BRINKMANN PUMPS

2012

COOLANT PUMPS

TECHNICAL INFORMATION

COOLING, LUBRICATING,
RINSING, MAINTAINING TEMPERATURES …

Story

BRINKMANN PUMPS represents over 60 years of the highest quality and reliability made in Germany. More than 130 employees worldwide in engineering, research and development and production worldwide work on customer specific solutions with the same goal: exceeding our customers' expectations with every pump.

From a small centrifugal coolant pump for external cooling to the rugged lifting and cutter pumps to the high pressure screw spindle pumps, BRINKMANN PUMPS is the only supplier to cover all your coolant pump needs. Performance and reliability of our pumps over many decades has machine tool designers and manufacturers worldwide convinced of our unsurpassed quality and service.

Engineering

Each BRINKMANN Pump is embedded with often many years of research, including internal and external product development and in-house and field testing.

Being directly in contact with our global customer base, we can continuously deliver innovations and market driven pump solutions. For example, our patented quick suctioning immersion pumps, which are uniquely capable of handling coolants with a high percentage of air-entrainment.

In order to provide custom solutions in a cost effective way, we have developed a highly sophisticated modular design system. This system allows us to quickly and economically develop and customize application specific products for each customer.

PUMPS and EQUIPMENT (Warwick) Limited

Recommendations to choose Coolant Pumps

BRINKMANN PUMPS

PUMPS and EQUIPMENT (Warwick) Limited

Series	Application										Medium								Pollution			Pro-portion of air in the fluid		Perfor-mance			Page
	boring	sawing	milling	turning	grinding	eroding	circulating	tempering	cooling	washing	emulsions	coolants and lubricants	grinding oils	thermal oils	dielectric	water	de-ionized water	less / solvents	coarse	medium	few	normal	increased	lifing	washing	pressuring	
TB16 ... 100	●	●	●	●	●	❍	●				●	●	●	❍	❍			❍		●	●	●		●	●		18–19
TA160 ... 600	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	●	●	❍		❍	●	●	●	●		●	●	●	20–21
TE/STE141 ... 146	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍		●	●	●		●	●	●	22–23
TA/STA301 ... 306	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	●	●	❍		❍	●	●	●	●		●	●	●	24–25
STA401 ... 4500	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	●	●	❍		❍	●	●	●	●		●	●	●	26–39
TL50 ... TAL200	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	40–41
TL/STL141 ... 146	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍		●	●	●	●	●	●	●	42–43
TAL/SAL301 ... 306	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	44–45
SAL401 ... 2500	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	46–57
TGL/SGL331 ... 2200	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	58–67
SFL650 ... 2350	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	68–69
SFC820 ... 2320	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	70–71
SBC820 ... 1120	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●	●	●	●	●	108–109
FT35 ... FTA140	●	●	●	●	●	❍	●				●	●	●	●	●	❍		❍	●	●		●		●	●		72–73
SFT450 ... 3554	●	●	●	●	●	❍	●			❍	●	●	●	●	●	❍		❍	●	●		●		●	●		74–77
TAS301 ... 601	●	●	●	●	●	❍	●				●	●	●	●	●	❍		❍	●	●	●	●		●	●	●	78–79
STS1001	●	●	●	●	●	❍	●				●	●	●	●	●	❍		❍	●	●	●	●		●	●	●	78–79
TAA70 ... 280	●	●	●	●	●	❍	●				●	●	●	●	●	❍		❍	●	●	●			●	●		80–81
BAL/SBA141 ... 2000	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍		●	●	●		●	●	●	84–95
BGL/SBG501 ... 1700	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍		●	●	●	●	●	●	●	96–103
BFL/SBF550 ... 1850	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	❍	●	❍		❍	●	●	●	●		●	●		104–107
TS12 ... 24	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	●	●	❍	❍	❍			●	●			●	●	110–111
TM24 ... 26	●	●	●	●	●	❍	●	❍	❍	❍	●	●	●	●	●	❍		❍			●	●			●	●	110–111
TC25 ... 160	●	●	●	●	❍	❍	●	❍	❍		●	●	●	●	●	❍	❍			❍	●	●			●	●	112–119
(S)TH2 ... 14	●	●	●	●	❍	❍	●	❍	❍	❍	●	●	●	●	●	❍	❍	❍		●	●	●			●	●	122–141
FH2 ... 14	●	●	●	●	❍	❍		❍	❍	❍	●	●	●	●	●	❍	❍	❍		●	●	●			●	●	142–161
TC260 ... 460	●	●	●	●	❍	❍	●	❍	❍	❍	●	●	●	●	●	❍	❍	❍		●	●	●			●	●	162–163
KTF25 ... 83						❍	●	❍	●		●	❍	❍		❍	●	❍				●	●		●	●	●	164–165
KTF151 ... 303						❍	●	❍	●		●	❍	❍		❍	●	❍				●	●		●	●	●	166–167
KTB200						❍	●	❍	●		●	❍	❍		❍	●	❍				●	●		●	●	●	166–167
KC21 ... 60	❍	❍	❍	❍		❍	●	❍	❍	❍	❍		●	❍	❍	●	❍	❍			●	●			●	●	168–169
SB20 ... 60	●	●	●	●	❍	❍	●	❍	❍	❍	●	●	●	❍	❍	❍	❍	❍		❍	●	●			●		170–171
TB40-M ... 100-M								●	●	❍			●	●	❍	❍	❍	❍		●	●	●			●		172–173
B401 ... 501						❍	●	●	❍	❍	●	❍	●	❍	●	●	❍	❍			●	●			●	●	174–175
BMK3 ... BMK4						❍	●	●	❍	❍	●	❍	●	❍	●	●	❍	❍			●	●			●	●	176–177
BFS1 ... TFS6	●	●	●	●	❍						●	●	●	❍							●	●			●	●	178–181
FFS1 ... FFS6	●	●	●	●	❍						●	●	●	❍							●	●			●	●	178–181

● usable ❍ please ask before choice

Technical Information

Electrical Features

Motors acc. to EN 60034

Grade of protection IP55
Type of insulation F
Number of poles 2
Efficiencies EN 60034-30, IE2 ≥ 0.75 kW

	50 Hz		60 Hz	
	220 V – 240 V Δ 380 V – 420 V Y	380 V – 420 V Δ	265 V Δ 460 V Y	460 V Δ
up to 5,5 kW	Standard	●	●	●
7,5 kW – 10 kW	●	Standard	●	●
as of 11 kW	–	Standard	–	●

The voltage tolerance is ±5% in keeping with DIN EN 60034-1.

Special voltages are available upon request:

	200 V	380 V	400 V	415 V	440 V	480 V	500 V	575 V	230 V YY 460 V Y
50 Hz	●	●	●	●	–	–	●	–	–
60 Hz	●	●	●	–	●	●	–	●	●

● Upon request

Other voltages upon request.

Motor sizes of 10 kW are delivered with thermistors as standard.

For the connection of 60 Hz, as well as the choice of the corresponding motor winding, the company will also adapt the hydraulics, e. g. with smaller impellers or dummy stages.

For specialized demands, versions for use with a standardized voltage 50 and 60 Hz (Transformer usage) are possible after consultation with the company,
e. g. 3 x 400 V, ± 5 %, 50 – 60 Hz.

Comparison of motor efficiency classes worldwide

Efficiency Class	New	Europe	North America, Australia, New Zealand
Super premium efficiency	**IE4**	–	–
Premium efficiency	**IE3**	–	NEMA Premium
High efficiency	**IE2**	EFF 1	EPAct
Standard efficiency	**IE1**	EFF 2	–
Below standard efficiency	–	EFF 3	–

IE = International Efficiency

Motors as of 7.5 kW

Motor design permits Y / Δ -starting.

Y / Δ -starting is not obligatory for centrifugal pumps. Screw-spindle pumps for Y / Δ -starting must be started without pressure. Soft-starting devices are an alternative to Y / Δ -starting.

Switching-on frequency

Motors less than 3 kW:
maximum 200 times per hour.

Motors from 3 kW to 5.5 kW:
maximum 40 times per hour.

Motors from 7.5 kW to 10 kW:
maximum 20 times per hour.

Motors 11 kW and higher:
maximum 15 times per hour.

Alternative starting frequency is possible upon request.

Non-European Regulations

Motors up to 10 kW and up to max. 600 V are available as special designs with cUL-certification.

Approval testing is carried out by the Underwriters Laboratories Inc. according to the UL 1004 Electric Motors Standard. The motor‘s rating plate bears the identification:

„Recognized Component Mark for Canada and the United States“.

Motors larger than 10 kW are available upon request with approval testing.

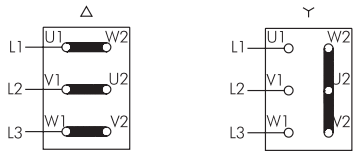
Additional country-specific approvals upon request.

Technical Information

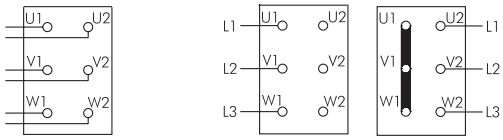
Electrical Features

Circuits

Standard voltage changing Y / Δ
e. g. 220–240 / 380–420 V, 50 Hz
Δ (Delta Connection) Y (Star Connection)



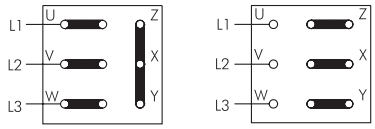
Optional
Pole-changing motor 4/2 poles Y/ Y Y
for 50 % reduced revolutions to choice



Dahlander circ. (1500 RPM) (3000 RPM)

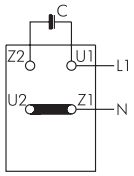
Y / Y Y 4-poles Y 2-poles Y Y
with pole-switch without pole-switch

Voltage changing 1 : 2 Y Y / Y
e. g. 230 / 460 V, 60 Hz



Y Y Y
Low Voltage High Voltage

Optional
Connection to **single-phase**
e. g. 1 x 230 V, 50 Hz:



0.045 kW single-phase
capacitor 5 µF 400 V DB

0.055 kW single-phase
capacitor 5 µF 400 V DB

0.075 kW single-phase
capacitor 5 µF 400 V DB

0.14 kW single-phase
capacitor 5 µF 400 V DB

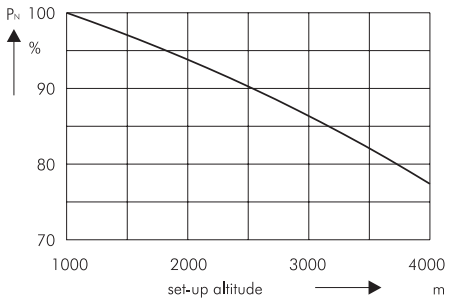
0.22 kW single-phase
capacitor 10 µF 400 V DB

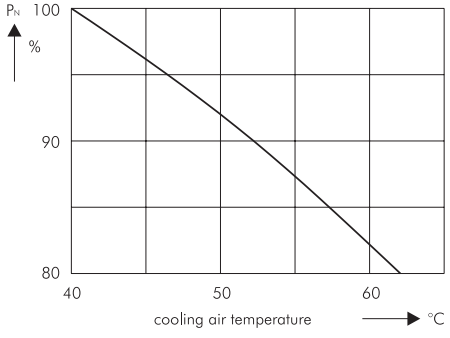
0.28 kW single-phase
capacitor 12 µF 400 V DB

Set-up altitude and coolant temperature

The specified power ratings (P_N) and operating values for the motors apply for operating mode S 1 according to EN 60034-1 (continuous operation) at a frequenzy of 50 Hz, rated voltage, a cooling air temperature (KT) of max. 40 °C and a set-up altidude of up to 1000 m above sea level. The motors can also be used at a cooling air temperature above 40 °C up to max. 60 °C or set-up altitude above 1000 m above sea level. In such cases the power rating must be reduced according to the diagramms, or an appropriately larger motor version or higher heat class has to be selected. However, a deviation from the specified data is necessary when the cooling air temperature is reduced according to table simultaneously at set-up altitudes higher than 1000 m above sea level.

Set-up altitude / m	Maximum cooling air temperature for heat class F / °C
0 up to 1000	40
1000 up to 2000	30
2000 up to 3000	19
3000 up to 4000	9





Noise Levels

The noise levels stated in the catalog are valid for 50 Hz operation. For 60 Hz operation the noise levels are approximately 3 – 4 dBA above those stated. For reduced noise levels special axial motor fan blades are available upon request.

Name Plates

Standard motors according to the IE2 standard are supplied with a second name plate with 60 Hz ratings.

Technical Information

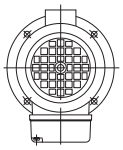
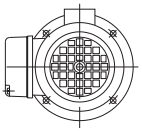
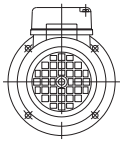
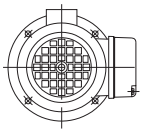
Mechanical/Hydraulic Features

Terminal Box Position acc. to EN 12157

In accordance with EN 12157 the terminal box is positioned above the outlet on immersion and suction pumps:

Position 1 is the standard design for immersion pumps, position 2 for suction pumps, and position 3 for miniature centrifugal pumps.

If a non-standard position is required, please specify details when ordering.

Position	Motor top view
1 	Terminal box opposite pump discharge. Standard version for immersion pumps.
2 	Terminal box on the left of the pump discharge. Standard set-up for suction pumps. For Horizontal End-Suction pumps please refer to page 83.
3 	Terminal box over the pump discharge. Standard version for miniature centrifugal pumps.
4 	Terminal box on the right of the pump discharge.

Lacquering

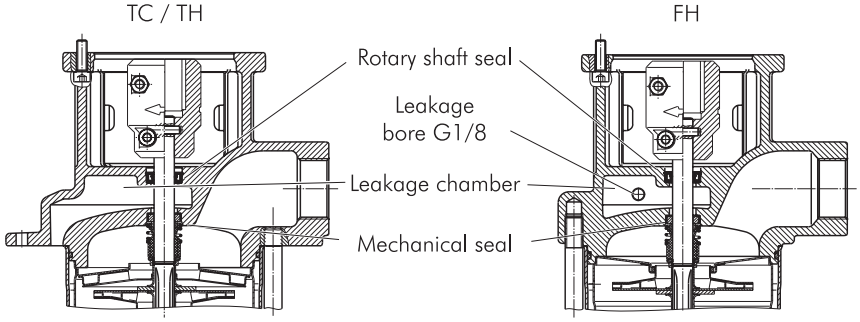
Standard RAL 9005
Other colors available upon request and at an additional cost.

Immersion-depth extension

Immersion depths of the TC and TH pumps can be extended by dummy stages to any immersion depth available in the series without having to change the electrical and hydraulic power.

Example: The pumping rate of the TC63/350 pump is required at an immersion depth of 750 mm.
Solution: TC63/350 – 750

Leakage chamber / Leakage connections



Small leaks flow back through the leakage chamber into the tank without reaching the outside.

By connecting a leakage line it is possible to conduct minor leaks back into the tank.

Technical Information

Hydraulic Features

BRINKMANN's program of coolant pumps offers appropriate design strategy for different applications.

Based upon the **centrifugal pump system**, we offer **immersed pumps** with **open**, **semi-open** and **closed impellers** for different coolants.

Patented quick suctioning pumps **series TL, SAL, SFL, SGL** are provided **for extreme suctioning** of inflated coolants loaded with air.

Vortex pumps series SFT and lifting pumps series SFL **are suitable for coolants with heavy chip loads**.

Suction immersion pumps Series TAS/STS make it possible to connect to vacuum filters because of their single connection on the suction side (for instance, with a slot screen).

Lifting pumps series TAA pump foam-sensitive cooling lubricants.

Immersion pumps series TC, TH for medium pressure get **optimal hydraulic efficiency** due to their **closed impellers**; simple pre-filtration is recommended.

High pressure in coolant systems is provided by **screw pumps using** longwearing **silicon carbide housings**. Please ask for further applications by informing us about working conditions in your devices.

Please note that with all immersion pumps, the **highest fill level of coolant should stay a few inches below** the **fastening flange**.

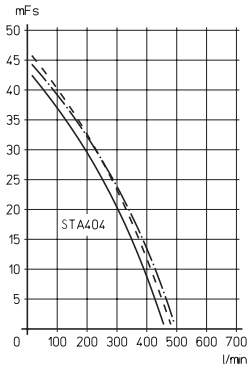
The pump characteristics, shown in this brochure, apply to water at 20° C (1 mm²/s). Rising viscosity needs more power of the motor. Coolants of specific weight less than 1 need less, more than 1 need more power of the motor.

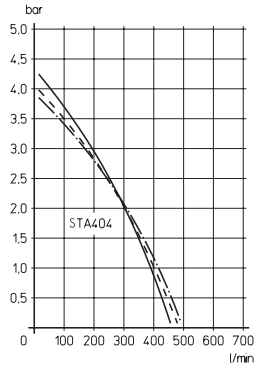
Centrifugal pumps pressure is stated as delivery head in metres (m).

The diagrams of immersion pump types STA404; with semi-open impellers, and TC63/560, with closed impellers, show the rates for coolants of different viscosities and different specific weights in m and bar respectively.

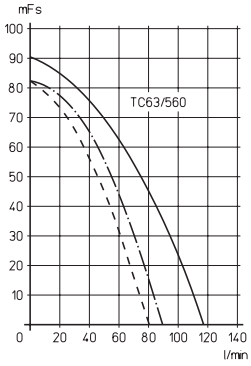
Noise levels refer to 50 Hz operation.

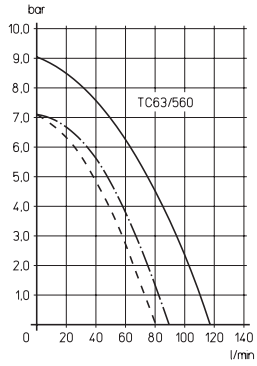
The viscogram shows examples of oils in common use. If required, viscograms can be supplied for oils of any viscosity and pump you currently use.





STA404
with semi-open impellers

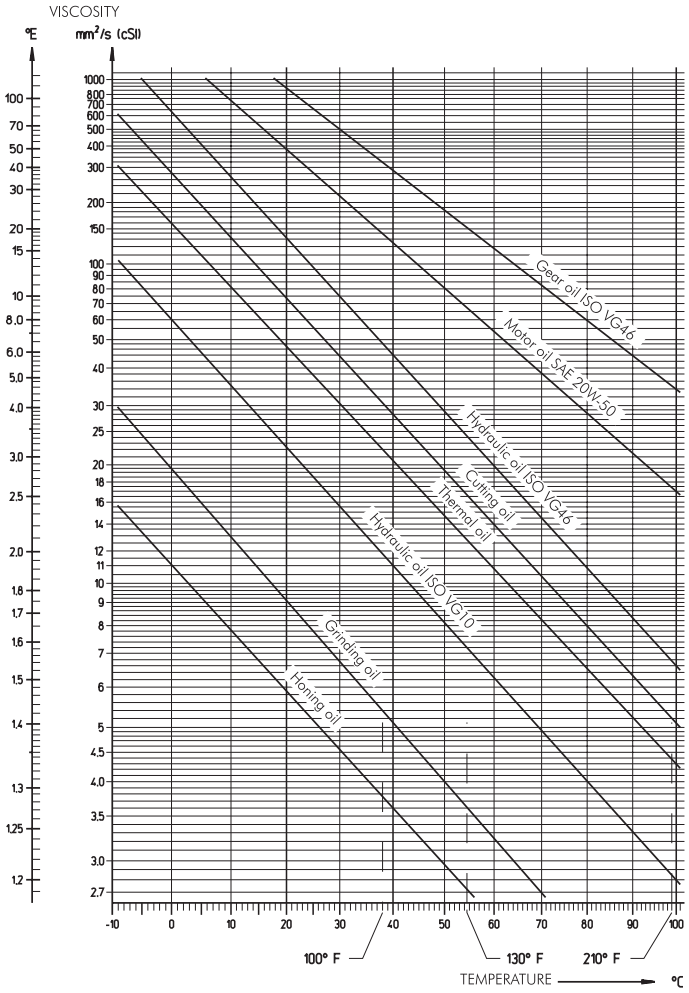




TC63
with closed impellers

Water ———
Oil —·—·— 45 mm²/s spec. weight
Oil – – – – – 90 mm²/s 0,87

Water ———
Oil —·—·— 45 mm²/s spec. weight
Oil – – – – – 90 mm²/s 0,87



Technical Information

Control/Regulation

Brinkmann coolant pumps with frequency converter 1.3 ... 55 kW

Pumps with integrated frequency converter offer the optimum supplement to the existing product line for your application.

With the use of a frequency converter the Q/H curve otherwise typical for centrifugal pumps, is replaced by a performance map. This makes it possible to regulate the pump to various operating points within the performance map, allowing the pump to be optimally matched to your specific application.

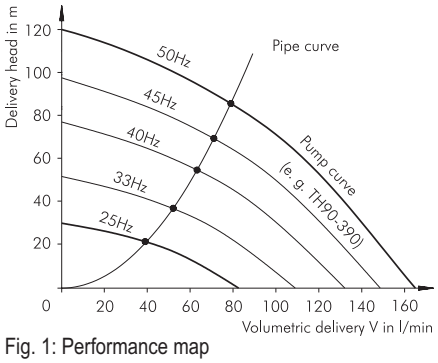


Fig. 1: Performance map

Advantages of pumps with frequency converter:

- Reduction of switch cabinet space requirement
- No shielded leads required (EMC problems)
- Optimum adaptation to various applications
- Low heat transfer to medium (dimensional stability)
- Energy-saving

Pump control

Control is an operation in which a physical value such as pressure or flow rate is influenced by other values.

With a control we also speak of an open effective circuit, because the effect of the control is not monitored.

Interferences occurring in the system cannot be compensated, because the output value has no effect on the input value.

Pumps with integrated frequency converter are always supplied preprogrammed by the manufacturer.

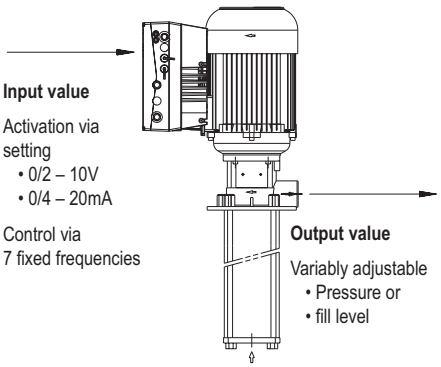


Fig. 2: Control scheme

1. Pump control via analog signal

When the coolant pump is controlled by using a frequency converter, nearly an infinite number of various pressures can be achieved for different tools, for example.

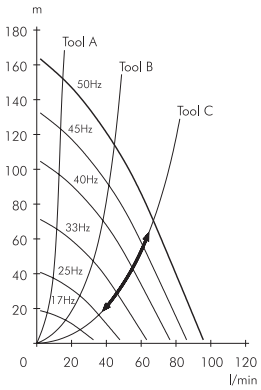


Fig. 3: Analog signal (infinite)

Usually the layout of the pump is limited to the 50 Hz version. Operation at higher frequencies is possible for various pumps with power reserves after conferring with the company.

The frequency converter is then operated at the current limit. This means the motor is operated at the set motor current rating at maximum. If the pump requires more motor power for the operating point, the frequency is reduced until the max. motor current is again achieved.

2. Pump control via fixed frequencies (max. 7)

An alternative to analog pump control is digital control of the frequency converter over 3 digital inputs. Here up to 7 different fixed frequencies can be set.

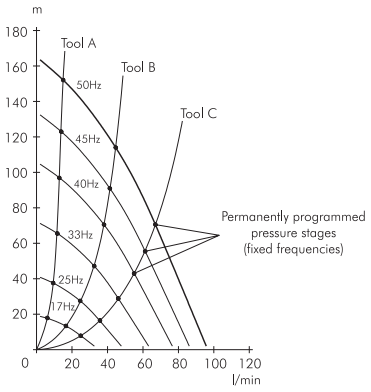


Fig. 4: Fixed frequencies

With fixed frequency control it is possible to realize special pressure stages with one certain tool.

Technical Information

Control/Regulation

3. Pump regulation

Regulation is an operation with which a physical value such as pressure is continuously sensed and compared with a set value. In the event of deviation the regulation device (here a PI controller) provides for the desired adaptation.

With regulation a check is made of whether a desired state is achieved. This allows a previously set pressure to be held constant within certain ranges in a process regardless of the quantities supplied.

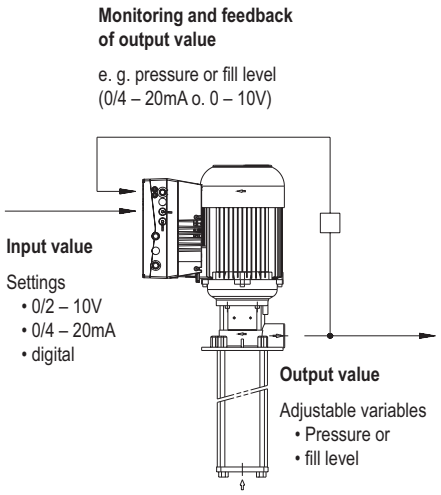


Fig. 5: Scheme of regulation

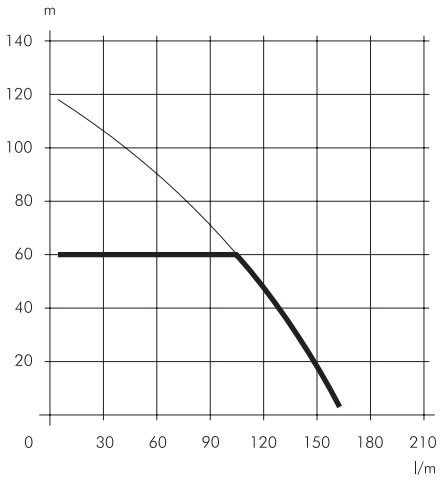
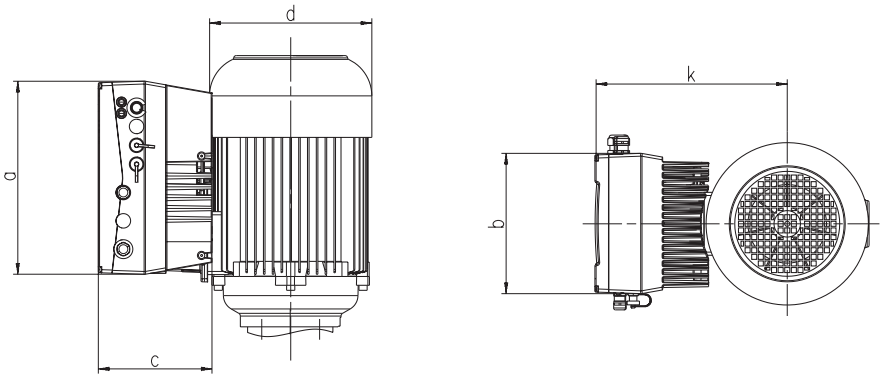


Fig. 6: Pressure regulation limited to max. 6 bar

TECHNICAL DATA Series FKO (1.1 – 7.5 kW)			
Function	**Specification**		
Rated voltage	3AC 400V-15% ... 480V +10%		
Rated frequency	50/60 Hz		
Output ranges	1.5 kW	2.2 / 3.0 / 4.0 kW	5.5 / 7.5 kW
Housing size	A	B	C
Protective system	IP 55		
EMV approvals acc. to EN61800-3US	C2		
Temperature range	–10 °C ... +50 °C		
Overload capability	1.5 times rated output current		
Protective functions	undervoltage, overvoltage, I^2t-restriction, short circuit, motor temperature, converter temperature, anti-tilt protection		
Output frequency range	according to layout at factory		
Digital inputs	4		
Fixed frequencies	7		
Digital outputs	2		
Analog inputs	2 analog inputs (0/2 – 10V, 0/4 – 20mA)		
Analog outputs	0..10V (-Imax = 10mA) or 0..20mA (burden R = 500Ω)		
Process control	PID		
Relay outputs	2 x NO contacts 250V AC 2A		
USB interface	USB on plug M12 (RS485/RS232)		
Manual control unit (optional)	MMI with cable		
Bus modules (optional)	Profibus DP, CAN on request		
UL approval	yes		

Dimensions



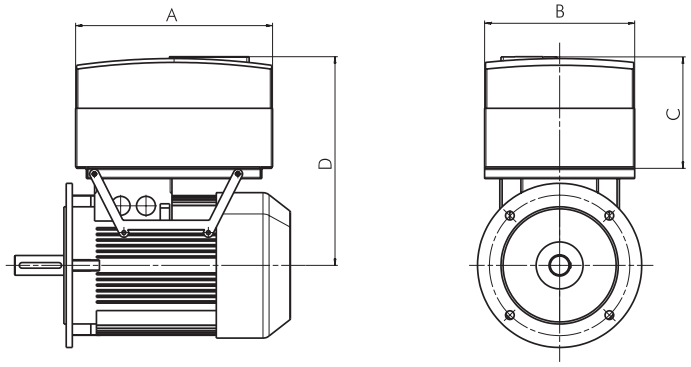
Motor power for Brinkmann pump kW	housing size	a mm	b mm	c mm	d mm	k mm
1,1 – 1,7	A	233	153	120	176	221
1,9 – 4,0	B	270	189	133	218	241
5,0 – 7,5	C	307	233	181	258	256

Technical Information

Control/Regulation

TECHNICAL DATA Series FKS (11 – 55 kW)				
Function	**Specification**			
Rated voltage	3AC 380V ... 480V ±10% 3Phasen			
Rated frequency	50/60 Hz			
Output ranges	1.5 ...3.0 kW	4.0 ...7.5 kW	11 ...22 kW	30 ...55 kW
Housing size	A	B	C	D
Protective system	IP 55			
Filter class A	integrated			
Temperature range	-10 °C ... +40 °C			
Control procedure	U/f			
Overload capability	1.5 times rated output current			
Protective functions	undervoltage, overvoltage, overload, short circuit, motor failure, rotor lockup, excessive motor temperature, excessive converter temperature			
Output frequency range	according to layout at factory			
Digital inputs	6, 4 of these can be parameterised as required			
Fixed frequencies	4			
Fadable frequency ranges	4			
Relay outputs	2 x NO contacts 250V AC 1A			
Analog inputs	2 analog inputs (0/2 – 10V, 0/4 – 20mA), 1 input for PI controller			
Serial interface	RS 232			
Process control	PI			
Multiple pump configuration	up to 6 pumps			
UL approval	no			

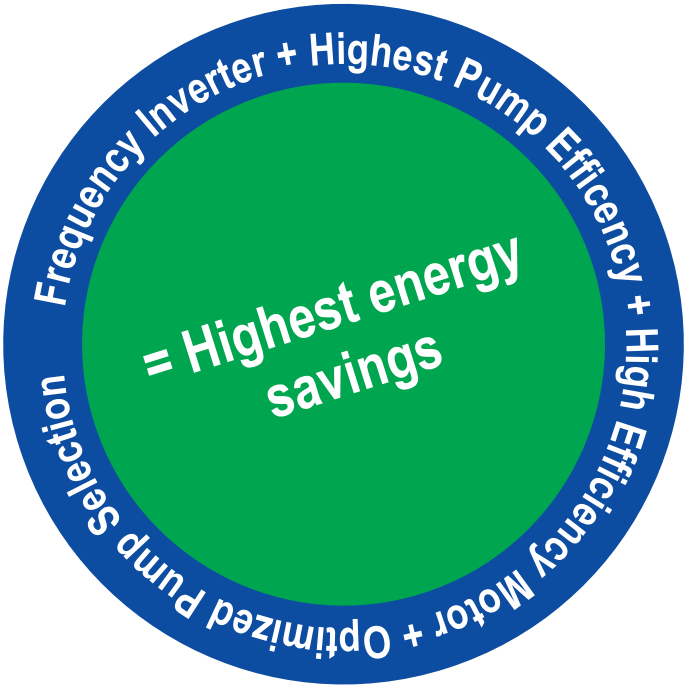
Dimensions



Motor power for Standard pump kW	housing size	A mm	B mm	C mm	D mm
1,5 – 3	A	260	190	158	286
4 – 7,5	B	325	250	170	343
11 – 18,5	C	420	320	235	440
22	C	420	320	235	515
30 – 37	D	600	450	290	610
45	D	600	450	290	635
55	D	600	450	290	667

Technical Information

Potentials for energy savings



Energy consumption is influenced by:	Energy saving by:
Pump efficiency	– highest screw spindle pump efficiency – semi and closed impeller pumps
Motor efficiency	– high efficiency motors (IE2)
Frequency inverter	– adjusting of the working point based on various applications
Right pump selection / working point	– customer training – BPtubes – calculation program
Application / Fluids	– highest pump and curve variety

Technical Information

DESINA

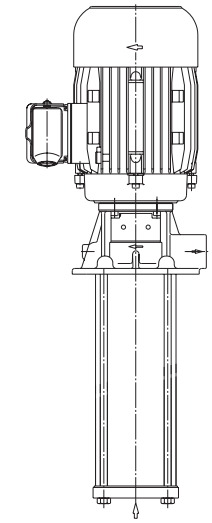
DESINA – DEcentral and Standardized INstAllation technology

DESINA includes a complete concept for standardization and decentralization of the electronic and fluid technical installation of machines and systems. The specifications for the required components were defined in cooperation between the machine tool industry, automotive and supplier industry.

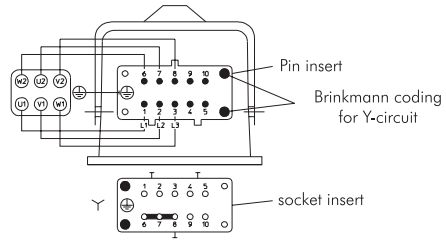
DESINA considers proven solutions such as open bus systems, industrial standards for connectors, etc.

By standardizing components, interfaces and connection elements it is possible to achieve highly varying field bus systems on a common physical basis.

Pin assignment for HAN 10-pin connector for pumps with motors up to 5.5 kW

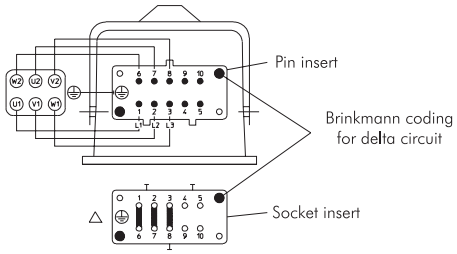


Star circuit

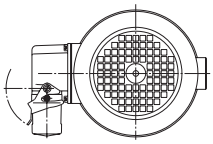


Jumper inserted into counter connector.

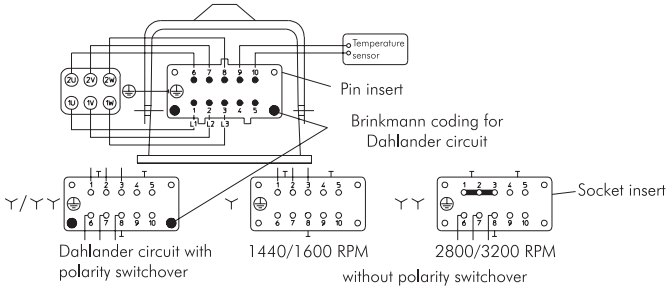
Delta circuit



Jumps inserted into counter connector.

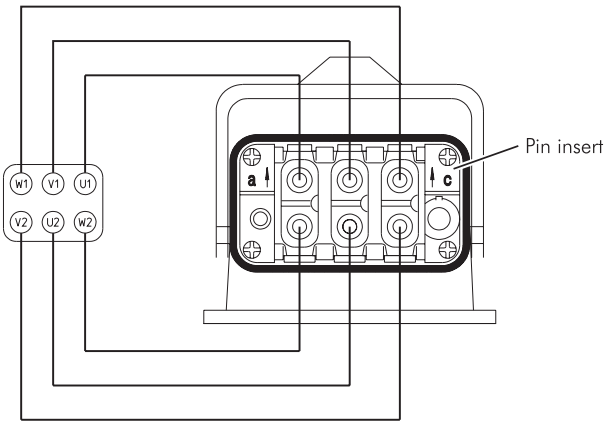


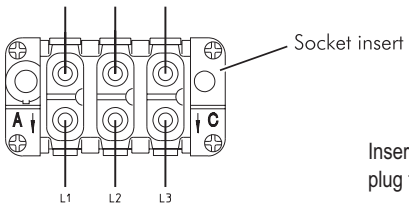
Dahlander circuit



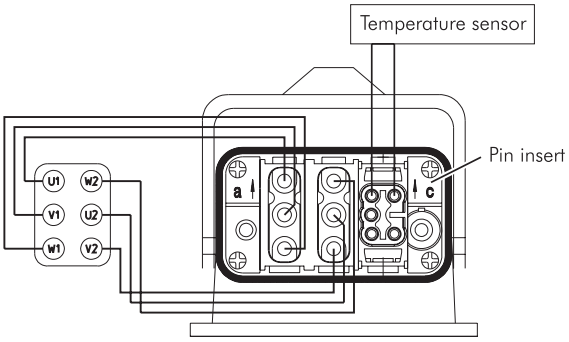
Jumper inserted into counter connector.

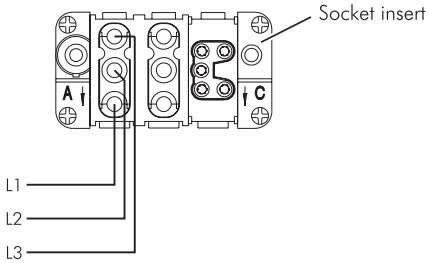
Assignment for HAN modular plug connector for pumps with motors from 7.5 kW to 10 kW





Version with thermistor:





Insert jumper in the counter plug for delta connection.

Technical Information

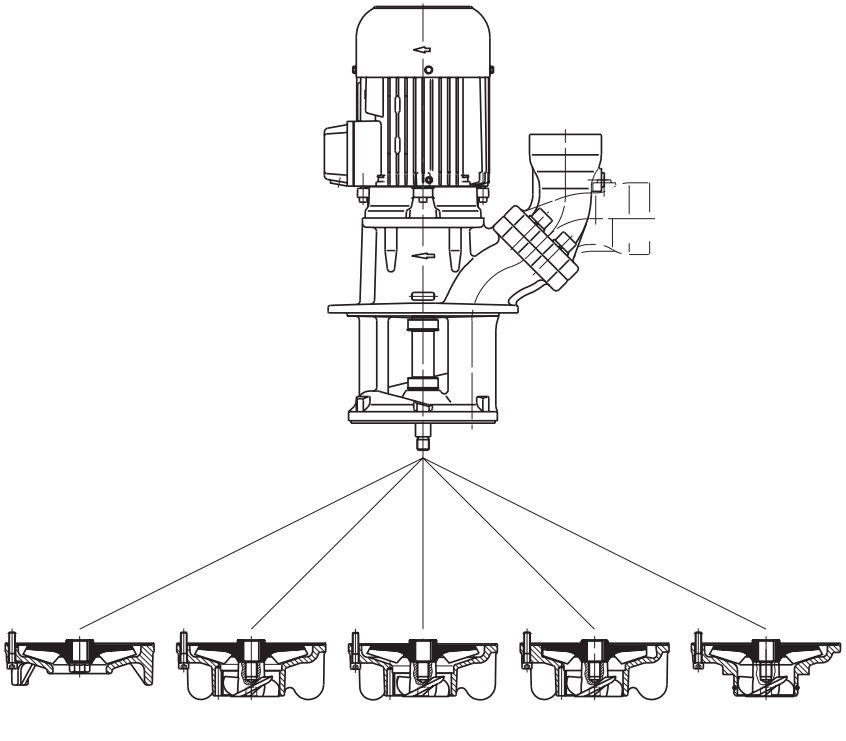
Lifting pump versions ST...

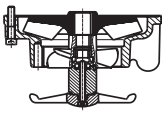
The comprehensive hydraulic module system ensures optimum adaptation to your specific application requirements.

Depending on whether emulsion or oil is to serve as the coolant during mechanical processing, the features described below can be implemented as selected; if desired even with integrated frequency converter.

The range includes standard lifting pumps such as the STA900 with 10 mm sphere size passage as well as the classic Vortex pumps such as the SFT1100 with a 50 mm sphere size passage and extends all the way to the cutter pump with its integrated cutting mechanism. All pumps are equipped with a 45 degree flange which allows for a either vertical or horizontal pipe connection and which offers a G ¼ port for the connection of a pressure gauge.

Lifting pump versions ST...





SFL and **SGL** pumps are also available with an additional agitator at the pump suction. The agitator can either be supplied directly with the pump assembly or is available as a separate component for installation in the field at a later date.

STA	SAL	SFL	SGL	STS
Immersion pumps Lifting pump for standard applications	**Quick suctioning immersion pumps** Lifting pump for **emulsions with some percentage of air** Quick suctioning feature	**Quick suctioning immersion pumps** Lifting pump for **emulsions/oil with increased percentage of chips** Quick suctioning feature	**Quick suctioning immersion pumps** Lifting pump for **oil with high percentage of air** (fine machining) Quick suctioning feature	**Suction immersion pump** Pump for vacuum filter, e.g. on split sieve basis for vacuums from –0.3 ... –0.5 bar

SFL Lifting pump versions

	Impeller material	Inlet cover material	Slurping mode	Chip handling capabilities	Max. chip to coolant ratio by weight
SFL...Standard	cast steel	special cast iron	yes	coloured metal, aluminium, cast iron	1%
SFL...CM1	CrMo	special cast iron	yes	steel, medium alloyed steel	1%
SFL...CM3	CrMo	CrMo	yes	forged materials high alloyed steels hardened steels	1%
SFL...CM4*)	CrMo	CrMo	yes	forged materials high alloyed steels hardened steels	1%

Type	Chip diameter mm	Chip length mm
SFL 650	8	15
SFL 850	10	20
SFL1150	15	30
SFL1350	15	30
SFL1550	15	30
SFL1850	15	30
SFL2350	25	50

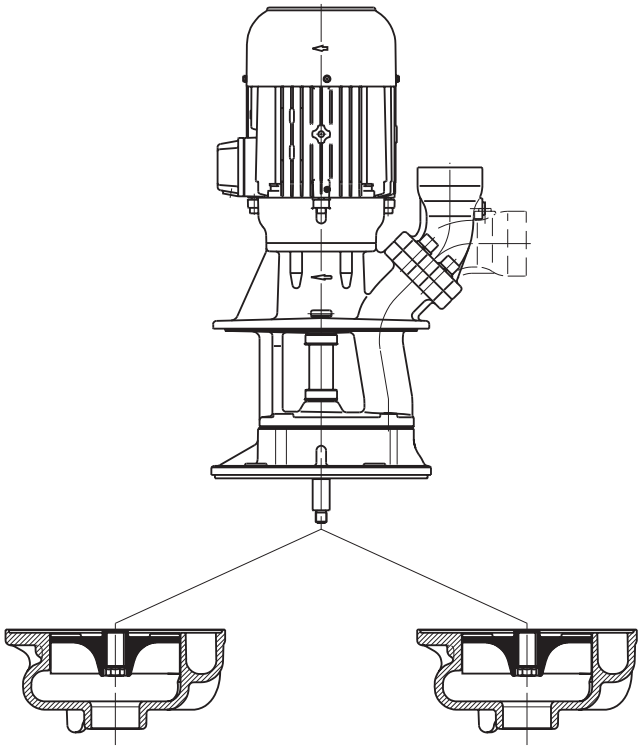
*) additional Chrome Molybdenum insert in circular channel.

All information stated above is only intended as a general guide line for your system layout. Prior to placing your order please consult with our highly skilled sales force regarding your specific application in order to ensure proper pump selection.

Technical Information

Lifting pump versions SFT

Lifting pump versions SFT/SFT-C



SFT

Vortex pumps

Lifting pump for emulsion with large chips
(up to 50 mm sphere size passage)

SFT-C

Vortex pumps

Lifting pump for emulsion with large chips
(40 mm sphere size passage),
without shaft bushing

SFT Lifting pump versions

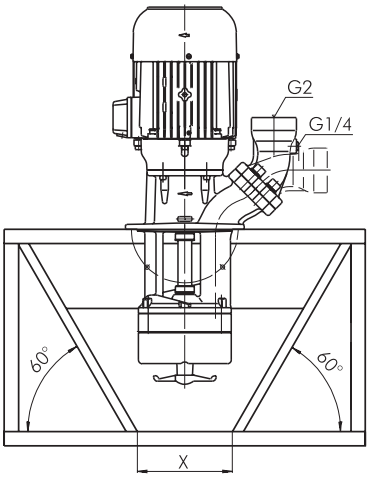
	Impeller material	Inlet cover material	Shaft bushing	Max. chip to coolant ratio by weight	sphere size passage	Chip handling capabilities
SFT 450	Cast steel	Special cast iron	SIC/SIC	1,5%	50	coloured metal aluminium cast iron steel alloyed steel hardened steels forged steels
SFT 710	Cast steel	Special cast iron	SIC/SIC	1,5%	50	
SFT1100	Cast steel	Special cast iron	SIC/SIC	1,5%	50	
SFT1300	Cast steel	Special cast iron	Cartridge	1,5%	45	
SFT1350	Cast steel	Special cast iron	Cartridge	1,5%	45	
SFT1400	Cast steel	Special cast iron	Cartridge	1,5%	45	
SFT2254	Cast steel	Special cast iron	Cartridge	1,5%	45	
SFT3054	Cast steel	Special cast iron	Cartridge	1,5%	45	
SFT3554	Cast steel	Special cast iron	Cartridge	1,5%	45	
SFT1554-C	Cast steel	Special cast iron	–	1,5%	40	

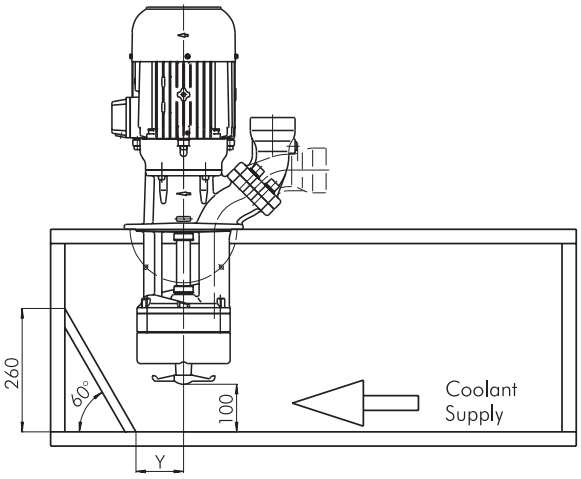
All information stated above is only intended as a general guide line for your system layout. Prior to placing your order please consult with our highly skilled sales force regarding your specific application in order to ensure proper pump selection.

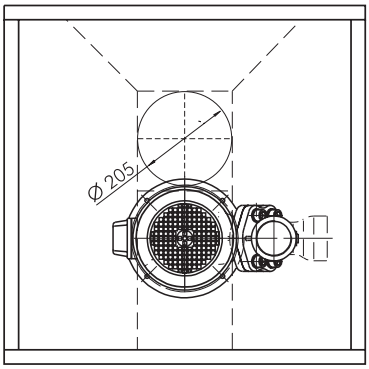
Technical Information

Lifting pump versions SFC

Cutter Pumps SFC







Type	X mm	Y mm
SFC 820	200	100
SFC1120	200	100
SFC1520	275	140
SFC1820	275	140
SFC2320	275	140

The SFC series cutter pumps are capable of cutting aluminum chips and similar materials and pumping of these materials along with the coolant fluid. An agitator located at the pump suction helps to break up and separate any large bundles of chips or birds nests which reach the pump suction.

The hardened cutting unit (>60HRC) is cutting chips and other materials and the above located semi-open impeller allows with its large clearances to pump the particles along with the coolant fluid from the machine back to the filter. The SFC pumps are capable of handling chip to coolant ratios of up to 1.5% by weight.

The cutter pump is equipped with a maintenance free shock absorbing bushing which has outstanding dry running capabilities. Instead of cycling the pumps, the SFC pumps should be run continuously in order to prevent chips from entering the back plane of the impeller.

The minimum distance of 100mm between the bottom of the tank and the agitator must always be maintained in order to prevent unwanted foreign objects, such as broken tool parts, from entering pump and damaging the cutting mechanism. The tank bottom must be checked and any foreign objects must be removed regularly.

The walls of the tank around the pump should be sloped at a 60 degree angle to avoid chips from gathering inside the tank. The coolant supply should be aimed directly at the pump to ensure that also large bundles of chips reach the pump suction (please refer to the above tank design as a guide line for your tank layout).

Pumps of the SFC series have the following unique characteristics:

- Oversized motor to transfer additional cutting forces via the driving shaft if necessary
- Axial impeller which has been optimized for the cutting process
- Adjustable gap between both cutting blades for preventive maintenance (due to stiff motor bearing and shaft design)
- Dry running capability
- Maintenance free and shock absorbing bearing bushing

All information stated above is only intended as a general guide line for your system layout. Prior to placing your order please consult with our highly skilled sales force regarding your specific application in order to ensure proper pump selection.

Technical Information

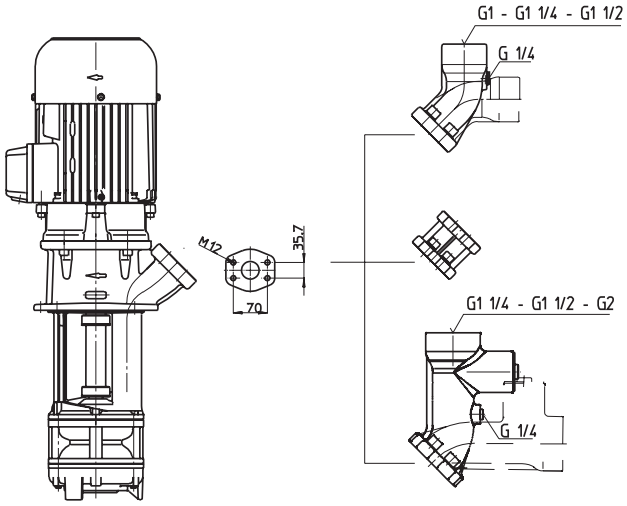
SAE / 45 degree flanges

Brinkmann Pumps with SAE flanges or 45 degree flanges

Most Brinkmann pumps with motors larger than 0.5 kW are equipped with the user friendly SAE flange or 45 degree flange connection which allows for either vertical or horizontal pipe connection.
Each SAE flange or 45 degree flange is equipped with an additional G ¼ pressure gauge connection.

For optimized chip transport and to avoid chip blockages inside the pumps, all flow is directed in long soft turns. All flanges are designed in a way that any cross section changes down stream are always increasing never decreasing in order to prevent bottle necks inside the pump.

Small pump body (Ø 140 mm)



SAE flange G1, G1¼, G1½, G2

Standard as shown on data sheets. Fully interchangeable.
Upon request also available for **TC** and **TH** pumps.

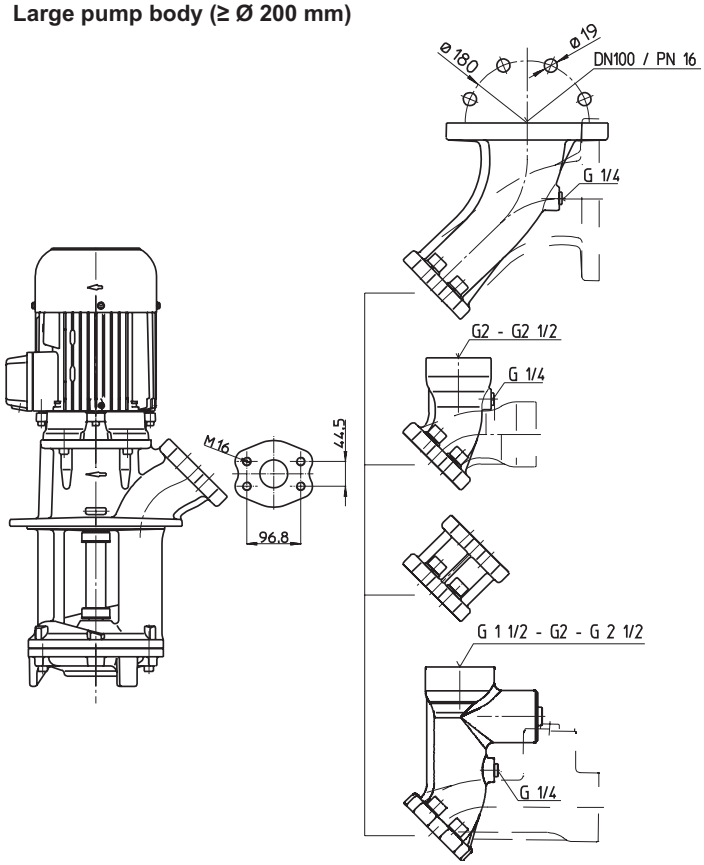
SAE Extension Port

This extension port is available upon request for all pumps which are featuring an SAE flange.

Regulating Valve for SAE flange G1, G1¼, G1½, G2

This regulation valve allows to adjust the flow rate of the pump even during regular operation. This valve has no complete shut off function. An addtional check valve is available upon request.

Large pump body (≥ Ø 200 mm)



Flange DN100/PN16

This flange is available upon request for all pumps which are featuring a 45 degree flange.

45 degree flange G2, G2½

Standard as shown on data sheets.
G 2 is available upon request instead of G 2 ½ without surcharge.

Extension Port for 45 degree flange

This extension port is available upon request for all pumps which are featuring a 45 degree flange.

Regulating Valve for 45 degree flange G1½, G2, G2½

This regulation valve allows to adjust the flow rate of the pump even during regular operation. This valve has no complete shut off function. An addtional check valve is available upon request.

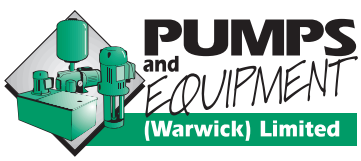
BRINKMANN PUMPS

PUMPS and EQUIPMENT (Warwick) Limited

The combination of state of the art production equipment, along with lean manufacturing processes and a highly skilled and motivated workforce allows for the highest flexibility and availability of parts at the manufacturing site in Werdohl, Germany. The US subsidiary located in Wixom, Michigan was founded in 1997 and the Japanese subsidiary in Kanagawa near Tokyo opened its doors in 2008.

Production

It has always been a core philosophy of BRINKMANN PUMPS to be able to provide the highest level of service worldwide. In order to achieve this goal, all BRINKMANN PUMPS employees globally go through rigorous training programs focusing on various areas, such as, pump applications, proper selection, consulting, service and repair.



Pumps & Equipment (Warwick) Ltd. 6 Collins Road Heathcote Industrial Estate, Warwick CV34 6TF
Telephone: 01926 451744 | Fax: 01926 451284 | www.pumps-equip.co.uk