

FPS

VR SERIES

VERTICAL MULTI-STAGE PUMPS

VR Series Vertical Multi-Stage Pumps are available in options from 1 up to 95 m³/h with all 316 stainless steel hydraulics for superior durability, efficiency, and performance. A small footprint, premium motor, and rugged components ensure long operating life to provide a water pumping solution in nearly any tough application.



 **FE SELECT**

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 **Franklin Electric**

VR SERIES VERTICAL MULTI-STAGE PUMPS - 60HZ

STANDARD FEATURES & BENEFITS - ALL MODELS

- All 316 SS wetted components for superior durability, efficiency, and performance over a wide variety of applications (except G version of 30-45-65-95VR with CI casing and upper flange standard)
- Rugged NEMA motor mounting with oversized thrust bearing ensures long operating life in the toughest jobs (special, heavy-duty motor bearing not required)
- Silicon carbide/graphite/EPDM/SS mechanical seal for superior sealing
- Removable stainless steel seal plate with jack screw taps provided for ease of service
- In-line suction and discharge connections with round ANSI flanges fit widest range of applications and provide for convenient, compact installation with a small footprint
- NEMA standard motors; ODP and TEFC enclosures, 1 and 3 phase voltages available with all 3-phase motors of premium efficiency design and inverter duty rated

GENERAL PUMP SPECIFICATIONS

- Flow range: 5 to 500 gpm (20 to 2,000 L/min)
- Head range: Up to 750 feet (230 m)
- 230 psi (16 bar) max working pressure for oval flange connection models (1-20VR)
360 psi (25 bar) max working pressure for round flange and grooved connection equipped models
460 psi (32 bar) max working pressure for round flange 30 and 45VR models only
- Liquid Temp: +14 °F (-10 °C) to +248 °F (+120 °C)
- Clockwise rotation (looking at the pump from the top down)
- Round ANSI flange standard; optional oval flange and grooved connections available through 20VR
- 3600 and 1800 RPM performance available
- Optional seals: Silicon carbide and Tungsten carbide
- Optional elastomer: FKM

APPLICATIONS

Water Supply and Pressure Boosting

- Pressure boosting in buildings
- Booster stations
- Pump packages

Water treatment

- Filtration systems
- Reverse osmosis systems

Light Industry

- Commercial washers
- Firefighting systems
- Machine coolant recirculation
- Car wash systems

Irrigation and Agriculture

- Drip irrigation
- Sprinkler irrigation

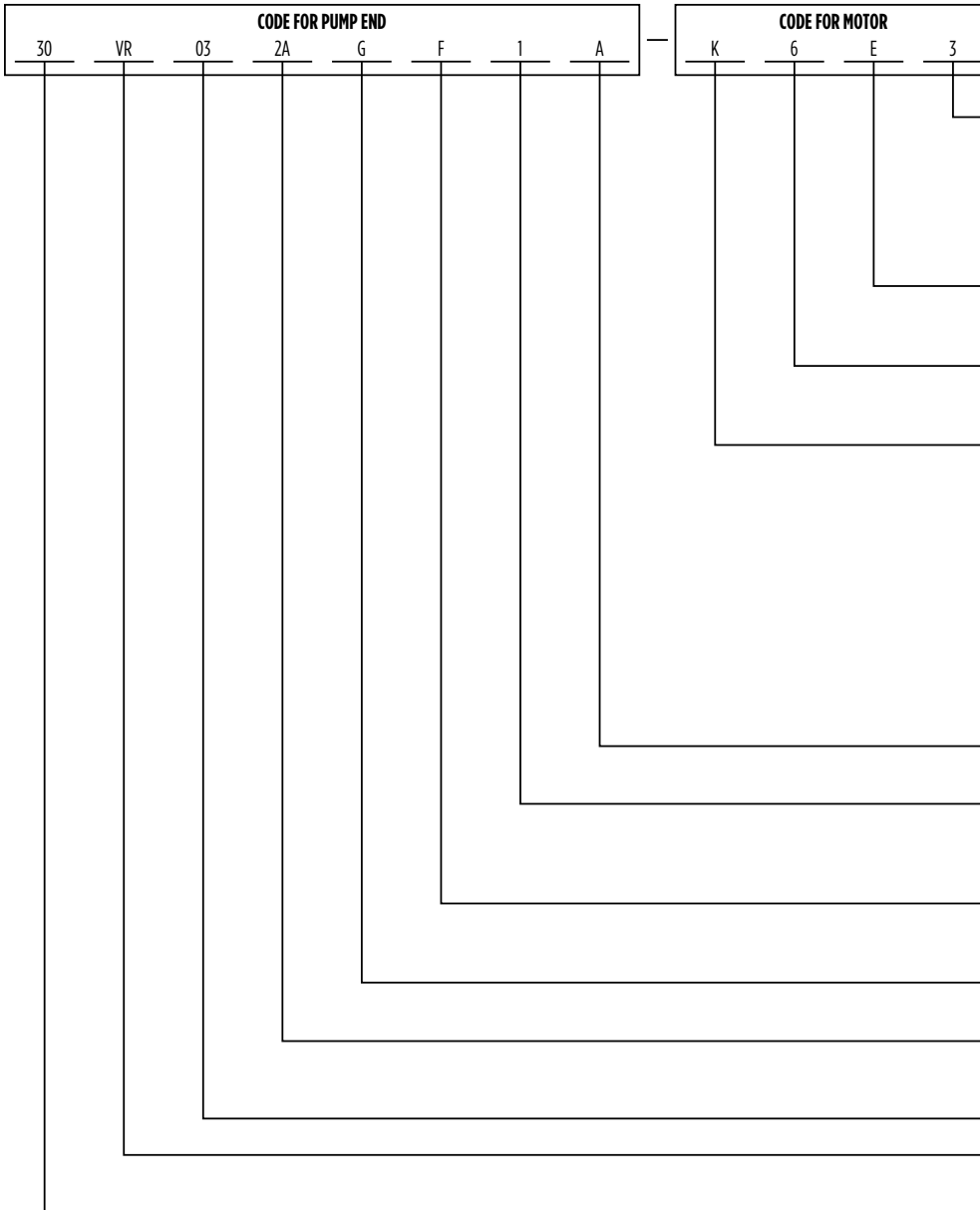
Heating, Ventilation, and Air Conditioning (HVAC)

- Cooling towers
- Temperature control
- Refrigeration
- Heating systems
- Boiler feed
- Water recirculation



VR SERIES

MODEL NOMENCLATURE



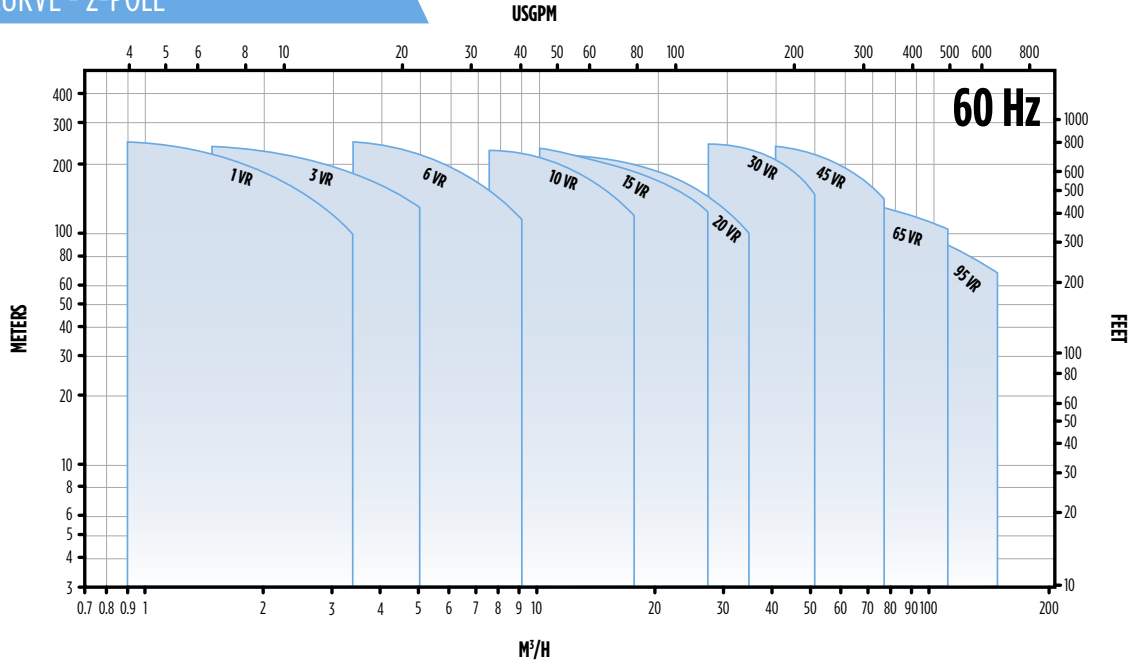
- Voltage (Phase)**
 1 = 115/230 (1-Phase) 2 = 230 only (1-Phase)
 3 = 230/460 (3-Phase) 4 = 460 only (3-Phase)
 5 = 575 only (3-Phase) 6 = 220 (1-Phase)
 7 = 220 (3-Phase) 8 = 380/415 (3-Phase)
 9 = 415 (3-Phase) A = 190/380 (3-Phase)
 B = 230/400 (3-Phase) C = 400/690 (3-Phase)
- Efficiency (Enclosure)**
 D = Premium (ODP) E = Premium (TEFC)
 X = Premium (X-Proof)
- Speed (Hz)**
 5 = 3000 RPM (50 Hz) 6 = 3600 RPM (60 Hz)
 7 = 1500 RPM (50 Hz) 8 = 1800 RPM (60 Hz)
- Frame (Kw)**
 Q = 56C 0.33 HP (0.25 Kw) A = 56C 0.5 HP (0.37 Kw)
 B = 56C 0.75 HP (0.55 Kw) C = 56C 1 HP (0.75 Kw)
 D = 56C 1.5 HP (1.1 Kw) E = 56C 2 HP (1.5 Kw)
 Y = 180TC 2HP (1.5Kw) F = 56C 3 HP (2.2 Kw)
 U = 180TC 3 HP (2.2 Kw) G = 180TC 5 HP (3.7 Kw)
 V = 180TC 7.5 HP (5.5 Kw) H = 210TC 7.5 HP (5.5 Kw)
 J = 210TC 10 HP (7.5 Kw) W = 210TC 15 HP (11 Kw)
 K = 250TC 15 HP (11 Kw) L = 250TC 20 HP (15 Kw)
 X = 250TC 25 HP (18.5 Kw) M = 280TSC 25 HP (18.5 Kw)
 N = 280TSC 30 HP (22 Kw) Z = 280TSC 40 HP (30 Kw)
 P = 320TSC 40 HP (30 Kw) R = 320TSC 50 HP (37 Kw)
 S = 360TSC 60 HP (45 Kw) T = 360TSC 75 HP (55 Kw)
- Motor Type**
 A = NEMA B = IEC
- Seal Type**
 1 = Graphite/SIC EPDM 2 = SIC/SIC EPDM
 3 = SIC/SIC FKM 4 = Graphite/SIC FKM
 5 = WC/WC EPDM 6 = WC/WC FKM
- Connection Type**
 F = Round Flange T = Oval Flange
 V = Grooved
- Casing/Hydraulics**
 G = Cl/316SS N = 316SS/316SS
- Impeller Trim**
 0 = No Trim 1A = 1 Stage
 2A = 2 Stages
- Total Number of Stages (always 2 Characters)**
- Series & Speed**
 VR = VR Series (2-Pole) VRL = VRL Series (4-Pole)
- BEP Flow (60Hz-2P)**
 1 = 10 GPM 3 = 16 GPM
 6 = 32 GPM 10 = 60 GPM
 15 = 90 GPM 20 = 110 GPM
 30 = 160 GPM 45 = 240 GPM
 65 = 360 GPM 95 = 450 GPM

**Note: Nominal flow will be half of above at 4-pole (1800 RPM) operation*

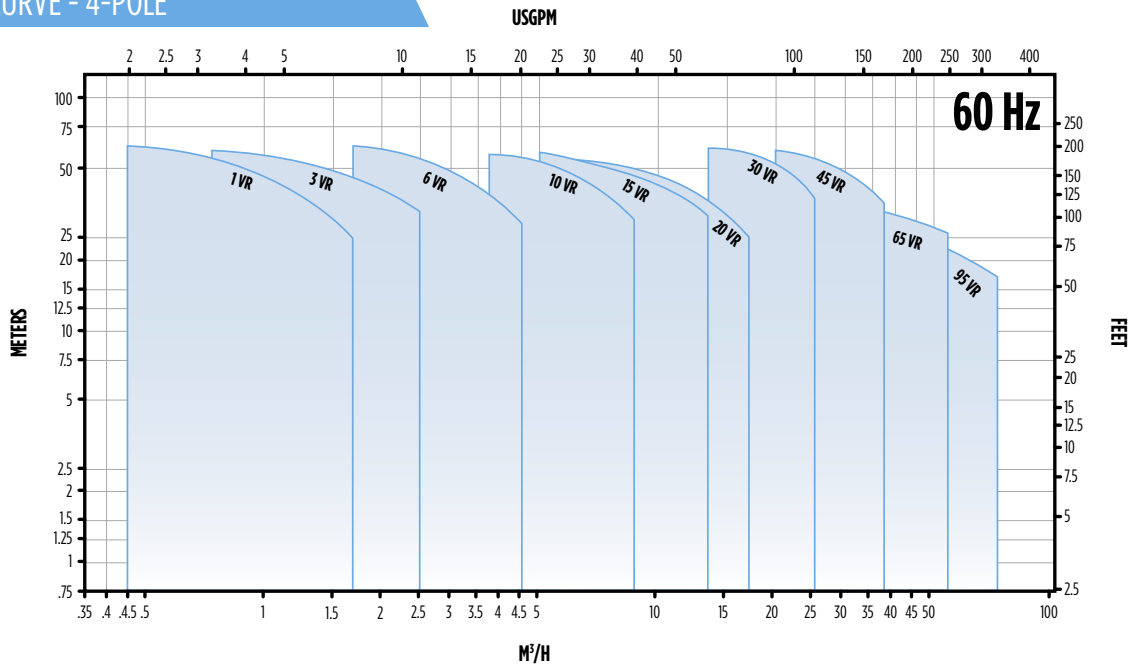


VR SERIES

FAMILY CURVE - 2-POLE



FAMILY CURVE - 4-POLE



PUMP ENERGY INDEX

VR Series	Basic Model	PEI _{cl} Number
2-Pole	6VR	0.93
	10VR	0.92
	15VR	0.95
	20VR	0.97

VR Series	Basic Model	PEI _{cl} Number
2-Pole	30VR	0.93
	45VR	0.95
	65VR	0.95
	95VR	0.96

VR Series	Basic Model	PEI _{cl} Number
4-Pole	30VRL	0.95
	45VRL	0.96
	65VRL	0.98
	95VRL	0.99

VR SERIES

PUMP CASE MATERIAL

Versions	Casing/ Hydraulics	1VRL	3VRL	6VRL	10VRL	15VRL	20VRL	30VRL	45VRL	65VRL	95VRL
G	CAST IRON/AISI 316	-	-	-	-	-	-	X	X	X	X
N	AISI 316/AISI 316	X	X	X	X	X	X	XX	XX	XX	XX

X = Standard Version. XX = Available upon request.

BY CONNECTION TYPE IN PSI (BAR)

Models	1VRL	3VRL	6VRL	10VRL	15VRL	20VRL	30VRL	45VRL	65VRL	95VRL
T-Version (Oval)	230 (16 bar)	230 (16 bar)	230 (16 bar)	230 (16 bar)	230 (16 bar)	230 (16 bar)	-	-	-	-
F-/V-Version	375 (25 bar)	375 (25 bar)	375 (25 bar)	375 (25 bar)	375 (25 bar)	375 (25 bar)	-	-	-	-
F-Version (PN16)	-	-	-	-	-	-	230 (16 bar)	230 (16 bar)	230 (16 bar)	230 (16 bar)
F-Version (PN25/40)	-	-	-	-	-	-	460 (32 bar)	460 (32 bar)	360 (25 bar)	360 (25 bar)

Note: The inlet pressure to pump combined with the water pressure developed inside the pump cannot exceed the maximum working pressure rating indicated above.

COUNTER-FLANGE KITS

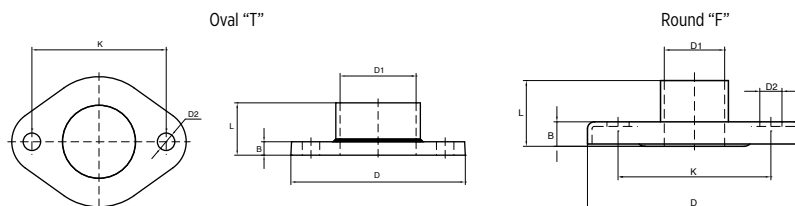
Item	Description	PN Rating	For Use With
14262024	Round flange kit: 1.25" FNPT	PN 25	1-3-6VR
14262025	Round flange kit: 2.00" FNPT	PN 25	10-15-20VR
14262036	Oval flange kit: 1.00" FNPT	PN 16	1-3-6VR
14262035	Oval flange kit: 1.25" FNPT	PN 16	1-3-6VR
14262044	Oval flange kit: 1.50" FNPT	PN 16	10-15-20VR
14262045	Oval flange kit: 2.00" FNPT	PN 16	10-15-20VR

Note: All counter-flange kits include: flanges (2), gaskets (2), and all bolts/nuts necessary to affix the flanges to the VRL pump.

SPECIFICATIONS - COUNTER-FLANGE DIMENSIONS

Description	DN (Diameter Nominal)	Dimensions (mm)					Holes		Pressure	
		D	D1	K	L	B	D2	No.	PN (Pressure Nominal)	Max. PSI
Oval	25	3.90 (99)	NPT 1.00"	2.95 (75)	1.30 (33)	0.31 (8)	0.43 (11)	2	16	230
	32	3.90 (99)	NPT 1.25"	2.95 (75)	1.30 (33)	0.31 (8)	0.43 (11)	2	16	
	40	5.12 (130)	NPT 1.50"	3.94 (100)	1.38 (35)	0.39 (10)	0.51 (13)	2	16	
	50	5.12 (130)	NPT 2.00"	3.94 (100)	1.54 (39)	0.39 (10)	0.51 (13)	2	16	
Round Threaded	32	5.51 (140)	NPT 1.25"	3.94 (100)	1.69 (43)	0.63 (16)	0.71 (18)	4	25	360
	50	6.50 (165)	NPT 2.00"	5.00 (127)	1.69 (43)	0.71 (18)	0.75 (19)	8	25	

Note: Counter-flange kits available on request as an accessory item: AISI 304 (oval), AISI 316 (round threaded)

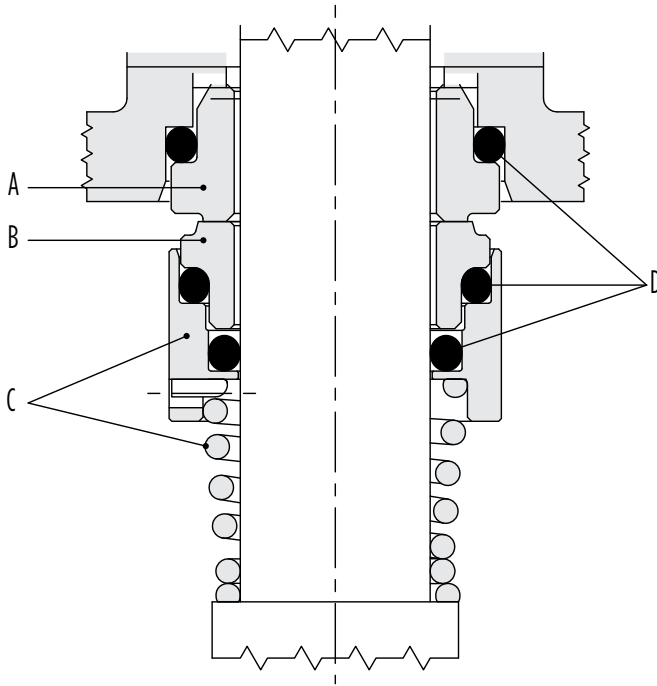




VR SERIES - SPECIFICATIONS

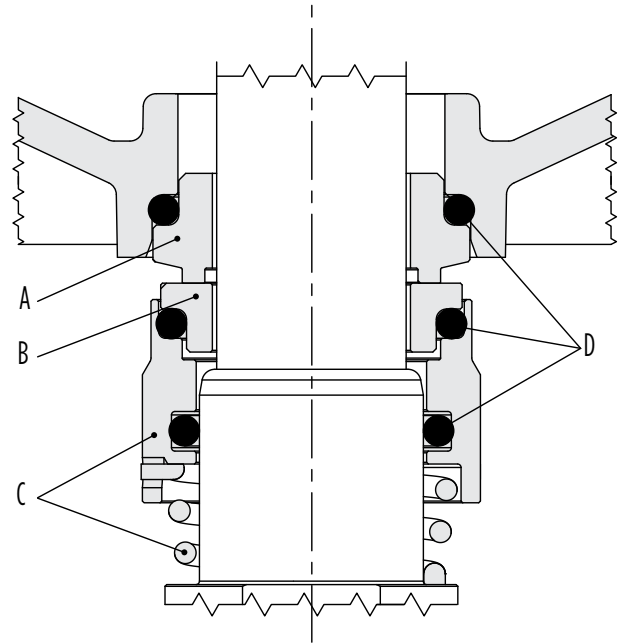
MECHANICAL SEALS

VERSION U* (UNBALANCED)



1-3-6-10-15-20 VR

VERSION B (BALANCED)



30-45-65-95 VR

* Balanced mechanical seal available upon request

Seal Type	Stationary Part	Rotating Part	Hardware	Elastomers	Temperature Range	
	A	B			C	D
1	Graphite	Silicon Carbide	AISI 316	EPDM	-22°F to +248°F	-30°C to +120°C
2	Silicon Carbide	Silicon Carbide	AISI 316	EPDM	+14°F to +248°F	-10°C to +120°C
3	Silicon Carbide	Silicon Carbide	AISI 316	FKM	+14°F to +248°F	-10°C to +120°C
4	Graphite	Silicon Carbide	AISI 316	FKM	+14°F to +248°F	-10°C to +120°C
5	Tungsten Carbide	Tungsten Carbide	AISI 316	EPDM	+14°F to +248°F	-10°C to +120°C
6	Tungsten Carbide	Tungsten Carbide	AISI 316	FKM	+14°F to +248°F	-10°C to +120°C

Note: Type 1 seal is standard for all VRL pumps; others available as an option for a price adder when specified at the time of order

VR SERIES - SPECIFICATIONS

FLUIDS/MATERIALS COMPATIBILITY

Liquid (Aqueous Solutions)	Concentration %	Temperature Min./Max.				Pump Version	
		Fahrenheit		Celsius		Seal Type Recommended	
		Min	Max	Min	Max	G (cast Iron & 316SS)	N (All 316SS)
Acetic Acid	10 - 40	64	158	18	70	-	1
Aluminum Sulfate	10 - 25	41	122	5	50	-	2
Ammonia in Water	25	68	122	20	50	-	1
Ammonium Sulfate	10	41	140	5	60	-	2
Benzoic Acid	4	68	176	20	80	-	4
Caustic Soda	25	41	158	5	70	-	2
Chloroform	100	14	86	-10	30	-	4
Citric Acid	5	41	158	5	70	-	1
Copper Sulfate	1 - 20	41	86	5	30	-	3
Cutting Fluid	100	23	230	-5	110	-	4
Denatured Alcohol	100	23	158	-5	70	1	1
Deionized/Demineralized Water	100	41	230	5	110	-	1
Diathermic Oil	100	194	248	90	120	4	4
Emulsion Oil/Water	10 - 50	59	194	15	90	4	4
Ethylene Glycol	10 - 30	64	248	18	120	-	1
Ferrous/Ferric Sulfate	10	41	86	5	30	-	1
Formic Acid	5	41	77	5	25	-	1
Glycerine	100	194	248	90	120	1	1
Hydrochloric Acid	2 Max.	41	77	5	25	-	3
Mineral Oil	100	194	248	90	120	4	4
Nitric Acid	40	41	86	5	30	-	3
Perchloroethylene	100	14	86	-10	30	4	4
Phosphates/Polyphosphates	10	41	194	5	90	-	1
Phosphoric Acid	5	41	86	5	30	-	1
Propylene Glycol	30	14	212	-10	100	3	3
Sea Water	Max. 35,000 PPM	36	140	2	60	-	1
Sodium Bicarbonate (Baking Soda)	6	41	140	5	60	-	1
Sodium Hypochlorite	1	41	77	5	25	-	3
Sodium Nitrate	10	41	140	5	60	1	1
Sodium Sulfate	15	41	104	5	40	2	2
Sulphuric Acid	2	41	77	5	25	-	4
Tannic Acid	20	41	122	5	50	-	1
Tartaric Acid	50	41	77	5	25	-	3
Trichlorethylene	100	14	104	-10	40	4	4
Vegetable Oil	100	158	230	70	110	1	1
Water	100	41	248	5	120	1	1

Note: The values above are intended to serve as a general guide. It is important to consider the specific working conditions, in particular, the concentration of the liquid to be pumped, the specific weight of the liquid, and/or the viscosity, and the temperature and pressure of the liquid. All of these conditions are relevant for the motor and pump performance. When pumping dangerous liquids, it is recommended to take safety precautions. For more details, contact Franklin Electric's customer service.

