OVERVIEW OF PUMPS

	PUMPS								
		AP /BP	CP 1 / CP 2	EP 150 / 250 / 350 / EPV	GP / GPA / GPF / GPH	IP / IPA / IPF / IPH	J Series	DP Series	T Series
Pump Specifications	Mounting Position	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Inline
	Impeller Type	Open	Open	Open	Open (+ Axial)	Open (+ Axial)	Open (+ Axial) Vortex	Open	Open
	Housing	PP / Al	Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	PPS	Cast Iron
	Volute / Diffuser	PP / Al	PP / Cast Iron	Cast Iron	Cast Iron	Cast Iron	Cast Iron	PPS	Cast Iron
	Shaft	Eng. St (opt. Stainless St.)	Engineering Steel	Engineering Steel	Engineering Steel	Engineering Steel	Engineering Steel	Stainless Steel	Engineering Steel
	Impeller	PP / Al	PP / Brass	Cast Steel	Brass	Cast Steel	Cast St./Cast I.	PPS	Brass
	Mechanical Seal	-	-	-	-	-	-	-	C - SiC - Viton
	Pipe Connection	G ¾	G ¾	G 1 ¼	G 1 ½	G 1 ½	G 2 / G 2 ½	G 1	G ¾
	H_{max} (m)	5.3 / 5.4	6.7 / 7.7	33/36/13	105	105	90	30	21 / 24
	Q_{max} (l/min)	63 / 67	105 / 125	185/255/360	450	630	1700	60 / 110 / 160	40 / 65
	H_{opt} (m)	2 - 4 / 2 - 4.5	2.2 - 5.7	Please look at the product pages for opt working ranges.					
	Q_{opt} (l/min)	44 -20/52 -20	74 - 30						
Motor	Power (kW)	0.09	0.25	0.37 - 1.5	1.1 - 5.5	1.1 - 11.0	1.5 - 11.0	0.09 - 0.75	0.25 / 0.55
	Protection Degree	IP 54	IP 54	IP 55	IP 55	IP 55	IP 55	IP 55	IP 55
	Isolation Class	F	F	F	F	F	F	F	F
Fluid Specifications	Kinematic Viscosity	30 /45 mm^2/s	1...90 mm^2/s	1...90 mm^2/s	1...90 mm^2/s	1...90 mm^2/s	1...90 mm^2/s	1...12 mm^2/s	1...60 mm^2/s
	Temperature	0...60 °C	0...60 °C	0...80 °C	0...80 °C	0...80 °C	0...80 °C	0...60 °C	0...80 °C
	Chip Size - max (mm)	5	6	8	8	8	10 - 50 (JD)	4	0
	Cutting Oils	+	+	+	+	+	+	+	+
	Grinding Oils	+	+	+	+	+	+	+	+
	Coolants	+	+	+	+	+	+	+	+
	Water	+ / -	o	o	o	o	o	+	o
	Paint / Ink	-	-	-	-	-	-	+	-
	Chemical Liquids	+ / -	-	-	-	-	-	+	-
Applications	Cutting	+	+	+	+	+	+	+	+
	Boring	+	+	+	+	+	+	+	+
	Turning	+	+	+	+	+	+	+	+
	Milling	+	+	+	+	+	+	+	+
	Grinding	+	+	+	+	+	+	-	+
	Deep Hole Boring	-	-	-	-	-	-	-	-
	Erosion	-	-	-	-	-	-	-	-
	Filtration Systems	-	+	+	+	+	+	-	+
	Printing Processes	-	-	-	-	-	-	+	-
	Circulation Systems	+	+	+	+	+	+	+	+
	Coolant Systems	-	-	-	-	-	-	+	-
	Page	14 -17	18 - 19	20 - 27	28 - 33	34 - 39	40 - 55	122 - 129	130 - 131

Description of the signs : + Applicable - Not applicable **o** Contact us before selection

AP PUMP

Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Band sawing machines,
- Ceramic cutting machines,
- Glass cutting and optical machines,
- Circulation systems. AP Pumps are used for pumping of cutting / cooling fluids.

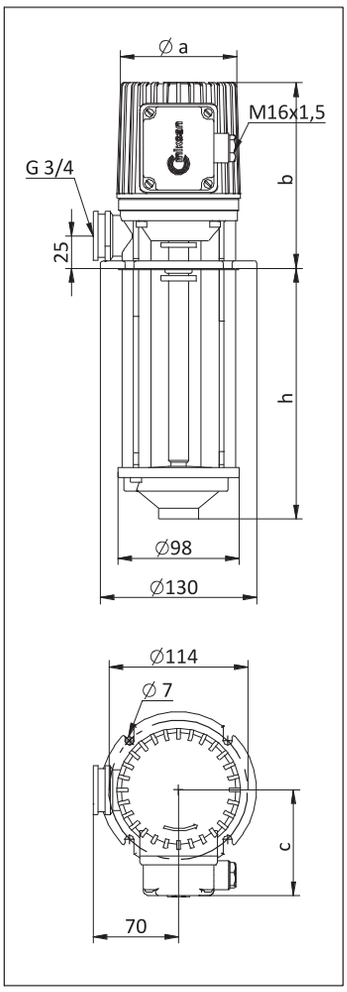
  On demand, AP Pumps can be supplied with inlet strainer.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chemical liquids
- Fluid temperature 0...60 °C
- Kinematic viscosity 1...30 mm^2/s

Materials:

Pump body	: PP
Volute	: PP
Impeller	: PP
Pump Shaft	: Engineering steel - AISI 1040 (DIN C35) Stainless steel - AISI 316 (DIN 4401) (Optional) Stainless steel - AISI 420(DIN X20Cr13) (Optional)
Strainer	: PE (Optional)
Electric motor	: 3 phase induction motor 1 phase induction motor (Optional) 2 pole Protection degree IP 54

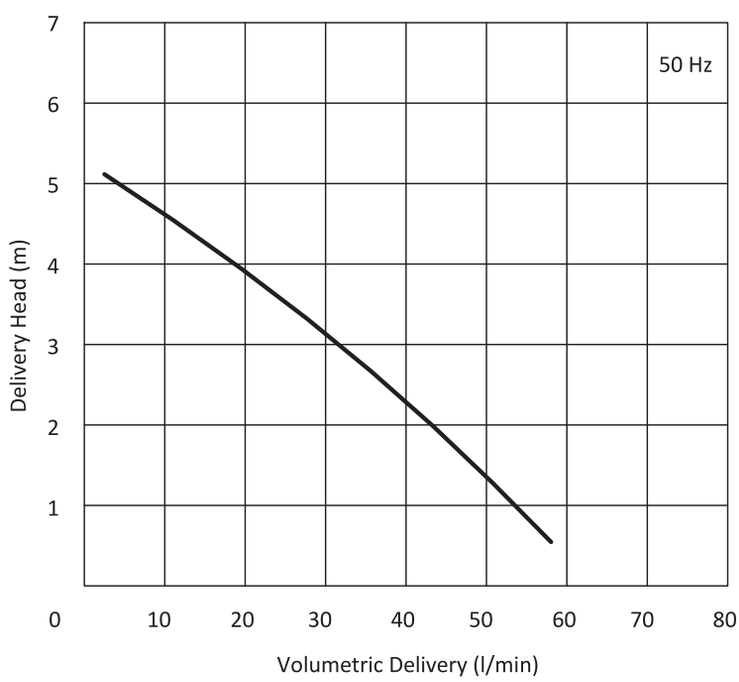


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
AP/11	110	96	152	83	2.80	0.09	230/400	50	0.48/0.28	2830
AP/16	160				2.83					
AP/21	210				2.85					

* Pump dimensions according to EN 12157.
** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
*** Curve tolerance according to ISO 9906:2012 Grade 3B .

Performance Curve



BP PUMP

Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Band sawing machines,
- Circulation systems. BP Pumps are used for pumping of cutting / cooling fluids.

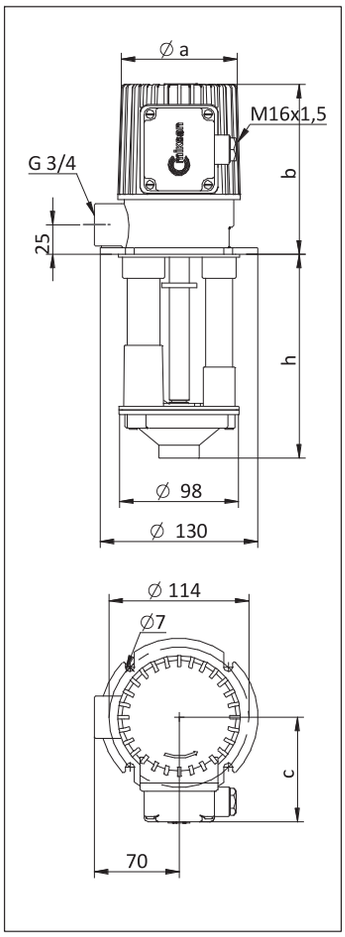
  On demand, BP Pumps can be supplied with inlet strainer.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Fluid temperature 0...60 °C
- Kinematic viscosity 1...45 mm^2/s

Materials:

Pump body	: Aluminium
Volute	: Aluminium
Impeller	: Aluminium
Shaft	: Engineering steel - AISI 1040 (DIN C35) ,
Strainer	: PE (Optional)
Electric motor	: 3 phase induction motor 1 phase induction motor (Optional) 2 pole Protection degree IP 54

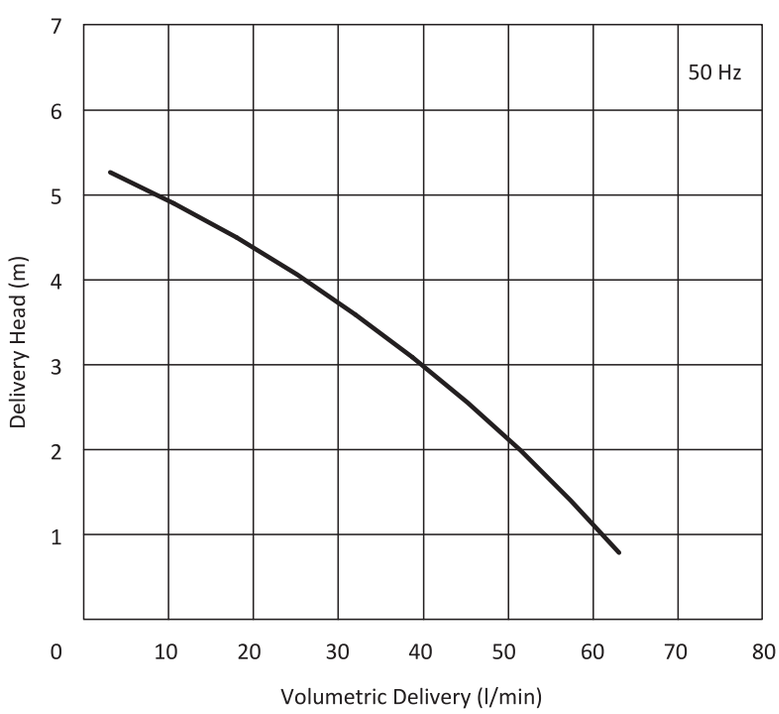


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
BP/12	120	96	140	83	3.2	0.09	230/400	50	0.48/0.28	2830
BP/17	170				3.4					
BP/22	220				3.5					
BP/27	270				3.9					
BP/35	350				4.3					

* Pump dimensions according to EN 12157.
** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
*** Curve tolerance according to ISO 9906:2012 Grade 3B .

Performance Curve



CP PUMP

Applications:

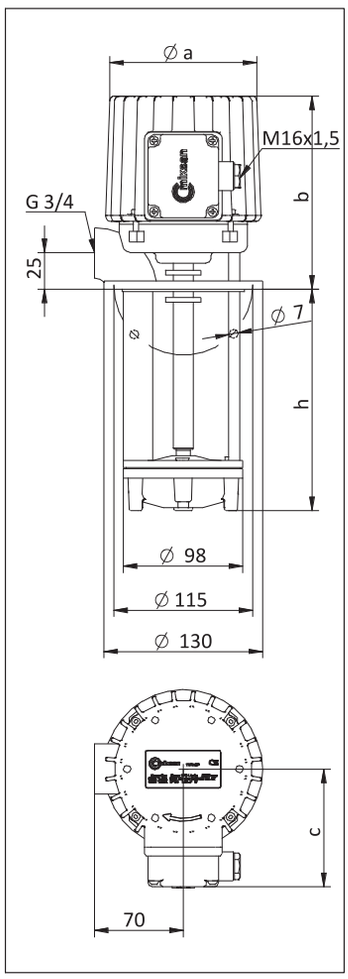
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Band sawing machines,
- Circulation systems. CP Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 6mm)
- Fluid temperature 0...60 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: PP Cast iron - DIN GG 25 (Optional only for CP1 series)
Impeller	: PP Brass (Optional only for CP1 series)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35) Stainless steel- AISI 420(DIN X20Cr13) (Optional)
Electric motor	: 3 phase induction motor 1 phase induction motor (Optional) 2 pole Protection degree IP 54

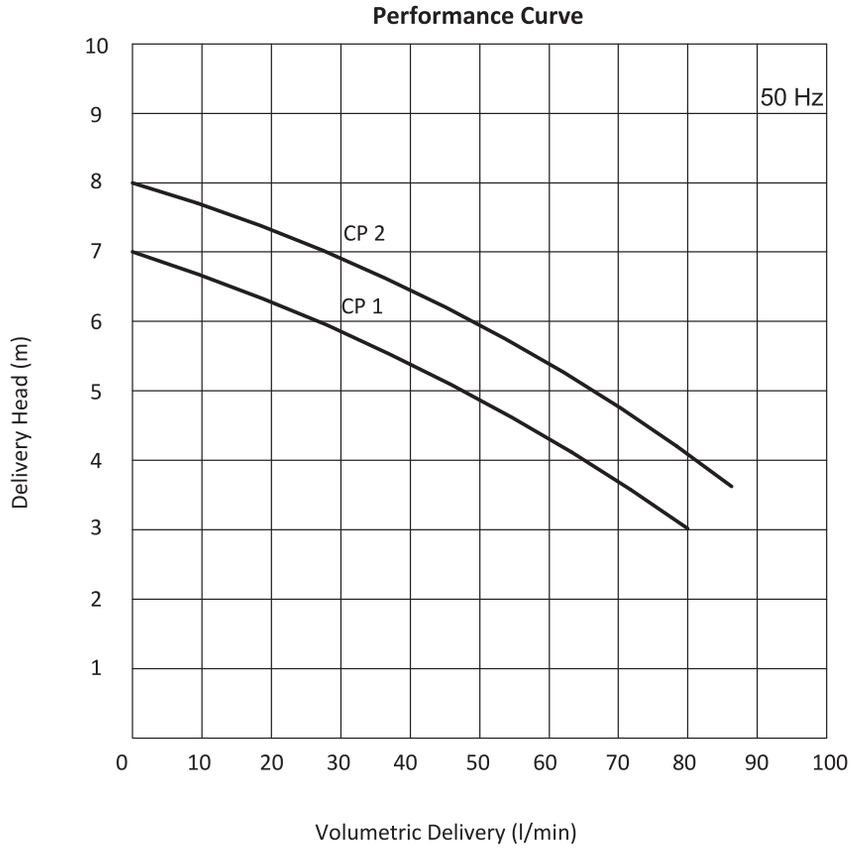


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
CP 112	130	127	158	95	6.6	0.25	230/400	50	1.26/0.73	2760
CP 117	180				7.1					
CP 122	230				7.4					
CP 127	280				7.9					
CP 135	350				8.4					
CP 212	130	127	158	95	6.6	0.25	230/400	50	1.26/0.73	2760
CP 217	180				7.1					
CP 222	230				7.4					
CP 227	280				7.9					
CP 235	350				8.4					

* Pump dimensions according to EN 12157.
** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
*** Curve tolerance according to ISO 9906:2012 Grade 3B .

Performance Curve



EP 150 PUMP

Applications:

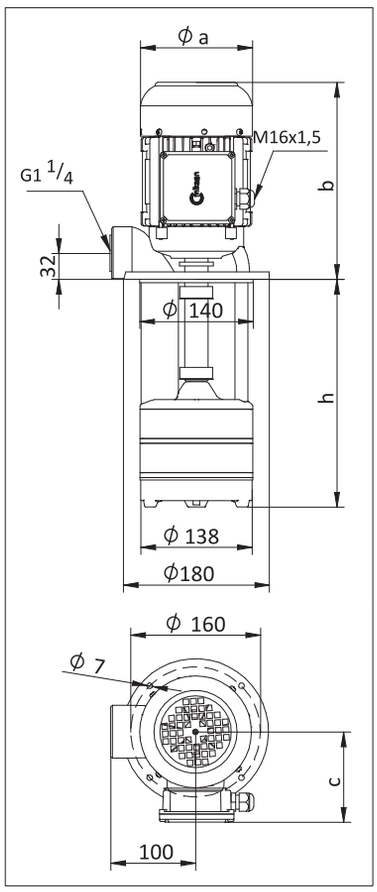
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Circulation systems. EP Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 8mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor, 2-Pole Protection degree IP 55



DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
EP 150/200	200	138	242	111	15.2	0.37	230/400	50	1.84/1.05	2790
EP 150/270	270				16.3					
EP 150/350	350				16.8					
EP 150/440	440				18.5					
EP 150/550	550				19.5					
EP 152/240	240	138	242	111	18.8	1.1*	230/400	50	4.85/2.8	2720
EP 152/310	310				19.4					
EP 152/390	390				20.2					
EP 152/480	480				23.7					
EP 153/280	280	138	242	111	21.7	1.1*	230/400	50	4.85/2.8	2720
EP 153/350	350				22.3					
EP 153/430	430				23.1					
EP 153/520	520				26.6					

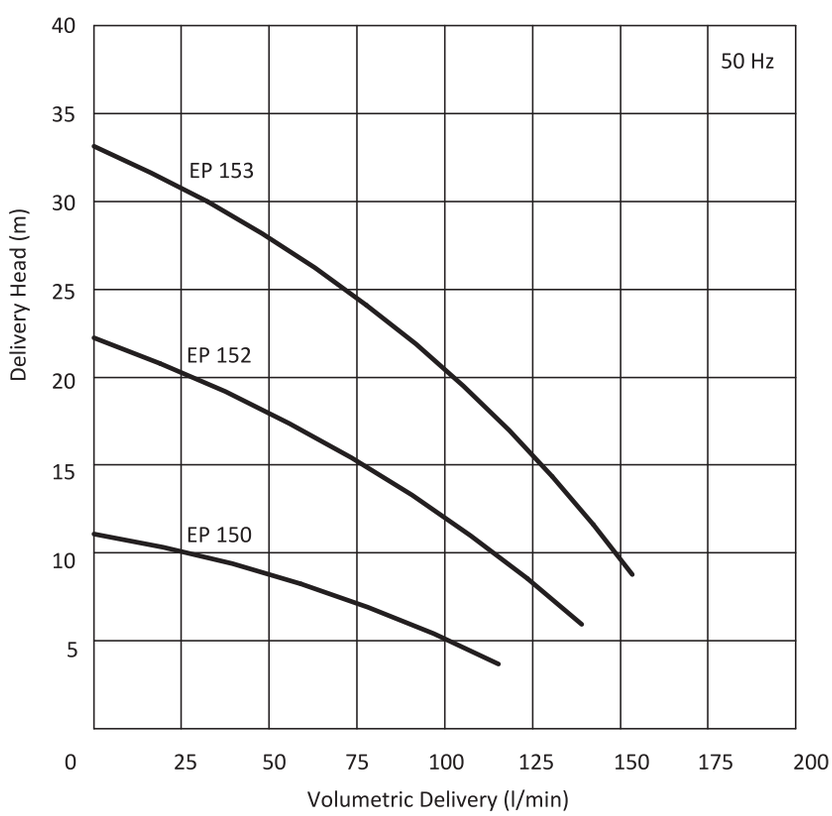
* EP 152 and EP 153 pumps have IE2 motors. These pumps are excluded from efficiency class since their motors are completely integrated into the pump according to IEC 60034-30-1:2014 standard .

** Pump dimensions according to EN 12157.

*** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

**** Curve tolerance according to ISO 9906:2012 Grade 3B .

Performance Curve



EP 250 PUMP

Applications:

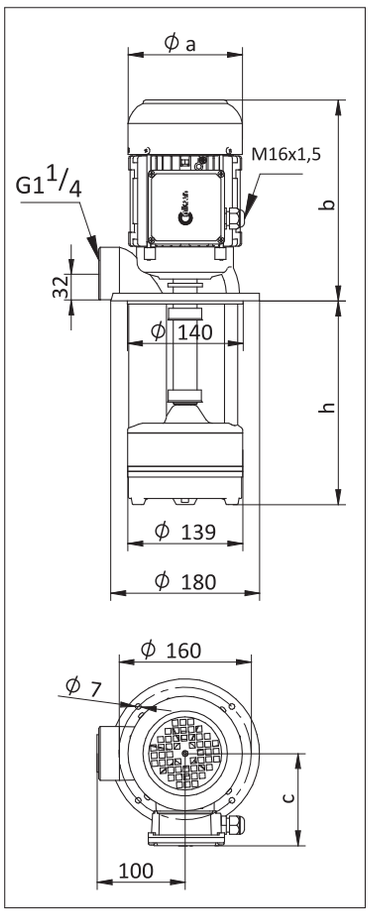
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Circulation systems. EP Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 8mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor, 2-Pole Protection degree IP 55



DIMENSIONS & NOMINAL VALUES

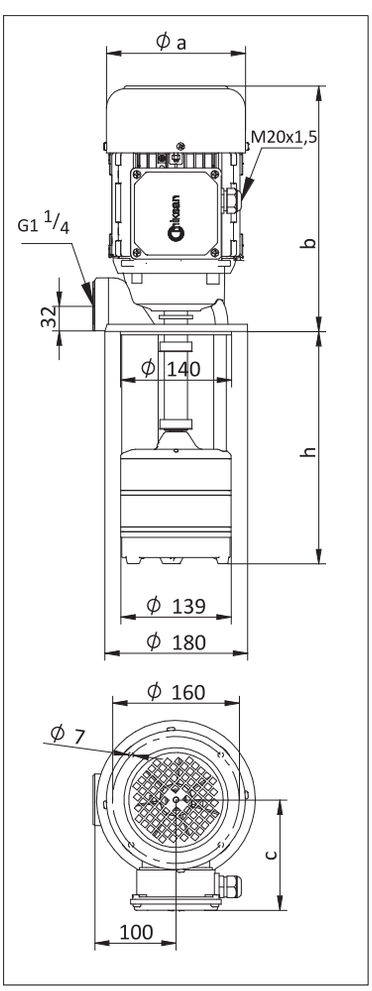
TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
EP 250/200	200	138	242	111	15.8	0.55	230/400	50	2.25/1.3	2780
EP 250/270	270				16.9					
EP 250/350	350				17.4					
EP 250/440	440				19.1					
EP 250/550	550				20.1					
EP 252/250	250	138	242	111	20.5	1.1*	230/400	50	4.85/2.8	2780
EP 252/320	320				21.0					
EP 252/400	400				22.0					
EP 252/490	490				23.5					
EP 253/300	300	176	309	139	27.0	1.5	230/400	50	5.72/3.3	2910
EP 253/370	370				27.5					
EP 253/450	450				28.0					

* EP 252 pump has IE2 motor. These pumps are excluded from efficiency class since their motors are completely integrated into the pump according to IEC 60034-30-1:2014 standard .

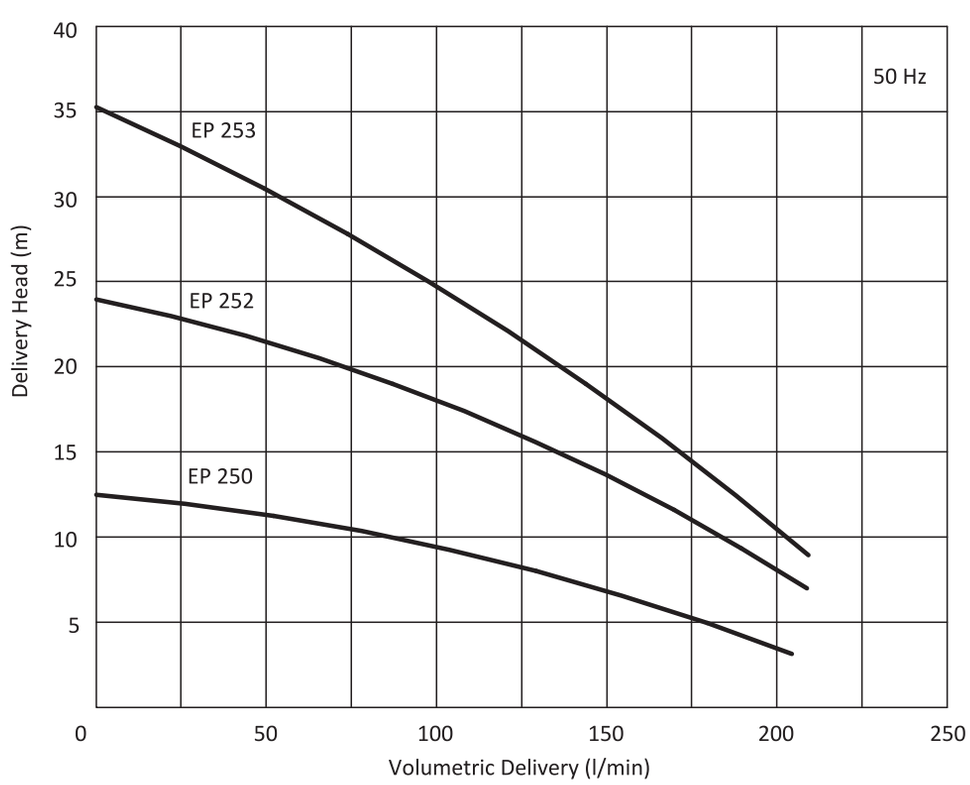
** Pump dimensions according to EN 12157.

*** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

**** Curve tolerance according to ISO 9906:2012 Grade 3B.



Performance Curve



EP 350 PUMP

Applications:

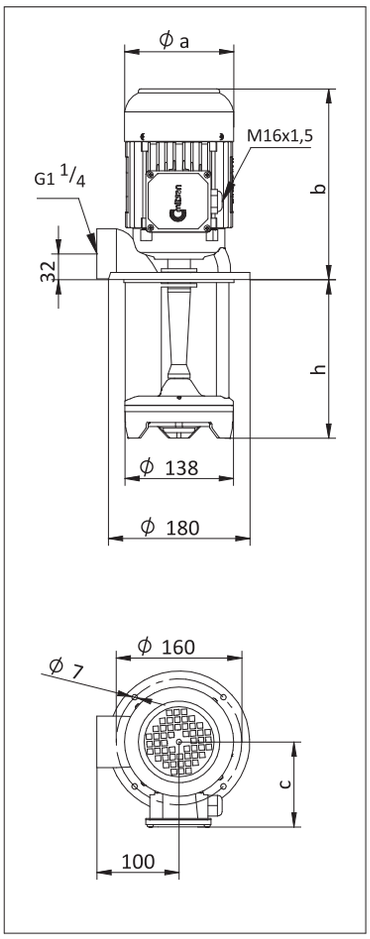
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Circulation systems. EP Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 8mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor 2 pole, 2900 rpm Protection degree IP 55



DIMENSIONS & NOMINAL VALUES

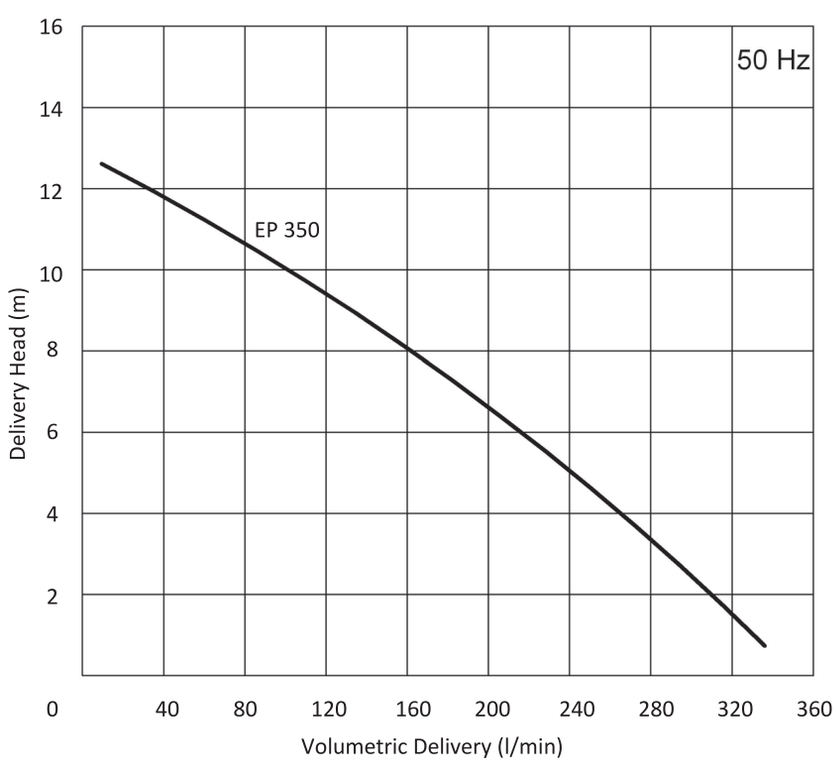
TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
EP 350/200	200	138	242	111	16.5	0.75	230/400	50	3.12/1.8	2820
EP 350/270	270				17.7					
EP 350/350	350				18.0					
EP 350/440	440				19.7					
EP 350/550	550				20.7					

* Pump dimensions according to EN 12157.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B .

Performance Curve



EPV 250 PUMP

Applications:

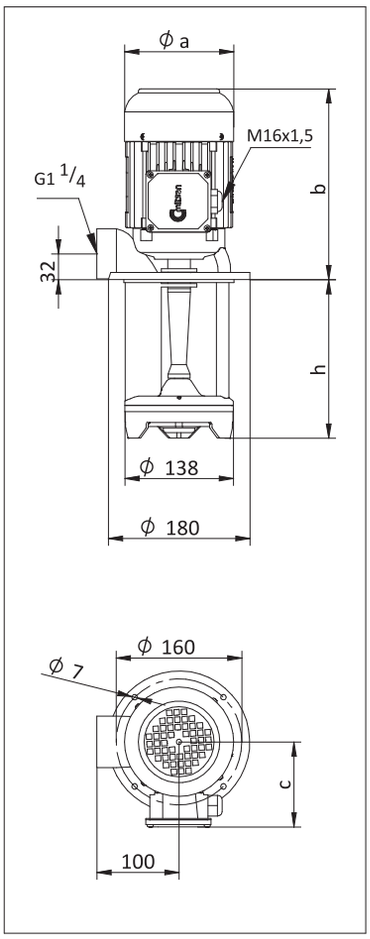
- Vortex type pump is used for pumping liquids which contains metal chips,
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Circulation systems. EPV Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 12mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...45 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor 2 pole, 2900 rpm Protection degree IP 55

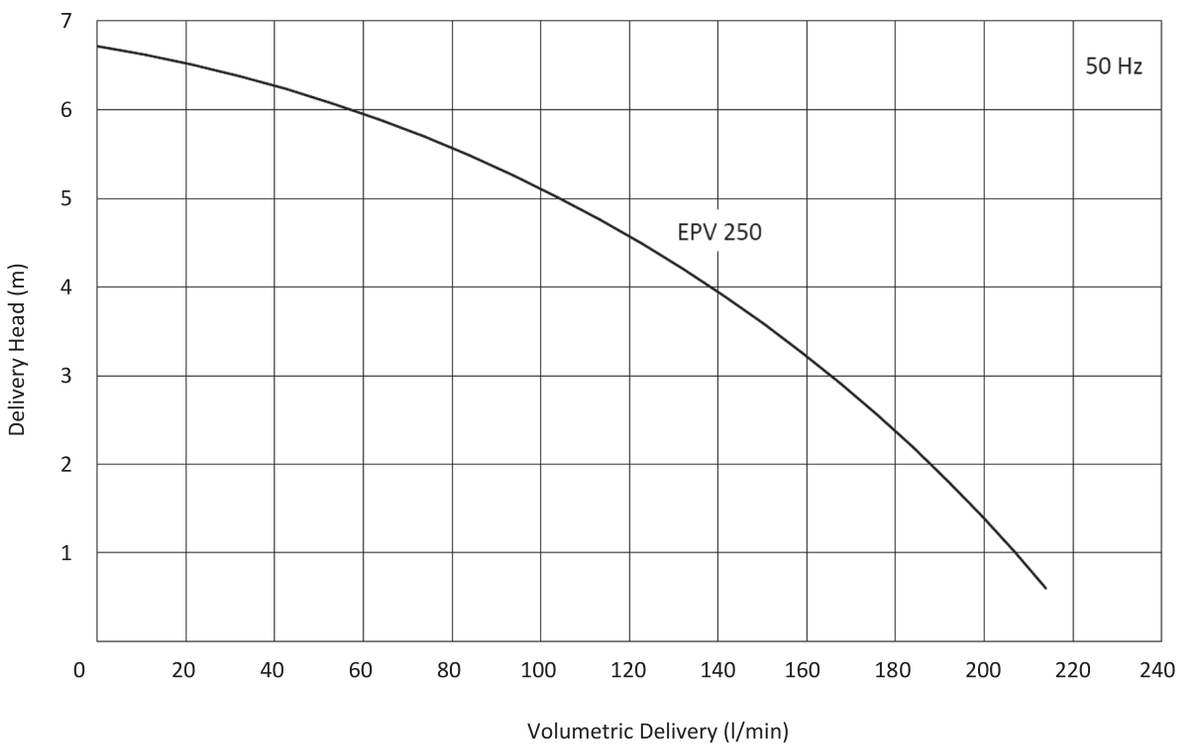


DIMENSIONS & NOMINAL VALUES

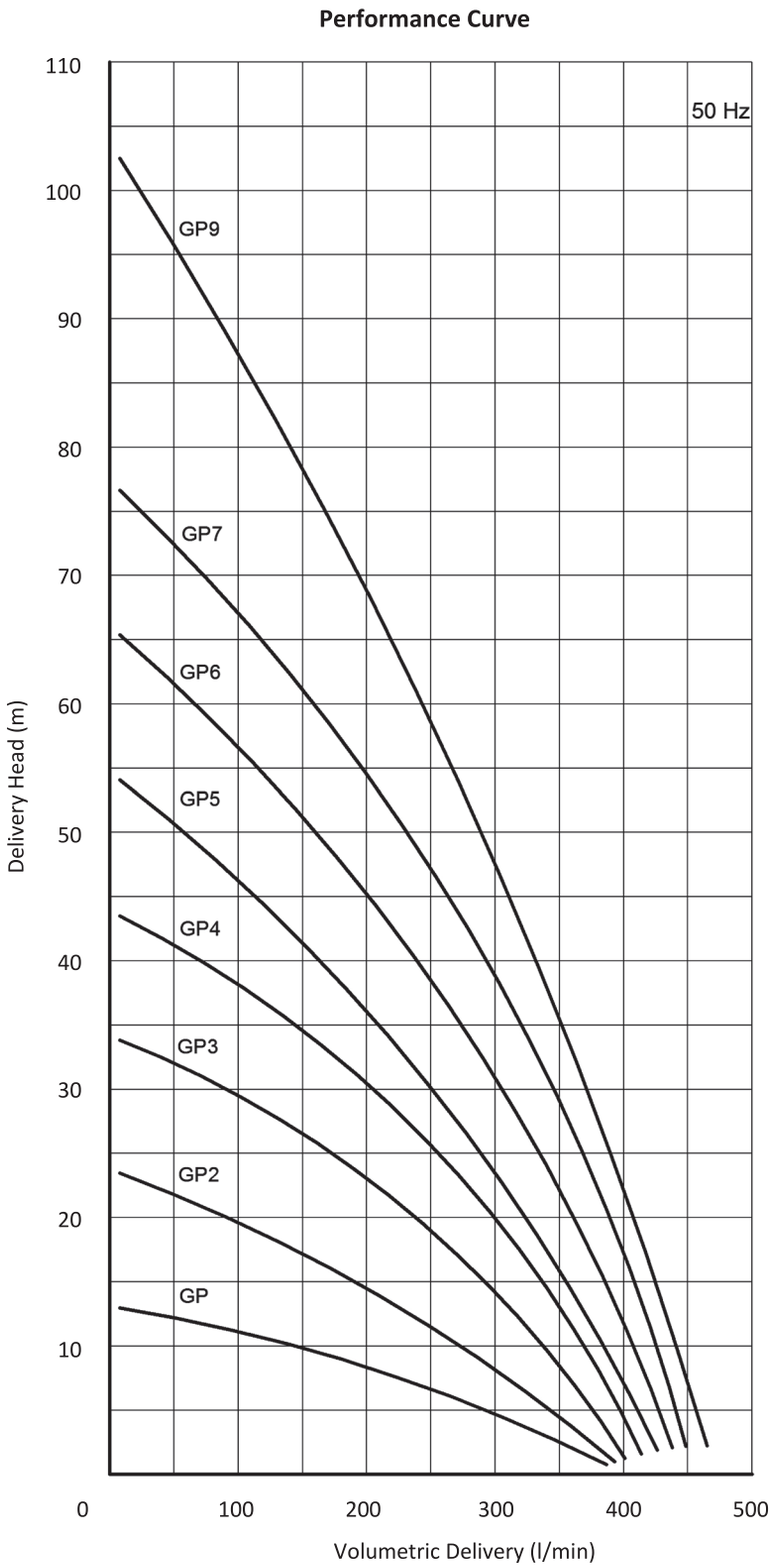
TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
EPV 250/210	210	138	242	111	16.4	0.55	230/400	50	2.25/1.3	2780
EPV 250/280	280				17.6					
EPV 250/360	360				17.9					
EPV 250/450	450				19.6					
EPV 250/560	560				20.6					

* Pump dimensions according to EN 12157.
** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
*** Curve tolerance according to ISO 9906:2012 Grade 3B .

Performance Curve

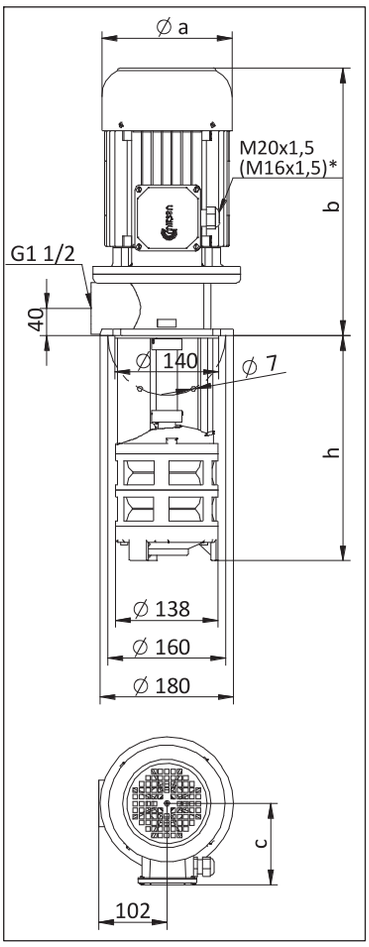


GP PUMP



Applications:

- Machine tools especially on grinding operations,
- Cutting, turning, milling, boring applications,
- Filtration systems,
- Circulation systems. GP Pumps are used for pumping of cutting / cooling fluids.



DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
GP /200	200	157	319	118	23.5	1.1	230/400	50	4.16/2.4	2890
GP /270	270				25.0					
GP /350	350				26.0					
GP /440	440				27.5					
GP /550	550				29.5					
GP -2/190	190	176	338	139	30.0	1.5	230/400	50	5.72/3.3	2910
GP -2/250	250				30.5					
GP -2/320	320				32.0					
GP -2/400	400				33.0					
GP -2/490	490				34.5					
GP -2/600	600				36.5					
GP -3/240	240	176	363	139	36.0	2.2	230/400	50	7.79/4.5	2905
GP -3/300	300				36.5					
GP -3/370	370				37.5					
GP -3/450	450				39.0					
GP -3/540	540				40.5					
GP -3/650	650				42.0					
GP -4/290	290	176	363	139	39.0	2.2	230/400	50	7.79/4.5	2905
GP -4/350	350				39.5					
GP -4/420	420				40.5					
GP -4/500	500				42.0					
GP -4/590	590				43.5					
GP -4/700	700				45.0					
GP -5/340	340	194	398	150	48.0	3.0	230/400	50	10.39/6.0	2905
GP -5/400	400				48.5					
GP -5/470	470				50.0					
GP -5/550	550				51.0					
GP -5/640	640				52.5					
GP -5/750	750				54.5					
GP -6/390	390	194	398	150	54.0	4.0	230/400	50	13.68/7.9	2900
GP -6/450	450				54.5					
GP -6/520	520				56.0					
GP -6/600	600				57.0					
GP -6/690	690				58.5					
GP -7/440	440	218	412	163	61.5	5.5	230/400	50	17.15/9.9	2900
GP -7/500	500				62.0					
GP -7/570	570				63.0					
GP -7/650	650				64.5					
GP -7/740	740				66.0					
GP -9/540	520	218	412	163	67.5	5.5	230/400	50	17.15/9.9	2900
GP -9/600	600				68.0					
GP -9/670	670				69.0					
GP -9/750	750				70.5					

* M16x1,5 cable gland is used on GP 1 pump.
** Pump dimensions according to EN 12157.
*** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
**** Curve tolerance according to ISO 9906:2012 Grade 3B.

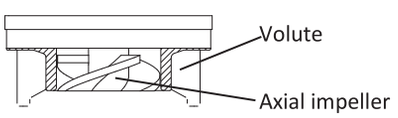
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 8mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

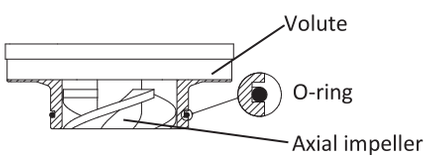
Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Brass
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

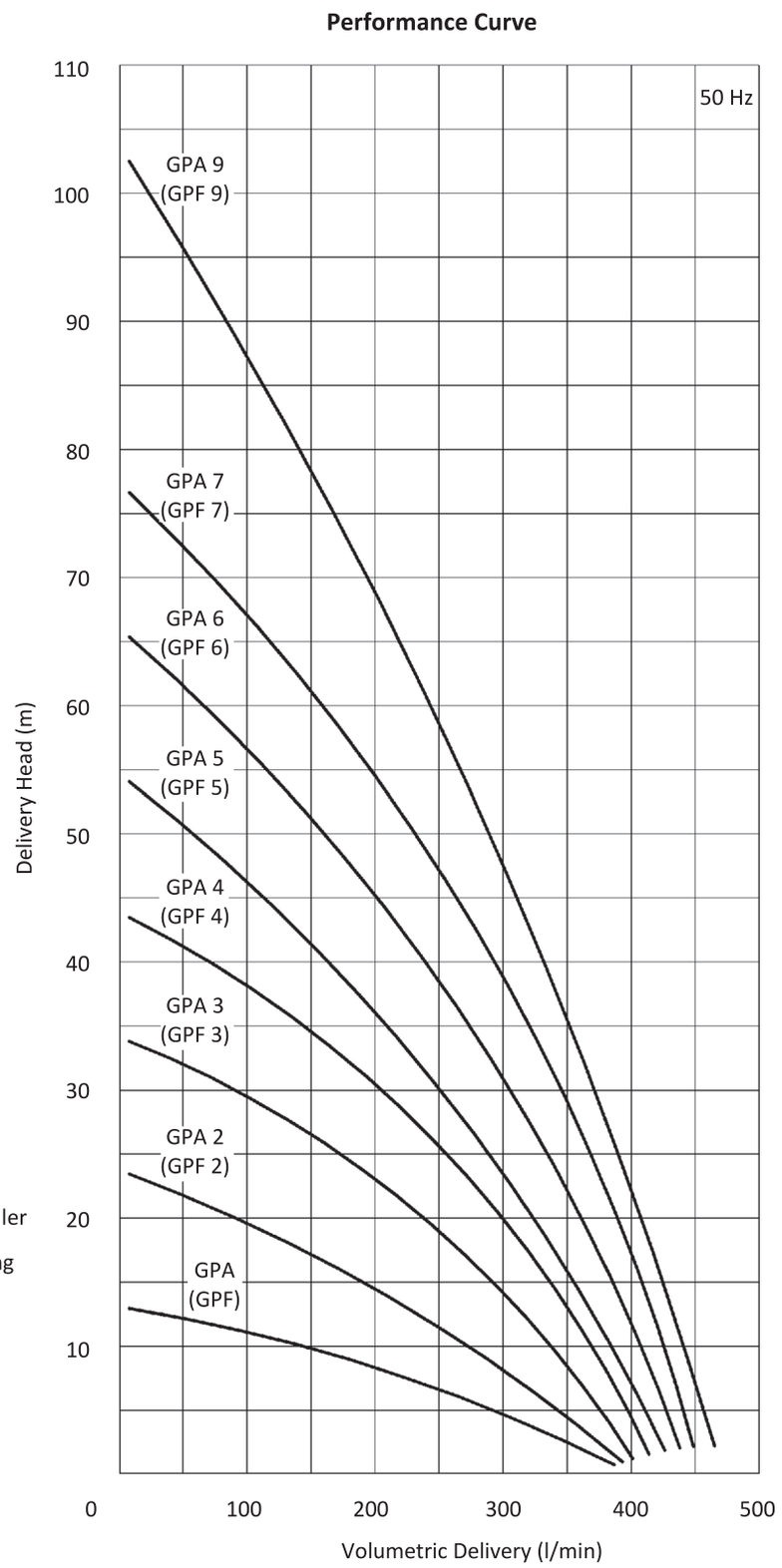
GPA/GPF PUMP



GPA - Axial front impeller pump



GPF - Axial front impeller pump with O-ring



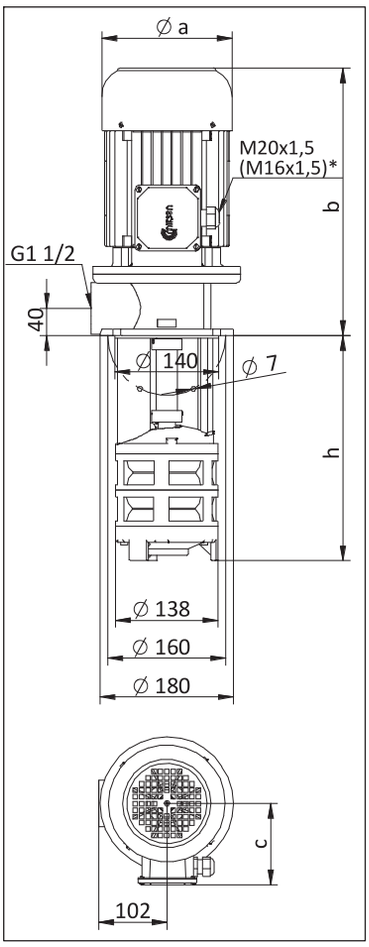
GPA PUMP

Applications:

- GPA pump has an additional axial impeller,
- It is used for pumping the liquid foam resulting from high-speed machining operations,
- Pumping metal chips together with the fluid by mixing,
- Filtration systems,
- Hot liquid applications,
- GPA Pumps are used for pumping of cutting / cooling fluids in circulation systems.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s



* M16x1,5 cable gland is used on GPA(F) 1 pump.

** Pump dimensions according to EN 12157.

*** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

**** Curve tolerance according to ISO 9906:2012 Grade 3B.

DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
GPA(F) /200	200	157	319	118	24.0	1.1	230/400	50	4.16/2.4	2890
GPA(F) /270	270				25.5					
GPA(F) /350	350				26.5					
GPA(F) /440	440				28.0					
GPA(F) /550	550				30.0					
GPA(F) -2/190	190	176	338	139	30.5	1.5	230/400	50	5.72/3.3	2910
GPA(F) -2/250	250				31.0					
GPA(F) -2/320	320				32.5					
GPA(F) -2/400	400				33.5					
GPA(F) -2/490	490				35.0					
GPA(F) -2/600	600				37.0					
GPA(F) -3/240	240	176	363	139	36.5	2.2	230/400	50	7.79/4.5	2905
GPA(F) -3/300	300				37.0					
GPA(F) -3/370	370				38.0					
GPA(F) -3/450	450				39.5					
GPA(F) -3/540	540				41.0					
GPA(F) -3/650	650				42.5					
GPA(F) -4/290	290	176	363	139	39.5	2.2	230/400	50	7.79/4.5	2905
GPA(F) -4/350	350				40.0					
GPA(F) -4/420	420				41.0					
GPA(F) -4/500	500				42.5					
GPA(F) -4/590	590				44.0					
GPA(F) -4/700	700				45.5					
GPA(F) -5/340	340	194	398	150	48.5	3.0	230/400	50	10.39/6.0	2905
GPA(F) -5/400	400				49.0					
GPA(F) -5/470	470				50.5					
GPA(F) -5/550	550				51.5					
GPA(F) -5/640	640				52.5					
GPA(F) -5/750	750				54.5					
GPA(F) -6/390	390	194	398	150	54.5	4.0	230/400	50	13.68/7.9	2900
GPA(F) -6/450	450				55.0					
GPA(F) -6/520	520				56.5					
GPA(F) -6/600	600				57.5					
GPA(F) -6/690	690				59.0					
GPA(F) -7/440	440	218	412	163	62.0	5.5	230/400	50	17.15/9.9	2900
GPA(F) -7/500	500				62.5					
GPA(F) -7/570	570				63.5					
GPA(F) -7/650	650				65.0					
GPA(F) -7/740	740				66.5					
GPA(F) -9/540	520	218	412	163	68.0	5.5	230/400	50	17.15/9.9	2900
GPA(F) -9/600	600				68.5					
GPA(F) -9/670	670				69.5					
GPA(F) -9/750	750				71.0					

GPF PUMP

Applications:

- GPF pumps are used for pumping of liquid from vacuum zone on filtration systems. The pump works at vacuum zone, therefore it has an O-ring at the pump inlet. It also has an additional axial front impeller.

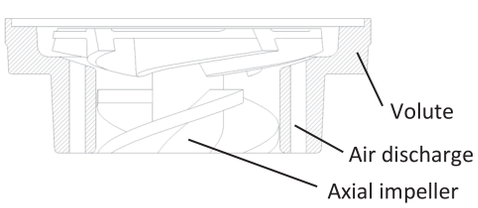
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

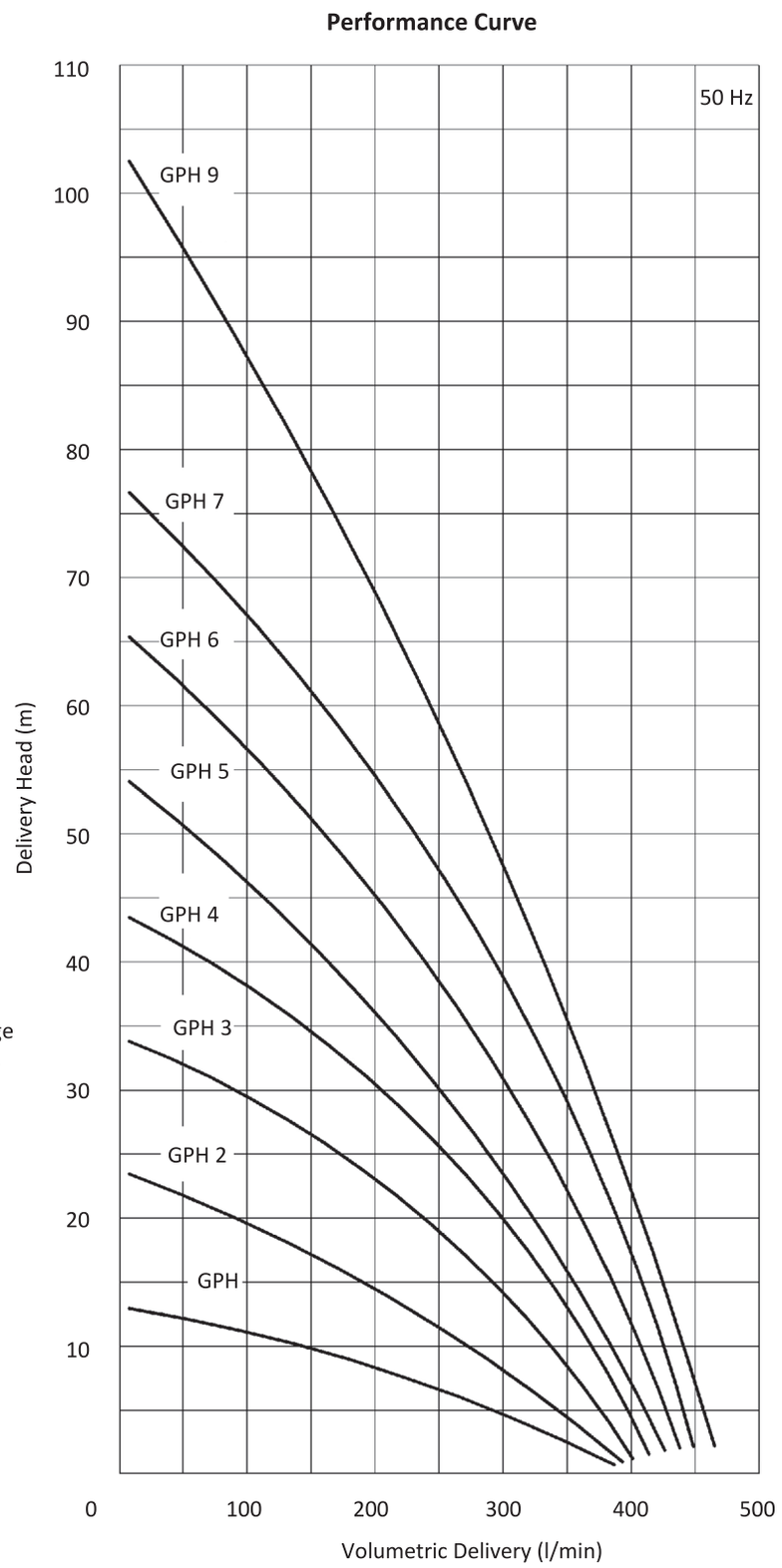
Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Brass
Axial (front) impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
O-ring	: Viton
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

GPH PUMP



GPH - Axial front impeller with air release



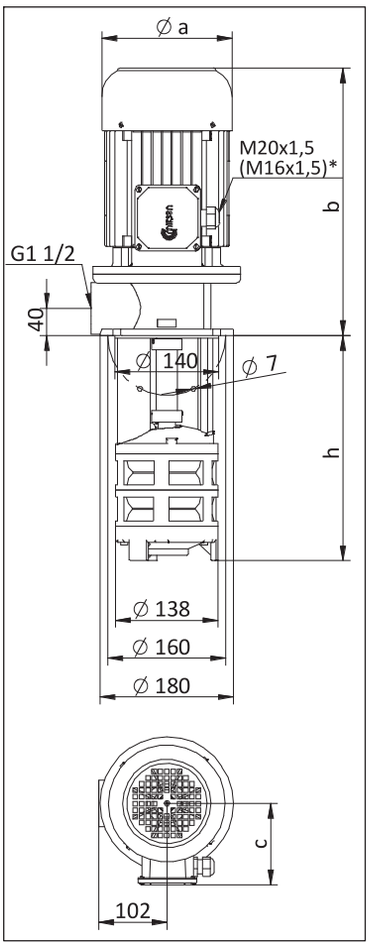
GPH PUMP

Applications:

- GPH pump has an additional axial impeller,
- It is used for pumping the liquid foam resulting from high-speed machining operations,
- Pumping metal chips together with the fluid by mixing,
- Filtration systems,
- Hot liquid applications,
- GPH Pumps are used for pumping of cutting / cooling fluids in circulation systems.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s



* M16x1,5 cable gland is used on GPH 1 pump.

** Pump dimensions according to EN 12157.

*** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

**** Curve tolerance according to ISO 9906:2012 Grade 3B.

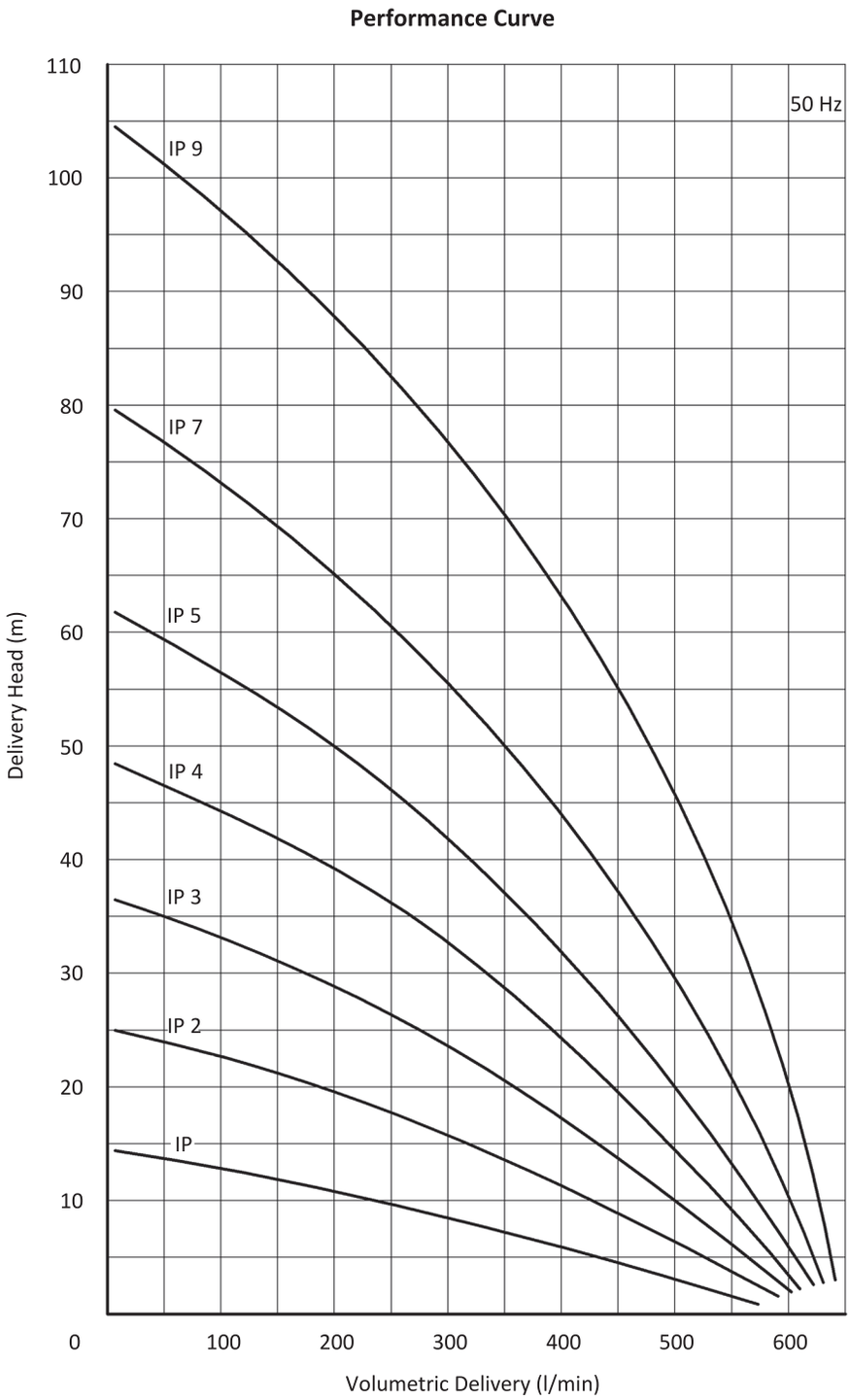
DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
GPH /200	200	157	319	118	24.0	1.1	230/400	50	4.16/2.4	2890
GPH /270	270				25.5					
GPH /350	350				26.5					
GPH /440	440				28.0					
GPH /550	550				30.0					
GPH -2/190	190	176	338	139	30.5	1.5	230/400	50	5.72/3.3	2910
GPH -2/250	250				31.0					
GPH -2/320	320				32.5					
GPH -2/400	400				33.5					
GPH -2/490	490				35.0					
GPH -2/600	600				37.0					
GPH -3/240	240	176	363	139	36.5	2.2	230/400	50	7.79/4.5	2905
GPH -3/300	300				37.0					
GPH -3/370	370				38.0					
GPH -3/450	450				39.5					
GPH -3/540	540				41.0					
GPH -3/650	650				42.5					
GPH -4/290	290	176	363	139	39.5	2.2	230/400	50	7.79/4.5	2905
GPH -4/350	350				40.0					
GPH -4/420	420				41.0					
GPH -4/500	500				42.5					
GPH -4/590	590				44.0					
GPH -4/700	700				45.5					
GPH -5/340	340	194	398	150	48.5	3.0	230/400	50	10.39/6.0	2905
GPH -5/400	400				49.0					
GPH -5/470	470				50.5					
GPH -5/550	550				51.5					
GPH -5/640	640				52.5					
GPH -5/750	750				54.5					
GPH -6/390	390	194	398	150	54.5	4.0	230/400	50	13.68/7.9	2900
GPH -6/450	450				55.0					
GPH -6/520	520				56.5					
GPH -6/600	600				57.5					
GPH -6/690	690				59.0					
GPH -7/440	440	218	412	163	62.0	5.5	230/400	50	17.15/9.9	2900
GPH -7/500	500				62.5					
GPH -7/570	570				63.5					
GPH -7/650	650				65.0					
GPH -7/740	740				66.5					
GPH -9/540	520	218	412	163	68.0	5.5	230/400	50	17.15/9.9	2900
GPH -9/600	600				68.5					
GPH -9/670	670				69.5					
GPH -9/750	750				71.0					

Materials:

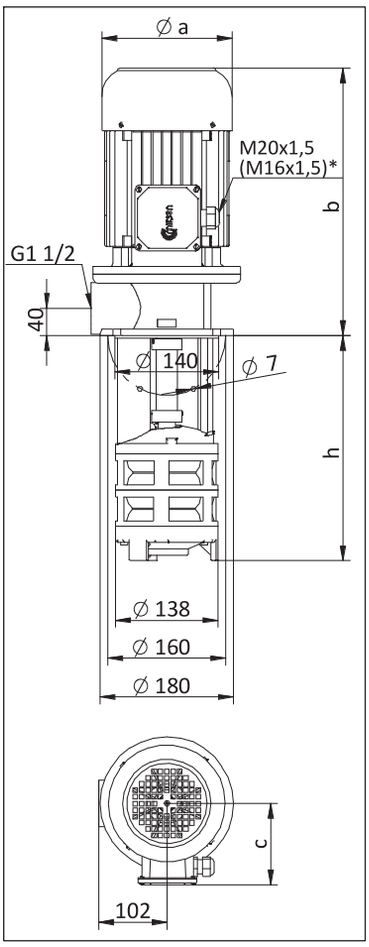
Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Brass
Axial (front) impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
O-ring	: Viton
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

IP PUMP



Applications:

- Machine tools especially on grinding operations,
- Cutting, turning, milling, boring applications,
- Filtration systems,
- Circulation systems. IP Pumps are used for pumping of cutting / cooling fluids.



DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
IP/210	210	157	319	118	24.0	1.1	230/400	50	4.16/2.4	2890
IP/280	280				25.5					
IP/360	360				26.5					
IP/450	450				28.0					
IP/560	560				30.0					
IP-2/210	210	176	363	139	34.0	2.2	230/400	50	7.79/4.5	2905
IP-2/270	270				34.5					
IP-2/340	340				35.5					
IP-2/420	420				36.5					
IP-2/510	510				38.0					
IP-2/620	620				40.0					
IP-3/270	270	194	398	150	46.5	4.0	230/400	50	13.68/7.9	2900
IP-3/330	330				47.0					
IP-3/400	400				48.0					
IP-3/480	480				49.5					
IP-3/570	570				51.0					
IP-3/680	680				53.0					
IP-4/330	330	218	412	163	54.0	5.5	230/400	50	17.15/9.9	2900
IP-4/390	390				54.5					
IP-4/460	460				55.5					
IP-4/540	540				57.0					
IP-4/630	630				58.5					
IP-4/740	740				60.5					
IP-5/390	390	218	412	163	57.5	5.5	230/400	50	17.15/9.9	2900
IP-5/450	450				58.0					
IP-5/520	520				59.0					
IP-5/600	600				60.5					
IP-5/690	690				62.0					
IP-7/510	510	258	495	177	88.5	7.5	400Δ	50	14.0	2930
IP-7/570	570				89.0					
IP-7/640	640				90.0					
IP-7/720	720				91.5					
IP-7/810	810				93.0					
IP-9/630	630	258	495	177	105.0	11.0	400Δ	50	19.7	2930
IP-9/690	690				105.5					
IP-9/760	760				106.5					

* M16x1,5 cable gland is used on IP 1 pump.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

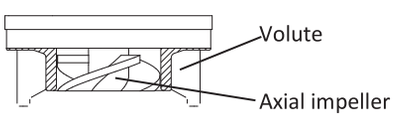
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 8mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

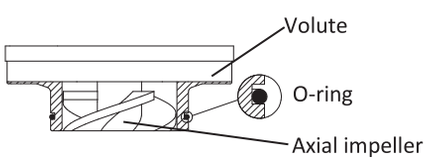
Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

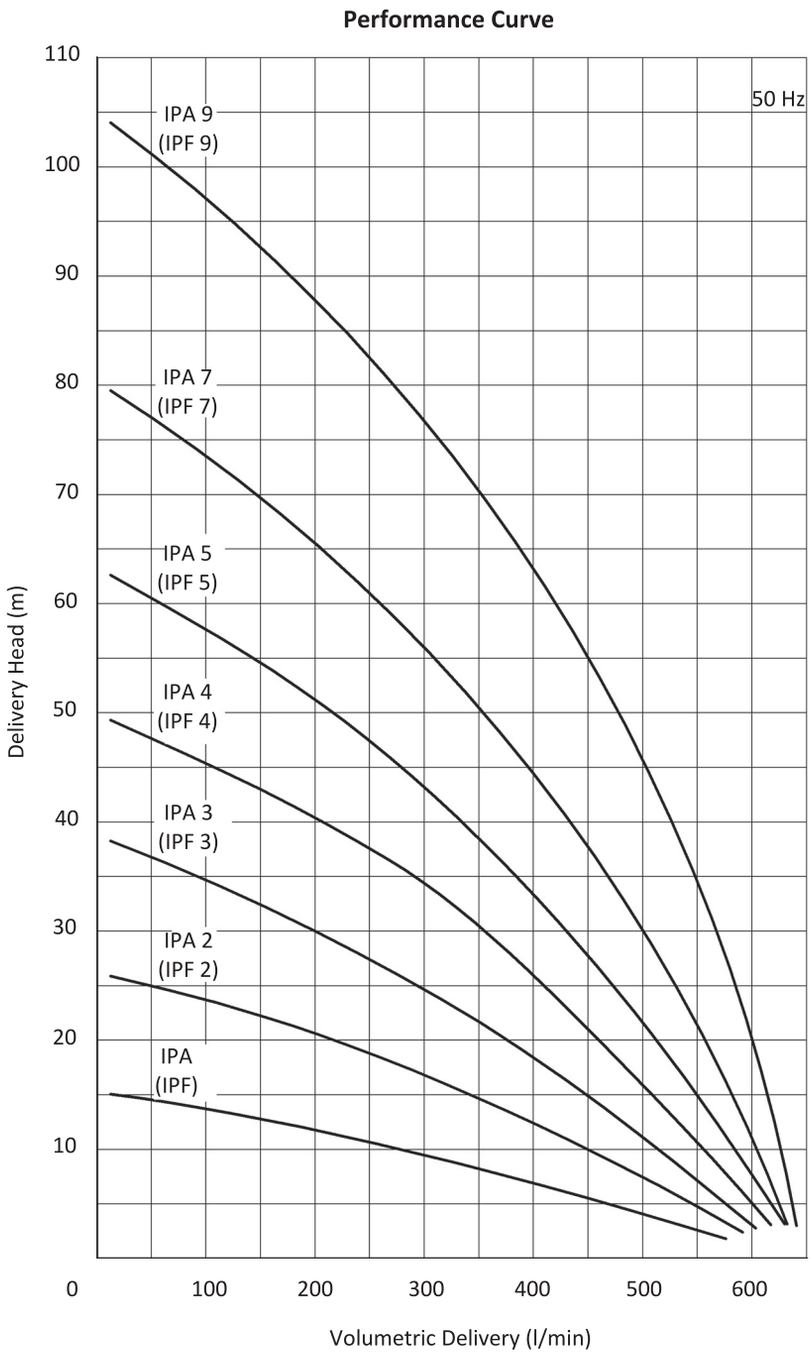
IPA/IPF PUMP



IPA - Axial front impeller pump



IPF - Axial front impeller pump with O-ring



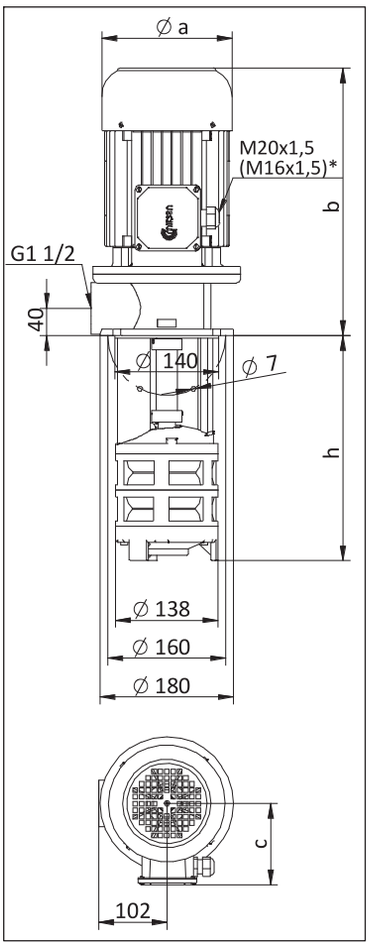
IPA PUMP

Applications:

- IPA pump has an additional axial impeller,
- It is used for pumping the liquid foam resulting from high-speed machining operations,
- Pumping metal chips together with the fluid by mixing,
- Filtration systems,
- Hot liquid applications,
- IPA Pumps are used for pumping of cutting / cooling fluids in circulation systems.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s



* M16x1,5 cable gland is used on IPA(F) 1 pump.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
IPA(F) /210	210	157	319	118	24.5	1.1	230/400	50	4.16/2.4	2890
IPA(F) /280	280				26.0					
IPA(F) /360	360				27.0					
IPA(F) /450	450				28.5					
IPA(F) /560	560				30.5					
IPA(F) -2/210	210	176	363	139	34.5	2.2	230/400	50	7.79/4.5	2905
IPA(F) -2/270	270				35.0					
IPA(F) -2/340	340				36.0					
IPA(F) -2/420	420				37.0					
IPA(F) -2/510	510				38.5					
IPA(F) 2/620	620				40.5					
IPA(F) -3/270	270	194	398	150	47.0	4.0	230/400	50	13.68/7.9	2900
IPA(F) -3/330	330				47.5					
IPA(F) -3/400	400				48.5					
IPA(F) -3/480	480				50.0					
IPA(F) -3/570	570				51.5					
IPA(F) -3/680	680				53.5					
IPA(F) -4/330	330	218	412	163	54.5	5.5	230/400	50	17.15/9.9	2900
IPA(F) -4/390	390				55.0					
IPA(F) -4/460	460				56.0					
IPA(F) -4/540	540				57.5					
IPA(F) -4/630	630				59.0					
IPA(F) -4/740	740				61.0					
IPA(F) -5/390	390	218	412	163	58.0	5.5	230/400	50	17.15/9.9	2900
IPA(F) -5/450	450				58.5					
IPA(F) -5/520	520				59.5					
IPA(F) -5/600	600				61.0					
IPA(F) -5/690	690				62.5					
IPA(F) -7/510	510	258	495	177	89.0	7.5	400Δ	50	14.0	2930
IPA(F) -7/570	570				89.5					
IPA(F) -7/640	640				90.5					
IPA(F) -7/720	720				92.0					
IPA(F) -7/810	810				93.5					
IPA(F) -9/630	630	258	495	177	105.5	11.0	400Δ	50	19.7	2930
IPA(F) -9/690	690				106.0					
IPA(F) -9/760	760				107.0					

IPF PUMP

Applications:

- IPF pumps are used for pumping of liquid from vacuum zone on filtration systems. The pump works at vacuum zone, therefore it has an O-ring at the pump inlet. It also has an additional axial front impeller.

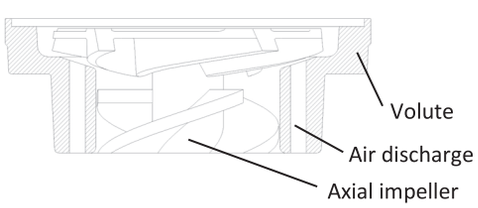
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

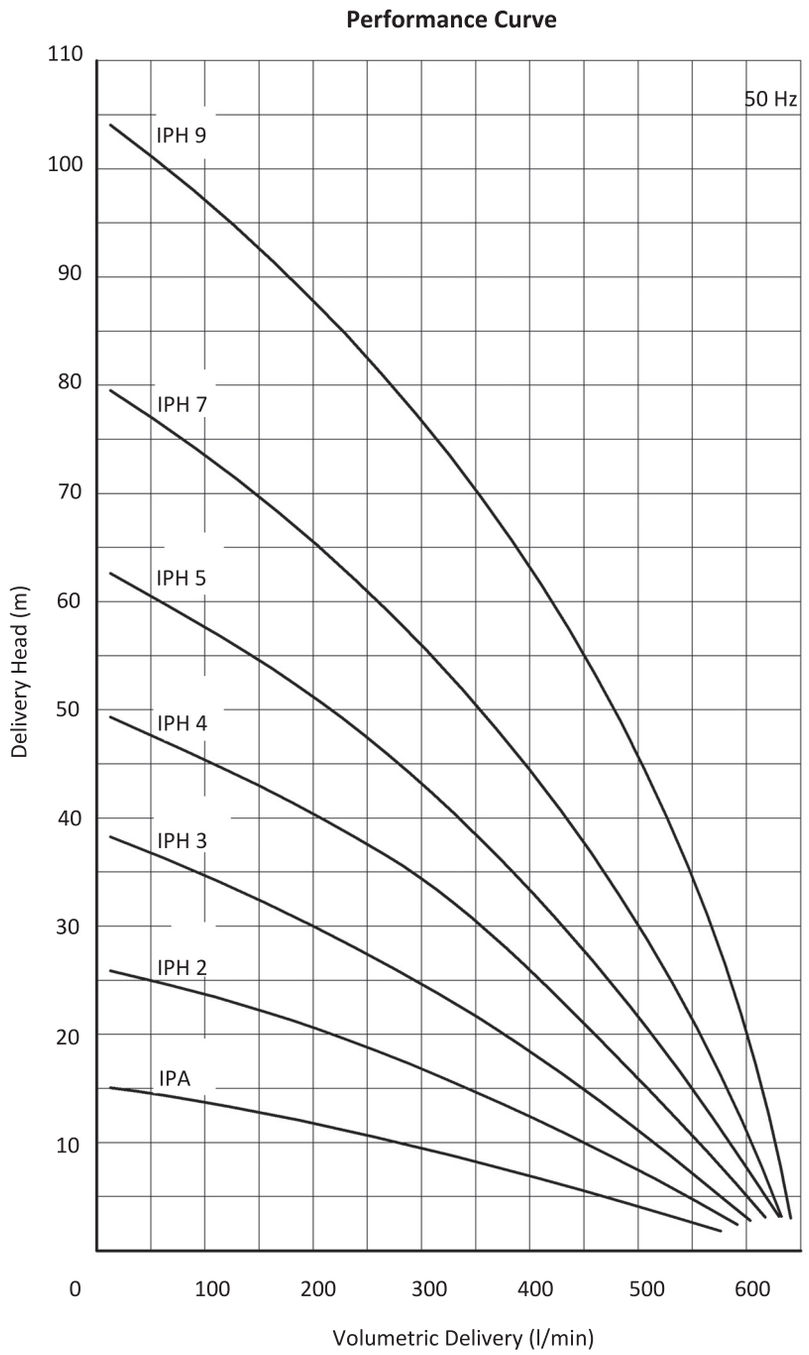
Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Axial (front) impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
O-ring	: Viton
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 54

IPH PUMP



IPH - Axial front impeller with air release



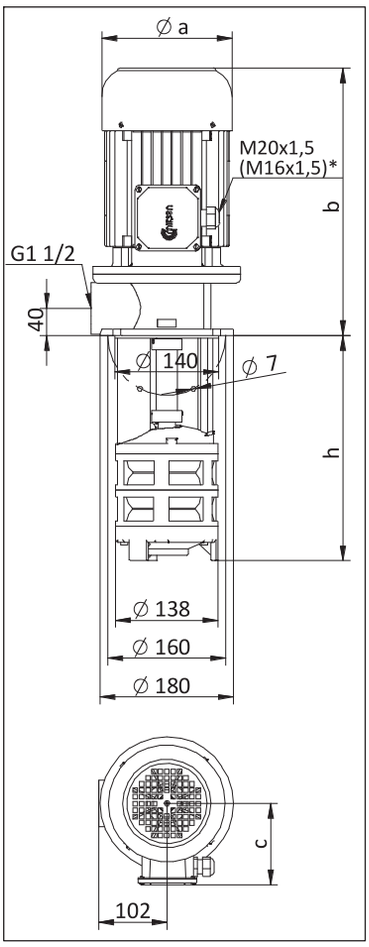
IPH PUMP

Applications:

- IPH pump has an additional axial impeller,
- It is used for pumping the liquid foam resulting from high-speed machining operations,
- Pumping metal chips together with the fluid by mixing,
- Filtration systems,
- Hot liquid applications,
- IPH Pumps are used for pumping of cutting / cooling fluids in circulation systems.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s



* M16x1,5 cable gland is used on IPH 1 pump.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
IPH /210	210	157	319	118	24.5	1.1	230/400	50	4.16/2.4	2890
IPH /280	280				26.0					
IPH /360	360				27.0					
IPH /450	450				28.5					
IPH /560	560				30.5					
IPH -2/210	210	176	363	139	34.5	2.2	230/400	50	7.79/4.5	2905
IPH -2/270	270				35.0					
IPH -2/340	340				36.0					
IPH -2/420	420				37.0					
IPH -2/510	510				38.5					
IPH 2/620	620				40.5					
IPH -3/270	270	194	398	150	47.0	4.0	230/400	50	13.68/7.9	2900
IPH -3/330	330				47.5					
IPH -3/400	400				48.5					
IPH -3/480	480				50.0					
IPH -3/570	570				51.5					
IPH -3/680	680				53.5					
IPH -4/330	330	218	412	163	54.5	5.5	230/400	50	17.15/9.9	2900
IPH -4/390	390				55.0					
IPH -4/460	460				56.0					
IPH -4/540	540				57.5					
IPH -4/630	630				59.0					
IPH -4/740	740				61.0					
IPH -5/390	390	218	412	163	58.0	5.5	230/400	50	17.15/9.9	2900
IPH -5/450	450				58.5					
IPH -5/520	520				59.5					
IPH -5/600	600				61.0					
IPH -5/690	690				62.5					
IPH -7/510	510	258	495	177	89.0	7.5	400Δ	50	14.0	2930
IPH -7/570	570				89.5					
IPH -7/640	640				90.5					
IPH -7/720	720				92.0					
IPH -7/810	810				93.5					
IPH -9/630	630	258	495	177	105.5	11.0	400Δ	50	19.7	2930
IPH -9/690	690				106.0					
IPH -9/760	760				107.0					

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Axial (front) impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
O-ring	: Viton
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 54

J SERIES MODULAR PUMPS

J series pumps offer open impeller, vortex impeller and axial impeller options within the same model series. In this series; electric motor, coupling, pump body and shaft are common, impeller and volute are changing. So J pumps are called as Modular Pumps.

The main applications are;

- Filtration systems,
- Treatment systems,
- Machine tool applications requiring high flow rates,
- Circulation systems.

Impeller and volute designs was optimized after R&D activities so announced targets at the beginning of the Project has increased and reached to %72 pump efficiency on JB pump.

The main application area of these pumps are filtration and treatment systems so the pumps are designed for pumping of the metal chips within the liquids. Allowed chips dimensions are;

JB Pump (Open impeller)	: Max. 10 mm
JBA Pump (Open + axial impeller)	: Max. 10 mm
JC Pump (Open impeller)	: Max. 15 mm
JCA Pump (Open + axial impeller)	: Max. 15 mm
JD Pump (Vortex impeller)	: Max. 50 mm
JE Pump (Non-clogging impeller)	: Max. 30 mm
JF Pump (Open impeller)	: Max. 15 mm

JBA/JCA Series pumps have an axial front impeller. It is used for pumping of metal chips in the fluid by mixing to coolant tank.

Model names of J series pumps have shown in Figure 25, and modularity and components have shown in Figure 26.

Diffuser

Diffuser is made of cast iron. It is only used in multistage JB/A - JC/A pump.

Electric Motor

Special shaft and flange mounted electric motors are used on J series pumps. Motor shaft are connected to pump shaft via a coupling. Motor flange are made of cast iron and the front bearing is bigger than standard electric motors so it increases to the strength against to axial forces.

Power of 3 phase IE3 electric motors are between 1,5 kW and 11,0 kW; frame sizes are between 90 and 132. JD series can be suitable to run with 1,1 kW - 4 pole motor.

Pump Body

Pump body is made of cast iron for preventing the vibration. Immersion depth of the pump can be extended by using three units pump body.

Cover

Cover is made of cast iron and it keeps to SiC bearings. It has been designed for using together different impeller and volute for supply to modularity.

Volute

J pump family has two type volute basically. One of them is classic type volute (JB/A-JC/A-JF pumps), another type is vortex type volute (JD/JE pump) to allow passage of bigger chip size.

Impeller

Impellers of JB/A pump are made of investment casting steel, JC, JD and JE pump impellers are made of cast iron, and they are considered various applications in the design stage. Because of material characteristic, low surface roughness has increased to pump efficiency. However, as an advantage of the manufacturing process, high homogeneous level of the impeller allow to work with out any balance problem at 2900 rpm values.

Suction Cover

Suction cover is made of cast iron. It is only used in multistage JB/A - JC/A pump.

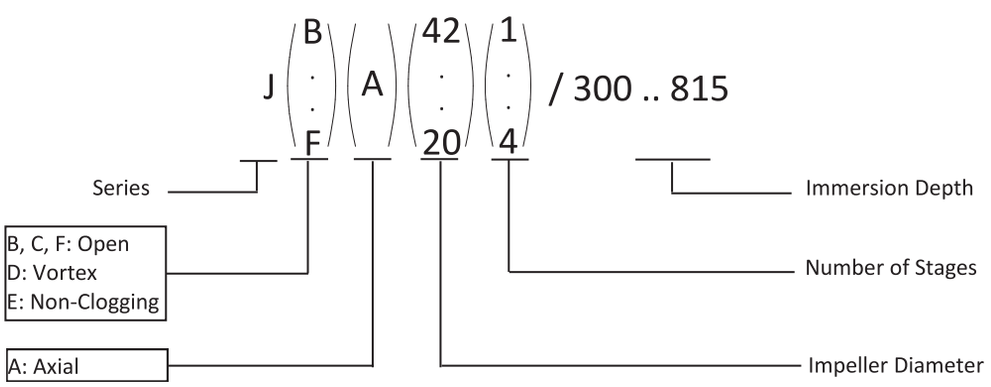


Figure 25 - Model names of the modular J Pump

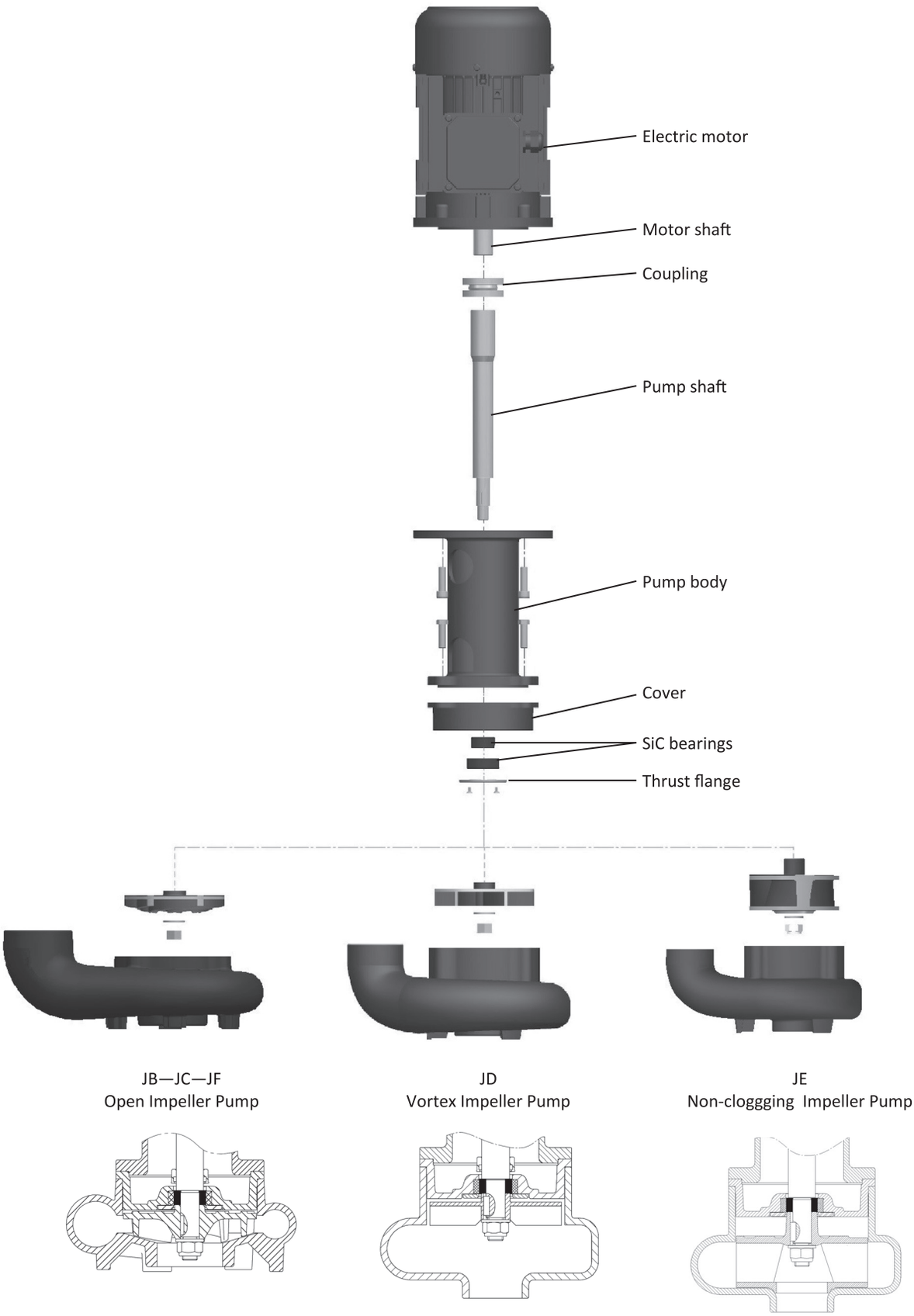


Figure 26 - Parts of the modular J Pump

JB 200 PUMP

Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Treatment systems,
- Cooling systems,
- Circulation systems. JB Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

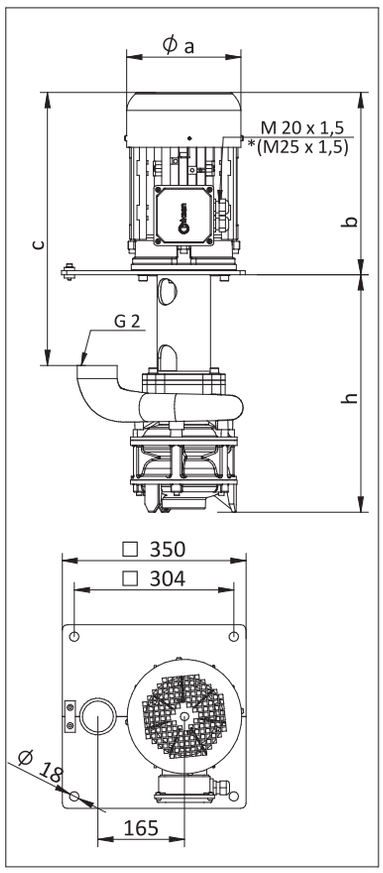
- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 10mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Diffusor	: Cast iron - DIN GG 25
Suction Cover	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

* JB 200 pumps can be optionally equipped with an axial impeller.

** Please contact us for different immersion depth.

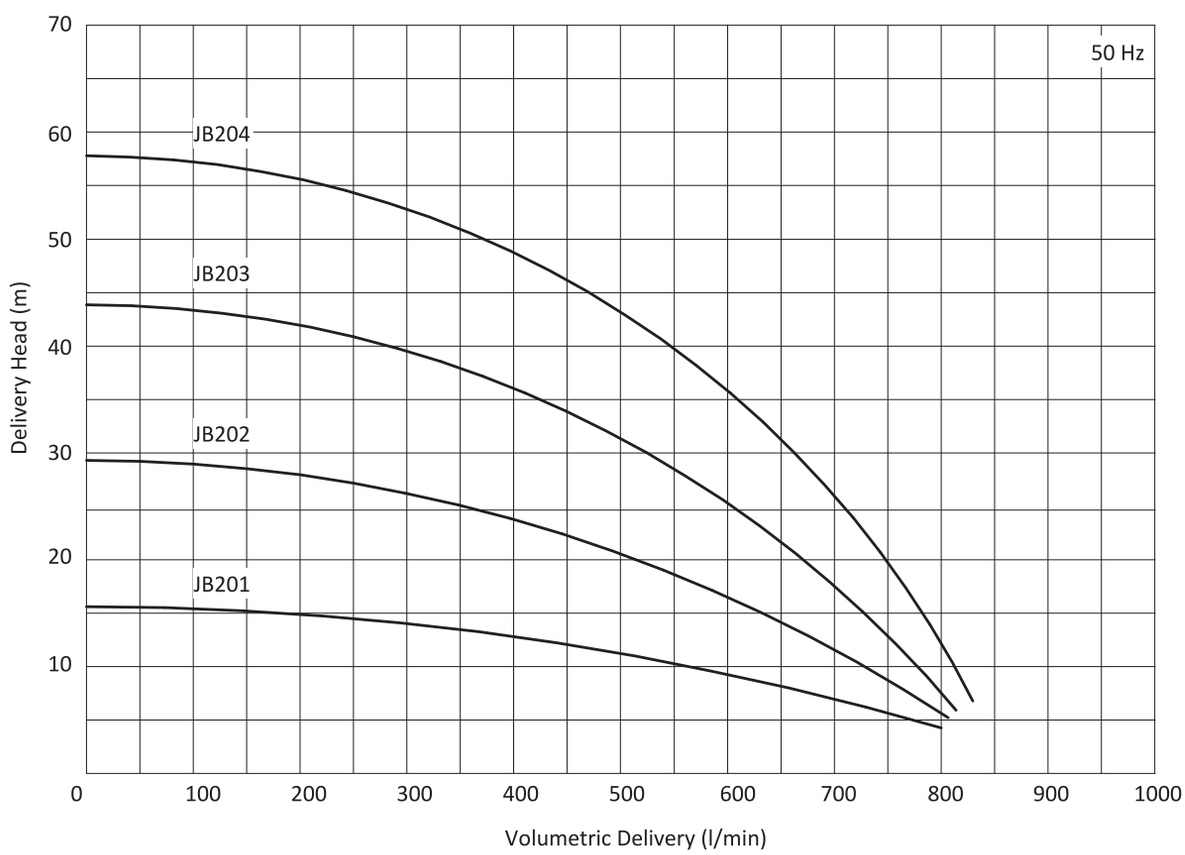


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of Immersion h (mm)	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
		mm			kg	kW	V(Δ/Y)	Hz	A	rpm
JB 201/300	300	176	274	446	40.5	1.5	230/400	50	5.72/3.3	2910
JB 201/520	520			666	47.0					
JB 201/740	740			886	53.5					
JB 202/375	375	194	338	510	55.5	3.0	230/400	50	10.39/6.0	2905
JB 202/595	595			730	62.0					
JB 202/815	815			950	68.5					
JB 203/450	450	218	347	519	69.5	5.5	230/400	50	17.15/9.9	2900
JB 203/670	670			739	76.0					
JB 204/525	525	258	438	610	100.0	7.5	400Δ	50	14.0	2930
JB 204/745	745			830	106.5					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



JB 350 PUMP

Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Treatment systems,
- Cooling systems,
- Circulation systems. JB Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

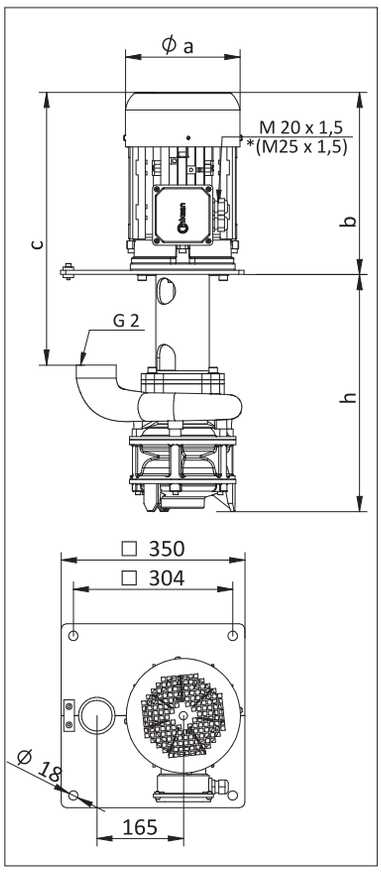
- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 10mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Diffusor	: Cast iron - DIN GG 25
Suction Cover	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

* JB 350 pumps can be optionally equipped with an axial impeller.

** Please contact us for different immersion depth.

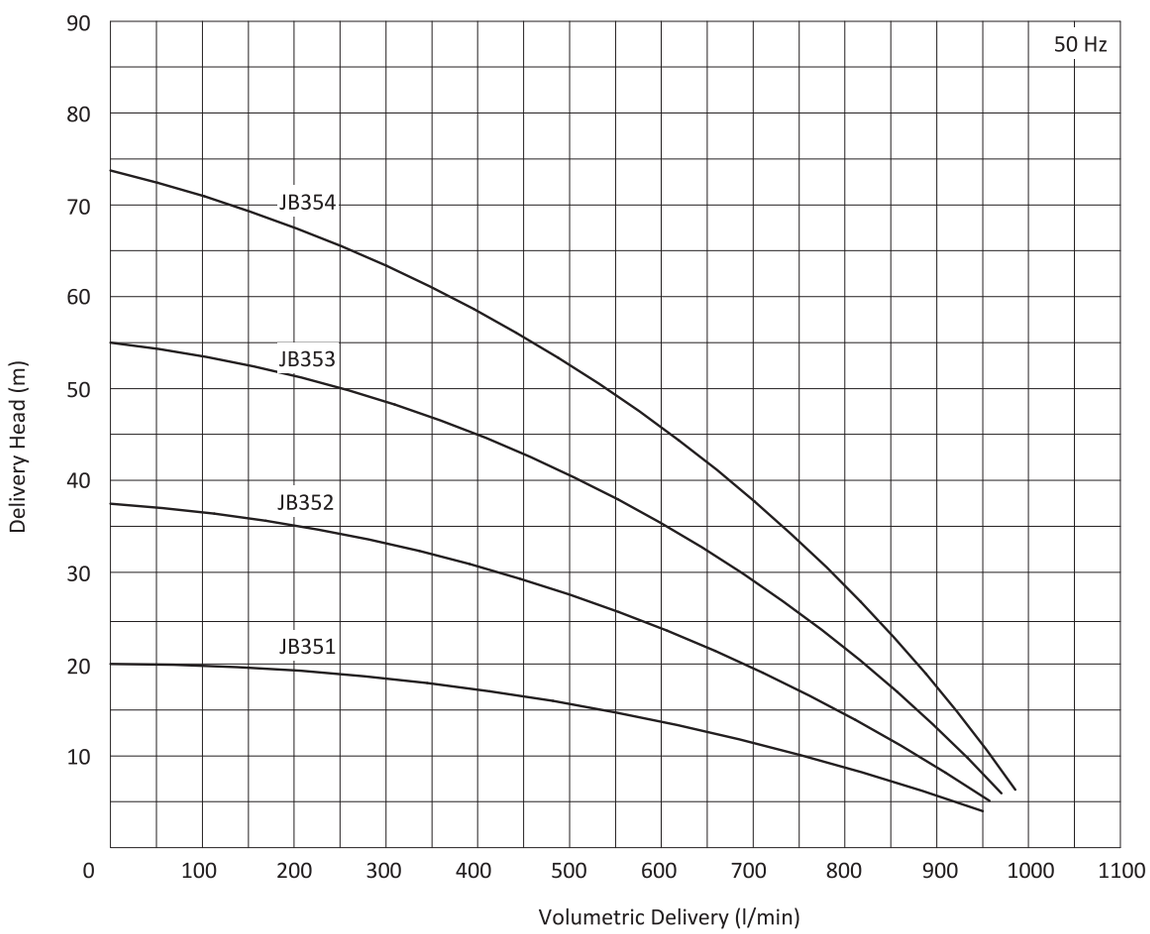


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of Immersion h (mm)	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
		mm			kg	kW	V(Δ/Y)	Hz	A	rpm
JB 351/300	300	176	299	471	43.5	2.2	230/400	50	7.79/4.5	2905
JB 351/520	520			519	50.0					
JB 351/740	740			567	56.5					
JB 352/375	375	194	338	510	58.5	4.0	230/400	50	13.68/7.9	2900
JB 352/595	595			730	65.0					
JB 352/815	815			950	71.5					
JB 353/450	450	258	438	610	93.0	7.5	400Δ	50	14.0	2930
JB 353/670	670			830	99.5					
JB 354/525	525	258	438	610	109.0	11.0	400Δ	50	19.7	2930
JB 354/745	745			830	115.5					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



JB 420 PUMP

Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Treatment systems,
- Cooling systems,
- Circulation systems. JB Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

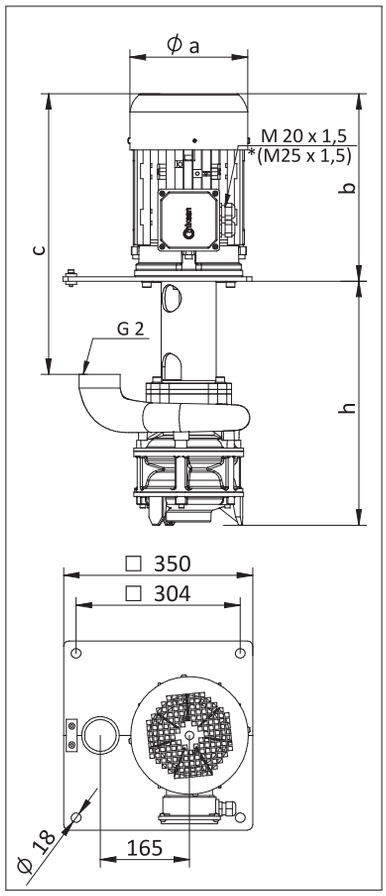
- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 10mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Diffusor	: Cast iron - DIN GG 25
Suction Cover	: Cast iron - DIN GG 25
Impeller	: Investment casting steel - AISI 4140 (DIN 42CrMo4)
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

* JB 420 pumps can be optionally equipped with an axial impeller.

** Please contact us for different immersion depth.

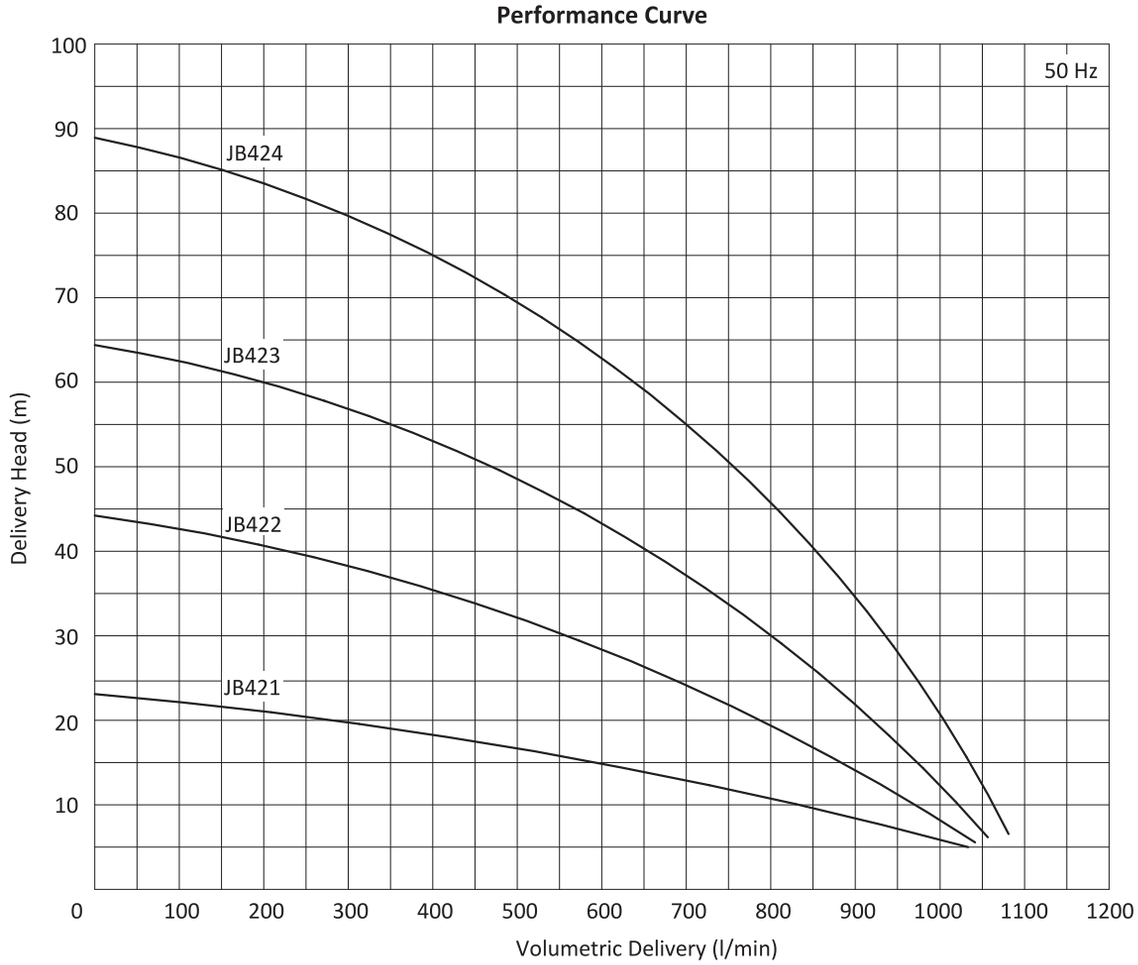


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of Immersion h (mm)	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
		mm			kg	kW	V(Δ/Y)	Hz	A	rpm
JB 421/300	300	194	338	510	49.5	3.0	230/400	50	10.39/6.0	2905
JB 421/520	520			730	56.0					
JB 421/740	740			950	62.5					
JB 422/375	375	218	353	525	62.5	5.5	230/400	50	17.15/9.9	2900
JB 422/595	595			745	69.0					
JB 423/450	450	258	438	610	93.5	7.5	400Δ	50	14.0	2930
JB 423/670	670			830	100.0					
JB 424/525	525	258	438	610	109.5	11.0	400Δ	50	19.7	2930
JB 424/745	745			830	116.0					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



JC 420 PUMP

Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Treatment systems,
- Cooling systems,
- Circulation systems. JC Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

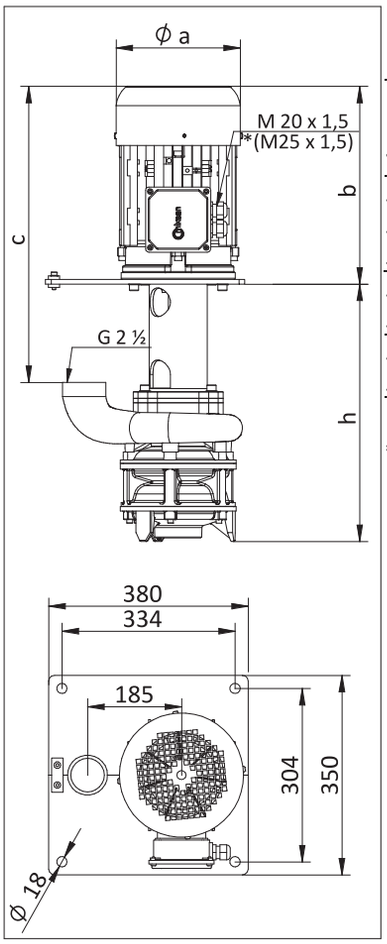
- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 15mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Diffusor	: Cast iron - DIN GG 25
Suction Cover	: Cast iron - DIN GG 25
Impeller	: Cast iron - DIN GG 25
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

* JC 420 pumps can be optionally equipped with an axial impeller.

** Please contact us for different immersion depth.

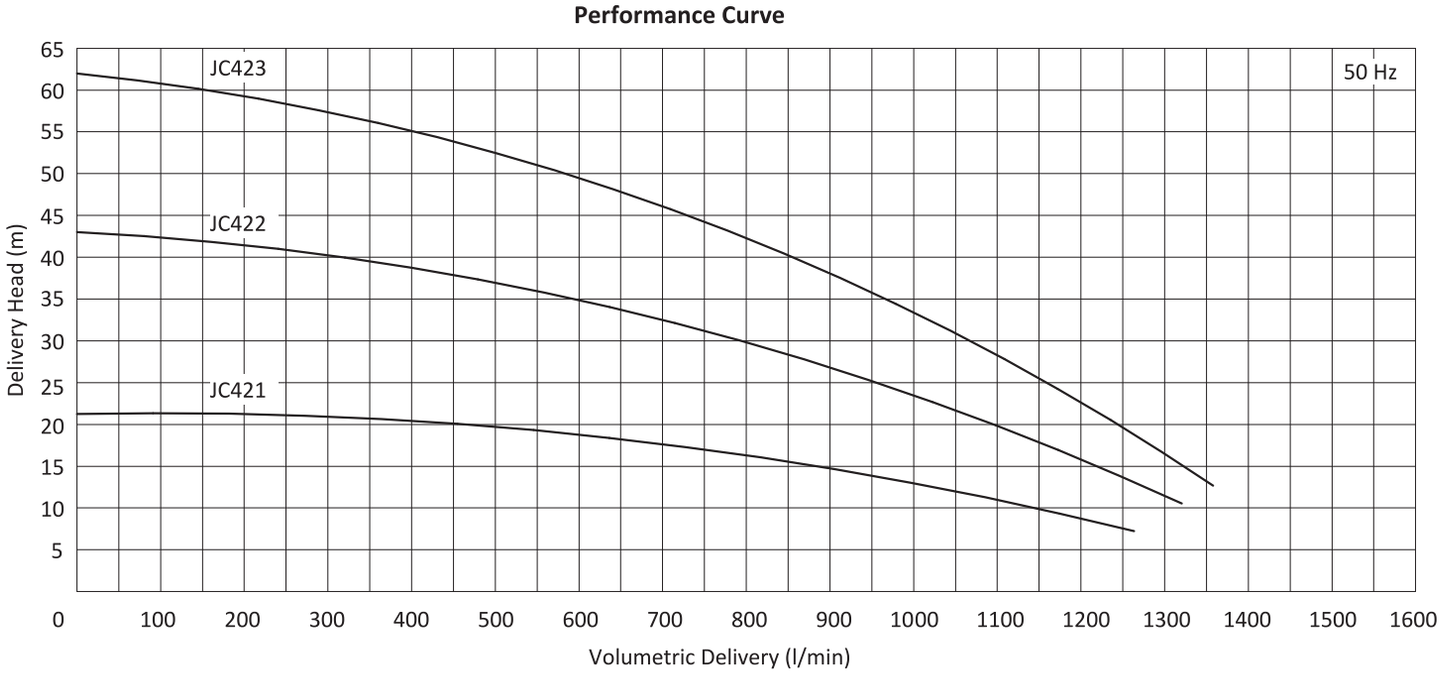


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of Immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
JC 421/310	310	194	338	510	56.0	4.0	230/400	50	13.68/7.9	2900
JC 421/530	530			730	62.5					
JC 421/750	750			950	69					
JC 422/395	395	258	438	610	89.5	7.5	400Δ	50	14.0	2930
JC 422/615	615			830	96.0					
JC 423/480	480	258	438	610	106.5	11.0	400Δ	50	19.7	2930
JC 423/700	700			830	113.0					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



JD PUMP

Applications:

- Vortex type pump is used for pumping liquids which contains 50 mm metal chips.
- Filtration systems,
- Treatment systems,
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Cooling systems,
- Circulation systems. JD Pumps are used for pumping of cutting / cooling fluids.

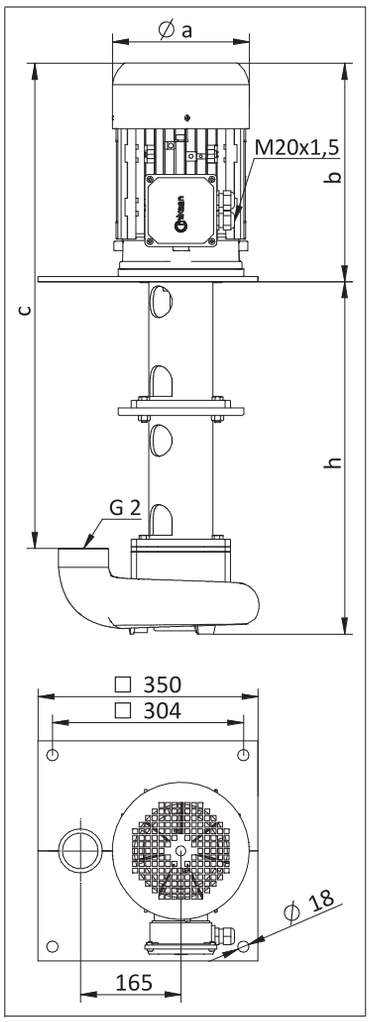
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 50 mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...30 mm^2/s (Please contact us for higher viscosities)

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Cast iron - DIN GG 25
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Optionally 4 pole, Protection degree IP 55

* Please contact us for different immersion depth.

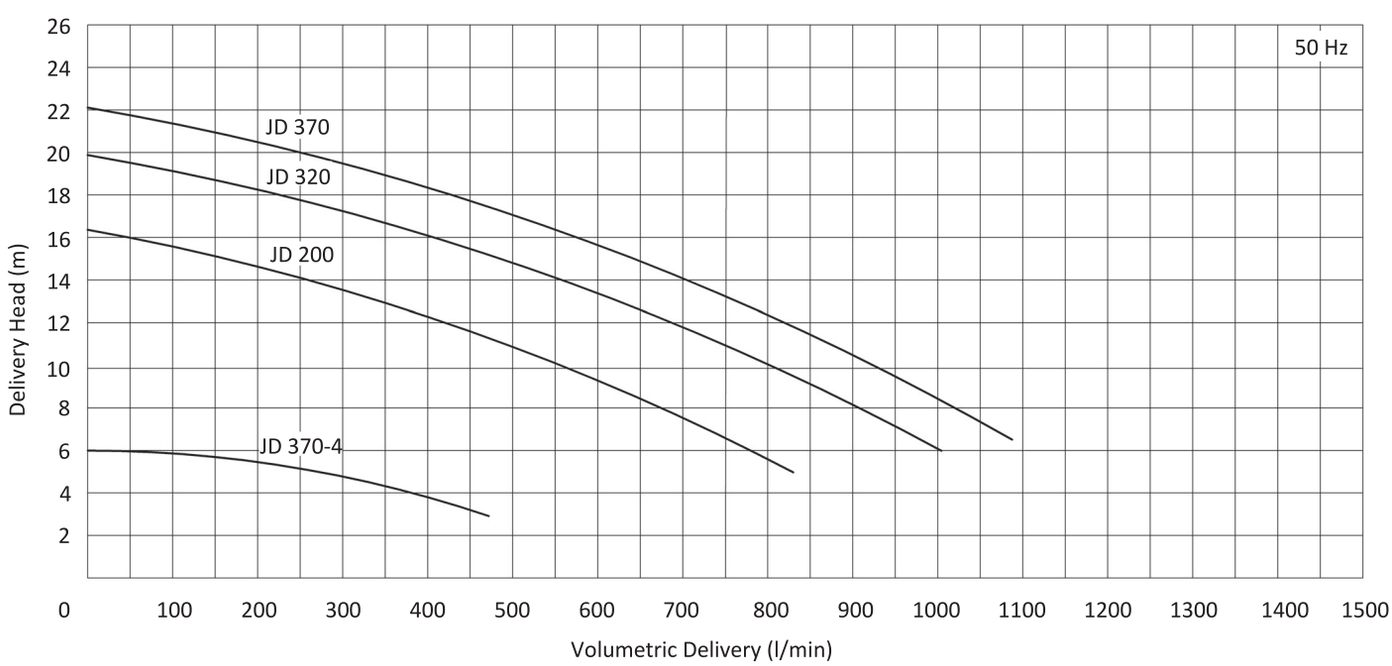


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of Immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
JD 200/345	345	194	338	552	51.5	3.0	230/400	50	10.39/6.0	2905
JD 200/565	565			772	58.0					
JD 200/785	785			992	64.5					
JD 320/345	345	194	338	552	54.5	4.0	230/400	50	13.68/7.9	2900
JD 320/565	565			772	61.0					
JD 370/345	345	218	353	567	58.5	5.5	230/400	50	17.15/9.9	2900
JD 370/565	565			787	65.0					
JD 370/345-4	345	176	303	517	42.0	1.1	230/400	50	4.85/2.8	1440
JD 370/565-4	565			737	48.5					
JD 370/785-4	785			957	55					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



JE PUMP

Applications:

- Non-clogging type pump is used for pumping liquids which contains 35 mm metal chips.
- Filtration systems,
- Treatment systems,
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Cooling systems,
- Circulation systems. JE Pumps are used for pumping of cutting / cooling fluids.

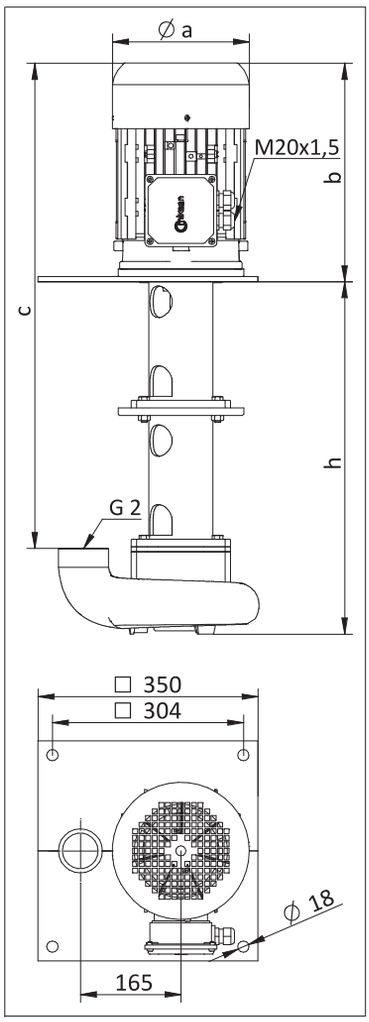
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Dirty water and refining,
- Chip contains liquids (max. 30 mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...30 mm^2/s (Please contact us for higher viscosities)

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Cast iron - DIN GG 25
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole Protection degree IP 55

* Please contact us for different immersion depth.

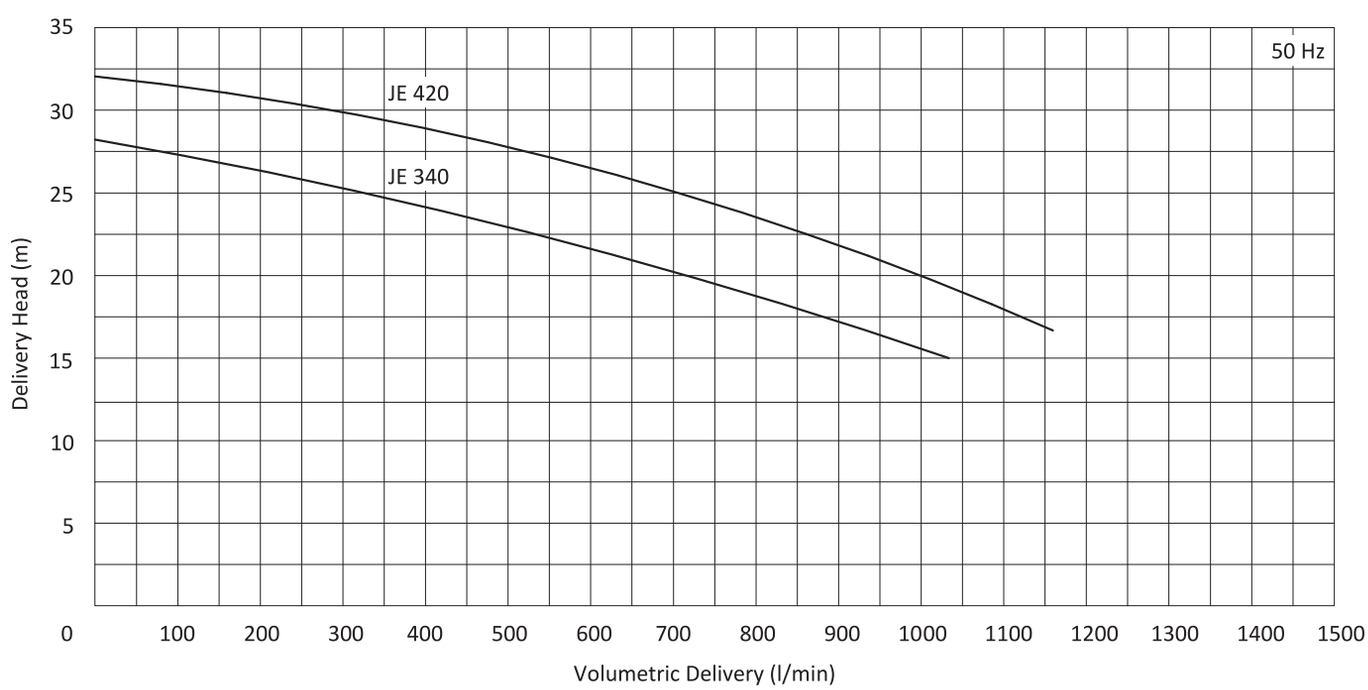


DIMENSIONS & NOMINAL VALUES

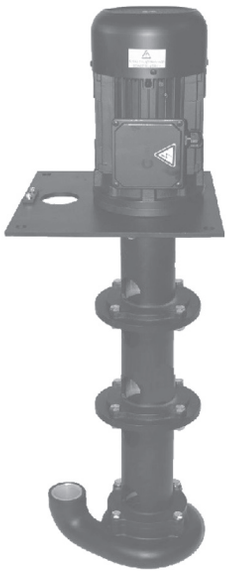
TYPE	Depth of Immersion h (mm)	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
		mm			kg	kW	V(Δ/Y)	Hz	A	rpm
JE 340/345	345	218	353	567	61	5.5	230/400	50	17.15/9.9	2900
JE 340/565	565			787	67.5					
JE 340/785	785			1007	74					
JE 420/345	345	258	438	635	84.5	7.5	400Δ	50	14.0	2930
JE 420/565	565			855	91					
JE 420/785	785			1075	97.5					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



JF PUMP



Applications:

- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Filtration systems,
- Treatment systems,
- Cooling systems,
- Circulation systems. JF Pumps are used for pumping of cutting / cooling fluids.

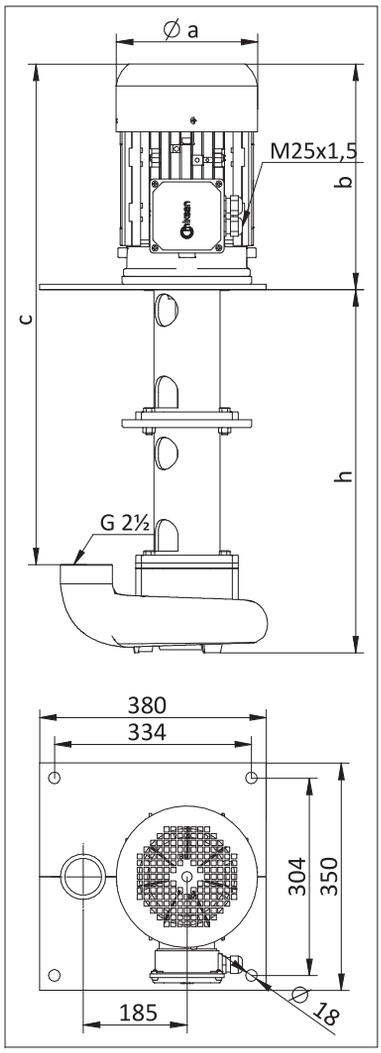
Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Water,
- Chip contains liquids (max. 15mm)
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Cast iron - DIN GG 25
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Electric motor	: 3 phase induction motor IE3 - 2 pole, Protection degree IP 55

* Please contact us for different immersion depth.

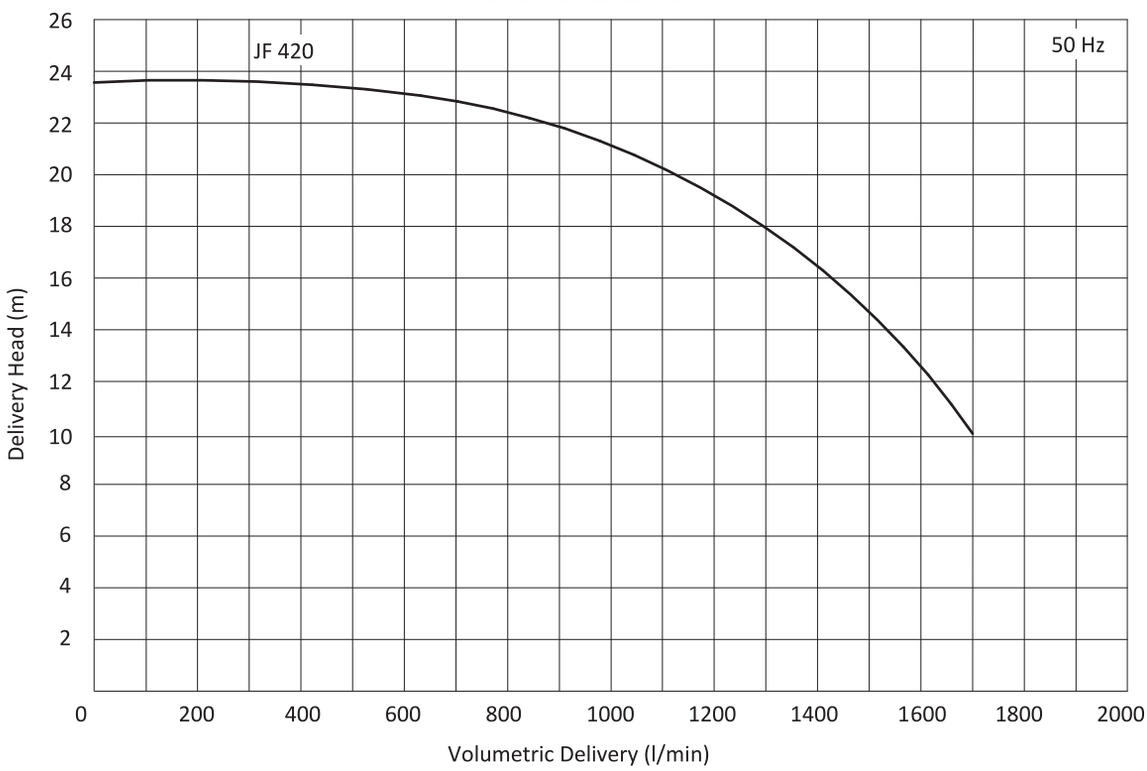


DIMENSIONS & NOMINAL VALUES

TYPE	Depth of Immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
JF 420/310	310	258	438	610	84.5	7.5	400Δ	50	14.0	2930
JF 420/530	530			830	91					
JF 420/750	750			1050	97.5					

* The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density
** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



FP40 PUMP

Applications:

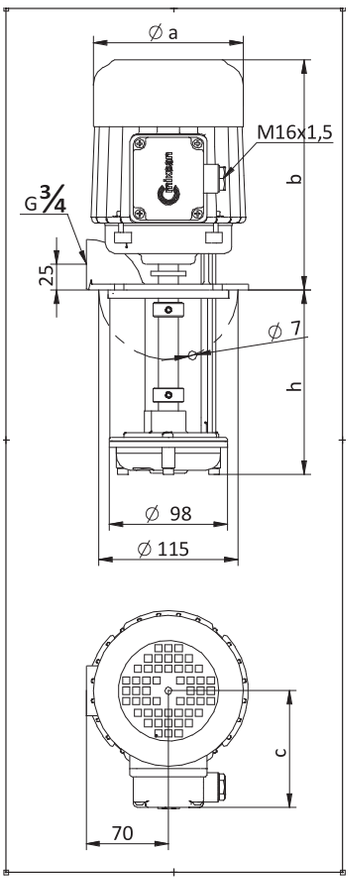
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Cooling systems,
- Circulation systems. FP40 Pumps are used for pumping of cutting / cooling fluids.
- Pump has a peripheral impeller so it is recommended to use filtered fluid applications.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Brass
Pump shaft	: Engineering steel - AISI 1040 (DIN C35) Stainless steel- AISI 420(DIN X20Cr13) (Optional)
Electric motor	: 3 phase induction motor - 2 pole, Protection degree IP 55



DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
FP 40/15	150	123	190	95	7.8	0.40	230/400	50	2.43/1.4	2730
FP 40/20	200				8.0					
FP 40/25	250				8.5					
FP 40/30	300				8.6					
FP 42/13	130	138	240	111	11.4	1.1	230/400	50	4.85/2.8	2720
FP 42/17	170				11.6					
FP 42/22	220				11.8					
FP 42/27	270				12.0					
FP 43/15	155	176	330	139	20.5	1.5	230/400	50	5.72/3.3	2910
FP 43/19	195				20.7					
FP 43/24	245				20.9					
FP 43/29	295				21.1					

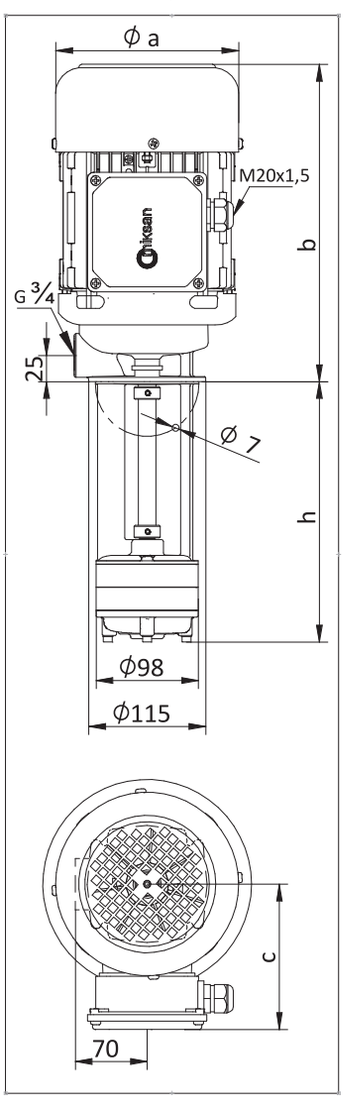
* M20x1,5 cable gland is used on FP 43 pumps.

** Pump dimensions according to EN 12157.

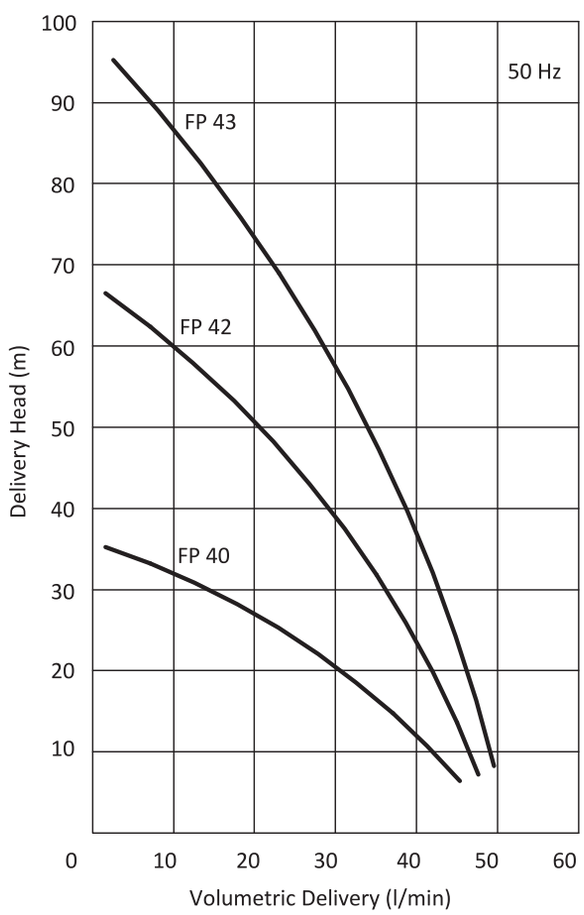
*** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

**** Curve tolerance according to ISO 9906:2012 Grade 3B.

***** FP 42 pump has IE2 motor. According to IEC 60034-30-1:2014 standard this pump is excluded from efficiency class since its motor is completely integrated into the pump.



Performance Curve



FP90 PUMP

Applications:

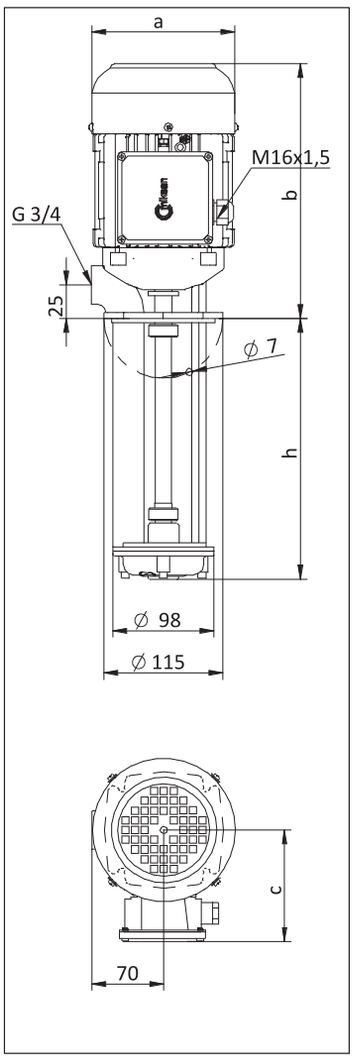
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Cooling systems,
- Circulation systems. FP90 Pumps are used for pumping of cutting / cooling fluids.
- Pump has a peripheral impeller so it is recommended to use filtered fluid applications.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...90 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Brass
Pump shaft	: Engineering steel - AISI 1040 (DIN C35) Stainless steel- AISI 420(DIN X20Cr13) (Optional)
Electric motor	: 3 phase induction motor - 2 pole, Protection degree IP 55



DIMENSIONS & NOMINAL VALUES

TYPE	Depth of immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
FP 90/11	110	138	240	111	10.6	1.1	230/400	50	4.85/2.8	2720
FP 90/15	150				10.9					
FP 90/20	200				11.2					
FP 90/25	250				11.5					
FP 90/30	300				11.8					

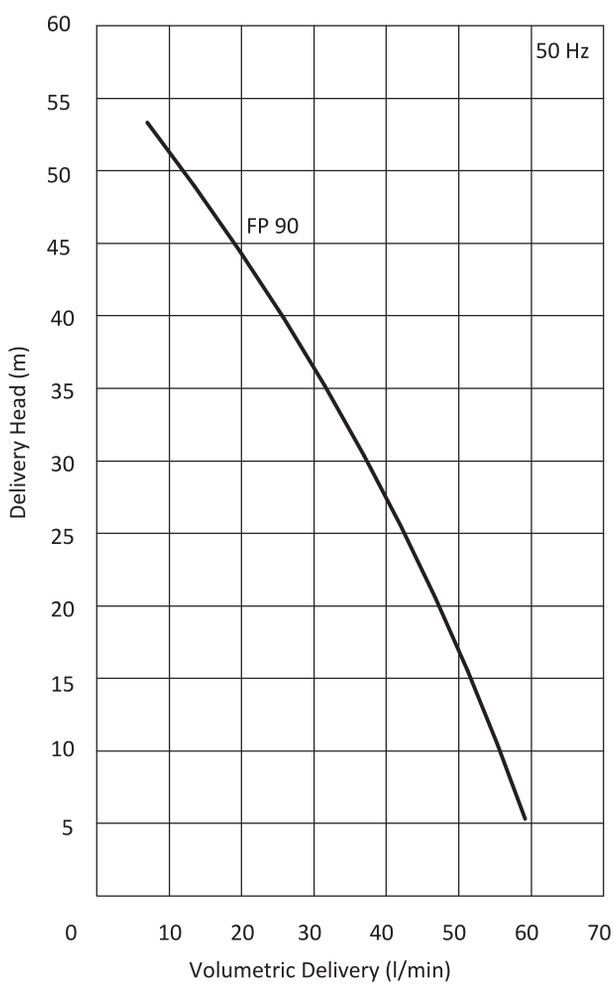
* Pump dimensions according to EN 12157.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

**** FP 90 pump has IE2 motor. According to IEC 60034-30-1:2014 standard this pump is excluded from efficiency class since its motor is completely integrated into the pump.

Performance Curve



DP SERIES PLASTIC PUMP

DP series plastic pumps can be used traditional machine tools applications. But also, it is perfectly suitable for clean water and chemical solutions because of the pump's materials.

Materials of the pump parts;

- Pump body : PPS
- Stages : PPS
- Diffusers : PPS
- Impellers : PPS
- Cover: PPS
- Axial Impellers: PPS
- Bushing : PPS
- Shaft : DIN 1.4301 (AISI 304)
- Strainer (Optional): PE
- Bearing Rings : Tungsten Carbide - Ceramic

There are three different pump at same modular design;

1 - DP 60 Series : Q_{max} = 60 l/min , H_{max} = 6 m (per stage)
2 - DP 100 Series : Q_{max} = 110 l/min , H_{max} = 6 m (per stage)
3 - DP 150 Series : Q_{max} = 160 l/min , H_{max} = 7 m (per stage)

DP Series pumps can be supply low and medium pressure because of their multistage design.

Specifications;

- Pump shaft is AISI 304 stainless steel as a standard.
- Perfectly suitable for chemical liquids.
- Pump materials are durable for high corrosion.
- Chip size max. 4 mm.
- Small space requirements due to the compact design.
- All pumps are seal-less.
- It can be produced with single-phase motor as an option.

Application Fields;

- Dehumidification systems,
- Liquids containing solid particles,
- Alkaline, solvents, coolants and lubricants etc.
- Surface washing, cleaning, degreasing,
- Recycling in Machine-tool industry,
- Circulation of coolant,
- Circulation beverage systems,
- Printing industry.

Figure 34- DP Series Pumps

Figure 35- DP Series Exploded View

Pump Parts :

1. Electric Motor
2. Pump Body
3. Stages
4. Diffuser
5. O-ring
6. Impeller
7. Cover
8. Axial impeller
9. Strainer

DP 60 PUMP

Applications:

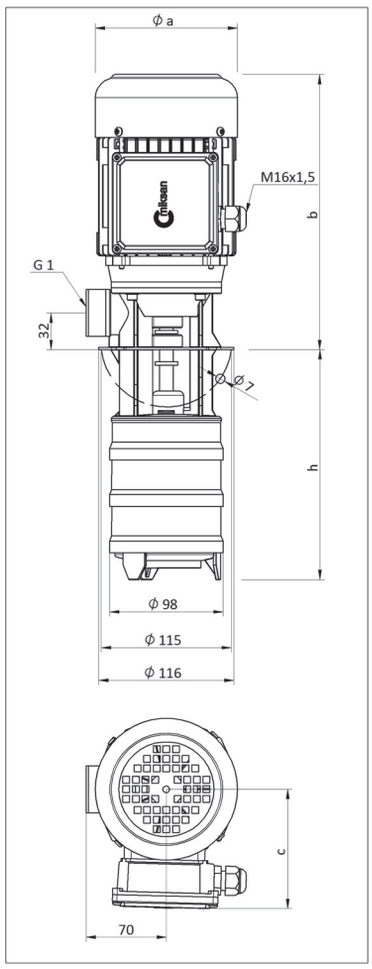
- Circulation systems,
- Beverage industry,
- Printing industry.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Chemical solutions,
- Distilled or deionize water,
- Chip contains liquids (max. 4mm)
- Fluid temperature 0...60 °C
- Kinematic viscosity 1...12 mm^2/s

Materials:

Pump body	: PPS
Stages	: PPS
Diffusers	: PPS
Impeller	: PPS
Cover	: PPS
Axial impeller	: PPS
Strainer (Optional)	: PE
Pump shaft	: Stainless steel - AISI 304 (DIN 1.4301)
Electric motor	: 3 phase induction motor 1 phase induction motor (Optional) 2 pole, 2900 rpm Protection degree IP 54



DIMENSIONS & NOMINAL VALUES

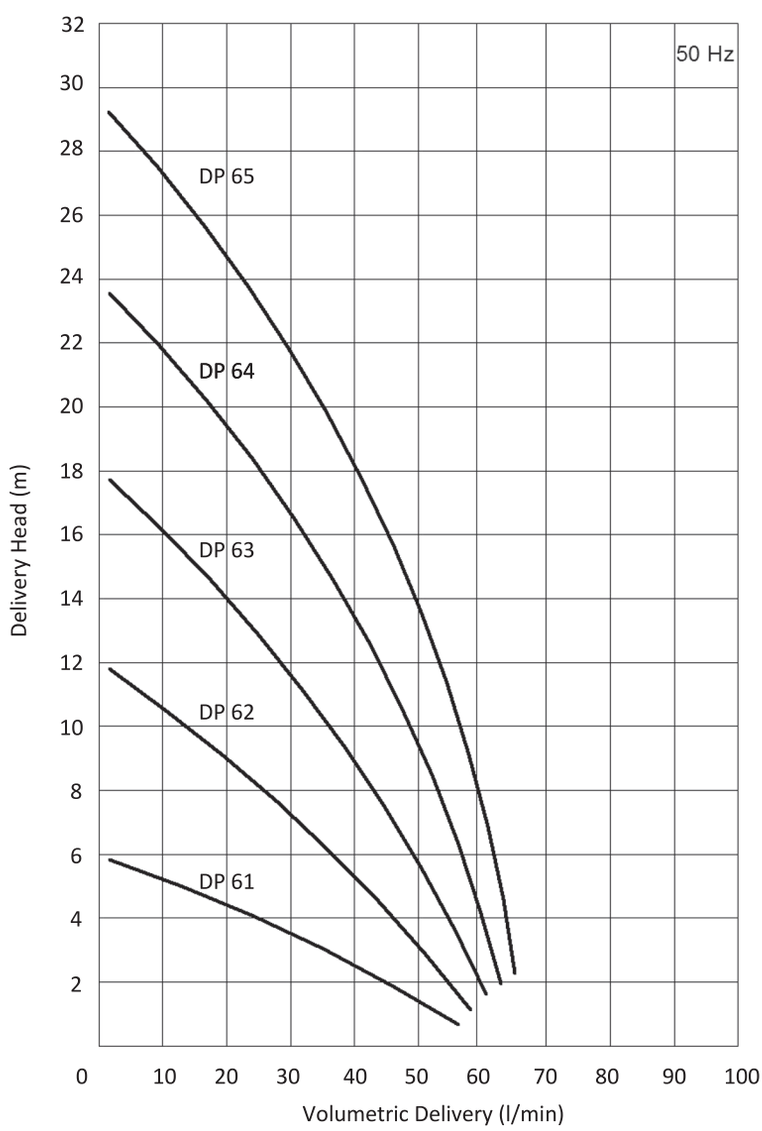
TYPE	Depth of Immersion h (mm)	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
		mm			kg	kW	V(Δ/Y)	Hz	A	rpm
DP 61/120	120	113	216	87	3.2	0.09	230/400	50	0.48/0.28	2830
DP 61/170	170				3.3					
DP 61/220	220				3.4					
DP 61/270	270				3.5					
DP 62/160	160	113	216	87	3.9	0.15	230/400	50	0.80/0.46	2850
DP 62/210	210				4.0					
DP 62/260	260				4.1					
DP 62/310	310				4.2					
DP 63/200	200	124	240	104	4.6	0.25	230/400	50	1.26/0.73	2760
DP 63/250	250				4.7					
DP 63/300	300				4.8					
DP 63/350	350				4.9					
DP 64/240	240	124	240	104	5.3	0.28	230/400	50	1.73/1.0	2820
DP 64/290	290				5.4					
DP 64/340	340				5.5					
DP 64/390	390				5.6					
DP 65/280	280	124	240	104	6.1	0.37	230/400	50	2.16/1.25	2820
DP 65/330	330				6.2					
DP 65/380	380				6.3					

* Pump dimensions according to EN 12157.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



DP 100 PUMP

Applications:

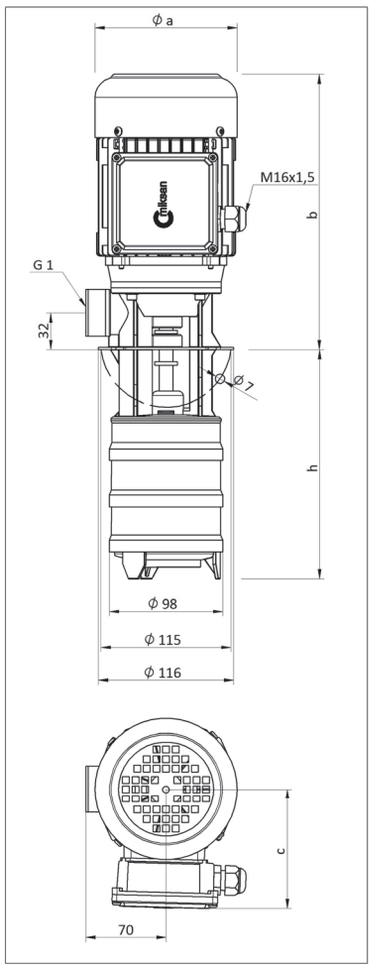
- Circulation systems,
- Beverage industry,
- Printing industry.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Chemical solutions,
- Distilled or deionize water,
- Chip contains liquids (max. 4mm)
- Fluid temperature 0...60 °C
- Kinematic viscosity 1...12 mm^2/s

Materials:

Pump body	: PPS
Stages	: PPS
Diffusers	: PPS
Impeller	: PPS
Cover	: PPS
Axial impeller	: PPS
Strainer (Optional)	: PE
Pump shaft	: Stainless steel - AISI 304 (DIN 1.4301)
Electric motor	: 3 phase induction motor 1 phase induction motor (Optional) 2 pole, 2900 rpm Protection degree IP 54



DIMENSIONS & NOMINAL VALUES

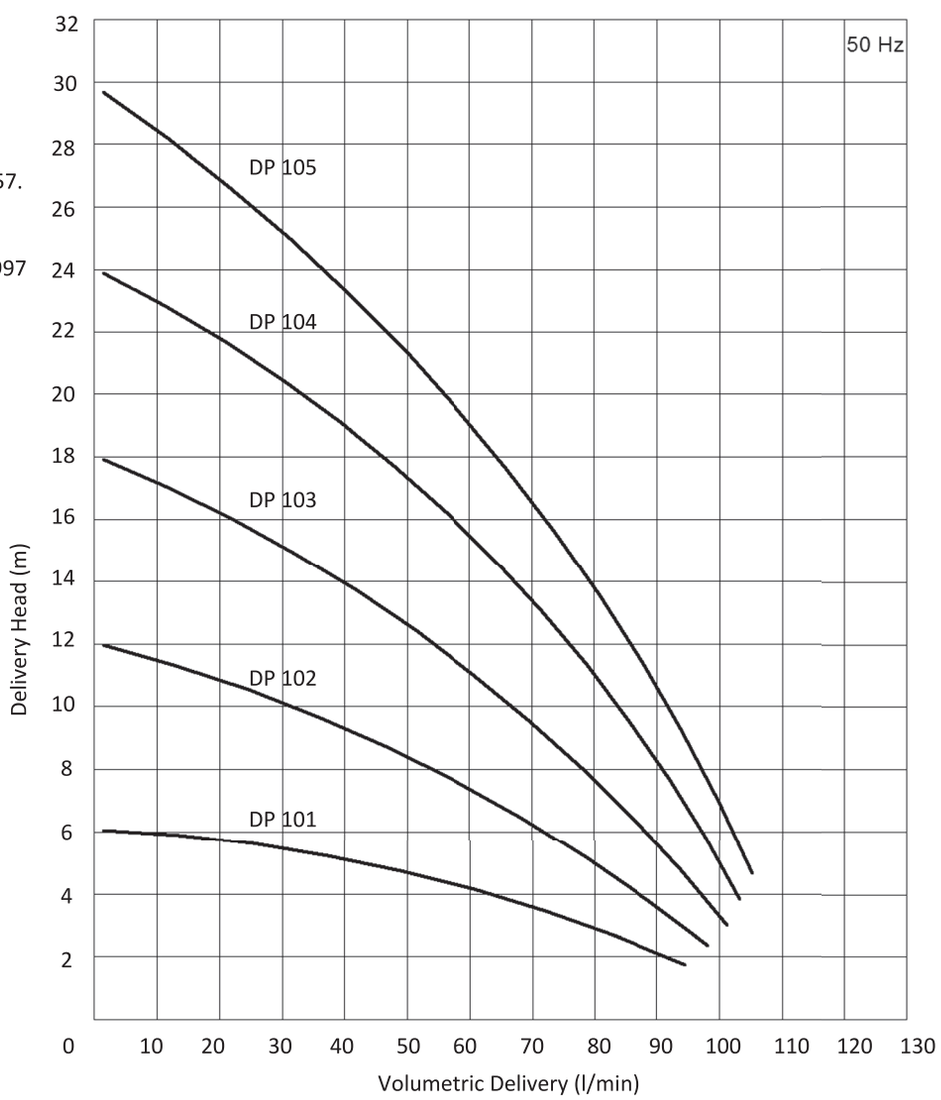
TYPE	Depth of Immersion h (mm)	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
		mm			kg	kW	V(Δ/Y)	Hz	A	rpm
DP 101/120	120	113	216	87	3.5	0.12	230/400	50	0.61/0.35	2880
DP 101/170	170				3.6					
DP 101/220	220				3.7					
DP 101/270	270				3.8					
DP 102/160	160	113	216	87	4.0	0.18	230/400	50	0.85/0.49	2820
DP 102/210	210				4.1					
DP 102/260	260				4.2					
DP 102/310	310				4.3					
DP 103/200	200	124	240	104	4.7	0.25	230/400	50	1.26/0.73	2760
DP 103/250	250				4.8					
DP 103/300	300				4.9					
DP 103/350	350				5.0					
DP 104/240	240	124	240	104	5.4	0.37	230/400	50	2.16/1.25	2820
DP 104/290	290				5.5					
DP 104/340	340				5.6					
DP 104/390	390				5.7					
DP 105/280	280	138	265	111	7.3	0.55	230/400	50	2.25/1.3	2780
DP 105/330	330				7.4					
DP105/380	380				7.5					

* Pump dimensions according to EN 12157.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



DP 150 PUMP

Applications:

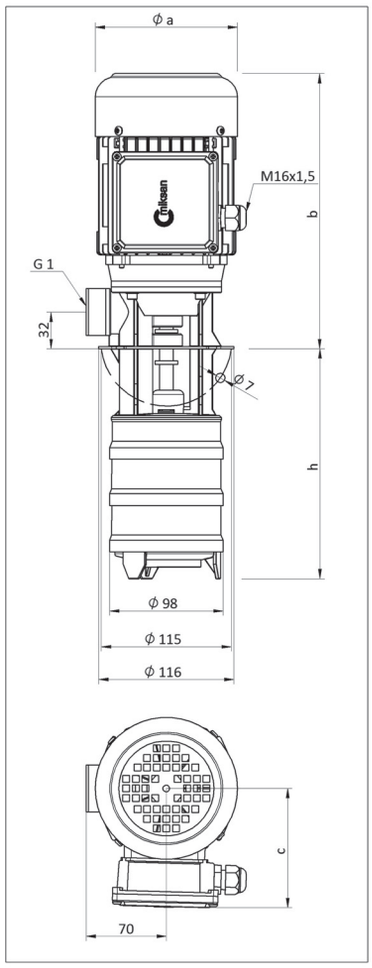
- Circulation systems,
- Beverage industry,
- Printing industry.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Chemical solutions,
- Distilled or deionize water,
- Chip contains liquids (max. 4mm)
- Fluid temperature 0...60 °C
- Kinematic viscosity 1...12 mm^2/s

Materials:

Pump body	: PPS
Stages	: PPS
Diffusers	: PPS
Impeller	: PPS
Cover	: PPS
Axial impeller	: PPS
Strainer (Optional)	: PE
Pump shaft	: Stainless steel - AISI 304 (DIN 1.4301)
Electric motor	: 3 phase induction motor 1 phase induction motor (Optional) 2 pole, 2900 rpm Protection degree IP 54



DIMENSIONS & NOMINAL VALUES

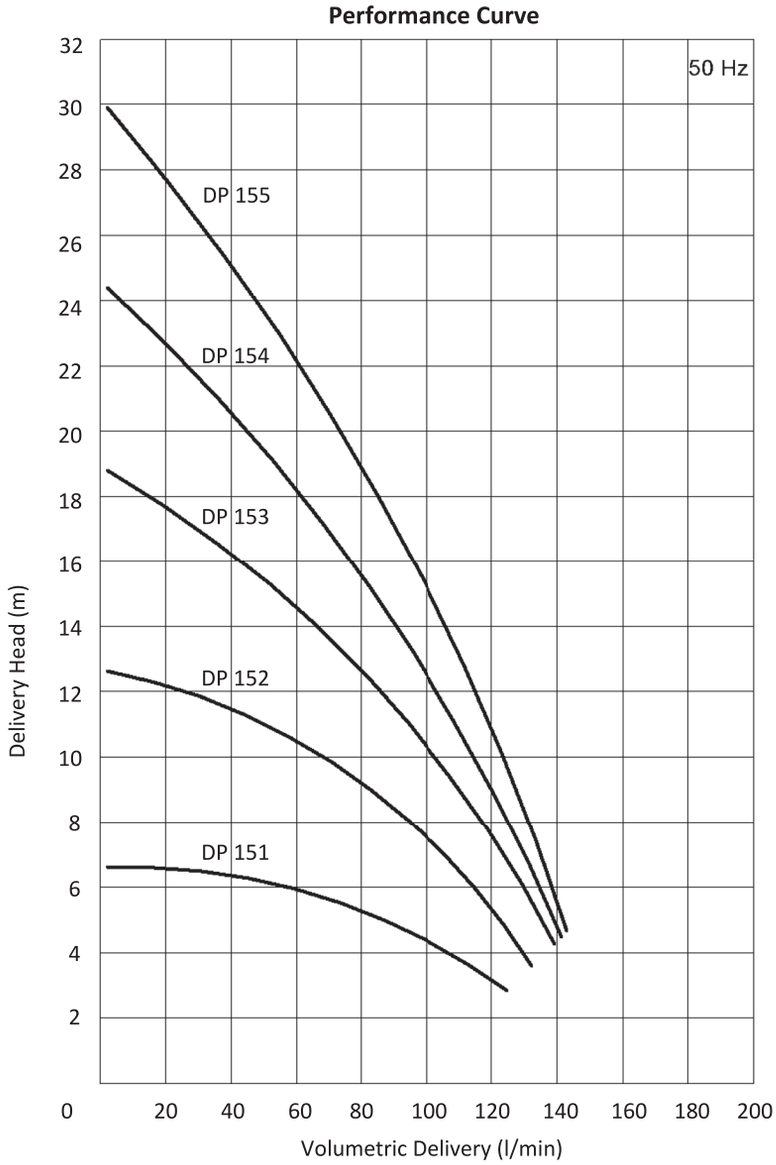
TYPE	Depth of Immersion h (mm)	a	b	c	Weight kg	Power kW	Voltage V(Δ/Y)	Frequency Hz	Rated current A	Speed rpm
		mm								
DP 151/120	120	113	216	87	3.8	0.18	230/400	50	0.85/0.49	2820
DP 151/170	170				3.9					
DP 151/220	220				4.0					
DP 151/270	270				4.1					
DP 152/160	160	124	240	104	4.9	0.37	230/400	50	2.16/1.25	2820
DP 152/210	210				5.0					
DP 152/260	260				5.1					
DP 152/310	310				5.2					
DP 153/200	200	138	265	111	7.0	0.55	230/400	50	2.25/1.3	2780
DP 153/250	250				7.1					
DP 153/300	300				7.2					
DP 153/350	350				7.3					
DP 154/240	240	138	265	111	7.1	0.55	230/400	50	2.25/1.3	2780
DP 154/290	290				7.2					
DP 154/340	340				7.3					
DP 154/390	390				7.4					
DP 155/280	280	138	265	111	8.1	0.75	230/400	50	3.12/1.8	2820
DP 155/330	330				8.2					
DP 155/380	380				8.3					

* Pump dimensions according to EN 12157.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B.

Performance Curve



T PUMP

Applications:

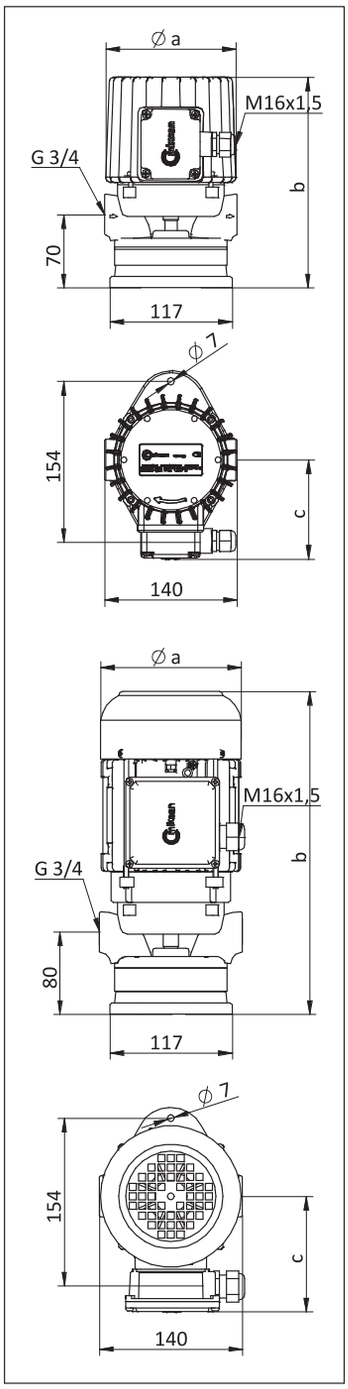
- Cutting, turning, milling, boring, grinding and similar applications of the machine tools,
- Band sawing machines,
- Circulation systems. T Pumps are used for pumping of cutting / cooling fluids.

Fluid Specifications:

- Coolants,
- Cutting oils,
- Grinding oils,
- Fluid temperature 0...80 °C
- Kinematic viscosity 1...60 mm^2/s

Materials:

Pump body	: Cast iron - DIN GG 25
Volute	: Cast iron - DIN GG 25
Impeller	: Brass
Pump shaft	: Engineering steel - AISI 1040 (DIN C35)
Mechanical seal	: C - SiC - Viton
Electric motor	: 3 phase induction motor 2 pole, 2900 rpm Protection degree IP 55



DIMENSIONS & NOMINAL VALUES

TYPE	a	b	c	Weight	Power	Voltage	Frequency	Rated current	Speed
	mm			kg	kW	V(Δ/Y)	Hz	A	rpm
T 37	127	206	95	7.2	0.25	230/400	50	1.26/0.73	2760
T 65	138	305	111	10.0	0.55			2.25/1.30	2780

* Pump dimensions according to EN 12157.

** The performance curves are based on 1 mm^2/s (cSt) kinematic viscosity values and 997 kg/m^3 density

*** Curve tolerance according to ISO 9906:2012 Grade 3B

Performance Curve