	204	191	174	153	126	105

- VRLI, VRLN standar d voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 10

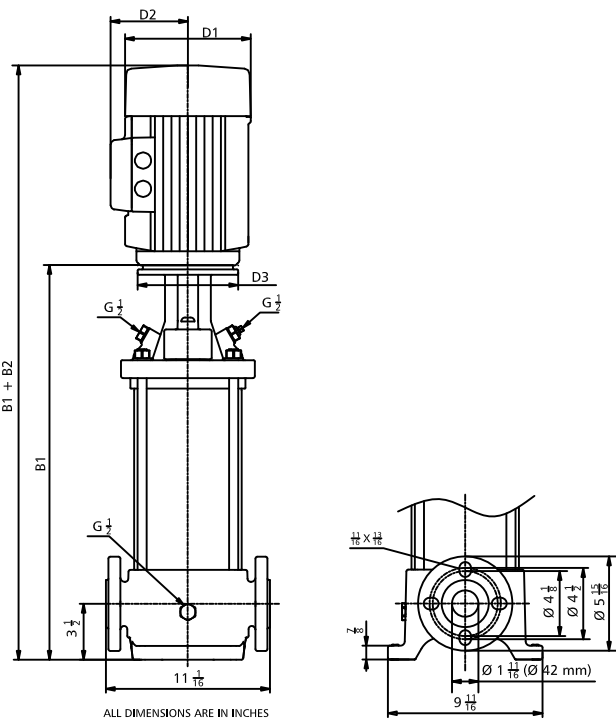
PERFORMANCE CURVES PRESSURE BOOSTING PUMP



TECHNICAL DATA

VRL 10

DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 10-1	14.13	21.75	5.56	5.06	--	75
VRL 10-2	15.31	24.50	5.56	5.19	--	79
VRL 10-3	16.50	25.63	5.56	5.19	--	86
VRL 10-4	17.69	28.75	7.00	4.38	--	104
VRL 10-5	18.81	29.94	7.00	4.38	--	108
VRL 10-6	20.00	33.19	7.81	4.75	9.88	110
VRL 10-7	21.19	37.50	8.88	7.50	11.81	126
VRL 10-8	22.38	38.69	8.88	7.50	11.81	128
VRL 10-9	23.56	39.88	8.88	7.50	11.81	133
VRL 10-10	24.75	41.06	8.88	7.50	11.81	152
VRL 10-12	27.13	43.44	8.88	7.50	11.81	157
VRL 10-14	29.50	49.38	13.00	10.06	13.81	207
VRL 10-16	31.81	51.75	13.00	10.06	13.81	212
VRL 10-17	34.19	54.06	13.00	10.06	13.81	240

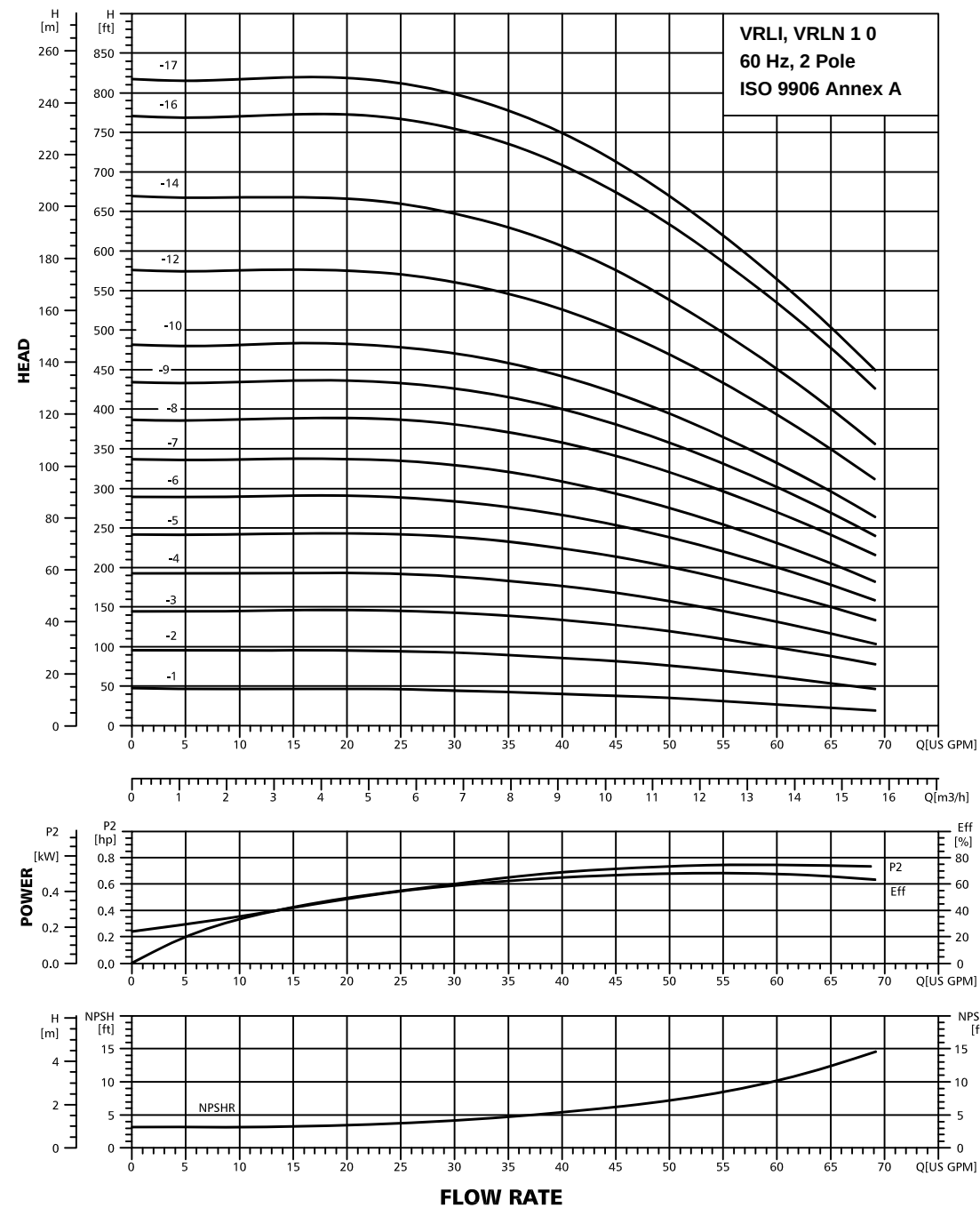
PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	US GPM	0	3	5	7	9	11	13	15
						0	13	22	31	40	48	57	66
VRL 10-1	0.75	1	2.95-2.75/1.70-1.60	Head (Mtr.)	14	14	14	13	12	11	9	7	
VRL 10-2	1.5	2	5.35-4.70/3.10-2.70		29	29	29	28	26	24	20	15	
VRL 10-3	2.2	3	7.70-6.35/4.45-3.70		44	44	43	42	40	37	32	26	
VRL 10-4	3	4	10.80-9.35/6.20-5.40		68	68	68	67	54	49	43	35	
VRL 10-5	3	4	10.80-9.35/6.20-5.40		74	74	74	73	68	63	54	44	
VRL 10-6	4	5.5	13.60-11.80/7.80-6.80		88	88	88	86	82	74	64	53	
VRL 10-7	5.5	7.5	18.40-16.20/10.60/9.30		103	103	103	100	94	86	74	61	
VRL 10-8	5.5	7.5	18.40-16.20/10.60/9.30		117	117	117	115	110	100	86	92	
VRL 10-9	5.5	7.5	18.40-16.20/10.60/9.30		133	133	133	130	122	111	97	80	
VRL 10-10	7.5	10	24.60-20.80/14.20-12.00		147	147	147	143	135	123	107	88	
VRL 10-12	7.5	10	24.60-20.80/14.20-12.00		176	176	175	170	160	146	126	104	
VRL 10-14	11	15	36.00-30.00/20.80-17.20		205	204	202	196	185	167	145	119	
VRL 10-16	11	15	36.00-30.00/20.80-17.20		245	245	245	228	216	97	172	142	
VRL 10-17	11	15	36.00-30.00/20.80-17.20		249	250	249	242	219	208	181	149	

- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

VRLI, VRLN 1 0

PRESSURE BOOSTING PUMP

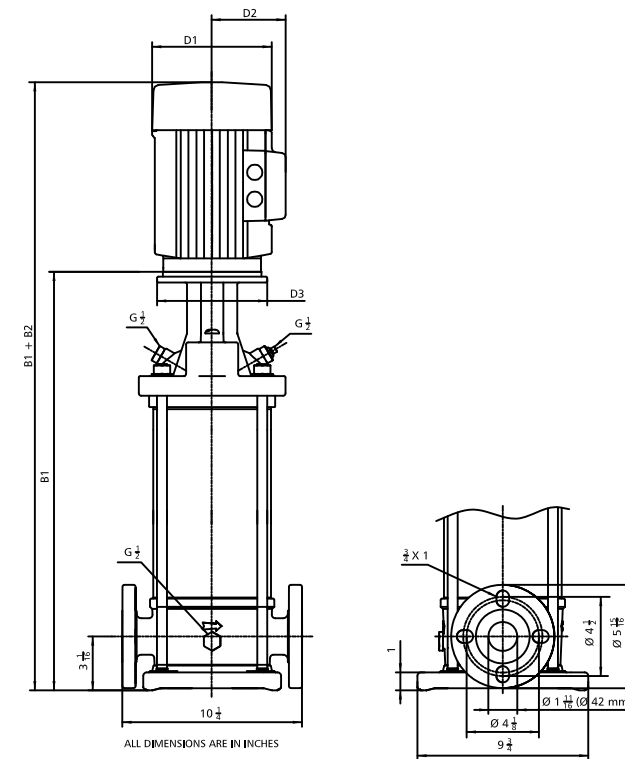


VRLI, VRLN 1 0



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DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLI, VRLN 1 0-1	13.75	22.88	5.56	5.19	–	75
VRLI, VRLN 1 0-2	14.94	26.00	7.00	4.38	–	97
VRLI, VRLN 1 0-3	16.06	27.13	7.00	4.38	–	99
VRLI, VRLN 1 0-4	17.25	30.44	7.81	4.75	–	117
VRLI, VRLN 1 0-5	18.44	31.63	7.81	4.75	–	119
VRLI, VRLN 1 0-6	19.63	35.13	8.88	7.50	9.88	141
VRLI, VRLN 1 0-7	20.81	37.13	8.88	7.50	11.81	187
VRLI, VRLN 1 0-8	22.00	38.31	8.88	7.50	11.81	190
VRLI, VRLN 1 0-9	23.19	39.50	8.88	7.50	11.81	192
VRLI, VRLN 1 0-10	24.38	40.63	8.88	7.50	11.81	218
VRLI, VRLN 1 0-12	26.75	43.00	8.88	7.50	11.81	223
VRLI, VRLN 1 0-14	29.06	48.94	13.00	10.06	13.81	317
VRLI, VRLN 1 0-16	31.50	51.31	13.00	10.06	13.81	322
VRLI, VRLN 1 0-17	33.81	53.69	13.00	10.06	13.81	326

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	3	5	7	9	11	13	15
				US GPM	0	13	22	31	40	48	57	66
VRLI, VRLN 1 0-1	0.75	1	2.95-2.75/1.70-1.60	Head (Mtr.)	14	14	14	13	12	11	9	7
VRLI, VRLN 1 0-2	1.5	2	5.35-4.70/3.10-2.70		29	29	29	28	26	24	20	15
VRLI, VRLN 1 0-3	2.2	3	7.70-6.35/4.45-3.70		44	44	43	42	40	37	32	26
VRLI, VRLN 1 0-4	3	4	10.80-9.35/6.20-5.40		68	68	68	67	54	49	43	35
VRLI, VRLN 1 0-5	3	4	10.80-9.35/6.20-5.40		74	74	74	73	68	63	54	44
VRLI, VRLN 1 0-6	4	5.5	13.60-11.80/7.80-6.80		88	88	88	86	82	74	64	53
VRLI, VRLN 1 0-7	5.5	7.5	18.40-16.20/10.60/9.30		103	103	103	100	94	86	74	61
VRLI, VRLN 1 0-8	5.5	7.5	18.40-16.20/10.60/9.30		117	117	117	115	110	100	86	92
VRLI, VRLN 1 0-9	5.5	7.5	18.40-16.20/10.60/9.30		133	133	133	130	122	111	97	80
VRLI, VRLN 1 0-10	7.5	10	24.60-20.80/14.20-12.00		147	147	147	143	135	123	107	88
VRLI, VRLN 1 0-12	7.5	10	24.60-20.80/14.20-12.00		176	176	175	170	160	146	126	104
VRLI, VRLN 1 0-14	11	15	36.00-30.00/20.80-17.20		205	204	202	196	185	167	145	119
VRLI, VRLN 1 0-16	11	15	36.00-30.00/20.80-17.20		245	245	245	228	216	97	172	142
VRLI, VRLN 1 0-17	11	15	36.00-30.00/20.80-17.20		249	250	249	242	219	208	181	149

- VRLI, VRLN standar d voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 15

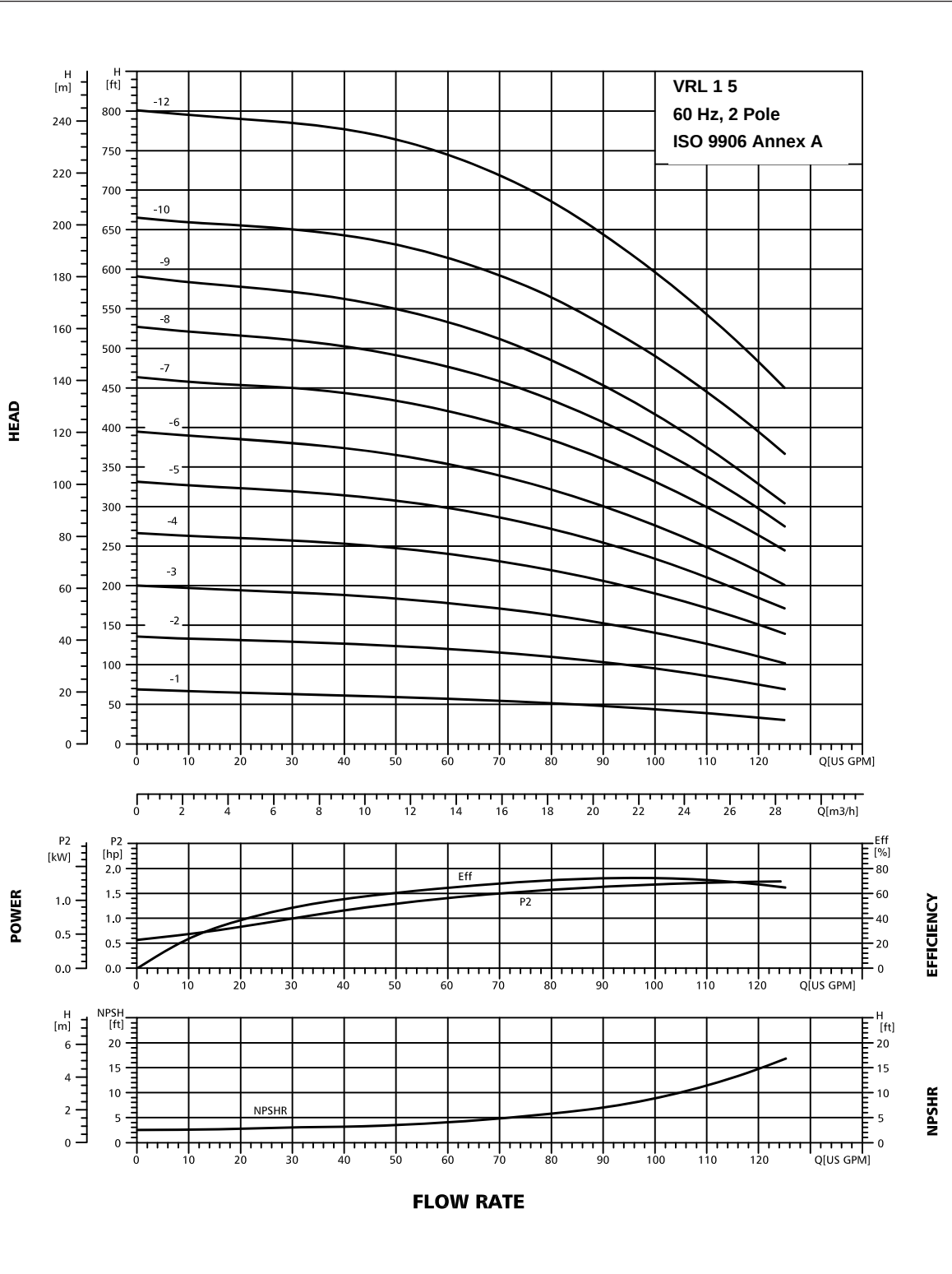
TECHNICAL DATA

VRL 15

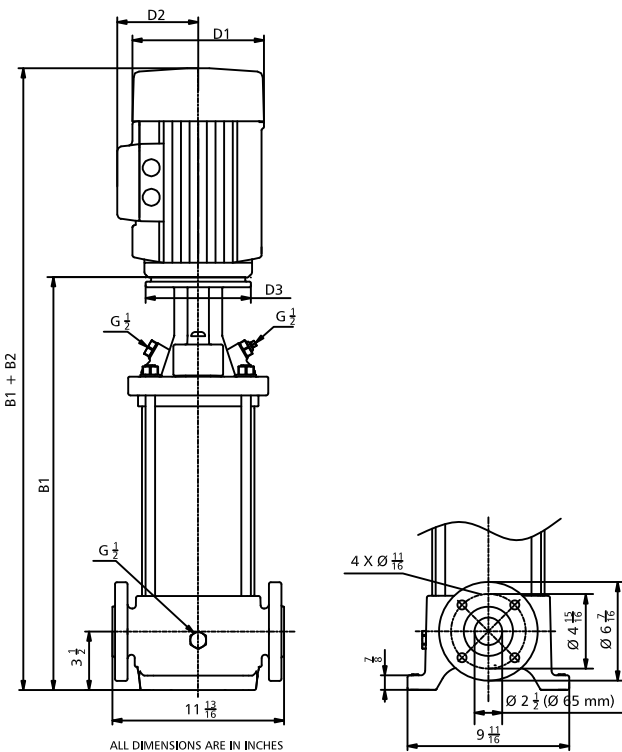


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 15-1	15.19	26.25	7.00	4.38	--	108
VRL 15-2	16.94	30.13	7.81	4.75	--	123
VRL 15-3	18.75	34.25	8.88	7.50	9.88	146
VRL 15-4	20.50	36.81	8.88	7.50	11.81	194
VRL 15-5	22.25	38.56	10.06	7.50	11.81	225
VRL 15-6	24.06	43.94	13.00	10.06	13.81	317
VRL 15-7	25.81	45.69	13.00	10.06	13.81	320
VRL 15-8	27.56	47.50	13.00	10.06	13.81	324
VRL 15-9	29.38	51.38	13.00	10.06	13.81	355
VRL 15-10	31.13	53.19	13.00	10.06	13.81	359
VRL 15-12	34.69	57.88	15.00	11.06	13.81	395

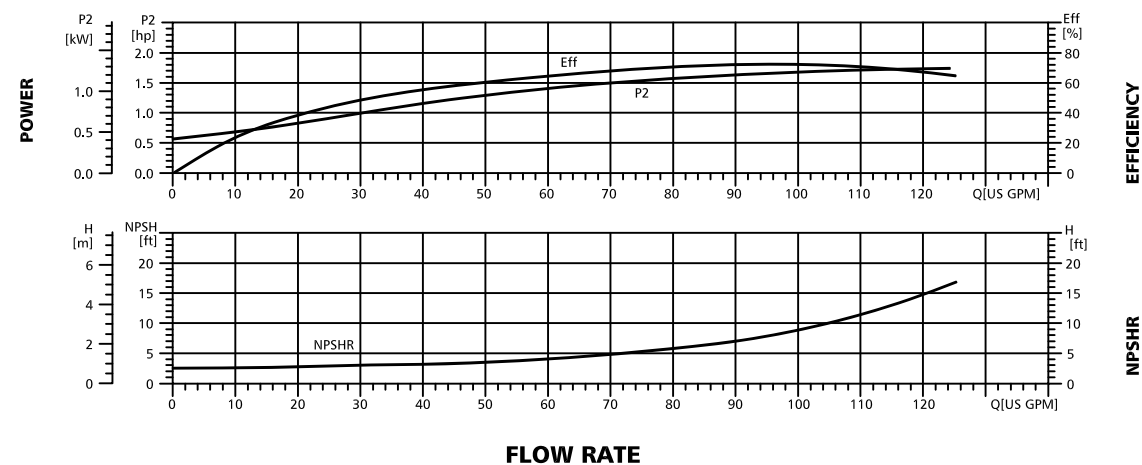
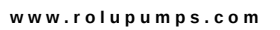
PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	4	8	12	16	20	24	28
				US GPM	0	18	35	53	70	88	106	123
VRL 15-1	1.5	2	5.35-4.70/3.10-2.70	Head (Mtr.)	21	20	19	18	16	15	13	9
VRL 15-2	3	4	10.80-9.35/6.20-5.40		41	40	39	37	35	32	27	22
VRL 15-3	4	5.5	13.60-11.80/7.80-6.80		61	59	57	55	52	47	40	32
VRL 15-4	5.5	7.5	18.40-16.20/10.60/9.30		81	80	77	75	70	64	55	44
VRL 15-5	7.5	10	24.60-20.80/14.20-12.00		101	199	196	193	86	78	67	53
VRL 15-6	11	15	36.00-30.00/20.80-17.20		120	117	115	110	103	93	80	63
VRL 15-7	11	15	36.00-30.00/20.80-17.20		141	139	136	131	123	111	95	76
VRL 15-8	11	15	36.00-30.00/20.80-17.20		160	157	155	149	140	125	108	86
VRL 15-9	15	20	48.50-39.00/28.00-22.40		180	176	173	166	155	140	120	95
VRL 15-10	15	20	48.50-39.00/28.00-22.40		213	200	197	191	180	164	142	115
VRL 15-12	18.5	25	59.50-48.50/34.50-28.00		244	241	238	232	119	199	172	140

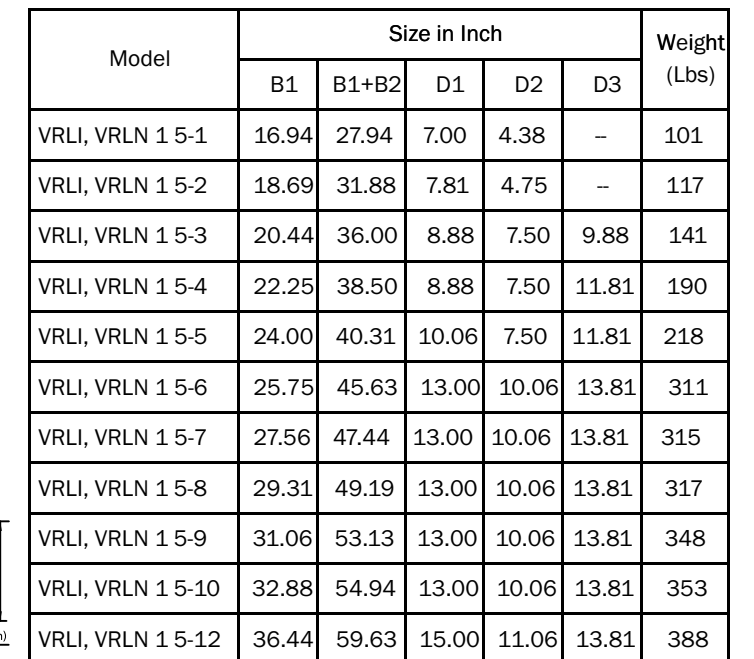
- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

VRLI, VRLN 1 5

PRESSURE BOOSTING PUMP

**VRLI, VRLN 1 5**

Dimensions and Weight

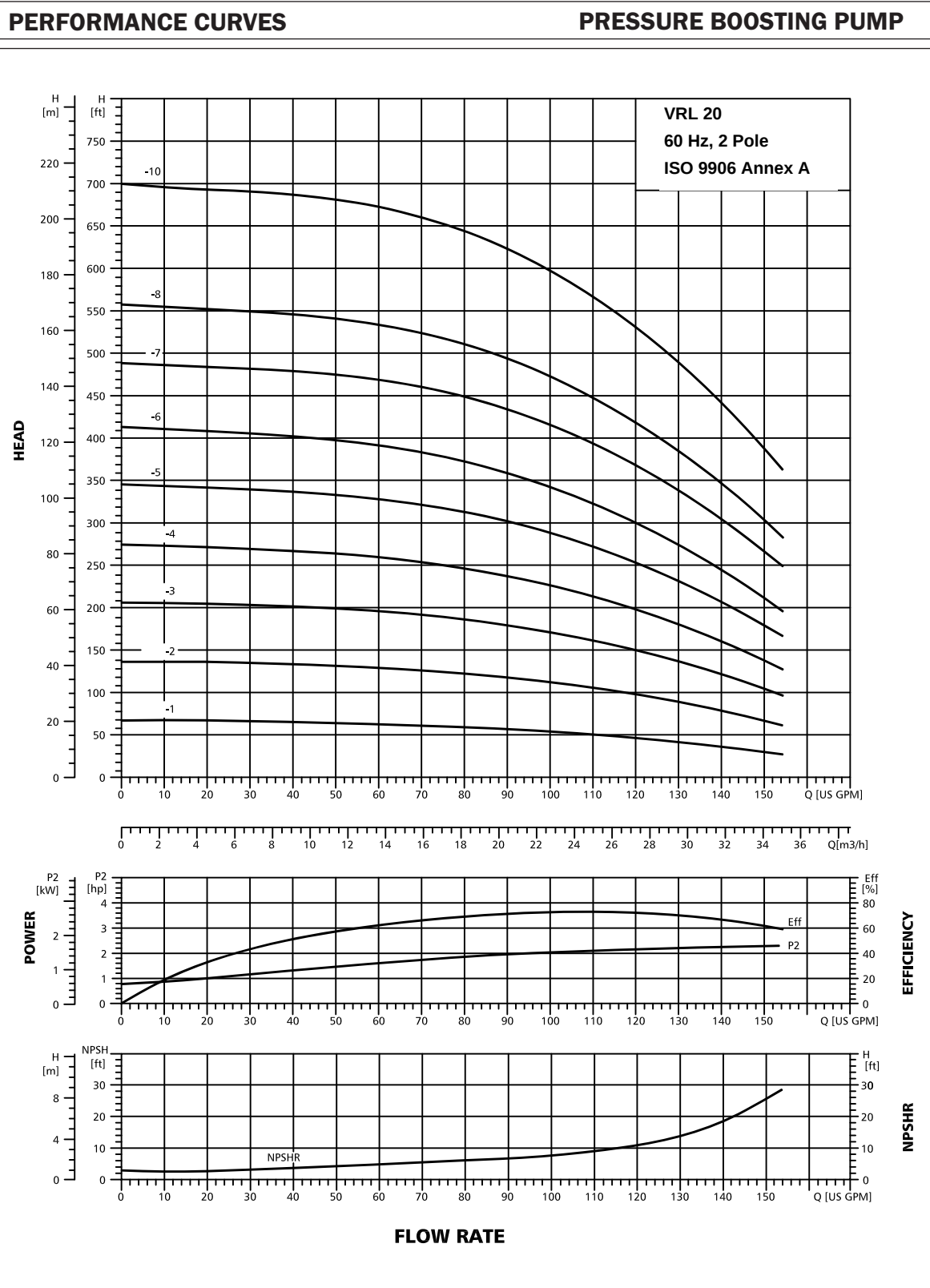


Model	kW	HP	Amp.	m³/h	0	4	8	12	16	20	24	28
				US GPM	0	18	35	53	70	88	106	123
VRLI, VRLN 1 5-1	1.5	2	5.35-4.70/3.10-2.70	Head (Mtr.)	21	20	19	18	16	15	13	9
VRLI, VRLN 1 5-2	3	4	10.80-9.35/6.20-5.40		41	40	39	37	35	32	27	22
VRLI, VRLN 1 5-3	4	5.5	13.60-11.80/7.80-6.80		61	59	57	55	52	47	40	32
VRLI, VRLN 1 5-4	5.5	7.5	18.40-16.20/10.60/9.30		81	80	77	75	70	64	55	44
VRLI, VRLN 1 5-5	7.5	10	24.60-20.80/14.20-12.00		101	199	196	193	86	78	67	53
VRLI, VRLN 1 5-6	11	15	36.00-30.00/20.80-17.20		120	117	115	110	103	93	80	63
VRLI, VRLN 1 5-7	11	15	36.00-30.00/20.80-17.20		141	139	136	131	123	111	95	76
VRLI, VRLN 1 5-8	11	15	36.00-30.00/20.80-17.20		160	157	155	149	140	125	108	86
VRLI, VRLN 1 5-9	15	20	48.50-39.00/28.00-22.40		180	176	173	166	155	140	120	95
VRLI, VRLN 1 5-10	15	20	48.50-39.00/28.00-22.40		213	200	197	191	180	164	142	115
VRLI, VRLN 1 5-12	18.5	25	59.50-48.50/34.50-28.00		244	241	238	232	119	199	172	140

- VRLI, VRLN standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 20



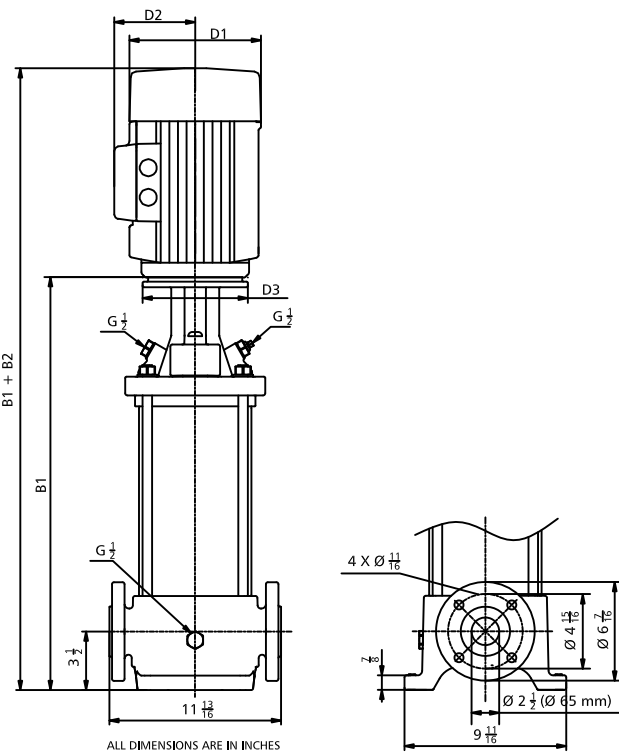
TECHNICAL DATA

VRL 20



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DIMENSIONAL, SKETCH & PERFORMANCE



Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 20-1	19.19	30.25	7.00	4.38	--	110
VRL 20-2	21.00	36.50	7.81	7.50	9.88	143
VRL 20-3	22.75	39.06	8.88	7.50	11.81	192
VRL 20-4	24.50	40.81	8.88	7.50	11.81	220
VRL 20-5	26.31	46.19	13.00	10.06	13.81	313
VRL 20-6	28.06	47.94	13.00	10.06	13.81	317
VRL 20-7	29.81	51.88	13.00	10.06	13.81	346
VRL 20-8	31.63	53.63	13.00	10.06	13.81	351
VRL 20-10	35.13	58.38	15.00	11.06	13.81	388

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	5	10	15	20	25	30	35
				US GPM	0	22	44	66	88	110	132	154
VRL 20-1	2.2	3	7.70-6.35/4.45-3.70	Head (Mtr.)	20	20	19	18	17	15	12	8
VRL 20-2	4	5.5	13.60-11.80/7.80-6.80		41	41	40	38	36	32	27	18
VRL 20-3	5.5	7.5	18.40-16.20/10.60/9.30		63	62	61	59	55	48	40	29
VRL 20-4	7.5	10	24.60-20.80/14.20-12.00		84	83	81	78	72	65	54	39
VRL 20-5	11	15	36.00-30.00/20.80-17.20		105	104	102	98	92	83	69	50
VRL 20-6	11	15	36.00-30.00/20.80-17.20		125	124	121	117	110	97	82	60
VRL 20-7	15	20	48.50-39.00/28.00-22.40		148	147	145	140	132	120	100	75
VRL 20-8	15	20	48.50-39.00/28.00-22.40		169	167	165	160	151	136	114	86
VRL 20-10	18.5	25	59.50-48.50/34.50-28.00		213	210	208	202	190	172	146	110

- VRL standard voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRLI, VRLN 20

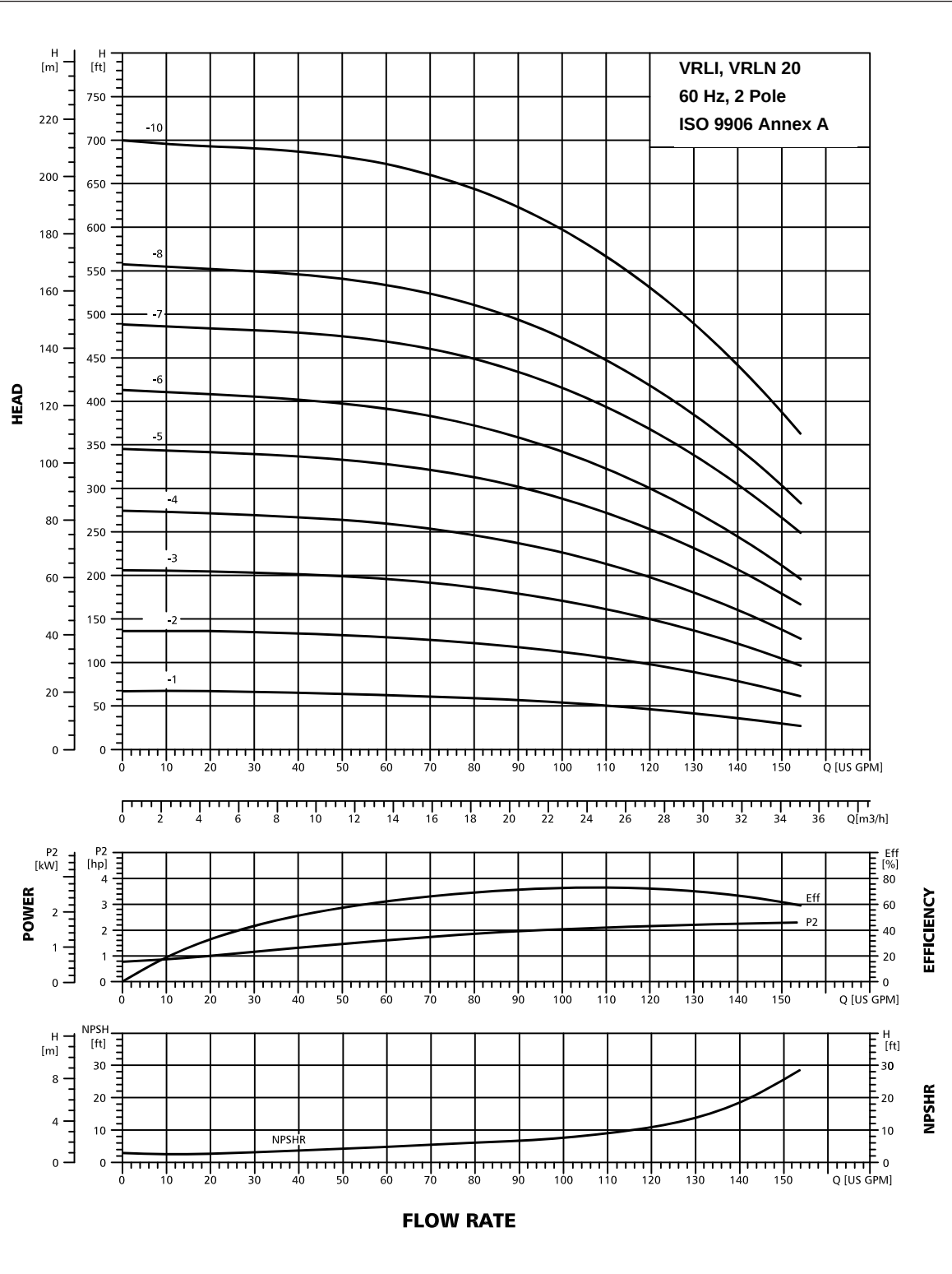
TECHNICAL DATA

VRLI, VRLN 20

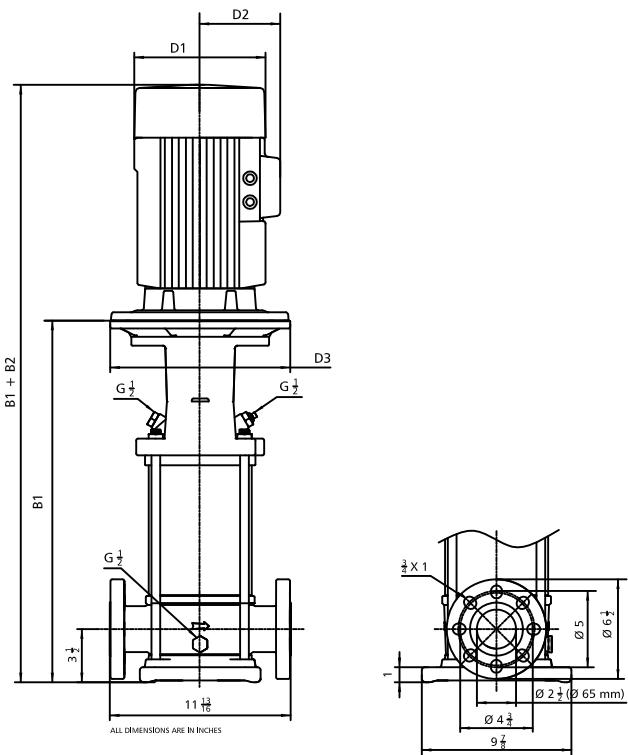


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



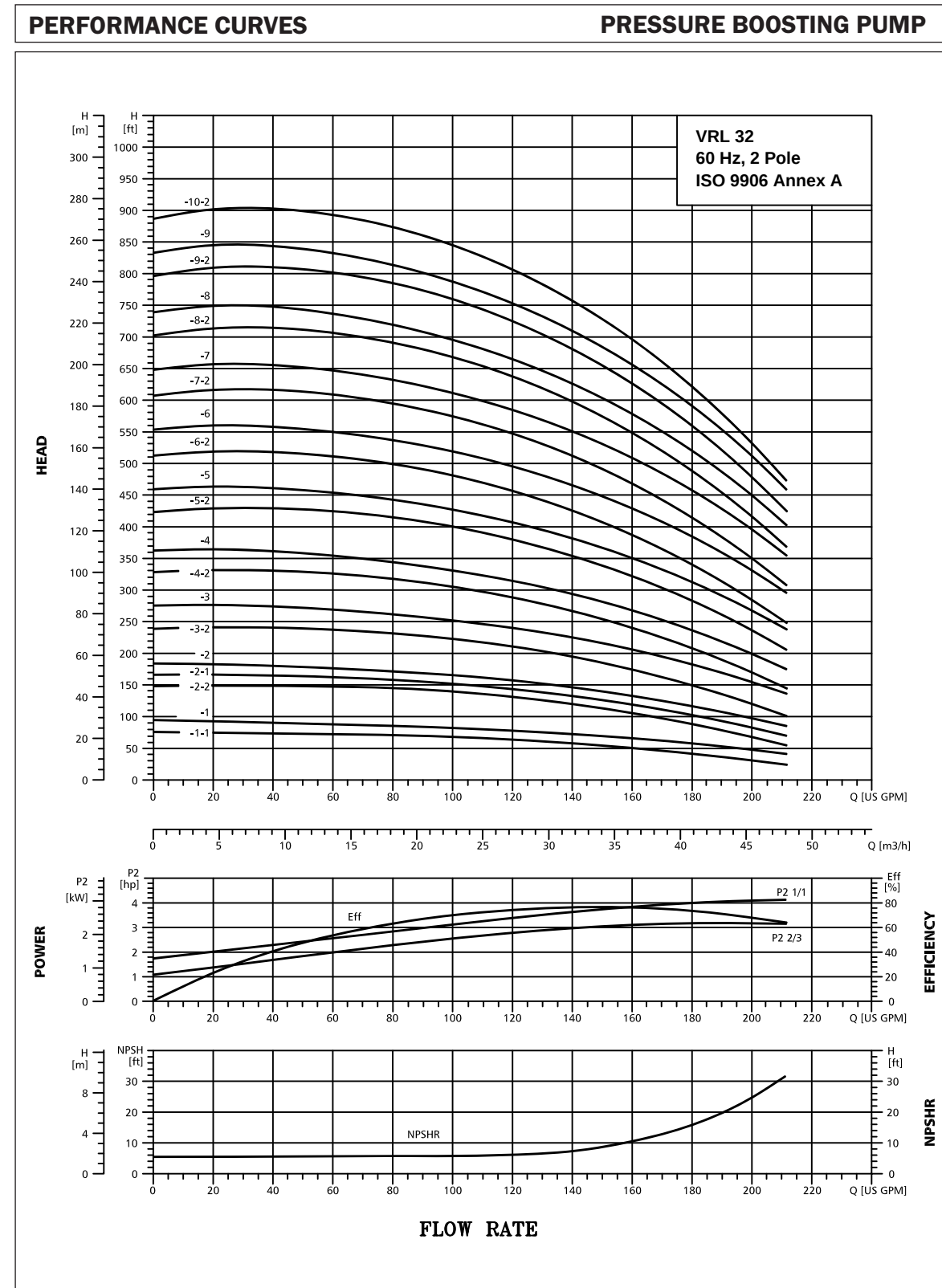
Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLI, VRLN 20-1	19.31	30.38	7.00	4.38	—	104
VRLI, VRLN 20-2	21.06	36.63	7.81	7.50	9.88	137
VRLI, VRLN 20-3	22.88	39.19	8.88	7.50	11.81	185
VRLI, VRLN 20-4	24.63	40.94	8.88	7.50	11.81	216
VRLI, VRLN 20-5	26.44	46.25	13.00	10.06	13.81	306
VRLI, VRLN 20-6	28.19	48.06	13.00	10.06	13.81	311
VRLI, VRLN 20-7	30.00	52.00	13.00	10.06	13.81	342
VRLI, VRLN 20-8	31.75	53.75	13.00	10.06	13.81	344
VRLI, VRLN 20-1 0	35.25	58.50	15.00	11.06	13.81	381

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	5	10	15	20	25	30	35
				US GPM	0	22	44	66	88	110	132	154
VRLI, VRLN 20-1	2.2	3	7.70-6.35/4.45-3.70	Head (Mtr.)	20	20	19	18	17	15	12	8
VRLI, VRLN 20-2	4	5.5	13.60-11.80/7.80-6.80		41	41	40	38	36	32	27	18
VRLI, VRLN 20-3	5.5	7.5	18.40-16.20/10.60/9.30		63	62	61	59	55	48	40	29
VRLI, VRLN 20-4	7.5	10	24.60-20.80/14.20-12.00		84	83	81	78	72	65	54	39
VRLI, VRLN 20-5	11	15	36.00-30.00/20.80-17.20		105	104	102	98	92	83	69	50
VRLI, VRLN 20-6	11	15	36.00-30.00/20.80-17.20		125	124	121	117	110	97	82	60
VRLI, VRLN 20-7	15	20	48.50-39.00/28.00-22.40		148	147	145	140	132	120	100	75
VRLI, VRLN 20-8	15	20	48.50-39.00/28.00-22.40		169	167	165	160	151	136	114	86
VRLI, VRLN 20-1 0	18.5	25	59.50-48.50/34.50-28.00		213	210	208	202	190	172	146	110

- VRLI, VRLN standar d voltages: 220-240Δ/380-440Y
- This performance table is approximate as a performance curve.

VRL 32

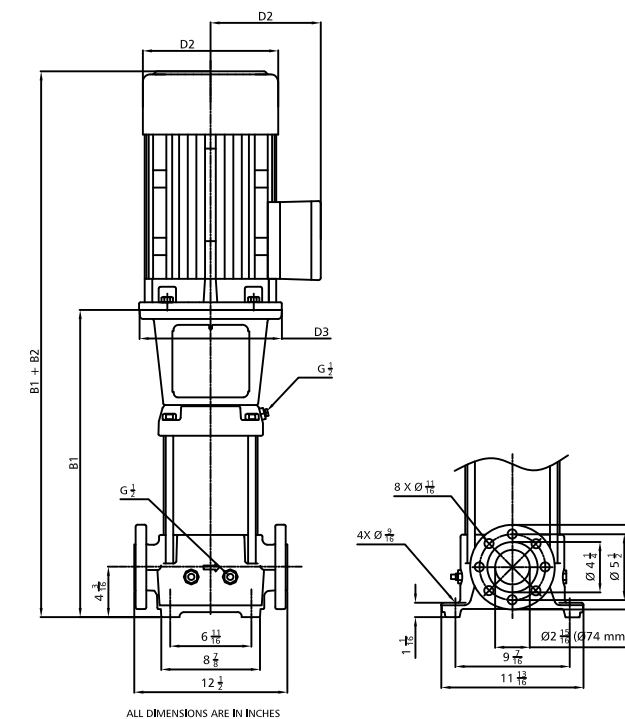


VRL 32



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Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 32-1-1	24.38	35.44	7.00	4.38	–	141
VRL 32-1	24.38	37.56	7.81	4.75	–	154
VRL 32-2-2	27.13	43.44	8.88	7.50	11.81	205
VRL 32-2-1	27.13	43.44	8.88	7.50	11.81	205
VRL 32-2	27.13	43.44	8.88	7.50	11.81	231
VRL 32-3-2	29.88	49.75	13.00	10.06	13.81	335
VRL 32-3	29.88	49.75	13.00	10.06	13.81	335
VRL 32-4-2	32.63	52.50	13.00	10.06	13.81	342
VRL 32-4	32.63	54.69	13.00	10.06	13.81	370
VRL 32-5-2	35.38	57.44	13.00	10.06	13.81	377
VRL 32-5	35.38	58.63	15.00	11.06	13.81	406
VRL 32-6-2	38.13	61.38	15.00	11.06	13.81	412
VRL 32-6	38.13	61.38	15.00	11.06	13.81	412
VRL 32-7-2	40.88	65.69	15.00	11.06	13.81	450
VRL 32-7	40.88	66.69	15.00	11.06	13.81	450
VRL 32-8-2	43.63	69.63	16.56	12.00	15.75	688
VRL 32-8	43.63	69.63	16.56	12.00	15.75	688
VRL 32-9-2	46.44	72.38	16.56	12.00	15.75	694
VRL 32-9	46.44	72.38	16.56	12.00	15.75	694
VRL 32-10-2	49.19	75.13	16.56	12.00	15.75	703

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	6	12	18	24	30	36	42
				US GPM	0	26	53	79	106	132	159	185
VRL 32-1-1	2.2	3	7.70-6.35/4.45-3.70	Head (Mtr.)	24	23	22	21	20	18	15	12
VRL 32-1	3	4	10.80-9.35/6.20-5.40		29	28	27	26	24	23	20	16
VRL 32-2-2	5.5	7.5	18.40-16.20/10.60/9.30		45	45	45	44	42	38	33	25
VRL 32-2-1	5.5	7.5	18.40-16.20/10.60/9.30		40	40	39	37	10	42	37	30
VRL 32-2	7.5	10	24.60-20.80/14.20-12.00		56	55	54	52	50	46	40	34
VRL 32-3-2	11	15	36.00-30.00/20.80-17.20		77	78	77	75	67	62	54	43
VRL 32-3	11	15	36.00-30.00/20.80-17.20		84	84	83	80	76	71	63	54
VRL 32-4-2	11	15	36.00-30.00/20.80-17.20		100	101	100	97	92	84	74	60
VRL 32-4	15	20	48.50-39.00/28.00-22.40		110	111	109	105	99	92	82	69
VRL 32-5-2	15	20	48.50-39.00/28.00-22.40		129	131	130	126	120	111	98	83
VRL 32-5	18.5	25	59.50-48.50/34.50-28.00		140	141	139	135	128	120	107	92
VRL 32-6-2	18.5	25	59.50-48.50/34.50-28.00		156	158	157	152	145	134	119	100
VRL 32-6	18.5	25	59.50-48.50/34.50-28.00		169	171	169	164	156	146	132	113
VRL 32-7-2	22	30	69.50-56.50/40.00-32.00		185	187	186	181	173	160	144	122
VRL 32-7	22	30	69.50-56.50/40.00-32.00		197	200	198	193	184	172	156	135
VRL 32-8-2	30*	40	55.00-50.00/31.50-29.00		214	217	216	211	201	187	168	144
VRL 32-8	30*	40	55.00-50.00/31.50-29.00		225	229	225	220	210	196	176	154
VRL 32-9-2	30*	40	55.00-50.00/31.50-29.00		243	246	245	240	229	213	192	165
VRL 32-9	30*	40	55.00-50.00/31.50-29.00	254	257	255	248	237	221	201	174	
VRL 32-10-2	30*	40	55.00-50.00/31.50-29.00	270	275	274	266	254	237	214	183	

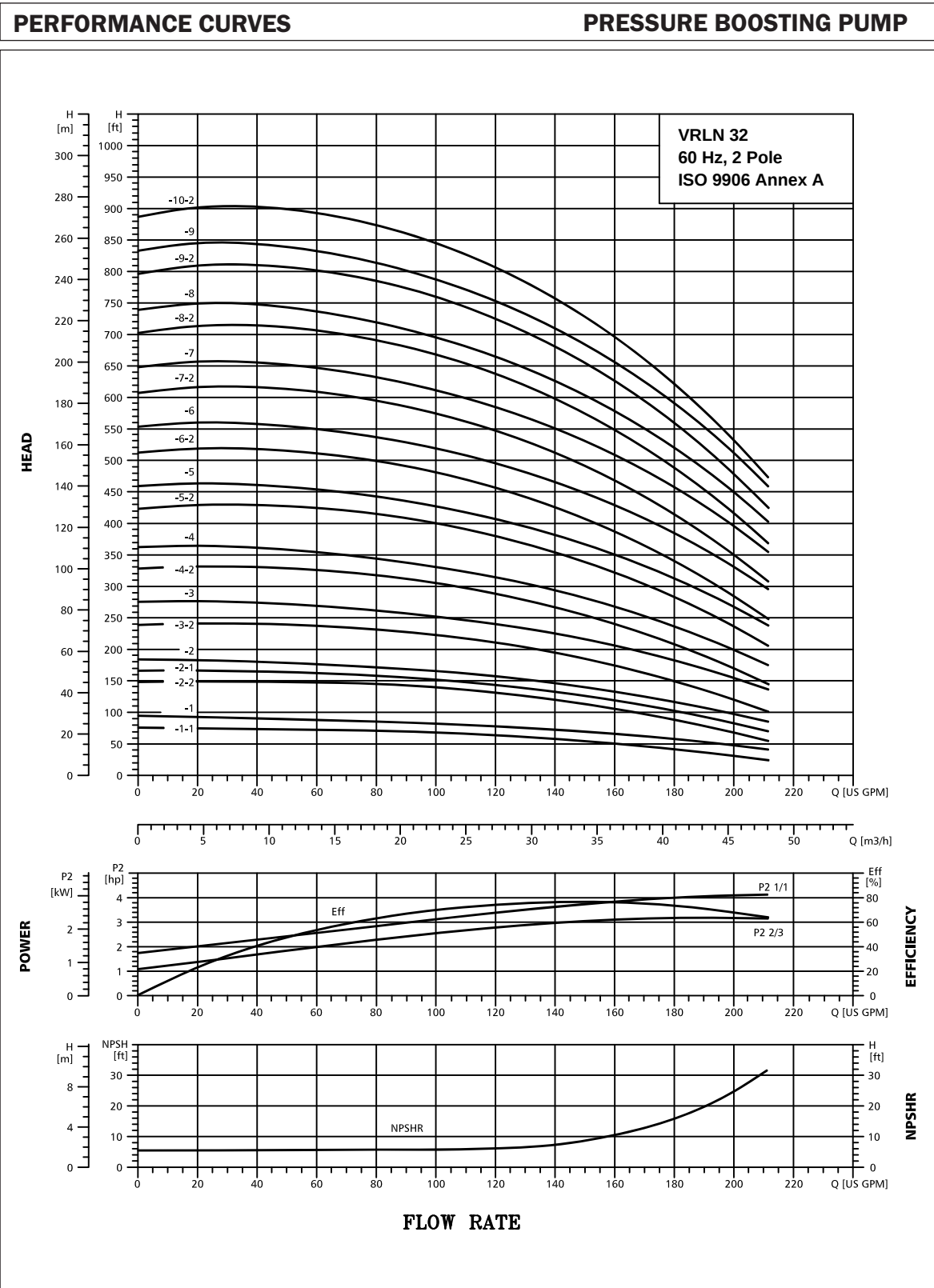
- VRL standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

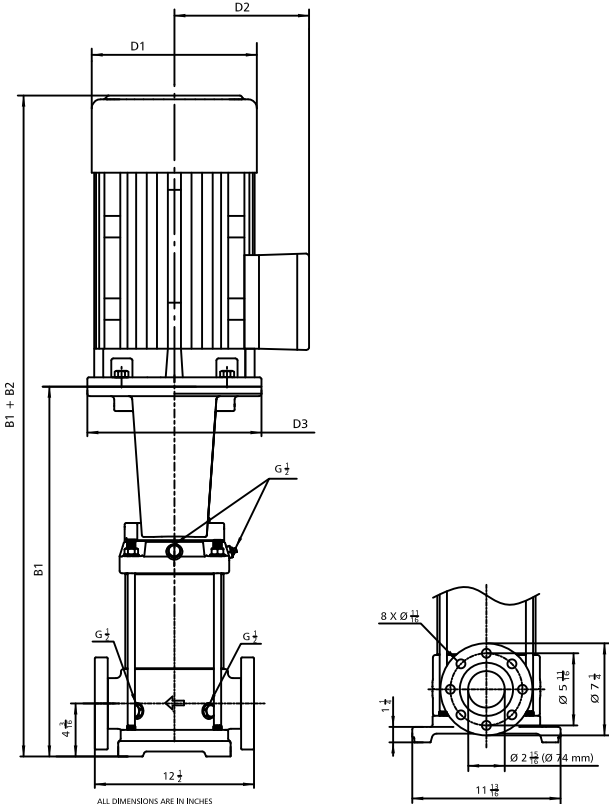
VRLN 32

TECHNICAL DATA

VRLN 32



DIMENSIONAL, SKETCH & PERFORMANCE



Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLN 32-1-1	24.38	35.44	7.00	4.38	–	146
VRLN 32-1	24.38	37.56	7.81	4.75	–	159
VRLN 32-2-2	27.13	43.44	8.88	7.50	11.81	209
VRLN 32-2-1	27.13	43.44	8.88	7.50	11.81	209
VRLN 32-2	27.13	43.44	8.88	7.50	11.81	236
VRLN 32-3-2	29.88	49.75	13.00	10.06	13.81	340
VRLN 32-3	29.88	49.75	13.00	10.06	13.81	340
VRLN 32-4-2	32.63	52.50	13.00	10.06	13.81	346
VRLN 32-4	32.63	54.69	13.00	10.06	13.81	375
VRLN 32-5-2	35.38	57.44	13.00	10.06	13.81	381
VRLN 32-5	35.38	58.63	15.00	11.06	13.81	410
VRLN 32-6-2	38.13	61.38	15.00	11.06	13.81	417
VRLN 32-6	38.13	61.38	15.00	11.06	13.81	417
VRLN 32-7-2	40.88	65.69	15.00	11.06	13.81	454
VRLN 32-7	40.88	66.69	15.00	11.06	13.81	454
VRLN 32-8-2	43.63	69.63	16.56	12.00	15.75	692
VRLN 32-8	43.63	69.63	16.56	12.00	15.75	692
VRLN 32-9-2	46.44	72.38	16.56	12.00	15.75	701
VRLN 32-9	46.44	72.38	16.56	12.00	15.75	701
VRLN 32-10-2	49.19	75.13	16.56	12.00	15.75	708

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h US GPM	0	6	12	18	24	30	36	42
					0	26	53	79	106	132	159	185
VRLN 32-1-1	2.2	3	7.70-6.35/4.45-3.70	Head (Mtr.)	24	23	22	21	20	18	15	12
VRLN 32-1	3	4	10.80-9.35/6.20-5.40		29	28	27	26	24	23	20	16
VRLN 32-2-2	5.5	7.5	18.40-16.20/10.60/9.30		45	45	45	44	42	38	33	25
VRLN 32-2-1	5.5	7.5	18.40-16.20/10.60/9.30		40	40	39	37	10	42	37	30
VRLN 32-2	7.5	10	24.60-20.80/14.20-12.00		56	55	54	52	50	46	40	34
VRLN 32-3-2	11	15	36.00-30.00/20.80-17.20		77	78	77	75	67	62	54	43
VRLN 32-3	11	15	36.00-30.00/20.80-17.20		84	84	83	80	76	71	63	54
VRLN 32-4-2	11	15	36.00-30.00/20.80-17.20		100	101	100	97	92	84	74	60
VRLN 32-4	15	20	48.50-39.00/28.00-22.40		110	111	109	105	99	92	82	69
VRLN 32-5-2	15	20	48.50-39.00/28.00-22.40		129	131	130	126	120	111	98	83
VRLN 32-5	18.5	25	59.50-48.50/34.50-28.00		140	141	139	135	128	120	107	92
VRLN 32-6-2	18.5	25	59.50-48.50/34.50-28.00		156	158	157	152	145	134	119	100
VRLN 32-6	18.5	25	59.50-48.50/34.50-28.00		169	171	169	164	156	146	132	113
VRLN 32-7-2	22	30	69.50-56.50/40.00-32.00		185	187	186	181	173	160	144	122
VRLN 32-7	22	30	69.50-56.50/40.00-32.00		197	200	198	193	184	172	156	135
VRLN 32-8-2	30*	40	55.00-50.00/31.50-29.00		214	217	216	211	201	187	168	144
VRLN 32-8	30*	40	55.00-50.00/31.50-29.00		225	229	225	220	210	196	176	154
VRLN 32-9-2	30*	40	55.00-50.00/31.50-29.00		243	246	245	240	229	213	192	165
VRLN 32-9	30*	40	55.00-50.00/31.50-29.00		254	257	255	248	237	221	201	174
VRLN 32-10-2	30*	40	55.00-50.00/31.50-29.00		270	275	274	266	254	237	214	183

- VRLN standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 45

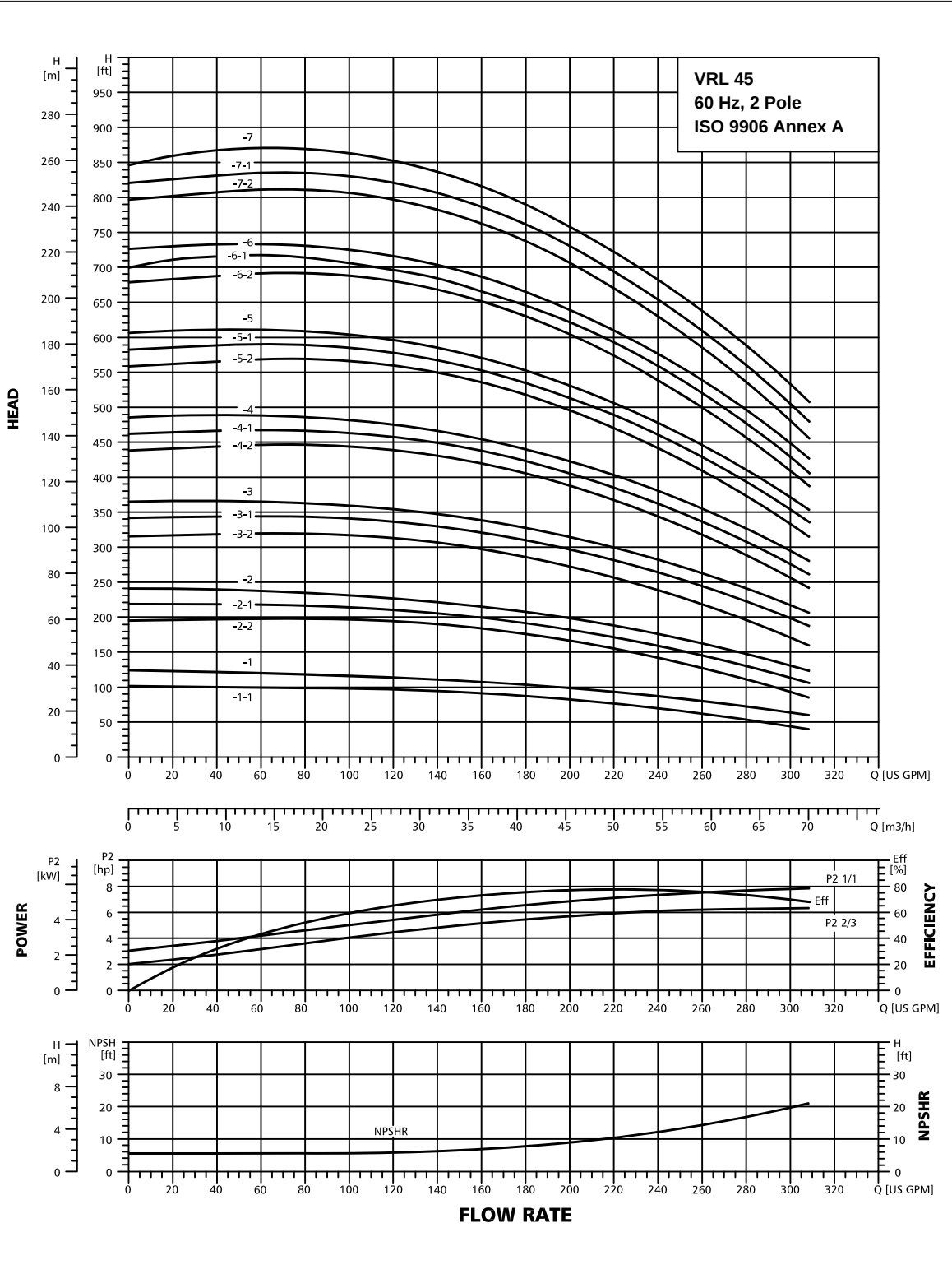
TECHNICAL DATA

VRL 45

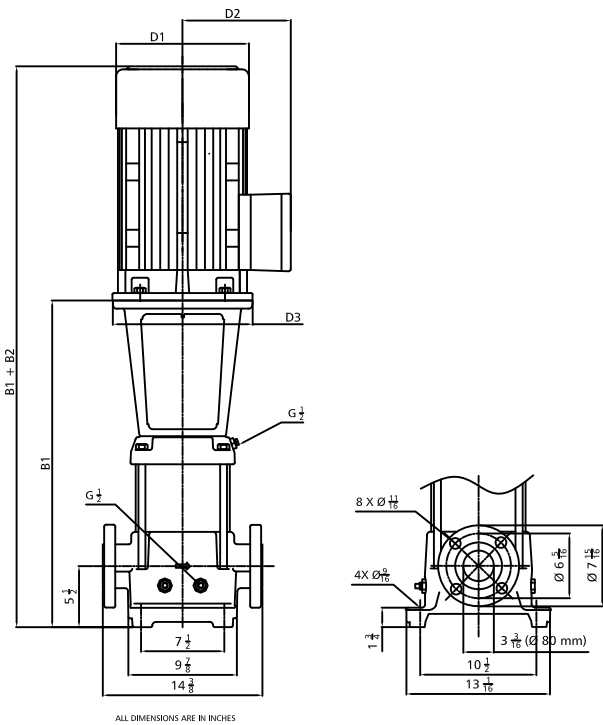


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 45-1-1	22.13	38.44	8.88	7.50	11.81	220
VRL 45-1	22.13	38.44	8.88	7.50	11.81	247
VRL 45-2-2	25.25	45.13	13.00	10.06	13.81	351
VRL 45-2-1	25.25	45.13	13.00	10.06	13.81	351
VRL 45-2	25.25	47.31	13.00	10.06	13.81	379
VRL 45-3-2	28.44	51.63	15.00	11.06	13.81	417
VRL 45-3-1	28.44	51.63	15.00	11.06	13.81	417
VRL 45-3	28.44	51.63	15.00	11.06	13.81	417
VRL 45-4-2	31.56	56.38	15.00	11.06	13.81	456
VRL 45-4-1	31.56	57.56	16.56	12.00	15.75	681
VRL 45-4	31.56	57.56	16.56	12.00	15.75	681
VRL 45-5-2	36.69	60.69	16.56	12.00	15.75	690
VRL 45-5-1	36.69	60.69	16.56	12.00	15.75	690
VRL 45-5	36.69	60.69	16.56	12.00	15.75	690
VRL 45 6 2	37.88	63.81	16.56	12.00	15.75	769
VRL 45-6-1	37.88	63.81	16.56	12.00	15.75	769
VRL 45-6	37.88	63.81	16.56	12.00	15.75	769
VRL 45-7-2	41.00	68.75	18.50	13.19	17.75	966
VRL 45-7-1	41.00	68.75	18.50	13.19	17.75	966
VRL 45-7	41.00	68.75	18.50	13.19	17.75	966

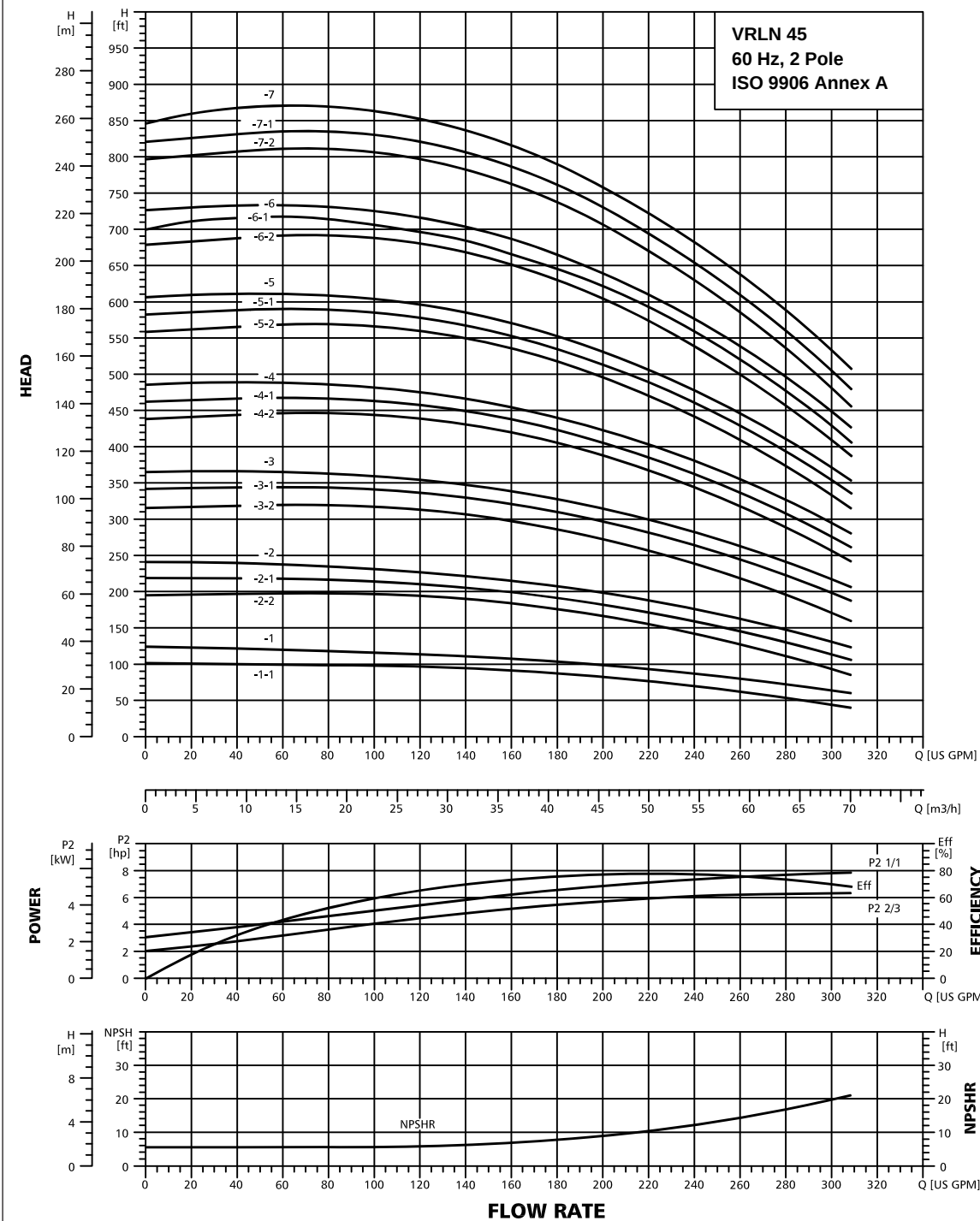
PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h US GPM	0	10	20	30	40	50	60	70
					0	44	88	132	176	220	264	308
VRL 45-1-1	5.5	7.5	18.40-16.20/10.60/9.30	Head (Mtr.)	31	30	30	28	26	23	18	12
VRL 45-1	7.5	10	24.60-20.80/14.20-12.00		38	37	35	34	32	28	24	18
VRL 45-2-2	11	15	36.00-30.00/20.80-17.20		59	60	60	58	54	57	37	26
VRL 45-2-1	11	15	36.00-30.00/20.80-17.20		66	66	65	63	59	52	43	32
VRL 45-2	15	20	48.50-39.00/28.00-22.40		74	73	71	68	64	57	48	37
VRL 45-3-2	18.5	25	59.50-48.50/34.50-28.00		96	97	97	94	87	78	65	49
VRL 45-3-1	18.5	25	59.50-48.50/34.50-28.00		103	105	104	101	95	86	73	57
VRL 45-3	18.5	25	59.50-48.50/34.50-28.00		111	111	110	106	100	91	78	63
VRL 45-4-2	22	30	69.50-56.50/40.00-32.00		134	135	136	132	124	112	95	74
VRL 45-4-1	30*	40	55.00-50.00/31.50-29.00		140	142	141	138	130	117	101	80
VRL 45-4	30*	40	55.00-50.00/31.50-29.00		147	149	147	143	135	122	107	85
VRL 45-5-2	30*	40	55.00-50.00/31.50-29.00		170	172	173	168	158	143	122	96
VRL 45-5-1	30*	40	55.00-50.00/31.50-29.00		178	179	179	174	164	149	128	102
VRL 45-5	30*	40	55.00-50.00/31.50-29.00		184	186	185	180	170	154	134	108
VRL 45-6-2	37*	50	67.00-61.00/38.50-35.00		226	229	231	225	193	175	150	118
VRL 45 6 1	37*	50	67.00 61.00/38.50 35.00		213	218	217	210	197	180	161	124
VRL 45-6	37*	50	67.00-61.00/38.50-35.00		221	223	222	216	204	186	162	130
VRL 45-7-2	45*	60	81.00-74.00/47.00-42.50		243	245	246	240	226	204	175	139
VRL 45-7-1	45*	60	81.00-74.00/47.00-42.50		250	254	255	247	234	211	183	141
VRL 45-7	45*	60	81.00-74.00/47.00-42.50		257	265	265	256	242	220	191	155

- VRL standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

VRL N 45

PRESSURE BOOSTING PUMP

**VRL N 45**

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Technical drawing of a 1000W motor, showing dimensions in inches.

Dimensions:

- $D1$, $D2$, $D3$
- $B1$, $B1 + B2$
- $5 \frac{1}{2}$
- $14 \frac{3}{4}$
- $G \frac{1}{4}$
- $13 \frac{3}{4}$
- 1
- $8 \times \varnothing \frac{1}{16}$
- $\varnothing 3 \frac{3}{16} (\varnothing 86 \text{ mm})$
- $\varnothing 6 \frac{3}{16}$
- $\varnothing 7 \frac{3}{16}$

ALL DIMENSIONS ARE IN INCHES

Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLN 45-1-1	22.13	38.44	8.88	7.50	11.81	220
VRLN 45-1	22.13	38.44	8.88	7.50	11.81	247
VRLN 45-2-2	25.25	45.13	13.00	10.06	13.81	351
VRLN 45-2-1	25.25	45.13	13.00	10.06	13.81	351
VRLN 45-2	25.25	47.31	13.00	10.06	13.81	379
VRLN 45-3-2	28.44	51.63	15.00	11.06	13.81	417
VRLN 45-3-1	28.44	51.63	15.00	11.06	13.81	417
VRLN 45-3	28.44	51.63	15.00	11.06	13.81	417
VRLN 45-4-2	31.56	56.38	15.00	11.06	13.81	456
VRLN 45-4-1	31.56	57.56	16.56	12.00	15.75	681
VRLN 45-4	31.56	57.56	16.56	12.00	15.75	681
VRLN 45-5-2	36.69	60.69	16.56	12.00	15.75	690
VRLN 45-5-1	36.69	60.69	16.56	12.00	15.75	690
VRLN 45-5	36.69	60.69	16.56	12.00	15.75	690
VRLN 45-6-2	37.88	63.81	16.56	12.00	15.75	769
VRLN 45-6-1	37.88	63.81	16.56	12.00	15.75	769
VRLN 45-6	37.88	63.81	16.56	12.00	15.75	769
VRLN 45-7-2	41.00	68.75	18.50	13.19	17.75	966
VRLN 45-7-1	41.00	68.75	18.50	13.19	17.75	966
VRLN 45-7	41.00	68.75	18.50	13.19	17.75	966

Model	kW	HP	Amp.	m³/h	0	10	20	30	40	50	60	70
				US GPM	0	44	88	132	176	220	264	308
VRLN 45-1-1	5.5	7.5	18.40-16.20/10.60/9.30	Head (Mtr.)	31	30	30	28	26	23	18	12
VRLN 45-1	7.5	10	24.60-20.80/14.20-12.00		38	37	35	34	32	28	24	18
VRLN 45-2-2	11	15	36.00-30.00/20.80-17.20		59	60	60	58	54	57	37	26
VRLN 45-2-1	11	15	36.00-30.00/20.80-17.20		66	66	65	63	59	52	43	32
VRLN 45-2	15	20	48.50-39.00/28.00-22.40		74	73	71	68	64	57	48	37
VRLN 45-3-2	18.5	25	59.50-48.50/34.50-28.00		96	97	97	94	87	78	65	49
VRLN 45-3-1	18.5	25	59.50-48.50/34.50-28.00		103	105	104	101	95	86	73	57
VRLN 45-3	18.5	25	59.50-48.50/34.50-28.00		111	111	110	106	100	91	78	63
VRLN 45-4-2	22	30	69.50-56.50/40.00-32.00		134	135	136	132	124	112	95	74
VRLN 45-4-1	30*	40	55.00-50.00/31.50-29.00		140	142	141	138	130	117	101	80
VRLN 45-4	30*	40	55.00-50.00/31.50-29.00		147	149	147	143	135	122	107	85
VRLN 45-5-2	30*	40	55.00-50.00/31.50-29.00		170	172	173	168	158	143	122	96
VRLN 45-5-1	30*	40	55.00-50.00/31.50-29.00		178	179	179	174	164	149	128	102
VRLN 45-5	30*	40	55.00-50.00/31.50-29.00		184	186	185	180	170	154	134	108
VRLN 45-6-2	37*	50	67.00-61.00/38.50-35.00		226	229	231	225	193	175	150	118
VRLN 45-6-1	37*	50	67.00-61.00/38.50-35.00		213	218	217	210	197	180	161	124
VRLN 45-6	37*	50	67.00-61.00/38.50-35.00		221	223	222	216	204	186	162	130
VRLN 45-7-2	45*	60	81.00-74.00/47.00-42.50		243	245	246	240	226	204	175	139
VRLN 45-7-1	45*	60	81.00-74.00/47.00-42.50	250	254	255	247	234	211	183	141	
VRLN 45-7	45*	60	81.00-74.00/47.00-42.50	257	265	265	256	242	220	191	155	

- VRLN standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 64

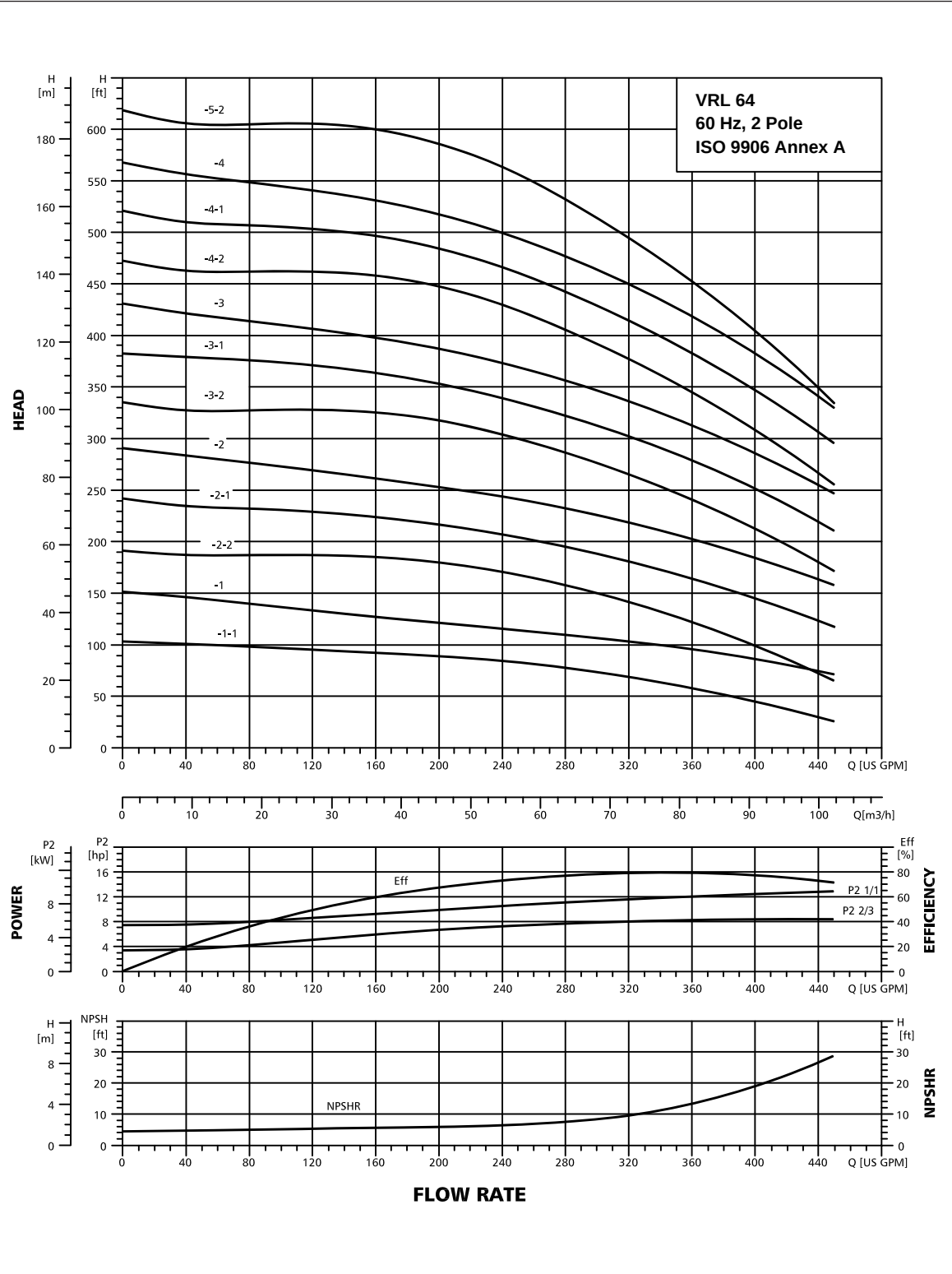
TECHNICAL DATA

VRL 64

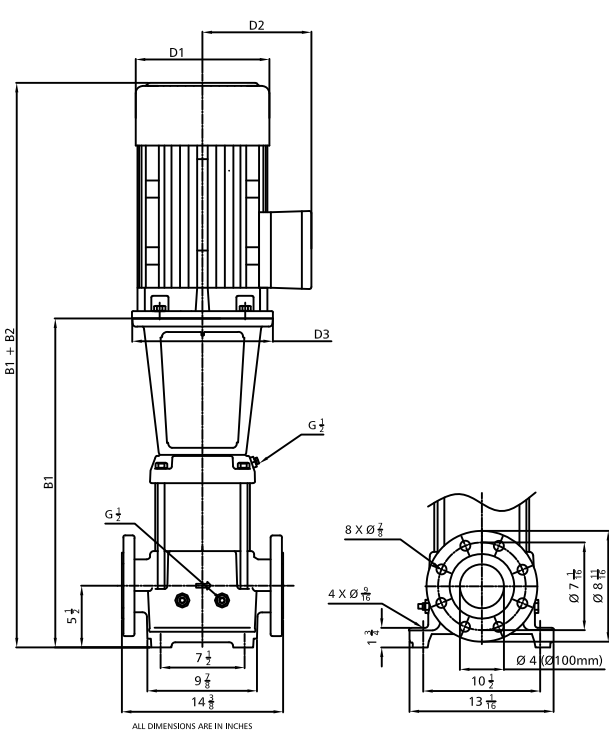


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 64-1-1	26.44	42.75	8.88	7.50	11.81	251
VRL 64-1	26.44	46.31	13.00	10.06	13.81	348
VRL 64-2-2	29.69	51.75	13.00	10.06	13.81	386
VRL 64-2-1	29.69	52.94	15.00	11.06	13.81	414
VRL 64-2	29.69	54.50	15.00	11.06	13.81	445
VRL 64-3-2	33.00	57.75	15.00	11.06	13.81	456
VRL 64-3-1	33.00	58.94	16.56	12.06	15.75	681
VRL 64-3	33.00	58.94	16.56	12.06	15.75	681
VRL 64-4-2	36.25	62.25	16.56	12.06	15.75	761
VRL 64-4-1	36.25	62.25	16.56	12.06	15.75	761
VRL 64-4	36.25	64.00	18.50	13.19	17.75	946
VRL 64-5-2	39.50	67.25	18.50	13.19	17.75	957

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h US GPM	0	10	25	40	55	70	85	100
					0	44	110	176	242	308	374	440
VRL 64-1-1	7.5	10	24.60-20.80/14.20-12.00	Head (Mtr.)	32	31	29	27	25	22	16	9
VRL 64-1	11	15	36.00-30.00/20.80-17.20		46	44	41	37	35	32	28	23
VRL 64-2-2	15	20	48.50-39.00/28.00-22.40		58	57	57	55	52	45	35	22
VRL 64-2-1	18.5	25	59.50-48.50/34.50-28.00		74	71	70	67	63	56	48	37
VRL 64-2	22	30	69.50-56.50/40.00-32.00		88	86	83	78	74	67	60	50
VRL 64-3-2	22	30	69.50-56.50/40.00-32.00		103	100	100	98	93	83	70	55
VRL 64-3-1	30*	40	55.00-50.00/31.50-29.00		116	115	114	110	103	94	82	66
VRL 64-3	30*	40	55.00-50.00/31.50-29.00		132	128	124	120	113	104	92	77
VRL 64-4-2	37*	50	67.00-61.00/38.50-35.00		144	140	140	138	131	117	101	81
VRL 64-4-1	37*	50	67.00-61.00/38.50-35.00		158	155	154	150	142	129	113	93
VRL 64-4	45*	60	81.00-74.00/47.00-42.50		173	169	165	160	152	140	124	104
VRL 64-5-2	45*	60	81.00-74.00/47.00-42.50		188	185	185	181	172	154	133	106

- VRL standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRLN 64

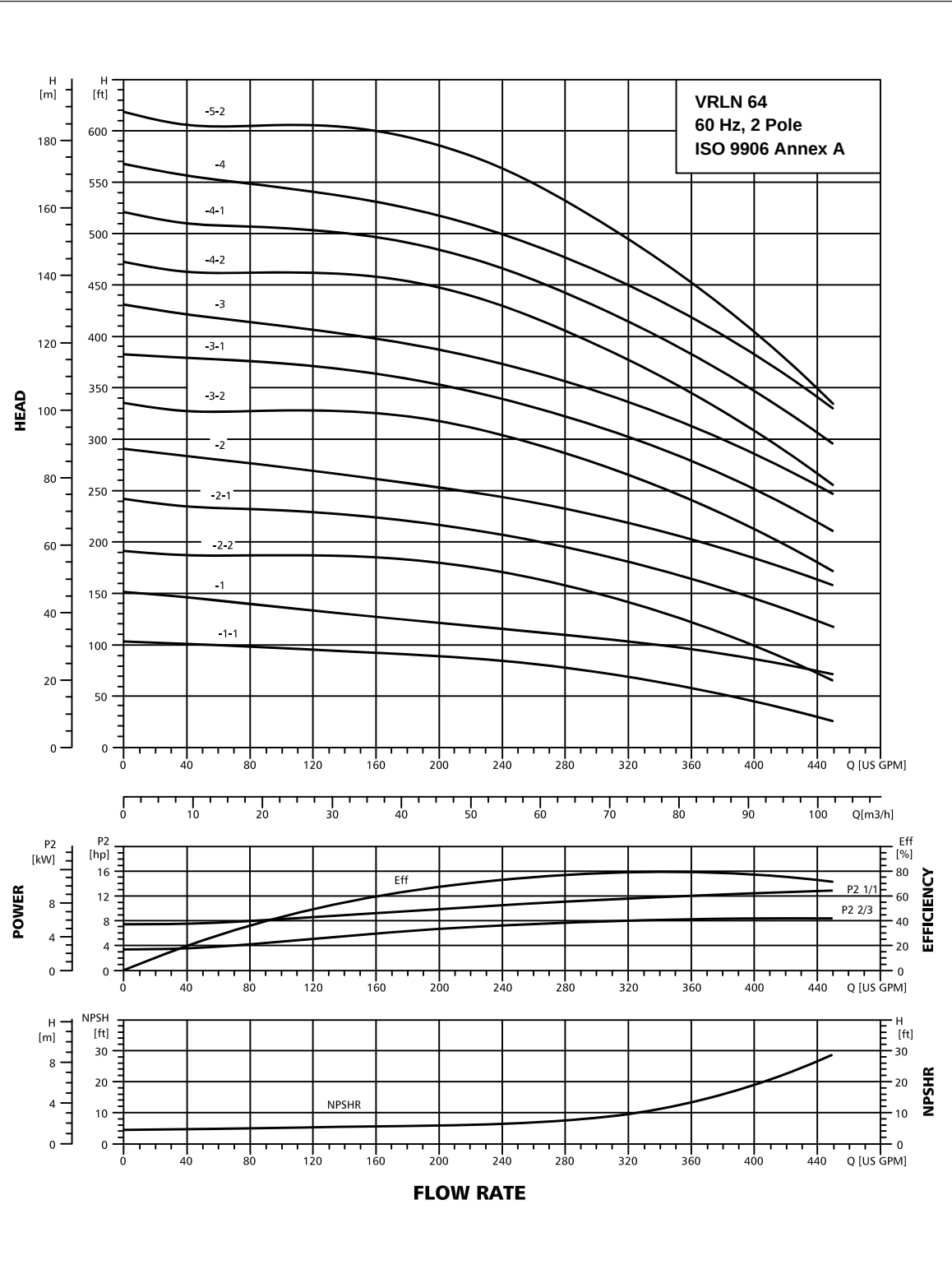
TECHNICAL DATA

VRLN 64

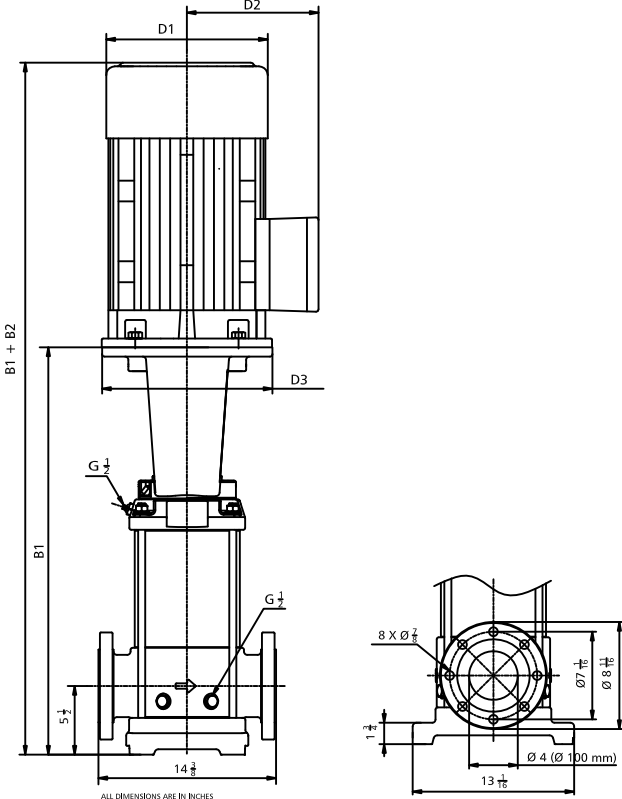


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLN 64-1-1	26.44	42.75	8.88	7.50	11.81	251
VRLN 64-1	26.44	46.31	13.00	10.06	13.81	348
VRLN 64-2-2	29.69	51.75	13.00	10.06	13.81	386
VRLN 64-2-1	29.69	52.94	15.00	11.06	13.81	414
VRLN 64-2	29.69	54.50	15.00	11.06	13.81	445
VRLN 64-3-2	33.00	57.75	15.00	11.06	13.81	456
VRLN 64-3-1	33.00	58.94	16.56	12.06	15.75	681
VRLN 64-3	33.00	58.94	16.56	12.06	15.75	681
VRLN 64-4-2	36.25	62.25	16.56	12.06	15.75	761
VRLN 64-4-1	36.25	62.25	16.56	12.06	15.75	761
VRLN 64-4	36.25	64.00	18.50	13.19	17.75	946
VRLN 64-5-2	39.50	67.25	18.50	13.19	17.75	957

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	10	25	40	55	70	85	100
				US GPM	0	44	110	176	242	308	374	440
VRLN 64-1-1	7.5	10	24.60-20.80/14.20-12.00	Head (Mtr.)	32	31	29	27	25	22	16	9
VRLN 64-1	11	15	36.00-30.00/20.80-17.20		46	44	41	37	35	32	28	23
VRLN 64-2-2	15	20	48.50-39.00/28.00-22.40		58	57	57	55	52	45	35	22
VRLN 64-2-1	18.5	25	59.50-48.50/34.50-28.00		74	71	70	67	63	56	48	37
VRLN 64-2	22	30	69.50-56.50/40.00-32.00		88	86	83	78	74	67	60	50
VRLN 64-3-2	22	30	69.50-56.50/40.00-32.00		103	100	100	98	93	83	70	55
VRLN 64-3-1	30*	40	55.00-50.00/31.50-29.00		116	115	114	110	103	94	82	66
VRLN 64-3	30*	40	55.00-50.00/31.50-29.00		132	128	124	120	113	104	92	77
VRLN 64-4-2	37*	50	67.00-61.00/38.50-35.00		144	140	140	138	131	117	101	81
VRLN 64-4-1	37*	50	67.00-61.00/38.50-35.00		158	155	154	150	142	129	113	93
VRLN 64-4	45*	60	81.00-74.00/47.00-42.50		173	169	165	160	152	140	124	104
VRLN 64-5-2	45*	60	81.00-74.00/47.00-42.50		188	185	185	181	172	154	133	106

- VRLN standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRL 90

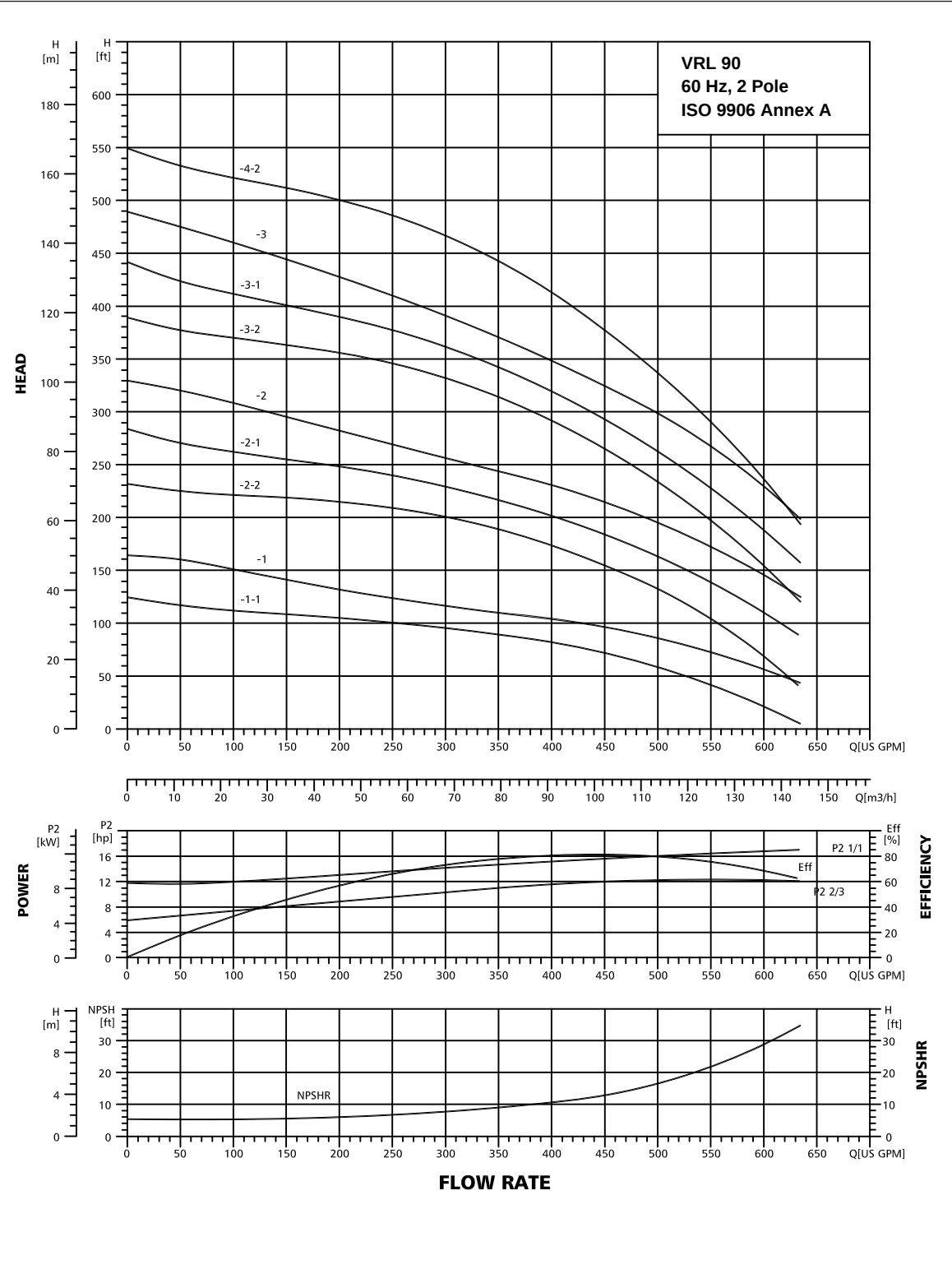
TECHNICAL DATA

VRL 90

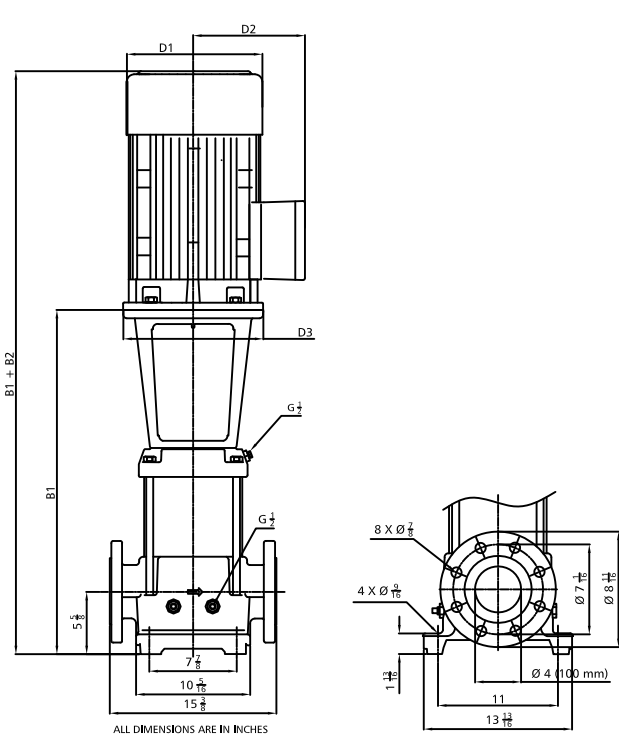


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 90-1-1	22.69	42.56	13.00	10.06	13.81	359
VRL 90-1	22.69	42.56	13.00	10.06	13.81	388
VRL 90-2-2	26.19	48.25	13.00	10.06	13.81	428
VRL 90-2-1	26.19	49.44	15.00	11.06	13.81	456
VRL 90-2	26.19	52.19	16.56	12.06	15.75	681
VRL 90-3-2	29.75	55.75	16.56	12.06	15.75	761
VRL 90-3-1	29.75	55.75	16.56	12.06	15.75	761
VRL 90-3	29.75	57.50	18.50	13.25	17.75	946
VRL 90-4-2	33.31	61.06	18.50	13.25	17.75	961

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h US GPM	0	20	40	60	80	100	120	140
VRL 90-1-1	11	15	36.00-30.00/20.80-17.20	Head (Mtr.)	38	34	32	30	27	23	15	4
VRL 90-1	15	20	48.50-39.00/28.00-22.40		50	47	42	37	33	29	24	15
VRL 90-2-2	18.5	25	59.50-48.50/34.50-28.00		71	68	66	63	57	48	36	17
VRL 90-2-1	22	30	69.50-56.50/40.00-32.00		86	80	76	72	66	57	46	30
VRL 90-2	30*	40	55.00-50.00/31.50-29.00		100	95	87	81	74	66	56	42
VRL 90-3-2	37*	50	67.00-61.00/38.50-35.00		118	114	109	104	96	82	65	42
VRL 90-3-1	37*	50	67.00-61.00/38.50-35.00		135	126	120	114	104	91	74	53
VRL 90-3	45*	60	81.00-74.00/47.00-42.50		159	142	133	123	112	100	86	66
VRL 90-4-2	45*	60	81.00-74.00/47.00-42.50		167	160	154	147	135	117	95	66

- VRL standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PERFORMANCE CURVES

VRLN 90

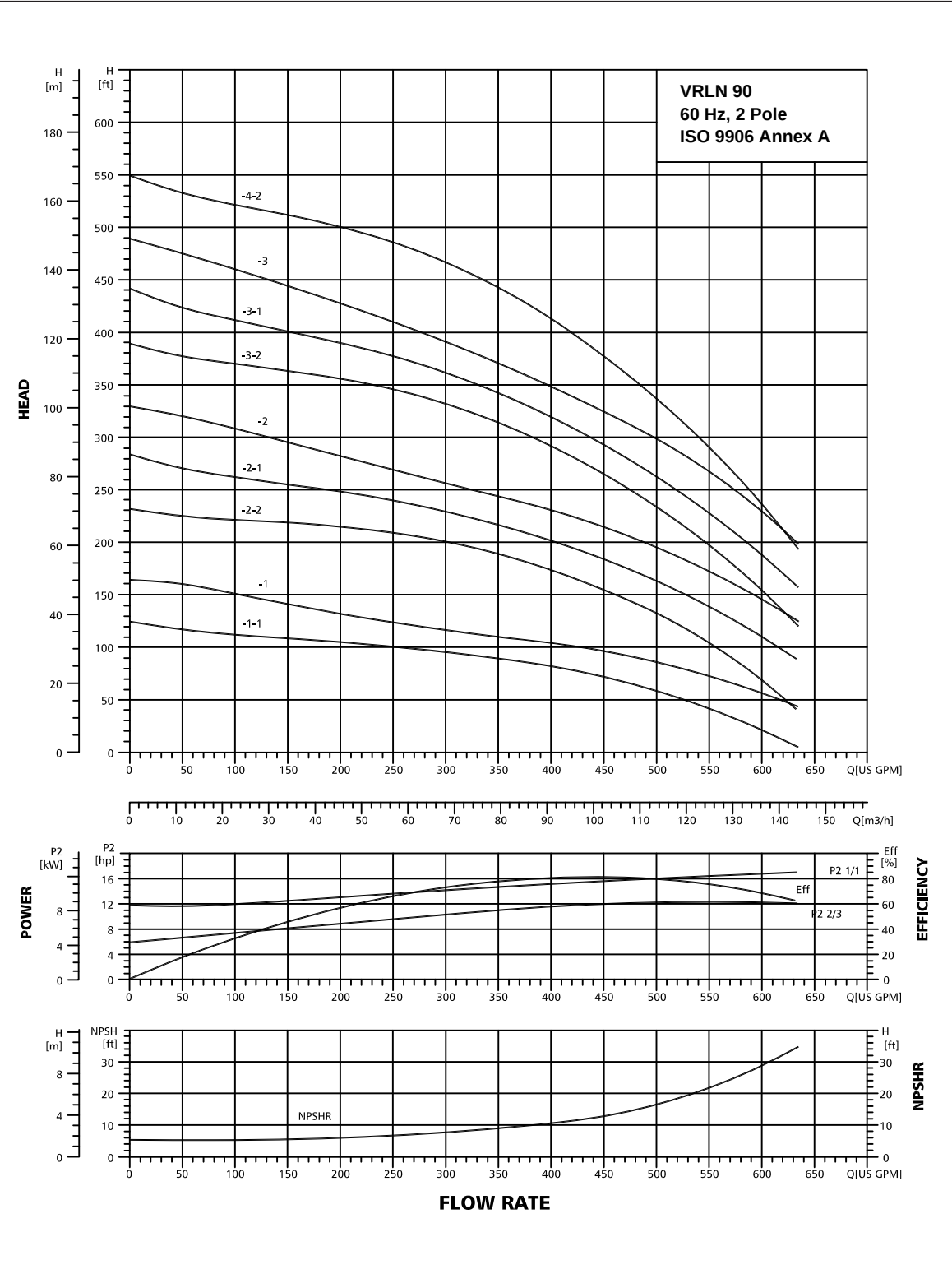
TECHNICAL DATA

VRLN 90

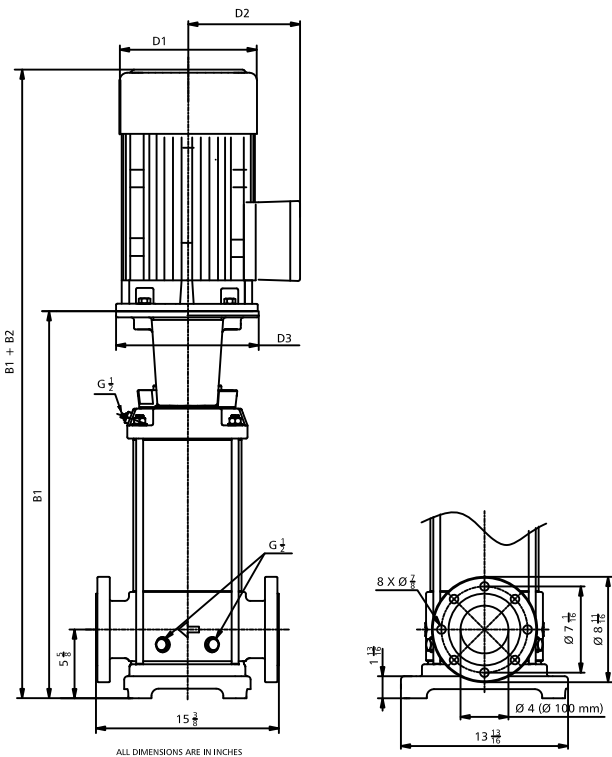


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PERFORMANCE CURVES PRESSURE BOOSTING PUMP



DIMENSIONAL, SKETCH & PERFORMANCE



Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLN 90-1-1	22.69	42.56	13.00	10.06	13.81	362
VRLN 90-1	22.69	42.56	13.00	10.06	13.81	390
VRLN 90-2-2	26.19	48.25	13.00	10.06	13.81	430
VRLN 90-2-1	26.19	49.44	15.00	11.06	13.81	461
VRLN 90-2	26.19	52.19	16.56	12.06	15.75	686
VRLN 90-3-2	29.75	55.75	16.56	12.06	15.75	763
VRLN 90-3-1	29.75	55.75	16.56	12.06	15.75	763
VRLN 90-3	29.75	57.50	18.50	13.25	17.75	950
VRLN 90-4-2	33.31	61.06	18.50	13.25	17.75	966

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	20	40	60	80	100	120	140
				US GPM	0	88	176	264	352	440	528	616
VRLN 90-1-1	11	15	36.00-30.00/20.80-17.20	Head (Mtr.)	38	34	32	30	27	23	15	4
VRLN 90-1	15	20	48.50-39.00/28.00-22.40		50	47	42	37	33	29	24	15
VRLN 90-2-2	18.5	25	59.50-48.50/34.50-28.00		71	68	66	63	57	48	36	17
VRLN 90-2-1	22	30	69.50-56.50/40.00-32.00		86	80	76	72	66	57	46	30
VRLN 90-2	30*	40	55.00-50.00/31.50-29.00		100	95	87	81	74	66	56	42
VRLN 90-3-2	37*	50	67.00-61.00/38.50-35.00		118	114	109	104	96	82	65	42
VRLN 90-3-1	37*	50	67.00-61.00/38.50-35.00		135	126	120	114	104	91	74	53
VRLN 90-3	45*	60	81.00-74.00/47.00-42.50		159	142	133	123	112	100	86	66
VRLN 90-4-2	45*	60	81.00-74.00/47.00-42.50		167	160	154	147	135	117	95	66

- VRLN standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

VRL 120



VRL 120



Technical drawing of the 1000 Series Motor Mounting Bracket. The drawing includes a front view (left) and a side view (right). Dimensions are provided in inches.

Front View Dimensions:

- Overall width: $D1$
- Motor width: $D2$
- Bracket width: $D3$
- Motor height: $B1 + B2$
- Bracket height: $B1$
- Mounting hole diameter: $G \frac{1}{2}$
- Bracket thickness: $7 \frac{1}{8}$
- Mounting hole spacing: $10 \frac{1}{8}$, $13 \frac{1}{8}$, $15 \frac{1}{8}$

Side View Dimensions:

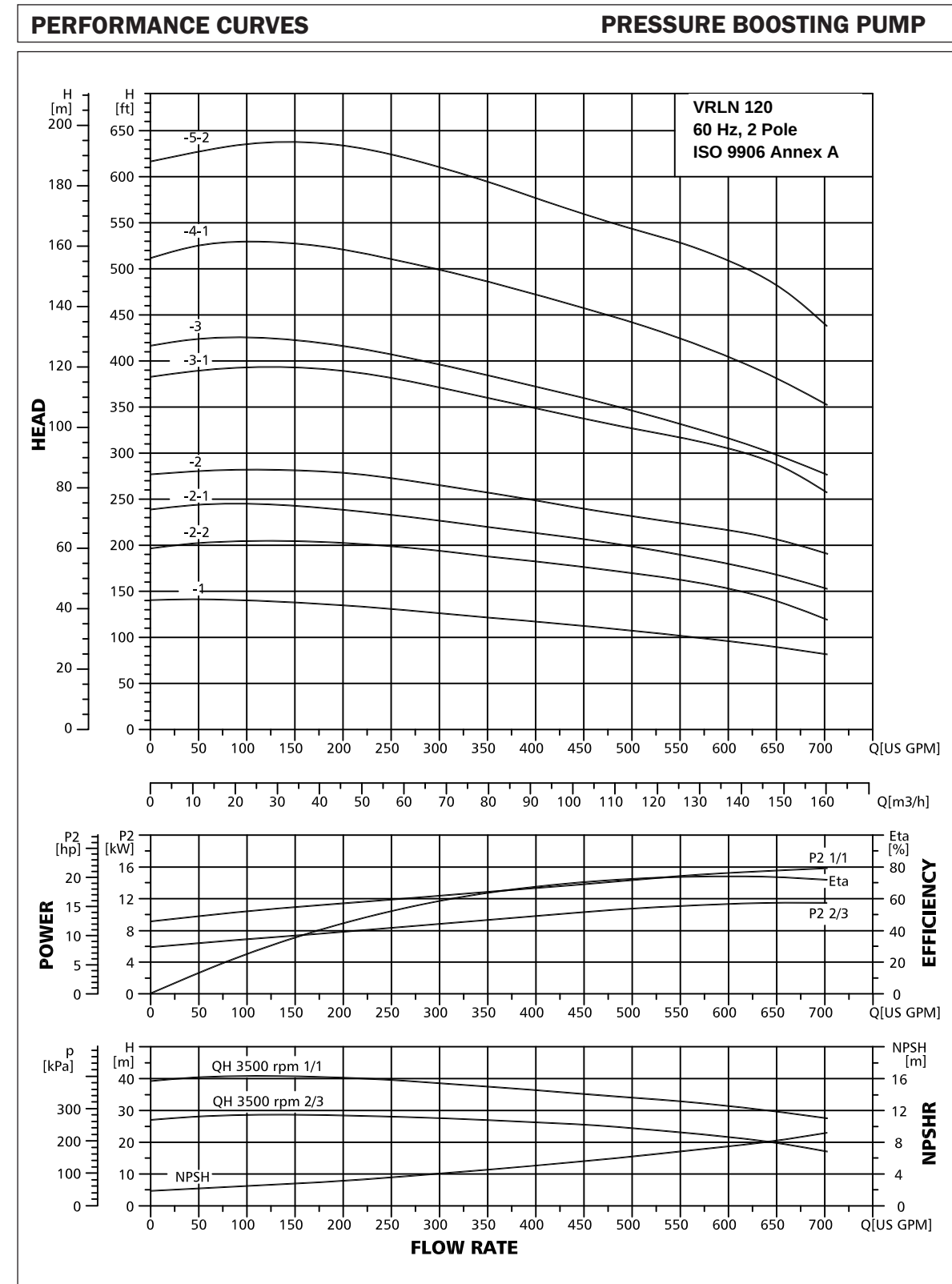
- Motor mounting hole diameter: $8 \times \varnothing 4$
- Bracket mounting hole diameter: $4 \times \varnothing 4$
- Motor mounting hole spacing: $\varnothing 7 \frac{1}{8}$, $\varnothing 8 \frac{1}{8}$
- Bracket mounting hole spacing: $\varnothing 4$ ($\varnothing 100$ mm)
- Bracket thickness: $1 \frac{1}{8}$
- Bracket width: 15 , $17 \frac{1}{8}$

ALL DIMENSIONS ARE IN INCHES

PERFORMANCE TABLE

- VRL standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

VRL N 120

**VRL N 120**

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Technical drawing of the 1000 Series Motor Mounting Bracket, showing front, side, and top views with dimensions in inches.

Front View Dimensions:

- Overall width: $D1$
- Overall height: $B1 + B2$
- Motor body width: $D2$
- Mounting bracket width: $D3$
- Mounting bracket height: $B1$
- Mounting bracket width: $7 \frac{1}{8}$
- Mounting bracket width: $10 \frac{1}{4}$
- Mounting bracket width: $13 \frac{1}{4}$
- Mounting bracket width: $15 \frac{1}{4}$

Side View Dimensions:

- Mounting bracket width: $17 \frac{1}{4}$
- Mounting bracket height: $1 \frac{1}{4}$

Top View Dimensions:

- Mounting bracket width: 15
- Mounting bracket height: $8 \frac{1}{4}$
- Mounting bracket width: $8 \times \phi \frac{1}{4}$
- Mounting bracket height: $\phi 7 \frac{1}{8}$
- Mounting bracket height: $\phi 8 \frac{1}{4}$
- Mounting bracket height: $\phi 4 (\phi 0.00 \text{ min})$

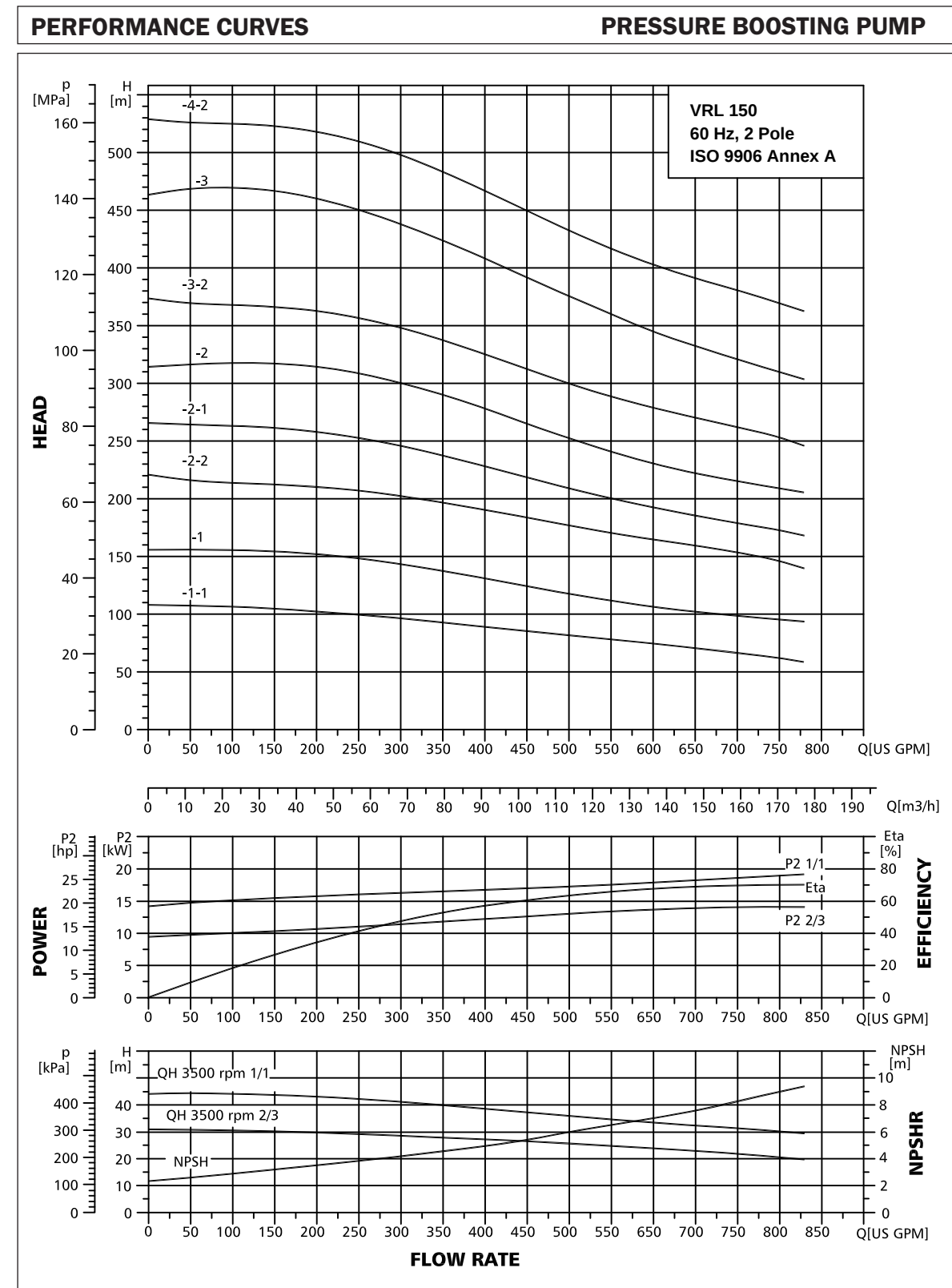
ALL DIMENSIONS ARE IN INCHES

Dimensions and Weight						
Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLN 120-1	33.13	55.19	13.00	10.06	13.81	487
VRLN 120-2-2	39.25	62.50	16.56	12.06	15.75	765
VRLN 120-2-1	39.25	62.50	16.56	12.06	15.75	765
VRLN 120-2	39.25	62.50	16.56	12.06	15.75	831
VRLN 120-3-1	45.44	71.38	18.56	13.19	17.75	1038
VRLN 120-3	45.44	75.75	20.06	14.63	21.69	1314
VRLN 120-4-1	51.56	84.81	22.88	16.19	21.69	1579
VRLN 120-5-2	51.56	91.75	22.88	16.19	21.69	1600

Model	kW	HP	Amp.	m³/h	0	30	50	70	90	110	130	150
				US GPM	0	132	220	308	396	484	572	660
VRLN 120-1	18.5	25	59.50-48.50/34.50-28.00	Head (Mtr.)	43	42	40	38	36	33	30	27
VRLN 120-2-2	30*	40	55.00-50.00/31.50-29.00		60	63	62	58	55	52	47	42
VRLN 120-2-1	30*	40	55.00-50.00/31.50-29.00		73	75	72	67	65	61	56	50
VRLN 120-2	37*	50	67.00-61.00/38.50-35.00		84	86	83	80	76	72	67	62
VRLN 120-3-1	45*	60	81.00-74.00/47.00-42.50		117	120	117	113	106	101	95	86
VRLN 120-3	55*	75	99.00-89.00/57.00-51.00		127	129	126	120	117	106	99	90
VRLN 120-4-1	75*	100	136.0-122.0/79.00-70.00		156	161	155	152	144	137	127	115
VRLN 120-5-2	75*	100	136.0-122.0/79.00-70.00		187	195	193	185	177	167	158	145

- VRL standard voltages: 220-255Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

VRL 150

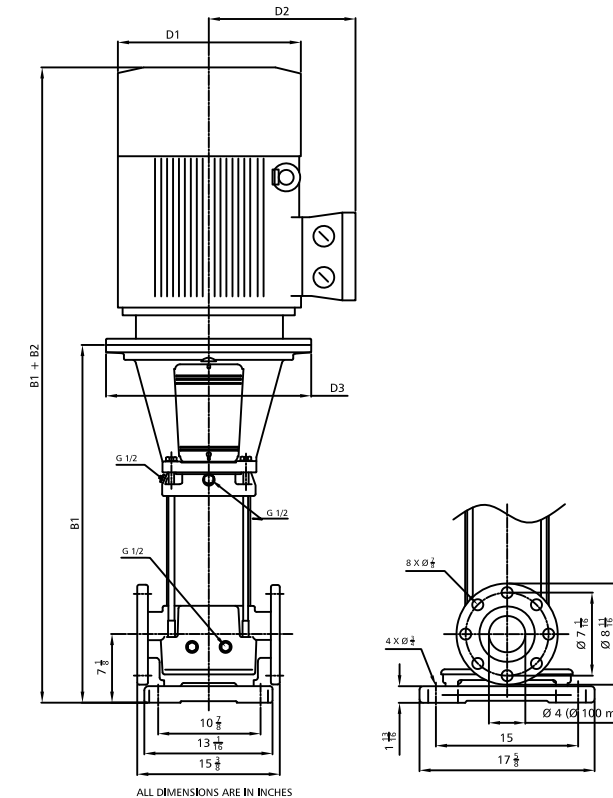


VRL 150



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DIMENSIONAL, SKETCH & PERFORMANCE



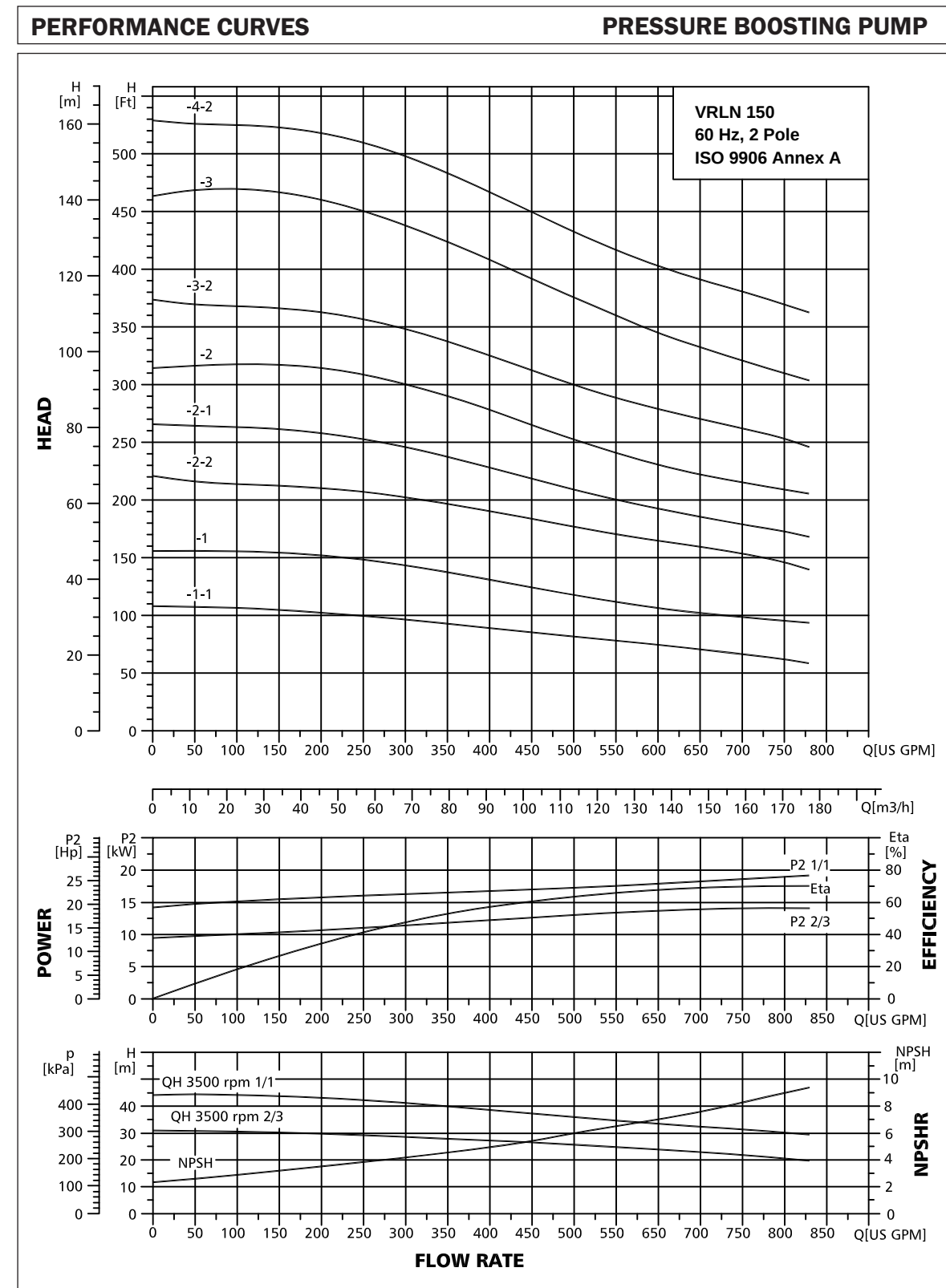
Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRL 150-1-1	33.13	55.19	13.00	10.06	13.81	478
VRL 150-1	33.13	56.38	15.00	11.06	13.81	509
VRL 150-2-2	39.31	65.25	16.56	12.06	15.75	756
VRL 150-2-1	39.31	65.25	26.56	12.06	15.75	822
VRL 150-2	39.31	67.06	18.50	13.25	17.75	1008
VRL 150-3-2	45.44	75.75	20.06	14.56	21.69	1307
VRL 150-3-2	45.44	78.69	22.88	16.19	21.69	1548
VRL 150-4-2	51.56	84.81	22.88	16.19	21.69	1570

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	50	70	90	110	130	150	170
				US GPM	0	220	308	396	484	572	660	748
VRL 150-1-1	18.5	25	59.50-48.50/34.50-28.00	Head (Mtr.)	33	31	29	27	26	25	23	19
VRL 150-1	22	30	69.50-56.50/40.00-32.00		48	45	43	41	37	34	33	29
VRL 150-2-2	30*	40	55.00-50.00/31.50-29.00		67	65	61	58	55	53	51	44
VRL 150-2-1	37*	50	67.00-61.00/38.50-35.00		82	78	75	71	65	61	60	52
VRL 150-2	45*	60	81.00-74.00/47.00-42.50		95	94	91	86	78	74	72	66
VRL 150-3-2	55*	75	99.00-89.00/57.00-51.00		115	110	106	102	93	87	87	77
VRL 150-3-2	75*	100	136.0-122.0/79.00-70.00		141	138	133	125	117	108	106	95
VRL 150-4-2	75*	100	136.0-122.0/79.00-70.00		162	157	150	143	134	126	118	113

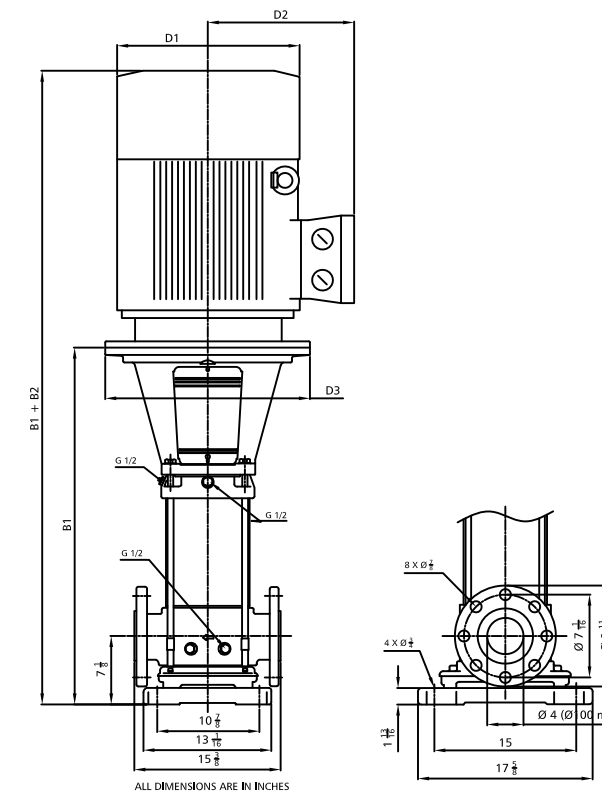
- VRL standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

VRL N 150

**VRL N 150**

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DIMENSIONAL, SKETCH & PERFORMANCE



Dimensions and Weight

Model	Size in Inch					Weight (Lbs)
	B1	B1+B2	D1	D2	D3	
VRLN 150-1-1	33.13	55.19	13.00	10.06	13.81	478
VRLN 150-1	33.13	56.38	15.00	11.06	13.81	509
VRLN 150-2-2	39.31	65.25	16.56	12.06	15.75	756
VRLN 150-2-1	39.31	65.25	26.56	12.06	15.75	822
VRLN 150-2	39.31	67.06	18.50	13.25	17.75	1008
VRLN 150-3-2	45.44	75.75	20.06	14.56	21.69	1307
VRLN 150-3-2	45.44	78.69	22.88	16.19	21.69	1548
VRLN 150-4-2	51.56	84.81	22.88	16.19	21.69	1570

PERFORMANCE TABLE

Model	kW	HP	Amp.	m³/h	0	50	70	90	110	130	150	170
				US GPM	0	220	308	396	484	572	660	748
VRLN 150-1-1	18.5	25	59.50-48.50/34.50-28.00	Head (Mtr.)	33	31	29	27	26	25	23	19
VRLN 150-1	22	30	69.50-56.50/40.00-32.00		48	45	43	41	37	34	33	29
VRLN 150-2-2	30*	40	55.00-50.00/31.50-29.00		67	65	61	58	55	53	51	44
VRLN 150-2-1	37*	50	67.00-61.00/38.50-35.00		82	78	75	71	65	61	60	52
VRLN 150-2	45*	60	81.00-74.00/47.00-42.50		95	94	91	86	78	74	72	66
VRLN 150-3-2	55*	75	99.00-89.00/57.00-51.00		115	110	106	102	93	87	87	77
VRLN 150-3-2	75*	100	136.0-122.0/79.00-70.00		141	138	133	125	117	108	106	95
VRLN 150-4-2	75*	100	136.0-122.0/79.00-70.00		162	157	150	143	134	126	118	113

- VRLN standard voltages: 220-240Δ/380-440Y
- * 380-420Δ/660-725Y
- This performance table is approximate as a performance curve.

PUMPED FLUIDS

PRESSURE BOOSTING PUMP

PUMPED FLUIDS

Thin, non-explosive fluids, not containing solid particles or fibers. The liquid must not chemically attack the pump materials.
When pumping fluids with a density and/or viscosity higher than that of water, use oversized motors, if required. Whether a pump is suitable for a particular liquid depends on a number of factors of which the most important are the chloride content, pH value, temperature and content of chemicals, oils, etc.
Please note that aggressive fluids, such as sea water and some acids, may attack or dissolve the protective oxide film of the stainless steel and thus cause corrosion.

The **VRL, VRLI, VRLN** pumps are suitable for the following fluids:

VRL, VRLI

Use VRL, VRLI pumps are suitable for non-corrosive fluids.

Use VRL, VRLI pumps for liquid transfer, circulation and pressure boosting of cold or hot clean water.

VRLN

VRLN pumps are suitable for industrial fluids. Use VRLN pumps in systems where all parts in contact with the liquid must be made of high-grade stainless steel.

List of pumped fluids

A number of typical fluids are listed below. Other pump versions may be applicable, but those stated in the list are considered to be the best choices. The table is intended as a general guide only and cannot replace actual testing of the pumped fluids and pump materials under specific working conditions. However, use the list with some caution. Factors such as those mentioned below may affect the chemical resistance of a specific pump version:

- concentration of the pumped liquid
- liquid temperature
- pressure
- Take safety precautions when pumping dangerous fluids

PUMPED FLUIDS



Notes

- D - Often with additives.
E - The density and/or viscosity differ from that/those of water.
Take this factor into account when calculating motor output and pump performance.
F - Pump selection depends on many factors. Contact ROLU PUMPS.
H - Risk of crystallization/precipitation in shaft seal.
- Highly inflammable liquid.
 - Combustible liquid.
 - Insoluble in water.
 - Low self-ignition point.

PUMPED FLUIDS							
Pumped fluids	Note	Fluid concentration, fluid temperature	VRL, VRLI		VRLN		
Oil-containing water	-	< +100 °C	HQQV	HQQV	-	-	-
Olive oil	D,E,3	100%, +80	HQQV	HQQV	-	-	-
Oxalic acid ((COOH) ₂)	H	1%, +20°C	-	-	HQQE	HQQE	HQQE
Ozone- containing water (O ₃)	-	< +100°C	-	-	HQQE	HQQE	HQQE
Peanut oil	D,E,3	100%, +80°C	HQQV	HQQV	-	-	-
Petrol	1,3,4,F	100%, +20°C	HQBV	HQBV	-	-	-
Phosphoric acid (H ₃ PO ₄)	E	20%, +20°C	-	-	HQQE	HQQE	HQQE
Propanol (C ₃ H ₇ OH)	1,F	100%, +20°C	HQQE	HQQE	-	-	-
Propylene glycol (CH ₃ CH(OH)CH ₂ OH)	D,E	100%, +20°C	HQQE	HQQE	-	-	-
Potassium carbonate (K ₂ CO ₃)	E	50%, +90°C	HQQE	HQQE	-	-	-
Potassium format (KOOCH)	D,E	20%, +50°C	HQQE	HQQE	-	-	-
Potassium hydroxide (KOH)	E	30%, +50°C	-	-	HQQE	HQQE	HQQE
Potassium permanganate (KMnO ₄)	-	20%, +50°C	-	-	HQQE	HQQE	HQQE
Rape seed oil	D,E,3	100%, +80°C	HQQV	HQQV	-	-	-
Salicylic acid (C ₆ H ₄ (OH)COOH)	H	0.1%, +20°C	-	-	HQQE	HQQE	HQQE
Silicon oil	E,3	100%	HQQV	HQQV	-	-	-
Sodium bicarbonate (NaHCO ₃)	E	10%, +60°C	-	-	HQQE	HQQE	HQQE
Sodium chloride (NaCl)	D,E	30%, < +5	HQQE	HQQE	-	-	-
Sodium hydroxide (NaOH)	E	20%, +50°C	-	-	HQQE	HQQE	HQQE
Sodium hypochlorite (NaOCl)	F	0.1%, +20°C	-	-	HQQV	HQQV	HQQV
Sodium nitrate (NaNO ₃)	E	10%, +60°C	-	-	HQQE	HQQE	HQQE
Sodium phosphate (Na ₃ PO ₄)	E,H	10%, +60°C	-	-	HQQE	HQQE	HQQE
Sodium sulfate (Na ₂ SO ₄)	E,H	10%, +60°C	-	-	HQQE	HQQE	HQQE
Softened water	-	< +120	-	-	HQQE	HQQE	HQQE
Soya oil	D,E,3	100%, +80°C	HQQV	HQQV	-	-	-
Sulfuric acid (H ₂ SO ₄)	F	1%, +20°C	-	-	HQQV	HQQV	HQQV
Sulfurous acid (H ₂ SO ₃)	-	1%, +20°C	-	-	HQQE	HQQE	HQQE
Unsalted swimming pool water	-	Approx 2 ppm free chlorine (Cl ₂)	HQQE	HQQE	-	-	-

PUMPED FLUIDS

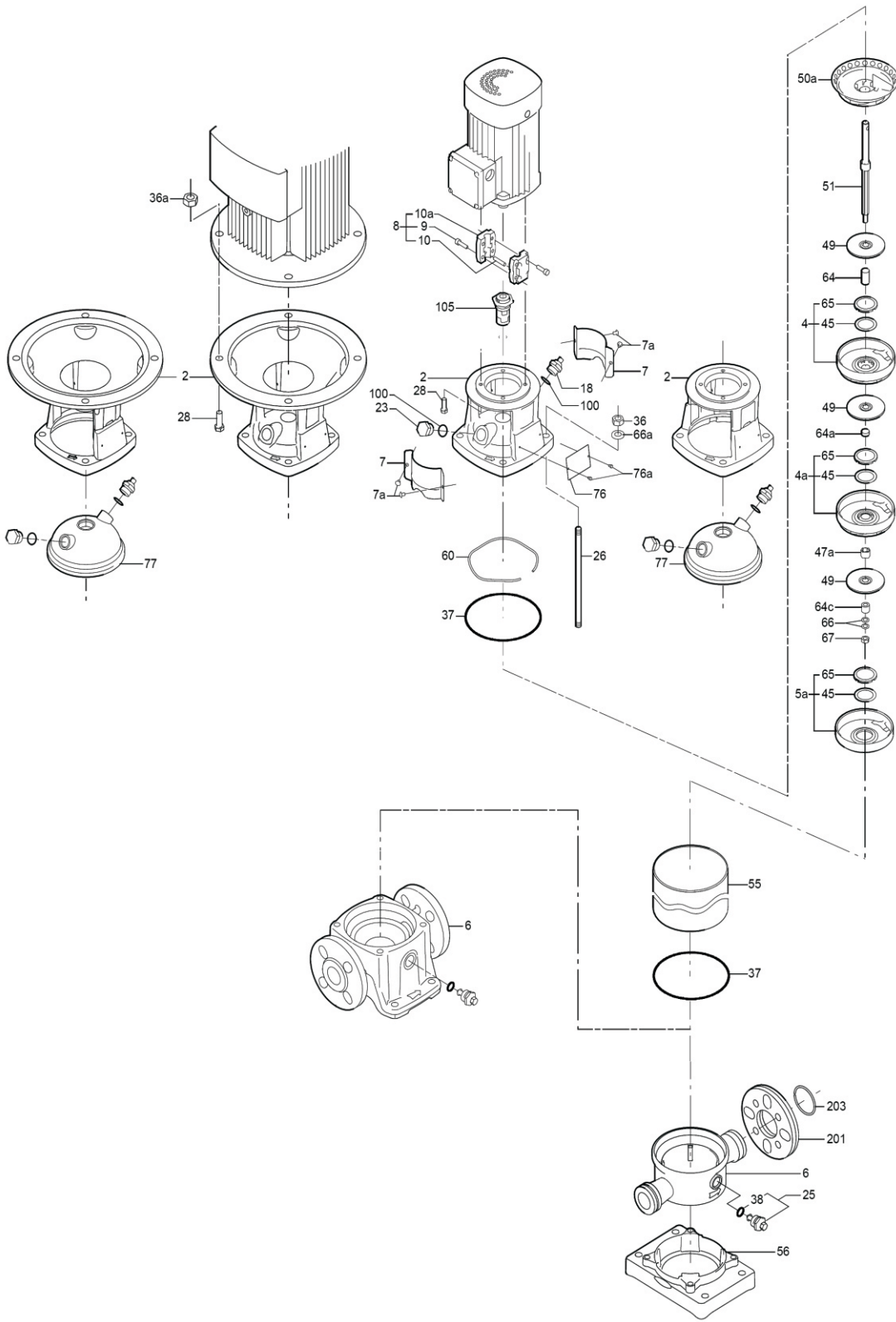
PUMPED FLUIDS							
Pumped fluid	Note	Fluid concentration, fluid temperature	VRL, VRLI		VRLN		
Acetic acid (CH ₃ COOH)	-	5%, +20°C	-	-	HQQE	HQQE	HQQE
Acetone (CH ₃ COOH ₃)	1,F	100%, +20°C	-	-	HQQE	HQQE	HQQE
Alkaline degreasing agent	D,F	-	HQQE	HQQE	-	-	-
Ammonium bicarbonate (NH ₄ HCO ₃)	E	20%, +30°C	-	-	HQQE	HQQE	HQQE
Ammonium hydroxide (NH ₄ OH)		20%, +40°C	HQQE	HQQE	-	-	-
Aviation fuel	1,3,4,F	100%, +20°C	HQBV	HQBV	-	-	-
Benzoic acid (C ₆ H ₅ COOH)	H	0.5%, +20°C	-	-	HQQE	HQQE	HQQE
Boiler water		< +120 °C	HQQE	HQQE	-	-	-
	F	+120°C-+180°C					
Calcareous water		< +90°C	HQQE	HQQE	-	-	-
Calcium acetate (as coolant with inhibitor) (Ca(CH ₃ COO) ₂)	D,E	30%, +50°C	HQQE	HQQE	-	-	-
Calcium hydroxide (Ca(OH) ₂)	E	Saturated Solution +50°C	HQQE	HQQE	-	-	-
Chloride-containing water	F	< +30%, Max 500 ppm	-	-	HQQE	HQQE	HQQE
Chromic acid (H ₂ CrO ₄)	H	1%, +20°C	-	-	HQQE	HQQE	HQQE
Citric acid (HOC(CH ₂ CO ₂ H)2COOH)	H	5%, +40°C	-	-	HQQE	HQQE	HQQE
Completely desalinated water		< +120 °C	-	-	HQQE	HQQE	HQQE
Condensate		< +90°C	HQQE	HQQE	-	-	-
Copper sulfate (CuSO ₄)	E	10%, +50°C	-	-	HQQE	HQQE	HQQE
Corn oil	D,E,3	100%, +80°C	HQQE	HQQE	-	-	-
Diesel oil	2,3,4,F	100%, +20°C	HQQE	HQQE	-	-	-
Domestic hot water		< +120 °C	HQQE	HQQE	-	-	-
Ethanol (ethyl alcohol) (C ₂ H ₅ OH)	1,F	100%, +20°C	HQQE	HQQE	-	-	-
Ethylene glycol (HOCH ₂ CH ₂ OH)	D,E	50%, +50°C	HQQE	HQQE	-	-	-
Formic acid (HCOOH)		5%, +20°C	-	-	HQQE	HQQE	HQQE
Glycerin (glycerol) (OHCH ₂ CH(OH)CH ₂ OH)	D,E	50%, +50°C	HQQE	HQQE	-	-	-
Hydraulic oil (mineral)	E,2,3	100%, +100°C	HQQV	HQQV	-	-	-
Hydraulic oil (synthetic)	E,2,3	100%, +100°C	HQQV	HQQV	-	-	-
Isopropyl alcohol (CH ₃ CHOHCH ₃)	1,F	100%, +20°C	HQQE	HQQE	-	-	-
Lectic acid (CH ₃ CH(OH)COOH)	E,H	10%, +20°C	-	-	HQQE	HQQE	HQQE
Linoleic acid (C ₁₇ H ₃₁ COOH)	E,3	100%, +20°C	HQQV	HQQV	-	-	-
Menthol (methyl alcohol) (CH ₃ OH)	1,F	100%, +20°C	HQQE	HQQE	-	-	-
Motor oil	E,2,3	100%, +80°C	HQQV	HQQV	-	-	-
Naphthalene (C ₁₀ H ₈)	E,H	100%, +80°C	HQQV	HQQV	-	-	-
Nitric acid (HNO ₃)	F	1%, +20°C	-	-	HQQE	HQQE	HQQE

EXPLODED VIEW

VRL, VRLI, VRLN 1s, 1 , 3, 5

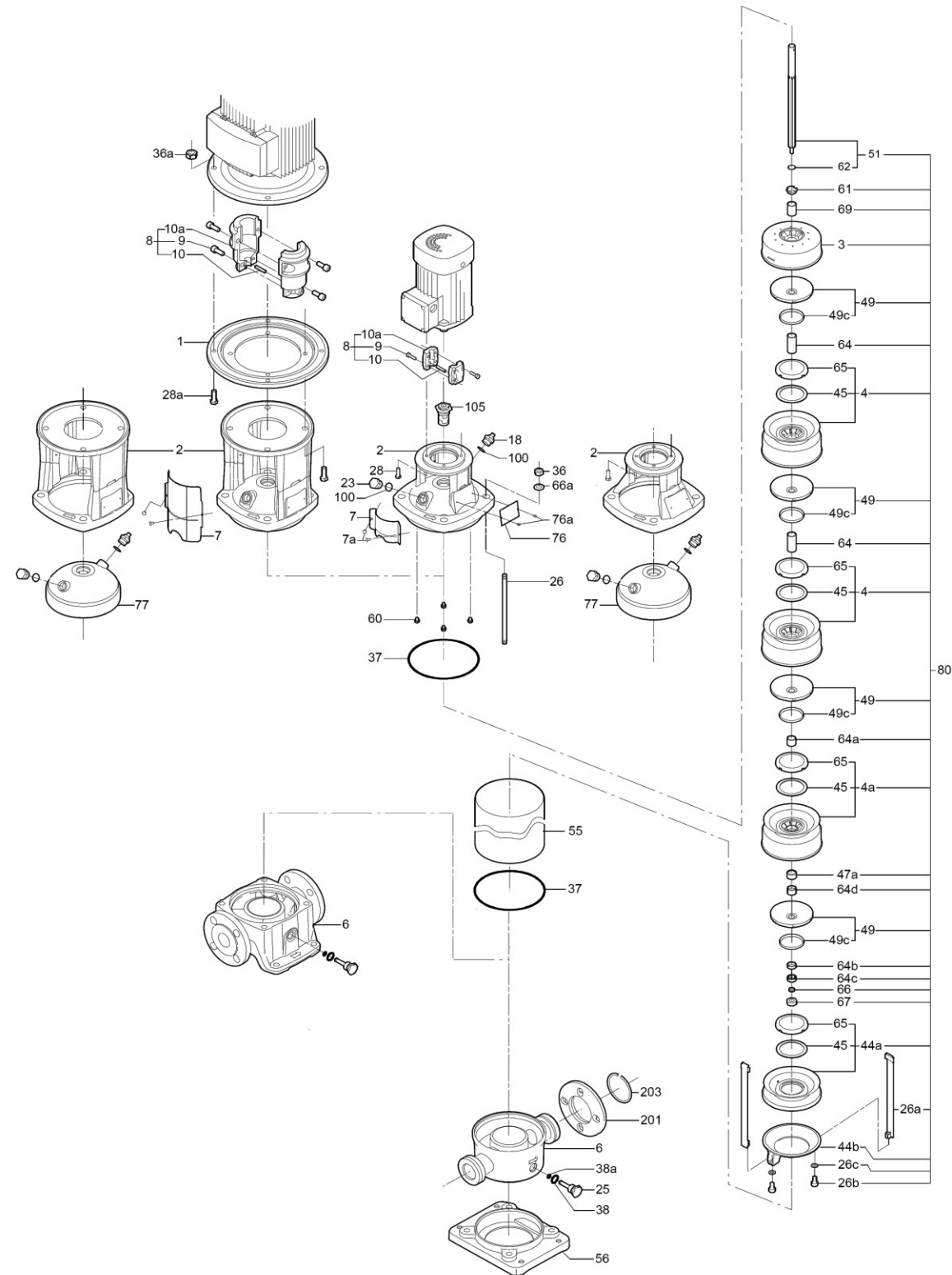


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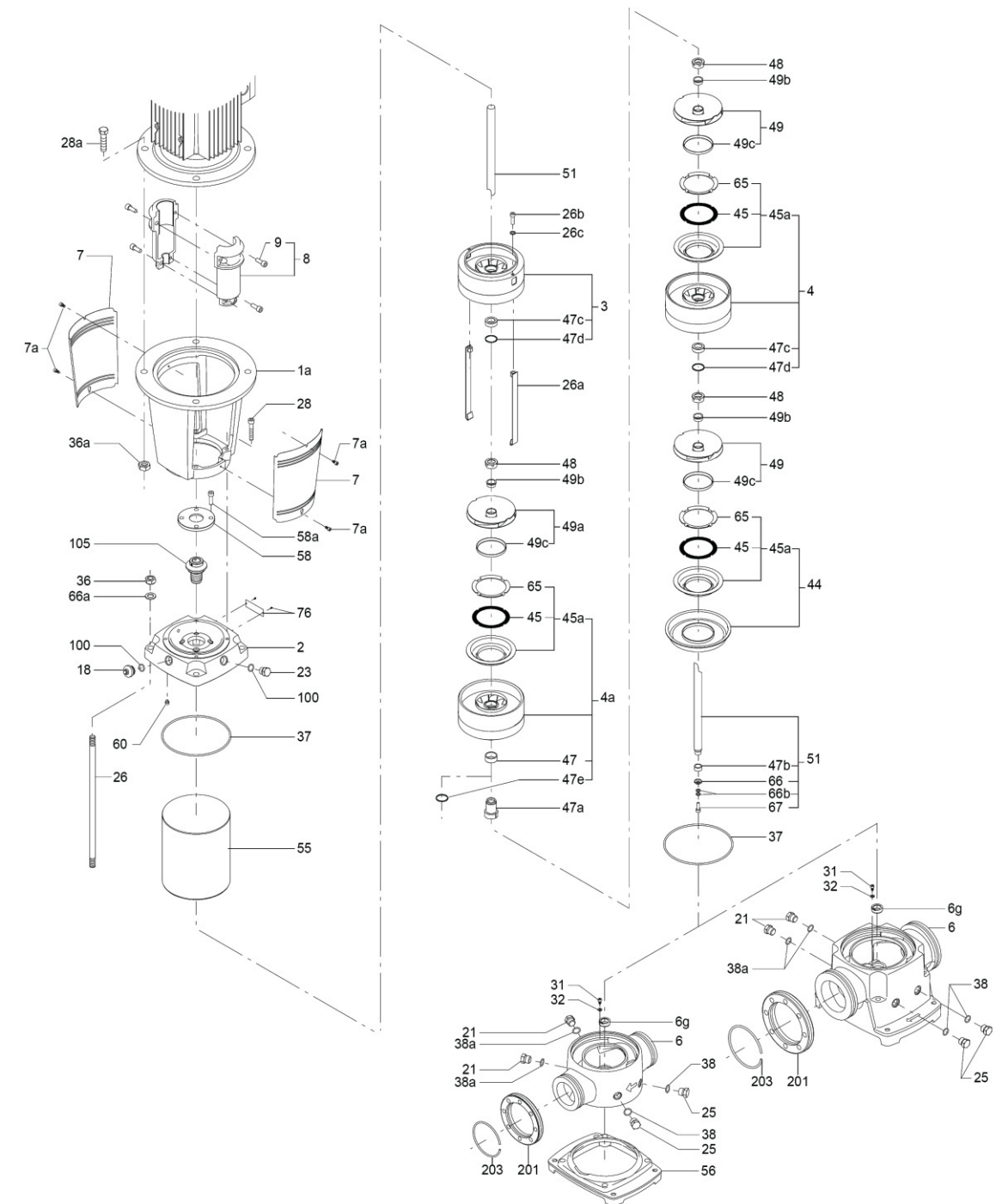
EXPLODED VIEW

VRL, VRL I, VRL N 10, 15, 20



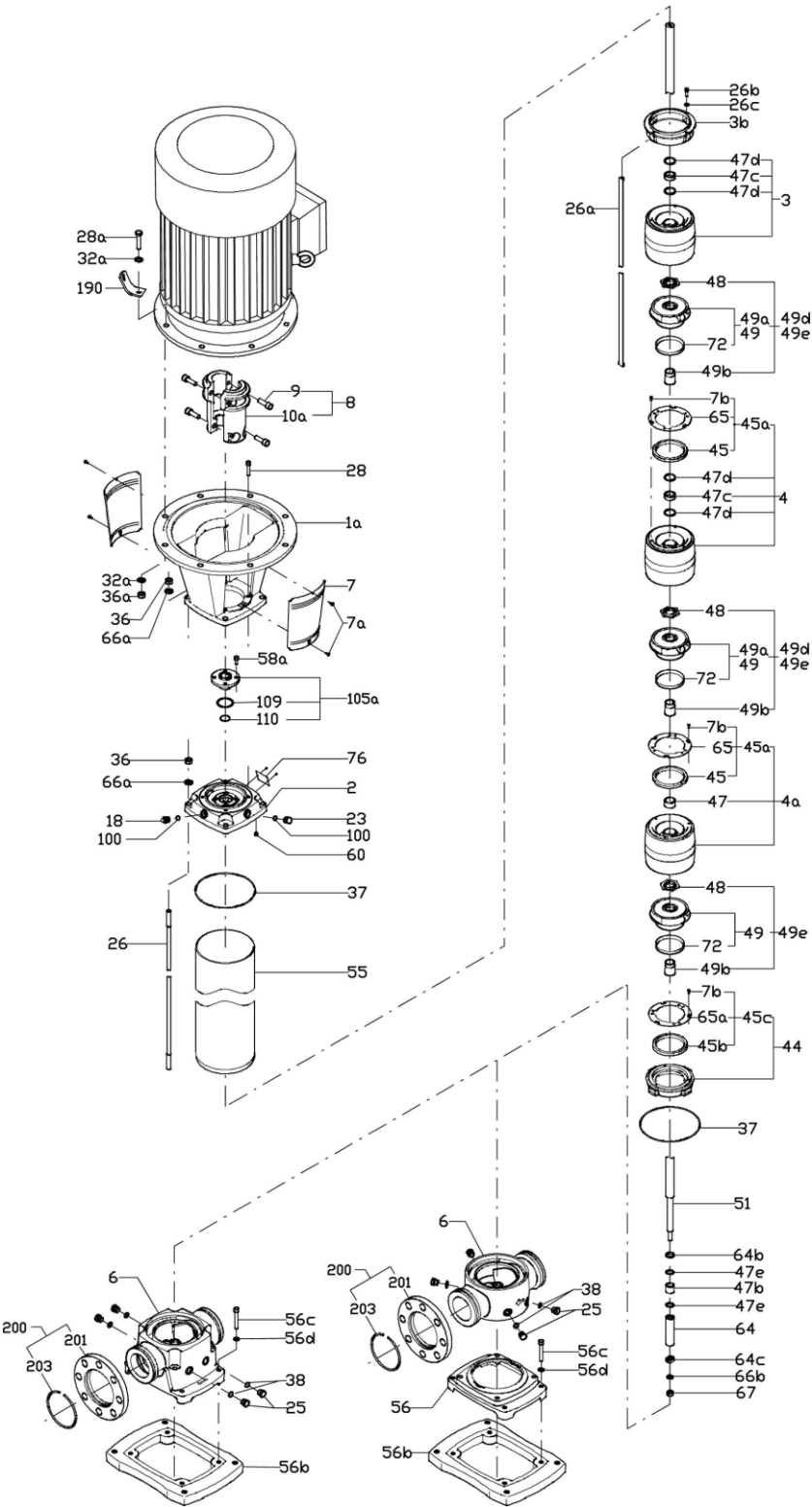
EXPLODED VIEW

VRL, VRL N 32, 45, 64, 90



PART LIST

VRL, VRL N 120 & 150



PART LIST

VRL, VRL I & VRL N



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POS. NO.	DESCRIPTION	POS. NO.	DESCRIPTION
1	Pump Head Base	47a	Bearing Ring, Rotating
1a	Motor Stool	47b	Bearing With, Driver
2	Pump Head		Bearing Ring, Rotating
3	Chamber, Top	47c	Chamber Bush
4	Chamber Complete	47d	Chamber Back Plate Ring
4a	Chamber With Bearing Ring	48	Split Cone Nut
5a	Chamber Base	49	Impeller
6	Base	49b	Split Cone
6b	Base Complete	49c	Wear Ring
6g	Bearing Ring, Stationary	50a	Top Chamber
7	Coupling Guard	51	Pump Shaft
7a	Screw	55	Outer Sleeve
8	Coupling Complete	56	Base Plate
9	Screw	58	Seal Carrier
10	Shaft Pin	58a	Screw M10X25
10a	Coupling Half	60	Corrugated Spring
18	Air Vent Valve Complete		Pad
23	Filling Screw Assy	61	Seal Driver
25	Drain Plug		Shaft Clamp Bush SRN 1,3,5
26	Stay Bolt	62	Stop Ring
26a	Clamping Strap	64	Spacing Pipe
26b	Screw MSX30	64a	Spacing Pipe
26c	Washer (16X8.4X1.6)	64c	Clamp Splined
28	Screw	64d	Spacing Pipe
28a	Screw M16X50	65	Neckring Retainer
28b	Eye Bolt	66	Lock Washer
31	Screw M6X10	66a	StayBolt Washer (30x17x3)
32	Washer (11.8X6.5X1.45)	66b	Lock Washer (13.5x8.5x1.3)
32a	Washer	67	Lock Nut M8
35	Screw M10	69	Spacing Pipe
36	Nut	76	Name Plate Set
36a	Nut	76a	Screw Cupl. Guard
37	O-ring	77	Pump Head Cover
38	O-ring	100	O-ring
44	Inlet Part Complete	105	Shaft Seal
44a	Inlet Chamber Plate Assy	109	O-ring
44b	Inlet Chamber Stack	113	Grub Screw
45	Neckring	201	Flange
45a	Neckring Cup Complete	203	Flange Circlip
47	Bearing Ring Complete		

Considering continuous product development the information/performance/specifications and illustrations disseminated in this catalogue are subject to change without notice.