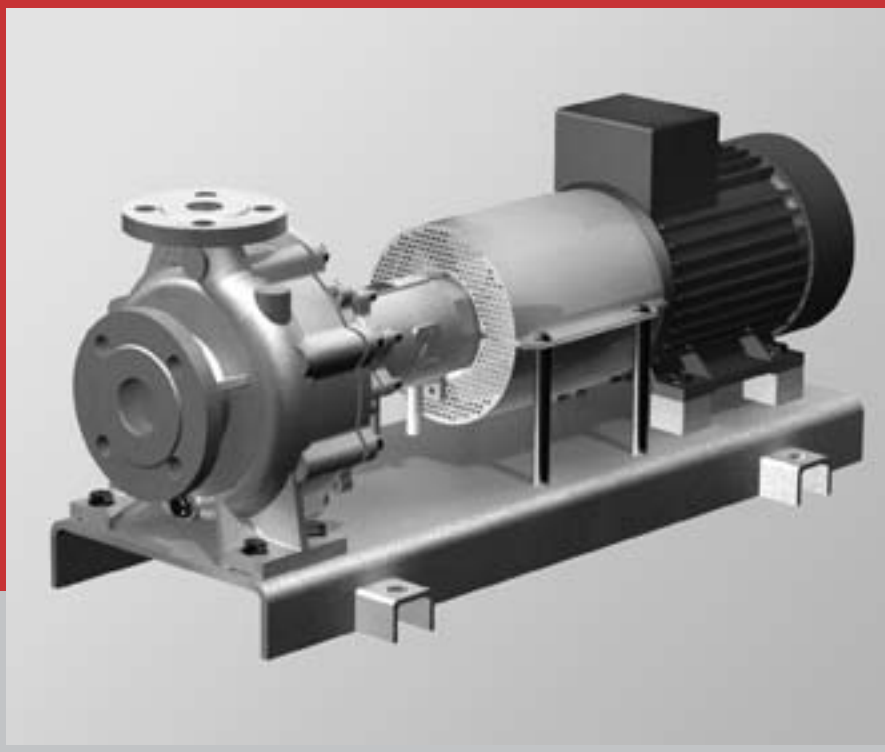
speck pumpen



TOE-GN Series

Heat transfer pumps for heat transfer oils up to 350 °C and hot water up to approx. 160 °C

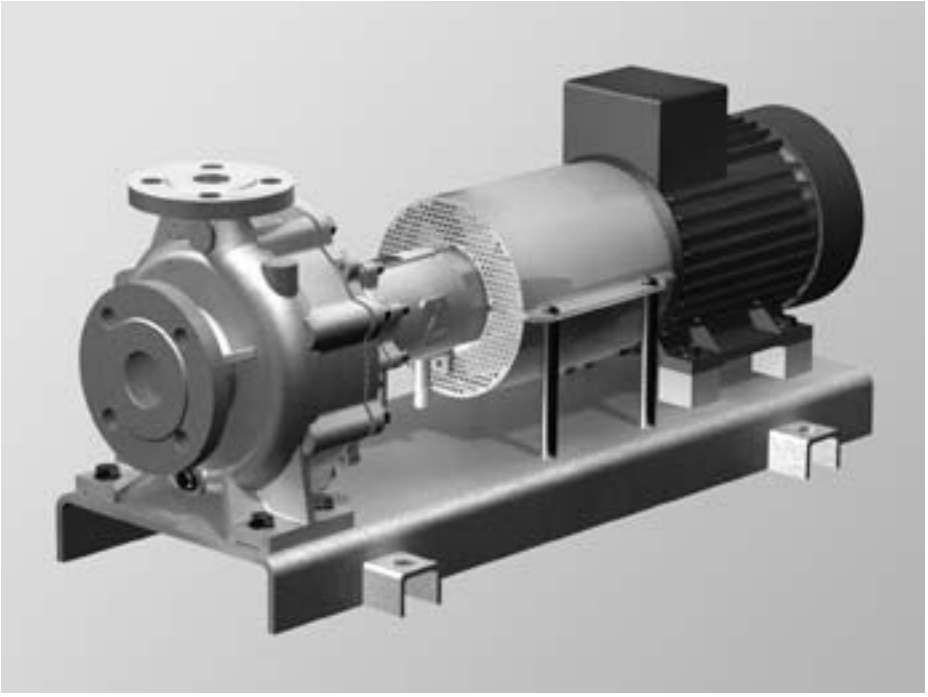
With bearing bracket and mechanical seal
Hydraulic power ratings and casing dimensions in acc. with EN 733

Volute casing PN 16
Bearing bracket 360

TOE-GN Series

Heat transfer pumps for heat transfer oils up to 350 °C and hot water up to approx. 160 °C

With bearing bracket and mechanical seal
Hydraulic power ratings and casing dimensions in acc. with EN 733
Volute casing PN 16, bearing bracket 360



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Usage

Pumps of the TOE-GN series are designed for the transportation and recirculation of organic liquids on mineral oil or synthetic basis in heat transfer plants in acc. with DIN 4754 and of hot water.

They are suitable for pumped media with little non-abrasive contaminations and pumped media which do not chemically attack the pump materials used.

Main applications

The pumps are mainly used in the following industrial sectors:

- Tempering in the plastics and die cast industry
- Baking ovens, large frying units as well as in the production of edible oil and dry mass for the food and feedstuff industries
- Heating of calenders and melting pots in the leather and rubber industry
- Heating of agitator and mixing tanks for the processing of colours, paints and lacquers
- Heating of tanks on stationary and FPSE platforms as well as in tank vessels
- Heating of press lines in the wood and pulp industry
- Flat glass production
- Solar power stations & ORC processes

Operating data

- Flow rate up to approx. 200 m^3/h
- Total heads up to approx. 100 m
- Max. operating temperatures up to + 350 °C

Standard conditions at site

- Relative humidity during continuous operation max. 55%
- Ambient temperature up to + 40 °C
- Permissible altitude up to 1000 m above sea level

Deviations from the site conditions specified herein must already be disclosed in the inquiry.

Flow rate

The permissible operating range of centrifugal pumps depends on

- impeller shape
- speed
- type of liquid
- viscosity
- bearing load
- heat dissipation - particularly with regard to insulated volute casings
- clearance between the net positive suction head of the plant and the pump

The operating range applicable to the TOE-GN series is indicated in the individual characteristic curves and the pump data sheet.

Pump outlet pressure

The pump outlet pressure at the outlet nozzle depends on

- the pump inlet pressure
- the maximum total head of the selected impeller diameter
- the density of the medium to be pumped

The maximum pump outlet pressure $p_{2max\ op}$ is calculated using the formula:

$$p_{2max\ op} = p_{1max\ op} + \rho \cdot g \cdot H \cdot 10^{-5}$$

With:

$p_{2max\ op}$ = maximum pump outlet pressure [bar]

$p_{1max\ op}$ = maximum pump inlet pressure [bar]

ρ = density of the medium to be pumped [kg/m^3]

g = gravitation constant [m/s^2]

H = maximum total head at zero flow or at the peak of the pump´s characteristic curve at the selected impeller diameter [m]

Pumps must be selected and operated in a way which ensures that the maximum pump outlet pressure does by no means exceed the maximum permissible operating pressure of the casing $p_{all\ w\ c}$ at operating temperature.

This also applies to commissioning while the discharge valve is closed (refer to fig. 1).

Pressure and temperature limitations

The maximum casing operating pressure $p_{all\ w\ c}$ of the volute casing and the casing cover depends on the operating temperature:

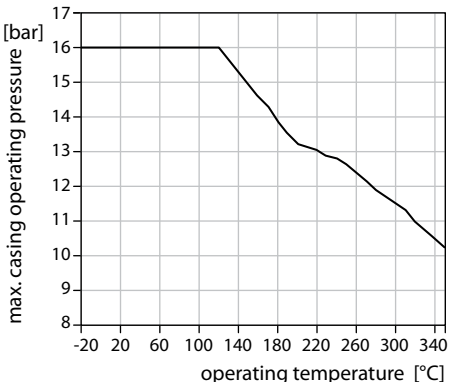


Fig. 1: Maximum permissible casing operating pressure $p_{all\ w\ c}$

Speeds

The operating speed of the pump shaft must not exceed the maximum permissible peripheral speed of the impeller, which corresponds to 48 m/s.

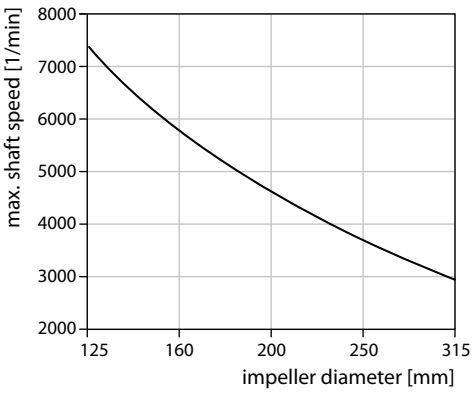


Fig. 2: Maximum permissible shaft speed

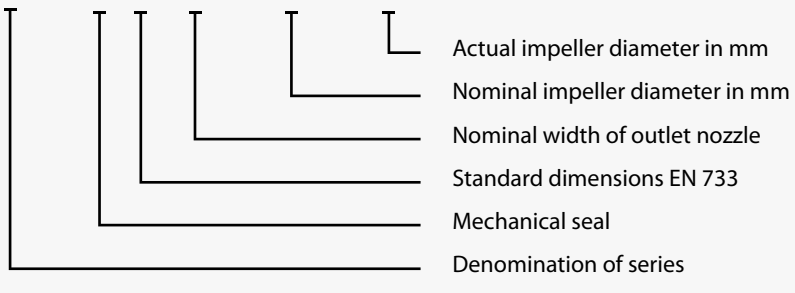
Power transmission on bearing bracket

The maximum transmissible power of all pumps at bearing bracket 360 is 40 kW.

Denomination

The denomination of a centrifugal pump of the TOE-GN series with bearing bracket is illustrated in the following example:

TOE – G N 32 – 160 / 150



Design details

Pumps of the TOE-GN series are horizontal, single-stage, single-entry centrifugal pumps with volute casing, foot-mounted, axial inlet and radial outlet.

The hydraulic power ratings and all dimensions are in accordance with EN 733, 1995 issue.

The tolerances of the mating dimensions are subject to the EN 735 standard.

Allocation of components

Pumps of this series are part of a modular system, whose components can also be used for other pump series.
The complete bearing bracket including the impeller is used in the following series:

TOE-GN - base plate pumps with volute casing featuring axial inlet

TOE-GA - close coupled pumps with volute casing featuring axial inlet

TOE-GI - close coupled pumps with volute casing in inline design

For the parts allocation, refer to page 11.

Materials

Volute casing	EN-GJS-400-15	EN-GJS-400-18-LT
Casing cover	EN-GJS-400-15	EN-GJS-400-18-LT
Impeller	EN-GJL-250	
Mechanical seal housing	EN-GJS-400-15	EN-GJS-400-18-LT
Shaft	1.4122	
Plain bearing	S SiC	
Mechanical seal	AQ_1VGG	

EN-GJS-400-15 = EN-JS1030 = GGG-40
EN-GJS-400-18LT = EN-JS-1025 = GGG-40.3

Tab. 1: Materials

Volute casing

The nominal pressure of the volute casing is PN 16.

The outlet and inlet nozzles are fitted with bosses to allow for the subsequent connection of pressure gauges. These ports are only drilled upon request of the customer.

The volute casings are self-venting and provided with a plugged drain (G 3/8 “) as a standard.

Nozzle positions and flanges

Inlet nozzle	axial
Outlet nozzle	radial to the top
Flange dimensions	EN 1092-2 (for the corresponding dimensions, refer to the dimension chart)

Tab. 2 : Nozzle positions

Casing cover

The casing cover is equipped with torsion-resistant reinforcing ribs, which are designed so that optionally prefabricated insulation segments can be installed.

Shaft and bearing

The shaft is extremely rigid to minimise bending in the area of the plain bearing and the mechanical seal. The hydraulic forces generated during pump operation are compensated in different ways.

The radial reaction forces resulting from radial forces are mainly compensated by the plain bearing, which is positioned close to the impeller. The residual radial forces are transferred to the ball bearing on the atmospheric side.

The plain bearing is lubricated by the medium to be pumped and has been designed for hydrodynamic lubrication.

The hydraulic axial forces are mainly compensated by the back vanes on the impeller. Still available residual forces are balanced by the ball bearing on the coupling side.

The ball bearing is lifetime-lubricated with high-temperature grease and designed for a service life of 17,500 h. The bearing does not allow for re-lubrication and should be replaced before expiration of the indicated period of time.

Shaft sealing

The shaft is sealed against the atmosphere by means of a single-acting mechanical seal in unbalanced design (for materials, refer to tab. 1). The function of this sealing depends on the shaft’s direction of rotation.

Mechanical seal housing

The mechanical seal housing features a vent and drain and can be equipped with a quench reservoir (refer to chapter accessories). If no quench reservoir is provided, a directed leakage evacuation tube is attached.

When the pump is filled for the first time, the vent screw has to be opened until oil escapes. During this process, the shaft should be continuously turned by hand to release trapped air bubbles.

Cooling fan

The coupling half at the pump side is equipped with a cooling fan as a standard, which supports heat dissipation in the area of the ball bearing and the mechanical seal.

Utility connections

For the exact positions and dimensions of the utility connections, refer to the dimension drawings of the pump on pages 8 and 9.

Accessories

Quench reservoir

The task of the quench reservoir is to prevent oxygen from reacting with the seal leakage. This would result in sedimentation on the seal, which might impair its functioning in the long run.

The quench reservoir has to be filled with cold oil with low viscosity (< 10 mm^2/s).

The filling level has to be checked in regular intervals. The quench fluid is sealed against the atmosphere by means of a radial lip seal.

Shaft coupling and coupling guards

When complete base plate aggregates are delivered, double cardanic flexible shaft couplings without spacer are used in acc. with DIN 740.

If couplings with spacers are to be used, this has to be specified accordingly in the order.

The coupling guards meet the requirements of DIN EN 294.

Base plate

Torsion-resistant C profiles with dimensions following the recommendations of DIN 24259.

Drives

Surface-cooled three-phase asynchronous motors for low voltages with cage rotor

- design IM B3
- degree of protection IP 54
- insulation class F
- power ratings and dimensions in acc. with DIN 42673 / IEC 72
- make according to our choice

Other motor versions are available upon request.

If the motors are provided by the customer, a sufficient cooling power of the motor fan must be ensured (> 3 m/s flow rate measured at the motor's bearing shield at the pump side).

Tests

If required, test certificates in acc. with DIN 55350-18 can be provided for the individual tests, which, however, has to be indicated in the order.

Material tests in acc. with EN 10204

The exact scope of the tests (which test for which parts) as well as the type of certificate (certificate of compliance with the order, factory certificate, inspection certificate) must be specified in the order.

Non-specific material tests do not have any impact on the delivery time of the pump.

If specific material tests are required, the delivery time of the pump depends on the availability of raw materials and will be checked on a case-to-case basis. Tests certificates for specific material tests cannot be provided after the raw materials and/or semi-finished goods have been negotiated.

Gas pressure tests

All pressure bearing parts, e.g.

- volute casing
- casing cover
- meachanical seal casing

are subject to a gas pressure test (leakage test)

The gas pressure test is carried out by applying forming gas at 2 bar. The holding time is 15 minutes. By means of this test, the tightness of the parts is proven.

Hydrostatic pressure test

All pressure bearing parts are subject to a pressure test, during which the hydrostatic test pressure (p_{test}) corresponds to 1.3 times the basic design pressure (p_N) at 20 °C, following the recommendations of prEN 12162. The holding time is 10 minutes.

If pressure tests are to be carried out in acc. with other criteria, such criteria must be indicated in the inquiry.

By means of this test, the strength of the parts is proven.

Hydraulic tests (performance curves)

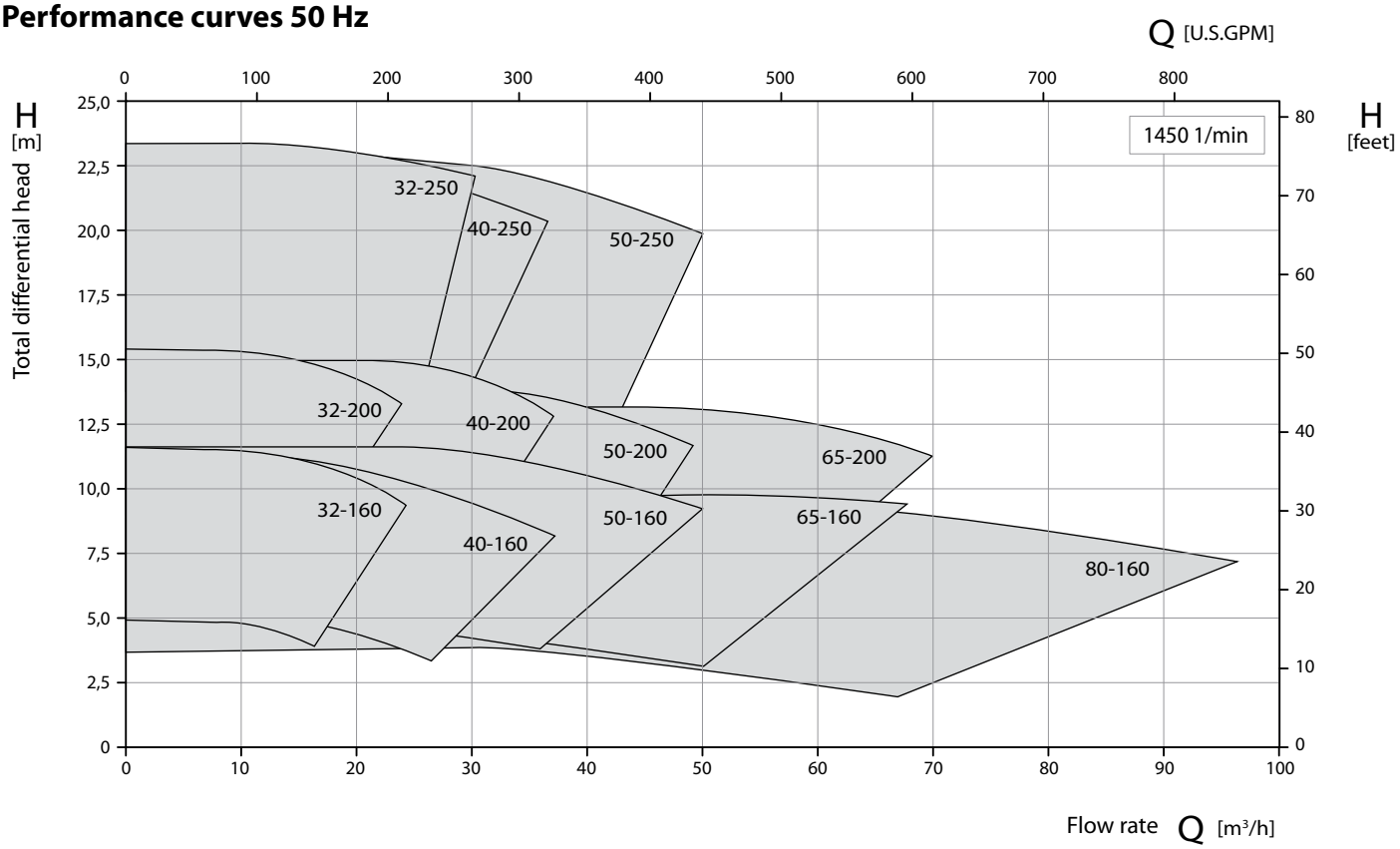
If required, hydraulic tests in acc. with ISO 9906, accuracy class II, can be implemented and the characteristic curves measured for the corresponding impeller diameter documented.

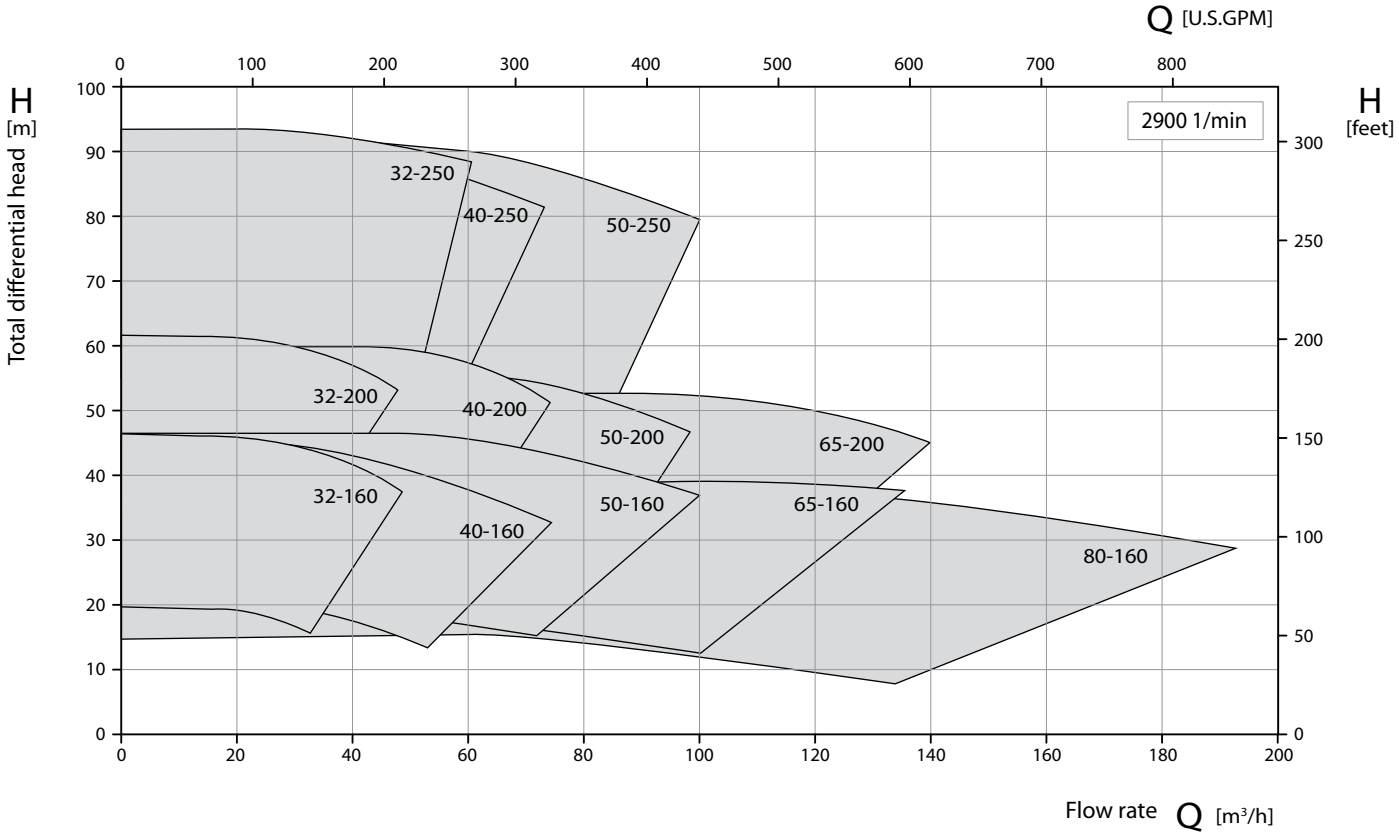
This option has to be indicated accordingly in the order. The purpose of this test is to verify that the duty point of the manufactured pump complies with the contractual duty point.

Painting

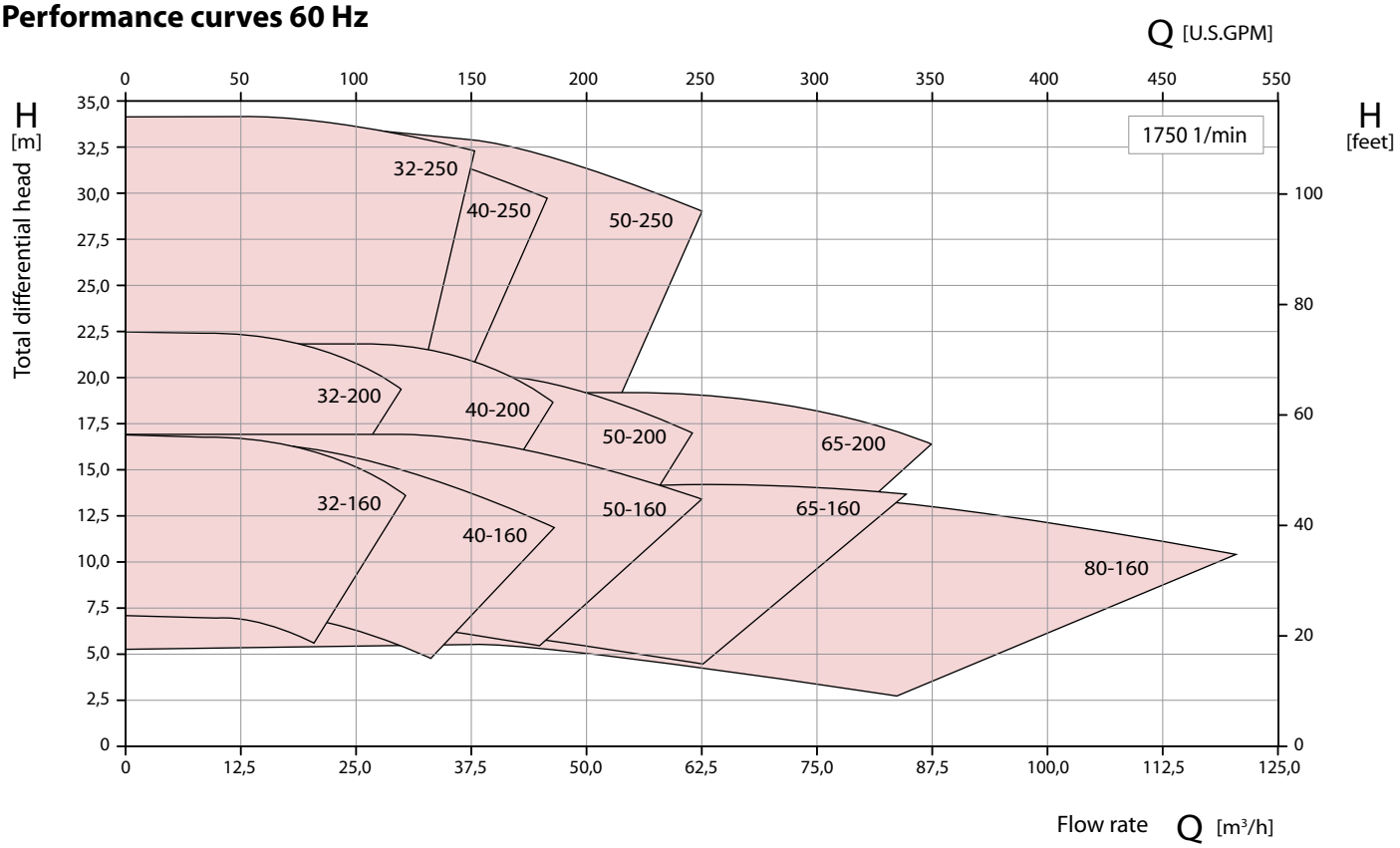
The pumps are coated with highly heat-resistant white aluminium paint, colour code RAL 9006.

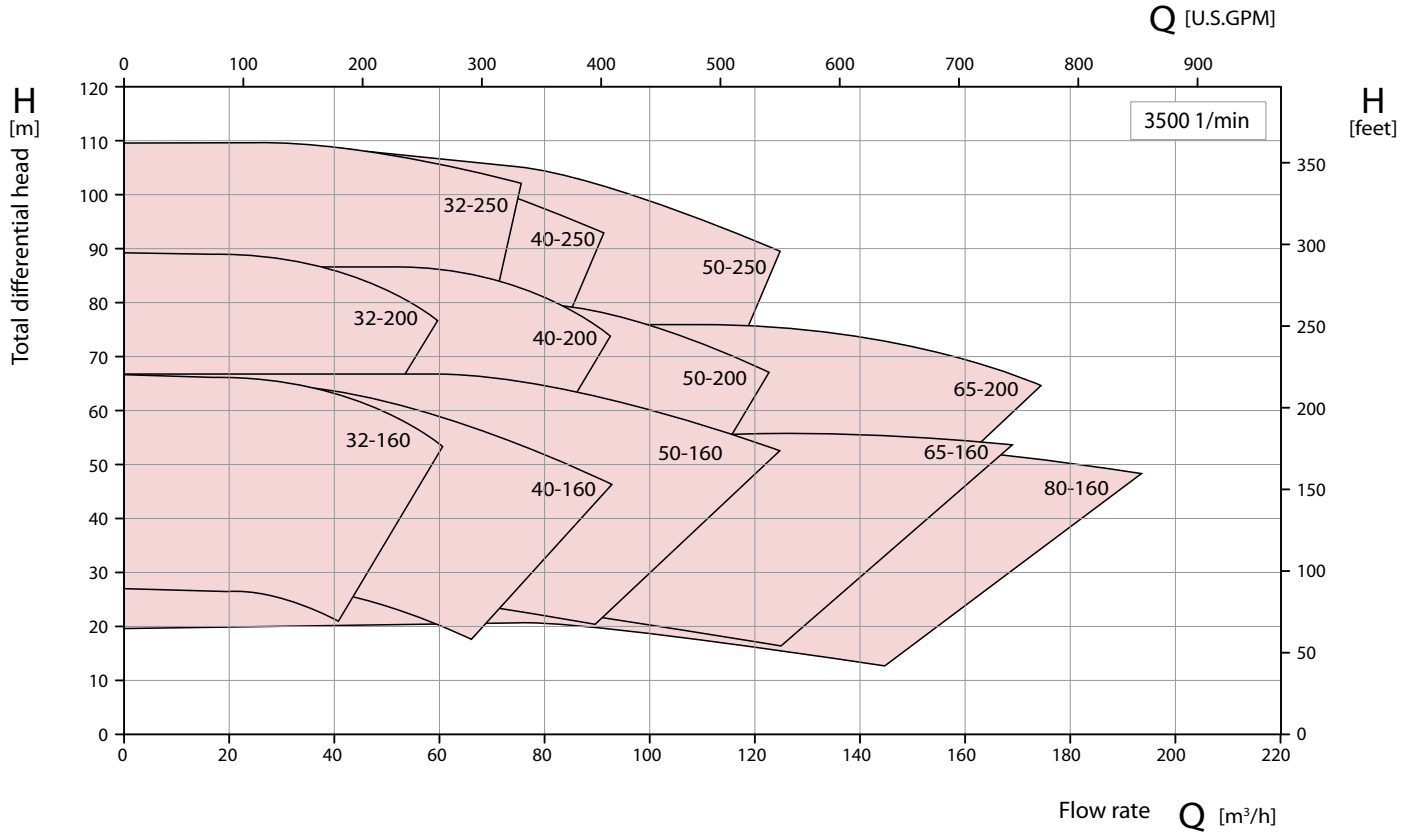
Performance curves 50 Hz



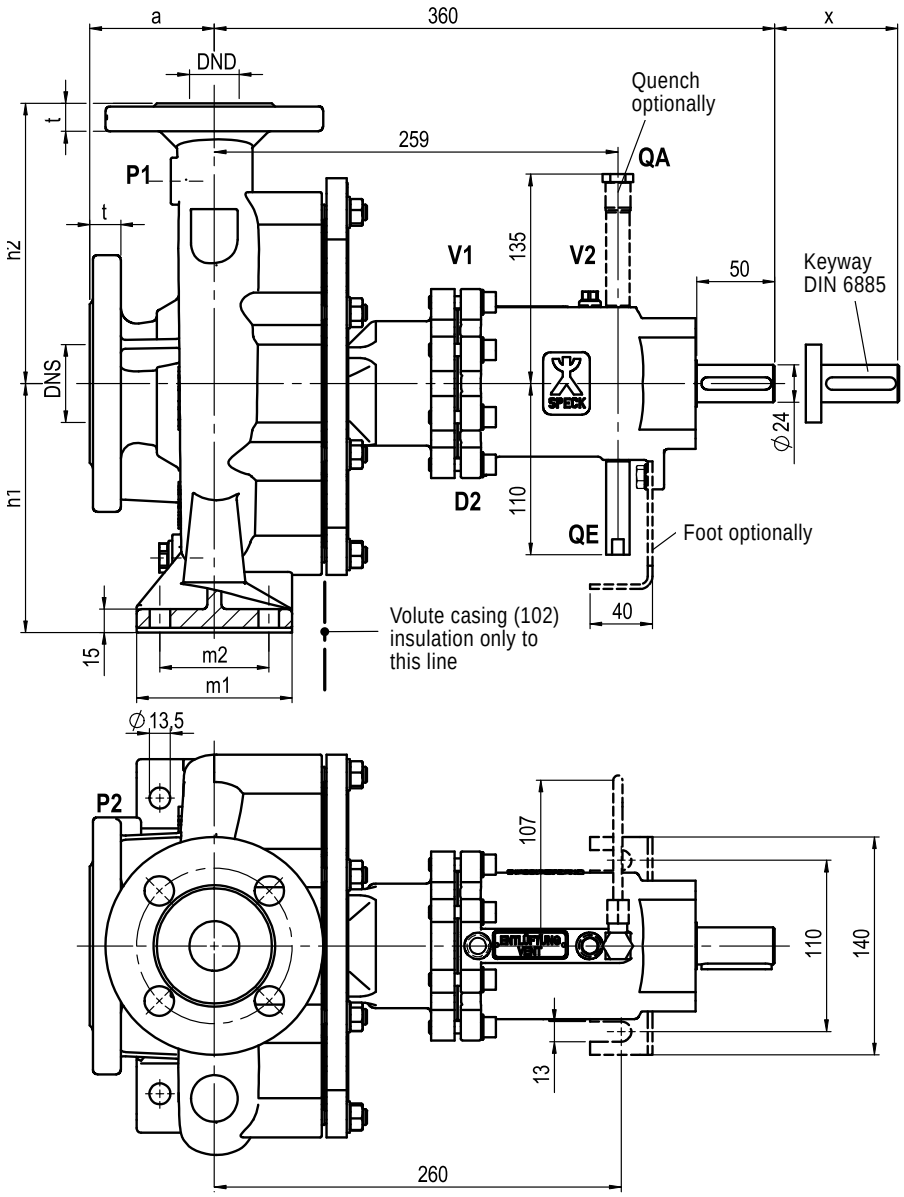


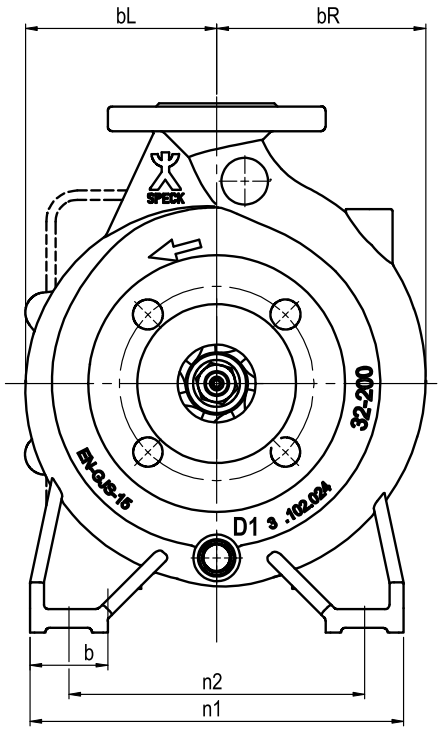
Performance curves 60 Hz



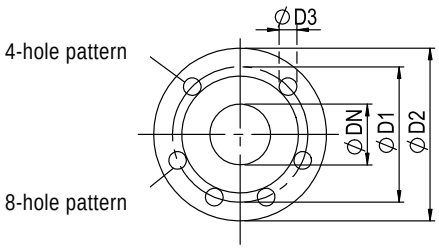


Pump dimensions





Flange dimensions EN 1092-2



Pump	Pump dimensions							Foot dimensions					Pull-out
Size	DNS	DND	a	bL	bR	h1	h2	b	m1	m2	n1	n2	x
32-160	50	32	80	123	123	132	160	50	100	70	240	190	110
32-200					135	160	180						
32-250			100	152	163	180	225	65	125	95	320	250	
40-160	65	40	80	123	129	132	160	50	100	70	240	190	
40-200				127	141	160	180				265	212	
40-250				151	160	180	225	65	125	95	320	250	
50-160				123	136	160	180	50	100	70	265	212	
50-200		50	100	130	148		200						
50-250				157	170	180	225	65	125	95	320	250	
65-160	80	65		124	151	160	200				280	212	
65-200				136	164	180	225				320	250	
80-160	100	80	125	139	174								

Utility connections and flange dimensions

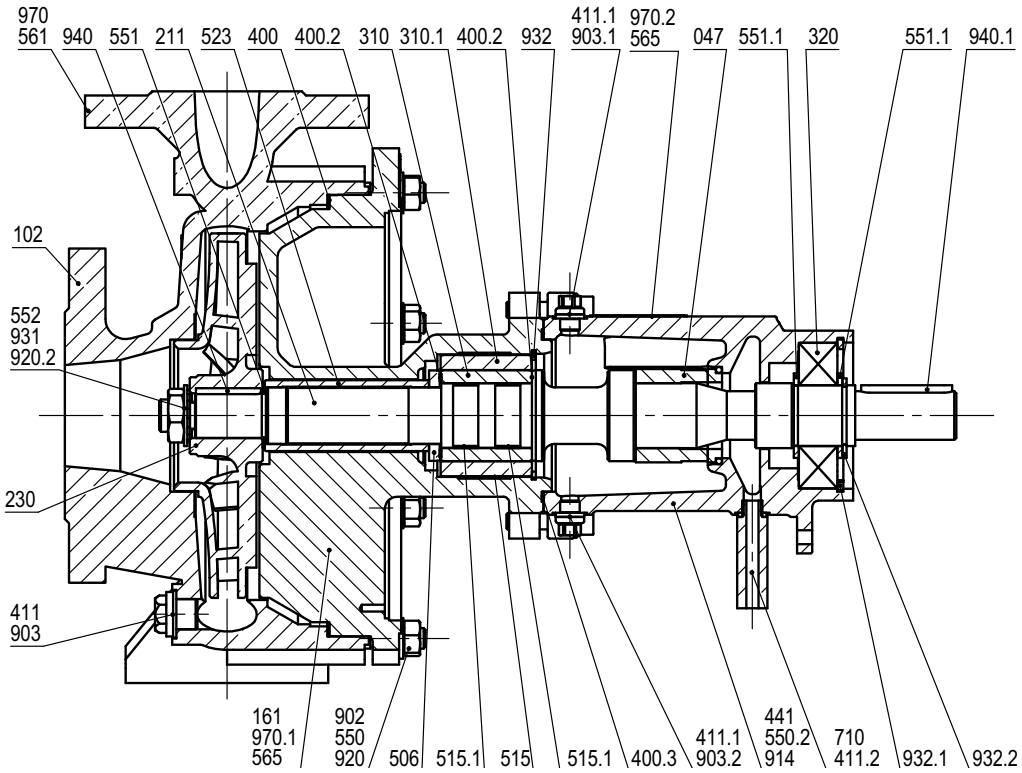
Utility connections

P1	Outlet pressure indicator connection (not drilled)	G 1/4
P2	Inlet pressure indicator connection (not drilled)	G 1/8
V1	Mechanical seal housing vent (at horizontal installations)	G 1/8
V2	Mechanical seal housing vent (at vertical installations)	G 1/8
D1	Volute casing drain	G 3/8
D2	Mechanical seal housing drain	G 1/8
QE	Mechanical seal leakage tube / Quench inlet	G 1/8
QA	Quench outlet	G 1/8

Flange dimensions in acc. with DIN EN 1092-2

øDN	øD2	øD1	t	øD3	Qt. Holes
32	140	100	18	19	4
40	150	110	18		
50	165	125	20		
65	185	145	20		
80	200	160	22		8
100	220	180	24		

Cross-sectional drawing and part list

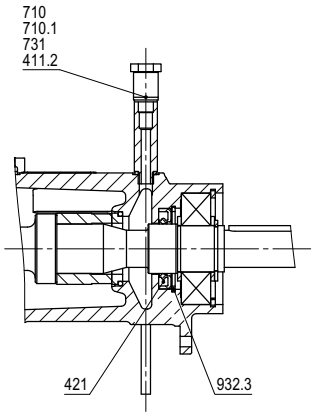


Standard design with nominal impeller diameter 160 and 200 mm

047	Mechanical seal
102	Volute casing
161	Casing cover
211	Shaft
230	Impeller
310, 310.1	Plain bearing
320	Ball bearing
400, 400.2, 400.3	Flat gasket
411-411.2	Ring gasket

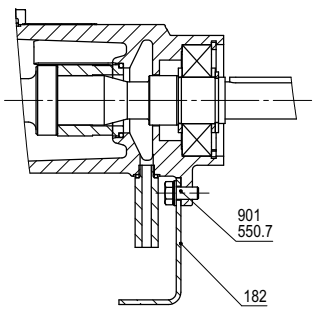
441	Mechanical seal housing
506	Retaining ring
515-515.1	Tolerance ring
523	Shaft bushing
550, 550.2	Washer
551-551.1	Shim washer
552	Disk spring
561	Grooved pin
565	Rivet

710	Tube
902	Stud
903-903.2	Screwed plug
914	Socket head cap screw
920, 920.2	Hexagon nut
931	Lock washer
932-932.2	Lock ring
940-940.1	Key
970-970.2	Plate



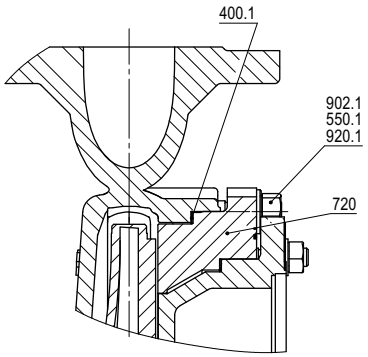
Execution with quench

411.2	Ring gasket
421	Radial shaft seal
710-710.1	Tube
731	Screw joint
932.3	Lock ring



Execution with foot

182	Pump foot
550.7	Disk
901	Hexagon head cap screw



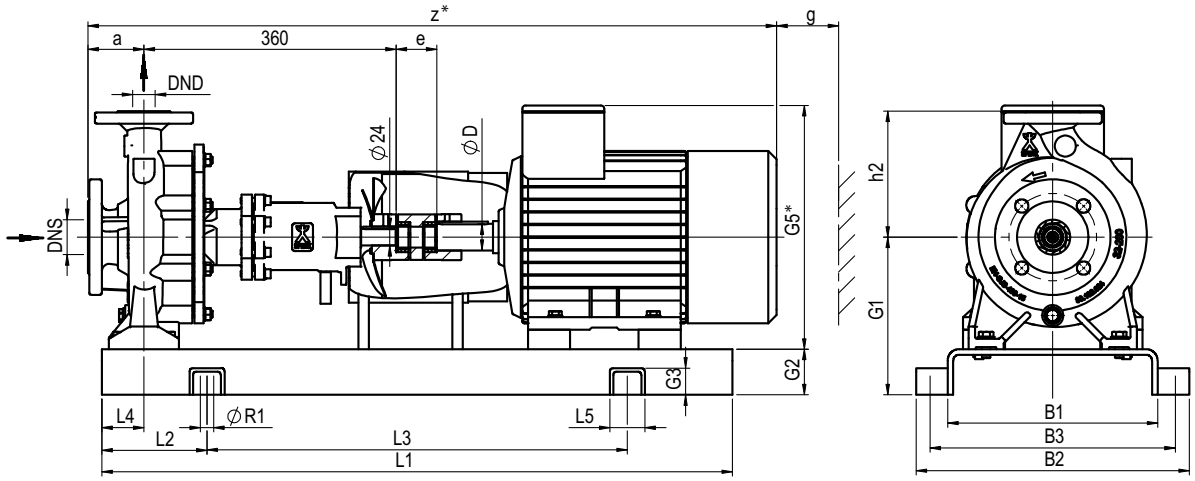
Execution with nom. impeller diameter 250 mm

400.1	Flat gasket
550.1	Disk
720	Adapter flange
902.1	Stud
920.1	Hexagon nut

Interchangeability of parts in between TOE-GN / GA / GI series

Part	Position	Pump type	Pump size											
			32-160	32-200	32-250	40-160	40-200	40-250	50-160	50-200	50-250	65-160	65-200	80-160
Mechanical seal	047	TOE-GN / GA / GI	1											
Volute casing	102	TOE-GN / GA	1	2	3	4	5	6	7	8	9	10	11	12
		TOE-GI	0			1	2	0		3	0		4	0
Casing cover	161	TOE-GN / GA / GI	1											
Shaft	211	TOE-GN / GA / GI	1											
Impeller	230	TOE-GN / GA / GI	1	2	3	4	5	6	7	8	9	10	11	12
Bracket	341	TOE-GN	0											
		TOE-GA / GI	1											
Adapter flange	720	TOE-GN / GA / GI	0		1	0		1	0		1	0		
Flat gasket	400	TOE-GN / GA / GI	1											
Flat gasket	400.3	TOE-GN / GA / GI	0		1	0		1	0		1	0		
Socket head cap screw	914.2	TOE-GN / GA / GI	1		2	1		2	1		2	1		
Other parts		TOE-GN / GA / GI	1											

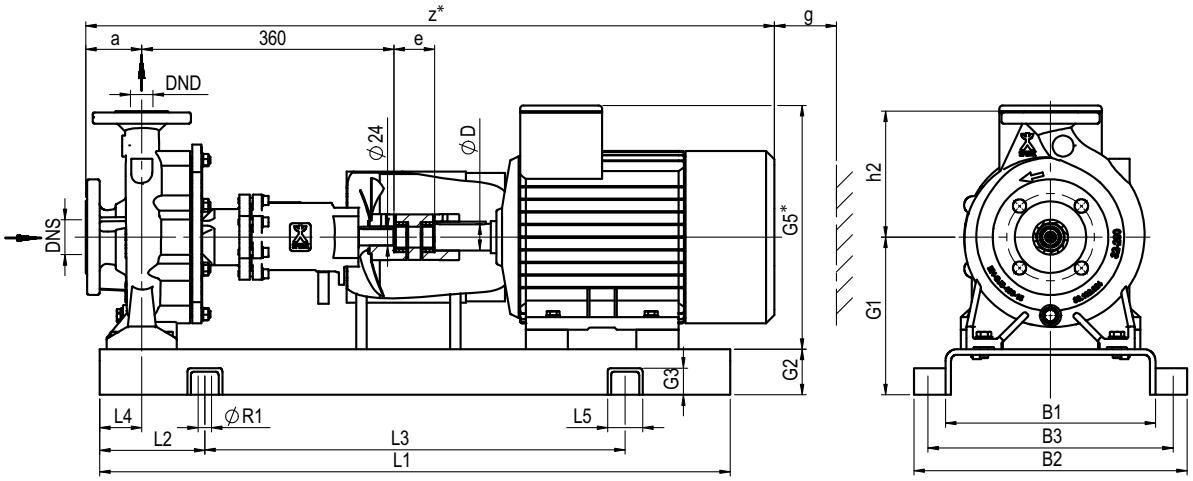
Dimensional drawing (shaft coupling without spacer)



Pump	Motor	Power kW		Pump dimensions				Pump set dimensions																
Size	Size	4-pole	2-pole	DNS	DND	a	h2	z*	e	g	G1	G2	G3	G5*	L1	L2	L3	L4	L5	B1	B2	B3	øR1	øD
		1450 / 1750	2900 / 3500																					
	80	0,55 / 0,75	0,75 / 1,1					777		30				261										19
	90 S	1,1	1,5					776	42	35				280	710	115	480							24
	90L	1,5	2,2					801												270	360	320		
	100L	2,2 / 3	3					855	52	50	197	65	38	287	800	130	540		50				19	28
32-160	112M	4	4	50	32	80	132	872						300				60						
	132 S	5,5	5,5 / 7,5					983	58	100				320	900	150	600			300	390	350		38
	132M	7,5	-																					
	160 M	11	11 / 15					1135	68		240	80	42	410	1120	190	740		65	380	490	440	24	42
	160 L	15	18,5																					
	80	0,55 / 0,75	0,75 / 1,1					777		30				289										19
	90 S	1,1	1,5					776	42	35				308	710	115	480							24
	90L	1,5	2,2					801												270	360	320		
	100L	2,2 / 3	3					855	52	50	197	65	38	315	800	130	540		50				19	28
	112M	4	4					872						328										
32-200	132 S	5,5	5,5 / 7,5	50	32	80	160	983	58	100				348	900	150	600	60		300	390	350		38
	132M	7,5	-																					
	160 M	11	11 / 15					1135	68		240			410						380	490	440		42
	160 L	15	18,5									80	42		1120	190	740		65				24	
	180 M	18,5	22					1202	74	110	260			471						430	540	490		48
	180L	22	-																					
	90 S	1,1	1,5					796	42	35				328	800	130	540							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50				335										28
	112M	4	4					892						348										
	132 S	5,5	5,5 / 7,5					1003	58	100				368	900	150	600			380	490	440		38
32-250	132M	7,5	-	50	32	100	180				260	80	42					70	65				24	
	160 M	11	11 / 15					1155	68					430										42
	160 L	15	18,5												1120	190	740							
	180 M	18,5	22					1222	74	110				471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55

*Dimensions can differ depending on the motor supplier.

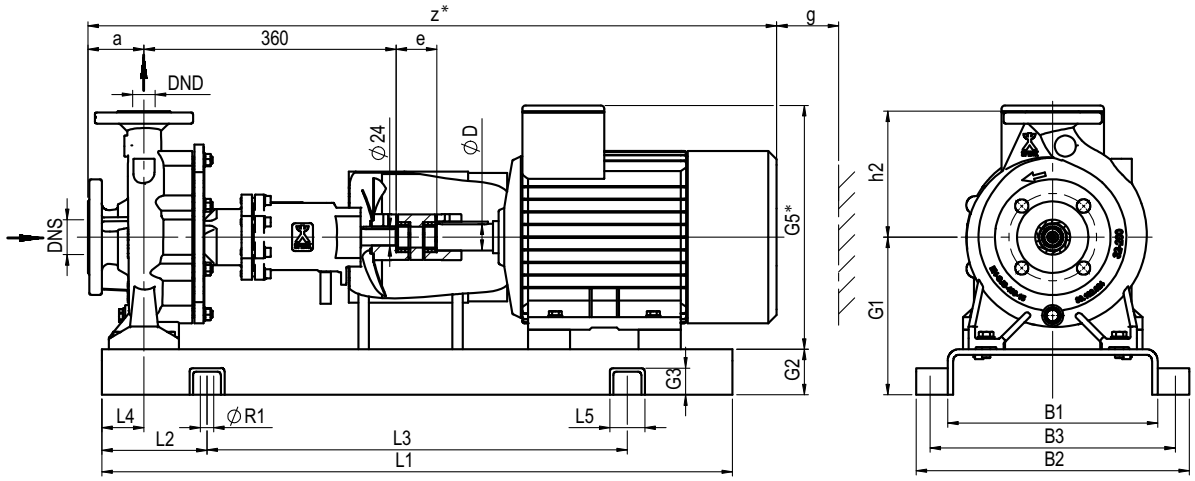
Dimensional drawing (shaft coupling without spacer)



Pump	Motor	Power kW		Pump dimensions				Pump set dimensions																
Size	Size	4-pole	2-pole	DNS	DND	a	h2	z*	e	g	G1	G2	G3	G5*	L1	L2	L3	L4	L5	B1	B2	B3	øR1	øD
		1450 / 1750	2900 / 3500																					
	80	0,55 / 0,75	0,75 / 1,1					777		30				261	710	115	480							19
	90 S	1,1	1,5					776	42	35				280										24
	90L	1,5	2,2					801												270	360	320		
	100L	2,2 / 3	3					855	52	50	197	65	38	287	800	130	540		50				19	28
	112M	4	4					872						300										
40-160	132 S	5,5	5,5 / 7,5	65	40	80	132	983	58	100				320	900	150	600	60		300	390	350		38
	132M	7,5	-																					
	160 M	11	11 / 15					1135	68		240			410						380	490	440		42
	160 L	15	18,5									80	42		1120	190	740		65					
	180 M	18,5	22					1202	74	110	260			471						430	540	490	24	48
	180L	22	-																					
	80	0,55 / 0,75	0,75 / 1,1					797		30				289										19
	90 S	1,1	1,5					796	42	35				308	710	115	480							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50	225	65	38	315	800	130	540		50	300	390	350	19	28
	112M	4	4					892						328										
40-200	132 S	5,5	5,5 / 7,5	65	40	100	160	1003	58	100				348	900	150	600	60						38
	132M	7,5	-											348										
	160 M	11	11 / 15					1155	68		240			410						380	490	440		42
	160 L	15	18,5									80	42		1120	190	740						24	
	180 M	18,5	22					1222	74	110	260			471					65	430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55
	90 S	1,1	1,5					796	42	35				328	800	130	540							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50				335										28
	112M	4	4					892						348										
	132 S	5,5	5,5 / 7,5					1003	58	100				368	900	150	600			380	490	440		38
40-250	132M	7,5	-	65	40	100	180				260	80	42					70	65				24	
	160 M	11	11 / 15					1155	68	100				430										42
	160 L	15	18,5												1120	190	740							
	180 M	18,5	22					1222	74	110				471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550		55

*Dimensions can differ depending on the motor supplier.

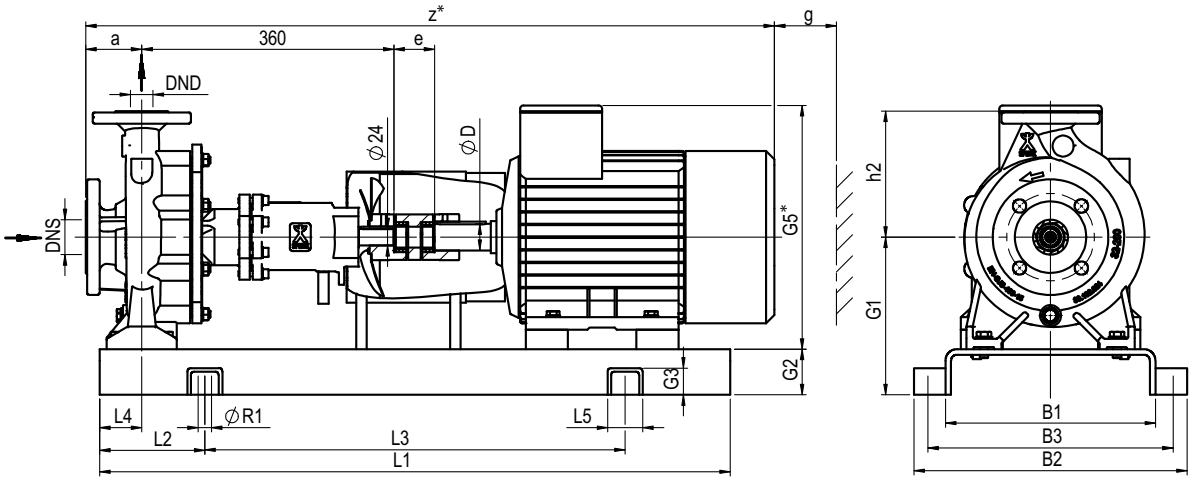
Dimensional drawing (shaft coupling without spacer)



Pump	Motor	Power kW		Pump dimensions				Pump set dimensions																
Size	Size	4-pole	2-pole	DNS	DND	a	h2	z*	e	g	G1	G2	G3	G5*	L1	L2	L3	L4	L5	B1	B2	B3	øR1	øD
		1450 / 1750	2900 / 3500																					
	80	0,55 / 0,75	0,75 / 1,1					797		30				289										19
	90 S	1,1	1,5					796	42	35				308	710	115	480							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50	225	65	38	315	800	130	540		50	300	390	350	19	28
	112M	4	4					892						328										
50-160	132 S	5,5	5,5 / 7,5	65	50	100	160	1003	58	100				348	900	150	600	60						38
	132M	7,5	-																					
	160 M	11	11 / 15					1155	68		240	80	42	410	1120	190	740		65	380	490	440	24	42
	160 L	15	18,5																					
	180 M	18,5	22					1222	74	110	260			471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55
	80	0,55 / 0,75	0,75 / 1,1					797		30				289										19
	90 S	1,1	1,5					796	42	35				308	710	115	480							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50	225	65	38	315	800	130	540		50	300	390	350	19	28
	112M	4	4					892						328										
50-200	132 S	5,5	5,5 / 7,5	65	50	100	160	1003	58	100				348	900	150	600	60						38
	132M	7,5	-																					
	160 M	11	11 / 15					1155	68		240	80	42	410	1120	190	740		65	380	490	440	24	42
	160 L	15	18,5																					
	180 M	18,5	22					1222	74	110	260			471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55
	90 S	1,1	1,5					796	42	35				328	800	130	540							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50				335										28
	112M	4	4					892						348										
	132 S	5,5	5,5 / 7,5					1003	58	100				368	900	150	600			380	490	440		38
50-250	132M	7,5	-	65	50	100	180	1003			260	80	42					70	65				24	
	160 M	11	11 / 15					1155	68					430										42
	160 L	15	18,5					1155							1120	190	740							
	180 M	18,5	22					1222	74	110				471						430	540	490		48
	180L	22	-					1222																
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55

*Dimensions can differ depending on the motor supplier.

Dimensional drawing (shaft coupling without spacer)



Pump	Motor	Power kW		Pump dimensions				Pump set dimensions																
Size	Size	4-pole	2-pole	DNS	DND	a	h2	z*	e	g	G1	G2	G3	G5*	L1	L2	L3	L4	L5	B1	B2	B3	øR1	øD
		1450 / 1750	2900 / 3500																					
	80	0,55 / 0,75	0,75 / 1,1					797		30				289										19
	90 S	1,1	1,5					796	42	35				308	710	115	480							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50	225			315	800	130	540			340	450	400		28
	112M	4	4					892						328										
65-160	132 S	5,5	5,5 / 7,5	80	65	100	160	1003	58	100		80	42	348	900	150	600	70	65				24	38
	132M	7,5	-																					
	160 M	11	11 / 15					1155	68		240			410	1120	190	740			380	490	440		42
	160 L	15	18,5																					
	180 M	18,5	22					1222	74	110	260			471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55
	90 S	1,1	1,5					796	42	35				328	800	130	540							24
	90L	1,5	2,2					821																
	100L	2,2 / 3	3					875	52	50				335										28
	112M	4	4					892						348										
	132 S	5,5	5,5 / 7,5					1003	58	100				368	900	150	600			380	490	440		38
65-200	132M	7,5	-	80	65	100	180				260	80	42					70	65				24	
	160 M	11	11 / 15					1155	68					430										42
	160 L	15	18,5												1120	190	740							
	180 M	18,5	22					1222	74	110				471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1272			300	100		491	1250	205	840			480	610	550	28	55
	90 S	1,1	1,5					821	42	35				328	800	130	540							24
	90L	1,5	2,2					846																
	100L	2,2 / 3	3					900	52	50				335										28
	112M	4	4					917						348										
	132 S	5,5	5,5 / 7,5					1028	58	100				368	900	150	600			380	490	440		38
80-160	132M	7,5	-	100	80	125	180				260	80	42					70	65				24	
	160 M	11	11 / 15					1180	68					430										42
	160 L	15	18,5												1120	190	740							
	180 M	18,5	22					1247	74	110				471						430	540	490		48
	180L	22	-																					
	200 L	30	30 / 37					1297			300	100		491	1250	205	840			480	610	550	28	55

*Dimensions can differ depending on the motor supplier.

Allocation of coupling and base plate

Pump size ▼ / Motor size ▶		80	90S	90L	100L	112M	132S	132M	160M	160L	180M	180L	200L
32-160	Coupling Base plate										-		
32-200	Coupling Base plate	019 1-270		024 2-270									-
40-160	Coupling Base platee						028 3-300						
40-200	Coupling Base plate												
50-160	Coupling Base plate	019 1-300		024 2-300									
50-200	Coupling Base plate								038 5-380				
65-160	Coupling Base plate	019 1-340		024 2-340			028 3-340				042 5-430		
65-200	Coupling Base plate												042 6-480
80-160	Coupling Base plate												
32-250	Coupling Base plate	-	019 2-380	024 3-380			028 3-380						
40-250	Coupling Base plate												
50-250	Coupling Base plate												

Pump data sheet

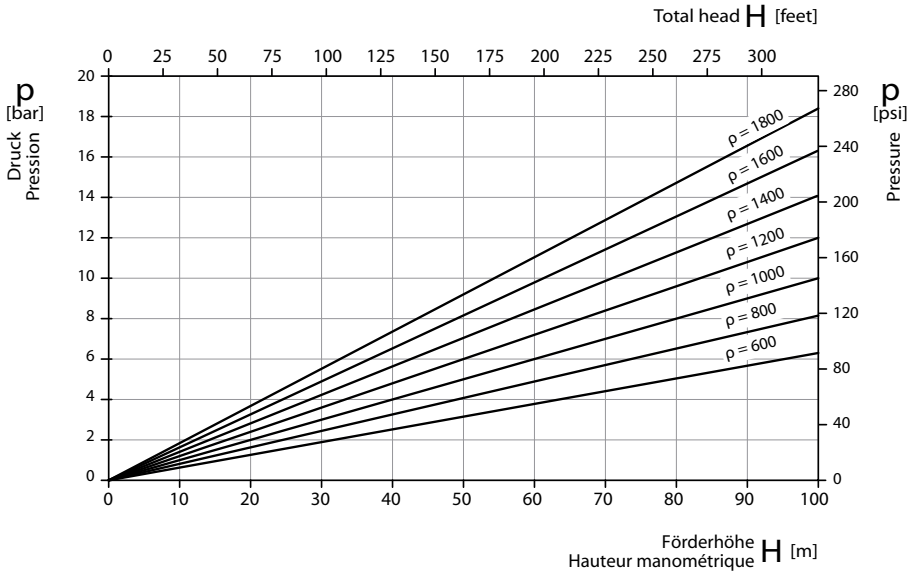
	speck pumpen	**Heat Transfer Pump Technical Data Sheet**								Quotation			
		Pump Model								Date			
										Item			
	SPECK PUMPEN Systemtechnik GmbH												
	Regensburger Ring 6 - 8 D-91154 Roth Tel.: 09171/809-0 Fax: 09171/809-10 www.speck-pumps.de												
1	**Pump Model:**			**Quantity:**									
2	Customer			Location						Page:		of:	pages
3	Phone			Fax						Iss. / Dpt.:			
4	Contact			E-Mail						Phone:			
5	PO			dated						Fax:			
6	Project			Pump No.						E-Mail			
	Installation / Environment												
7	Building / Outside			Altitude		m		Amb. temp		Start-up temp.		rel. Humidity	
8	under roof yes/no			Hazardous area		-		min.:	max:	min.:	°C		%
	Operating (Contractual) Data												
9	Fluid			**Flow rate**	**rated**		m^3/h	Reference Speed			1/min		
10	corrosive matters		Wght.-%		min / max		m^3/h	direction of rotation 1)			-		
11	abrasive matters		Wght.-%	**Pressure**	Inlet		bar (ü)	Hydr. efficiency			%		
12	Solid content		Wght.-%		Disch.		bar (ü)	hydr. power cons.			kW		
13	**Oper. Temp. tA**		°C	**Tot. Diff. Head rated**			m	power loss			kW		
14	**Density @ tA**		kg/m^3	pressure differential			bar	Total abs. power			kW		
15	**Kin. viscosity @tA**		mm^2/s	NPSH	available		m	abs. power at cold start			kW		
16	**Vapor press. @ tA**		bar (a)		required		m	Duty point data to		DIN EN ISO 9906 Cl. 2			
	Pump design												
17	Impeller-Ø		mm	Inlet-nozzle	nom. diam. DN			Bearings	impeller side		coupling side		
18	No of stages		-		location			Type					
19	nom. pressure PN		bar		machined to			Lubrication					
20	max. all. Cas. press. @ tA		bar	Outlet-nozzle	nom. diam. DN			Shaft seal		Mechanical seal			
21	Cooling 'C' / Heating 'H'				location			Type					
22	Volute casing	Casing cover	Bearing bracket		machined to			Size					
23	-	-	-	Sound pressure level 2)		-	dB(A)	Quench yes/no					
	Accessories												
24	AC Electric Motor	Power	kW	Frame		Ex-protection		Coupling	Size/Spacer	/	mm		
25		Frequency	Hz	Enclos.		Make			Make				
26		Voltage	V	Construct.		Delivered by			Type				
27		Nom. Speed	1/min	Current		mounted by		Baseplate					
	Materials												
28	Volute casing			bearing bracket				containm. shell					
29	Casing cover			motor lantern				sleeve bearing					
30	Impeller			cas. wear ring				coupl.+guard		/			
31	Shaft			imp. wear ring				Baseplate					
	Tests and Inspections												
32	**1. Material Tests:**	**Kind of Test**		**Test Certificate** 3)		**4. Other Tests Tests:**		**Wittnessed by:**			**Test Certif.**		
33	1.1 volute casing					4.1 **Hydrost. Pressure Test** 4)							
34	1.2 Cas. Cover					4.2 **Gas Pressure Test**							
35	1.3 Bearing frame					4.3 **Performance curve** 5)							
36	1.4 Impeller					4.4 **Final check**							
37	1.5 Shaft					4.5							
38	1.6					4.6							
	Shipping data 6)												
39	Total net weight appr. kg / Total gross weight appr. kg												
	Documentation												
40	**Dimensional drwg.**	**Cross sect. drwg**		**Performance curve**		**Oper. & Instruct. Man.**		**Other (see attached)**		**Qty each**		**fold**	
41										Language			
	Remarks												
42	= min. information required for quotation												
43	1) = seen from driver to pump 2) = calcul. to EUROPUMP												
44	3) = acc. to EN 10204 4) = volute casing & casing cover												
45	5) = without NPSH-Test 6) = scope of supply see price sheet												
46	Revision:		Issued:					Date:					

Substance data of heat transfer media

	Water		Marlotherm SH		Syltherm XLT		Galden HT 200	
Temperature	ρ Density	v Kinematic viscosity	ρ Density	v Kinematic viscosity	ρ Density	v Kinematic viscosity	ρ Density	v Kinematic viscosity
[°C]	[kg/m³]	[mm²/s]	[kg/m³]	[mm²/s]	[kg/m³]	[mm²/s]	[kg/m³]	[mm²/s]
-40	–	–	–	–	–	–	1935	80,00
0	1000	1,789	1058	321,00	862	2,40	1845	5,20
40	992	0,658	1030	16,50	827	1,34	1755	1,80
100	958	0,294	987	3,10	769	0,73	1625	0,86
150	917	0,201	951	1,60	714	0,50	1520	0,41
160			944	1,40	702	0,48	1490	0,38
180			930	1,20	678	0,43	1445	0,36
200			915	0,92	652	0,40		
220			901	0,77	624	0,37		
240			887	0,65	595	0,35		
260			873	0,57	563	0,34		
280			858	0,50				
300			844	0,45				
320			830	0,40				
340			815	0,36				

Conversion

Reference between height and pressure at different gravities



More information?

Then visit our website, where further catalogues can be downloaded.

Speck Pumpen Production Program

Peripheral Impeller Pumps

- Small Centrifugal Pumps
- Heat Transfer Pumps
- Submersible Pumps

Radial Impeller Pumps

- Small Centrifugal Pumps
- Heat Transfer Pumps with mechanical seal
- Heat Transfer Pumps with magnetic coupling
- Boiler Feed Pumps

Side Channel Pumps

- Pumps - Standard EN 734
- With NPSH-Stage
- Small Pumps

Displacement Pumps

- Roller Vane Pumps
- Gear Pumps
- Oscillating Piston Pump

Liquid Ring Vacuum Pumps

- Close Coupled Version
- Base Plate Version

Deutschland / Germany / Allemagne

Deutschland Ost / East Germany / Est d l'Allemagne
Huckauf Ingenieure
Auerswalder Hauptstraße 2
09244 Lichtenau
Tel.: +(49) 37208 660 80
Fax: +(49) 37208 660 77
info@huckauf.de
www.huckauf.de

Berlin
Huckauf Ingenieure
Fontanepromenade 17
10967 Berlin
Tel.: +(49) 30 890 959 92
Fax: +(49) 30 890 959 91
info@huckauf.de
www.huckauf.de

Hamburg / Hamburg / Hambourg
Ingenieure Willy Wandrach GmbH
Flurstraße 105
22549 Hamburg
Tel.: +(49) 40 398 624 0
Fax: +(49) 40 390 585 5
info@speck-pumpen-roth.de
www.speck-pumpen-roth.de

Hannover, Kassel / Hanover, Kassel / Hanovre, Kassel
IVT – Pumpen GmbH
Zum Wischfeld 1A
31749 Auetal
Tel.: +(49) 5752 929 597
Fax: +(49) 5752 929 599
Mobile: +(49) 172 511 699 9
info@ivt-pumpen.de
www.ivt-pumpen.de

Köln / Cologne / Cologne
Huckauf Ingenieure
Grillenpfad 28
40764 Langenfeld
Tel.: +(49) 2173 914 560
Fax: +(49) 2173 914 588
info@huckauf.de
www.huckauf.de

Bayern, Baden-Württemberg / Bavaria, Baden-Wuerttemberg / Bavière, Bade-Wurtemberg
Speck Pumpen
VERKAUFSGESELLSCHAFT GmbH
Hauptstraße 1 – 3
91233 Neunkirchen a. Sand
Tel.: +(49) 9123 949 – 0
Fax: +(49) 9123 949 – 260
info@speck-pumps.com
www.speck-pumps.com

Service

Deutschland Ost / East Germany / Est d l'Allemagne
FSE Fluid Systems Erfurt
Am Teiche 3
99195 Erfurt/Stotternheim
Tel.: +(49) 36204 739 910
Fax: +(49) 36204 739 919
info@fluidsystems.org
www.fluidsystems.org

Köln / Cologne / Cologne
Arpuma GmbH
Sonnenhang 33
50127 Bergheim
Tel.: +(49) 2271 837 70
Fax: +(49) 2271 837 720
info@arpuma.de
www.arpuma.de

Europa / Europe / Europe

Belgien / Belgium / Belgique
SPECK - Pompen Belgie N.V.
Bierweg 24
9880 Aalter
Tel.: +(32) 937 530 39
Fax: +(32) 932 500 17
info@speckpompen.be
www.speckpompen.be

Bulgarien / Bulgaria / Bulgarie
EVROTECH OOD
54 A, Manastirska Str.
1111 Sofia
Tel.: +(359) 2 971 32 73
Fax: +(359) 2 971 22 88
office@evrotech.com
www.evrotech.com

Dänemark / Denmark / Danemark
Pumpegruppen a/s
Lundtoftegårdsvej 95
2800 Lyngby
Tel.: +(45) 459 371 00
Fax: +(45) 459 347 55
info@pumpegruppen.dk
www.pumpegruppen.dk

Frankreich / France / France
Speck Pompes Industries S.A.
Z.I. Parc d'Activités du Ried
4, rue de l'Energie
B.P. 227
67727 Hoerdt Cedex
Tel.: +(33) 388 682 660
Fax: +(33) 388 681 686
info@speckpi.fr

Griechenland / Greece / Grèce
SPECK Hellas
Salaminos St. 54
17676 Kallithea
Tel.: +(30) 210 956 500 6
Fax: +(30) 210 957 747 3
speck@otenet.gr

Großbritannien / Great Britain / Grand Bretagne
ABC Pump Sales & Services
Subsidiary of ABC Power Tools
Services Ltd.
Units 5/6 & 8
Macon Business Park,
Crewe
Cheshire CW1 6DA
Tel.: +(44) 127 058 933 3
Fax: +(44) 127 058 082 2
admin@speck-abc.com
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Italien / Italy / Italie
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Klaus Union Pompe e Valvole S.r.l.
Via Piave, 17
20027 Rescaldina (MI)
Tel. : +(39) 033 157 982 3
Fax: +(39) 033 157 982 5
info@klausunion.it
www.klausunion.it

Vakuumpumpen / Vacuum pumps / Pompes à vide:
Rio Nanta S.r.l.
Via Mauro Macchi, 42
20124 Milano
Tel. +(39) 028 940 642 1
Fax: +(39) 028 323 913
Mobile: +(39) 339 658 781 6
rionanta@rionanta.it
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Niederlande / Netherlands / Pays Bas
Kreiselpumpen / Centrifugal pumps / Pompes centrifuges:
SPECK - Pompen Nederland B.V.
Postbus 218
6900 AE Zevenaar
Tel.: +(31) 316 331 757
Fax: +(31) 316 528 618
info@speck.nl
www.speck.nl

Vakuumpumpen / Vacuum pumps / Pompes à vide:
DOVAC B.V.
Meer en Duin 228
2163 HD Lisse
Tel.: +(31) 252 423 363
Fax: +(31) 252 417 946
info@dovac.nl
www.dovac.nl

Norwegen / Norway / Norvège
Ing. Per Gjerdrum A/S
P. O. Box 154
Nye Vakasvei 28
1360 Nesbru
Tel.: +(47) 667 756 00
Fax: +(47) 667 756 01
Pg-pumps@pergjerdrum.no
www.pg-marinegroup.com

Österreich / Austria / Autriche
Tuma Pumpensysteme GmbH
Eitnergasse 12
1230 Wien
Tel.: +(43) 191 493 40
Fax.: +(43) 191 493 401 6
contact@tumapumpen.at
www.tumapumpen.at

Polen / Poland / Pologne
E.A. Krupinski Elzbieta Krupinska
ul. Przymiarki 4A
31-764 Krakow
Tel. / Fax: +(48) 126 455 684
biuro@krupinski.krakow.pl
www.krupinski.krakow.pl

Portugal / Portugal / Portugal
Ultra Controlo
Projectos Industriais, Lda.
Quinta Lavi – Armazém 8
Abrunheira
27 10 - 089 Sintra
Tel.: +(351) 219 154 350
Fax: +(351) 219 259 002
info@ultra-controlo.com
www.ultra-controlo.com

Rumänien / Romania / Roumanie
Klaus Union S.R.L.
Str. Piata Alexandru, Lahovary
Nr. 1A; sc. B, Apt. 68, sector 1
Bukarest
Tel.: +(40) 213 185 614
Fax: +(40) 212 108 052
info@klaus-union.ro

Russland / Russia / Russie
Klaus Union
Evgeny Gorchilin
Trofimova street, 18a
Trofimova street, 15 post box 60
Moscow 115432
Tel. / Fax: +(7) 495 679 409 0
gorchilin@klaus-union.ru
www.klaus-union.ru

Schweden / Sweden / Suède
Tillquist Elteknik AB
P.O.Box 1120
16422 Kista
Tel.: +(46) 859 463 200
Fax: +(46) 875 136 95
info@tillquist.com
www.tillquist.com

Schweiz / Switzerland / Suisse
E.W. Müller AG
Roggenacker 6
8808 Pfäffikon
Tel.: +(41) 554 104 118
Fax: +(41) 554 105 615
info@ewmuellerag.ch
www.ewmuellerag.ch

Slowakische Republik / Slovakian Republic / République slovaque
Sigmet spol s.r.o.
Kosmonautu c.p. 1085/6
77200 Olomouc
Tel.: +(420) 585 231 070
Fax: +(420) 585 227 072
sigmet@sigmet.cz
www.sigmet.cz

Slowenien / Slovenia / Slovénie
SLOTEH Branko Gabric s.p.
Kovaca vas 63
SI-2310 Slovenska Bistrica
Tel.: +(38) 624 614 460
Fax: +(38) 624 614 465
branko.gabric@amis.net
www.sloteh.si

Spanien / Spain / Espagne
SPECK BOMBAS INDUSTRIALES, S.L.U.
Trafalgar, 53 despacho 6
Centro de Negocios CNAF
46023 Valencia
Tel.: +(34) 963 811 094
Fax: +(34) 963 811 096
Mobile: +(34) 618 376 241
speck-spain@terra.es
www.speck-pumps.de

Tschechische Republik / Czech Republic / République Tchèque
Sigmet spol s.r.o.
Kosmonautu c.p. 1085/6
77200 Olomouc
Tel.: +(420) 585 231 070
Fax: +(420) 585 227 072
sigmet@sigmet.cz
www.sigmet.cz

Türkei / Turkey / Turquie
SPECK - Pompa
Sanayi ve Ticaret Ltd. Sti.
P.K. 41 Suadiye
81072 Istanbul
Tel.: +(90) 216 387 894 0
Fax: +(90) 216 387 982 9
speckturk@tnn.net
www.speckpompa.com.tr

International

Australien / Australia / Australie
Pump Solutions Australasia
P.O. Box 3043
Malaga Distribution Centre
W.A. 6945 Australia
Tel.: +(61) 892 489 699
Fax: +(61) 892 489 698
garyh@pumpsolutions.com.au
www.pumpsolutions.com.au

Pump Systems Australia
Factory 2
21 London Drive
Bayswater /Melbourne
Victoria 3153
Tel.: +(61) 397 623 100
Fax: +(61) 397 623 188
sales@pumpsystemsaustralia.com.au

Chile / Chile / Chili
W & F Ingenieria Y Maquinas S.A.
Felix de Amesti 90, Piso 6
Las Condes, Santiago
Tel.: +(56) 220 629 43
Fax: +(56) 220 630 39
rwendler@tie.cl

China / China / Chine
Jiashan SPECK PUMPS
Systemtechnik Ltd.
No.57, Hong Qiao Rd.,
No. 4 Economical Developing Zone,
314100 Jiashan Xian,
Zhejiang Province
Tel.: +(86) 573 847 312 98
Fax: +(86) 573 847 312 88
steveche@speck-pumps.cn
www.speck-pumps.cn

Indien / India / Inde
Fouraar Engineering Agencies
Private Limited
615/715, Veena Killedar Industrial
Estate,
10/14, Pais Street, Byculla (W.)
400 011 Mumbai
Tel.: +(91) 222 309 477 7
Fax: +(91) 222 307 147 9
nitin@fouraar.com

Israel / Israel / Israël
Ambi-Tech
Electronics Engineering Ltd.,
20 Ta'as st.;
Industrial Area, Kfar-Saba
P.O. Box 50
Kfar-Saba 44425
Tel.: +(972) 976 775 00
Fax: +(972) 976 774 00
Arie.Weiss@PWeiss.d2g.com
www.pweiss.co.il

Japan / Japan / Japon
Rodateq, Inc.
Suite 301 Oka Bldg.
2 - 1 - 16 Kyomachibori, Nishiku
550 – 0003 Osaka
Tel.: +(81) 664 441 940
Fax: +(81) 664 449 050
info@rodateq.co.jp
www.rodateq.co.jp

Rodateq, Inc.
Tokyo Branch
No. 408, 3 - 22 - 12
Highashi Ikebukuro, Toshima - ku
170-0013 Tokyo
Tel.: +(81) 359 798 818
Fax: +(81) 359 798 817
roda-t@yo.rim.or.jp
www.rodateq.co.jp

Korea / Corea / Corée
J.C. International Inc.
5F, Shinbo Bldg. 402-22
Seogyo-Dong, Mapo-Gu,
Seoul
Tel.: +(82) 232 628 00
Fax: +(82) 232 628 04
jclee@jcint.co.kr
www.jcint.co.kr

Malaysia / Malaysia / Malaisie
Leesonmech
Engineering (M) Sdn. Bhd.
No. 56, Jalan Intan 3, Taman Intan,
86000 Kluang, Johor
Tel.: +(607) 777 105 5
Fax: +(607) 777 106 6
sales@leesonmech.com
www.leesonmech.com

Neuseeland / New Zealand / Nouvelle-Zélande
MacEwans Pumping Systems Ltd.
19 Ride Way
North Harbour Industrial Estate
Tel.: +(64) 941 548 60
Fax: +(64) 941 548 68
pumps-ak@macewans.co.nz
www.macewans.co.nz

Singapur / Singapore / Singapour
Leesonmech
Engineering (M) Sdn. Bhd.
No. 56, Jalan Intan 3, Taman Intan,
86000 Kluang, Johor
Malaysia / Malaysia / Malaisie
Tel.: +(607) 777 105 5
Fax: +(607) 777 106 6
sales@leesonmech.com
www.leesonmech.com

Südafrika / Rep. South Africa / Afrique du Sud
SPECK Pumps South Africa (Pty) Ltd.
4 Bart Street Wilbart / Germiston
P.O. Box 15465
Hurlyvale 1611
Tel.: +(27) 114 554 300
Fax: +(27) 114 556 996

Taiwan / Taiwan / Taiwan
SPECK Pumpenfabrik
Walter Speck KG Taiwan Branch
2Fl., no. 153, Sec. 2
Ta - Tung Rd., His Chi City
Taipei
Tel.: +(886) 286 926 220
Fax: +(886) 286 926 759
Mobile: +(886) 936 120 952
speck886@ms32.hinet.net
www.speck-pumps.com.tw

Thailand / Thailand / Thailande
Pump Systems Flux & Speck Co. Ltd.
181/4 Soi Anamai
Srinakarin Road
Suanluang Bangkok 10250
Tel.: +(662) 320 256 7
Fax: +(662) 322 248 6
thienchai@fluxspeck.com
www.fluxspeck.com

USA
SPECK Pumps
Pool Products
8125 Bayberry Road
Jacksonville, Florida 32256
Tel.: +(1) 904 739 262 6
Fax: +(1) 904 737 526 1
info.usa@speck-pumps.com
www.usa.speck-pumps.com

Produktion / Verwaltung
Production / Administration
Production / Administration

Deutschland / Germany / Allemagne
Speck Pumpen
Regensburger Ring 6 – 8
91154 Roth

Tel.: +(49) 9171 809-0
Fax: +(49) 9171 809-10
info@speck-pumps.de
www.speck-pumps.de

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Systemtechnik GmbH

Postfach 1453 · 91142 Roth / Germany
Regensburger Ring 6 - 8 · 91154 Roth / Germany

Tel.: +49 (91 71) 809 - 0
Fax: +49 (91 71) 809 - 10

E-Mail: info@speck-pumps.de
Internet: www.speck-pumps.de

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