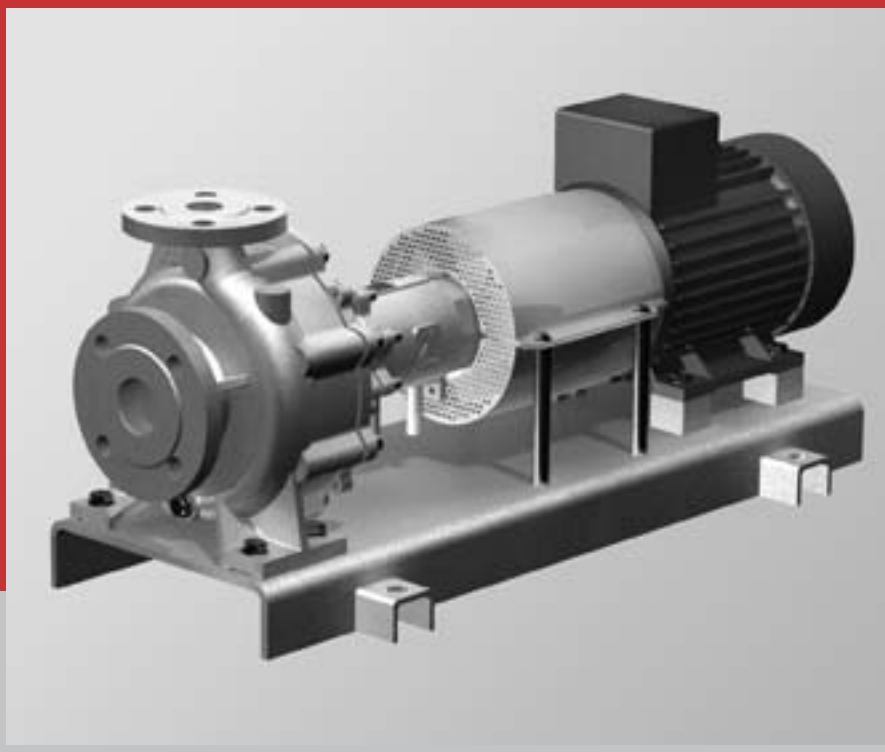
speck pumpen



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

motralec
4 rue Lavoisier . ZA Lavoisier . 95223 HERBLAY CEDEX
Tel. : 01.39.97.65.10 / Fax. : 01.39.97.68.48
Demande de prix / e-mail : service-commercial@motralec.com
www.motralec.com

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
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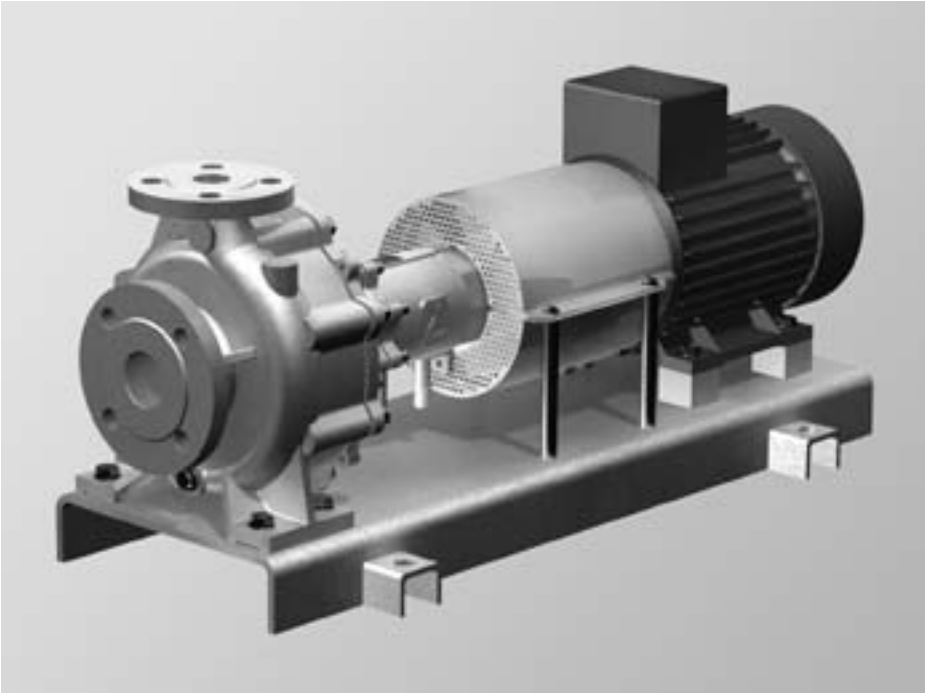
Volute casing PN 16, bearing bracket 360



Index

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:

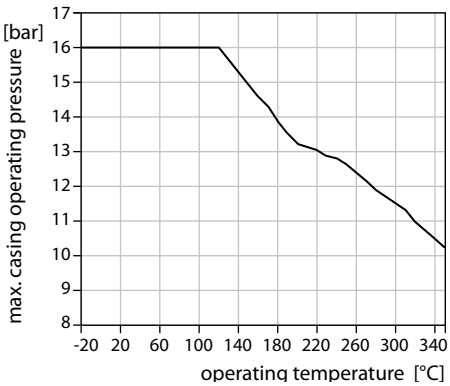


Fig. 1: Maximum permissible casing operating pressure $p_{all\ w\ c}$

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.

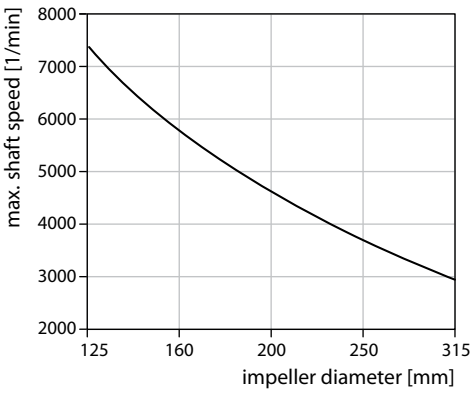


Fig. 2: Maximum permissible shaft speed

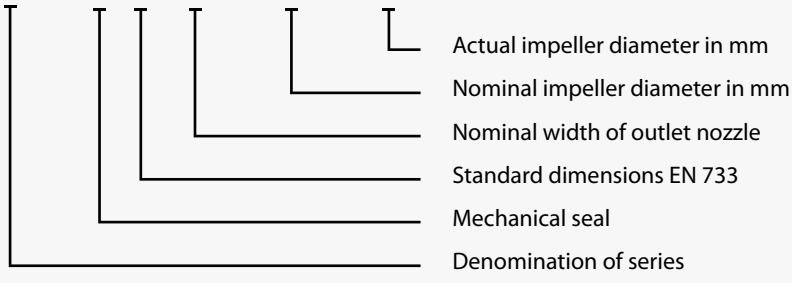
Power transmission on bearing bracket

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)

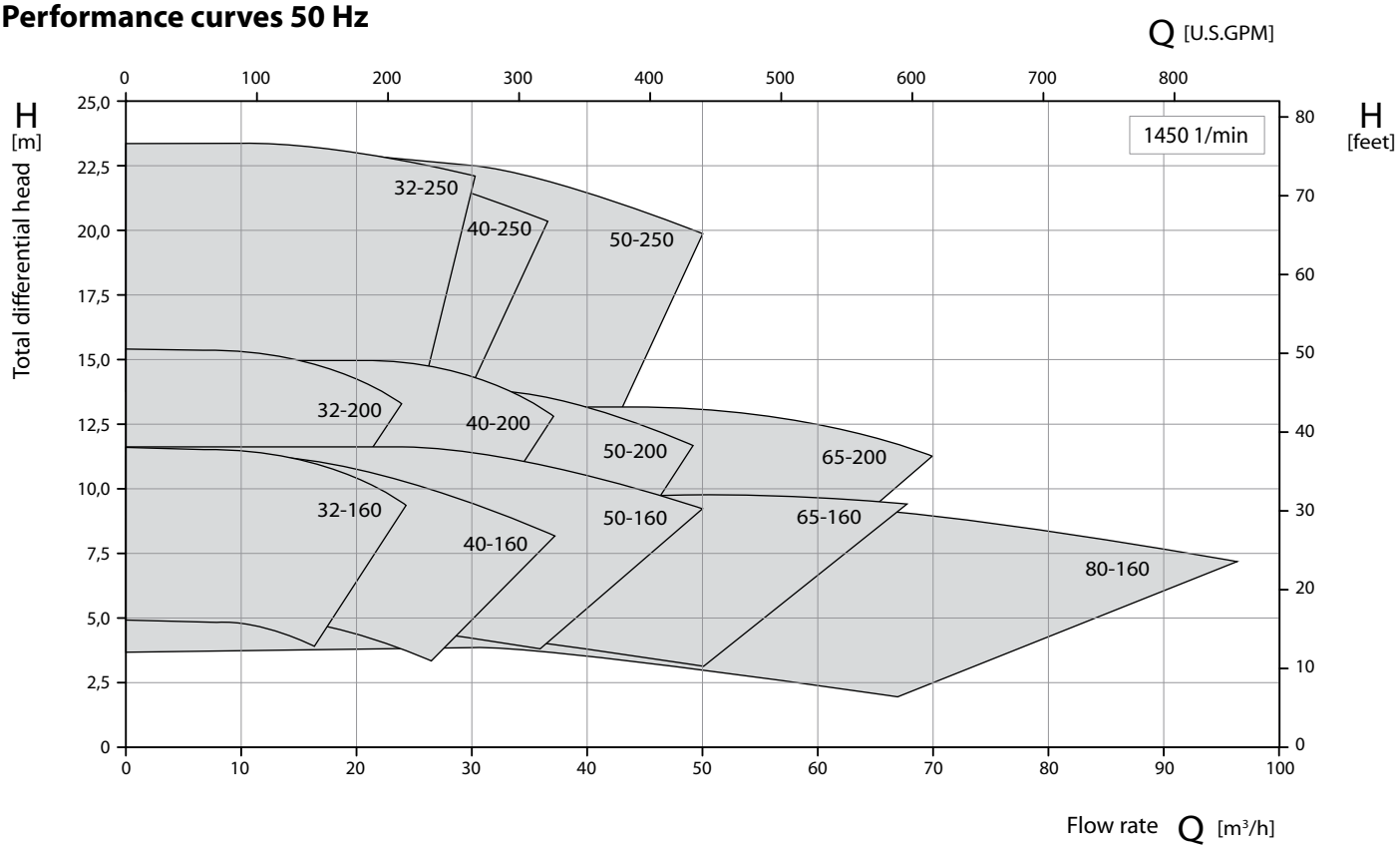
If required, hydraulic tests in acc. with ISO 9906, accuracy class II, can be implemented and the characteristic curves measured for the corresponding impeller diameter documented.

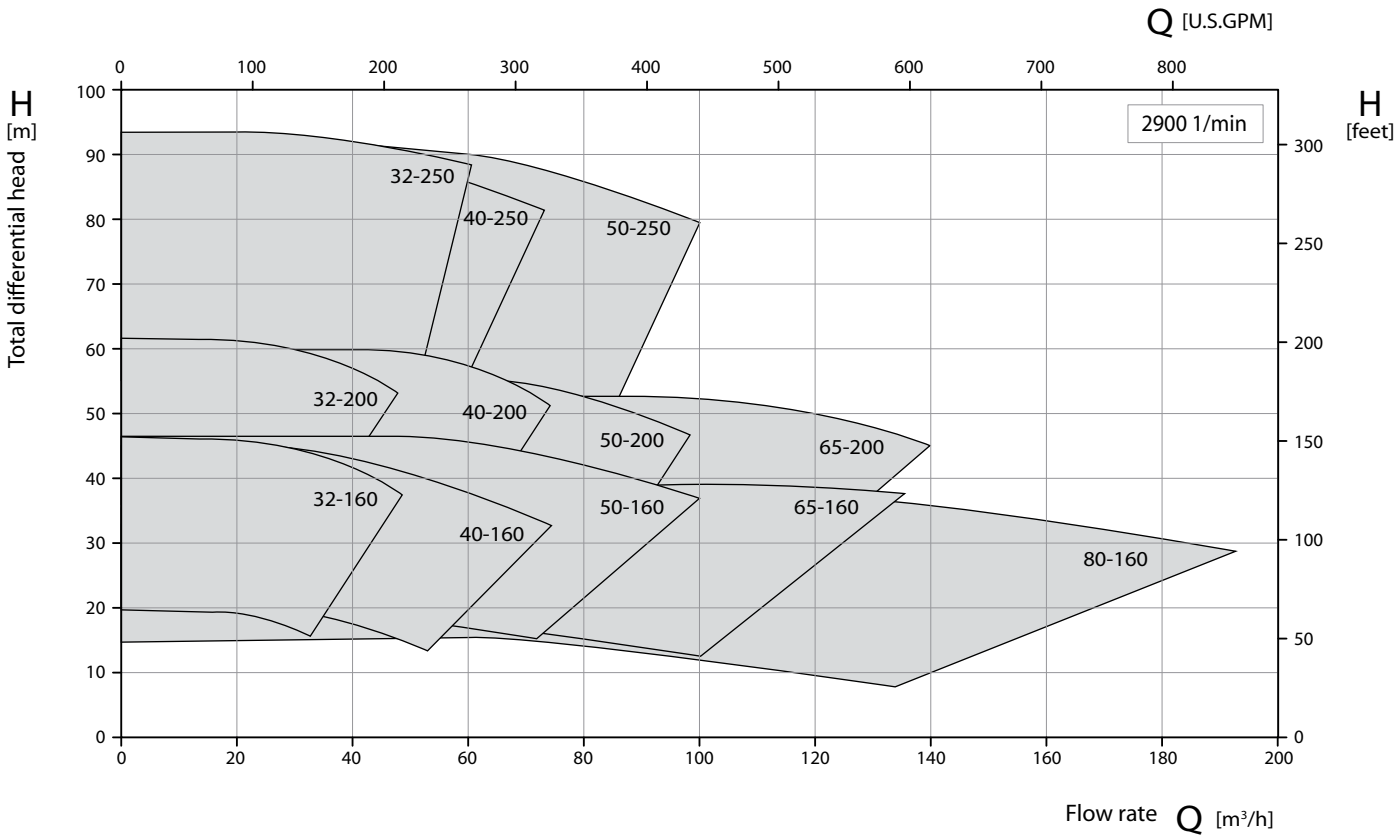
This option has to be indicated accordingly in the order. The purpose of this test is to verify that the duty point of the manufactured pump complies with the contractual duty point.

Painting

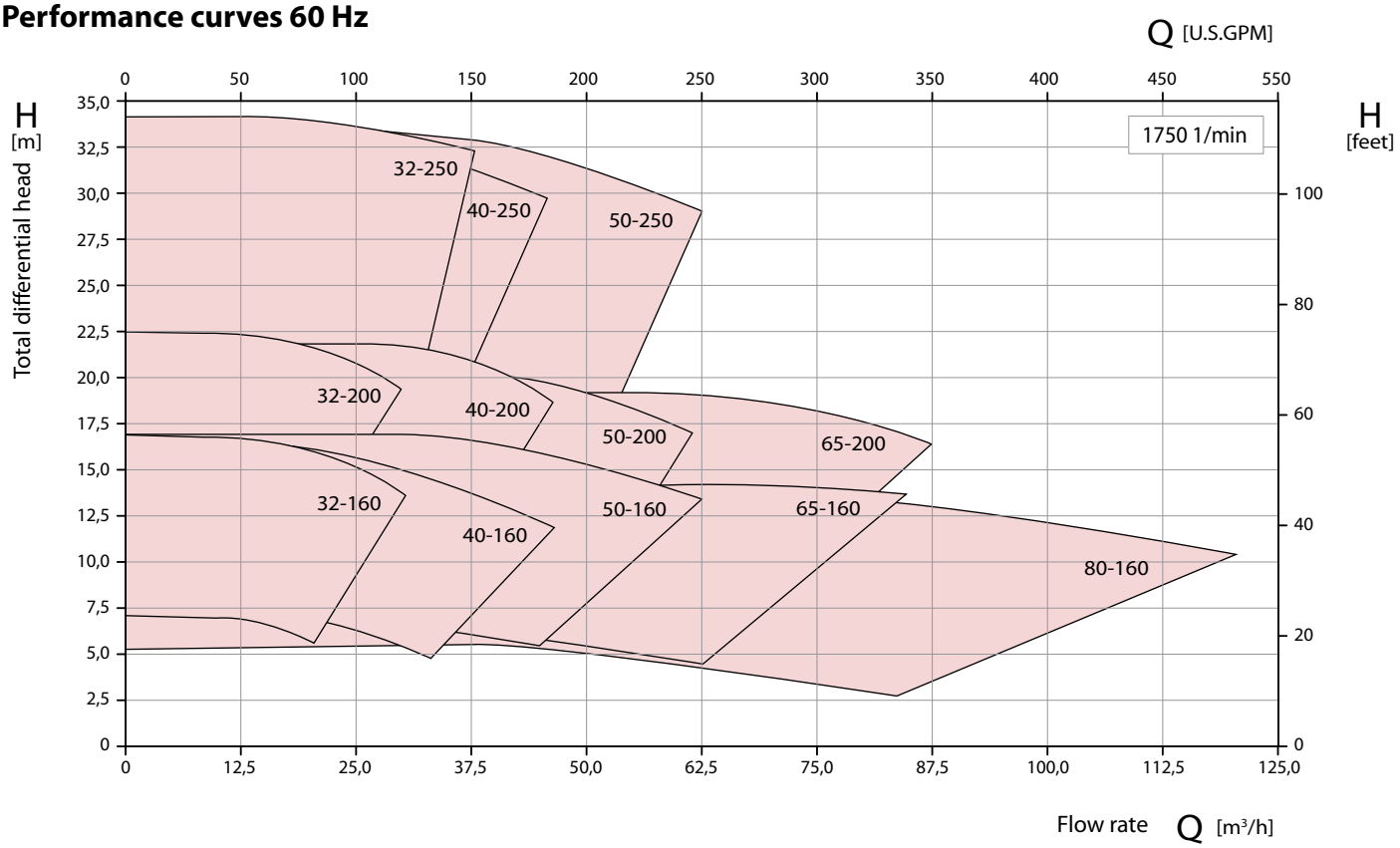
The pumps are coated with highly heat-resistant white aluminium paint, colour code RAL 9006.

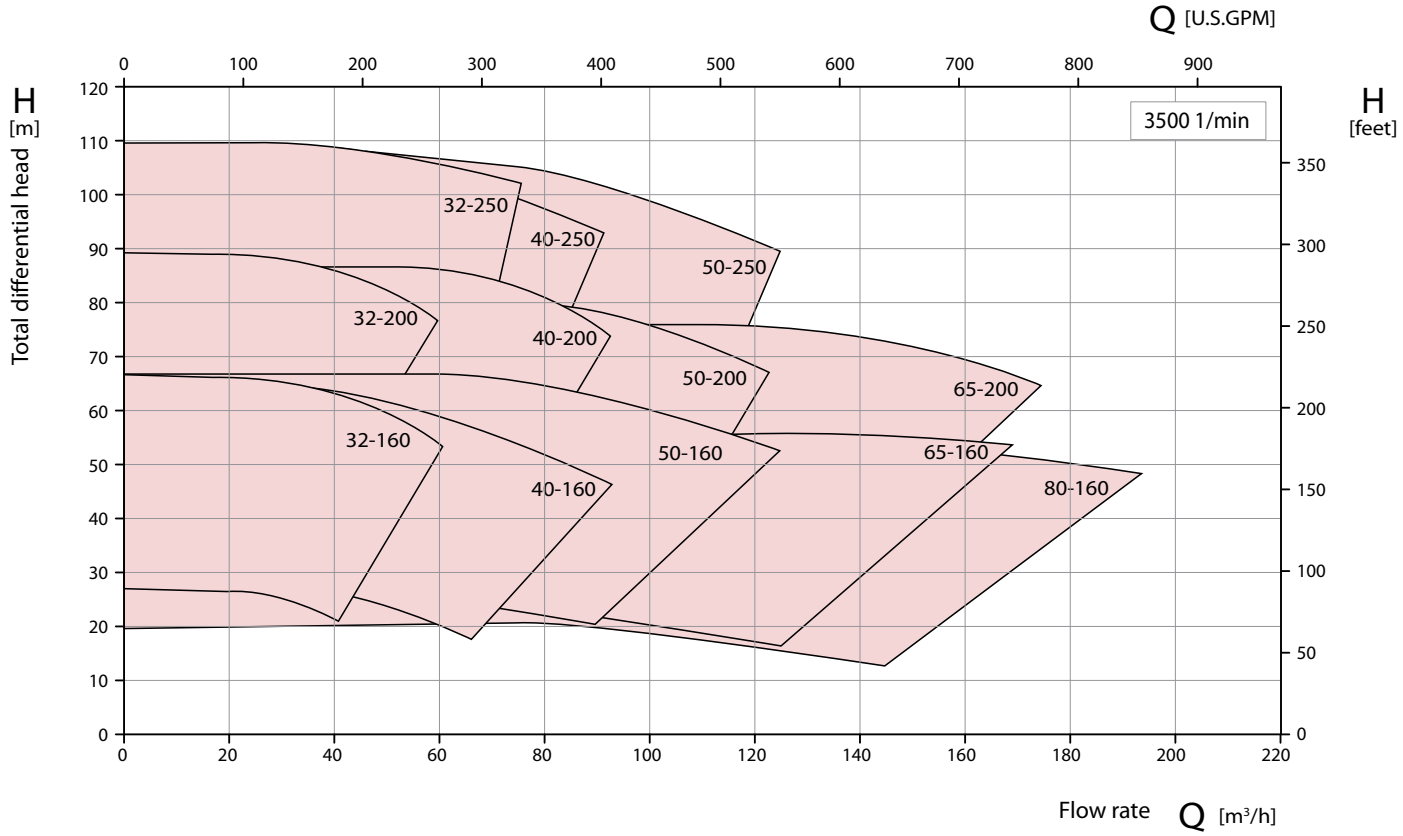
Performance curves 50 Hz



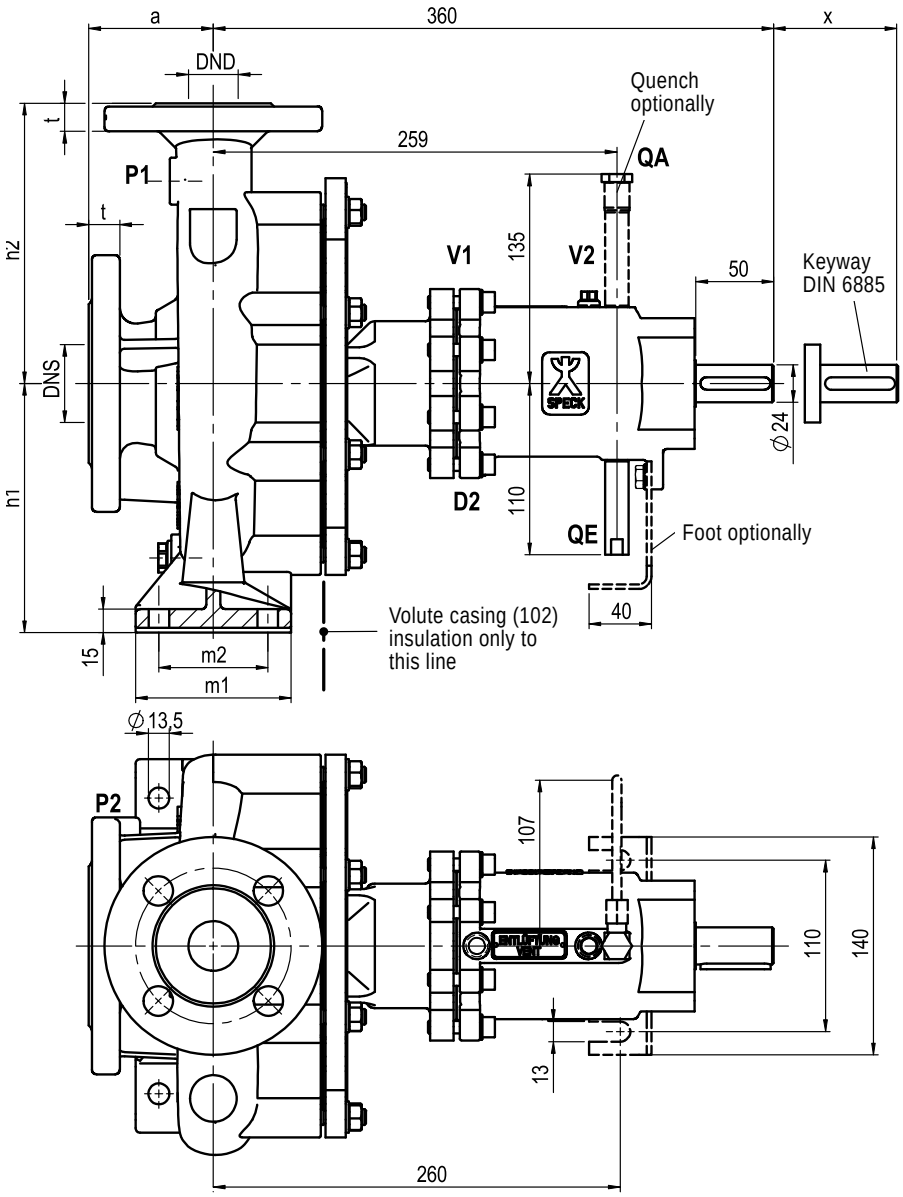


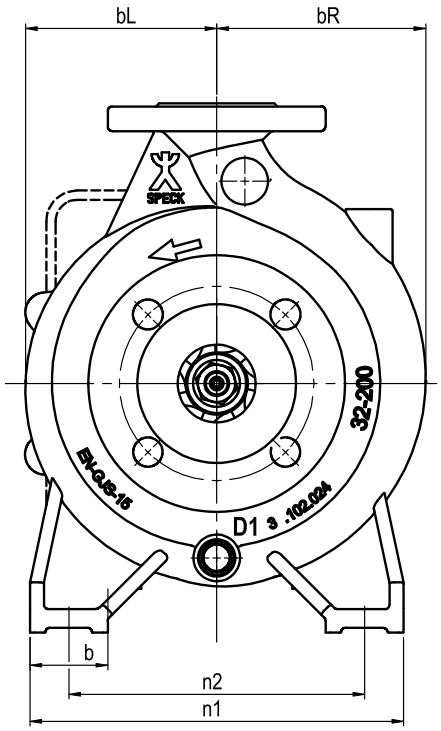
Performance curves 60 Hz



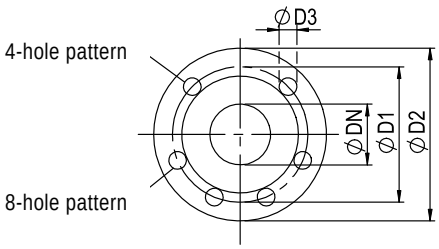


Pump dimensions





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

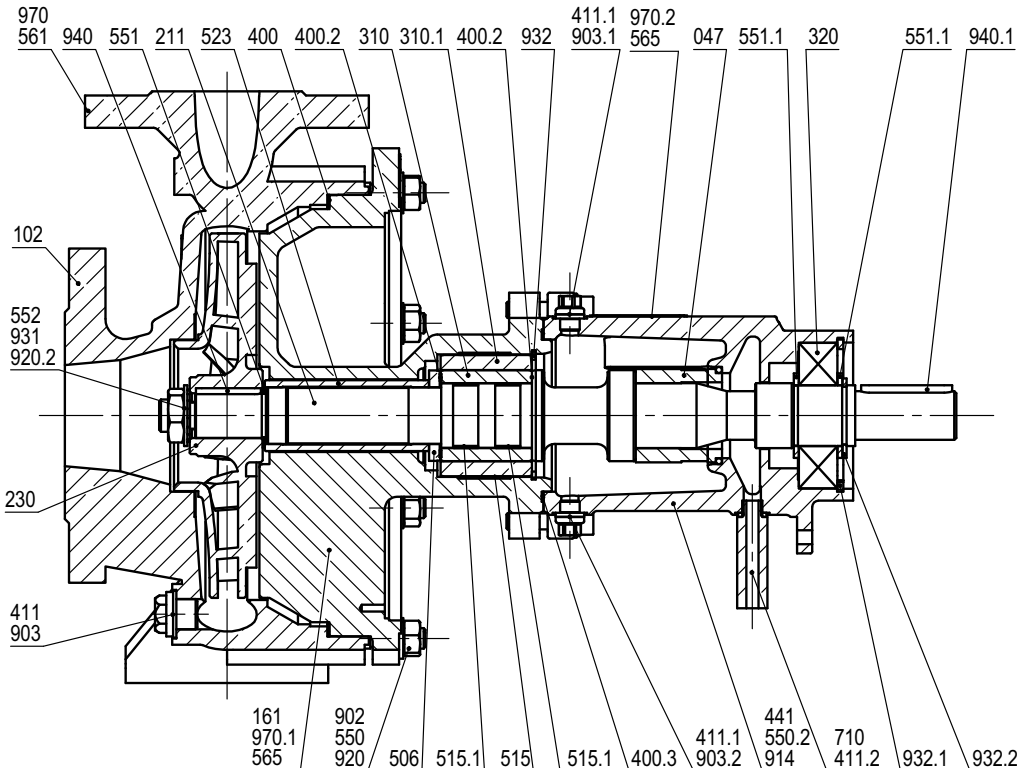
Utility connections

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

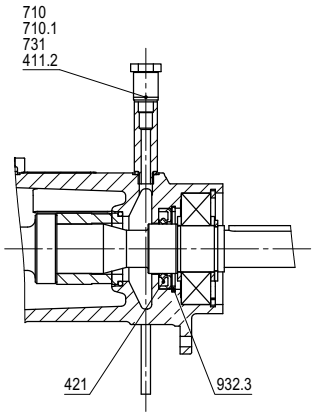


Standard design with nominal impeller diameter 160 and 200 mm

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

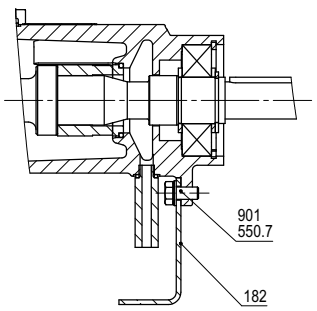
441	Mechanical seal housing
506	Retaining ring
515-515.1	Tolerance ring
523	Shaft bushing
550, 550.2	Washer
551-551.1	Shim washer
552	Disk spring
561	Grooved pin
565	Rivet

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



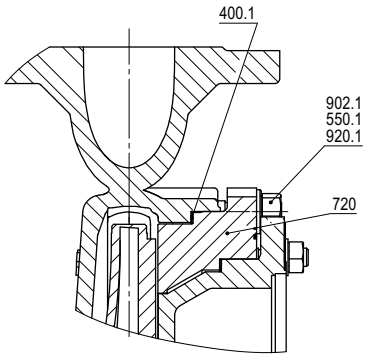
Execution with quench

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



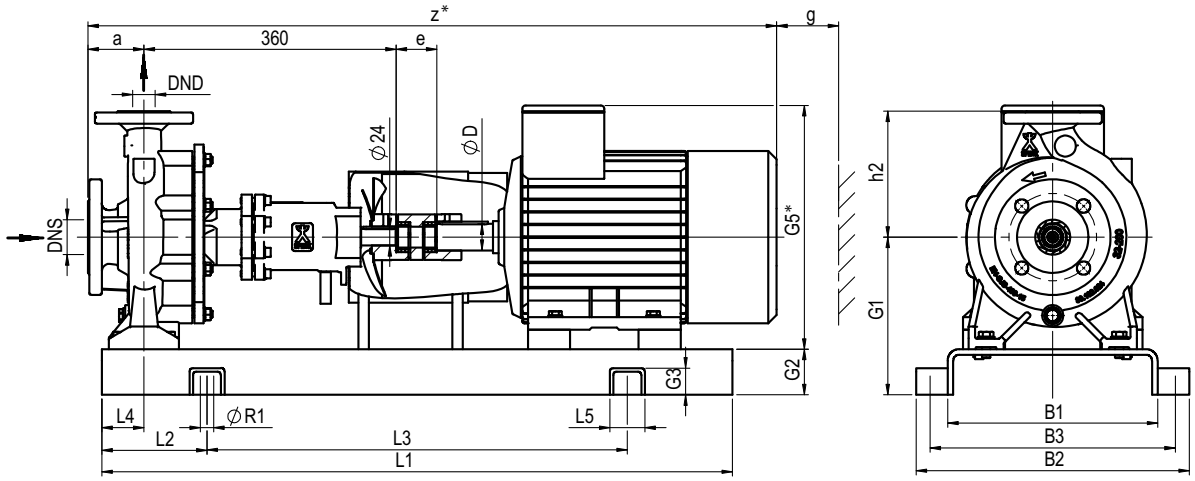
Execution with nom. impeller diameter 250 mm

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											

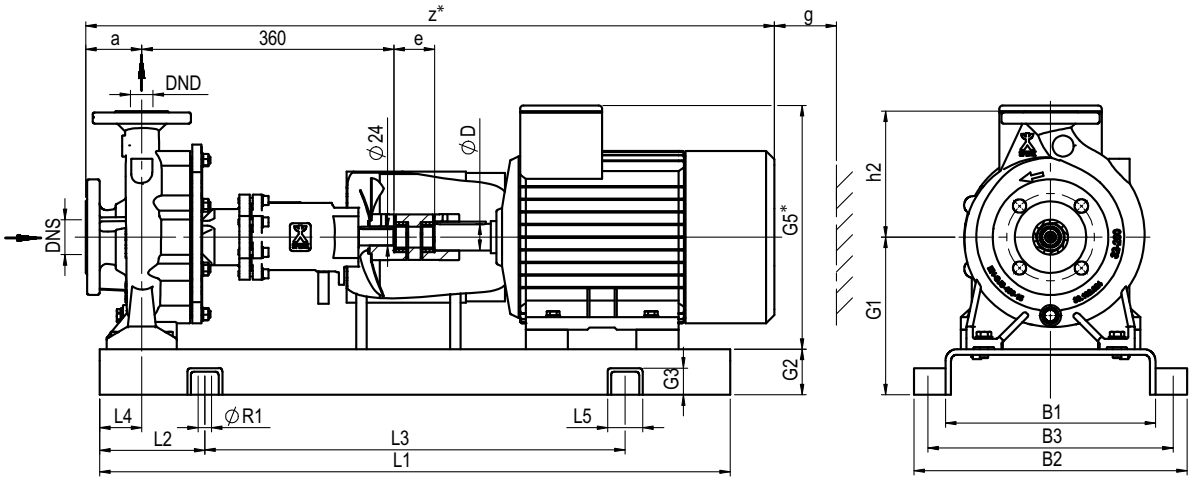
Dimensional drawing (shaft coupling without spacer)



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	80	42	410	1120	190	740		65	380	490	440	24	42
	160 L	15	18,5																					
	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	260	80	42	368	900	150	600			380	490	440		38
32-250	132M	7,5	-	50	32	100	180											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.

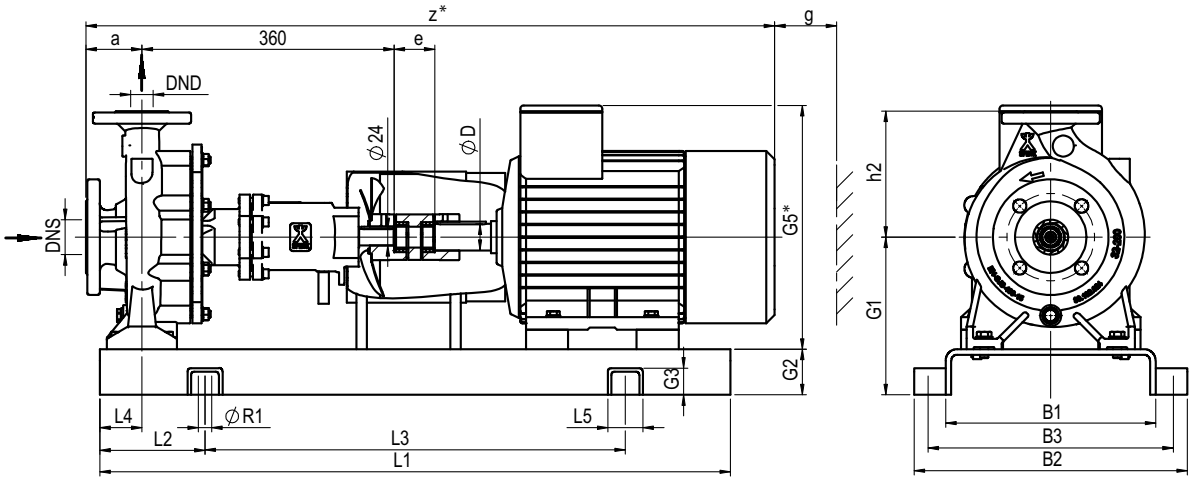
Dimensional drawing (shaft coupling without spacer)



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.

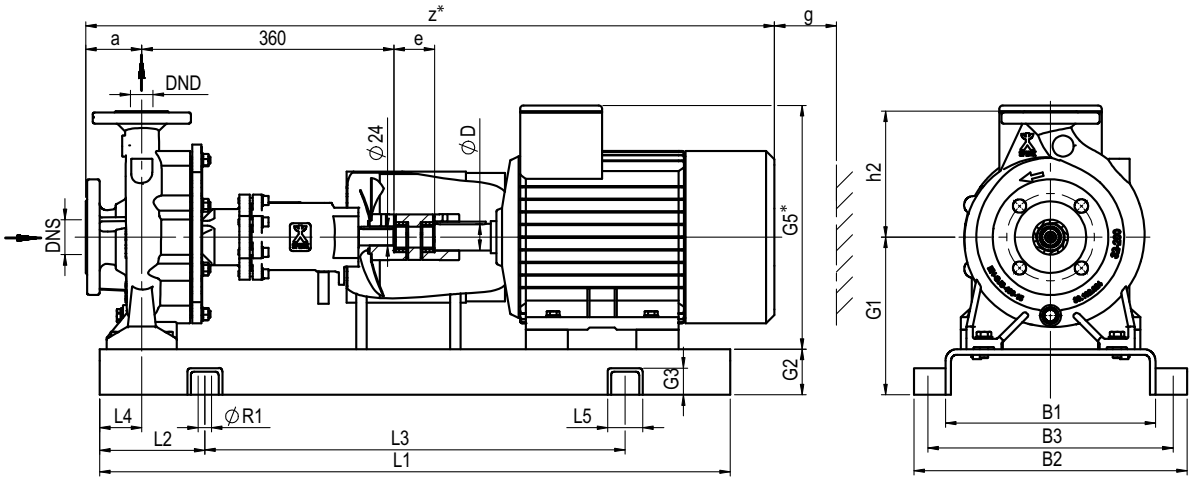
Dimensional drawing (shaft coupling without spacer)



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	100				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
		Date
	Pump Model	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**		m³/h	Reference Speed		1/min
10	corrosive matters		Wght.-%		min / max		m³/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/m³	pressure differential			bar	Total abs. power		kW
15	**Kin. viscosity @tA**		mm²/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:**	**Witnessed 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

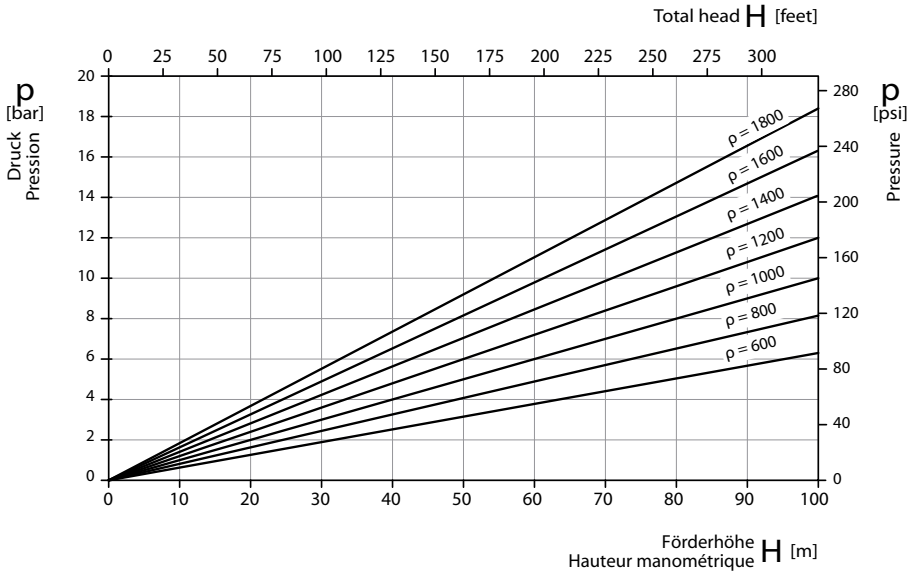
42 ◣ = min. information required for quotation
43 1) = seen from driver to pump 2) = calcul. to EUROPUMP
44 3) = acc. to EN 10204 4) = volute casing & casing cover
45 5) = without NPSH-Test 6) = scope of supply see price sheet
46 Revision: Issued: Date:

Substance data of heat transfer media

	Water		Marlotherm SH		Syltherm XLT		Galden HT 200	
Temperature	ρ Density	ν Kinematic viscosity	ρ Density	ν Kinematic viscosity	ρ Density	ν Kinematic viscosity	ρ Density	ν 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

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