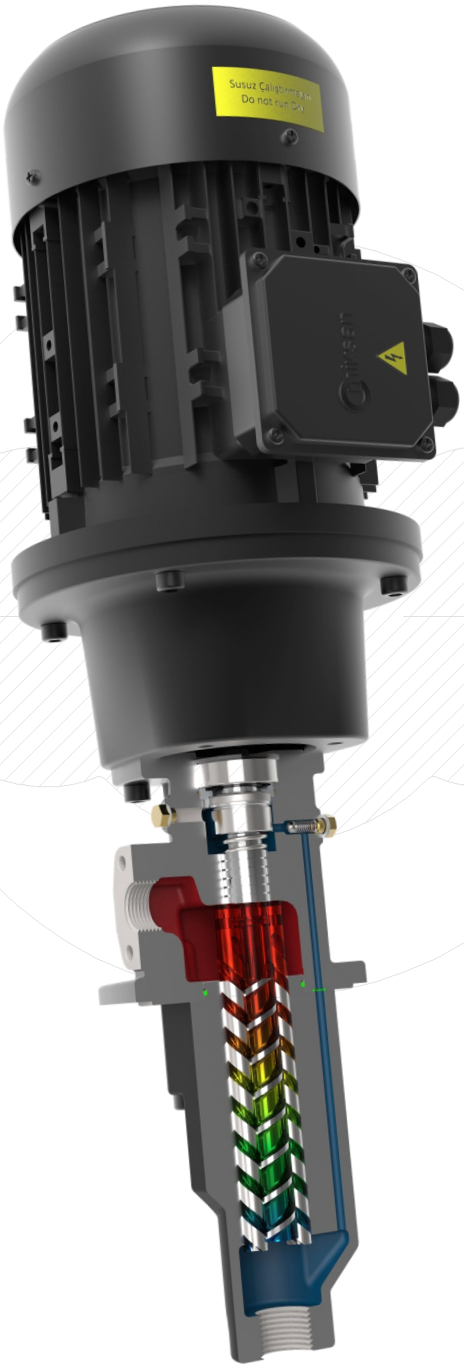
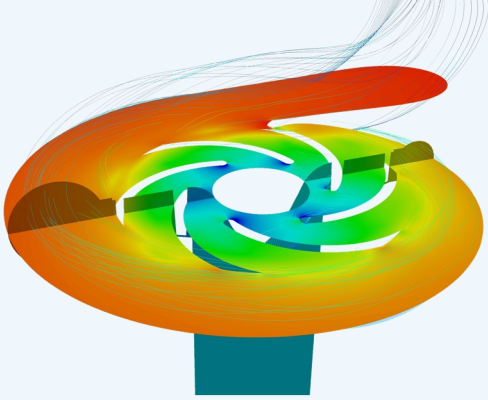
miksan MOTOR



SCREW PUMP

CATALOGUE



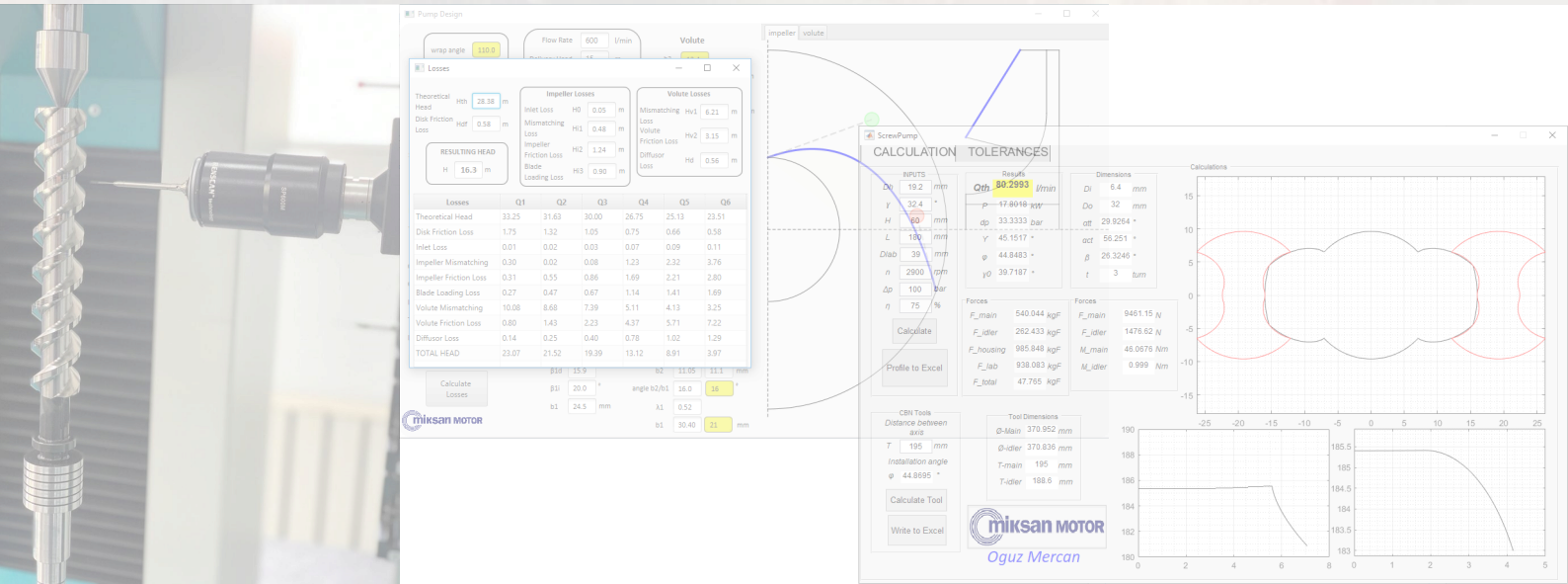
R&D

Our company continues its pioneering role in production of immersion pumps for domestic market. The R&D studies for immersion pumps used for the circulation of the coolant and cutting fluids have been progressively increased. In recent years, R&D department of the company is equipped with the up-to-date engineering tools. As a result of R&D studies, the new types of immersion pumps with high efficiency are designed, manufactured and added to our product range. All the detailed performance characteristics of the immersion pumps can be performed and reported in our company.

The use of high efficiency pumps, with modular mechanical structure, designed and produced in recent years, decreases the cost of life time maintenance and operation. Miksan Motor has it's own software for hydraulic design calculations of impeller, diffuser, volute and screw spindles.

About Us

Miksan Motor Sanayi ve Ticaret A.Ş. was founded in Istanbul in 1977 for producing electric motors. We began manufacturing immersion pumps to meet domestic market demand in 1982. Currently, within the area of 9000 m^2, we produce immersion pumps for machine tools, electrical motors, the electric motors for special applications with specially designed shaft and flange, explosion-proof electrical motors, and vibrators. Our products meet all the requirements of the related IEC, ISO, DIN and TSE standards. We offer high quality products by increasing our production capacity, improvement in distribution and decrease in delivery time significantly.



VP SERIES SCREW PUMPS

VP series pumps provide high pressure (up to 100 bar) at low volumetric delivery (up to 100 l/min).

VP Screw pumps are mostly used on deep hole drilling applications on CNC machine tools. On deep hole drilling applications, while work-piece are drilled by cutting tool, coolant liquid are sprayed to the work-piece through the cutting tool. So work-piece and cutting tool can be cooled and metal chips can be thrown out enhancing the quality of machining. It also accelerates the process and prolongs the lifetime of cutting tool. Only high pressure pumps can overcome the high flow resistance of the system and provide required flow rate.

The medium is compressed by a set of spindles in VP series self-priming pumps. Rotation of the driving (main) screw provides the pumped medium to move continuously from suction to the discharge port. The special profile formation of the spindles leads to a minimum leakage between the spindles and provides a high level of efficiency. VP series screw pumps have a pressure control and a regulation valve that is required for the safety of the system.

VP series features:

◊ High efficiency,

◊ High reliability,

◊ Low noise level,

◊ Self-priming capacity,

◊ Near-zero pulsation.

Primary application areas of VP series screw pumps:

a. Machine tools and machining centres,

- Pumping of the coolant and lubricant fluid (minimum 5% oil)
- Deep hole drilling applications for cooling machine tool and work-piece and to remove the chips out of the hole.

b. Hydraulic systems,

- Pumping for coolants and fluids with high viscosity (between 1-400 cSt)

c. Central units for heat exchange and energy recover,

- Circulation of the system fluid

d. Due to its wear-resistant design

- Processes that difficult to mill materials such as titanium and stainless steel,
- High precision applications such as aerospace industry,
- Grinding applications.

Properties of the medium fluids with lubricating properties such as

- Oil in water emulsions with minimum 5% oil.
- Cooling and cutting oils are suggested. Also, pumped fluid should not include abrasives or long fibre components. Installation of a strainer on the suction port of the pump has to be avoided. Usage of strainer creates additional forces on the suction port of the pump and as a result power consumption of the motor increases.

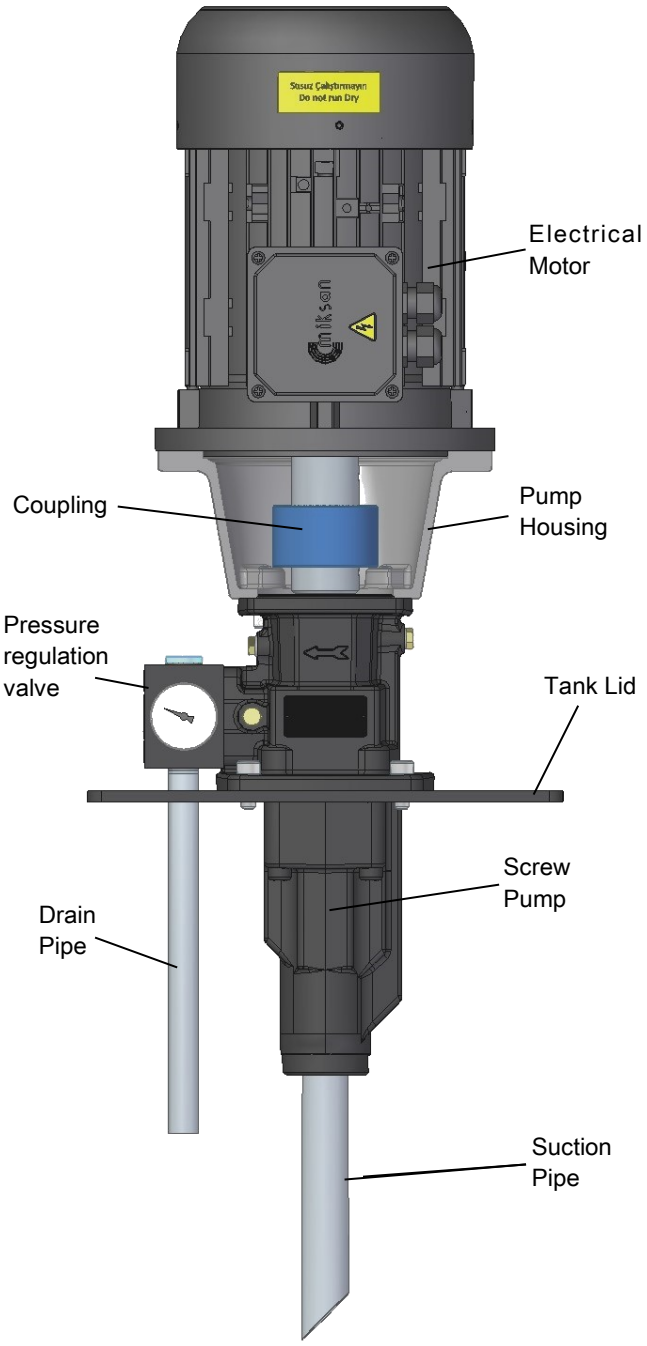


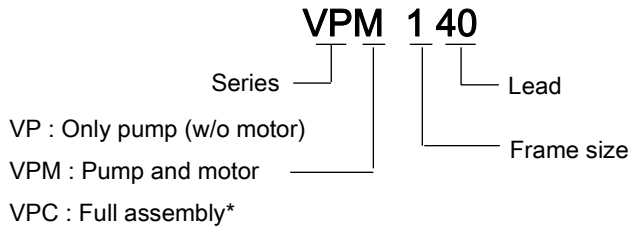
Figure 1. Configuration of VPC series screw pump

- Generally acceptable contamination:
  - Maximum solids contents: 120mg/l
  - Maximum grain size: 0.05mm (50µm) for machining turning, milling, drilling) Special values can be applied on request. Recommended filtration quality and max. solid content of pumped fluid is given at page 24.
- Kinematic viscosity: 1-400 mm^2/s (cSt)
- Operation temperature: 0 °C to 80 °C

VP type screw pumps are self-priming pumps with 4m geodesic suction head. Running dry and operation with closed valve is not permissible.

VP series screw pumps are delivered with tank lid, valve block and manometer shown in Figure 1.

VP screw pumps are offered in various pumps within a single frame size, combination with various motors is possible. Identification of the pump is given in Figure 2.



* Full assembly includes motor, screw pump, pressure regulation valve, pressure gauge, tank lid, suction and drain valve

Figure 2. Identification of VP series screw pumps

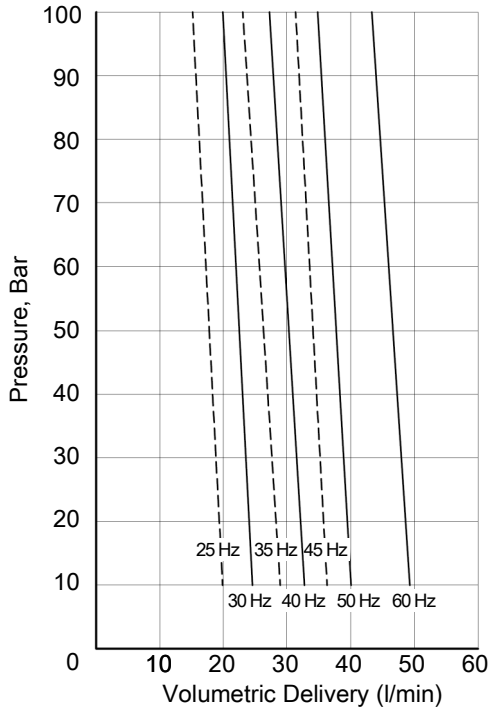
Electrical Motor Data

Three phase IE3 electrical motor data according to EN 60034-30 with thermal protection class F is shown the table below.

Power 50 Hz / 60 Hz kW	Current A							
	2 Pole				4 Pole			
	50 Hz		60 Hz		50 Hz		60 Hz	
	Y 400	Δ 400	Y 460	Δ 460	Y 400	Δ 400	Y 460	Δ 460
0,75 / 0,9	1,8	-	1,8	-	1,9	-	1,9	-
1,1 / 1,3	2,4	-	2,4	-	2,7	-	2,7	-
1,5 / 1,8	3,3	-	3,3	-	3,5	-	3,5	-
2,2 / 2,6	4,5	-	4,5	-	4,8	-	4,8	-
3 / 3,6	6,0	-	6,0	-	7,0	-	6,9	-
4 / 4,8	7,7	-	7,8	-	-	8,3	-	8,2
5,5 / 6,6	10,7	-	10,6	-	-	10,6	-	10,5
7,5 / 9	-	13,5	-	13,5	-	15,4	-	15,2
11 / 13,2	-	19,7	-	19,7	-	21,0	-	20,6
15 / 17,4	-	26,9	-	26,7	-	-	-	-
18,5 / 21,5	-	31,7	-	31,6	-	-	-	-
22 / 25,5	-	38,1	-	37,9	-	-	-	-

Speed Control

It is possible to use our screw pumps with a frequency converter. Pump performance curves changes with the rotational speed of the screws which is possible with the use of frequency converter. This makes the operating region of the pump larger shown in figure below.



In case of systems with many pumps, the optimization of the operating points of pumps can be found by using the frequency converters through the control system for energy saving. In this case feedback can be provided by measuring the H and Q values of the each pump continuously.

The advantages of the use of frequency convertor in the driven unit of the pumps are given in the following:

- Frequency converter runs with the fixed voltage to frequency ratio. Thus, current of motor becomes constant. Hereby, the current of the motor will not reach excessive values and therefore the energy losses will decrease.
- For the systems with variable flow rate, the use of frequency convertor can provide energy saving.
- Frequency converters enable to increase the speed of the pump above the nominal values, so pump can be operated above the nominal Q-H curve.
- Frequency convertors provide the flexibility to the system.
- Frequency convertors provide the soft starting for the driving unit.

Motor Protection via PTC and Thermistor

Resistance of PTC temperature sensors that are placed inside the winding, varies depending on the temperature. Ends of the PTC's have to be connected to Thermistor relay. They halt the motor if the temperature of winding exceeds the limit of 130°C. The resistance of PTC increases after the nominal temperature and stops the motor by switching off the circuit.

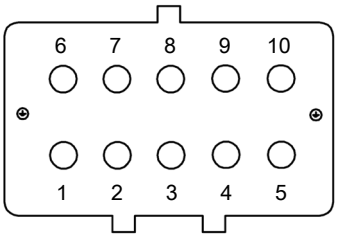
Miksan Motor A.S. electric motors have F class isolation that allows a raise of 80°C in winding temperature at maximum ambient temperature of the 40 °C. Our electrical motors with 100 Frame and over have PTC protection in standard.

Special Connections

There are some improvements in electrical connections of the coolant pumps used in machine tools according to EN ISO 23570-3:2009.

Electricity can be provided to motor via multi-pin connector on the terminal box according to the standard mentioned above. Also connection of the pins is described in the standards.

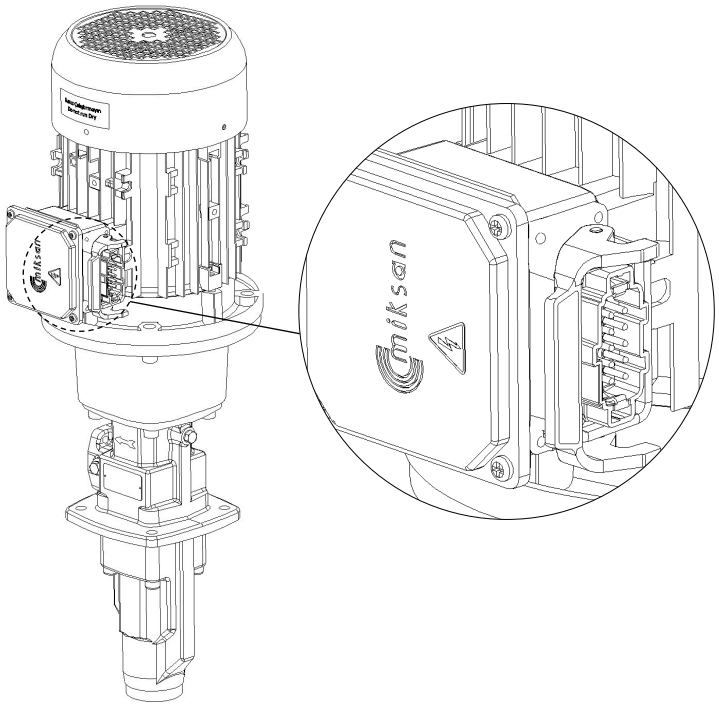
Our pumps provide the connector coupled with motor on request. Male pin connector is assembled on motor and connection of the pin ends is shown in figure below.



Male Connector Pin Ends

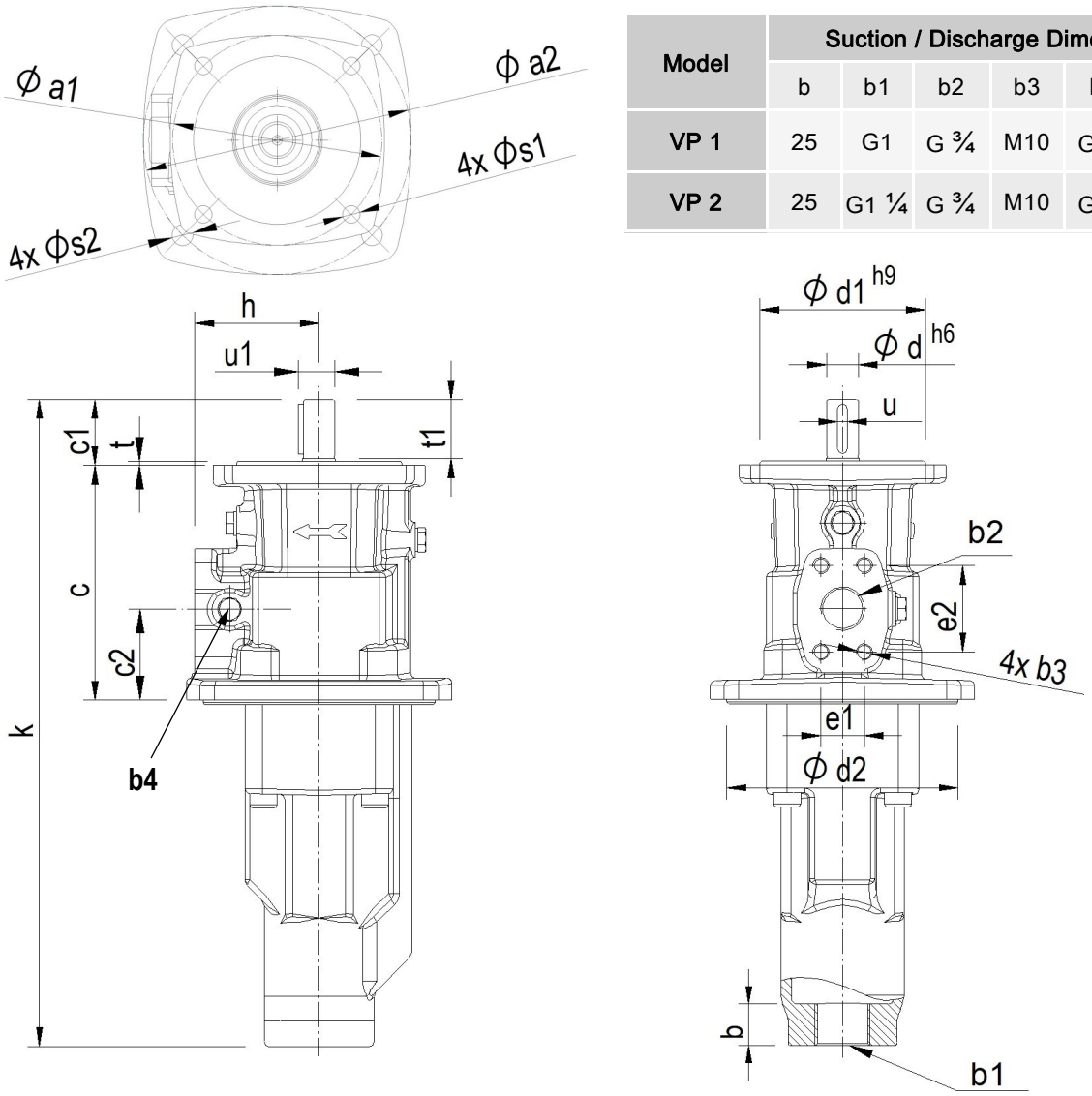
Socket	Motor
1	U1
2	V1
3	W1
6	W2
7	U2
8	V2
9	PTC
10	PTC

Pins of 4 and 5 are left empty for motor brake. Star or delta connections are done by female connector. If motor is star connected, 6, 7, 8 pins are bridged, else if motor is delta connected, 1-6, 2-7, 3-8 pins are bridged.



Connector and Pump Assembly

VP Screw Pump Dimensions



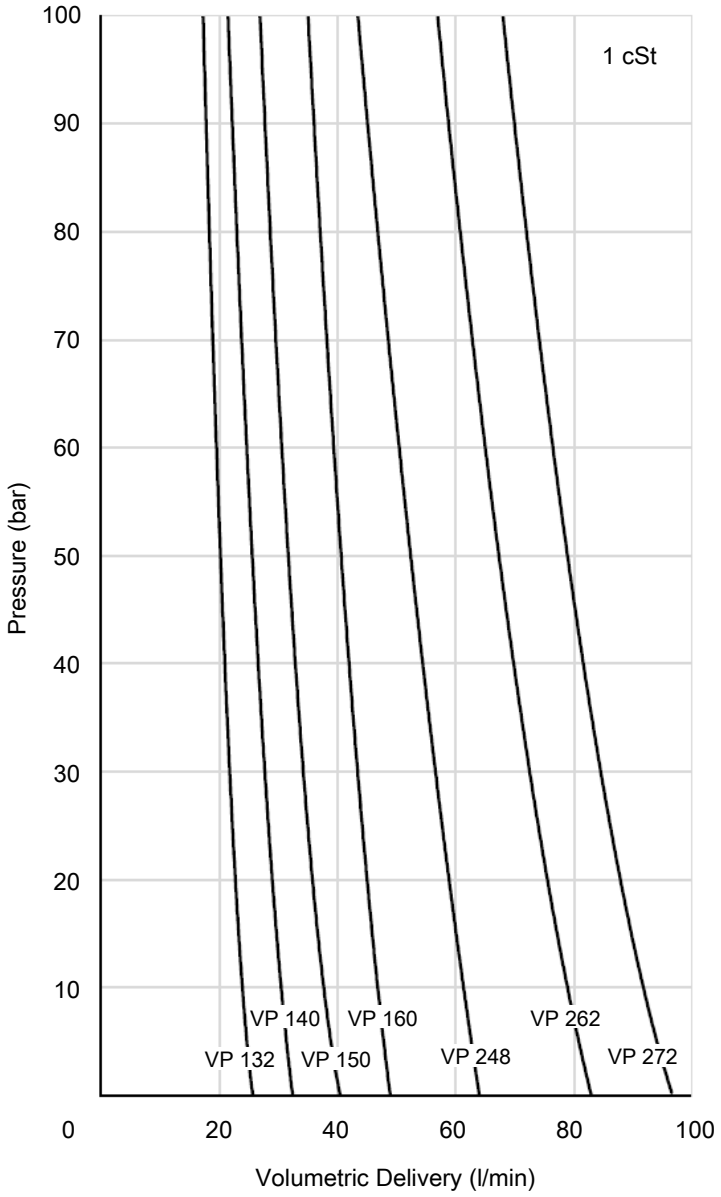
Model	Suction / Discharge Dimensions (mm)						
	b	b1	b2	b3	b4	e1	e2
VP 1	25	G1	G ¾	M10	G ⅛	26,2	52,4
VP 2	25	G1 ¼	G ¾	M10	G ⅛	26,2	52,4

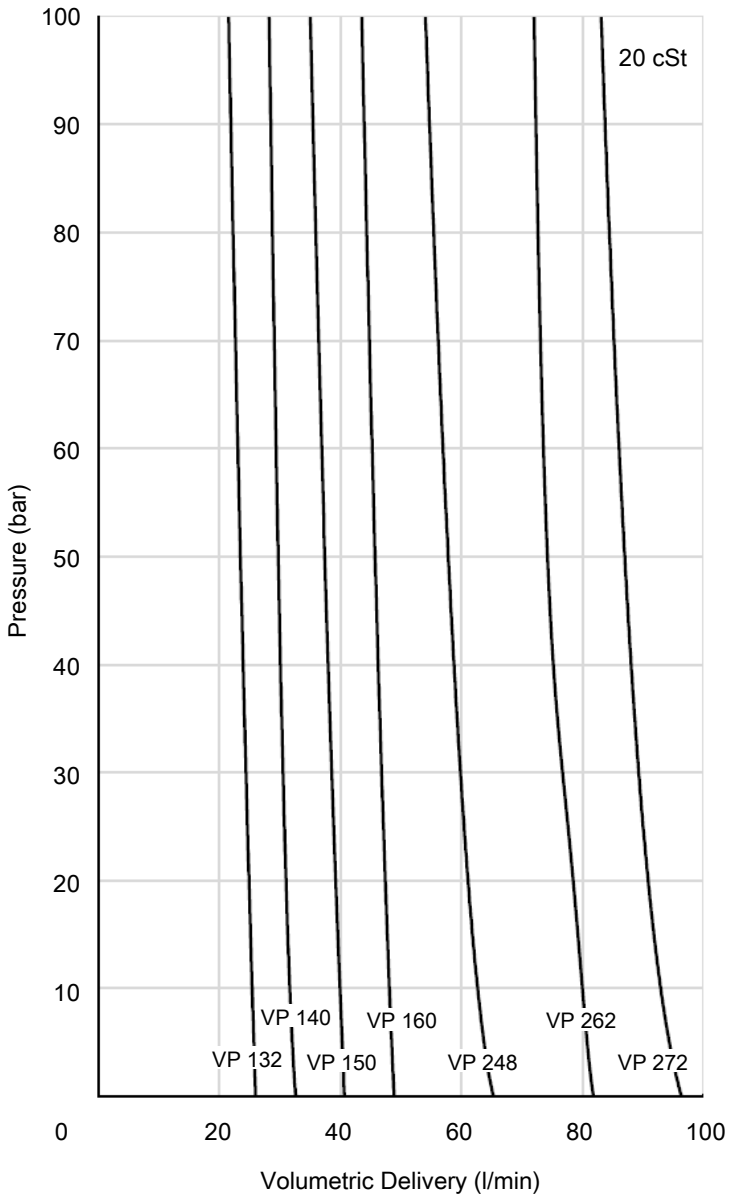
Model	Pump Dimensions (mm)															
	a1	a2	c	c1	c2	d	d1	d2	h	k	s1	s2	t	t1	u	u1
VP 1	125	160	142	40	55	19	100	140	75	392	10,5	12,5	2,5	36	6	21,5
VP 2	125	160	142	40	55	19	100	140	75	423	10,5	12,5	2,5	36	6	21,5

Technical Parameters	
Flow Rate	15 to 95 l/min
Liquid Temperature	Up to 80 °C
Inlet Pressure	Up to 10 bar
Max. Outlet Pressure	100 bar
Viscosity Range (v)	1 to 400 cSt (min 5% oil)
Dirt Load Level	Up to 120 mg/l
Filter Fineness	Up to 50 µm

Performance curves

Performance curves of the VP series screw pumps at 2900 RPM and viscosity of 1 cSt and 20 cSt are shown below. Please contact us for higher volumetric deliveries.



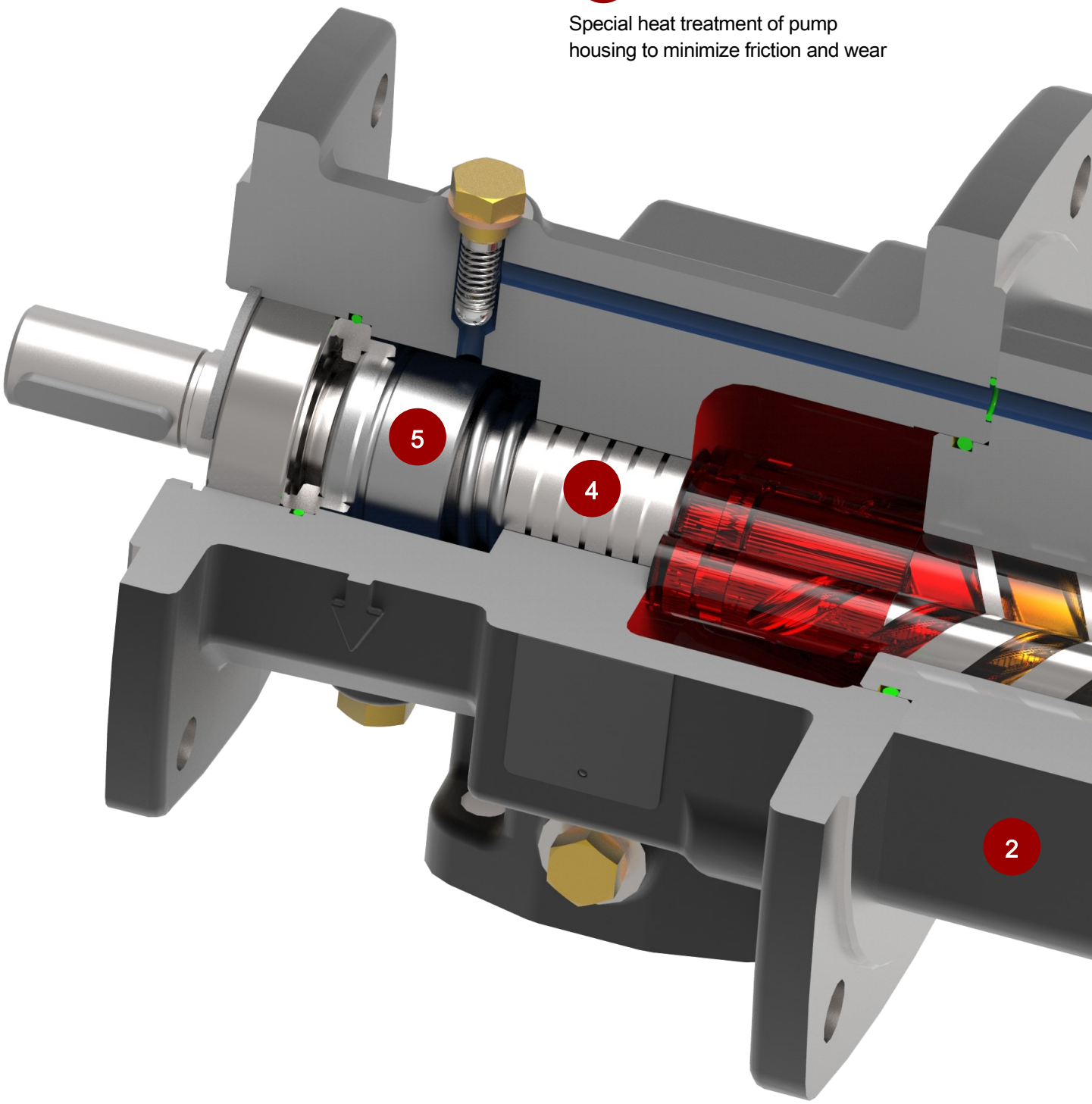


1 Screws

Special alloy steel, hardened 62 HRC, highly wear-resistant spindles extend the pump's service life

2 Housing

Special heat treatment of pump housing to minimize friction and wear



3 Seal flushing

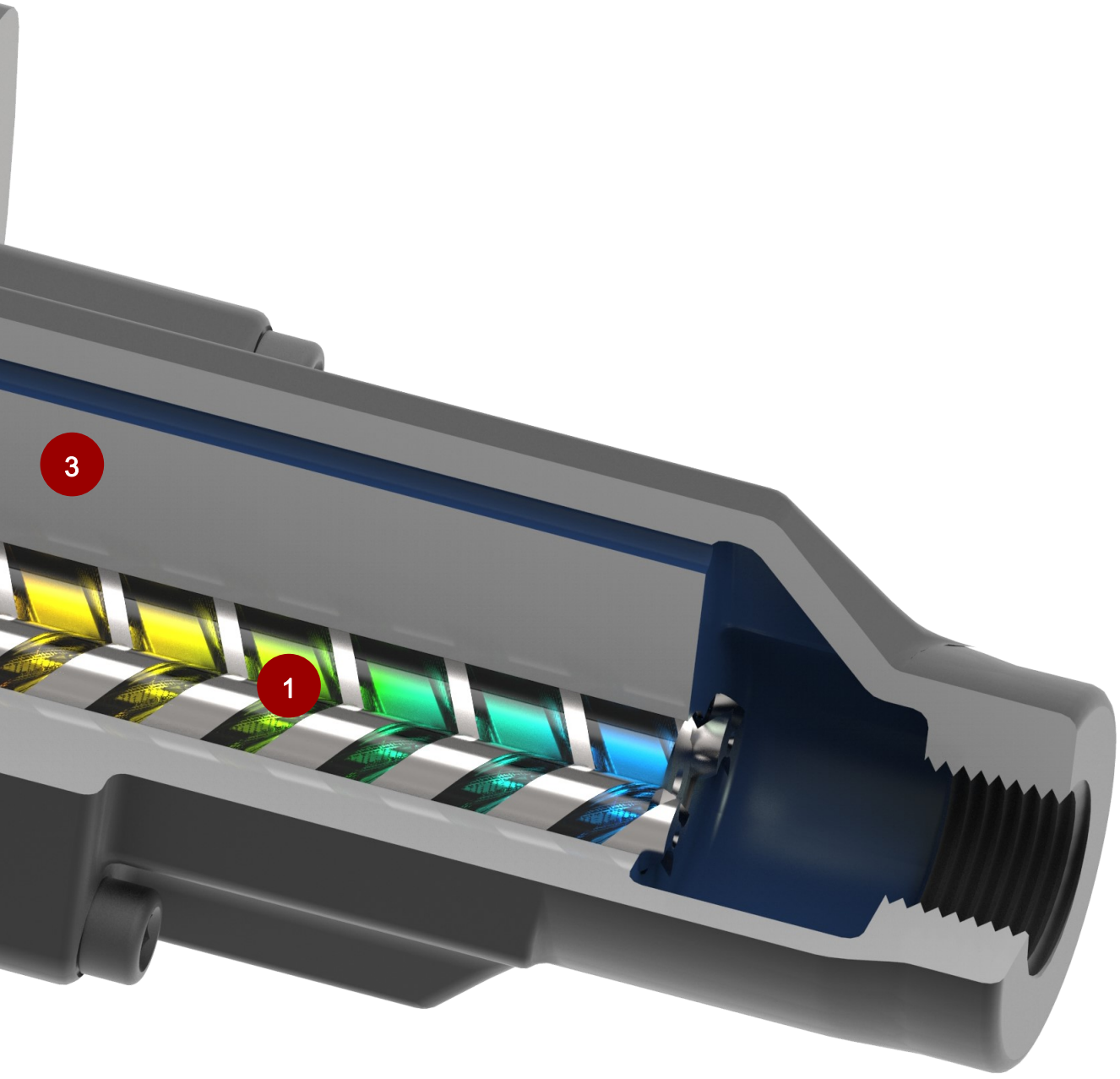
Back-flow from seal zone to pump inlet via safety valve when pressure exceeds 0.5 Bar

5 Sealing

Maintenance-free SiC mechanical seal and Viton O-rings

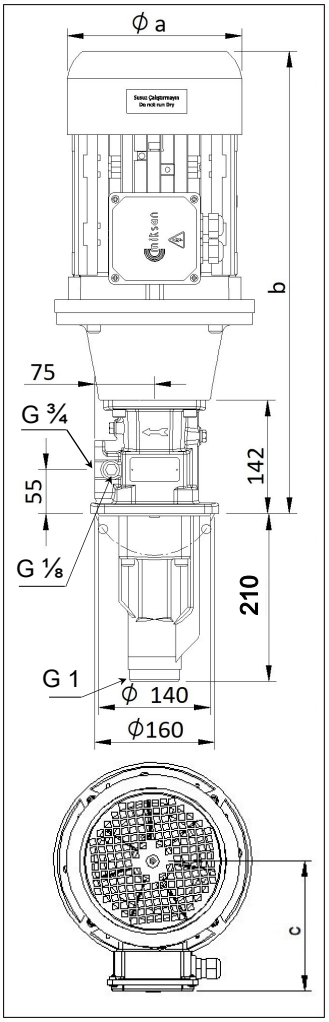
4 Balancing piston

Ensures proper cooling and lubrication of mechanical seal surfaces and minimizes flow losses for higher efficiency

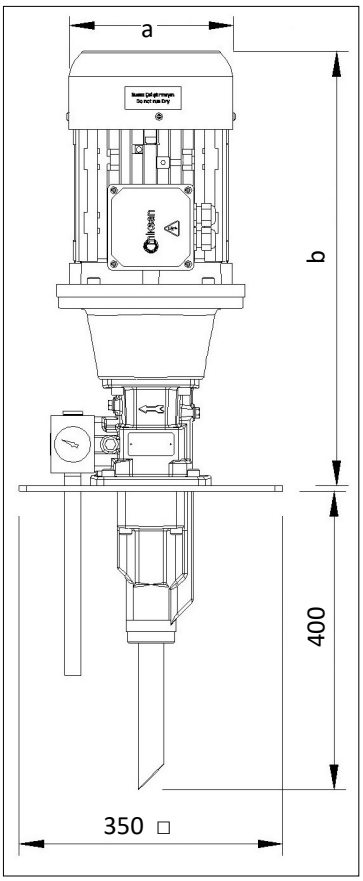


VP 132 SCREW PUMP

VPM



VPC



Applications:

- High pressure pumps with low volumetric delivery,
- Cutting, turning milling, boring, grinding and similar applications of the machine tools,
- Especially used for deep hole boring operations due to the high pressure up to 100 bar,
- Pumping cutting/cooling fluids in circulation systems,

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 132

- VP 132 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 132

- VP 132 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable Gland
2 Pole	4 Pole	a	b	c	
kW		mm			
1,1	0,75	157	487	118	M16x1,5
1,5	1,1	176	509	139	M20x1,5
2,2	1,5	176	534	139	M20x1,5
3	2,2	194	569	150	M20x1,5
4	3	194	569	150	M20x1,5
5,5	-	218	582	163	M20x1,5

* VPM and VPC series have the same hydraulic and electrical values.

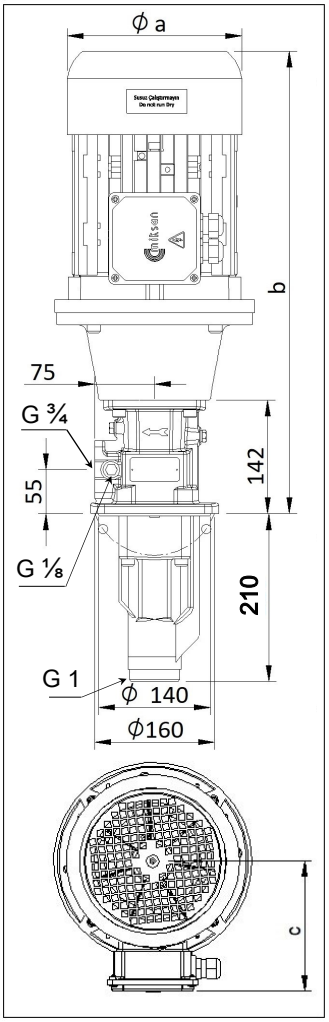
Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 132 Q_{TH}=26,1 l/min	10	23,8	25,3	0,7	0,8	1,1	28	9,7	12,6	0,4	0,5	0,75	28
	20	22,6	24,9	1,1	1,3	1,5	32	8,5	11,7	0,5	0,6	1,1	32
	30	21,5	24,4	1,5	1,7	2,2	34	7,7	10,8	0,7	0,8	1,1	32
	40	20,9	23,9	2,0	2,2	3	41	6,9	10,2	0,9	1,1	1,5	34
	50	20,3	23,5	2,4	2,7	3	41	6,1	10,0	1,1	1,3	1,5	34
	60	19,7	23,1	2,8	3,1	4	42	5,4	9,7	1,3	1,5	2,2	41
	70	19,1	22,7	3,3	3,6	4	42	4,7	9,4	1,6	1,8	2,2	41
	80	18,5	22,3	3,8	4,1	5,5	51	4,0	9,1	1,9	2,1	2,2	41
	90	17,8	21,9	4,2	4,6	5,5	51	-	8,8	-	2,3	3,0	42
	100	17,1	21,5	4,6	5,0	5,5	51	-	8,4	-	2,5	3,0	42

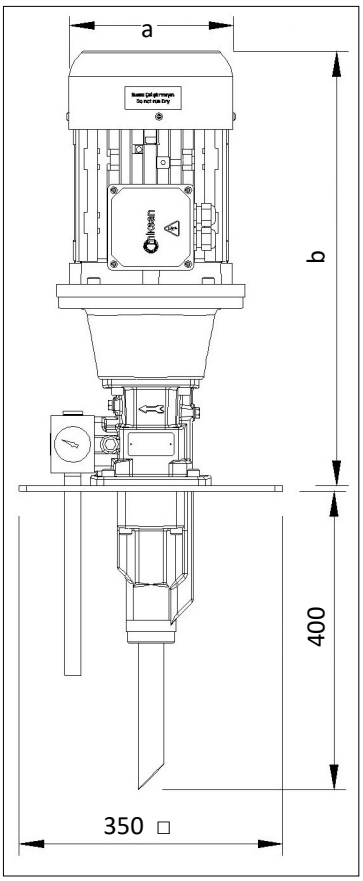
60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 132 Q_{TH}=31,5 l/min	10	28,9	30,3	0,9	1,0	1,3	28	13,8	15,2	0,4	0,5	0,9	28
	20	28,1	29,8	1,6	1,7	1,8	32	12,7	14,3	0,6	0,7	1,3	32
	30	27,3	29,3	2,2	2,3	2,6	34	11,7	13,4	0,9	1,0	1,3	32
	40	26,5	28,7	3,7	2,8	3,6	41	10,8	12,7	1,2	1,3	1,8	34
	50	25,8	28,2	3,2	3,4	3,6	41	10,0	12,2	1,5	1,6	1,8	34
	60	25,1	27,8	3,8	4,0	4,8	42	9,2	11,9	1,8	1,9	2,6	41
	70	24,3	27,3	4,3	4,5	4,8	42	8,4	11,8	2,1	2,2	2,6	41
	80	23,5	26,9	4,9	5,1	6,6	51	7,6	11,4	2,3	2,4	2,6	41
	90	22,8	26,5	5,5	5,7	6,6	51	7,0	11,1	2,5	2,7	3,6	42
	100	22,1	26,1	6,0	6,2	6,6	51	6,4	10,8	2,9	3,1	3,6	42

VP 140 SCREW PUMP

VPM



VPC



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Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 140

- VP 140 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 140

- VP 140 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable Gland
2-Pole	4-Plole	a	b	c	
kW		mm			
1,1	0,75	157	487	118	M16x1,5
-	1,1	176	509	139	M20x1,5
2,2	1,5	176	534	139	M20x1,5
3	2,2	194	569	150	M20x1,5
4	3	194	569	150	M20x1,5
5,5	4	218	582	163	M20x1,5
7,5	-	258	656	177	M25x1,5

* VPM and VPC series have the same hydraulic and electrical values.

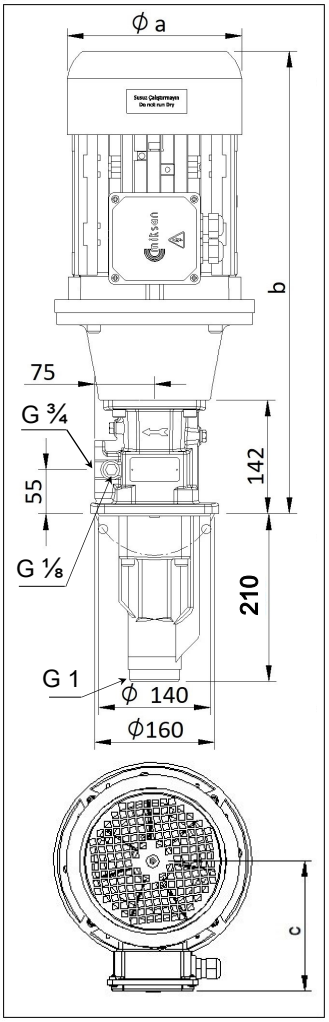
Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 140 Q_{TH}=32,7 l/min	10	30,4	31,6	0,9	0,9	1,1	28	13,1	15,3	0,4	0,5	0,75	28
	20	28,7	31,0	1,6	1,6	2,2	34	12,2	14,8	0,7	0,8	1,1	32
	30	26,9	30,5	2,1	2,1	2,2	34	10,7	14,1	0,9	1,0	1,1	32
	40	25,8	30,1	2,7	2,7	3,0	41	9,7	13,7	1,2	1,4	1,5	34
	50	23,9	29,7	3,3	3,3	4,0	42	8,8	13,6	1,5	1,7	2,2	41
	60	23,1	29,4	3,7	3,8	4,0	42	8,0	13,4	1,9	2,1	2,2	41
	70	22,3	29,1	4,4	4,5	5,5	51	7,3	13,3	2,2	2,4	3,0	42
	80	21,4	28,8	4,9	5,0	5,5	51	6,6	13,2	2,5	2,7	3,0	42
	90	20,5	28,5	5,4	5,6	7,5	68	5,9	13,0	2,7	3,0	3,0	42
	100	19,6	28,2	6,0	6,2	7,5	68	5,2	12,7	3,1	3,4	4,0	51

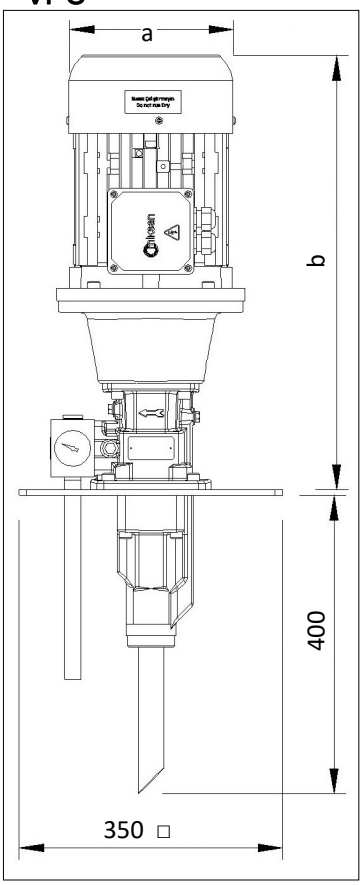
60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 140 Q_{TH}=39,4 l/min	10	36,7	38,5	0,9	0,9	1,3	28	17,2	19,6	0,5	0,6	0,9	28
	20	34,3	38,0	2,0	2,1	2,6	34	15,8	18,3	0,9	1,0	1,3	32
	30	33,3	37,5	2,7	2,8	2,6	34	14,3	17,8	1,2	1,3	1,3	32
	40	32,3	36,9	3,4	3,5	3,6	41	13,3	17,4	1,6	1,7	1,8	34
	50	31,4	36,2	4,1	4,2	4,8	42	12,4	17,0	1,8	2,0	2,6	41
	60	30,5	35,8	4,7	4,8	4,8	42	11,5	16,7	2,2	2,4	2,6	41
	70	29,6	35,4	5,5	5,6	6,6	51	10,6	16,4	2,6	2,8	3,6	42
	80	28,6	35,1	6,1	6,2	6,6	51	9,7	16,1	3,0	3,2	3,6	42
	90	27,7	34,7	6,7	6,9	9,0	68	8,8	15,9	3,3	3,6	3,6	42
	100	26,9	34,4	7,4	7,6	9,0	68	7,9	15,7	3,6	4,0	4,8	51

VP 150 SCREW PUMP

VPM



VPC



Applications:

- High pressure pumps with low volumetric delivery,
- Cutting, turning milling, boring, grinding and similar applications of the machine tools,
- Especially used for deep hole boring operations due to the high pressure up to 100 bar,
- Pumping cutting/cooling fluids in circulation systems,

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 150

- VP 150 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 150

- VP 150 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable Gland
2-Pole	4-Plole	a	b	c	
kW		mm			
-	0,75	157	487	118	M16x1,5
1,5	1,1	176	509	139	M20x1,5
2,2	1,5	176	534	139	M20x1,5
3	2,2	194	569	150	M20x1,5
4	3	194	569	150	M20x1,5
5,5	4	218	582	163	M20x1,5
7,5	-	258	656	177	M25x1,5
11	-	258	685	177	M25x1,5

* VPM and VPC series have the same hydraulic and electrical values.

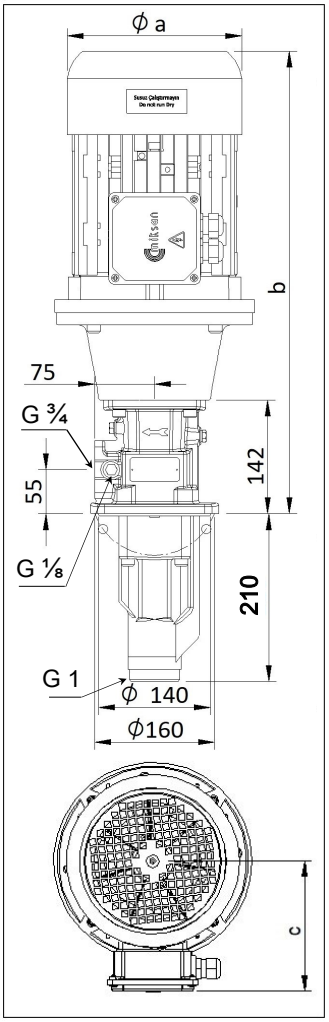
Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 150 Q_{TH}=40,8 l/min	10	37,6	39,6	1,0	1,1	1,5	32	16,6	19,7	0,6	0,7	0,75	28
	20	35,5	39,2	1,9	1,9	2,2	34	14,7	19,3	0,8	0,9	1,1	32
	30	34,1	38,7	2,5	2,5	3,0	41	13,3	18,7	1,1	1,2	1,5	34
	40	32,9	38,1	3,1	3,2	4,0	42	12,1	18,2	1,4	1,5	2,2	41
	50	31,7	37,4	3,8	3,9	4,0	42	11,1	17,9	1,8	1,9	2,2	41
	60	30,6	36,9	4,5	4,6	5,5	51	10,2	17,5	2,2	2,3	3,0	42
	70	29,7	36,4	5,3	5,4	5,5	51	9,3	17,0	2,5	2,6	3,0	42
	80	28,8	35,9	5,9	6,0	7,5	68	8,4	16,6	2,9	3,0	4,0	51
	90	27,8	35,4	6,5	6,7	7,5	68	7,5	16,2	3,2	3,4	4,0	51
	100	26,7	35,1	7,3	7,5	11,0	78	6,7	15,8	3,6	3,8	4,0	51

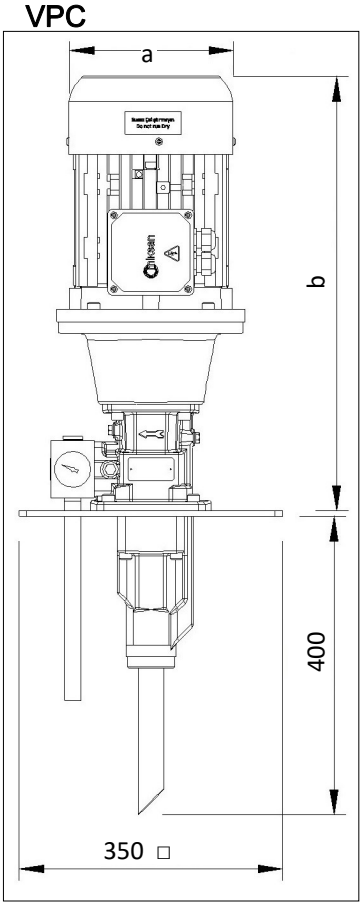
60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 150 Q_{TH}=49,3 l/min	10	45,9	48,2	1,1	1,1	1,8	32	20,9	24,1	0,6	0,7	0,9	28
	20	43,9	47,5	2,2	2,3	2,6	34	19,6	23,3	1,0	1,0	1,3	32
	30	42,4	46,8	3,0	3,1	3,6	41	17,9	22,8	1,4	1,5	1,8	34
	40	40,8	46,2	3,8	3,9	4,8	42	16,6	22,3	1,8	1,9	2,6	41
	50	39,7	45,7	4,7	4,8	6,6	42	15,6	21,8	2,2	2,3	2,6	41
	60	38,6	45,3	5,5	5,6	6,6	51	14,7	21,4	2,6	2,7	3,6	42
	70	37,8	44,9	6,4	6,5	9,0	51	13,8	20,9	3,1	3,2	3,6	42
	80	36,9	44,5	7,2	7,4	9,0	68	12,8	20,5	3,5	3,6	4,8	51
	90	36,0	44,1	8,0	8,2	9,0	68	11,9	20,2	4,0	4,1	4,8	51
	100	35,1	43,7	8,9	9,1	13,2	78	11,1	19,7	4,4	4,6	6,6	51

VP 160 SCREW PUMP

VPM



VPC



Applications:

- High pressure pumps with low volumetric delivery,
- Cutting, turning milling, boring, grinding and similar applications of the machine tools,
- Especially used for deep hole boring operations due to the high pressure up to 100 bar,
- Pumping cutting/cooling fluids in circulation systems,

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 160

- VP 160 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 160

- VP 160 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable Gland
2-Pole	4-Pole	a	b	c	
kW		mm			
1,5	1,1	176	509	139	M20x1,5
2,2	-	176	534	139	M20x1,5
3	2,2	194	569	150	M20x1,5
4	3	194	569	150	M20x1,5
5,5	4	218	582	163	M20x1,5
7,5	5,5	258	656	177	M25x1,5
11	-	258	685	177	M25x1,5

* VPM and VPC series have the same hydraulic and electrical values.

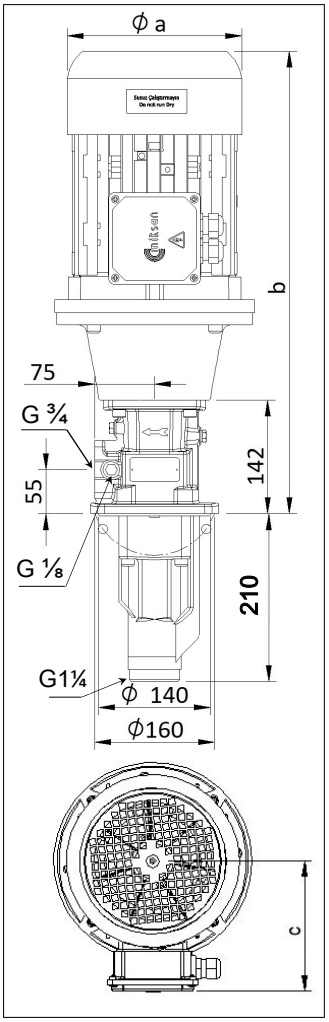
Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 160 Q_{TH}=49,0 l/min	10	46,9	47,8	1,1	1,2	1,5	32	19,5	23,4	0,6	0,7	0,75	28
	20	44,8	47,4	2,2	2,3	3,0	41	18,3	22,8	1,0	1,1	1,5	34
	30	43,1	46,9	3,0	3,1	4,0	52	17,0	22,5	1,4	1,5	2,2	41
	40	41,9	46,3	3,8	3,9	5,5	51	15,9	22,2	1,8	1,9	2,2	41
	50	40,7	45,7	4,5	4,7	5,5	51	14,8	21,9	2,2	2,3	3,0	42
	60	39,5	45,2	5,4	5,6	7,5	68	13,7	21,7	2,6	2,8	3,0	42
	70	38,3	44,8	6,2	6,5	7,5	68	12,6	21,3	3,0	3,2	4,0	51
	80	37,1	44,4	7,0	7,3	11,0	78	11,6	21,0	3,5	3,7	4,0	51
	90	36,0	43,9	7,8	8,2	11,0	78	10,7	20,7	3,9	4,1	5,5	68
	100	34,9	43,5	8,7	9,1	11,0	78	9,8	20,4	4,4	4,6	5,5	68

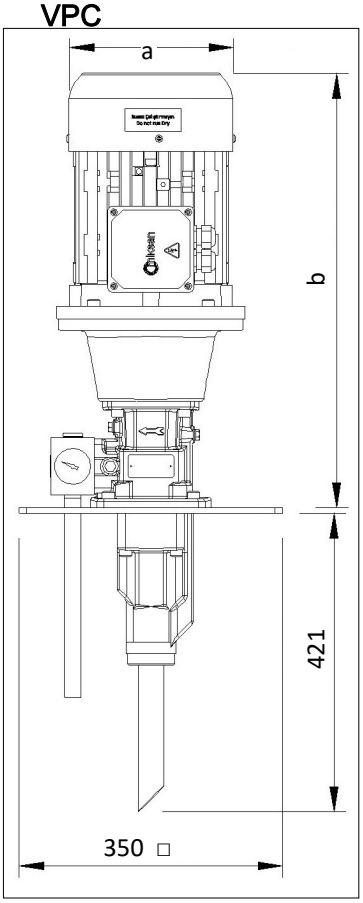
60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 160 Q_{TH}=59,1 l/min	10	56,8	58,2	1,4	1,6	1,8	32	26,7	28,5	0,7	0,8	1,3	28
	20	54,7	57,4	2,7	2,9	3,6	41	24,8	27,9	1,2	1,3	1,8	34
	30	52,5	56,7	3,7	3,9	4,8	52	22,8	27,4	1,7	1,8	2,6	41
	40	51,5	56,1	5,7	4,9	6.6	51	21,7	27,1	2,1	2,3	2,6	41
	50	50,5	55,5	5,9	5,9	6.6	51	20,6	26,8	2,6	2,8	3,6	42
	60	49,4	54,9	6,6	6,9	9.0	68	19,5	26,5	3,3	3,5	3,6	42
	70	48,3	54,4	7,5	7,9	9.0	68	18,4	26,2	3,7	3,9	4,8	51
	80	47,2	53,8	8,5	9,0	13.2	78	17,2	25,9	4,1	4,4	4,8	51
	90	46,1	53,5	9,4	10,0	13.2	78	15,4	25,6	4,6	4,9	6,6	68
	100	45,0	52,9	10,5	11,1	13.2	78	14,3	25,2	5,2	5,5	6,6	68

VP 248 SCREW PUMP

VPM



VPC



Applications:

- High pressure pumps with low volumetric delivery,
- Cutting, turning milling, boring, grinding and similar applications of the machine tools,
- Especially used for deep hole boring operations due to the high pressure up to 100 bar,
- Pumping cutting/cooling fluids in circulation systems,

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 248

- VP 248 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 248

- VP 248 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable
2-Pole	4-Pole	a	b	c	Gland
kW		mm			
-	1,1	176	509	139	M20x1,5
2,2	1,5	176	534	139	M20x1,5
3	2,2	194	569	150	M20x1,5
4	3	194	569	150	M20x1,5
5,5	4	218	582	163	M20x1,5
7,5	5,5	258	656	177	M25x1,5
11	7,5	258	685	177	M25x1,5
15	-	257	683	180	M25x1,5

* VPM and VPC series have the same hydraulic and electrical values.

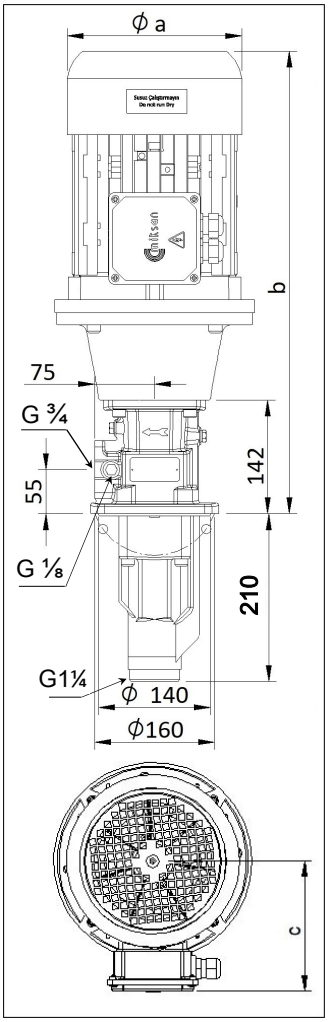
Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 248 Q_{TH}=64,2 l/min	10	61,3	62,9	1,6	1,7	2,2	36	27,9	30,2	0,8	0,9	1,1	33
	20	58,4	61,4	2,8	2,9	4,0	43	25,0	29,6	1,2	1,3	1,5	35
	30	56,5	60,2	3,8	4,0	5,5	52	22,4	28,3	1,7	1,9	2,2	42
	40	54,1	58,9	4,9	5,0	5,5	52	20,1	27,0	2,3	2,5	3,0	43
	50	52,5	57,7	6,1	6,2	7,5	69	18,2	26,0	2,9	3,1	4,0	52
	60	50,6	56,5	7,2	7,3	11,0	79	16,8	25,4	3,5	3,7	4,0	52
	70	48,7	55,6	8,1	8,5	11,0	79	15,5	25,2	4,1	4,4	5,5	69
	80	47	55,1	9,2	9,6	11,0	79	14,3	25,0	4,8	5,1	5,5	69
	90	44,9	54,9	10,3	10,8	15,0	90	12,7	24,5	5,5	5,9	7,5	80
	100	43,3	54,7	11,4	11,9	15,0	90	11,2	23,9	6,3	6,7	7,5	80

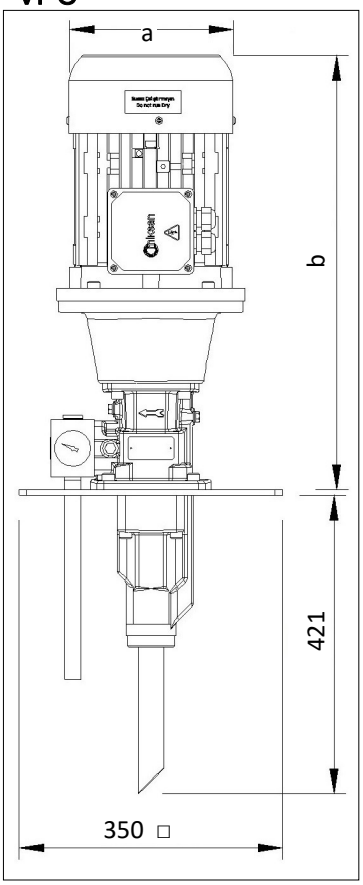
60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 248 Q_{TH}=77,5 l/min	10	73,3	75,6	2,2	2,3	2,6	36	34,4	37,5	0,9	1,0	1,3	33
	20	71,2	74,4	3,4	3,6	4,6	43	31,7	36,3	1,6	1,7	1,8	35
	30	69,3	73,2	4,6	4,9	6,6	52	28,3	35,0	2,1	2,3	2,6	42
	40	66,8	71,9	5,8	6,2	9,0	69	26,3	33,7	2,9	3,0	3,6	43
	50	65,5	70,5	7,1	7,5	9,0	69	24,6	32,5	3,4	3,7	4,8	52
	60	62,5	69,3	8,5	8,9	13,2	79	23,1	31,7	4,0	4,4	6,6	69
	70	59,8	68,3	9,9	10,3	13,2	79	21,7	31,4	4,5	5,0	6,6	69
	80	57,7	67,6	11,2	11,7	13,2	79	20,4	31,2	5,4	5,9	6,6	69
	90	56,4	67,4	12,7	13,2	17,4	90	19,1	30,7	6,4	6,9	9,0	80
	100	55,1	67,2	14,6	15,2	17,4	90	17,9	30,3	7,2	7,7	9,0	80

VP 262 SCREW PUMP

VPM



VPC



Applications:

- High pressure pumps with low volumetric delivery,
- Cutting, turning milling, boring, grinding and similar applications of the machine tools,
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- Pumping cutting/cooling fluids in circulation systems,

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 262

- VP 262 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 262

- VP 262 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable Gland
2-Pole	4-Pole	a	b	c	
kW		mm			
-	1,5	176	534	139	M20x1,5
3	2,2	194	569	150	M20x1,5
4	3	194	569	150	M20x1,5
5,5	4	218	582	163	M20x1,5
7,5	5,5	258	656	177	M25x1,5
11	7,5	258	685	177	M25x1,5
15	11	257	683	180	M25x1,5
18,5	-	316	812	224	M32x1,5

* VPM and VPC series have the same hydraulic and electrical values.

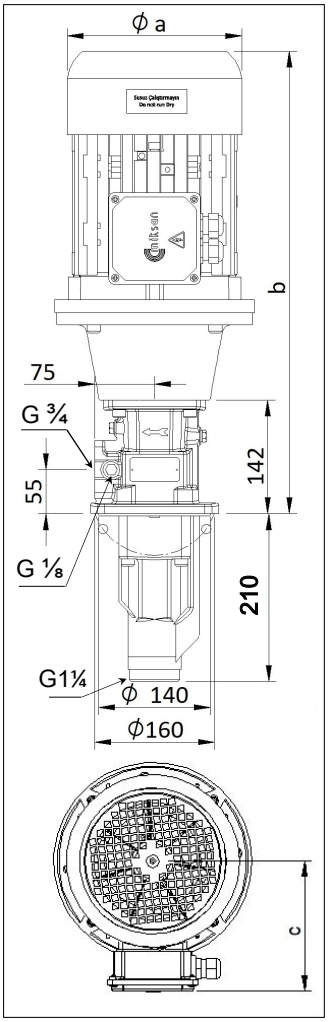
Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 262 Q_{TH}=83,0 l/min	10	78,4	79,9	2,0	2,1	3,0	42	36,7	39,5	1,1	1,2	1,5	35
	20	75,5	78,6	3,3	3,5	4,0	43	33,3	36,7	1,6	1,7	2,2	42
	30	72,8	76,5	4,7	4,9	5,5	52	30,1	35,7	2,3	2,4	3,0	43
	40	69,6	75,2	6,2	6,4	7,5	69	27,0	35,1	2,9	3,1	4,0	52
	50	67,2	74,2	7,5	7,8	11,0	79	25,1	34,8	3,8	4,0	5,5	69
	60	65,0	73,6	9,0	9,3	11,0	79	22,2	34,2	4,7	4,9	5,5	69
	70	62,8	73,0	10,4	10,8	15,0	90	20,1	33,4	5,6	5,8	7,5	80
	80	60,6	72,6	12,3	12,7	15,0	90	18,3	32,6	6,4	6,6	7,5	80
	90	58,5	72,3	13,9	14,4	15,0	90	16,5	31,7	7,2	7,5	11,0	93
	100	57,1	72,0	15,5	16,1	18,5	118	14,5	30,8	8,1	8,4	11,0	93

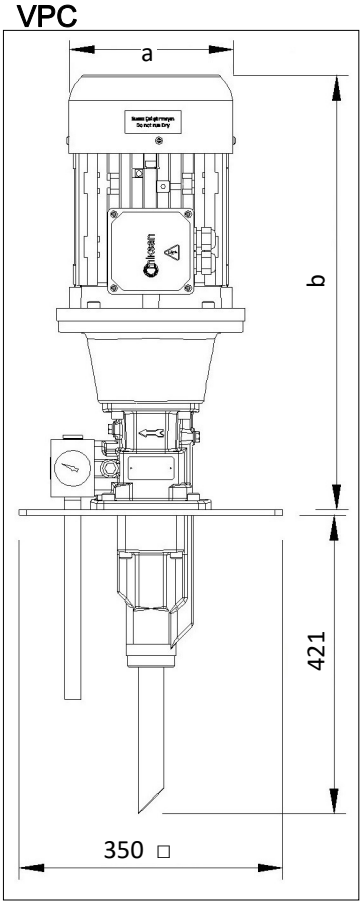
60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 262 Q_{TH}=100,1 l/min	10	95,9	97,5	2,4	2,5	3,6	42	44,8	47,5	1,2	1,3	1,8	35
	20	93,6	94,6	4,2	4,3	6,6	52	41,9	45,0	1,8	2,0	2,6	42
	30	89,0	92,7	5,8	6,0	9,0	69	38,4	43,9	2,7	2,9	3,6	43
	40	87,1	91,4	7,6	7,8	9,0	69	36,3	43,3	3,6	3,8	4,8	52
	50	84,9	90,9	9,4	9,6	13,2	79	33,4	42,9	4,3	4,6	6,6	69
	60	83,0	90,3	11,0	11,3	13,2	79	30,7	42,7	4,5	5,8	6,6	69
	70	81,1	89,7	12,7	13,0	17,4	90	27,2	42,2	6,4	6,8	9,0	80
	80	79,1	90,1	14,9	15,3	17,4	90	24,3	41,6	7,5	7,9	9,0	80
	90	77,0	89,4	16,8	17,3	21,5	118	22,7	40,9	8,5	8,9	13,2	93
	100	75,1	88,7	18,7	19,3	21,5	118	21,3	40,1	9,4	9,9	13,2	93

VP 272 SCREW PUMP

VPM



VPC



Applications:

- High pressure pumps with low volumetric delivery,
- Cutting, turning milling, boring, grinding and similar applications of the machine tools,
- Especially used for deep hole boring operations due to the high pressure up to 100 bar,
- Pumping cutting/cooling fluids in circulation systems,

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Emulsions (minimum 5% oil),
- Thermal oils (contact for detailed information)
- Kinematic viscosity 1...400 mm^2/s (contact for higher viscosities)

Materials:

Spindles	: High performance steel, hardened steel
Pump body	: Cast iron - DIN GG 26, specially heat treated
Discharge casing	: Cast iron - DIN GG 26
Housing	: Aluminium
Mechanical seal	: SiC-SiC-Viton
O-ring	: Viton
Suction pipe	: Steel

VPM 272

- VP 272 Screw pump,
- Electrical Motor, coupling and pump-housing.

VPC 272

- VP 272 Screw pump,
- Electrical Motor, coupling and pump-housing.
- Pressure regulation valve,
- Pressure gauge,
- Tank lid
- Suction and drain pipes.

Motor : 3-phase IE3 induction motor
2-pole, 2900 RPM;
4-pole, 1450 RPM (Optional)
Protection degree, IP 55
Insulation class F

NOMINAL SIZE

Power		Dimensions			Cable Gland
2-Pole	4-Pole	a	b	c	
kW		mm			
3	2,2	194	569	150	M20x1,5
-	3	194	569	150	M20x1,5
5,5	4	218	582	163	M20x1,5
7,5	5,5	258	656	177	M25x1,5
11	7,5	258	685	177	M25x1,5
15	11	257	683	180	M25x1,5
18,5	-	316	812	224	M32x1,5
22	-	316	812	224	M32x1,5

* VPM and VPC series have the same hydraulic and electrical values.

Pump Performance and Electrical Values

50 Hz		2900 RPM						1450 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 272 Q_{TH}=96,4 l/min	10	91,8	92,1	2,3	2,3	3,0	42	41,1	45,4	1,2	1,3	2,2	42
	20	87,7	91,3	3,8	4,0	5,5	52	37,2	43,8	1,7	1,9	3,0	43
	30	83,9	89,6	5,0	5,5	7,5	69	34,0	42,3	2,5	2,7	4,0	52
	40	82,2	87,9	6,6	7,1	11,0	79	31,1	41,1	3,3	3,5	4,0	52
	50	79	86,7	8,2	8,8	11,0	79	28,3	40,2	4,0	4,3	5,5	69
	60	76,3	85,9	9,7	10,4	15,0	90	25,7	39,5	4,4	5,2	7,5	69
	70	73,8	85,2	11,4	12,1	15,0	90	22,6	38,9	5,2	6,1	7,5	80
	80	71,6	84,6	13,0	13,8	15,0	90	19,7	38,1	6,1	7,0	7,5	80
	90	69,8	83,7	14,6	15,7	18,5	118	17,7	37,4	7,1	8,1	11,0	93
	100	68,2	83,0	16,2	17,4	22,0	137	16,2	36,5	8,0	9,1	11,0	93

60 Hz		3500 RPM						1750 RPM					
Type	Max. Pressure bar	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg	Flow rate l/min		Power Consumption kW		Motor kW	Weight kg
		1 cSt	*20 cSt*	*1 cSt*	*20 cSt*			*1 cSt*	*20 cSt*	*1 cSt*	*20 cSt*		
VPM 272 Q_{TH}=116,3 l/min	10	111,3	112,6	2,4	2,6	3,6	42	51,6	55,3	1,3	1,4	2,6	42
	20	106,7	110,5	4,3	4,6	6,6	52	47,4	53,8	2,1	2,3	3,6	43
	30	102,8	108,8	6,3	6,8	9,0	69	44,6	52,2	3,1	3,3	4,8	52
	40	100,6	107,1	8,1	8,7	13,2	79	41,8	50,9	3,9	4,2	4,8	52
	50	97,4	105,8	10,0	10,7	13,2	79	38,7	50,0	4,8	5,2	6,6	69
	60	94,5	104,8	11,9	12,7	17,4	90	36,0	49,2	5,9	6,3	9,0	69
	70	91,8	104,1	14,0	14,8	17,4	90	33,1	48,6	6,8	7,3	9,0	80
	80	89,2	103,4	15,8	16,8	17,4	90	30,3	47,8	7,9	8,4	9,0	80
	90	86,7	102,6	17,8	18,9	21,5	118	27,6	47,1	8,9	9,5	13,2	93
	100	84,2	101,7	20,9	22,0	25,5	137	24,9	46,4	10,2	10,8	13,2	93

ACCESSORIES

Adjustable pressure relief valve

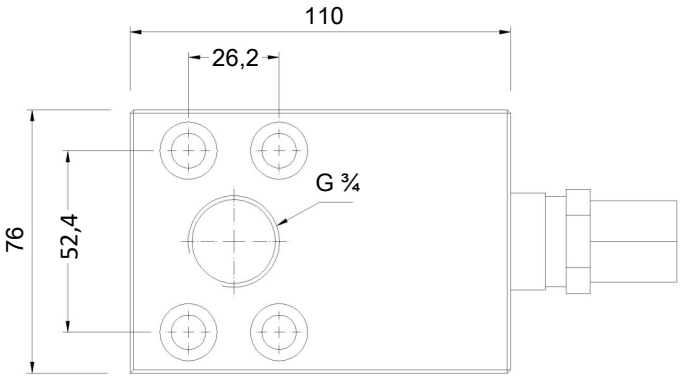
Maximum pressure of screw pumps, which are displacement pumps, must be limited due to their design. Thus, the maximum working pressure have never exceed the highest allowable working pressure to avoid overloading for the particular pump and electrical motor combination in use and to protect the piping installation.

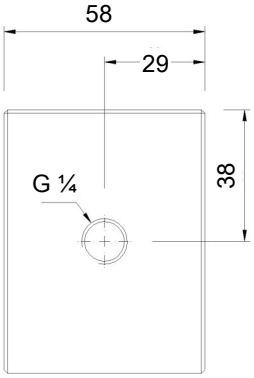
VPV series adjustable pressure relief valves allow for variable operating pressures anywhere between 10 – 100 bar and allows the discharge back to tank.

The selection of pressure relief valves depends on the following criteria:

- Pressure, flow rate and viscosity of the fluid
- Control / Regulation of relief valve

VPV pressure relief valve is designed for use in coolant applications with a maximum viscosity of 100 cSt.

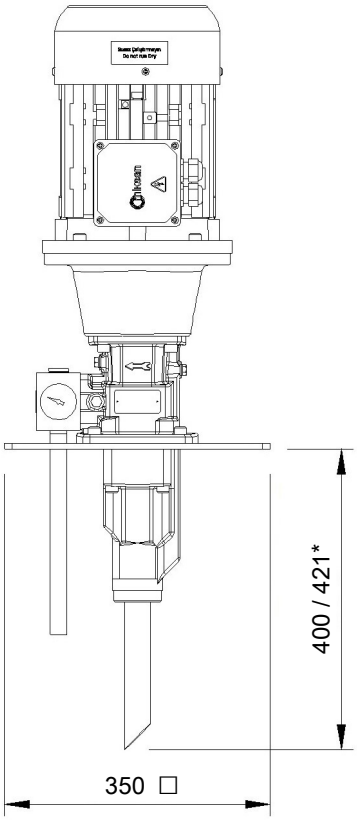




Type	Pump Model
VPV 01	VP 1
VPV 02	VP 2

Full Assembly (VPC Series)

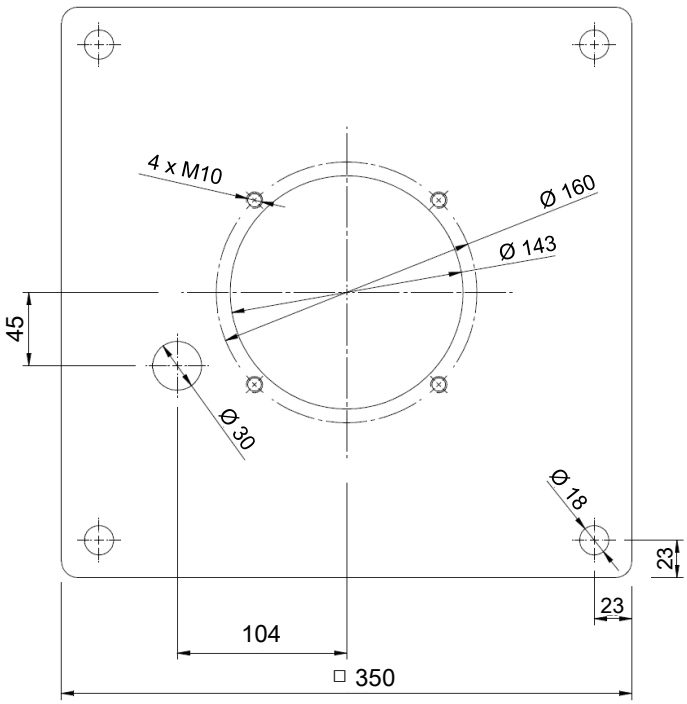
Full assembly includes motor, screw pump, pressure regulation valve, pressure gauge, tank lid, suction and drain valve



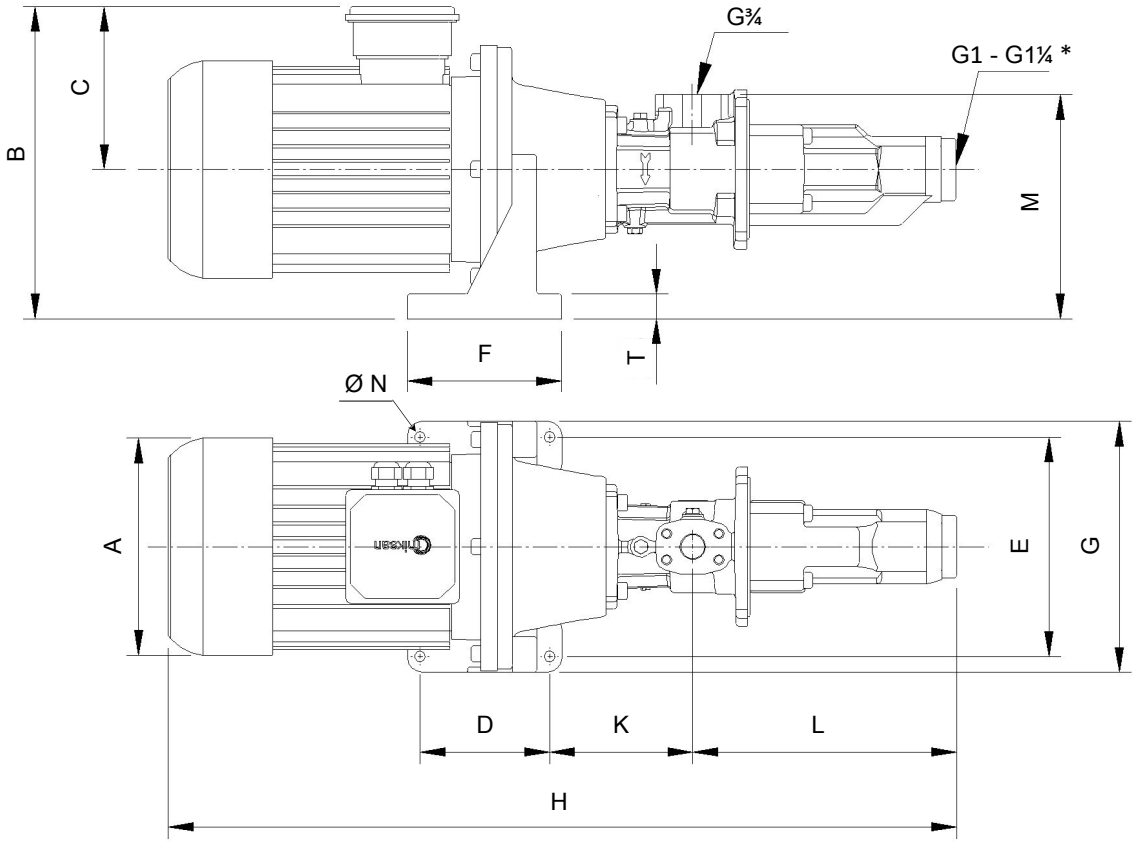
* Dimension of VP 2 pumps

Installation accessories

The plate which the screw pump will be mounted and the connection pipes for complete system are provided upon request.



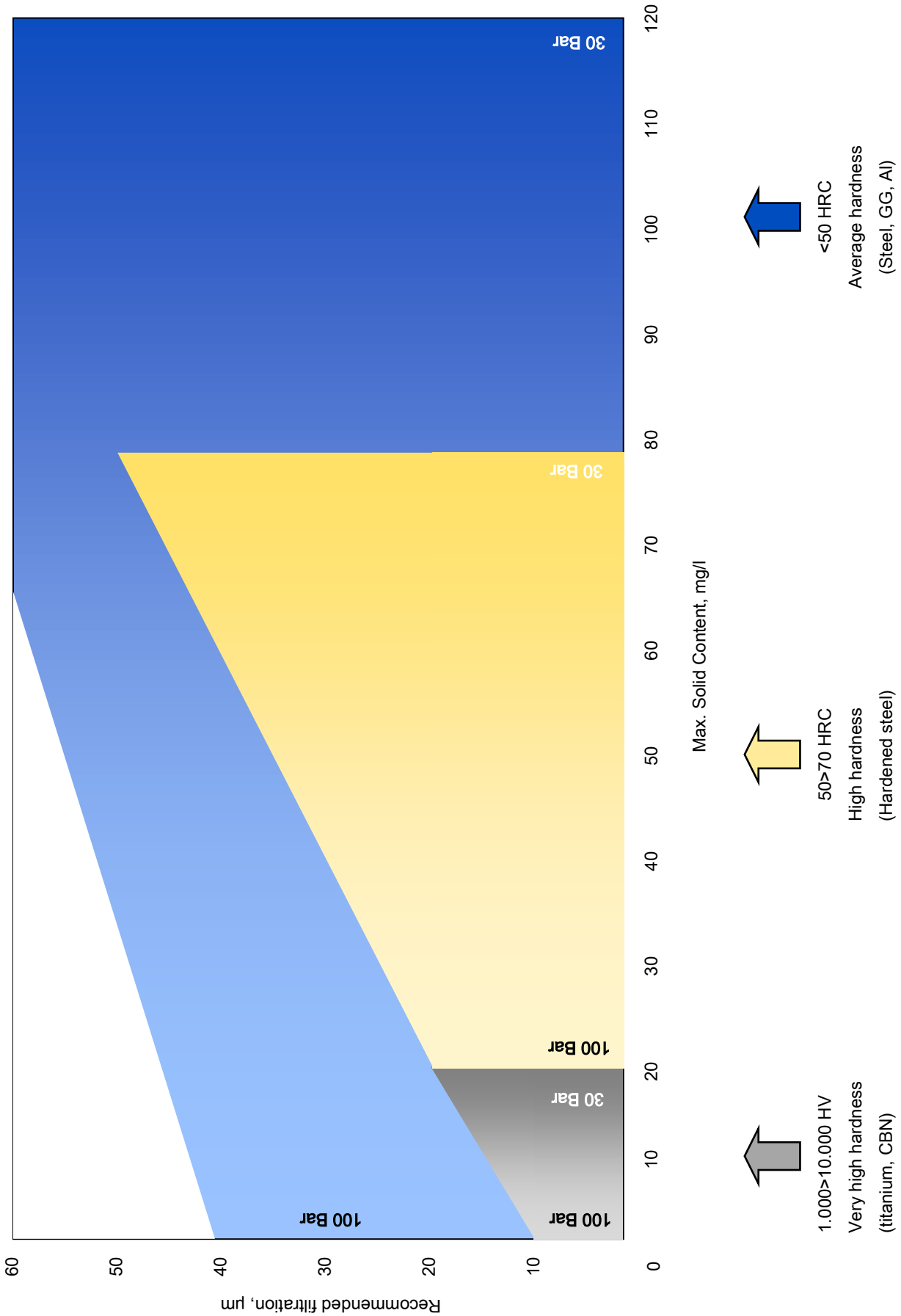
Horizontal mounting dimensions

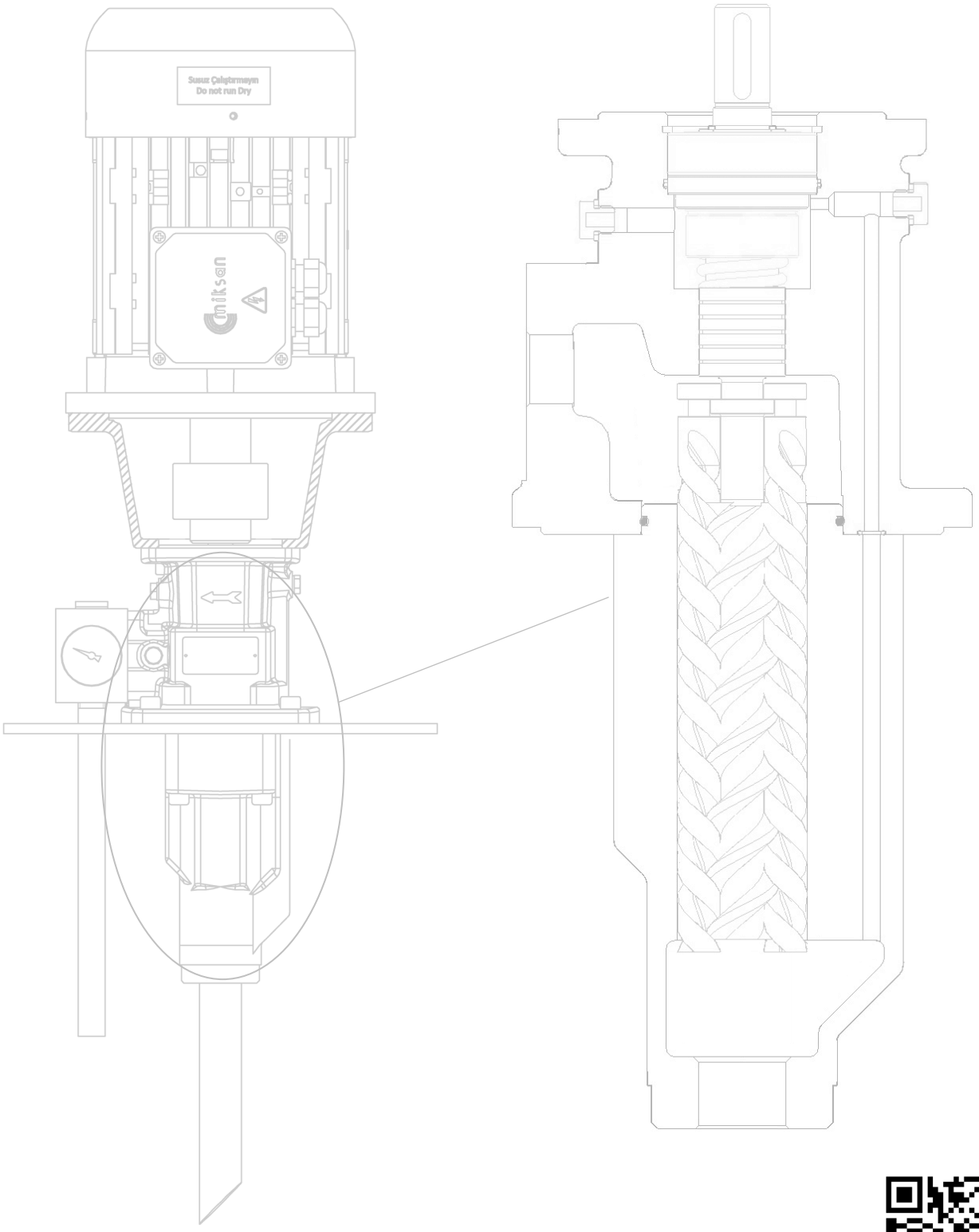


Power		A	B	C	D	E	F	G	H	K	L	M	Ø N	T
2-Pole kW	4-Pole kW	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
1,1	0,75	157	241	118	103	168	127	202	697 722*	123	264,5 289,5*	198	9	22
1,5	1,1	176	262	139	103	168	127	202	719 744*	123	265 296*	198	9	22
2,2	1,5	176	262	139	103	168	127	202	744 769*	123	265 296*	198	9	22
3,0 / 4,0	2,2 / 3,0	194	300	150	130	220	155	252	779 804*	141	265 296*	225	11	25
5,5	4	218	313	163	130	220	155	252	792 817*	141	265 296*	225	11	25
7,5	5,5	258	352	177	160	265	190	302	866 891*	136,5	265 296*	250	13	25
11	7,5	258	352	177	160	265	190	302	895 920*	136,5	265 296*	250	13	25
15	11	257	355	180	160	265	190	302	895 920*	136,5	265 296*	250	13	25
18,5 / 22,0	-	316	429	224	250	310	286	362	1022 1047*	152	265 296*	280	15	30

* Dimensions for VP 2 Pumps

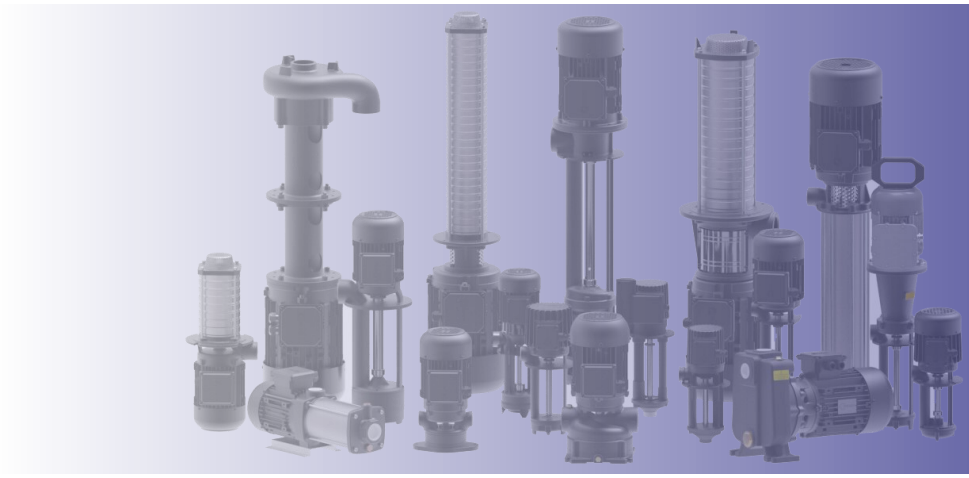
Recommended filtration quality of VP screw pumps





Screw Pump Catalogue

06.24



Coolant Pump Catalogue

H Series Multistage
Pump Catalogue

miksan MOTOR

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