

TOEG Series

Heat transfer pumps

for heat transfer oils from - 10 °C up to 350 °C and hot water up to 160 °C

*with uncooled mechanical seals
bearing brackets 360 and 470*

Pumps for heat transfer technology

Main applications

- » Tempering in plastics and die cast industry
- » Baking ovens, large frying units as well as in the production of edible oils and dry masses for the food and feedstuff industries
- » Heating calenders and melting pots in the leather and rubber industry
- » Heating stirring and mixing vessels in the production of paints and varnishes
- » Heating tank storage facilities on stationary and FPSE platforms as well as in tankers
- » Heating press lines in the wood and pulp industry
- » Flat glass production
- » Solar power stations and ORC processes

Usage

These pumps are designed for circulating organic or synthetic heat transfer oils in heat transfer plants in acc. with DIN 4754, as well as hot water.

Suitable for media to be pumped with little non-abrasive contaminations

| | Thermal oil versions | Hot water versions |
|--|---------------------------------|----------------------------------|
| Media | Heat transfer oil / thermal oil | Water |
| T _{min} | - 10 °C | - |
| T _{max} | + 350 °C | + 160 °C, + 180 °C on request |
| Casing | Spheroidal graphite cast iron | |
| Nominal pressure | PN 16 | |
| H _{max} (2900 min ⁻¹) | 100 m | |
| Q _{max} (2900 min ⁻¹) | 550 m ³ /h | |
| ATEX | | II 3G, II 3D, II 2G, II 2D |

Denomination

| | | | | | | |
|--|-----|---|---|----|-----|------|
| Type code Example | TOE | G | A | 32 | 160 | /150 |
| Denomination of series | | | | | | |
| Mechanical seal | | | | | | |
| N = Version with bearing bracket, volute casing ax/top | | | | | | |
| A = Close-coupled version with bracket, volute casing ax/top | | | | | | |
| I = Close-coupled version with bracket, inline casing | | | | | | |
| Nominal width of outlet nozzle DN | | | | | | |
| Nominal impeller diameter in mm | | | | | | |
| Actual impeller diameter in mm | | | | | | |

Your contacts

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www.speck.de

International representatives
→ page 21

TOEG Series

| | TOEGN | TOEGA | TOEGI |
|-----------------------------|---|--|--|
| Features |  <p>Example: Casing with feet</p> |  <p>Example: Casing with centreline mounting</p> |  <p>H</p> |
| Pump dimensions | → Pages 16 and 17 | → Pages 16 and 17 | → Page 18 |
| Hydraulics and casing | <ul style="list-style-type: none"> » Identical hydraulics for TOEGN and TOEGA Characteristic curves → pages 12 and 13 » Identical volute casing for each frame size » Large pumps with centreline mounting and double volute Description → page 5 | | <ul style="list-style-type: none"> » Characteristic curves → pages 14 and 15 » Inline casings with two dimensions H available |
| Sizes | Only two bearing brackets for all sizes <ul style="list-style-type: none"> » Bearing bracket 360 for 12 sizes - identical and interchangeable » Bearing brackets 470 for 7 sizes - identical and interchangeable » Only one bracket per size | | |
| Description | <ul style="list-style-type: none"> » Thermal oil versions → page 6 » Hot water versions → page 7 | | |
| Interchangeability of parts | <ul style="list-style-type: none"> » Within all series including the versions with magnetic coupling (→ see catalogue TOEMN/MA/MI series) there is a high degree of interchangeability. » This means minimum spare parts stock and full flexibility as replacing pumps or components or retrofitting to a different design is very easy. » Table of interchangeable parts → page 19 | | |

High operational safety, optimal design and service-friendly

Robust design

Torsion-resistant casing cover and ball bearings with lifetime lubrication

Wear-resistant SiC sleeve bearings

Solid, hydrodynamically lubricated sleeve bearings made from SiC as tried-and-tested slide material - extremely wear-resistant and good resistance in corrosive media.

Impellers with back vanes

The back vanes of the impellers significantly reduce the axial thrust and therefore remove strain from the mechanical seal and the ball bearings considerably. They also keep dirt particles away from the sleeve bearings.

Optimised for synthetic heat transfer oils

Dry-run safety function for the mechanical seal

Synthetic heat transfer oils are being used more and more frequently due to the benefits they offer. However, low-boilers develop in the synthetic oils over time in form of gas bubbles, can lead to dry-running on the mechanical seal.

This is ruled out completely in the generously designed mechanical seal casings from Speck. An anti-vortex rib reliably prevents gas bubbles from forming on the mechanical seal.

The vacuum generated by the back vanes also ensures that the low-boilers do not collect in the mechanical seal casing and are returned to the media circuit.

Clever temperature management

Optimised cooling of ball bearings, mechanical seal and sleeve bearings

The air flow generated by the fan blade on the coupling cools the mechanical seal and the ball bearing optimally in combination with coupling protection or bracket and several cooling fins. The additional cooling zone reduces the temperature on the sleeve bearings.

Also suitable for critical applications

Mechanical seal with quench

For media, which are prone to crack product formation on the sealing surfaces of the mechanical seal, versions with quench are available.

ATEX

All pumps of the TOEG and TOEM series are ATEX certified.

Optimal design

Energy efficiency

High energy efficiency secures a lasting competitive edge.

Speck offers the important criteria for energy-optimised design: Seamless range of sizes, highly efficient impellers, switching of impellers for the best design at the operating point and natural motors in accordance with IE2.

Maintenance-friendly and flexible

Simple installation

All series are extremely maintenance-friendly thanks to easy-to-remove bearing brackets.

Minimum spare parts stock

The high level of interchangeability of identical parts guarantees minimal spare parts stock requirements and an extremely high level of flexibility.

The bearing bracket 360 alone is used with mechanical seal in all three series in up to twelve sizes.

Retrofitting to a different series is also no problem at all - the volute casing can even be left in the system.

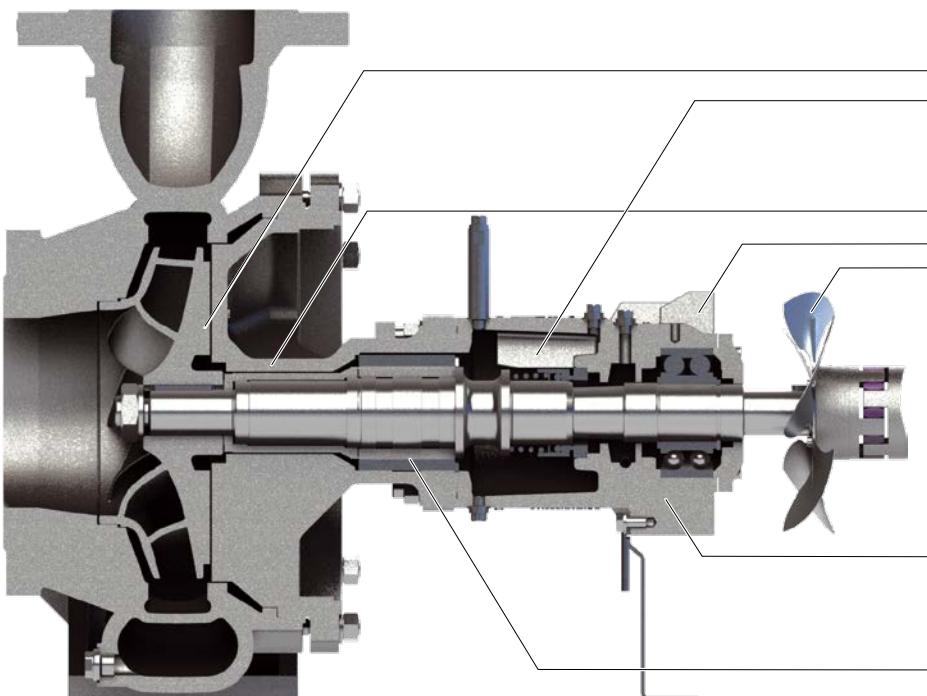


Fig.: TOEGN, bearing bracket 470, casing with centreline mounting

Dry-run safety function

Back vanes
Anti-vortex rib

Temperature management

Cooling zone
Cooling fins
Fan blades

Robust

Double-row angular ball bearings
from bearing bracket 470

Robust

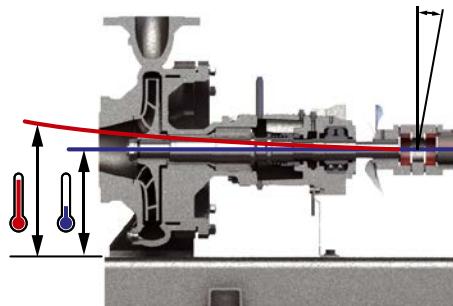
Solid sleeve bearing made from SiC

Longer lifetime

There are effects, which have little or no relevant impact on smaller designs, but lead to increased wear in larger pumps.

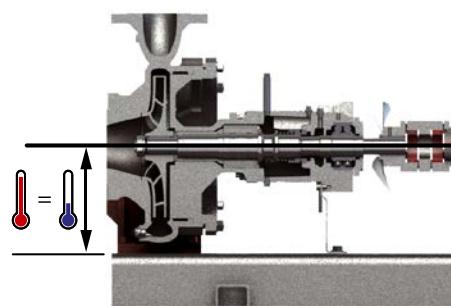
Speck offers larger pumps with special designs to guarantee a longer lifetime: Casing with centreline mounting and double volute.

Centreline mounting relieves strain from the bearings and coupling



Casing with feet: The larger the pump, the more strain placed on the bearings and coupling by heat expansion

Casings with feet can only expand upwards in high temperatures, which causes the shaft to tilt and bend. This has an impact on the sleeve bearings and shaft coupling in particular. As the heat expansion increases with larger casing size, the sleeve bearings and couplings also wear faster on larger pumps.



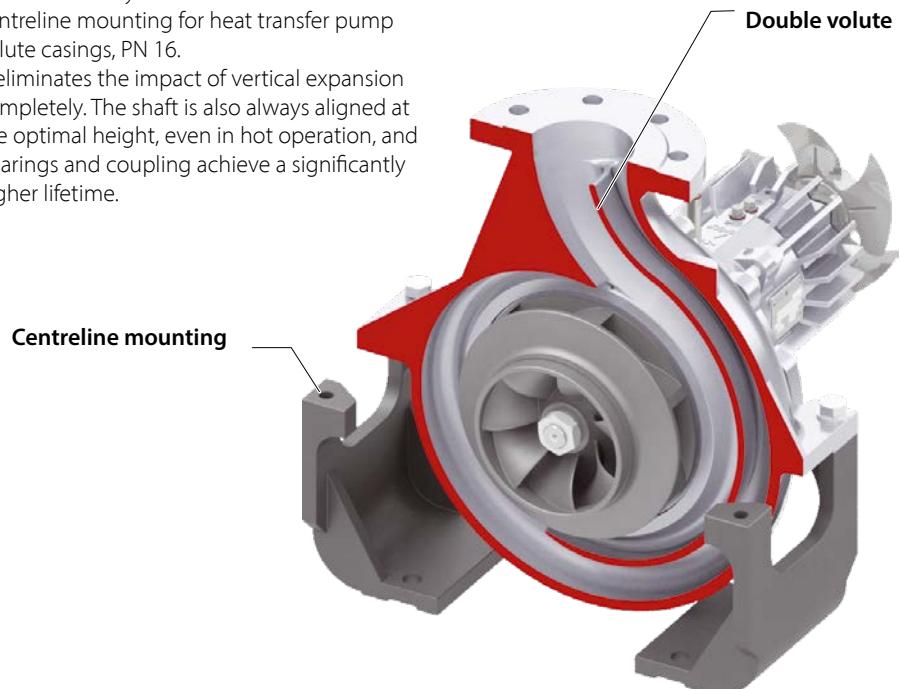
The centreline mounting eliminates the impact of the heat expansion completely

Speck is the only manufacturer to use a centreline mounting for heat transfer pump volute casings, PN 16. It eliminates the impact of vertical expansion completely. The shaft is also always aligned at the optimal height, even in hot operation, and bearings and coupling achieve a significantly higher lifetime.

A double volute remove strain from the sleeve bearings

Radial forces are applied directly on the sleeve bearings. The forces increase with higher impeller diameters and higher speeds. This is why the sleeve bearings on larger pumps with single volute casings wear faster.

Speck therefore uses casings with double volute for larger pumps, which significantly reduce the radial forces. The strain on the radial and axial bearings is considerably reduced, helping them achieve a much longer lifetime.

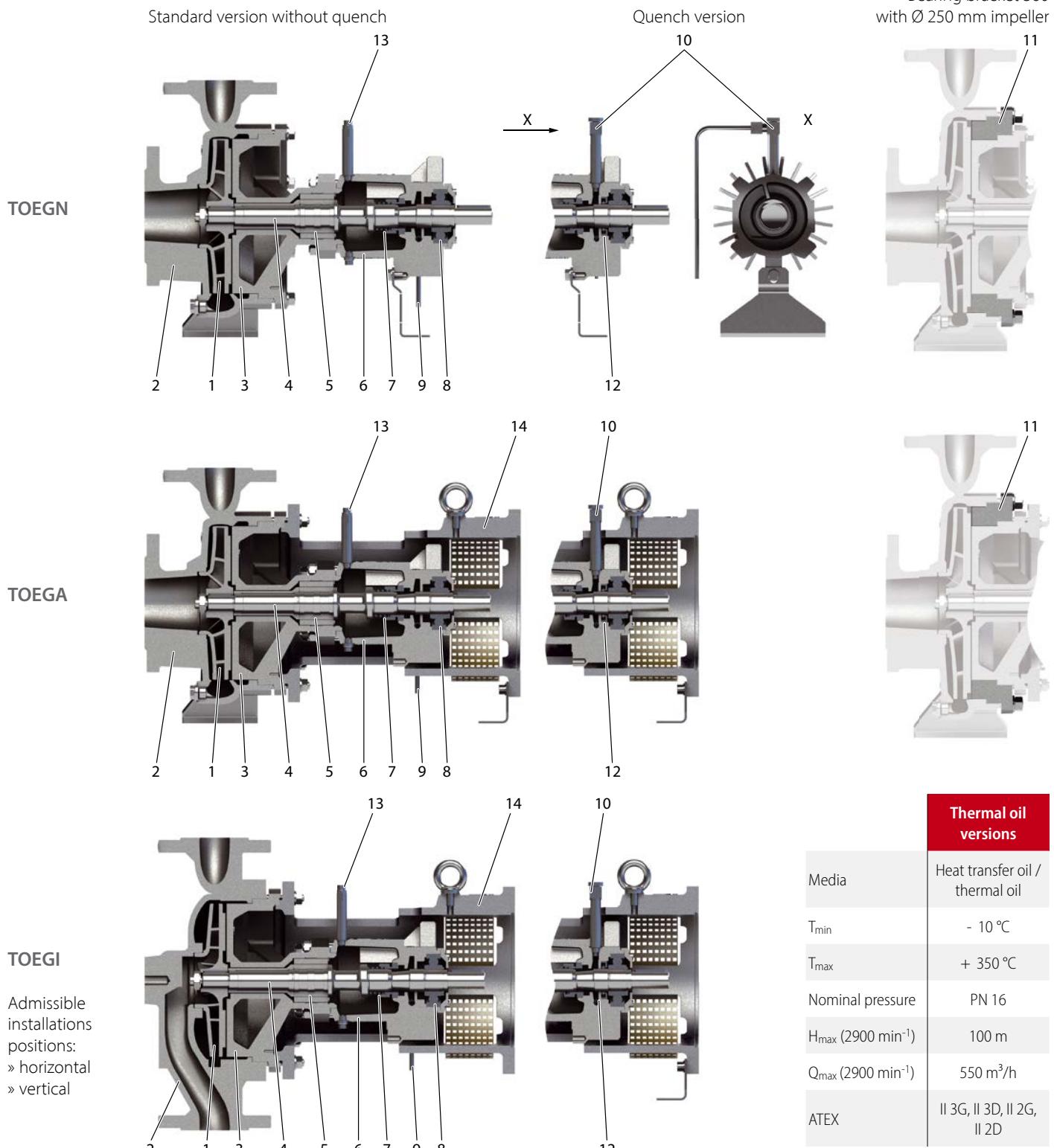


TOEGN / TOEGA – Sizes and casing designs

| | | | | | | |
|----------------------------|--------|--------|--------|----------------------------|---------|---------|
| 32-160 | 40-160 | 50-160 | 65-160 | 80-160 | 100-160 | - |
| 32-200 | 40-200 | 50-200 | 65-200 | 80-200 | 100-200 | 125-200 |
| 32-250 | 40-250 | 50-250 | 65-250 | 80-250 | 100-250 | - |
| Bearing bracket 360 | | | | Bearing bracket 470 | | |

All casings with dimensions in accordance with EN 733 Casing with double volute Casing with centreline mounting

Thermal oil versions



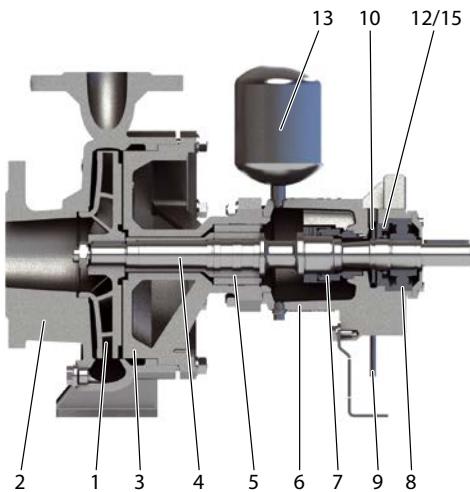
| No. | Description | Material / Remarks |
|-----|------------------------|---------------------------------|
| 1 | Impeller | EN-GJL-250 |
| 2 | Casing | EN-GJS-400-15 |
| 3 | Casing cover | EN-GJS-400-15 |
| 4 | Shaft | 1.4122 |
| 5 | Sleeve bearing | SiC |
| 6 | Mechanical seal casing | EN-GJS-400-15 |
| 7 | Mechanical seal | AQ ₁ VGG, unbalanced |
| 8 | Rolling bearing | High-quality brand |

| No. | Description | Material / Remarks |
|-----|---------------------------|------------------------------------|
| 9 | Leakage pipe | not applicable to quench version |
| 10 | Quench reservoir | optional |
| 11 | Counter flange | EN-GJS-400-15 |
| 12 | Radial shaft sealing ring | only available with quench version |
| 13 | Ventilation | |
| 14 | Bracket | EN-GJS-400-15 |

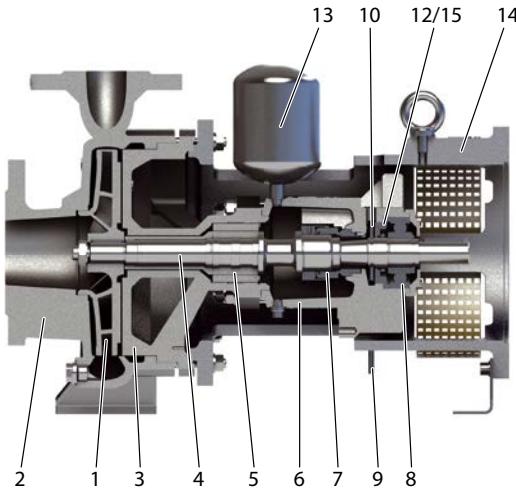
EN-GJL-250 = GG-25
EN-GJS-400-15 = GGG-40

Hot water versions

TOEGN
With degassing tank

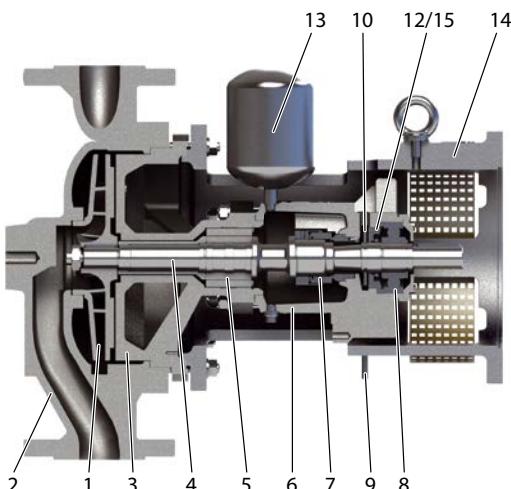


TOEGA

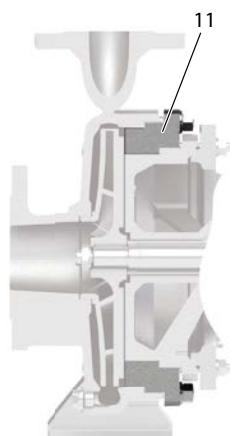


TOEGI

Admissible installations positions:
» horizontal



Bearing bracket 360
with Ø 250 mm impeller



Hot water versions

| | |
|--|--------------------------------|
| Media | Water |
| T _{min} | - |
| T _{max} | +160 °C, +180 °C on request |
| Nominal pressure | PN 16 |
| H _{max} (2900 min ⁻¹) | 100 m |
| Q _{max} (2900 min ⁻¹) | 550 m ³ /h |
| ATEX | II 3G, II 3D, II 2G, II 2D |

| No. | Description | Material / Remarks |
|-----|------------------------|-------------------------------|
| 1 | Impeller | EN-GJL-250 |
| 2 | Casing | EN-GJS-400-15 |
| 3 | Casing cover | EN-GJS-400-15 |
| 4 | Shaft | 1.4122 |
| 5 | Sleeve bearing | SiC |
| 6 | Mechanical seal casing | EN-GJS-400-15 |
| 7 | Mechanical seal | AQ ₁ KGG, balanced |
| 8 | Rolling bearing | High-quality brand |

| No. | Description | Material / Remarks |
|-----|---------------------------|--------------------|
| 9 | Leakage pipe | |
| 10 | Splash ring | |
| 11 | Counter flange | EN-GJS-400-15 |
| 12 | Radial shaft sealing ring | |
| 13 | Degassing tank | |
| 14 | Bracket | EN-GJS-400-15 |
| 15 | Bush | |

EN-GJL-250 = GG-25 | EN-GJS-400-15 = GGG-40

Order-related tests

Pressure tests

Speck carries out the tests below as standard:

Gas pressure test

The gas pressure test is used to prove that the components are leak-proof. All components that bear pressure are tested, such as the volute casing, casing cover and mechanical seal casing. The test is carried out with forming gas at 2 bar. The holding time is 15 minutes.

Hydrostatic pressure test

The hydrostatic pressure test is used to prove strength of the components and that the pump is leak-proof. The fully assembled pump is tested. The test is carried out with a hydrostatic test pressure based on prEN 12162; the hydrostatic test pressure corresponds to $1.5 \times$ the nominal pressure (PN16) at 20 °C. The holding time is 10 minutes.

If you want to use pressure tests according to different criteria, please enter them in the request.

Testing the performance

At the customer's request, Speck offers the following tests:

Hydraulic test

Measurement according to EN ISO 9906, Class II

NPSH test

In this test, the suction-side pressure is gradually reduced until the decrease in the delivered head reaches 3 % at a constant flow rate. At least four flows are evaluated that are spread appropriately over the admissible operating range. The NPSH value is not a guarantee point.

Vibration test

Vibration test according to EN ISO 5199, Edition 2002

The vibration values are measured radially and vertically at every operating point on the bearing casing at the nominal speed and with the corresponding flow rate.

Temperature measurement

The measurement is taken on the motor-side bearing at operating temperature. The operating temperature and the ambient temperature at every operating point measured are documented.



Computer-controlled and fully automated test stands on the premises of Speck in Roth.

Measuring of hydraulics, power requirements, axial thrust, vibrations and NPSH values. Heads of up to 400 m and flow rates of up to 750 m³/h are possible.

Further data and notes

Standard conditions at site

- » Ambient temperature from -20 °C to +40 °C
- » Permissible altitude up to 1000 m above seal level

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

Painting

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

Dimensioning

Assessment of the maximum pump outlet pressure

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

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

With:

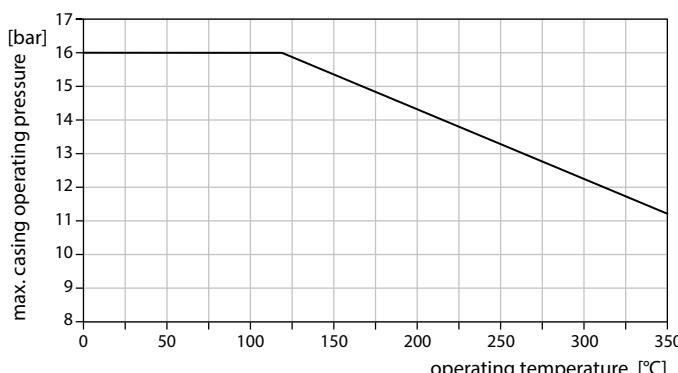
- | | | |
|----------------|---|---|
| $p_{2\max op}$ | = | maximum pump outlet pressure [bar] |
| $p_{1\max op}$ | = | maximum pump inlet pressure [bar] |
| ρ | = | density of the medium to be pumped [kg/m^3] |
| g | = | gravitation constant [m/s^2] |
| H | = | maximum total head at zero flow or at 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 pressure.

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

Pressure and temperature limitations

The maximum casing operating pressure $p_{all w c}$ of the pressure retaining parts depends on the operating temperature:



Maximum permissible casing operating pressure $p_{all w c}$

SPAIX selection program

Ideal for system planners

We make the program available to authorised customers who can pre-select the pumps within their system.
The web-based software always accesses an up-to-date database.

Easy pre-selection

The configuration system avoids a wide range of selection parameters with regard to design, sealing systems, hydraulics, operating conditions and media.

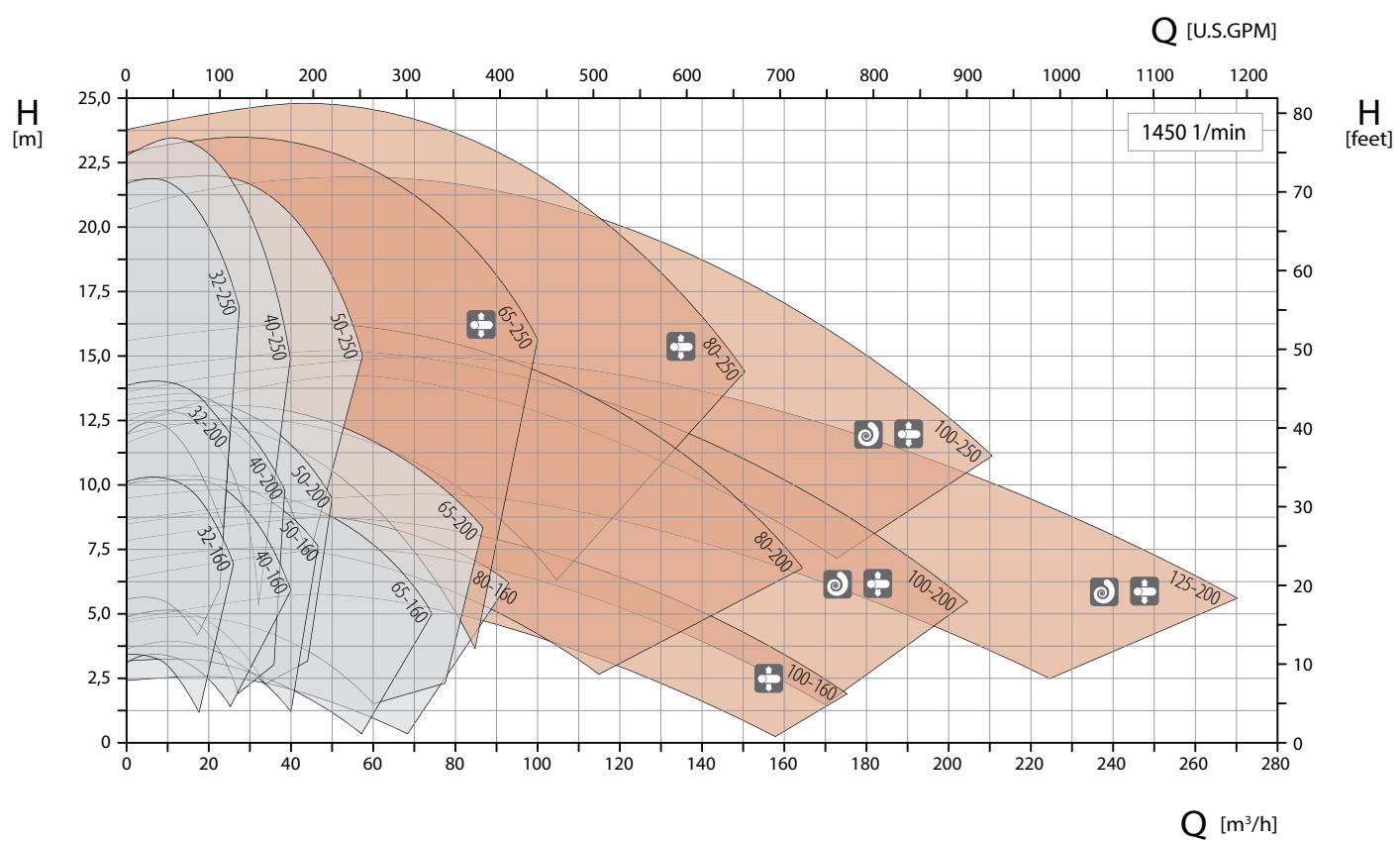
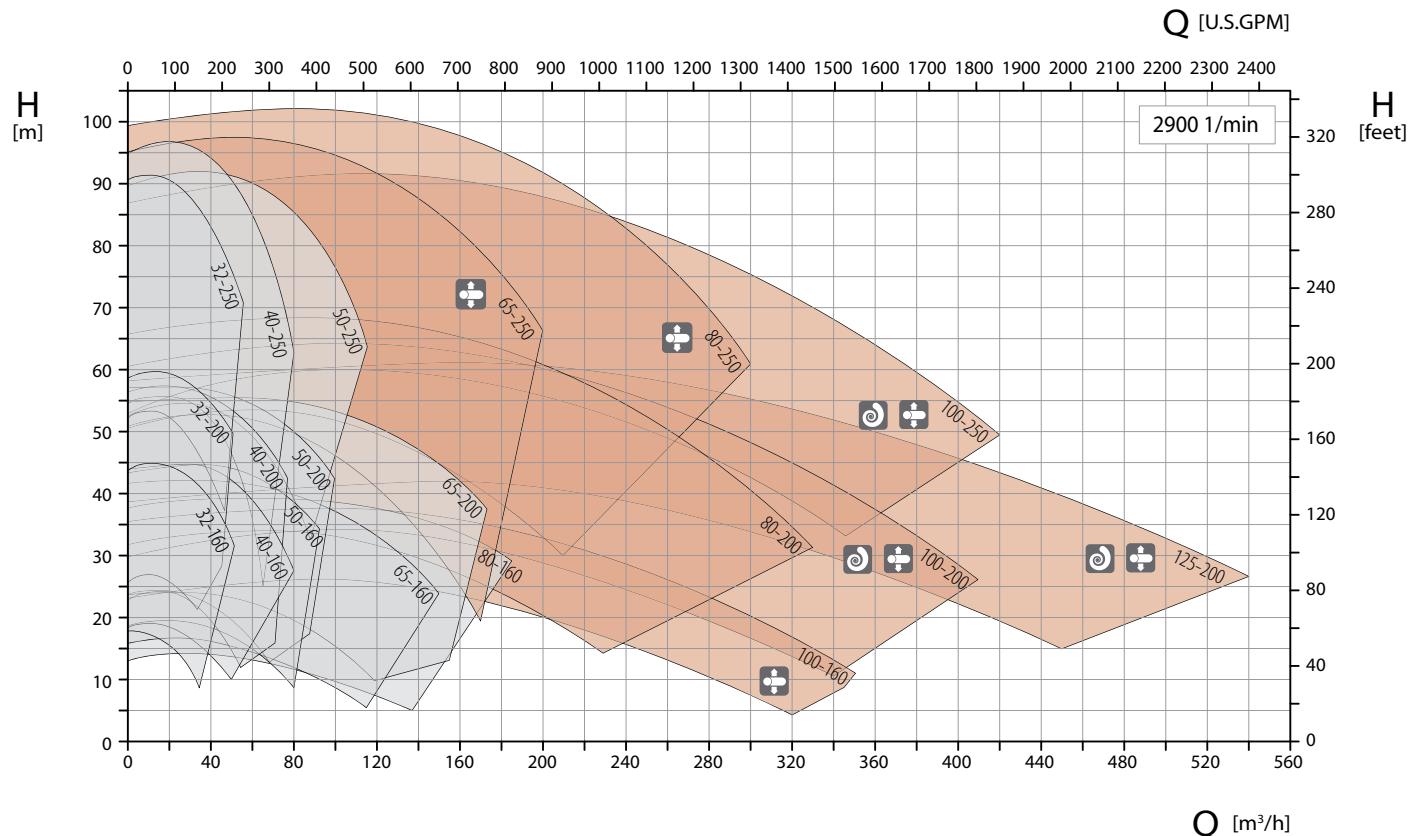
The software has language options for German and English.

Checking the pre-selection

When the order is submitted, the customer's choices are double-checked to ensure that your project requirements are met.

TOEGN / TOEGA – Characteristic curves

50 Hz



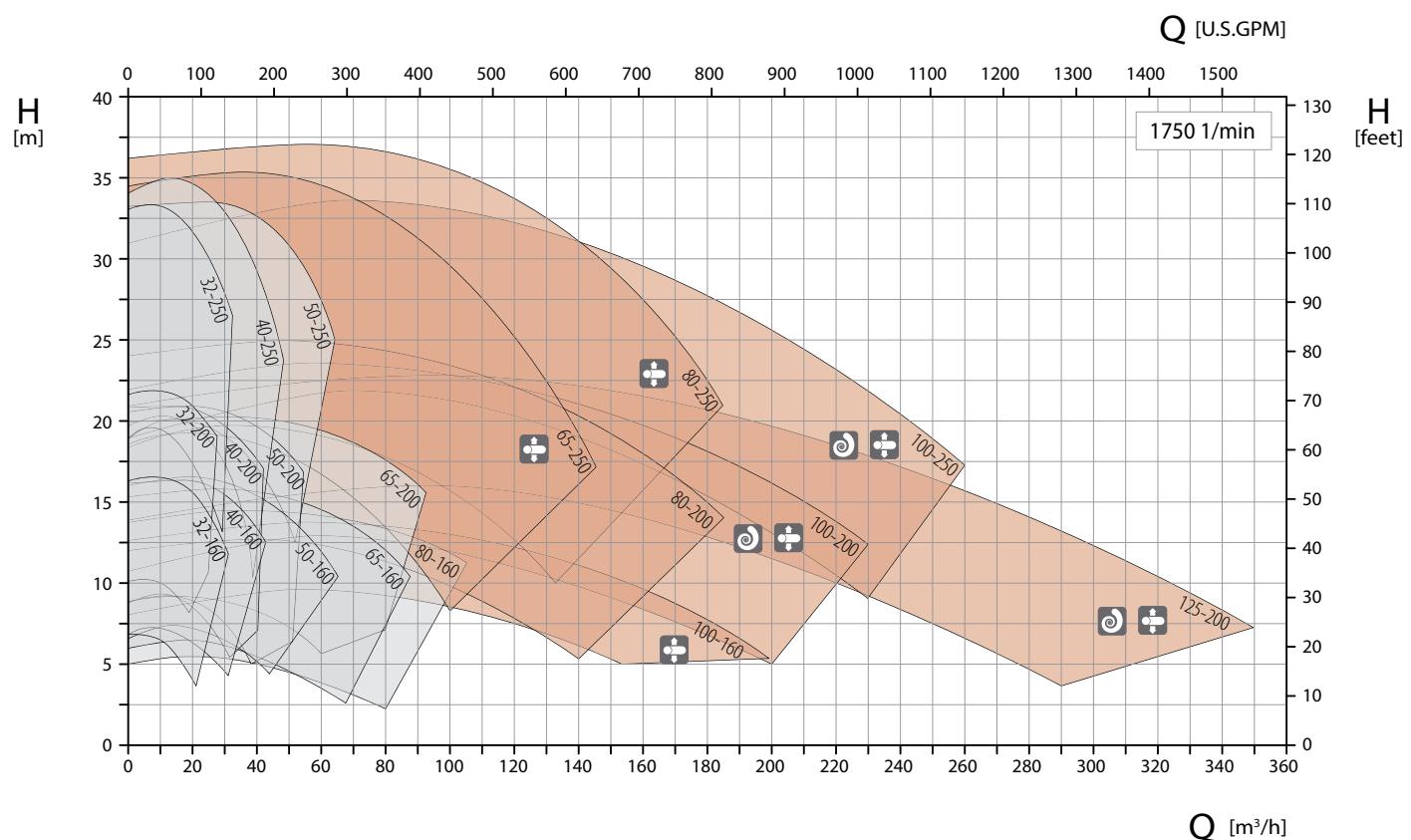
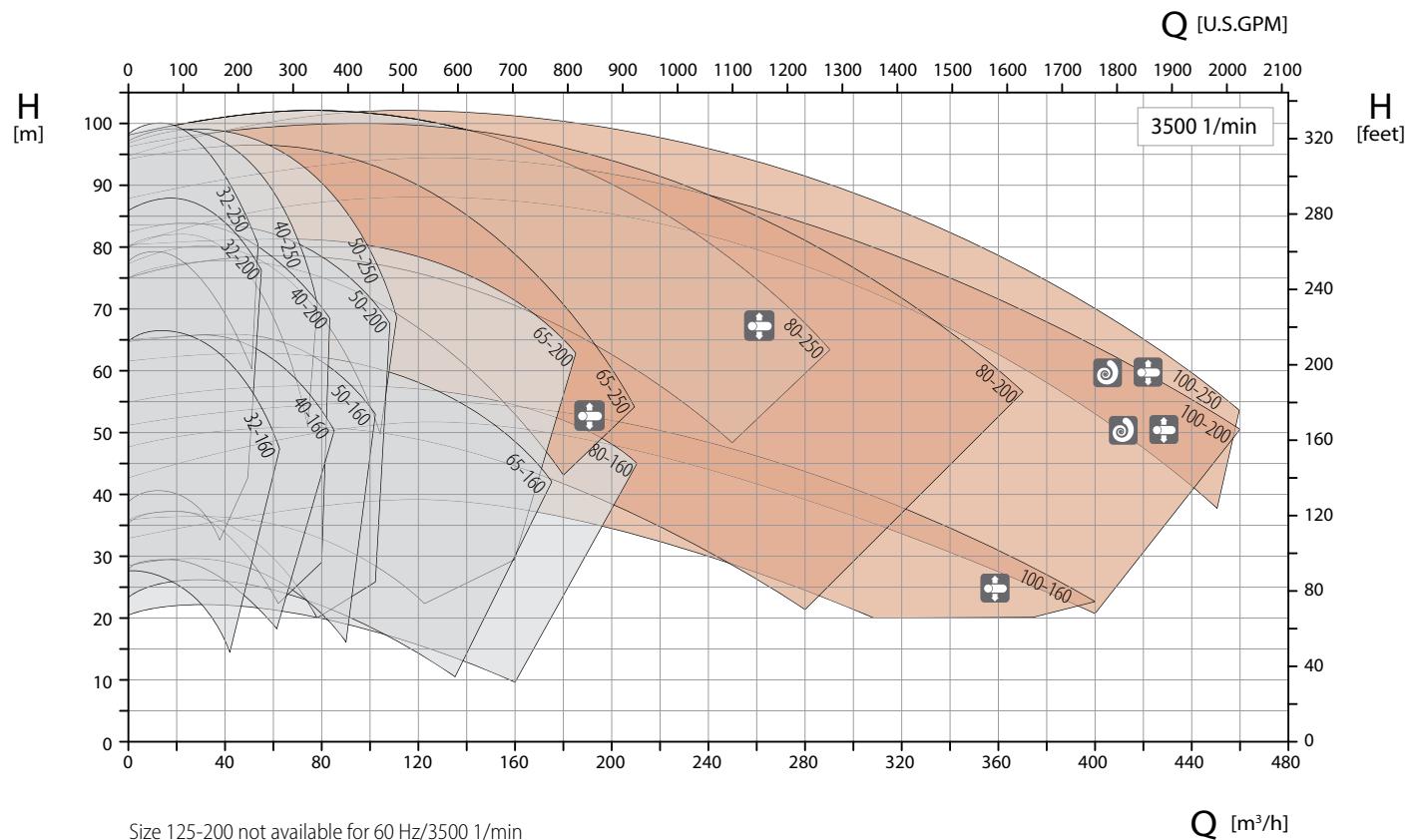
Bearing bracket 360

Bearing bracket 470

Casing with double volute

Casing with centreline mounting

60 Hz

**Bearing bracket 360****Bearing bracket 470**

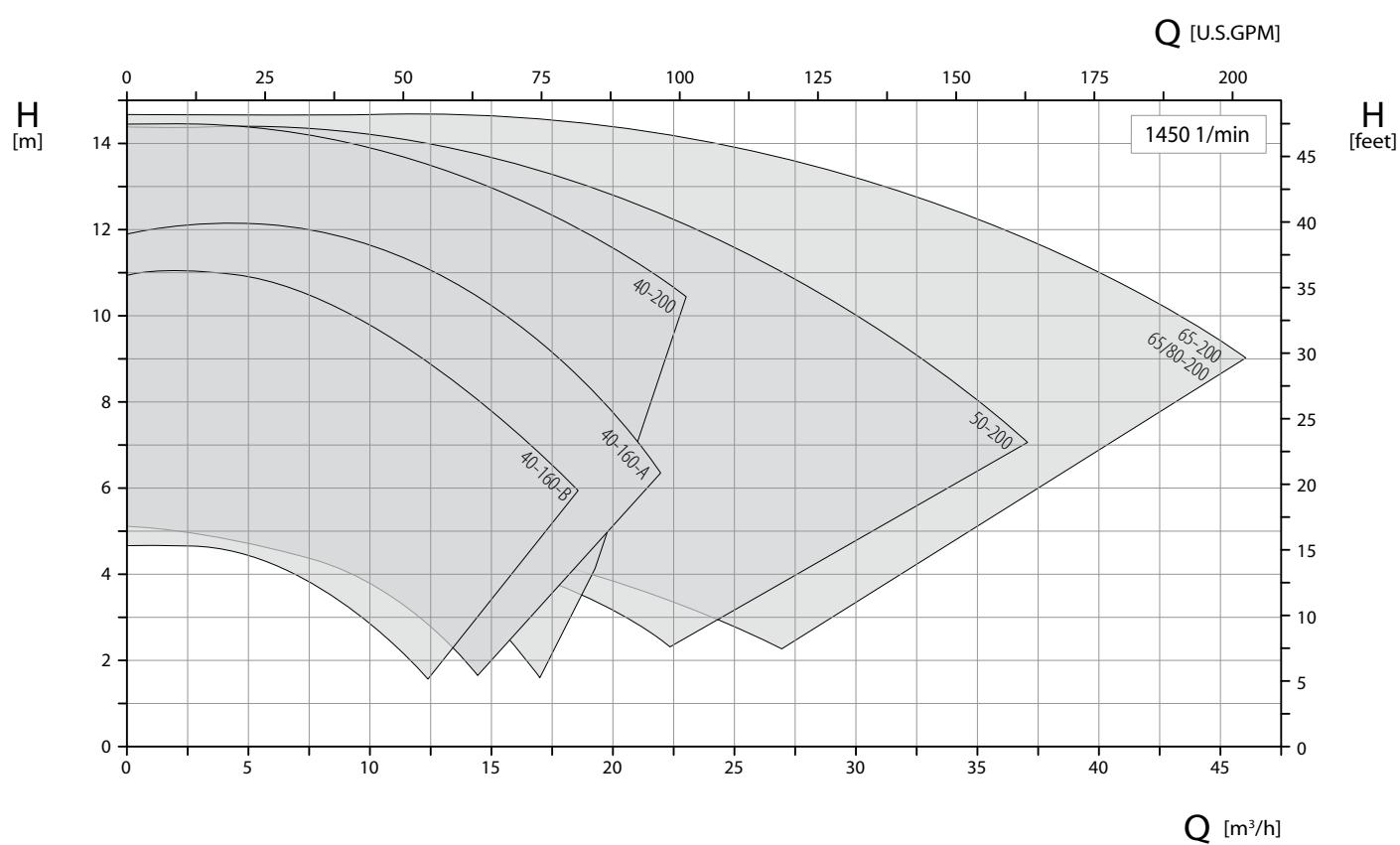
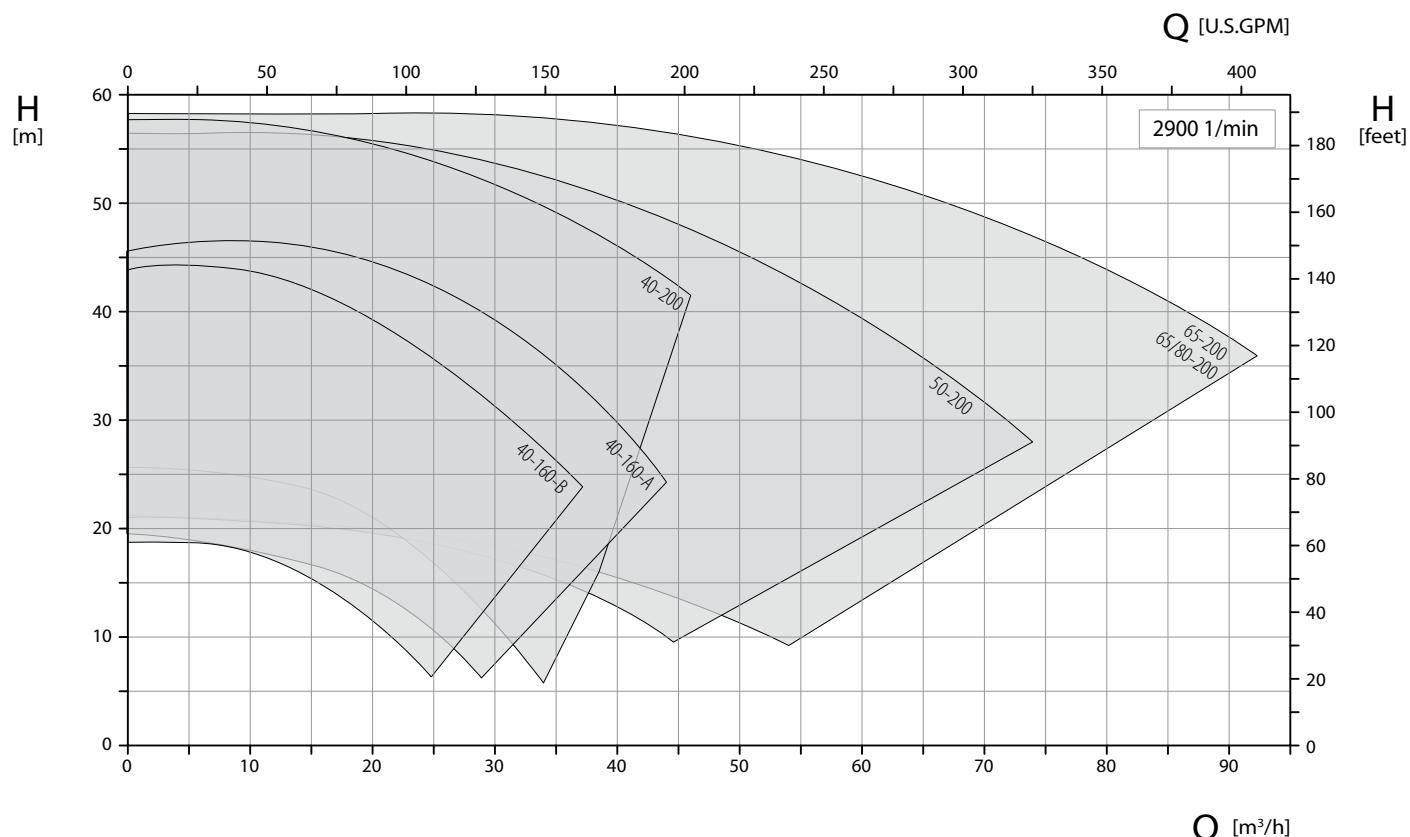
Casing with double volute



Casing with centreline mounting

TOEGI – Characteristic curves

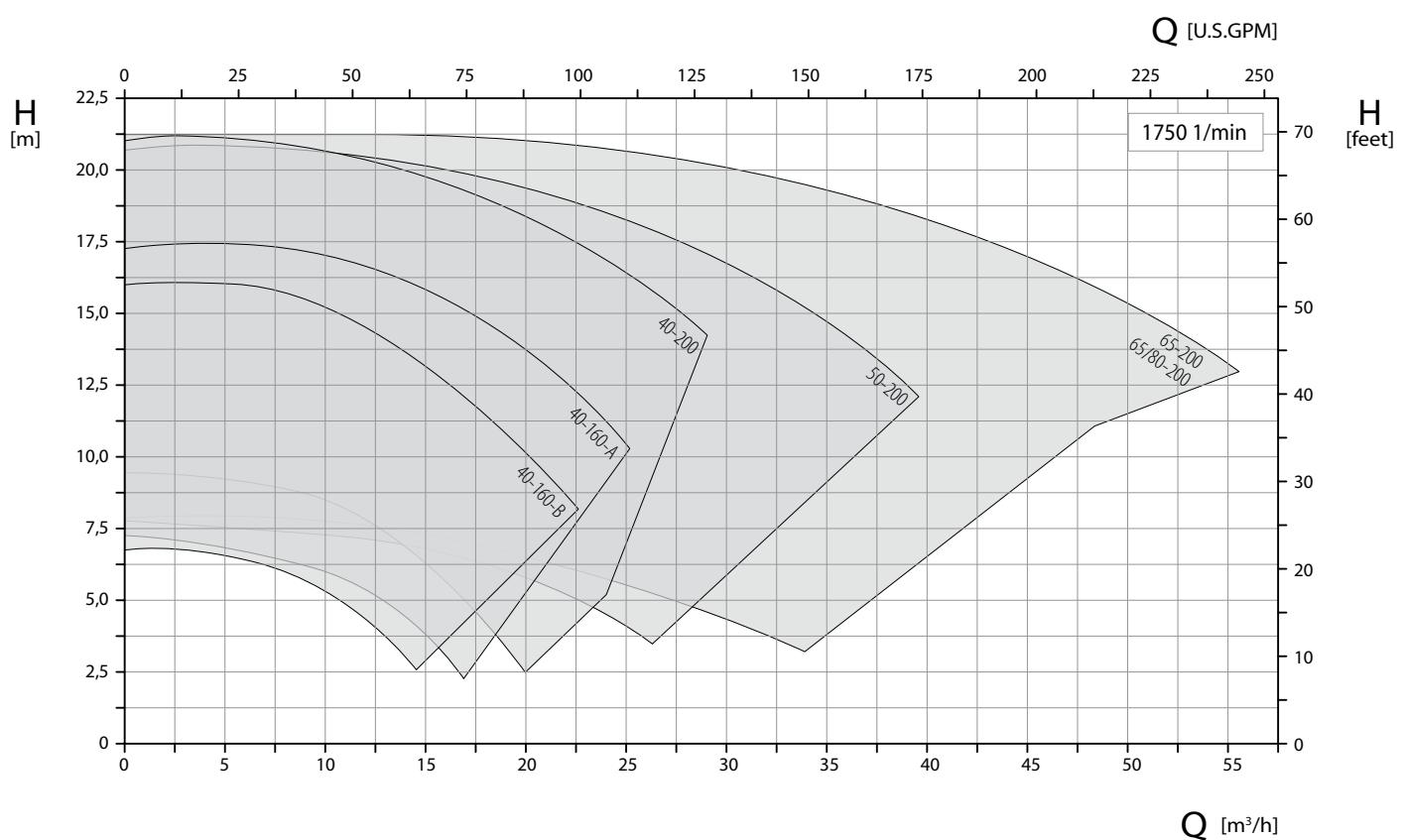
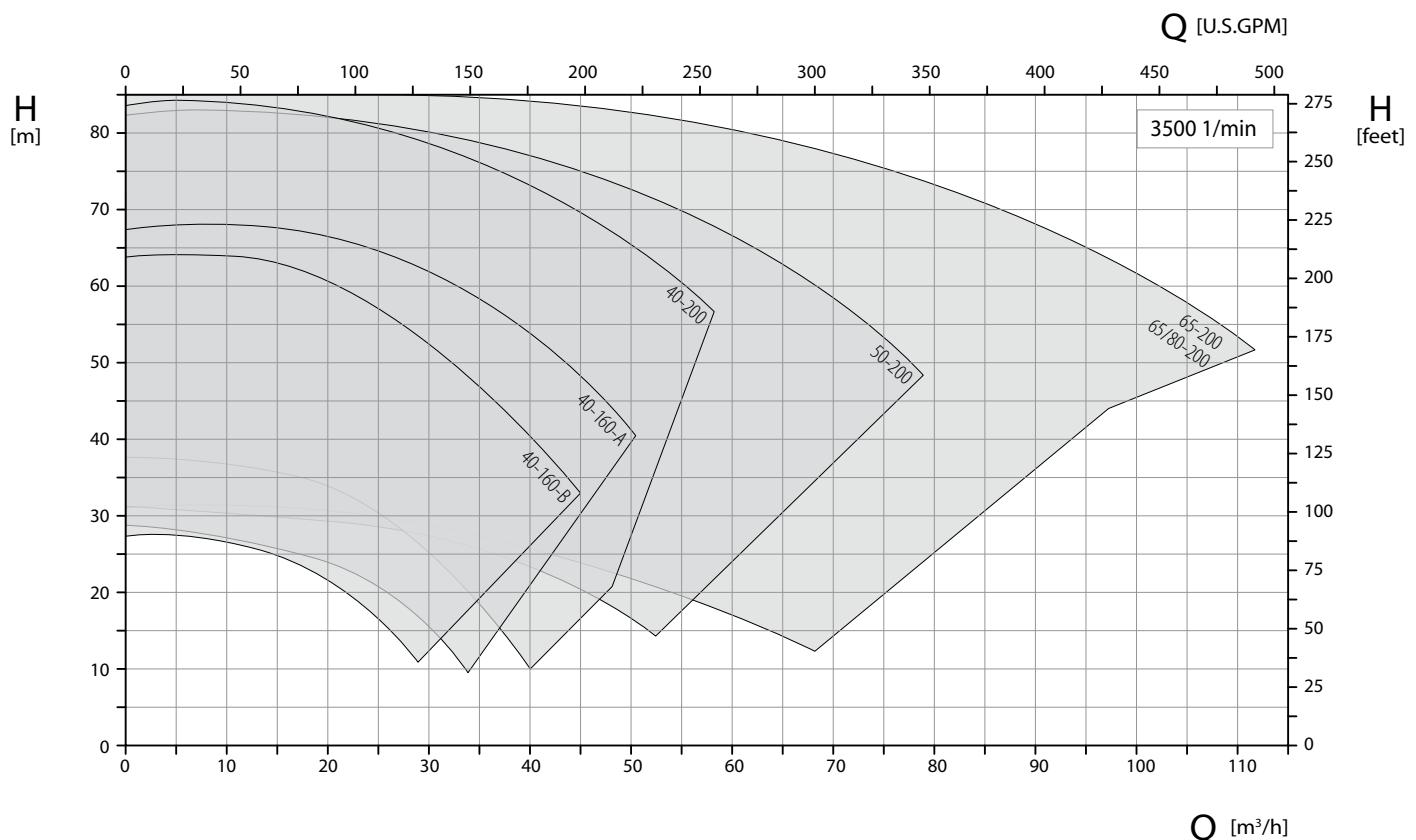
50 Hz



Bearing bracket 360

Size 40-160 with hydraulics A or B available

60 Hz

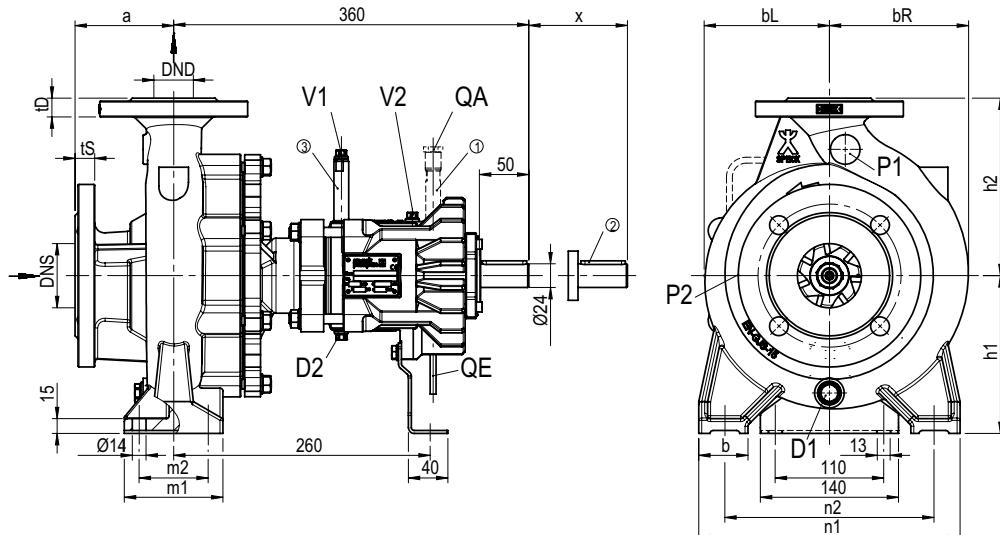
**Bearing bracket 360**

Size 40-160 with hydraulics A or B available

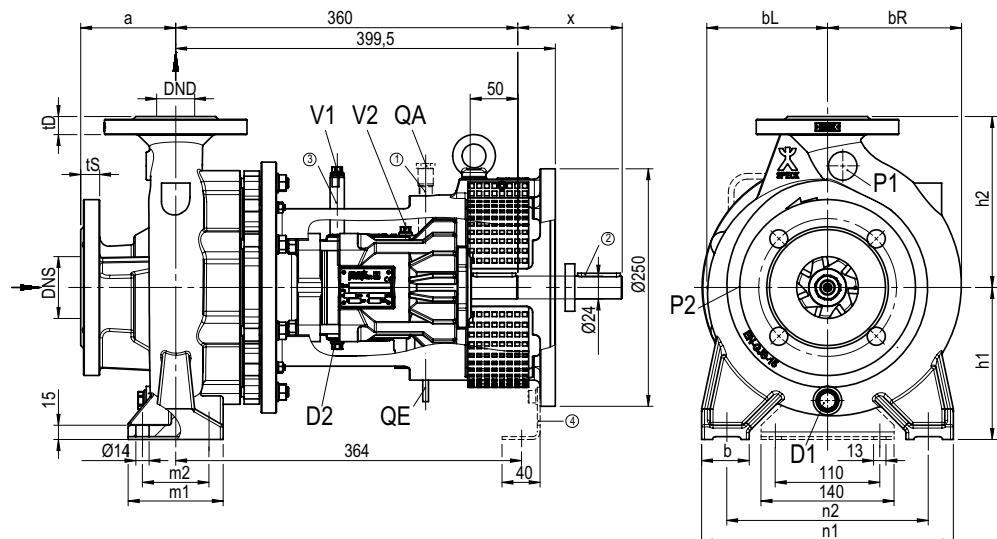
TOEGN / TOEGA – Dimensions and connections

Bearing bracket 360

TOEGN



TOEGA



| Size | DNS | DS | tS | DND | DD | tD | a | bL | bR | h1 | h2 | b | m1 | m2 | n1 | n2 | x |
|--------|-----|-----|----|-----|-----|----|-----|-----|-----|-----|-----|----|-----|----|-----|-----|-----|
| 32-160 | 50 | 165 | 20 | 32 | 140 | 15 | 80 | 116 | 121 | 132 | 160 | 50 | 100 | 70 | 240 | 190 | 110 |
| 32-200 | 50 | 165 | 20 | 32 | 140 | 18 | 80 | 123 | 135 | 160 | 180 | 50 | 100 | 70 | 240 | 190 | 110 |
| 32-250 | 50 | 165 | 20 | 32 | 140 | 18 | 100 | 152 | 163 | 180 | 225 | 65 | 125 | 95 | 320 | 250 | 110 |
| 40-160 | 65 | 185 | 20 | 40 | 150 | 18 | 80 | 123 | 129 | 132 | 160 | 50 | 100 | 70 | 240 | 190 | 110 |
| 40-200 | 65 | 185 | 20 | 40 | 150 | 18 | 100 | 127 | 141 | 160 | 180 | 50 | 100 | 70 | 265 | 212 | 110 |
| 40-250 | 65 | 185 | 20 | 40 | 150 | 18 | 100 | 151 | 160 | 180 | 225 | 65 | 125 | 95 | 320 | 250 | 110 |
| 50-160 | 65 | 185 | 20 | 50 | 165 | 20 | 100 | 123 | 136 | 160 | 180 | 50 | 100 | 70 | 265 | 212 | 110 |
| 50-200 | 65 | 185 | 20 | 50 | 165 | 20 | 100 | 130 | 148 | 160 | 200 | 50 | 100 | 70 | 265 | 212 | 110 |
| 50-250 | 65 | 185 | 20 | 50 | 165 | 20 | 100 | 157 | 170 | 180 | 225 | 65 | 125 | 95 | 320 | 250 | 110 |
| 65-160 | 80 | 200 | 22 | 65 | 185 | 20 | 100 | 124 | 151 | 160 | 200 | 65 | 125 | 95 | 280 | 212 | 110 |
| 65-200 | 80 | 200 | 22 | 65 | 185 | 20 | 100 | 136 | 164 | 180 | 225 | 65 | 125 | 95 | 320 | 250 | 110 |
| 80-160 | 100 | 220 | 24 | 80 | 200 | 22 | 125 | 139 | 174 | 180 | 225 | 65 | 125 | 95 | 320 | 250 | 110 |

Utility connections

P1 G 1/4 Manometer connection pressure-side (without bore)

P2 G 1/8 Manometer connection suction-side (without bore)

V1 G 1/8 Ventilation mechanical seal casing (horizontal set-up), not applicable for hot water version

V2 G 1/8 Ventilation mechanical seal casing (vertical set-up), not applicable for hot water version

D1 G 3/8 Drainage volute casing

D2 G 1/8 Drainage mechanical seal casing

QE G 1/8 Leakage evacuation mechanical seal

QA G 1/8 Quench (optional)

① Quench optionally

② Fitting key DIN 6885

③ Venting pipe

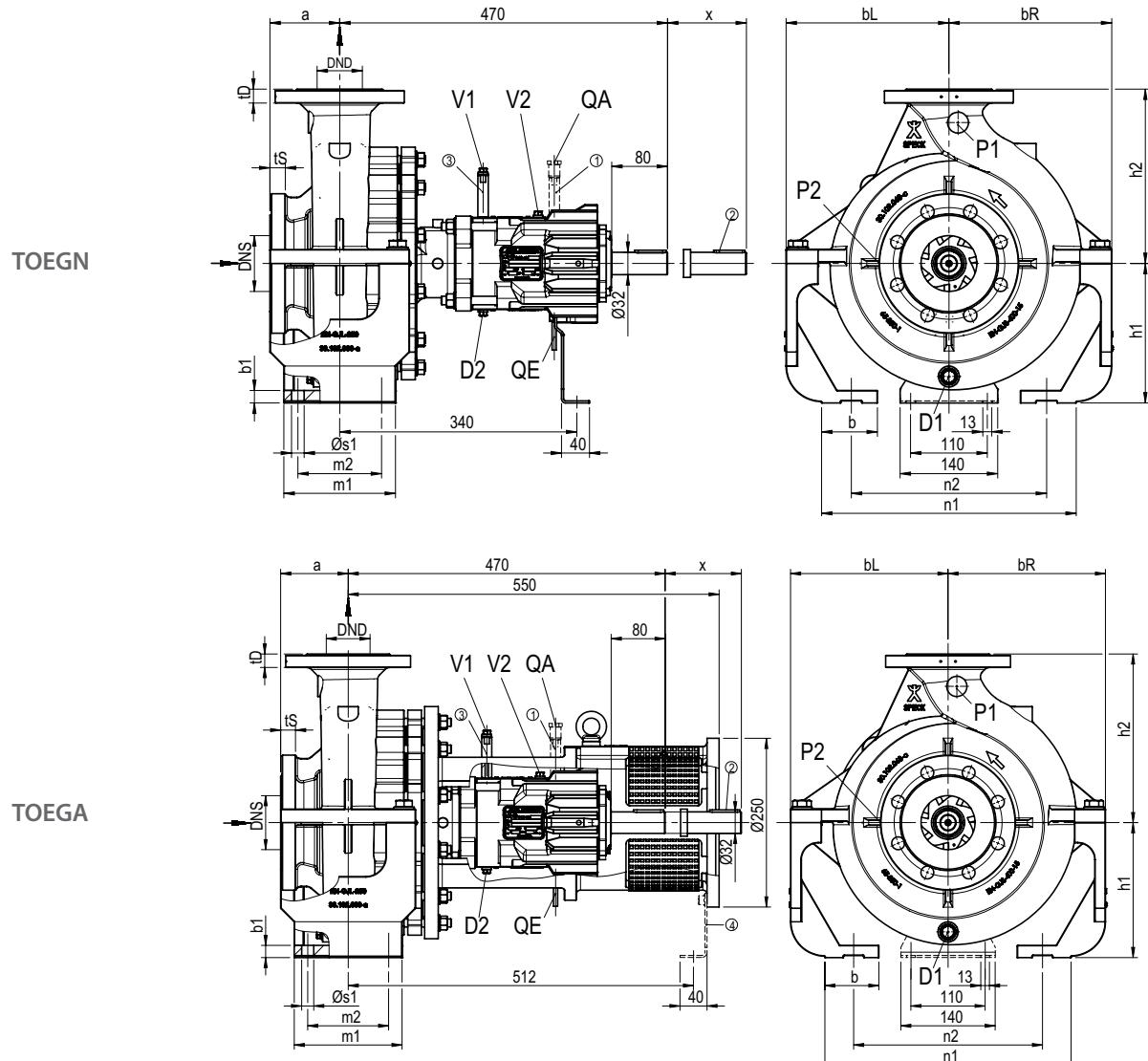
④ Feet applicable for motor design B5 only

x = Dismantling dimension

Flange dimensions → page 16

TOEGN / TOEGA – Dimensions and connections

Bearing bracket 470



| Size | DNS | DS | tS | DND | DD | tD | a | bL | bR | h1 | h2 | b | b1 | m1 | m2 | n1 | n2 | øs1 | x |
|----------------------|-----|-----|----|-----|-----|----|-----|-------|-------|-----|-----|----|----|-----|-----|-----|-----|-----|-----|
| 65-250 | 80 | 200 | 22 | 65 | 185 | 20 | 100 | 233,5 | 233,5 | 200 | 250 | 80 | 18 | 160 | 120 | 360 | 280 | 18 | 140 |
| 80-200 ¹ | 100 | 220 | 24 | 80 | 200 | 22 | 125 | 162,5 | 191 | 180 | 250 | 65 | 15 | 125 | 95 | 345 | 280 | 14 | 140 |
| 80-250 ² | 100 | 220 | 24 | 80 | 200 | 22 | 125 | 181 | 206,5 | 200 | 280 | 80 | 18 | 160 | 120 | 400 | 315 | 18 | 140 |
| 100-160 | 125 | 254 | 26 | 100 | 230 | 25 | 125 | 233,5 | 233,5 | 200 | 280 | 80 | 18 | 160 | 120 | 360 | 280 | 18 | 140 |
| 100-200 ³ | 125 | 254 | 26 | 100 | 230 | 25 | 125 | 233,5 | 233,5 | 200 | 280 | 80 | 18 | 160 | 120 | 360 | 280 | 18 | 140 |
| 100-250 ³ | 125 | 254 | 26 | 100 | 230 | 25 | 140 | 230 | 230 | 225 | 280 | 80 | 18 | 160 | 120 | 400 | 315 | 18 | 140 |
| 125-200 ³ | 150 | 285 | 26 | 125 | 254 | 26 | 140 | 262 | 262 | 250 | 315 | 80 | 18 | 160 | 120 | 400 | 315 | 18 | 140 |

¹ Casing with feet resp. without centreline mounting

² Casing with feet – as of 2015 with centreline mounting

³ Casing with double volute

Utility connections

P1 G 1/4 Manometer connection pressure-side (without bore)

P2 G 1/8 Manometer connection suction-side (without bore)

V1 G 1/8 Ventilation mechanical seal casing (horizontal set-up), not applicable for hot water version

V2 G 1/8 Ventilation mechanical seal casing (vertical set-up), not applicable for hot water version

D1 G 3/8 Drainage volute casing

D2 G 1/8 Drainage mechanical seal casing

QE G 1/8 Leakage evacuation mechanical seal

QA G 1/8 Quench (optionally)

① Quench optionally

② Fitting key DIN 6885

③ Venting pipe

④ Feet applicable for motor design B5 only

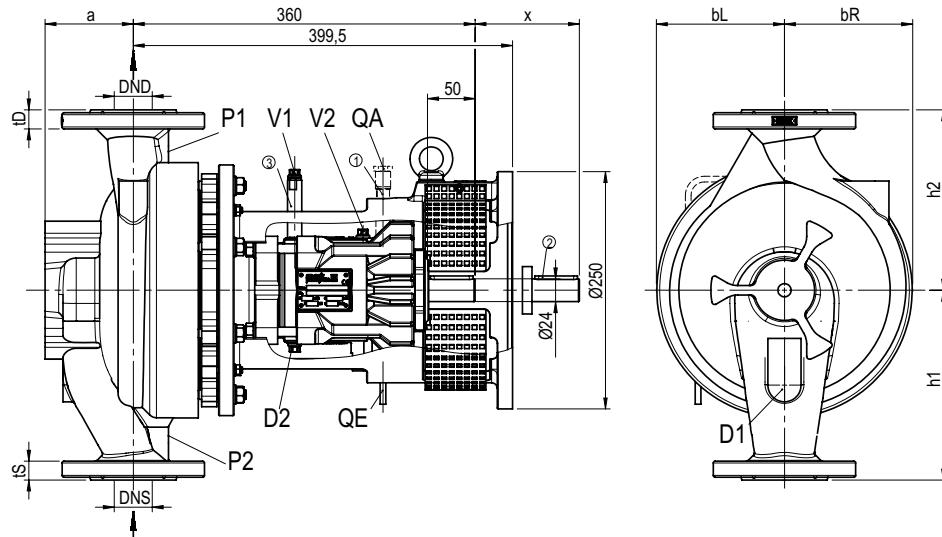
x = Dismantling dimension

Flange dimensions → page 16

TOEGI – Dimensions and connections

Bearing bracket 360

TOEGI



| Size | Casing | DNS | DND | a | DD | DS | tD | tS | bL | bR | h1 | h2 | x |
|-----------|--------|-----|-----|-----|-----|-----|----|----|-----|-----|-----|-----|-----|
| 40-160 | INA | 40 | 40 | 97 | 150 | 150 | 20 | 20 | 116 | 116 | 200 | 190 | 110 |
| 40-160 | INB | 40 | 40 | 97 | 150 | 150 | 20 | 20 | 116 | 116 | 180 | 160 | 110 |
| 40-200 | INA | 40 | 40 | 93 | 150 | 150 | 20 | 20 | 135 | 135 | 200 | 190 | 110 |
| 50-200 | INA | 50 | 50 | 102 | 165 | 165 | 21 | 21 | 126 | 139 | 220 | 205 | 110 |
| 50-200 | INB | 50 | 50 | 92 | 165 | 165 | 21 | 21 | 126 | 139 | 200 | 180 | 110 |
| 65-200 | INA | 65 | 65 | 112 | 185 | 185 | 23 | 23 | 131 | 151 | 240 | 225 | 110 |
| 65/80-200 | INB | 80 | 80 | 112 | 200 | 200 | 23 | 23 | 131 | 151 | 255 | 225 | 110 |

Anschlüsse

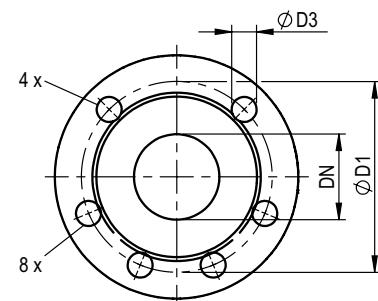
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- P2 G 1/8 Manometer connection suction-side (without bore)
- V1 G 1/8 Ventilation mechanical seal casing (horizontal set-up), not applicable for hot water version
- V2 G 1/8 Ventilation mechanical seal casing (vertical set-up), not applicable for hot water version
- D1 G 3/8 Drainage volute casing
- D2 G 1/8 Drainage mechanical seal casing
- QE G 1/8 Leakage evacuation mechanical seal
- QA G 1/8 Quench (optionally)

- ① Quench optionally
- ② Fitting key DIN 6885
- ③ Venting pipe
- x = Dismantling dimension

Flange dimensions

| Flanges in acc. with DIN EN 1092-2 | | | |
|------------------------------------|-----|-----|-------|
| DN | ØD1 | ØD3 | Holes |
| 32 | 100 | 19 | 4 |
| 40 | 110 | 19 | 4 |
| 50 | 125 | 19 | 4 |
| 65 | 145 | 19 | 4 |
| 80 | 160 | 19 | 8 |
| 100 | 180 | 19 | 8 |
| 125 | 210 | 19 | 8 |
| 150 | 240 | 23 | 8 |

| Flanges in acc. with DIN EN 1092-2, drilled in acc. with ANSI 150 lbs | | | |
|--|-------|-----|-------|
| DN | ØD1 | ØD3 | Holes |
| 32 | 88,9 | 16 | 4 |
| 40 | 98,6 | 16 | 4 |
| 50 | 120,7 | 19 | 4 |
| 65 | 139,7 | 19 | 4 |
| 80 | 152,4 | 19 | 4 |
| 100 | 190,5 | 19 | 8 |
| 125 | 215,9 | 22 | 8 |
| 150 | 241,3 | 22 | 8 |



Interchangeability of parts

All series including the versions with magnetic coupling (→ brochure TOEMN/MA/MI series) offer a high degree of interchangeability.

Same components within TOEGN/GA/GI series

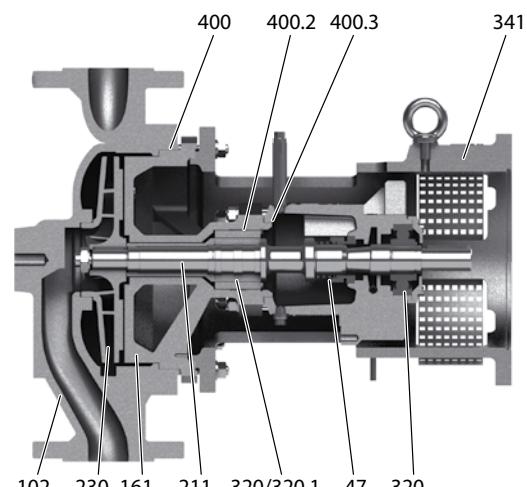
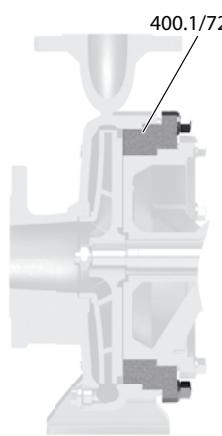
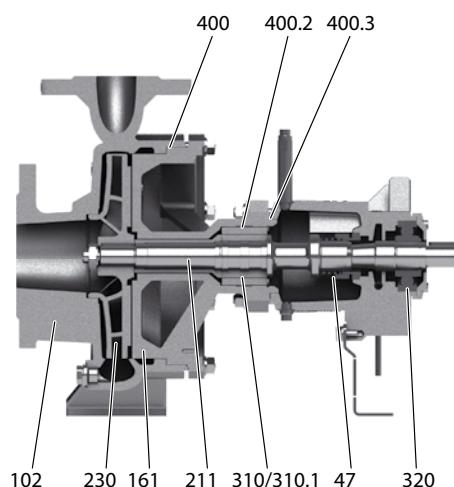
Compare only numbers within one **row**:

1 and **1** = same number means same component

1 and **2** and ... = different numbers mean different components

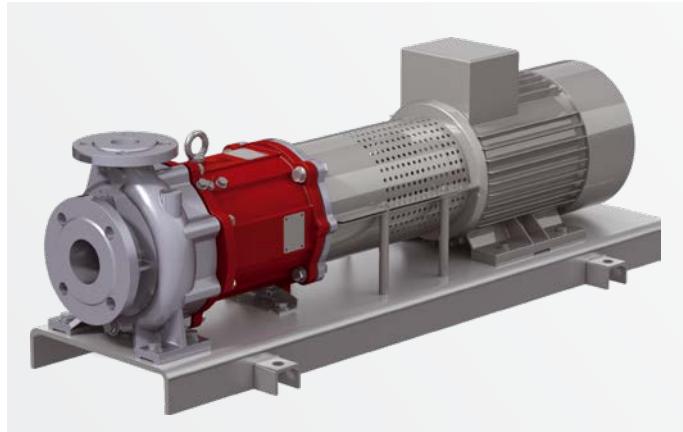
| Component | No. | Series | Pump size | | | | | | | | | | | | | | | | | | |
|-------------------------------------|---------------|----------|-----------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| | | | 32-160 | 32-200 | 32-250 | 40-160 | 40-200 | 40-250 | 50-160 | 50-200 | 50-250 | 65-160 | 65-200 | 80-160 | 65-250 | 80-200 | 80-250 | 100-160 | 100-200 | 100-250 | 125-200 |
| Bearing bracket complete | - | GN GA GI | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 4 | 3 | 5 | 4 | 3 | 4 | |
| Mechanical seal | 47 | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Volute casing | 102 | GN GA - | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| | | - - GI | | | | 20 | 21 | | 22 | | | 23 | | | | | | | | | |
| Casing cover | 161 | GN GA GI | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 3 | 4 | 3 | 5 | 4 | 3 | 4 | |
| Shaft | 211 | GN GA GI | | | | | | 1 | | | | | | | | | 2 | | | | |
| Impeller | 230 | GN GA - | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| | | - - GI | | | | 1 | 20 | | 5 | | | 8 | | | | | | | | | |
| Sleeve bearing | 310 / 310.1 | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Ball bearing | 320 | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Bracket | 341 | - GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Flat gasket | 400 | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Flat gasket | 400.1 | GN GA - | | | 1 | | 1 | | 1 | | | | | | | | | | | | |
| Flat gasket | 400.2 / 400.3 | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Mechanical seal casing ¹ | 441 | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |
| Counter flange | 720 | GN GA - | | | 1 | | 1 | | 1 | | | | | | | | | | | | |
| further parts | - | GN GA GI | | | | | | 1 | | | | | | | | | | 2 | | | |

¹ Thermal oil version and hot water version deviating



Pumps for heat transfer technology

*Centrifugal pumps
with magnetic coupling*



Modular system

TOEM and TOEG series mean a consistent designed modular system. Hydraulics and the main part of the used components are identical and interchangeable.

TOEM Series

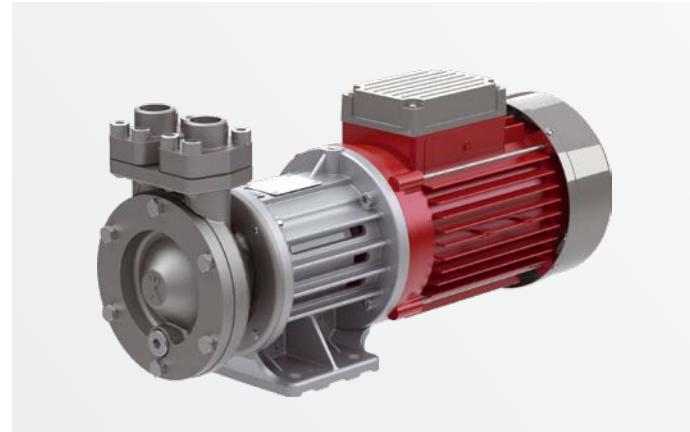
Developed for circulating organic or synthetic heat transfer oils in heat transfer systems in accordance with DIN 4754

Suitable for pumped media with low amounts of non-abrasive impurities

| | Spheroidal graphite cast iron versions | Stainless steel versions |
|--|---|---------------------------------|
| Media | Heat transfer oil / thermal oil | Heat transfer oil / thermal oil |
| T _{min} | - 40 °C | - 100 °C |
| T _{max} | + 350 °C | + 250 °C |
| Casing | Spheroidal graphite cast iron | Stainless steel |
| Nominal pressure | PN 16 | |
| H _{max} (2900 min ⁻¹) | 100 m | 60 m |
| Q _{max} (2900 min ⁻¹) | 550 m ³ /h | 170 m ³ /h |
| ATEX | II 3G, II 3D, II 2G, II 2D | |

Description in full length → see brochure TOEM series

*Regenerative turbine pumps
with magnetic coupling*



NPY-MK and CY-MK Series

Tried and tested and compact close-coupled pumps with top/top casings and magnetic coupling. Developed for transporting and circulating organic or synthetic heat transfer oils and hot water. Suitable for pumped media with low amounts of non-abrasive impurities. Suitable for the delivery of gas shares due to the principle of delivery.

| | Thermal oil versions | Hot water versions |
|--|---|-------------------------------------|
| Media | Heat transfer oil / thermal oil | Water |
| T _{min} | - 100 °C | - |
| T _{max} | + 350 °C + 400 °C on request | + 220 °C higher temp. on request |
| Casing | Spheroidal graphite cast iron or stainless steel | |
| Nominal pressure | PN 25 higher pressures on request | |
| H _{max} (2900 min ⁻¹) | 90 m | |
| Q _{max} (2900 min ⁻¹) | 12 m ³ /h (200 l/min) 24 m ³ /h (400 l/min) on request | |
| ATEX | II 3G, II 3D, II 2G, II 2D | |

Compact, robust, durable and safe

Regenerative turbine pumps with magnetic coupling from Speck have been used in a wide range of systems and assemblies successfully for many years. The compact design requires minimal installation space and reduces the weight. The perfected pumps also impress with the small number of extremely high-quality parts.

Robust sleeve bearings made from SiC and ceramic shafts guarantee a long lifetime and are free from leakage and maintenance-free thanks to magnetic couplings.

On request, Speck can also develop special designs for special media or with different hydraulics. Please contact us.

Representatives

■ Produktion / Production
■ Vertrieb / Sales
● Service / Service

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Walter Speck GmbH & Co. KG

Speck Pumpen
Systemtechnik GmbH

Speck Pumpen

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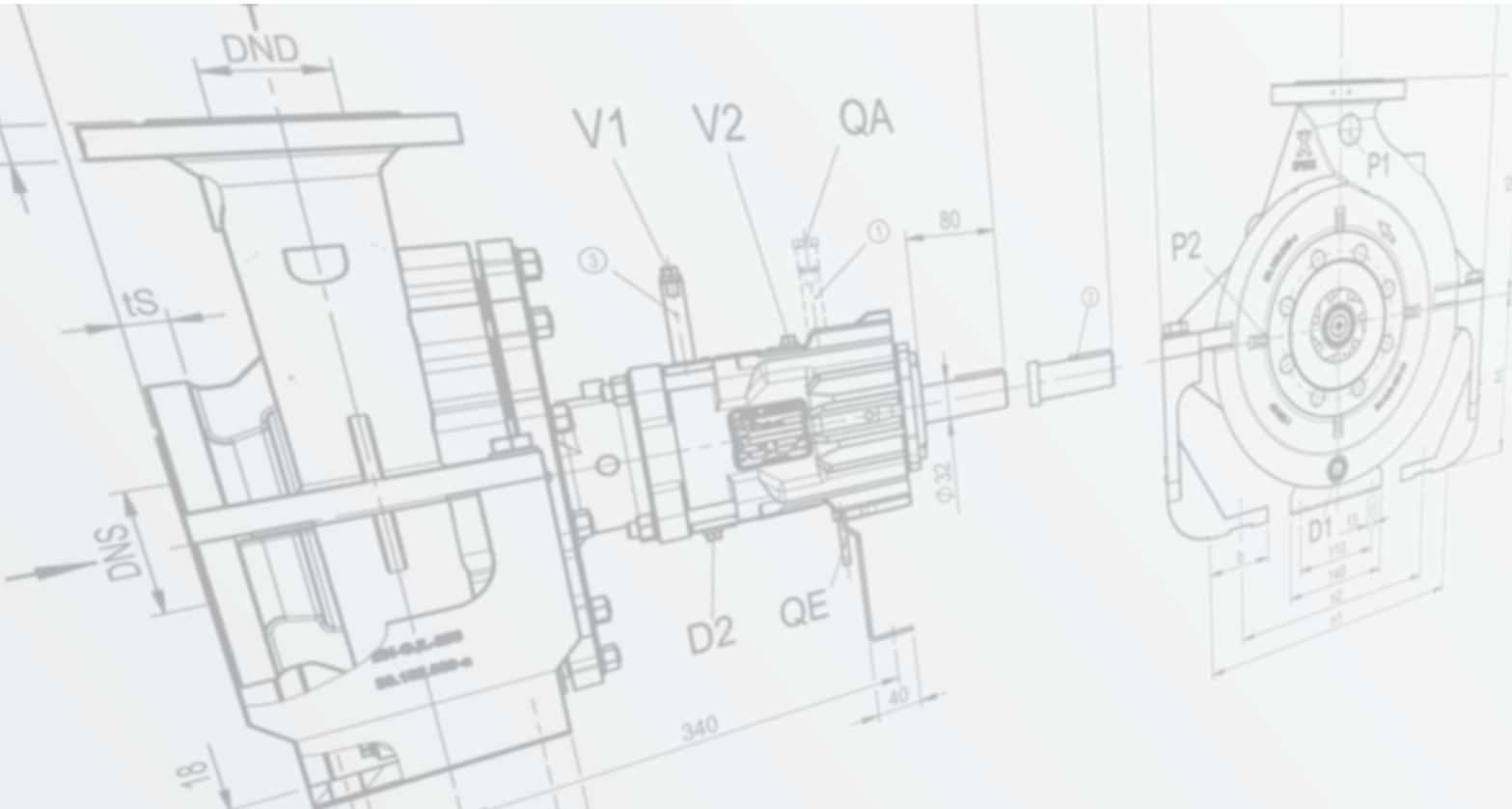
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