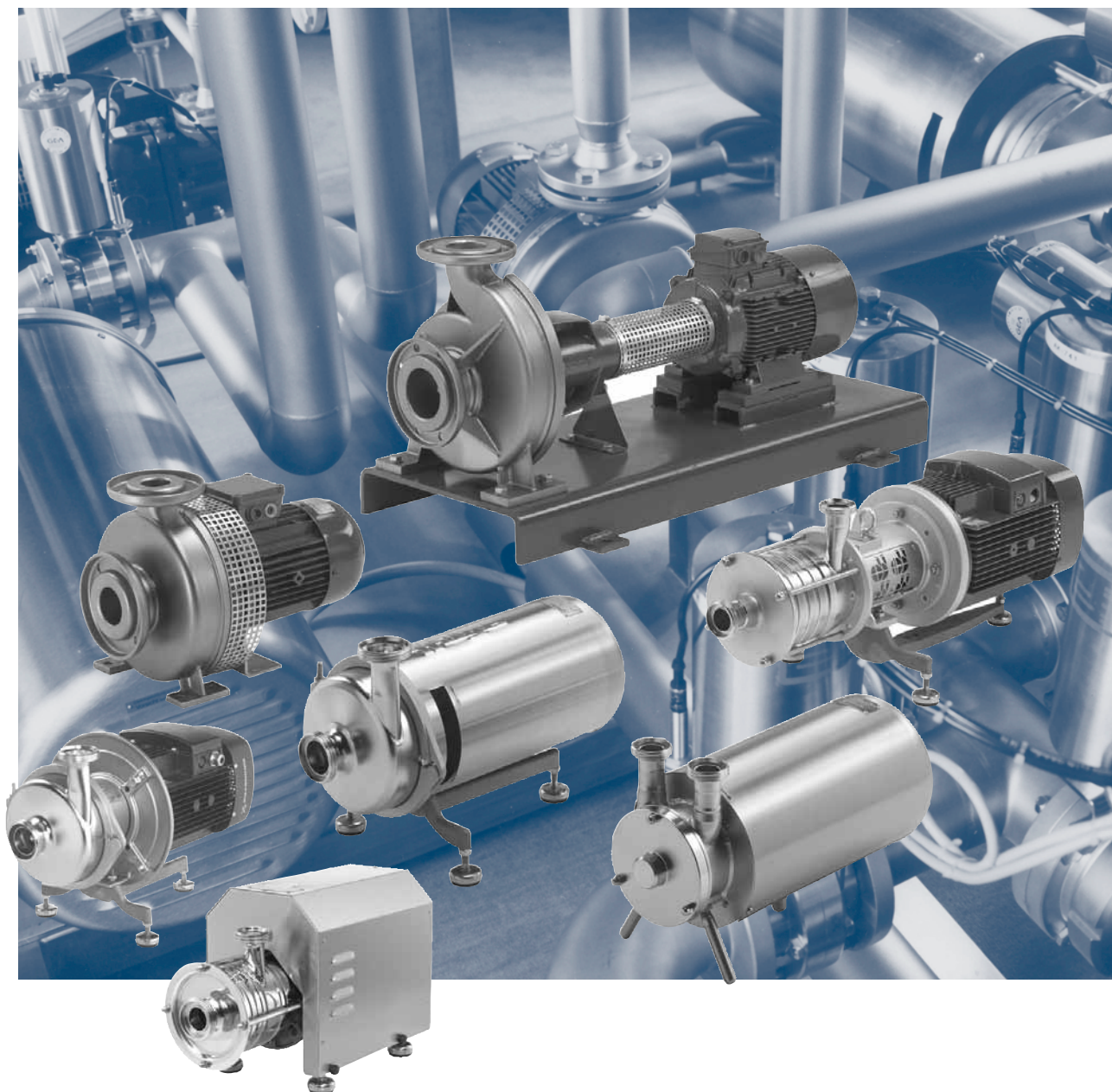


Sanitary pumps

Centrifugal pumps
50 Hz



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Grundfos sanitary pumps

Grundfos stainless steel sanitary pumps are designed for a wide range of hygienic and sanitary fields of application such as:

- food and beverage industry
- life science/pharmaceutical industry
- personal care
- water treatment.

The Grundfos range of sanitary pumps comprises the below pump types, each state-of-the-art within their specific field of application.

The pumps can be fitted with a variety of features to adapt to specific pumping tasks. In addition, it is possible to customise the pumps for optimum function or performance in relation to the job at hand.

Euro-HYGIA®

Euro-HYGIA® single-stage, end-suction centrifugal pumps come in a variety of flexible versions. The pumps offer heads up to 70 metres, flow rates up to 250 m³/h and operating pressures up to 16 bar. Pipe connections range from DN 25 to DN 125 and motor sizes from 0.55 to 22 kW. See page 6.

F&B-HYGIA®

F&B-HYGIA® single-stage, end-suction centrifugal pumps offer heads up to 70 metres, flow rates up to 105 m³/h and operating pressures up to 16 bar. Pipe connections range from DN 40 to DN 100 and motor sizes from 1.1 to 18.5 kW. See page 8.

Contra

Contra single-stage or multi-stage, end-suction centrifugal pumps come in a variety of flexible versions. The pumps offer heads up to 160 metres, flow rates up to 55 m³/h and operating pressures up to 25 bar. Pipe connections range from DN 25 to DN 80 and motor sizes from 0.55 to 18.5 kW. See page 10.

durietta 0

durietta 0 single-stage or multi-stage centrifugal pumps offer low flow and high head. The pumps are available in a vertical and a horizontal version. The pumps offer heads up to 70 metres, flow rates up to 6 m³/h and operating pressures up to 8 bar. Pipe connections range from DN 25 to DN 40 and motor sizes from 0.25 to 2.2 kW. See page 12.

SIPLA

SIPLA single-stage, self-priming, side-channel pumps offer heads up to 56 metres, flow rates up to 80 m³/h and operating pressures up to 10 bar. Pipe connections range from DN 32 to DN 80 and motor sizes from 0.75 to 22 kW. See page 14.

MAXA and MAXANA

MAXA and MAXANA are single-stage, end-suction centrifugal pumps. The MAXA pumps are designed according to DIN EN 733. The pumps offer heads up to 97 metres, flow rates up to 820 m³/h and operating pressures up to 10 bar. Pipe connections range from DN 32 to DN 150 and motor sizes from 0.55 to 90 kW. See page 16.

Hygienic design

The Grundfos sanitary pumps have been designed in accordance with the strictest hygienic design criteria.

The surface finish of the materials used is of paramount importance to prevent possible breeding grounds for bacteria and germs.

Fully drainable models are available, and the use of AISI 316L (DIN EN 1.4404/1.4435) cold-rolled and/or forged stainless steel ensures a homogeneous, pore-free surface in contrast to cast materials.

The design, materials and material surface finish are subject to a variety of national and international rules and regulations, guidelines and laws. Among these are the EU Machinery Directive, the GMP (Good Manufacturing Practices) rules and regulations, the FDA (Food and Drug Administration) regulations, the EU foodstuff hygienic guidelines, the DIN EN 12462 Biotechnology Standard as well as the EHEDG (European Hygienic Engineering & Design Group) and the QHD (Qualified Hygienic Design) criteria.

Shaft seals

Single, flushed or double mechanical shaft seal arrangements are available, depending on the application and the pumped liquid. The seals offer trouble-free operation.

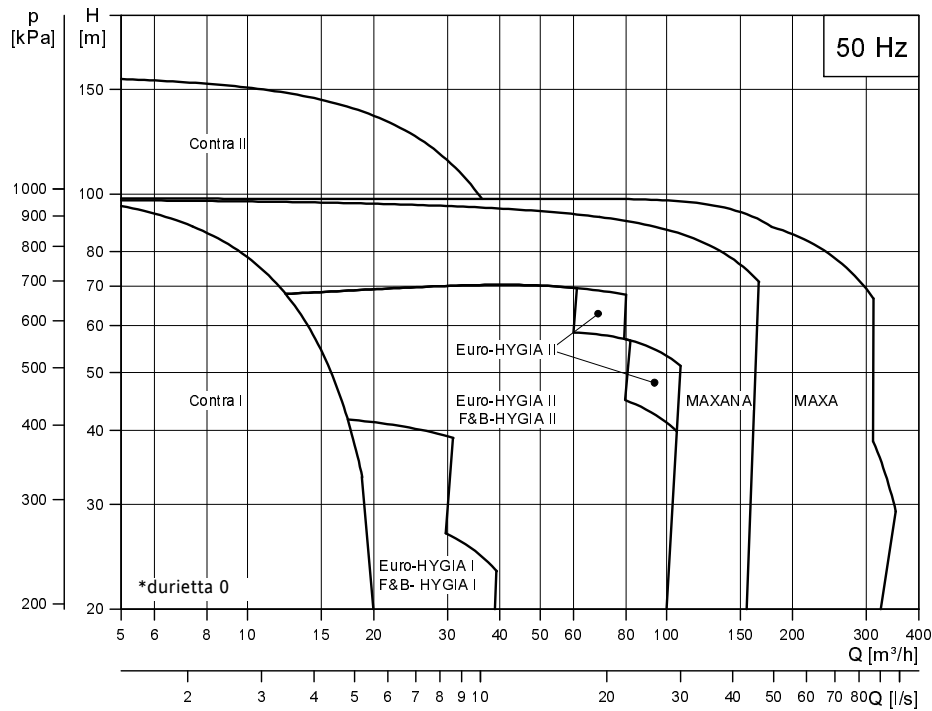
The single shaft seals are inboard mechanical seals with the optimum position in the pumped liquid in order to ensure lubrication, cooling as well as CIP (Cleaning-In-Place) and SIP (Sterilisation-In-Place).

Double seals are available as a tandem arrangement or mounted back-to-back.

Connections

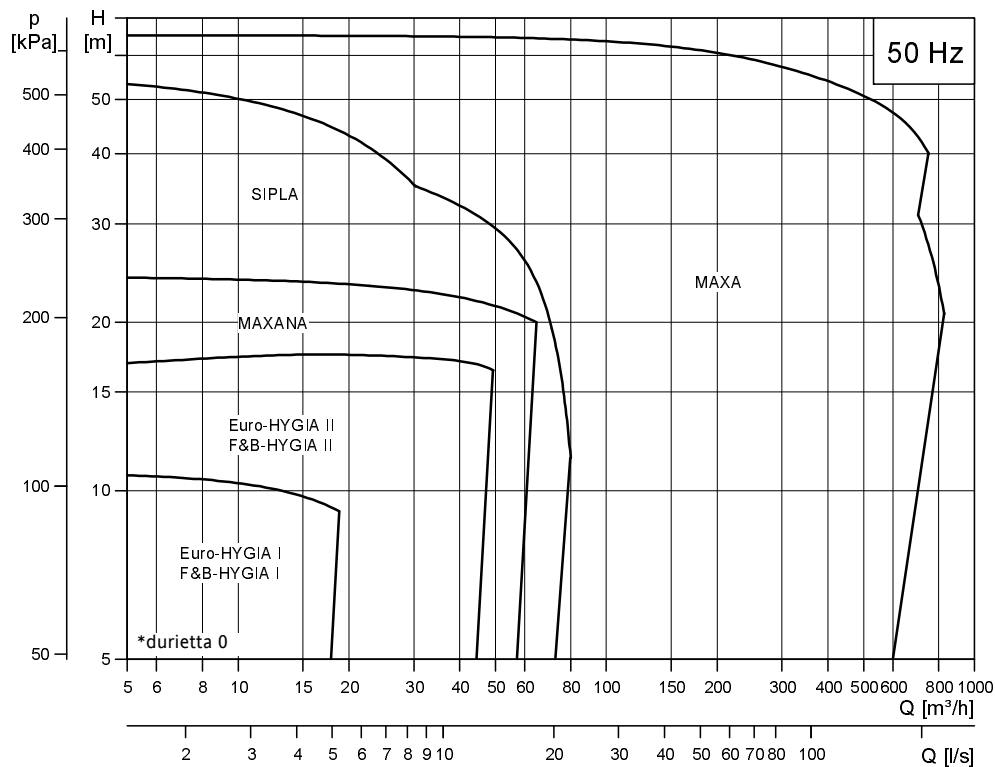
A variety of connections are available, such as sterile threads to DIN 11864-1 PN 16 and sterile flanges to DIN 11864-2 PN 16. See page 34.

Performance range, 2-pole



TM02 9739 3704

Performance range, 4-pole



TM02 9740 3309

*durietta 0: The performance range is shown on page 102.

Euro-HYGIA®



GR8963

Fig. 1 Euro-HYGIA®

Euro-HYGIA® I and II

Technical data

Head:	up to 70 m
Flow rate:	up to 108 m ³ /h
Euro-HYGIA® III (on request):	up to 250 m ³ /h
Operating pressure:	up to 16 bar
Operating temperature:	95 °C (up to 150 °C on request)
Sterilisation temperature:	140 °C (SIP)

Applications

The unique hygienic design and the materials used make the Euro-HYGIA® pumps suitable for these applications and products:

Life science/pharmaceutical industries

- pure water systems (WFI)
- biotechnology
- infusion
- nutrient and alcohol infusions
- filling/bottling systems.

Personal care

- pure water
- lotions
- perfumes.

Food and beverage industries

- breweries
- dairies
- soft drink mixing
- yeast processes.

Other industries

- cleaning solutions (CIP systems)
- water treatment
- semi-conductor manufacturing
- metal surface treatment.

Construction

Euro-HYGIA® pumps are single-stage, end-suction centrifugal pumps, designed to meet the hygienic requirements of sterile process technology.

The pumps are available in a variety of flexible versions. The pumps are CIP and SIP capable in compliance with the DIN EN 12462 performance criteria.

The design fulfils the following requirements:

- QHD criteria
- EHEDG recommendations for CIP cleanability
- GOST sanitary standard (Russia).



Fig. 2 Certification

The pumps comply with these surface finish requirements:

Standard pump version: 3A1
Optional: 3A2, 3A3.

For explanation, see [Certification](#), page 55.

The pump housing is made of heavy-duty, rolled and deep-drawn CrNiMo steel to DIN EN 1.4404/1.4435, the equivalent of AISI 316L.

Three impeller types are available, depending on the applications: Semi-open, closed and free-flow impeller. See page 51.

The pumps have a mechanical shaft seal and a fan-cooled asynchronous motor to enclosure class IP55.

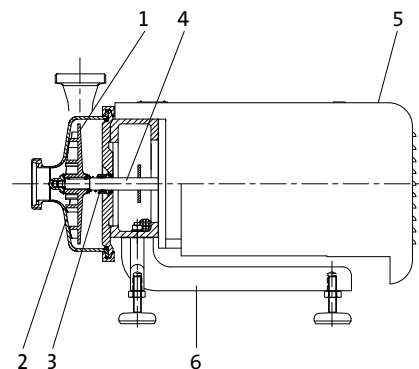


Fig. 3 Sectional drawing of Euro-HYGIA® I Bloc-SUPER on combi foot

TM02 9607 3504

Materials

Pos.	Component	Material	DIN/EN
1	Impeller	CrNiMo steel	1.4404/ 1.4435
2	Pump housing	CrNiMo steel	1.4404/ 1.4435
3	Shaft seal	Sterile applications: SiC/SiC/EPDM Hygienic applications: Carbon/stainless steel/EPDM or FKM	
4	Pump shaft	CrNiMo steel	1.4571
5	Shroud	Stainless steel	
6	Foot	Stainless steel/cast iron	

Design variations

Standard variation	Description
Euro-HYGIA® Adapta®	Horizontal installation, Adapta® motor stool
Euro-HYGIA® Adapta® SUPER	Horizontal installation, Adapta® motor stool, motor with stainless steel shroud
Euro-HYGIA® Bloc	Horizontal installation
Euro-HYGIA® Bloc-SUPER	Horizontal installation, motor with stainless steel shroud
Variation on request	Description
Euro-HYGIA® Adapta®-V	Vertical installation, Adapta® motor stool
Euro-HYGIA® Bloc-V	Vertical installation
Euro-HYGIA® VE	Vertical tank installation
Euro-HYGIA® CN	Horizontal installation, long-coupled version mounted on base plate
Euro-HYGIA® tronic	Horizontal/vertical installation, motor with built-in frequency converter (up to 22 kW)

See page 20.

Mechanical shaft seal

Grundfos offers these shaft seal arrangements:

- single seal
- double seal, tandem
- double seal, back-to-back.

As standard, the Euro-HYGIA® is fitted with a single, inboard, mechanical shaft seal with an optimum position in the pumped liquid. This ensures lubrication, cooling as well as CIP and SIP, according to the criteria of hygienic design.

Standard seals have carbon/stainless steel seal faces and EPDM O-rings. Other seal face material combinations are available on request.

See page 53.

Surface treatment

As standard, all wetted parts are electro-polished to improve corrosion-resistance and surface finish.

Standard connection

Grundfos offers threads to DIN 11851 as standard for Euro-HYGIA® pumps.

Connections on request

Threads:

- Aseptic threads to DIN 11864-1.

Flanges:

- Aseptic flanges to DIN 11864-2
- APV flanges
- Flanges to DIN EN 1092-1 (DIN 2633)
- Kremo flanges to DIN EN 1092-1 (DIN 2633/42).

Clamps:

- Clamps to DIN 32676
- Clamps for Tri-Clamp®/Tri-Clover®.

Note: Not all pump sizes are available with all connection types. See pages 34 to 35.

For other connection types as well as applications and design of connections, see pages 28 to 33.

Features and benefits

- A wide range of foot options for motor and pump.
- Extremely reliable operation under most working conditions.
- Optimised hydraulics for high efficiency - reduced power consumption.
- Multi-function inducer for NPSH reduction or pumping of liquids containing gas (Euro-HYGIA® II).
- Motors for special voltages and frequencies.
- Euro-HYGIA®, Adapta® and Euro-HYGIA® CN with explosion-proof or flameproof three-phase motors available for ATEX applications.
- Motors for variable-speed drive with built-in frequency converter, available for motor sizes up to 22 kW.
- Mobile pumps mounted on two-wheel stainless steel trolley with on/off switch and electric cable.
- DN 15 diaphragm valve drain for sterile processes.
- DN 15 drain connection.
- Heating/cooling jacket for pump housing.
- Integral flange ring for bolted housing closure (HPM).
- Special paint finish for the motor and the cast iron/ steel parts.

F&B-HYGIA®



GrA2396

Fig. 4 F&B-HYGIA®

F&B-HYGIA® I and II

Technical data

Head:	up to 70 m
Flow rate:	up to 105 m ³ /h
Operating pressure:	up to 16 bar
Operating temperature:	95 °C
Sterilisation temperature:	140 °C (Sterilisation-In-Place, SIP)

Applications

The unique hygienic design and the materials used make the F&B-HYGIA® pumps suitable for these products:

Beverages

Beer, soft drinks, alcohol, wine, fruit drinks, yeast, etc.

Dairy products

Milk, whey, cream, condensed milk, etc.

Confectionery

Syrup, sugar solutions, etc.

Meat

Liquid fat, frying oil, smokehouse spray, blood, etc.

Construction

F&B-HYGIA® single-stage, end-suction centrifugal pumps are designed to meet the hygienic requirements of sterile process technology.

The pumps are CIP and SIP capable in compliance with the DIN EN 12462 performance criteria.

The design fulfils the following requirements:

- QHD criteria
- EHEDG recommendations for CIP cleanability.

For explanation, see [Certification](#), page 55.

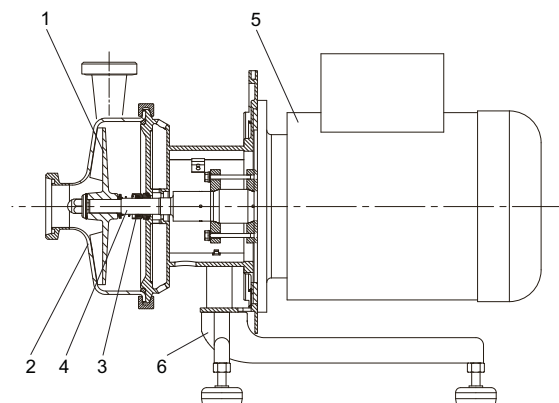


Fig. 5 Certification

The pump housing is made of heavy-duty, rolled and deep-drawn CrNiMo steel to DIN EN 1.4404, the equivalent of AISI 316L.

F&B-HYGIA® pumps are fitted with a semi-open impeller. See page 51.

The pumps have a mechanical shaft seal (optionally flushed) and a fan-cooled, asynchronous motor to enclosure class IP55.



TM03 3898 1106

Fig. 6 Sectional drawing of F&B-HYGIA® K on combi foot

Materials

Pos.	Component	Material	DIN EN
1	Impeller	CrNiMo steel	1.4404
2	Pump housing	CrNiMo steel	1.4404
3	Shaft seal	Hygienic applications: Carbon/stainless steel/EPDM or FKM	
4	Pump shaft	CrNiMo steel	1.4571
5	Motor		
6	Foot	Stainless steel/cast iron	

Design variations

Standard variation	Description
F&B-HYGIA® K	Horizontal installation with plug-in shaft and multi-functional motor stool.
F&B-HYGIA® K-SUPER	Horizontal installation with plug-in shaft and multi-functional motor stool and motor with stainless steel shroud.

See page [20](#).

Mechanical shaft seal

Grundfos offers these shaft seal arrangements:

- single seal
- single seal, flushed.

As standard, the F&B-HYGIA® is fitted with a single, inboard, mechanical shaft seal with an optimum position in the pumped liquid. This ensures lubrication, cooling as well as CIP and SIP, according to the criteria of hygienic design.

Standard seals have carbon/stainless steel seal faces and EPDM O-rings. Other seal face material combinations are available on request.

See page [53](#).

Surface treatment

As standard, all chrome-steel parts are electro-polished to improve corrosion-resistance and surface finish.

Standard connections

Grundfos offers threads to DIN 11851 as standard for F&B-HYGIA® pumps.

Connections on request

Flanges:

- Kremo flanges to DIN EN 1092-1 (DIN 2633/42).

Clamps:

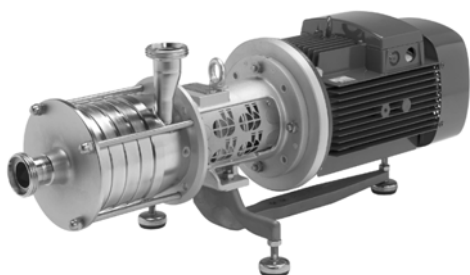
- Clamps for Tri-Clamp®/Tri-Clover®.

For other connection types as well as applications and design of connections, see pages [28](#) to [33](#).

Features and benefits

- A wide range of foot options for motor and pump.
- Extremely reliable operation under most working conditions.
- Optimised hydraulics for high efficiency - reduced power consumption.
- Motors for special voltages and frequencies on request.
- Mobile pumps mounted on two-wheel stainless steel trolley with on/off switch and electric cable.

Contra



GR8961

Fig. 7 Contra

Contra I and II

Technical data

Head:	up to 160 m
Flow rate:	up to 55 m ³ /h
Operating pressure:	up to 25 bar
Operating temperature:	95 °C (up to 150 °C on request)
Sterilisation temperature:	140 °C (SIP)

Applications

The unique hygienic design and the materials used make the Contra pumps suitable for these applications:

Food and beverage industry

- breweries and dairies
- carbonising systems
- food processing plants.

Pharmaceutical and related industries

- purification systems
- pure-water systems (WFI)
- personal care.

Other industrial applications

- surface treatment systems
- water processing systems
- CIP feeding systems.

Construction

Contra single-stage or multi-stage, end-suction centrifugal pumps are designed to meet the hygienic requirements of sterile process technology.

The pumps are available in a variety of flexible versions. The pumps are CIP and SIP capable in compliance with the DIN EN 12462 performance criteria. They also meet the GMP requirements regarding FDA-approved materials.

The design fulfils the following requirements:

- QHD criteria
- EHEDG recommendations.
- GOST sanitary standard (Russia).



Fig. 8 Certification

The pumps comply with these surface finish requirements:

Standard pump version: 3A1
Optional: 3A2, 3A3.

For explanation, see section [Certification](#), page 55.

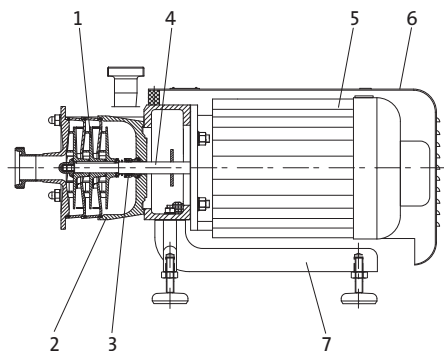
The pump housing is made of rolled and forged stainless steel to DIN EN 1.4404/1.4435, the equivalent of AISI 316L. This guarantees a homogeneous, pore-free surface, in contrast to cast materials.

The Contra pumps have open diffusers. The design ensures that O-ring seals for pump housing and impeller are located to meet the criteria of hygienic design with metal-to-metal contact and that there are no dead ends in the pump housing.

Contra pumps are fitted with a semi-open impeller as standard. See page 51.

The vertical versions are fully self-draining through the suction port of the pumps.

The pumps have a mechanical shaft seal and a fan-cooled asynchronous motor to enclosure class IP55.



TM02 9610 3504

Fig. 9 Sectional drawing of Contra I Bloc-SUPER on combi foot

Materials

Pos.	Component	Material	EN/DIN
1	Impeller	CrNiMo steel	1.4404/ 1.4435
2	Pump housing	CrNiMo steel	1.4404/ 1.4435
3	Shaft seal	Sterile applications: SiC/SiC/EPDM Hygienic applications: Carbon/ stainless steel/EPDM or FKM	
4	Pump shaft	CrNiMo steel	1.4571/ 1.4462
5	Motor		
6	Shroud	Stainless steel	
7	Foot	Stainless steel/cast iron	

Design variations

Standard variation	Description
Contra Adapta®	Horizontal installation, Adapta® motor stool
Contra Adapta® SUPER	Horizontal installation, Adapta® motor stool, motor with stainless steel shroud
Contra Adapta®-V	Vertical installation, Adapta® motor stool
Contra Bloc	Horizontal installation
Contra Bloc-SUPER	Horizontal installation, motor with stainless steel shroud

Variation on request	Description
Contra Bloc-V	Vertical installation
Contra CN	Horizontal installation, long-coupled version mounted on base plate
Contra tronic	Horizontal/vertical installation, motor with built-in frequency converter (up to 18.5 kW)

See page 20.

Mechanical shaft seal

Grundfos offers these shaft seal arrangements:

- single seal
- double seal, tandem
- double seal, back-to-back.

As standard, the Contra is fitted with a single, inboard, mechanical shaft seal with an optimum position in the pumped liquid. This ensures lubrication, cooling as well as CIP and SIP according to the criteria of hygienic design.

Standard seals have carbon/stainless steel seal faces and EPDM O-rings. Other seal face material combinations are available on request.

See page 53.

Surface treatment

As standard, all wetted parts are electro-polished to improve corrosion-resistance and surface finish.

Standard connection

Grundfos offers threads to DIN 11851 as standard for Contra pumps.

Connections on request

Threads:

- Aseptic threads to DIN 11864-1.

Flanges:

- Aseptic flanges to DIN 11864-2
- APV flanges
- Flanges to DIN EN 1092-1 (DIN 2633)
- Kremo flanges to DIN EN 1092-1 (DIN 2633/42).

Clamps:

- Clamps to DIN 32676
- Clamps for Tri-Clamp®/Tri-Clover®.

Note: Not all pump sizes are available with all connection types. See page 37 ff.

For other connection types as well as applications and design of connections, see pages 28 to 33.

Features and benefits

- A wide range of foot options for motor and pump.
- Extremely reliable operation under most working conditions.
- Optimised hydraulics for high efficiency - reduced power consumption.
- Contra Adapta® and CN with explosion-proof or flameproof motors available for ATEX applications.
- Motors with special voltages and frequencies.
- Pump with water-cooled motor for clean-room applications.
- Adapta® tronic versions fitted with motors for variable speed drive with built-in frequency converter, available for motor sizes up to 18.5 kW.
- Flush or barrier fluid systems for tandem or back-to-back double mechanical seals.
- Mobile pumps mounted on two-wheel trolley with on/off switch.
- Special paint for motor, cast iron and carbon steel parts (except for Adapta® Bloc).

durietta 0



GRA2397

Fig. 10 durietta 0

durietta 0 pumps

Technical data

Head:	up to 70 m
Flow rate:	up to 6 m ³ /h
Operating pressure:	up to 8 bar
Temperature range:	0 °C to 90 °C.

Applications

durietta 0 pumps are suitable for these applications:

Food and beverage industry

- pumping in micro-breweries and dairies
- bottling systems for liquids
- food processing plants
- drinking water systems.

Pharmaceutical and related industries

- purification systems
- personal care.

Other industrial applications

- semi-conductor manufacturing
- plate heat exchangers.

Construction

durietta 0 are compact, end-suction, single-stage or multi-stage centrifugal pumps.

The design fulfils the following requirement:

- GOST sanitary standard (Russia).

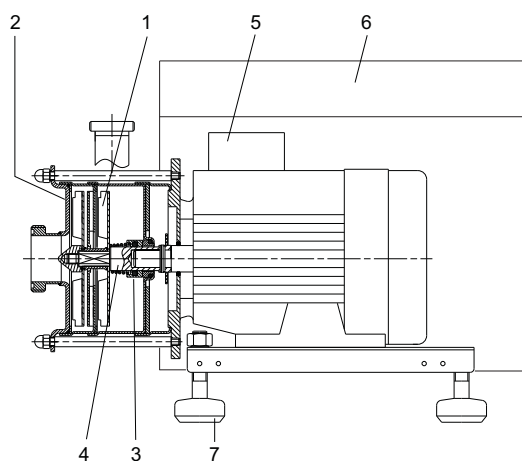


Fig. 11 Certification

The laminated, stainless steel pump components are manufactured to DIN EN 1.4571 and DIN EN 1.4404.

The impeller types available are semi-open or closed, depending on the applications. See page 51.

The pumps have a mechanical shaft seal and an asynchronous motor to enclosure class IP55.



TM03 3782 1006

Fig. 12 Sectional drawing of durietta 0/2 K SUPER on combi foot

Materials

Pos.	Component	Material	EN/DIN
1	Impeller	CrNiMo steel	1.4404
2	Pump housing	CrNiMo steel	1.4404
3	Shaft seal	SiC/SiC or Carbon/stainless steel and EPDM or FKM	
4	Pump shaft	CrNiMo steel	1.4571
5	Motor		
6	Shroud	Stainless steel	1.4307
7	Foot	Stainless steel	1.4307

Design variations

Standard variation	Description
durietta 0 K	Horizontal installation, monobloc
durietta 0 K SUPER	Horizontal installation, motor with stainless steel shroud on stainless steel foot with elastomer base
Variation on request	Description
durietta 0 tronic	Horizontal installation, motor with built-in unshrouded frequency converter. Only available for 0.75 kW.

See page [20](#).

Mechanical shaft seal

Grundfos offers these shaft seal arrangements:

- single seal
- double seal, tandem (maximum four stages)

As standard the durietta 0 is fitted with a mechanical shaft seal with an optimum position in the pumped liquid. This ensures lubrication and cooling.

Standard seals have carbon/stainless steel seal faces and EPDM O-rings. Other seal face material combinations are available on request.

See page [53](#).

Surface treatment

As standard, wetted parts are blasted. Electro-polished wetted parts are also available on request.

Standard connection

Grundfos offers threads to DIN 11851 as standard for durietta 0 pumps.

Connections on request

Threads:

- Threads, SMS.

Flanges:

- Flanges to DIN EN 1092-1 (DIN 2642).

Clamps:

- Tri-Clover / Tri-Clamp

Note: Not all pump sizes are available with all connection types. See page [43](#) to [44](#).

For other connection types as well as applications and design of connections, see pages [28](#) to [33](#).

Features and benefits

- Motor for special voltages on request
- Motor with built-in frequency converter for output regulation (does not apply to the K SUPER version)
- Mobile pumps mounted on stainless steel two-wheel trolley with on/off switch (on request)
- Special paint finish for the motor (on request).

SIPLA



GR8965

Fig. 13 SIPLA

SIPLA pumps

Technical data

Head:	up to 56 m
Flow rate:	up to 80 m ³ /h
(SIPLA 90.1 - on request):	up to 90 m ³ /h
Operating pressure:	up to 10 bar
Operating temperature:	95 °C
Sterilisation temperature:	140 °C (SIP)

Applications

The exceptional self-priming capability make the SIPLA pumps suitable for these applications:

Food and beverage industry

- transfer of yeast
- transfer of cheese whey.

Pharmaceutical industry

- transfer of glycerine.

Other industrial applications

- CIP return pumping
- applications involving liquids with a high air content
- filtration systems.

Construction

SIPLA are single-stage, self-priming, side-channel pumps.

The design fulfils the following requirement:

- GOST sanitary standard (Russia).



Fig. 14 Certification

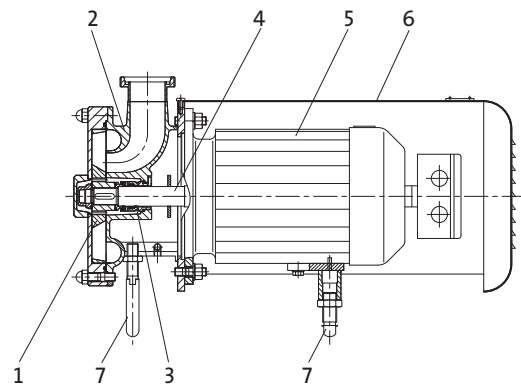
The pump housing and front cover are made of precision-cast stainless steel to DIN EN 1.4404. The impeller nut is made of stainless steel to DIN EN 1.4404, the equivalent of AISI 316L.

SIPLA pumps are fitted with an open star impeller as standard. See page 51.

The pump shaft is made of stainless steel to DIN EN 1.4571, the equivalent of AISI 316Ti.

Thanks to its unique side-channel design, the SIPLA pump is capable of handling liquids with a high air content as in CIP return systems.

The pumps have a mechanical shaft seal and a fan-cooled asynchronous motor to enclosure class IP55.



TM02 9608 3504

Fig. 15 Sectional drawing of SIPLA Bloc-SUPER on stainless steel ball feet

Materials

Pos.	Component	Material	EN/DIN
1	Impeller	CrNiMo steel	1.4404
2	Pump housing	CrNiMo steel	1.4404
3	Shaft seal	Hygienic applications: Carbon/stainless steel/ EPDM or FKM	
4	Pump shaft	CrNiMo steel	1.4571
5	Motor		
6	Shroud	Stainless steel	
7	Foot	Stainless steel/cast iron	

Design variations

Standard variation	Description
SIPLA Adapta®	Horizontal installation, Adapta® motor stool
SIPLA Adapta® SUPER	Horizontal installation, Adapta® motor stool, motor with stainless steel shroud
SIPLA Bloc	Horizontal installation
SIPLA Bloc-SUPER	Horizontal installation, motor with stainless steel shroud
Variation on request	Description
SIPLA CN	Horizontal installation, long-coupled version mounted on base plate
SIPLA tronic	Horizontal/vertical installation, motor with built-in frequency converter (up to 7.5 kW for Bloc pumps, and up to 22 kW for Adapta® pumps)

See page [20](#).

Mechanical shaft seal

Grundfos offers this shaft seal arrangement:

- single seal

SIPLA pumps are fitted with a single, inboard, mechanical shaft seal with an optimum position in the pumped liquid. This ensures lubrication, cooling as well as CIP and SIP.

As standard, the SIPLA pump is fitted with a shaft seal with carbon/stainless steel seal faces and EPDM or FKM O-rings.

Shaft seals with SiC/SiC seal faces and EPDM or FKM O-ring are available on request.

See page [53](#).

Surface treatment

As standard, all wetted parts are electro-polished to improve corrosion-resistance and surface finish.

Standard connection

As standard Grundfos offers threads to DIN 11851 for SIPLA pumps.

Connections on request

Flanges:

- Flanges to DIN EN 1092-1 (DIN 2633/42).

Clamps:

- Clamps to DIN 32676
- Clamps for Tri-Clamp®/Tri-Clover®.

For other connection types as well as applications and design of connections, see pages [28](#) to [33](#).

Features and benefits

- A wide range of foot options for motor and pump
- Extremely reliable operation under most working conditions
- Optimised hydraulics for high efficiency - reduced power consumption
- Motors for variable speed drive with built-in frequency converter, "tronic", available for motor sizes up to 7.5 kW for Bloc pumps, and up to 22 kW for Adapta® pumps
- ATEX-certified pumps available on request
- Mobile pumps mounted on two-wheel trolley with on/off switch.

MAXA and MAXANA

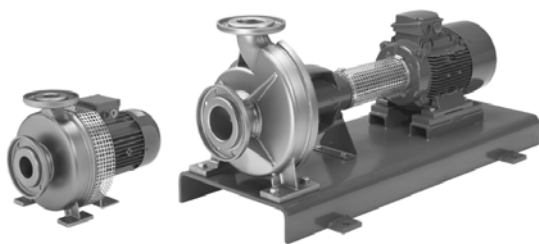


Fig. 16 MAXA and MAXANA

Technical data

MAXA pumps

Head:	97 m
Flow rate:	up to 820 m ³ /h
Operating pressure:	up to 10 bar
Operating temperature:	95 °C (up to 150 °C on request)
Sterilisation temperature:	140 °C (SIP)

MAXANA pumps

Head:	up to 97 m
Flow rate:	up to 165 m ³ /h
Operating pressure:	up to 10 bar
Operating temperature:	95 °C (up to 150 °C on request)
Sterilisation temperature:	140 °C (SIP)

Applications

The MAXA and MAXANA pumps are suitable for these applications:

Food and beverage industry

- gentle pumping of mash and wort
- beer filtration (hot side)
- liquid transfer in dairies and food processing plants.

Other industrial applications

- water treatment plants
- chemical handling systems
- applications involving liquids with a high content of solid particles
- environmental systems
- bio fuel systems.

Construction

The MAXA and MAXANA are single-stage, end-suction, centrifugal pumps.

The pumps are available in a variety of flexible versions.

The design fulfils the following requirements:

- EHEDG recommendations for CIP cleanability. Only valid for certain models.
- GOST sanitary standard (Russia).



Fig. 17 Certification

For explanation, see [Certification](#), page 55.

Requirements complied with:

Pump type	Standard
MAXA	3A0 and 3A2*
MAXANA	3A0

*Applies to MAXA 100-200, 100-250, 125-250, 150-250, 200-400

The major dimensions and characteristics of the pumps are according to DIN EN 733 and DIN EN 22858.

The pump housing is made of heavy-duty, rolled and deep-drawn stainless steel to DIN EN 1.4404. The back plate is made of rolled stainless steel to DIN EN 1.4571.

The pumps feature closed steel impellers with optimised blade entry angles to DIN EN 1.4571. See page 51.

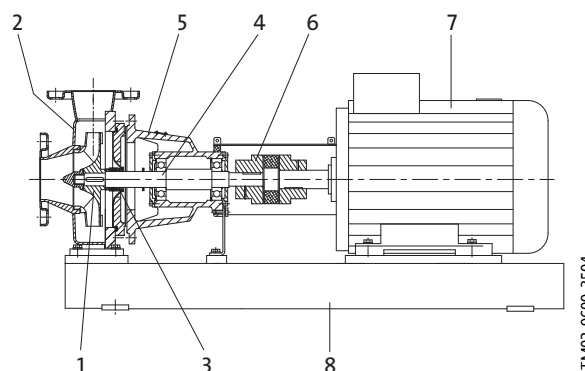


Fig. 18 Sectional drawing of MAXANA-CN on base plate

Materials

Pos.	Component	Material	EN/DIN
1	Impeller	CrNiMo steel	1.4404/ 1.4462
2	Pump housing	CrNiMo steel	1.4404
3	Shaft seal	Sterile applications: SiC/ SiC/EPDM Hygienic applications: Carbon/stainless steel/ EPDM or FKM	
4	Pump shaft	CrNiMo steel	1.4571/ 1.4462
5	Bearing bracket	Stainless steel	
6	Coupling		
7	Motor		
8	Base plate	Steel Chrome steel	

Design variations

Standard variation	Description
MAXA L	Horizontal installation
MAXA CN	Horizontal installation, mounted on base plate
MAXANA Adapta®	Horizontal installation, Adapta® motor stool
MAXANA Bloc	Horizontal installation

Variation on request	Description
MAXA CN	Horizontal installation, mounted on base plate
Maxa VE	Vertical tank installation
MAXA tronic	Horizontal installation, motor with built-in frequency converter (up to 22 kW)
MAXANA CN	Horizontal installation, mounted on base plate
MAXANA L	Horizontal installation, mounted on pump foot or motor foot
MAXANA tronic	Horizontal installation, motor with built-in frequency converter (up to 22 kW)

See page 20.

Mechanical shaft seal

Grundfos offers these shaft seal arrangements:

- single seal
- double seal, tandem
- double seal, back-to-back.

As standard, MAXA and MAXANA pumps are fitted with a single, inboard, mechanical shaft seal with an optimum position in the pumped liquid. This ensures efficient cleaning, cooling and lubrication.

The mechanical shaft seal is designed to DIN EN 12756.

Standard single seals have carbon/stainless steel seal faces and EPDM O-rings. Other seal face material combinations are available on request.

See page 53.

Surface treatment

As standard, all wetted parts are made of corrosion-resistant chrome-nickel-molybdenum steel.

Grundfos offers industrial, electro-polished variants.

Standard connection

Grundfos offers Kremo flanges to DIN EN 1092-1 as standard for MAXA and MAXANA pumps.

As standard MAXA pumps also come with flanges to DIN EN 1092-1.

Note: Not all MAXA pump sizes are available with all connection types. See page 47.

Connections on request

For other connection types as well as applications and design of connections, see pages 28 to 33.

Features and benefits

- A wide range of foot or base plate options for motor and pump.
- Extremely reliable operation under most working conditions.
- Optimised hydraulics for high efficiency - reduced power consumption.
- Optional location of discharge port on top, on right or on left side of pump.
- Double mechanical seals, depending on model, with flushing or barrier fluid.
- Stuffing box in stead of mechanical shaft seal, single or flushed with C-bearing support to DIN EN 22858 and shaft sleeve.
- Motors with special voltages and frequencies.
- Adapta® and CN available with a flameproof three-phase motor for ATEX applications.
- Motors for variable speed drive with built-in frequency converter as "tronic", available for motor sizes up to 22 kW.
- Pump housing drain connection DN 15; other sizes available.
- Housing with heating jacket. Applies only to MAXANA.
- Special paint for motor and steel components.

Type keys

Euro-HYGIA®

Example	Euro-HYGIA®	I	BYY	40	32	2.2	4
Pump range							
Size							
Design							
Nominal diameter of suction port (DN)							
Nominal diameter of discharge port (DN)							
Motor power (P2) [kW]							
Number of poles							

F&B-HYGIA®

Example	F&B-HYGIA®	I	KYY	40	40	2.2	4
Pump range							
Size							
Design							
Nominal diameter of suction port (DN)							
Nominal diameter of discharge port (DN)							
Motor power (P2) [kW]							
Number of poles							

Contra

Example	Contra	I/1	BYY	32	25	1.5	2
Pump range							
Size/stages							
Design							
Nominal diameter of suction port (DN)							
Nominal diameter of discharge port (DN)							
Motor power (P2) [kW]							
Number of poles							

durietta 0

Example	durietta	0/2	KYY	32	25	0.55	2
Pump range							
Size/stages							
Design							
Nominal diameter of suction port (DN)							
Nominal diameter of discharge port							
Motor power (P2) [kW]							
Number of poles							

SIPLA

Example	SIPLA	3.1	BYY	32	32	0.75	4
Pump range							
Size							
Design							
Nominal diameter of suction port (DN)							
Nominal diameter of discharge port (DN)							
Motor power (P2) [kW]							
Number of poles							

MAXA

Example	MAXA	80-250	KYY	100	80	37	2
Pump range							
Size							
Design							
Nominal diameter of suction port							
Nominal diameter of discharge port							
Motor power (P2) [kW]							
Number of poles							

MAXANA

Example	MAXANA	32-200	BYY	50	32	5.5	2
Pump range							
Size							
Design							
Nominal diameter of suction port (DN)							
Nominal diameter of discharge port (DN)							
Motor power (P2) [kW]							
Number of poles							

Design*

A D D	Adapta®-SUPER-DOC
A D S	Adapta®-SUPER
A D V	Adapta®-V
A D X	Adapta®-SUPER/quiet
A D Y	Adapta®
A T D	Adapta®-SUPER-tronic-DOC
A T S	Adapta®-SUPER-tronic
A V E	Adapta®-VE
B T S	Bloc-SUPER-tronic
B V E	Bloc-VE
B V S	Bloc-V-SUPER
B V X	Bloc-V-SUPER/quiet
B V Y	Bloc-V
B Y S	Bloc-SUPER
B Y X	Bloc-SUPER/quiet
B Y Y	Bloc
C H Y	CN-special grease (hot)
C N S	CN-Super
C N V	CN-V
C N Y	CN
C V Y	CV
C Y Y	C
K V Y	K-V
K Y S	K-SUPER
K Y T	K, portable
K Y X	K-SUPER/quiet
K Y Y	K
L Y S	L-SUPER
L Y X	L-SUPER/quiet
L Y Y	L
S U B	Bloc-submersible motor
V E Y	VE

* See page 19 for clarification

Sanitary pumps

Pump range	Euro-HYGIA® I	Euro-HYGIA® II	F&B-HYGIA® I	F&B-HYGIA® II	Contra I	Contra II	durietta 0	SIPLA 3.1	SIPLA 6.1	SIPLA 12.1	SIPLA 18.1	SIPLA 28.1	SIPLA 52.1	SIPLA 65.1	SIPLA 90.1	MAXA	MAXANA
Hydraulic data																	
Max. head [m]	43	70	43	70	105	160	70	23	34	25	28	38	36	56	44	98	98
Max. flow rate [m³/h]	39	108	39	105	23	53	6	3.5	6	12	18	28	48	65	85	800	165
Max. operating temperature [°C]	95	95	95	95	95	95	90	95	95	95	95	95	95	95	95	95	95
Max. temperature [°C] – on request	150	150	150	150	140	140	-	140	140	140	140	140	140	140	140	150	150
Max. operating pressure [bar]	16	16	16	16	25	25	8	10	10	10	10	10	10	10	10	10	10
Max. pump efficiency [%]	62	68	62	68	55	62	45	16.5	18.5	24	24	29	30	34	35	87	72
Motor data																	
Motor power [kW]	0.55 - 5.5	0.75 - 22	1.1 - 5.5	2.2 - 18.5	0.55 - 5.5	0.75 - 18.5	0.25 - 2.2	0.75	1.5 - 2.2	1.5 - 2.2	3 - 5.5	4 - 7.5	7.5 - 11	15 - 22	18.5 - 22	3 - 110	0.55 - 55
Design																	
Bloc	•	•			•	•		•	•	•	•	•	•	•	•	○	•
Bloc SUPER	•	•			•	•		•	•	•	•	•	•	•	•		
Bloc-V	○	○			○	○											
VE	○	○														○	
Adapta®	•	•			•	•		•	•	•	•	•	•	•	•		•
Adapta® SUPER	•	•			•	•		•	•	•	•	•	•	•	•		
Adapta®-V	○	○			•	•											
K			•	•			•										
K-SUPER			•	•			•										
K-V							•										
CN	○	○			○	○		○	○	○	○	○	○	○	○	•	○
L																•	○
Tronic	○	○			○	○	○	○	○	○	○	○	○	○	○	○	○
Materials																	
Pump housing: CrNiMo stainless steel DIN EN 1.4404	•	•	•	•			•	•	•	•	•	•	•	•	•	•	•
Pump housing: Stainless steel DIN EN 1.4404/1.4435	○	○			•	•											
Pump housing: Hastelloy	○	○			○	○											
Pump housing: Duplex	○	○			○	○											
Pipe connections																	
See pages 28 to 33																	
Impeller types																	
Semi-open	•	•	•	•	•	•	•										
Closed	•	•					•									•	•
Two-channel (closed)																○	○
Free-flow	○	○															
Star								•	•	•	•	•	•	•	•		

- Standard.
- Available on request.

Design variations

Grundfos offers each pump range in different designs. Principal sketches of each design variant are shown below. Not all pumps are available in the design variations shown.

Bloc on motor foot

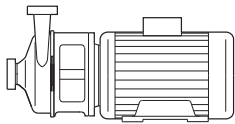


Fig. 19 Euro-HYGIA® Bloc on motor foot

TM03 0079 3904

Bloc on cast iron foot

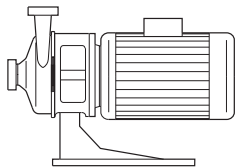


Fig. 20 Euro-HYGIA® Bloc on cast iron foot

TM03 0080 3904

Bloc-SUPER

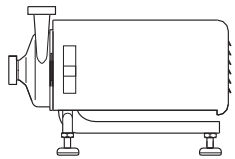


Fig. 21 Euro-HYGIA® Bloc-SUPER with shroud on stainless steel combi foot

TM03 0081 3904

Bloc on stainless steel trolley

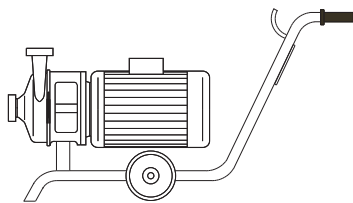


Fig. 22 Euro-HYGIA® Bloc on stainless steel trolley

TM03 0086 3904

CN

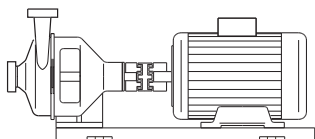


Fig. 23 Euro-HYGIA® CN on base plate

TM03 0085 3904

Adapta®

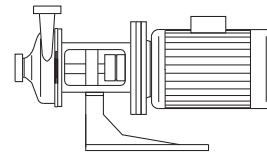


Fig. 24 Euro-HYGIA® Adapta® on cast iron foot

TM03 0082 3904

Adapta®-SUPER

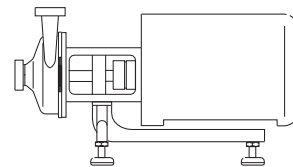


Fig. 25 Euro-HYGIA® Adapta®-SUPER on stainless steel combi foot

TM03 0083 3904

K

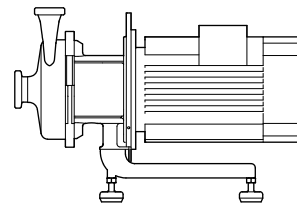


Fig. 26 F&B-HYGIA® K on combi foot

TM04 2286 2208

K-SUPER

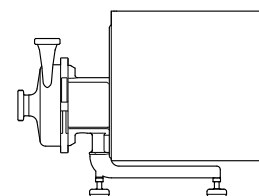


Fig. 27 F&B-HYGIA® K-SUPER on combi foot

TM03 3790 2208

Adapta® on stainless steel trolley

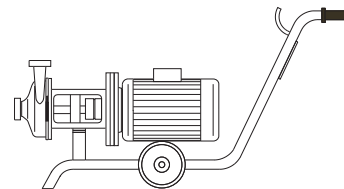
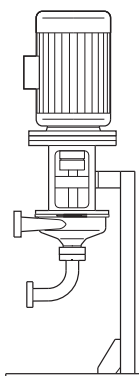


Fig. 28 Euro-HYGIA® Adapta® on stainless steel trolley

TM03 0087 3904

Adapta[®]-V



TM03 0088 3904

Fig. 29 Euro-HYGIA[®] Adapta[®]-V on pedestal and with suction elbow connection

The tables below state possible designs and versions of each pump range.

Each version number is described in the version key, page 23.

Euro-HYGIA[®] I

Design	Version number															
Adapta [®] 1)	1	2	3	18	19	23	24	31	50	51	52	60	61			
Adapta [®] -SUPER 2)	1	2	3	18	19	23	31	50	60	61						
Adapta [®] -V 1)	8	9	10	11	31	50	51	52	60	61						
Bloc	1	2	3	5	6	7	18	19	23	24	50	60	61			
Bloc-SUPER 2)	1	2	3	5	6	7	18	19	23	50	60	61				
Bloc-V	8	9	10	11	50	60	61									
VE	31	50	57	58	59											
CN	25	26	27	28	29	30	31	32	33	34	50	51	52	60	61	

1) Size I.

2) SUPER = motor with stainless steel shroud.

Euro-HYGIA[®] II

Design	Version number															
Adapta [®] 1)	1	2	3	18	19	22	23	24	31	50	51	52	60	61		
Adapta [®] -SUPER 2)	1	2	3	18	19	22	23	31	50	60	61					
Adapta [®] -V 1)	8	9	10	11	31	50	51	52	60	61						
Bloc	1	2	3	5	6	7	18	19	23	24	50	60	61			
Bloc-SUPER 2)	1	2	3	5	6	7	18	19	23	50	60	61				
Bloc-V	8	9	10	11	50	60	61									
VE	31	50	57	58	59											
CN	25	26	27	28	29	30	31	32	33	34	50	51	52	60	61	

1) Size II up to frame size 160; frame size 180 is size III.

2) SUPER = motor with stainless steel shroud.

F&B-HYGIA[®] I

Design	Version number															
K 1)	1	2	3	5	18	19	23	50	51	52	60					
K-SUPER 2)	1	2	18	19	23	50	60									

1) Plug-in shaft

2) SUPER = motor with stainless steel shroud.

F&B-HYGIA[®] II

Design	Version number															
K 1)	1	2	3	5	18	19	23	50	51	52	60					
K-SUPER 2)	1	2	18	19	23	50	60									

1) Plug-in shaft.

2) SUPER = motor with stainless steel shroud.

Contra I

Design	Version number															
Adapta [®] 1)	1	2	3	18	19	23	24	31	50	51	52					
Adapta [®] -SUPER 2)	1	2	3	18	19	23	31	50								
Adapta [®] -V 1)	8	9	10	11	31	50	51	52								
Bloc	1	2	3	5	6	7	18	19	23	24	50					
Bloc-SUPER 2)	1	2	3	5	6	7	18	19	23	50						
Bloc-V	8	9	10	11	50											
CN	25	26	27	28	29	30	31	32	33	34	50	51	52			

1) Size I.

2) SUPER = motor with stainless steel shroud.

Contra II

Design	Version number															
Adapta [®] 1)	1	2	3	18	19	22	23	24	31	50	51	52				
Adapta [®] -SUPER 2)	1	2	3	18	19	22	23	31	50							
Adapta [®] -V 1)	8	9	10	11	31	50	51	52								
Bloc	1	2	3	5	6	7	18	19	23	24	50					
Bloc-SUPER 2)	1	2	3	5	6	7	18	19	23	50						
Bloc-V	8	9	10	11	50											
CN	25	26	27	28	29	30	31	32	33	34	35	50	51	52		

1) Size II up to frame size 160; frame size 180 is size III.

2) SUPER = motor with stainless steel shroud.

durietta 0

Design	Version number															
K 1)	5	18	23	50												
K-SUPER 2)	18	2														
K-V	9	50	62													

1) Plug-in shaft.

2) SUPER = motor with stainless steel shroud and stainless steel foot with elastomer base

SIPLA 3.1

Design	Version number															
Adapta [®] 1)	1	2	3	18	19	23	31	51	52	53						
Adapta [®] -SUPER 2)	1	2	3	18	19	23	31	53								
Bloc	4	5	18	19	32	33	51	54								
Bloc-SUPER 2)	4	18														
CN	25	26	27	28	30	31	32	33	34	51	52					

1) Size I.

2) SUPER = motor with stainless steel shroud.

SIPLA 6.1

Design	Version number											
Adapta ^{® 1)}	1	2	3	18	19	23	31	50	51	52	53	
Adapta ^{®-SUPER 2)}	1	2	3	18	19	23	31	50	53			
Bloc	4	5	18	19	32	33	50	51	54			
Bloc-SUPER ²⁾	4	18	50									
CN	25	26	27	28	30	31	32	33	34	50	51	52

1) Size I.

2) SUPER = motor with stainless steel shroud.

SIPLA 12.1

Design	Version number											
Adapta ^{® 1)}	1	2	3	18	19	23	31	50	51	52	53	
Adapta ^{®-SUPER 2)}	1	2	3	18	19	23	31	50	53			
Bloc	4	5	18	19	32	33	50	51	54			
Bloc-SUPER ²⁾	4	18	50									
CN	25	26	27	28	30	31	32	33	34	50	51	52

1) Size I.

2) SUPER = motor with stainless steel shroud.

SIPLA 18.1

Design	Version number											
Adapta ^{® 1)}	1	2	3	18	19	23	31	50	51	52	53	
Adapta ^{®-SUPER 2)}	1	2	3	18	19	23	31	50	53			
Bloc	4	5	18	19	32	33	50	51	54			
Bloc-SUPER ²⁾	4	18	50									
CN	25	26	27	28	30	31	32	33	34	50	51	52

1) Size II.

2) SUPER = motor with stainless steel shroud.

SIPLA 28.1

Design	Version number											
Adapta ^{® 1)}	1	2	3	18	19	23	31	50	51	52	53	
Adapta ^{®-SUPER 2)}	1	2	3	18	19	23	31	50	53			
Bloc	4	5	18	19	32	33	50	51	54			
Bloc-SUPER ²⁾	4	18	50									
CN	25	26	27	28	30	31	32	33	34	50	51	52

1) Size II.

2) SUPER = motor with stainless steel shroud.

SIPLA 52.1

Design	Version number											
Adapta ^{® 1)}	1	2	3	18	19	23	31	50	51	52	53	
Adapta ^{®-SUPER 2)}	1	2	3	18	19	23	31	50	53			
Bloc	4	5	18	19	50	54						
Bloc-SUPER ²⁾	4	18	50	54								
CN	25	26	27	28	30	31	32	33	34	50	51	52

1) Size II.

2) SUPER = motor with stainless steel shroud.

SIPLA 65.1

Design	Version number											
Adapta ^{® 1)}	22	31	51	52	53							
Adapta ^{®-SUPER 2)}	4	22	31									
Bloc	4	5										
Bloc-SUPER ²⁾	4											
CN	25	26	27	28	30	31	32	33	34	51	52	

1) Size III.

2) SUPER = motor with stainless steel shroud.

SIPLA 90.1

Design	Version number											
Adapta ^{® 1)}	22	31	51	52	53							
Adapta ^{®-SUPER 2)}	4	22	31									
Bloc	4	5										
Bloc-SUPER ²⁾	4											
CN	25	26	27	28	30	31	32	33	34	51	52	

1) Size III.

2) SUPER = motor with stainless steel shroud.

MAXA

Design	Version number												
Adapta ^{® 1)}	1	2	22	31	50	51	52						
Adapta ^{® 2)}	22	31	51	52									
Adapta ^{®-V 1)}	8	10	31	50	51	52							
Adapta ^{®-V 2)}	16	31	51	52									
VE	31	50	57	58	59								
L ³⁾	5	6	7	21	31	50	51	52					
C ⁴⁾	25	26	27	28	29	30	31	32	33	34	50	51	52
CN	25	26	27	28	29	30	31	32	33	34	50	51	52

1) Size II.

2) Size III.

3) Bearing-supported plug-in shaft.

4) CN with shaft sleeve.

MAXANA

Design	Version number												
Adapta ^{® 1)}	1	2	22	31	50	51	52						
Adapta ^{® 2)}	22	31	51	52									
Adapta ^{®-SUPER 3)}	8	10	31	50	51								
Bloc	16	31	51	52									
L ⁴⁾	5	6	7	21	31	50	51	52					
C ⁵⁾	25	26	27	28	29	30	31	32	33	34	50	51	52
CN	25	26	27	28	29	30	31	32	33	34	50	51	52

1) Size II.

2) Size III.

3) SUPER = motor with stainless steel shroud.

4) Bearing-supported plug-in shaft.

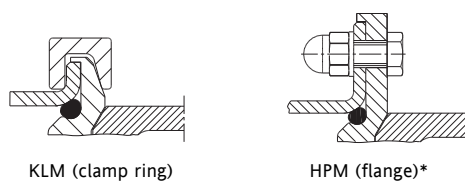
5) CN with shaft sleeve.

Version key

Version number	Description
1	On cast iron foot
2	On stainless steel foot
3	Without foot/stainless steel ball feet
4	On stainless steel ball feet
5	On motor foot
6	On motor foot with carbon steel support
7	On motor foot with stainless steel support
8	On stainless steel pedestal without suction elbow
9	On stainless steel pedestal with suction elbow
10	Without pedestal and suction elbow ¹⁾
11	Without pedestal but with suction elbow
16	On vertical frame without suction elbow ¹⁾
18	On stainless steel trolley, normal wheels
19	On stainless steel trolley, anti-static wheels
21	On pump and motor support feet (≤ frame size 112)
22	On Adapta [®] foot (≤ 45 kW, size III)
23	On stainless steel combi foot
24	Wall-mounting (Euro-HYGIA [®] : Only available as HPM, Contra; 3 stages are standard)
25	Without base plate ²⁾
26	With coupling (< 15 kW only with DKM spacer) ²⁾
27	With spacer coupling (≥ 15 kW only; < 15 kW on request) ²⁾
28	Without coupling ²⁾
29	Without spacer coupling ²⁾
30	With motor ²⁾
31	Without motor ²⁾
32	On carbon steel base plate ²⁾
33	On stainless steel base plate ²⁾
34	Stand-proof coupling guard ²⁾
35	Chemical standard, base plate with anchor bolt holes ²⁾
50	With built-in frequency converter (tronic), from 1.5 to 7.5 kW
51	Motor with increased-safety explosion protection (EEx e II T1-T3) ³⁾
52	Motor with flameproof-enclosure explosion protection (EEx de IIC T1-T4) ³⁾
53	Hydraulic drive
54	Electric motor and hydraulic drive through second shaft end
57	Tank installation with base plate and discharge pipe
58	Tank installation without base plate and without discharge pipe
59	Tank installation with base plate and without discharge pipe
60	KLM (clamp ring), see fig. 30
61	HPM (flange), see fig. 30
62	Vertical foot with fixed suction elbow

- 1) In connection with Adapta[®] size III.
- 2) Design CN. All combinations are possible with base plate mounted. Motor and coupling size as well as type should be provided to determine base plate size.
- 3) For further information on pumps conforming to the ATEX 94/9/EC Directive, contact Grundfos.

Sealing of HYGIA[®] pump housing



KLM (clamp ring)

HPM (flange)*

TM03 0077 3904, TM03 0078 3904

Fig. 30 KLM and HPM housing sealing

Motor ranges

Euro-HYGIA® I

P2 [kW]	2-pole	4-pole
0.55		
0.75		
1.1		
1.5		
2.2		
3.0		
4.0		
5.5		

The grey shaded areas indicate non-available motors.

Euro-HYGIA® II

P2 [kW]	2-pole	4-pole
0.75		
1.1		
1.5		
2.2		
3.0		
4.0		
5.5		
7.5		
11.0		
15.0		
18.5		
22.0		

The grey shaded areas indicate non-available motors.

F&B-HYGIA® I

P2 [kW]	2-pole	4-pole
1.1		
1.5		
2.2		
3.0		
4.0		
5.5		

The grey shaded areas indicate non-available motors.

F&B-HYGIA® II

P2 [kW]	2-pole	4-pole
2.2		
3.0		
4.0		
5.5 ¹⁾		
7.5		
11.0		
15.0		
18.5		

The grey shaded areas indicate non-available motors.

¹⁾ Not available as EFF 1 motor.

Contra I

P2 [kW]	2-pole						4-pole
	1-stage	2-stage	3-stage	4-stage	5-stage	6-stage	1-stage
0.55							
0.75							
1.1							
1.5							
2.2							
3.0							
4.0							
5.5							

The grey shaded areas indicate non-available motors.

Contra II

P2 [kW]	2-pole					4-pole
	1-stage	2-stage	3-stage	4-stage	5-stage	1-stage
0.75						
1.1						
1.5						
2.2						
3.0						
4.0						
5.5						
7.5						
11.0						
15.0						
18.5						

The grey shaded areas indicate non-available motors.

durietta 0

P2 [kW]	2-pole						4-pole
	1-stage	2-stage	3-stage	4-stage	5-stage	6-stage	1-stage
0.25							
0.55							
0.75							
1.5							
2.2							

The grey shaded areas indicate non-available motors.

SIPLA

P2 [kW]	4-pole							
	Size							
	3.1	6.1	12.1	18.1	28.1	52.1	65.1	90.1
0.75								
1.1								
1.5								
2.2								
3.0								
4.0								
5.5								
7.5								
11.0								
15.0								
18.5								
22.0								

The grey shaded areas indicate non-available motors.

MAXA, 2-pole

P2 [kW]	2-pole				
	Size				
	80-160	80-200	80-250	100-200	100-250
7.5					
11.0					
15.0					
18.5					
22.0					
30.0					
37.0					
45.0					
55.0					
75.0					
90.0					

The grey shaded areas indicate non-available motors.

MAXA, 4-pole

P2 [kW]	4-pole												
	Size												
	80-160	80-200	80-250	80-315	100-200	100-250	100-315	125-250	125-315	150-250	150-315	150-400	200-400
3.0													
4.0													
5.5													
7.5													
11.0													
15.0													
18.5													
22.0													
30.0													
37.0													
45.0													
55.0													
75.0													
90.0													
110.0													

The grey shaded areas indicate non-available motors.

MAXANA, 2-pole

P2 [kW]	2-pole										
	Size										
	32-160	32-200	40-160	40-200	50-125	50-160	50-200	65-125	65-160	65-200	65-250
2.2											
3.0											
4.0											
5.5											
7.5											
11.0											
15.0											
18.5											
22.0											
30.0											
37.0											
45.0											
55.0											

The grey shaded areas indicate non-available motors.

MAXANA, 4-pole

P2 [kW]	4-pole										
	Size										
	32-160	32-200	40-160	40-200	50-125	50-160	50-200	65-125	65-160	65-200	65-250
0.55											
0.75											
1.1											
1.5											
2.2											
3.0											
4.0											
5.5											

The grey shaded areas indicate non-available motors.

Electrical data of standard motors

2-pole, 3 x 220-240/380-415 V

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
0.37	1.0	0.82	66	2740
0.55	1.36	0.82	71	2800
0.75	1.73	0.86	73	2855
1.1	2.40	0.87	77	2845
1.5	3.25	0.85	79	2860
2.2	4.55	0.85	82	2880

2-pole, 3 x 380-415/660-690 V

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
3.0	6.1	0.85	84	2890
4.0	7.8	0.86	86	2905
5.5	10.3	0.89	86.5	2925
7.5	13.8	0.89	88	2930
11.0	20.0	0.88	89.5	2940
15.0	26.5	0.90	90	2940
18.5	32.5	0.91	91	2940
22.0	39.0	0.88	91.7	2940
30.0	53.0	0.89	92.3	2945
37.0	65.0	0.89	92.8	2945
45.0	78.0	0.89	93.6	2960
55.0	96.0	0.88	93.6	2970
75.0	130.0	0.88	94.5	2975
90.0	154.0	0.89	95.1	2975

4-pole, 3 x 220-240/380-415 V

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
0.25	0.75	0.78	60	1350
0.55	1.45	0.82	67	1395
0.75	1.86	0.81	72	1395
1.1	2.55	0.81	77	1415
1.5	3.40	0.81	79	1420
2.2	4.70	0.82	82	1420

4-pole, 3 x 380-415/660-690 V

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
3.0	6.40	0.82	83	1420
4.0	8.20	0.83	85	1440
5.5	11.4	0.81	86	1455
7.5	15.2	0.82	87	1455
11.0	21.5	0.84	88.5	1460
15.0	28.5	0.84	90	1460
18.5	35.0	0.83	90.5	1460
22.0	41.0	0.84	91.2	1460
30.0	55.0	0.86	91.8	1465
37.0	66.0	0.87	92.9	1470
45.0	80.0	0.87	93.4	1470
55.0	100.0	0.85	93.5	1480
75.0	136.0	0.85	94.2	1485
90.0	160.0	0.86	94.6	1485
110.0	194.0	0.86	94.8	1486

Electrical data of EFF 1 MG motors

2-pole, 3 x 220-240 V Δ/380-415 V Y

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
1.5	5.45/3.15	0.87 - 0.82	85.5	2890-2910
2.2	7.70/4.45	0.89 - 0.87	87.5	2890-2910
3.0	11.0/6.30	0.87 - 0.82	87.5	2900-2920
4.0	13.8/8.00	0.88 - 0.84	89.0	2910-2930
5.5	19.4/11.2	0.88 - 0.84	90.0	2910-2930
7.5	26.5/15.2	0.87 - 0.80	89.5	2900-2920
11.0	37.0/21.4	0.90	91.4	2920-2930

2-pole, 3 x 380-415 V Δ

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
1.5	3.15	0.87 - 0.82	85.5	2890-2910
2.2	4.45	0.89 - 0.87	87.5	2890-2910
3.0	6.30	0.87 - 0.82	87.5	2900-2920
4.0	8.00	0.88 - 0.84	89.0	2910-2930
5.5	11.2	0.88 - 0.84	90.0	2910-2930
7.5	15.2	0.87 - 0.80	89.5	2900-2920
11.0	21.4	0.90	91.4	2920-2930

4-pole, 3 x 220-240 V Δ/380-415 V Y

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
1.1	4.70/2.70	0.78 - 0.72	83.8	1440-1445
1.5	6.20/3.60	0.77 - 0.72	85.0	1440-1450
2.2	9.25/5.35	0.77 - 0.70	86.4	1440-1450
3.0	12.5/7.20	0.77 - 0.70	87.4	1440-1450
4.0	15.4/8.90	0.81 - 0.75	88.3	1450-1455

4-pole, 3 x 380-415 V Δ

P2 [kW]	I _{1/1} [A]	cos φ	η [%]	n [min ⁻¹]
1.1	2.70	0.78 - 0.72	83.8	1440-1445
1.5	3.60	0.77 - 0.72	85.0	1440-1450
2.2	5.35	0.77 - 0.70	86.4	1440-1450
3.0	7.20	0.77 - 0.70	87.4	1440-1450
4.0	8.90	0.81 - 0.75	88.3	1450-1455

Electrical data of standard motors with built-in frequency converter

2-pole, 3 x 380-415 V

P2 [kW]	I _{1/1} [A]
1.1	2.4
1.5	3.25
2.2	4.55
3.0	6.1
4.0	7.8
5.5	10.3
7.5	13.8

4-pole, 3 x 380-415 V

P2 [kW]	I _{1/1} [A]
1.1	2.55
1.5	3.4
2.2	4.7
3.0	6.4
4.0	8.2
5.5	11.4
7.5	15.2

The values depend on the motor make.

Motor protection

Three-phase motors must be connected to a motor-protective circuit breaker.

All three-phase standard motors can be connected to an external frequency converter. The connection of a frequency converter will often overload the motor insulation system, and the motor will be more noisy than during normal operation. In addition, large motors are loaded by bearing currents caused by the frequency converter.

In the case of frequency converter operation, bear the following considerations in mind:

- In 2- and 4-pole motors of frame size 250 and upwards, one of the motor bearings should be electrically isolated to prevent damaging currents from passing through the motor bearings.
- In the case of noise-sensitive applications, the motor noise can be reduced by fitting a dU/dt filter between the motor and the frequency converter. In particularly noise-sensitive applications, we recommend to fit a sinusoidal filter.
- The length of the cable between motor and frequency converter affects the motor load. Check that the cable length meets the specifications laid down by the frequency converter supplier.
- For supply voltages between 500 and 690 V, fit a dU/dt filter to reduce voltage peaks or use a motor with reinforced insulation.
- For supply voltages of 690 V, use a motor with reinforced insulation and fit a dU/dt filter.

Selection of connection according to application

The table below is intended as a general guide. Selection of connection often depends on local conditions.

Connection		Application																						
Type	Standard	Beverages					Food					Life science and personal care		Industrial applications				Cleaning						
		Beer	Wine	Juice	Alcohol	Soft drinks	Confectionary	Dairy products	Frying oil	Liquid foods (processing)	Syrup	Pumpable meat (packing)	Pure water	Biotechnology products	Perfumes and lotions	Glue and paint	Purification products	Chemical products	Industrial wastewater and effluent	Surface treatment products	Biofuel	CIP	SIP	
Threads	Aseptic threaded connection	DIN 11864-1	•	•	•	•						•	•	•								•	•	
	Threaded connection	DIN 11851	•	•	•	•	•	•	•	•	•											•	•	
	Threaded connection, SMS	ISO 2037	•	•	•	•	•				•											•		
	Threaded connection, DS	DS 722	•	•	•	•	•				•													
	Threaded connection, RJT	BS4825-5	•	•	•	•	•	•	•	•	•											•		
	Threaded connection, IDF	ISO 2853 BS 4825-4	•	•	•	•	•	•	•	•	•	•										•		
	Threaded connection (male), GAZ	DIN ISO 228	•		•	•		•			•					•	•	•	•	•	•	•		
	Tapped connection (female)	DIN EN 10226-1														•	•	•	•	•	•	•		
	Flanges	Aseptic flange	DIN 11864-2	•	•	•	•	•		•	•	•	•	•									•	•
		Flange, APV-FN1/APV-FG1	ISO	•	•	•	•	•		•	•												•	
Flange		DIN EN 1092-1	•	•	•	•	•	•	•	•	•				•	•	•	•	•	•	•	•		
Kremo flange		DIN EN 1092-1	•		•	•	•	•	•	•	•	•											•	
Clamps	Flange, ANSI 150 LB RF	ANSI													•	•	•	•	•	•	•			
	Clamp	DIN 32676										•	•	•										
	Clamp	ISO 2852 BS 4825-3										•	•	•										
	Clamp, Tri-Clamp®/Tri-Clover®	ASME BPE										•	•	•										
	Clamp, ISO							•	•	•	•	•	•	•								•	•	
	Clamp, SMS							•	•	•	•	•	•	•								•	•	
	Stub	DIN 11850																						

• Typically used.

Selection of connection according to pump type

The table below is intended as a general guide. Selection of connection often depends on local conditions.

Type	Connection			Pump type										
	Rated pressure	Standard	Sanitary standard	Euro-HYGIA® I	Euro-HYGIA® II	F&B-HYGIA® I	F&B-HYGIA® II	Contra I	Contra II	durietta 0	SIPLA	MAXA	MAXANA	NOVALobe*
			3A0 3A1 3A2 3A3											
Aseptic threaded connection	PN 25-40	DIN 11864-1	• • • •	○	○			○	○	○	○			•
Threaded connection	PN 16-40	DIN 11851	• •	•	•	•	•	•	•	•	•			•
Threaded connection, SMS		ISO 2037	• •	○	○	○	○	○	○	○	○			
Threaded connection, DS		ISO 2037	• •	○	○	○	○	○	○	○	○			
Threaded connection, RJT		BS4825-5	• •	○	○			○	○		○			•
Threaded connection, IDF		ISO 2853 BS4825-4	• •	○	○			○	○		○			
Threaded connection (male), GAZ	PN 10	DIN ISO 228	•	○		○		○	○	○	○			
Tapped connection (female)	PN 10	DIN EN 10226-1	•							○				
Aseptic flange	PN 10-25	DIN 11864-2	• • • •	○	○			○	○	○	○			•
Flange, APV-FN1/APV-FG1	PN 10	APV	• •	○	○			○	○	○				
Flange	PN 10	DIN EN 1092-1	•							○		○	○	
Flange	PN 16	DIN EN 1092-1	•	○	○			○	○		○	•		
Kremo flange	PN 10	DIN EN 1092-1	•	○	○	○	○	○	○					
Kremo flange	PN 16	DIN EN 1092-1	•									•	•	
Flange, ANSI 150 LB RF	PN 10-16	ANSI	•	•				•	•					•
Clamp		DIN 32676	• • •	○	○	○	○	○	○	○	○			•
Clamp		ISO 2852 BS4825-3	• •	○	○	○	○	○	○	○	○			
Clamp, Tri-Clamp®/Tri-Clover®		ASME BPE	• •	○	○	○	○	○	○	○	○			
Clamp, ISO			• • • •	○	○	○	○	○	○	○	○			
Clamp, SMS			• • • •	○	○	○	○	○	○	○	○			
Stub		DIN 11850	• •	•	•	•	•	•	•	•	•	•	•	•

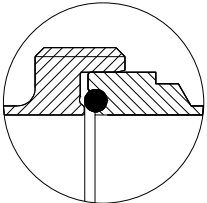
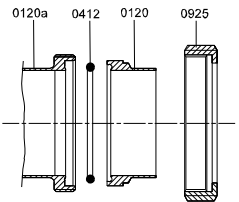
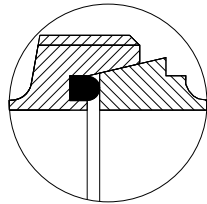
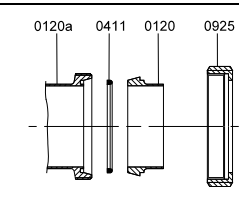
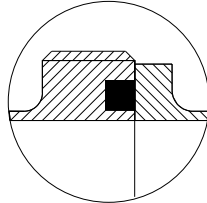
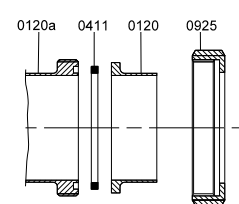
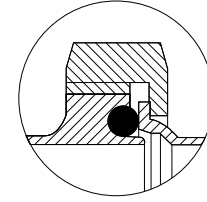
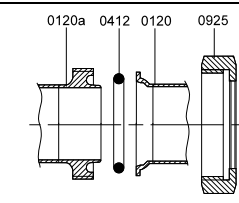
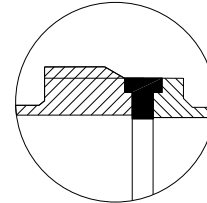
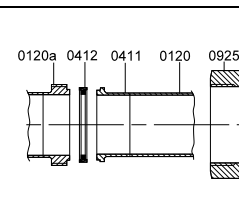
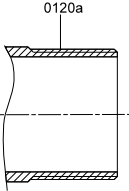
* See the NOVALobe data booklet

- Standard
- Available on request

Design

The following tables show the design of the different connection types.

Threads

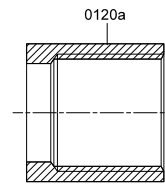
Connection	Standard	Design		
Aseptic threaded connection Typical applications: • Life science/pharmaceutical industry.	DIN 11864-1			TM03 8030 0307
Threaded connection Typical applications: • Food and beverage industry.	DIN 11851			TM03 8031 0307
Threaded connection, SMS Threaded connection, DS Typical applications: • Food and beverage industry.	ISO 2037 DS 722			TM03 8032 0307
Threaded connection, RJT Typical applications: • Life science/pharmaceutical industry.	BS4825-5			TM03 8364 1107
Threaded connection, IDF Typical applications: • Life science/pharmaceutical industry.	ISO 2853 BS4825-4			TM03 8363 1107
Threaded connection (male), GAZ Typical applications: • Food and beverage industry • Other industrial products.	DIN ISO 228			TM03 8716 2307

To be sealed with thread tape

Threaded connection (female)

DIN EN 10226-1

Typical applications:
 • Industrial applications.



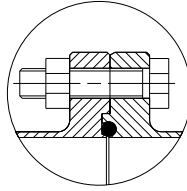
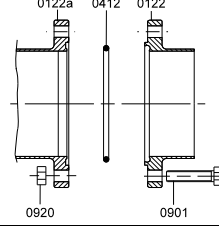
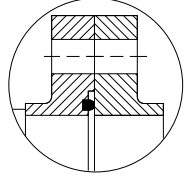
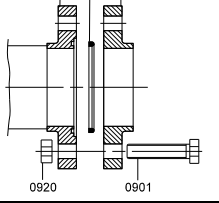
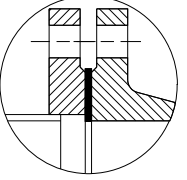
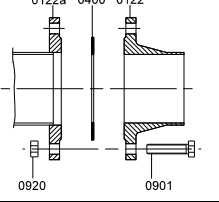
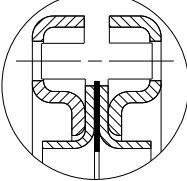
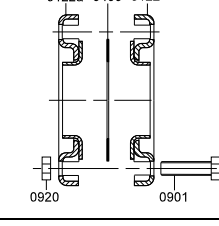
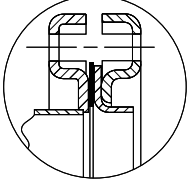
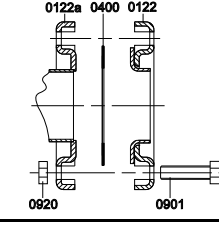
To be sealed with thread tape

TM03 8717 2307

Description of components

Pos.	Description
0120a	Threaded connection in pump housing
0120	Threaded connection
0411	Circular joint ring
0412	O-ring
0925	Grooved union nut

Flanges

Connection	Standard	Design		
Aseptic flange Typical applications: • Life science/pharmaceutical industry.	DIN 11864-2			TM03 8033 0307
Flange, APV-FN1/APV-FG1 Typical applications: • Food and beverage industry.	ISO			TM03 8034 0307
Flange (fixed flange) Flange, ANSI 150 and 300 LB RF Typical applications: • Industrial applications.	DIN EN 1092-1 ANSI			TM03 8035 0307
Flange (loose flange) Typical applications: • Industrial applications.	DIN EN 1092-1			TM03 8036 0307
Kremo flange Typical applications: • Industrial applications.	DIN EN 1092-1			TM03 8715 2307

Description of components

Pos.	Description
0122a	Flanged connection in pump housing
0122	Flanged connection
0400	Gasket
0410	Profile gasket
0412	O-ring
0901	Hexagon head screw
0920	Hexagon nut

Clamps

Connection	Standard	Design
Clamp Clamp Clamp Clamp Tri-Clamp®/Tri-Clover®	DIN 32676 ISO 2852 BS 4825-3 ASME BPE	
Typical applications: • Life science/pharmaceutical industry.		
Clamp, ISO and SMS	-	
Typical applications: • Food industry • Life science/pharmaceutical industry.		

TM03 8037 0307

Description of components

Pos.	Description
0121a	Clamp connection in pump housing
0121	Clamp connection
0410	Profile gasket
0501	Clamp ring

Euro-HYGIA®

Euro-HYGIA® I

Connections	DIN	32/25	32/32	40/25	40/32	40/40	50/32	50/40	50/50	65/40	65/50
	OD	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1	1 1/2 / 1 1/4	1 1/2 / 1 1/4	2 / 1 1/4	2 / 1 1/4	2 / 2	2 1/2 / 1 1/2	2 1/2 / 2
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	86	86	82	82	82	78	78	78	78	78
	e ₁	85	85	85	85	85	85	85	75	85	75
	h ₂	183	187	183	187	188	187	188	188	188	188
	e ₅	105	105	108	108	108	136	136	136	146	146
	h ₃	120	120	131	131	131	144	144	144	156	156
Threaded connection DIN 11851 (3A0-3A1)	a ₁	75	75	75	75	75	75	75	75	75	75
	e ₁	85	85	85	85	85	85	85	75	85	75
	h ₂	170	170	170	170	170	170	170	170	170	170
	e ₅	109	109	120	120	120	135	135	135	145	145
	h ₃	132	132	133	133	133	148	148	148	160	160
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	81	81	76	76	76	72	72	72	67	67
	e ₁	85	85	85	85	85	85	85	75	85	75
	h ₂	182	182	182	182	182	182	182	182	182	182
	e ₅	112	112	122	122	122	135	135	135	142	142
	h ₃	115	115	125	125	125	138	138	138	145	145
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	-	-	75	-	75 ⁴⁾	-	74	74	75	75
	e ₁	-	-	85	-	85	-	85	75	85	75
	h ₂	-	-	181	-	170	-	170	170	170	170
	e ₅	-	-	-	-	-	-	-	On request		
	h ₃	-	-	-	-	-	-	-	On request		
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	100 ⁵⁾	100 ⁵⁾	100	100	100	97	97	97	97	97
	e ₁	85	85	85	85	85	85	85	75	85	75
	h ₂	170	197	170	197	199	197	199	202	199	202
	e ₅	On request									
	h ₃	On request									
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	75	75	75	75	75	75	75	75	75	75
	e ₁	85	85	85	85	85	85	85	75	85	75
	h ₂	170	170	170	170	170	170	170	170	170	170
	e ₅	105	105	115	115	115	128	128	128	145	145
	h ₃	103	103	113	113	113	126	126	126	143	143
Clamp to DIN 32676 (3A0-3A2)	a ₁	87	87	77	77	77	73	73	73	75	75
	e ₁	85	85	85	85	85	85	85	75	85	75
	h ₂	178	178	178	178	170	178	170	178	170	178
	e ₅	113	113	123	123	123	136	136	136	150	150
	h ₃	111	111	121	121	121	134	134	134	148	148
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	-	-	88	-	88	-	86	86	70	70
	e ₁	-	-	85	-	85	-	85	75	85	75
	h ₂	-	-	185	-	185	-	185	185	185	185
	e ₅	-	-	123	-	123	-	-	On request		
	h ₃	-	-	121	-	121	-	-	On request		

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

4) Dimensions of KLM version. For HPM version, dimension a₁ is 82 mm for DN_s 40.

5) Dimensions of KLM version. For HPM version, dimension a₁ is 91 mm for DN_s 32.

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

Euro-HYGIA® II

Connections	DIN	50/50	65/50	65/65	80/50	80/65	80/80	100/65	100/80	100/100	125/80	125/100
	OD	2 / 2	2 ½ / 2	2 ½ / 2 ½	3 / 2	3 / 2 ½	3 / 3	4 / 2 ½	4 / 3	4 / 4	5 / 3	5 / 4
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	112	119	119	125	125	125	133	133	133	-	-
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	-	-
	h ₂	206	206	213	206	213	220	213	220	227	-	-
	e ₅	136	146	146	175	175	175	191	191	191	-	-
	h ₃	144	156	156	187	187	187	205	205	205	-	-
Threaded connection DIN 11851 (3A0-3A1)	a ₁	116	116	116	116	116	116	116	116	116	116	116
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	85.5	85.5
	h ₂	200	200	200	200	200	200	200	200	200	200	200
	e ₅	135	145	145	175	175	175	190	190	190	-	-
	h ₃	148	160	160	190	190	190	209	209	209	-	-
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	106.5	108.5	108.5	110.5	110.5	110.5	110.5	110.5	110.5	-	-
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	-	-
	h ₂	200.5	200.5	202.5	200.5	202.5	205.5	202.5	205.5	204.5	-	-
	e ₅	135.5	142.5	142.5	169.5	169.5	169.5	179.5	179.5	179.5	-	-
	h ₃	138.5	145.5	145.5	172.5	172.5	172.5	182.5	182.5	182.5	-	-
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	105	107	107	107	107	107	107	107	107	145	145
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	85.5	85.5
	h ₂	199	199	224	199	224	200	224	200	200	200	200
	e ₅	On request									-	-
	h ₃	On request									-	-
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	126	128	128	133	133	133	135	135	135	-	-
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	-	-
	h ₂	232	232	234	232	234	228	234	228	229	-	-
	e ₅	On request									-	-
	h ₃	On request									-	-
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	116	116	116	116	116	116	116	116	116	116	116
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	85.5	85.5
	h ₂	200	200	200	200	200	200	200	200	200	200	200
	e ₅	128	145	145	170	170	170	185	185	185	-	-
	h ₃	126	143	143	168	168	168	183	183	183	-	-
Clamp to DIN 32676 (3A0-3A2)	a ₁	102.5	111	111	111	111	111	111	111	111	-	-
	e ₁	98	98	98	98	98	85.5	98	85.5	85.5	-	-
	h ₂	209	209	228	209	228	206	228	206	205	-	-
	e ₅	136.5	150	150	175	175	175	185	185	185	-	-
	h ₃	134.5	148	148	173	173	173	183	183	183	-	-
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	109.6	109.6	109.6	111.6	111.6	111.6	111.6	111.6	111.6	-	-
	e ₁	98	98	98	98	98	98	98	98	85.5	-	-
	h ₂	215.6	215.6	215.6	215.6	215.6	225	215.6	225	215.6	-	-
	e ₅	On request									-	-
	h ₃	On request									-	-

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

F&B-HYGIA®

F&B-HYGIA® I

Connections	DIN	40/40	50/50
	OD	1½ / 1½	2 / 2
Threaded connection DIN 11851 (3A0-3A1)	a ₁	75	75
	e ₁	85	75
	h ₂	170	170
Kremo flange DIN EN 1092-1 (DIN 2633/42) PN 10 (3A0)	a ₁	75	75
	e ₁	85	75
	h ₂	170	170
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	79	75
	e ₁	85	75
	h ₂	185	185

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

F&B-HYGIA® II

Connections	DIN	65/65	80/80	100/100
	OD	2½ / 2½	3 / 3	4 / 4
Threaded connection DIN 11851 (3A0-3A1)	a ₁	116	116	116
	e ₁	98	85.5	85.5
	h ₂	200	200	200
Kremo flange DIN EN 1092-1 (DIN 2633/42) PN 10 (3A0)	a ₁	116	116	116
	e ₁	98	85.5	85.5
	h ₂	200	200	200
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	111.5	111.5	111.5
	e ₁	98	85.5	85.5
	h ₂	215.5	206.5	205.5

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

Contra I

Contra I

Connections	DIN	25/25	32/25	32/32	40/32	40/40	25/25	32/25	32/32	40/32	40/40
	OD	1 / 1	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1 1/4	1 1/2 / 1 1/2	1 / 1	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1 1/4	1 1/2 / 1 1/2
		1-Stage					2-Stage				
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	114	118	121	122	125	140	144	147	149	151
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	157	157	158	158	158	157	157	158	158	158
	e ₅	106	105	105	108	108	106	105	105	108	108
	h ₃	116	120	120	131	131	116	120	120	131	131
Threaded connection DIN 11851 (3A0-3A1)	a ₁	117	120	123	124	127	143	146	149	150	153
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	160	160	160	160	160	160	160	160	160	160
	e ₅	106	109	109	120	120	106	109	109	120	120
	h ₃	119	122	122	133	133	119	122	122	133	133
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	113.5	113.6	116.5	116.6	119.5	139.5	139.5	142.5	142.5	145.5
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	156.5	156.5	153.5	153.5	152.5	156.5	156.5	153.5	153.5	152.5
	e ₅	112	112	112	122	122	112	112	112	122	122
	h ₃	115	115	115	125	125	115	115	115	125	125
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	112	-	-	-	118	138	-	-	-	144
	f ₂	1	-	-	-	7	1	-	-	-	7
	h ₂	155	-	-	-	151	155	-	-	-	151
	e ₅	114	-	-	-	124	114	-	-	-	124
	h ₃	114	-	-	-	124	114	-	-	-	124
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	117	121	124	133	136	143	147	150	159	162
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	160	160	160	160	169	160	160	160	160	169
	e ₅	On request					On request				
	h ₃	On request					On request				
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	101	101	104	104	107	127	127	130	130	133
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	144	144	141	141	140	144	144	141	141	140
	e ₅	105	105	105	115	115	105	105	105	115	115
	h ₃	103	103	103	113	113	103	103	103	113	113
Clamp to DIN 32676 (3A0-3A2)	a ₁	109.5	109.5	112.5	112.5	115.5	135.5	135.5	138.5	138.5	141.5
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	152.5	152.5	149.5	149.5	148.5	152.5	152.5	149.5	149.5	148.5
	e ₅	113	113	113	123	123	113	113	113	123	123
	h ₃	111	111	111	121	121	111	111	111	121	121
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	116.6	-	-	-	125	142.6	-	-	-	151
	f ₂	1	-	-	-	7	1	-	-	-	7
	h ₂	160	-	-	-	158	160	-	-	-	158
	e ₅	95	-	-	-	123	95	-	-	-	123
	h ₃	93	-	-	-	121	93	-	-	-	121

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

Contra I, continued

Connections	DIN	25/25	32/25	32/32	40/32	40/40	25/25	32/25	32/32	40/32	40/40
	OD	1 / 1	1 ¼ / 1	1 ¼ / 1 ¼	1 ½ / 1 ¼	1 ½ / 1 ½	1 / 1	1 ¼ / 1	1 ¼ / 1 ¼	1 ½ / 1 ¼	1 ½ / 1 ½
3-Stage						4-Stage					
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	166	170	173	174	177	192	196	199	201	203
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	157	157	158	158	158	157	157	158	158	158
	e ₅	106	105	105	108	108	106	105	105	108	108
	h ₃	116	120	120	131	131	116	120	120	131	131
Threaded connection DIN 11851 (3A0-3A1)	a ₁	169	172	175	176	179	195	198	201	202	205
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	160	160	160	160	160	160	160	160	160	160
	e ₅	106	109	109	120	120	106	109	109	120	120
	h ₃	119	122	122	133	133	119	122	122	133	133
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	165.5	165.5	168.5	168.5	171.5	191.5	191.5	194.5	194.5	197.5
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	156.5	156.5	153.5	153.5	152.5	156.5	156.5	153.5	153.5	152.5
	e ₅	112	112	112	122	122	112	112	112	122	122
	h ₃	115	115	115	125	125	115	115	115	125	125
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	164	-	-	-	170	190	-	-	-	196
	f ₂	1	-	-	-	7	1	-	-	-	7
	h ₂	155	-	-	-	151	155	-	-	-	151
	e ₅	114	-	-	-	124	114	-	-	-	124
	h ₃	114	-	-	-	124	114	-	-	-	124
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	169	173	176	185	188	195	199	202	211	214
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	160	160	160	160	169	160	160	160	160	169
	e ₅	On request					On request				
	h ₃	On request					On request				
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	153	153	156	156	159	179	179	182	182	185
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	144	144	141	141	140	144	144	141	141	140
	e ₅	105	105	105	115	115	105	105	105	115	115
	h ₃	103	103	103	113	113	103	103	103	113	113
Clamp to DIN 32676 (3A0-3A2)	a ₁	161.5	161.5	164.5	164.5	167.5	187.5	187.5	190.5	190.5	193.5
	f ₂	1	1	4	4	7	1	1	4	4	7
	h ₂	152.5	152.5	149.5	149.5	148.5	152.5	152.5	149.5	149.5	148.5
	e ₅	113	113	113	123	123	113	113	113	123	123
	h ₃	111	111	111	121	121	111	111	111	121	121
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	168.6	-	-	-	177	194.6	-	-	-	203
	f ₂	1	-	-	-	7	1	-	-	-	7
	h ₂	160	-	-	-	158	160	-	-	-	158
	e ₅	95	-	-	-	123	95	-	-	-	123
	h ₃	93	-	-	-	121	93	-	-	-	121

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

Contra I, continued

Connections	DIN	25/25	32/25	32/32	40/32	40/40	25/25	32/25	32/32	40/32	40/40	
	OD	1 / 1	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1 1/4	1 1/2 / 1 1/2	1 / 1	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1 1/4	1 1/2 / 1 1/2	
5-Stage						6-Stage						
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	218	222	225	226	229	244	248	251	253	255	
	f ₂	1	1	4	4	7	1	1	4	4	7	
	h ₂	157	157	158	158	158	157	157	158	158	158	
	e ₅	106	105	105	108	108	106	105	105	108	108	
	h ₃	116	120	120	131	131	116	120	120	131	131	
Threaded connection DIN 11851 (3A0-3A1)	a ₁	221	224	227	228	231	247	250	253	254	257	
	f ₂	1	1	4	4	7	1	1	4	4	7	
	h ₂	160	160	160	160	160	160	160	160	160	160	
	e ₅	106	109	109	120	120	106	109	109	120	120	
	h ₃	119	122	122	133	133	119	122	122	133	133	
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	217.5	217.5	220.5	220.5	223.5	243.5	243.5	246.5	246.5	249.5	
	f ₂	1	1	4	4	7	1	1	4	4	7	
	h ₂	156.5	156.5	153.5	153.5	152.5	156.5	156.5	153.5	153.5	152.5	
	e ₅	112	112	112	122	122	112	112	112	122	122	
	h ₃	115	115	115	125	125	115	115	115	125	125	
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	216	-	-	-	222	242	-	-	-	248	
	f ₂	1	-	-	-	7	1	-	-	-	7	
	h ₂	155	-	-	-	151	155	-	-	-	151	
	e ₅	114	-	-	-	124	114	-	-	-	124	
	h ₃	114	-	-	-	124	114	-	-	-	124	
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	221	225	228	237	240	247	251	254	263	266	
	f ₂	1	1	4	4	7	1	1	4	4	7	
	h ₂	160	160	160	160	169	160	160	160	160	169	
	e ₅	On request					On request					
	h ₃											
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	205	205	209	209	211	231	231	234	234	237	
	f ₂	1	1	4	4	7	1	1	4	4	7	
	h ₂	144	144	141	141	140	144	144	141	141	140	
	e ₅	105	105	105	115	115	105	105	105	115	115	
	h ₃	103	103	103	113	113	103	103	103	113	113	
Clamp to DIN 32676 (3A0-3A2)	a ₁	213.5	213.5	216.5	216.5	219.5	239.5	239.5	242.5	242.5	245.5	
	f ₂	1	1	4	4	7	1	1	4	4	7	
	h ₂	152.5	152.5	149.5	149.5	148.5	152.5	152.5	149.5	149.5	148.5	
	e ₅	113	113	113	123	123	113	113	113	123	123	
	h ₃	111	111	111	121	121	111	111	111	121	121	
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	220.6	-	-	-	229	246.6	-	-	-	255	
	f ₂	1	-	-	-	7	1	-	-	-	7	
	h ₂	160	-	-	-	158	160	-	-	-	158	
	e ₅	95	-	-	-	123	95	-	-	-	123	
	h ₃	93	-	-	-	121	93	-	-	-	121	

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

Contra II

Connections	DIN	50/40	50/50	65/50	65/65	80/65	50/40	50/50	65/50	65/65	80/65	
	OD	2 / 1½	2 / 2	2½ / 2	2½ / 2½	3 / 2½	2 / 1½	2 / 2	2½ / 2	2½ / 2½	3 / 2½	
1-Stage						2-Stage						
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	120	123	128	136	142	152	155	160	168	174	
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	203	201	201	201	201	203	201	201	201	201	
	e ₅	136	136	146	146	175	136	136	146	146	175	
	h ₃	144	144	156	156	187	144	144	156	156	187	
Threaded connection DIN 11851 (3A0-3A1)	a ₁	124	127	132	140	145	156	159	164	172	177	
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	205	205	205	205	205	205	205	205	205	205	
	e ₅	135	135	145	145	175	135	135	145	145	175	
	h ₃	148	148	160	160	190	148	148	160	160	190	
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	113	116	117	125	127	145	148	149	157	159	
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	198	196	196	191	191	198	196	196	191	191	
	e ₅	135.5	135.5	142.5	142.5	169.5	135.5	135.5	142.5	142.5	169.5	
	h ₃	138.5	138.5	145.5	145.5	172.5	138.5	138.5	145.5	14.5	172.5	
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	113	116	116	124	124	145	148	148	156	156	
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	196	194	194	189	189	196	194	194	189	189	
	e ₅	137	137	144	144	169	137	137	144	144	169	
	h ₃	137	137	144	144	169	137	137	144	144	169	
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	134	137	137	145	-	166	169	169	177	-	
	f ₂	0	3	3	11	-	0	3	3	11	-	
	h ₂	214	215	215	210	-	214	215	215	210	-	
	e ₅	On request					On request					
	h ₃	On request					On request					
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	102	105	115	123	122	134	137	147	155	154	
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	185	183	183	188	188	185	183	183	188	188	
	e ₅	128	128	145	145	170	128	128	145	145	170	
	h ₃	126	126	143	143	168	126	126	143	143	168	
Clamp to DIN 32676 (3A0-3A2)	a ₁	110	113	120	128	128	142	145	152	160	160	
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	194	192	192	193	193	194	192	192	193	193	
	e ₅	136.5	136.5	150	150	175	136.5	136.5	150	150	175	
	h ₃	134.5	134.5	148	148	173	134.5	134.5	148	148	173	
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	146	149	120	On request		178	181	152	On request		
	f ₂	0	3	3	11	11	0	3	3	11	11	
	h ₂	201	199	199	194	194	201	199	199	194	194	
	e ₅	On request					On request					
	h ₃	On request					On request					

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

Contra II, continued

Connections	DIN	50/40	50/50	65/50	65/65	80/65	50/40	50/50	65/50	65/65	80/65
	OD	2 / 1½	2 / 2	2½ / 2	2½ / 2½	3 / 2½	2 / 1½	2 / 2	2½ / 2	2½ / 2½	3 / 2½
		3-Stage					4-Stage				
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	184	187	192	200	206	216	219	224	232	238
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	203	201	201	201	201	203	201	201	201	201
	e ₅	136	136	146	146	175	136	136	146	146	175
	h ₃	144	144	156	156	187	144	144	156	156	187
Threaded connection DIN 11851 (3A0-3A1)	a ₁	188	191	196	204	209	220	223	228	236	241
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	205	205	205	205	205	205	205	205	205	205
	e ₅	135	135	145	145	175	135	135	145	145	175
	h ₃	148	148	160	160	190	148	148	160	160	190
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	177	180	181	189	191	209	212	213	221	223
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	198	196	196	191	191	198	196	196	191	191
	e ₅	135.5	135.5	142.5	142.5	169.5	135.5	135.5	142.5	142.5	169.5
	h ₃	138.5	138.5	145.5	14.5	172.5	138.5	138.5	145.5	14.5	172.5
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	177	180	180	188	188	209	212	212	220	220
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	196	194	194	189	189	196	194	194	189	189
	e ₅	114	124	144	144	169	137	137	144	144	169
	h ₃	114	124	144	144	169	137	137	144	144	169
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	198	201	201	209	-	230	233	233	241	-
	f ₂	0	3	3	11	-	0	3	3	11	-
	h ₂	214	215	215	210	-	214	215	215	210	-
	e ₅	On request					On request				
	h ₃	On request					On request				
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	166	169	179	187	186	198	201	211	219	218
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	185	183	183	188	188	185	183	183	188	188
	e ₅	128	128	145	145	170	128	128	145	145	170
	h ₃	126	126	143	143	168	126	126	143	143	168
Clamp to DIN 32676 (3A0-3A2)	a ₁	174	177	184	192	192	206	209	216	224	224
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	194	192	192	193	193	194	192	192	193	193
	e ₅	136.5	136.5	150	150	175	136.5	136.5	150	150	175
	h ₃	134.5	134.5	148	148	173	134.5	134.5	148	148	173
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	210	213	184	On request		242	245	216	On request	
	f ₂	0	3	3	11	11	0	3	3	11	11
	h ₂	201	199	199	194	194	201	199	199	194	194
	e ₅	On request					On request				
	h ₃	On request					On request				

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

Contra II, continued

Connections	DIN	50/40	50/50	65/50	65/65	80/65
	OD	2 / 1½	2 / 2	2½ / 2	2½ / 2½	3 / 2½
5-Stage						
Aseptic threaded connection DIN 11864-1 ¹⁾ (3A0-3A3)	a ₁	248	251	256	264	270
	f ₂	0	3	3	11	11
	h ₂	203	201	201	201	201
	e ₅	136	136	146	146	175
	h ₃	144	144	156	156	187
Threaded connection DIN 11851 (3A0-3A1)	a ₁	252	255	260	268	273
	f ₂	0	3	3	11	11
	h ₂	205	205	205	205	205
	e ₅	135	135	145	145	175
	h ₃	148	148	160	160	190
Aseptic flange DIN 11864-2 ²⁾ (3A0-3A3)	a ₁	241	244	245	253	255
	f ₂	0	3	3	11	11
	h ₂	198	196	196	191	191
	e ₅	135.5	135.5	142.5	142.5	169.5
	h ₃	138.5	138.5	145.5	14.5	172.5
Flange APV FN1/FG1 PN 10 (3A0-3A1)	a ₁	241	244	244	252	252
	f ₂	0	3	3	11	11
	h ₂	196	194	194	189	189
	e ₅	137	137	144	144	169
	h ₃	137	137	144	144	169
Flange DIN EN 1092-1 (DIN 2633) PN 16 (3A0)	a ₁	262	265	265	273	-
	f ₂	0	3	3	11	-
	h ₂	214	215	215	210	-
	e ₅	On request				
	h ₃	On request				
Kremo flange DIN EN 1092-1 ³⁾ (DIN 2633/42) PN 10 (3A0)	a ₁	230	233	243	251	250
	f ₂	0	3	3	11	11
	h ₂	185	183	183	188	188
	e ₅	128	128	145	145	170
	h ₃	126	126	143	143	168
Clamp to DIN 32676 (3A0-3A2)	a ₁	238	241	248	256	256
	f ₂	0	3	3	11	11
	h ₂	194	192	192	193	193
	e ₅	136.5	136.5	150	150	175
	h ₃	134.5	134.5	148	148	173
Clamps for Tri-Clamp® Tri-Clover® (3A0-3A2)	a ₁	274	277	248	On request	
	f ₂	0	3	3	11	11
	h ₂	201	199	199	194	194
	e ₅	On request				
	h ₃	On request				

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

1) Aseptic, threaded connection for pipes to DIN 11866, Row A.

2) Aseptic, grooved flange for pipes to DIN 11866, Row A.

3) DN_s/DN_d - fixed/loose flange (DN_s 65 as DIN 2642-loose flange).

Dimensions e₅ and h₃ of vertical version. Discharge branch cannot be completely drained (not eccentric).

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Connections	DIN	25/25	32/25	32/32	40/25	40/32	40/40	25/25	32/25	32/32	40/25	40/32	40/40
	OD	1 / 1	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1	1 1/2 / 1 1/4	1 1/2 / 1 1/2	1 / 1	1 1/4 / 1	1 1/4 / 1 1/4	1 1/2 / 1	1 1/2 / 1 1/4	1 1/2 / 1 1/2
	1-Stage						2-Stage						
Threaded connection DIN 11851 (3A0-3A1)	A	44	50	50	-	52	52	65	71	71	-	73	73
	A'	44	47	47	-	-	-	44	47	47	-	-	-
	B ⁽¹⁾	47	47	47	-	47	47	47	47	47	-	47	47
	B ⁽²⁾	43	43	43	-	43	43	43	43	43	-	43	43
	C	110	110	130	-	130	130	110	100	130	-	130	130
	J	110	98	98	-	-	-	110	98	98	-	-	-
	K	50	50	50	-	50	50	71	71	71	-	71	71
Threaded connection SMS (3A0-3A1)	A	52	-	-	42	-	42	73	-	-	63	-	63
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	47	-	-	47	-	47	47	-	-	47	-	47
	B ⁽²⁾	43	-	-	43	-	43	43	-	-	43	-	43
	C	110	-	-	110	-	135	110	-	-	110	-	135
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	50	-	-	50	-	50	71	-	-	71	-	71
Threaded connection DIN ISO 228 (male) - GAZ (3A0)	A	52	52	52	-	57	57	73	73	73	-	78	78
	A'	45	49	49	-	-	-	45	49	49	-	-	-
	B ⁽¹⁾	47	47	47	-	47	47	47	47	47	-	47	47
	B ⁽²⁾	43	43	43	-	43	43	43	43	43	-	43	43
	C	130	130	155	-	155	136	130	130	155	-	155	136
	J	115	105	105	-	-	-	115	105	105	-	-	-
	K	50	50	50	-	50	50	71	71	71	-	71	71
Tapped connection DIN EN 10226-1 (female) (3A0)	A	-	35	-	-	-	-	-	63	-	-	-	-
	A'	-	49	-	-	-	-	-	49	-	-	-	-
	B ⁽¹⁾	-	47	-	-	-	-	-	47	-	-	-	-
	B ⁽²⁾	-	43	-	-	-	-	-	43	-	-	-	-
	C	-	120	-	-	-	-	-	120	-	-	-	-
	J	-	116	-	-	-	-	-	116	-	-	-	-
	K	-	50	-	-	-	-	-	71	-	-	-	-
Flange DIN EN 1092-1 ³⁾ (DIN 2642) PN 10 (3A0)	A	78	78	78	-	78	-	99	99	99	-	99	-
	A'	91	100	100	-	-	-	91	100	100	-	-	-
	B ⁽¹⁾	47	47	47	-	47	-	47	47	47	-	47	-
	B ⁽²⁾	43	43	43	-	43	-	43	43	43	-	43	-
	C	107	107	135	-	135	-	107	107	135	-	135	-
	J	130	120	120	-	-	-	130	120	120	-	-	-
	K	50	50	50	-	50	-	71	71	71	-	71	-
Clamp to ISO (3A0-3A1)	A	63	-	-	63	-	63	84	-	-	84	-	84
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	47	-	-	47	-	47	47	-	-	47	-	47
	B ⁽²⁾	43	-	-	43	-	43	43	-	-	43	-	43
	C	110	-	-	110	-	130	110	-	-	130	-	130
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	50	-	-	50	-	50	71	-	-	71	-	71
Clamp to SMS (3A0-3A1)	A	63	-	-	63	-	63	84	-	-	84	-	84
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	47	-	-	47	-	47	47	-	-	47	-	47
	B ⁽²⁾	43	-	-	43	-	43	43	-	-	43	-	43
	C	110	-	-	110	-	130	110	-	-	130	-	130
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	50	-	-	50	-	50	71	-	-	71	-	71

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.
1+2) Add 40.5 mm for pumps with double mechanical seal.

durietta 0, continued

Connections	DIN	25/25	32/25	32/32	40/25	40/32	40/40	25/25	32/25	32/32	40/25	40/32	40/40
	OD	1 / 1	1½ / 1	1½ / 1½	1½ / 1	1½ / 1½	1½ / 1½	1 / 1	1½ / 1	1½ / 1½	1½ / 1	1½ / 1½	1½ / 1½
	3-Stage						4-Stage						
Threaded connection DIN 11851 (3A0-3A1)	A	85	91	91	-	93	93	106	112	112	-	114	114
	A'	44	47	47	-	-	-	44	47	47	-	-	-
	B ⁽¹⁾	67	67	67	-	67	67	67	67	67	-	67	67
	B ⁽²⁾	62	62	62	-	62	62	62	62	62	-	62	62
	C	110	110	130	-	130	130	110	110	130	-	130	130
	J	110	98	98	-	-	-	110	98	98	-	-	-
	K	91	91	91	-	91	91	112	112	112	-	112	112
Threaded connection SMS (3A0-3A1)	A	93	-	-	83	-	83	114	-	-	104	-	104
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	67	-	-	67	-	67	67	-	-	67	-	67
	B ⁽²⁾	62	-	-	62	-	62	62	-	-	62	-	62
	C	110	-	-	110	-	135	110	-	-	110	-	135
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	91	-	-	91	-	91	112	-	-	112	-	112
Threaded connection DIN ISO 228 (male) - GAZ (3A0)	A	93	93	93	-	98	98	114	114	114	-	119	119
	A'	45	49	49	-	-	-	45	49	49	-	-	-
	B ⁽¹⁾	67	67	67	-	67	67	67	67	67	-	67	67
	B ⁽²⁾	62	62	62	-	62	62	62	62	62	-	62	62
	C	130	130	155	-	155	136	130	130	155	-	155	136
	J	15	105	105	-	-	-	115	105	105	-	-	-
	K	91	91	91	-	91	91	112	112	112	-	112	-
Tapped connection DIN EN 10226-1 (female) (3A0)	A	-	83	-	-	-	-	-	104	-	-	-	-
	A'	-	49	-	-	-	-	-	49	-	-	-	-
	B ⁽¹⁾	-	67	-	-	-	-	-	67	-	-	-	-
	B ⁽²⁾	-	62	-	-	-	-	-	62	-	-	-	-
	C	-	120	-	-	-	-	-	120	-	-	-	-
	J	-	116	-	-	-	-	-	116	-	-	-	-
	K	-	91	-	-	-	-	-	112	-	-	-	-
Flange DIN EN 1092-1 ³⁾ (DIN 2642) PN 10 (3A0)	A	119	119	119	-	119	-	140	140	140	-	140	-
	A'	91	100	100	-	-	-	91	100	100	-	-	-
	B ⁽¹⁾	67	67	67	-	-	-	67	67	67	-	67	-
	B ⁽²⁾	62	62	62	-	-	-	62	62	62	-	62	-
	C	107	107	135	-	135	-	107	107	135	-	135	-
	J	130	120	120	-	-	-	130	120	120	-	-	-
	K	91	91	91	-	91	-	112	112	112	-	112	112
Clamp to ISO (3A0-3A1)	A	104	-	-	104	-	104	125	-	-	125	-	125
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	67	-	-	67	-	67	67	-	-	67	-	67
	B ⁽²⁾	62	-	-	62	-	62	62	-	-	62	-	62
	C	110	-	-	110	-	130	110	-	-	110	-	130
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	91	-	-	91	-	91	112	-	-	112	-	112
Clamp to SMS (3A0-3A1)	A	104	-	-	104	-	104	125	-	-	125	-	125
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	67	-	-	67	-	67	67	-	-	67	-	67
	B ⁽²⁾	62	-	-	62	-	62	62	-	-	62	-	62
	C	110	-	-	110	-	130	110	-	-	110	-	130
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	91	-	-	91	-	91	112	-	-	112	-	112

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.
1+2) Add 40.5 mm for pumps with double mechanical seal.

durietta 0, continued

Connections	DIN	25/25	32/25	32/32	40/25	40/32	40/40	25/25	32/25	32/32	40/25	40/32	40/40
	OD	1 / 1	1 ¼ / 1	1 ¼ / 1 ¼	1 ½ / 1	1 ½ / 1 ¼	1 ½ / 1 ½	1 / 1	1 ¼ / 1	1 ¼ / 1 ¼	1 ½ / 1	1 ½ / 1 ¼	1 ½ / 1 ½
5-Stage							6-Stage						
Threaded connection DIN 11851 (3A0-3A1)	A	126	132	132	-	134	134	14	153	153	-	155	155
	A'	44	47	47	-	-	-	44	47	47	-	-	-
	B ⁽¹⁾	67	67	67	-	67	67	67	67	67	-	67	67
	B ⁽²⁾	62	62	62	-	62	62	62	62	62	-	62	62
	C	110	110	130	-	130	130	110	110	130	-	130	130
	J	110	98	98	-	-	-	110	98	98	-	-	-
	K	132	132	132	-	132	132	153	153	153	-	153	153
Threaded connection SMS (3A0-3A1)	A	134	-	-	124	-	124	155	-	-	145	-	145
	A'	42	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	67	-	-	67	-	67	67	-	-	67	-	67
	B ⁽²⁾	62	-	-	62	-	62	62	-	-	62	-	62
	C	110	-	-	110	-	135	110	-	-	110	-	135
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	132	-	-	132	-	132	153	-	-	153	-	153
Threaded connection DIN ISO 228 (male) - GAZ (3A0)	A	134	134	134	-	139	139	155	155	155	-	160	160
	A'	45	49	49	-	-	-	45	49	49	-	-	-
	B ⁽¹⁾	67	67	67	-	67	67	67	67	67	-	67	67
	B ⁽²⁾	62	62	62	-	62	62	62	62	62	-	62	62
	C	130	130	155	-	155	136	130	130	155	-	155	136
	J	115	105	105	-	-	-	115	105	105	-	-	-
	K	132	132	132	-	132	-	153	153	153	-	153	153
Tapped connection DIN EN 10226-1 (female) (3A0)	A	-	124	-	-	-	-	-	145	-	-	-	-
	A'	-	49	-	-	-	-	-	49	-	-	-	-
	B ⁽¹⁾	-	67	-	-	-	-	-	67	-	-	-	-
	B ⁽²⁾	-	62	-	-	-	-	-	62	-	-	-	-
	C	-	120	-	-	-	-	-	120	-	-	-	-
	J	-	116	-	-	-	-	-	116	-	-	-	-
	K	-	132	-	-	-	-	-	153	-	-	-	-
Flange DIN EN 1092-1 ³⁾ (DIN 2642) PN 10 (3A0)	A	160	160	160	-	160	-	181	181	181	-	181	-
	A'	91	100	100	-	-	-	91	100	100	-	-	-
	B ⁽¹⁾	67	67	67	-	67	-	67	67	67	-	67	-
	B ⁽²⁾	62	62	62	-	62	-	62	62	62	-	62	-
	C	107	107	135	-	135	-	107	107	135	-	135	-
	J	130	120	120	-	-	-	130	120	120	-	-	-
	K	132	132	132	-	132	-	153	153	153	-	153	-
Clamp to ISO (3A0-3A1)	A	145	-	-	145	-	145	166	-	-	166	-	166
	A'	47	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	67	-	-	67	-	67	67	-	-	67	-	67
	B ⁽²⁾	62	-	-	62	-	62	62	-	-	62	-	62
	C	110	-	-	110	-	130	110	-	-	110	-	130
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	132	-	-	132	-	132	153	-	-	153	-	153
Clamp to SMS (3A0-3A1)	A	145	-	-	145	-	145	166	-	-	166	-	166
	A'	47	-	-	49	-	49	42	-	-	49	-	49
	B ⁽¹⁾	67	-	-	67	-	67	67	-	-	67	-	67
	B ⁽²⁾	62	-	-	62	-	62	62	-	-	62	-	62
	C	110	-	-	110	-	130	110	-	-	110	-	130
	J	110	-	-	98	-	98	110	-	-	98	-	98
	K	132	-	-	132	-	132	153	-	-	153	-	153

SIPLA

For dimensions on connections for SIPLA please see pages [107-111](#).

MAXA

MAXA 80-160

Connections	DIN	100/80	125/80	125/100	150/80
	OD	4 / 3	5 / 3	5 / 4	6 / 3
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	125	125	-	125
	h ₂	225	225	-	225

MAXA 80-200

Connections	DIN	100/80	100/100	125/80	125/100	150/80	150/100
	OD	4 / 3	4 / 4	5 / 3	5 / 4	6 / 3	6 / 4
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	125	125	-	-	-	125
	h ₂	250	250	-	-	-	250

MAXA 80-250

Connections	DIN	100/80	100/100	125/80	125/100	150/80	150/100
	OD	4 / 3	4 / 4	5 / 3	5 / 4	6 / 3	6 / 4
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	125	-	-	125	125	125
	h ₂	280	-	-	280	280	280

MAXA 80-315

Connections	DIN	100/80	100/100	125/80	125/100	150/80	150/100
	OD	4 / 3	4 / 4	5 / 3	5 / 4	6 / 3	6 / 4
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	125	125	125	125	125	125

MAXA 100-200

Connections	DIN	125/100	125/125	150/100	150/125
	OD	5 / 4	5 / 5	6 / 4	6 / 5
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	125	125	125	125
	h ₂	280	280	280	280

MAXA 100-250

Connections	DIN	125/100	125/125	150/100	150/125
	OD	5 / 4	5 / 5	6 / 4	6 / 5
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	140	140	-	140
	h ₂	280	280	-	280

MAXA 100-315

Connections	DIN	125/100	125/125	150/100	150/125
	OD	5 / 4	5 / 5	6 / 4	6 / 5
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	140	140	140	140
	h ₂	315	315	315	315

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

MAXA 125-250

Connections	DIN	150/125	150/150	175/125	200/125	200/150
	OD	6 / 5	6 / 6	7 / 5	8 / 5	8 / 6
Flange DIN EN 1092-1 ³⁾ (DIN 2632) (3A0)	a ₁	-	-	-	140	-
	h ₂	-	-	-	355	-
Flange DIN EN 1092-1 ³⁾ (DIN 2633) (3A0)	a ₁	140	140	140	-	140
	h ₂	355	355	355	-	355

MAXA 125-315

Connections	DIN	150/125	200/150
	OD	6 / 5	8 / 6
Flange DIN EN 1092-1 ³⁾ (DIN 2633) (3A0)	a ₁	140	140
	h ₂	355	355

MAXA 150-250

Connections	DIN	200/150	250/150	250/200
	OD	8 / 6	10 / 6	10 / 8
Flange DIN EN 1092-1 ³⁾ (DIN 2632) (3A0)	a ₁	160	160	160
	h ₂	375	375	375
Flange DIN EN 1092-1 ³⁾ (DIN 2633) (3A0)	a ₁	160	160	-
	h ₂	375	375	-

MAXA 150-315

Connections	DIN	200/150	250/150	250/200
	OD	8 / 6	10 / 6	10 / 8
Flange DIN EN 1092-1 ³⁾ (DIN 2632) (3A0)	a ₁	160	160	160
	h ₂	400	400	400
Flange DIN EN 1092-1 ³⁾ (DIN 2633) (3A0)	a ₁	-	160	-
	h ₂	-	400	-

MAXA 150-400

Connections	DIN	200/150	200/200
	OD	8 / 6	8 / 8
Flange DIN EN 1092-1 ³⁾ (DIN 2632) (3A0)	a ₁	160	160
	h ₂	450	450

MAXA 200-400

Connections	DIN	200/200	250/200
	OD	8 / 8	10 / 8
Flange DIN EN 1092-1 ³⁾ (DIN 2632) (3A0)	a ₁	175	175
	h ₂	530	530

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

MAXANA

MAXANA 32-160

Connections	DIN	50/32	50/40	65/32	65/40
	OD	2 / 1¼	2 / 1¼	2½ / 1¼	2½ / 1¼
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	80	80	80	80
	h ₂	160	160	160	160

MAXANA 32-200

Connections	DIN	40/25	50/32	50/40	65/32	65/40	65/50
	OD	1½ / 1	2 / 1¼	2 / 1¼	2½ / 1¼	2½ / 1¼	2½ / 2
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	-	80	80	80	80	80
	h ₂	-	180	180	180	180	180

MAXANA 40-160

Connections	DIN	65/40	65/50	80/40	80/50
	OD	2½ / 1¼	2½ / 2	3 / 1¼	3 / 2
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	80	80	80	80
	h ₂	160	160	160	160

MAXANA 40-200

Connections	DIN	65/40	65/50	80/40	80/50
	OD	2½ / 1¼	2½ / 2	3 / 1¼	3 / 2
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	180	180	180	180

MAXANA 50-125

Connections	DIN	65/50	65/65	80/50	80/65
	OD	2½ / 2	2½ / 2½	3 / 2	3 / 2½
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	160	160	160	160

MAXANA 50-160

Connections	DIN	65/50	65/65	80/50	80/65
	OD	2½ / 2	2½ / 2½	3 / 2	3 / 2½
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	180	180	180	180

MAXANA 50-200

Connections	DIN	65/50	65/65	80/50	80/65
	OD	2½ / 2	2½ / 2½	3 / 2	3 / 2½
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	200	200	200	200

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

MAXANA 65-125

Connections	DIN	80/65	100/65	80/80	100/80
	OD	3 / 2½	3½ / 2½	3 / 3	3½ / 3
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	180	180	180	180

MAXANA 65-160

Connections	DIN	80/65	80/80	100/65	100/80
	OD	3 / 2½	3 / 3	3½ / 2½	3½ / 3
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	200	200	200	200

MAXANA 65-200

Connections	DIN	80/65	80/80	100/65	100/80
	OD	3 / 2½	3 / 3	3½ / 2½	3½ / 3
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	225	225	225	225

MAXANA 65-250

Connections	DIN	80/65	80/80	100/65	100/80
	OD	3 / 2½	3 / 3	3½ / 2½	3½ / 3
Kremo flange DIN EN 1092-1 (DIN 2633) (3A0)	a ₁	100	100	100	100
	h ₂	250	250	250	250

Tolerances to DIN EN 735 connection dimensions of centrifugal pumps.

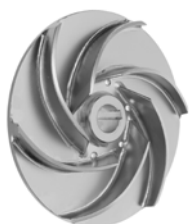
Pumps

Please see subsection construction in the individual pump chapters at the beginning of this data booklet.

Impellers

Grundfos offers four impeller types suitable for different liquids and applications. Not all impeller types are available for the complete product range.

Semi-open impeller



GR9394

Fig. 31 Semi-open impeller

The electro-polished, stainless steel, semi-open impeller is available in three versions, according to the application.

Impeller version	Application	Surface finish
Cast	Industrial/hygienic	3A0 to 3A1
Welded	Industrial/hygienic	3A0 to 3A1
Milled	Industrial/hygienic/sterile	3A2 to 3A3

For surface finish requirements, see page 56.

The impeller is suitable for low-viscosity liquids and liquids containing particles.

The semi-open impeller is not fitted in durietta 0.

Closed impeller



Two-channel, closed

Standard, closed

GR9391 - GR9392

Fig. 32 Closed impellers

Both types of electro-polished, stainless steel, closed impeller are available in two versions, according to the application.

Impeller version	Application	Surface finish
Cast	Industrial/hygienic	3A0 to 3A1
Welded	Industrial/hygienic	3A0 to 3A1

For surface finish requirements, see page 56.

The two-channel, closed impeller is suitable for pumped liquids containing solid particles.

The standard, closed impeller is suitable for pumped liquids with a low content of solid particles. This impeller type has the highest efficiency.

The closed impellers are not fitted in durietta 0.

Free-flow impeller



GR9393

Fig. 33 Free-flow impeller

The electro-polished, stainless steel, free-flow impeller is available in two versions, according to the application.

Impeller version	Application	Surface finish
Cast	Industrial/hygienic	3A0 to 3A1
Welded	Industrial/hygienic	3A0 to 3A1

For surface finish requirements, see page 56.

The non-clogging, free-flow impeller is designed for pumped liquids with a high content of solid particles or fibres.

Star impeller



GRA0393p

Fig. 34 Star impeller

The electro-polished, stainless steel, star impeller is available in one version.

Impeller version	Application	Surface finish
Cast	Industrial/hygienic	3A0 to 3A1

For surface finish requirements, see page 56.

The highly efficient, self-priming star impeller is suitable for pumped liquids with a low content of solid particles.

Surface treatment

All non-wetted parts of the pumps have the following surface treatment:

1. Priming colour
 - Epoxy resin (RAL 7032)
 - Thickness of film: 50 to 70 µm.
2. Top coat (standard)
 - Epoxy resin (RAL 5010)
 - Thickness of film: 50 to 70 µm.

The durietta 0 has a single coat of polyurethane (RAL 5010) of a thickness of 30 to 40 µm.

Motors

The motors are totally enclosed, fan-cooled standard motors with main dimensions to IEC and DIN standards. Electrical tolerances to IEC 34.

Mounting designation

Pump range	Mounting designation to IEC 34-7	
	Horizontal installation	Vertical installation
Euro-HYGIA®		
F&B-HYGIA®		
Contra	IM 1001 (IM B3)	IM 1011 (IM V5)
	IM 3001 (IM B5)	IM 3011 (IM V1)
SIPLA	IM 2001 (IM B35)	IM 2011 (IM V15)
MAXA		
MAXANA		
durietta 0	IM 2001 (IM B35)	IM 3011 (IM V1)

Relative air humidity:	Max. 95 %
Enclosure class:	IP55
Insulation class:	F, to IEC 85
Ambient temperature:	Max. 40 °C (standard motors)
	Max. 60 °C (MG motors, EFF 1).

In humid locations, the lowest drain hole in the motor must be opened. In such cases, the motor enclosure class is IP44.

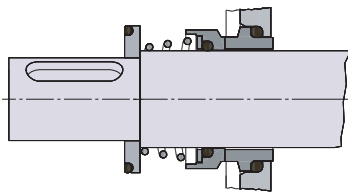
Mechanical shaft seal

The operating range of the shaft seal depends on the type of shaft seal, the operating pressure and the liquid temperature.

The shaft seal types described below are standard seal types; other shaft seal types are available on request.

Hygienic applications

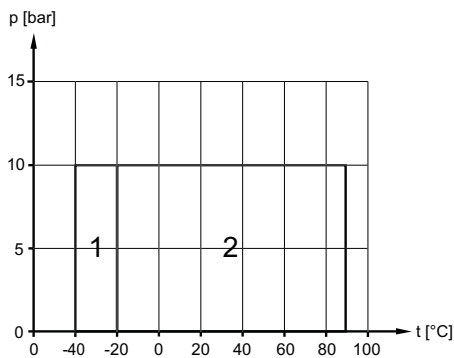
As standard, Grundfos offers a single shaft seal fitted with a metal spring as seal driver. The seal is suitable for hygienic applications.



TM02 9660 3604

Fig. 35 Single shaft seal for hygienic applications

The single shaft seal has carbon/stainless steel seal faces and EPDM or FKM O-rings.



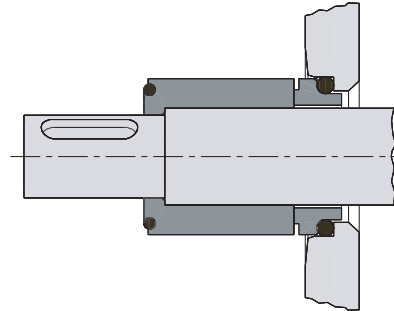
TM03 0121 4104

Fig. 36 Operating range of shaft seal with metal spring as seal driver for hygienic applications

- 1: Carbon/stainless steel + EPDM
- 2: Carbon/stainless steel + EPDM and carbon/stainless steel + FKM.

Sterile applications

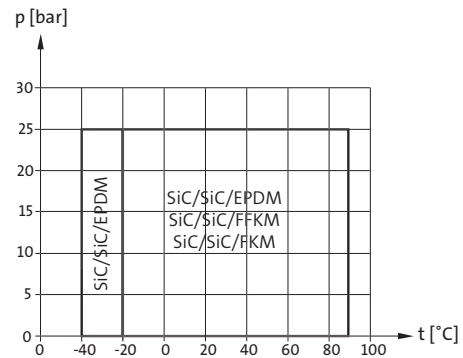
As standard, Grundfos offers a closed O-ring seal for sterile applications.



TM02 9664 3604

Fig. 37 Single shaft seal for sterile applications.

The O-ring seal has SiC/SiC seal faces and O-rings of EPDM (optionally FFKM (white) or FKM).



TM03 0118 4104

Fig. 38 Operating range of closed O-ring seal for sterile applications

Shaft seals for sanitary pumps

Shaft seal	Pump range						
	Euro-HYGIA®	F&B-HYGIA®	Contra	durietta 0	SIPLA	MAXA	MAXANA
Single	●	●	●	●	●	●	●
Quench		○			○		
Tandem		○	○	○*		○	○
Back-to-back		○	○	○*		○	○

- Standard
- On request
- * Maximum 4 stages

Example		HILGE	3A2	001	19	a	e	E	O	1
Mechanical seal hygienic standard										
3A1	3A0.01 - CrNiMo steel/AISI 300 series 3A1.02 - CrNiMo steel/AISI 300 series (Ra ≤ 3.2 μm)									
3AH	3A0.H1 - Hastelloy® 3A1.02 - CrNiMo steel/AISI 300 series (Ra ≤ 3.2 μm)									
3A2	3A1.04 - 1.4435/AISI 316L (Fe ≤ 3 %, Ra ≤ 3.2 μm) 3A2.03 - 1.4404/1.4435/AISI 316L (Ra ≤ 0.8 μm) 3A2.05 - 1.4435/AISI 316L (Fe ≤ 1 %, Ra ≤ 0.8 μm)									
3A3	3A2.33 - 1.4404/1.4435/AISI 316L (Fe ≤ 3 %, Ra ≤ 0.8 μm) 3A3.06 - 1.4435/AISI 316L (Fe ≤ 1 %, Ra ≤ 0.4 μm) 3A3.07 - 1.4404/1.4435/AISI 316L (Ra ≤ 0.4 μm) 3A3.37 - 1.4404/1.4435/AISI 316L (Fe ≤ 3 %, Ra ≤ 0.4 μm)									
Seat for stationary ring										
001	Mechanical seal seat 1									
002	Mechanical seal seat 2									
003	Mechanical seal seat 3									
07K	Mechanical seal seat 1 with adjustable screw (durietta 0 back-to-back in contact with liquid)									
B52	Mechanical seal seat 3, 0.3 mm (Hygiana/HYGIA® old)									
B53	Mechanical seal seat 3, 4 mm (Euro-HYGIA®)									
OB1	Mechanical seal seat B1 (double-elastic supported, bidirectional)									
OB2	Mechanical seal seat B2 (double-elastic supported, direction of rotation: left)									
OB3	Mechanical seal seat B3 (double-elastic supported, direction of rotation: right)									
L1K	Standard seal length L1K									
L1N	Standard seal length L1N									
XXX	Special seat									
Shaft diameter at position of stationary ring [mm]										
Material, stationary ring										
a	Carbon graphite, synthetic resin impregnated									
b	Tungsten carbide, shrunk									
c	Ceramic									
d	PTFE, glass-fibre reinforced									
e	Stainless steel									
f	Carbon graphite, antimony impregnated									
g	Tungsten carbide, soldered									
h	Tungsten carbide, solid									
i	Silicon carbide, shrunk									
k	Silicon carbide, solid									
m	Silicon carbide, solid, Buka27-02									
n	EKasic®-PG15, solid									
o	Silicon carbide, solid, Buka22-10									
s	Silicon carbide, shrunk, special									
Spring design										
1	Bidirectional									
2	Direction of rotation, left									
3	Direction of rotation, right									
4	Vacuum spring, left									
5	Vacuum spring, right									
6	Enclosed spring, left									
7	Enclosed spring, right									
0	No additional information necessary									
Seal design										
A	Stationary ring, with twist protection									
B	Stationary ring, double elastic supported									
C	Out of Hilge standard (3A3 / V-gap und grooves) (L1K always with twist protection) (for WFI only)									
D	Standard dimension N									
E	Standard dimension N, with twist protection									
F	Standard dimension K									
G	Standard dimension K, with twist protection									
O	No additional information necessary									
T	O + sensor for monitoring of temperature (length of sensor 250 mm/ cable 20 m)									
O-rings										
E/H	EPDM, peroxide-crosslinked (with special approvals)									
G	Hypalon®									
K	FFKM-FDA (Kalrez®)									
J	FFKM (Kalrez®), USP Class VI 3A Sanitary Standard 18-03 Class I / FDA									
P	NBR (Perbunan®)									
S	Silicone									
T	PTFE (Teflon®)									
V	FKM-FDA (Viton®)									
I	FKM (Viton®) USP Class VI 3A Sanitary Standard 18-03 Class I / FDA									
Y	No O-rings mounted									
Material, rotary ring										
a	Carbon graphite, synthetic resin-impregnated									
b	Tungsten carbide, shrunk									
c	Ceramic									
d	PTFE, glass-fibre reinforced									
e	Stainless steel									
f	Carbon graphite, antimony impregnated									
g	Tungsten carbide, soldered									
h	Tungsten carbide, solid									
i	Silicon carbide, shrunk									
k	Silicon carbide, solid									
m	Silicon carbide, solid, Buka27-02									
n	EKasic®-PG15, solid									
o	Silicon carbide, solid, Buka22-10									
s	Silicon carbide, shrunk, special									

EHEDG, QHD and GOST

The design, materials used and surface finish are subject to a variety of national and international rules and regulations, such as the EHEDG recommendations, the QHD criteria and the GOST standard.

EHEDG



Fig. 39 EHEDG symbol

The EHEDG (European Hygienic Engineering & Design Group) develops guidelines and test methods for the safe and hygienic processing of food.

This ensures the microbiological safety of the end product, for example the pumped medium.

The EHEDG symbol is used by manufacturers to indicate compliance with the EHEDG recommendations.

QHD



Fig. 40 QHD symbol

The QHD (Qualified Hygienic Design) is a two-phase testing system for the hygienic design and cleanability of components, machinery and plant for aseptic or sterile applications.

This ensures that all surfaces can be cleaned in place (CIP).

The QHD symbol is used by manufacturers to indicate compliance with the QHD criteria.

GOST



Fig. 41 GOSTR symbol

GOST is the Russian word for "standard", the R (P) stands for Russia. For most products, certification is needed if they wish to sell in Russia. The main products concerned are these:

- materials in contact with food and human beings
- industrial equipment for food, chemical, oil and gas, construction and other industries
- mechanical and electrical goods.

Also concerned are consumer products such as food-stuffs, textiles and clothes, cosmetics and perfumery, domestic goods and toys.

The certificate can be valid for a one-time-only shipment or for a period of 1 or 3 years.

Certificates and approvals

Grundfos offers the following certificates and approvals:

- Hygienic design certificates (certificates guaranteeing compliance with the EHEDG recommendations, QHD criteria and GOST standard).
- Material certificates (certificates stating material specifications).
- Performance certificates (test reports guaranteeing and certifying test data of QH, current consumption, speed, curves, etc.).
- Authorized test by third party (surveyed performance test).
- ATEX-approved sanitary pumps (according to ATEX Directive 94/9/EC).

The certificates must be ordered with the pump.

GOSTR_Mark

EHEDG

QHD



TM03 0091 3904

Surface finish of sanitary pumps

In order to meet the demands of the pharmaceutical, food and beverage industries, Grundfos has developed the below surface finish requirements:

Code	Application	Material	Surface finish
3A0.01	Industrial	CrNiMo steel	
3A1.02	Hygienic	CrNiMo steel	Ra ≤ 3.2 µm
3A2.03	Sterile	DIN EN 1.4404/1.4435 (AISI 316L)	Ra ≤ 0.8 µm
3A1.04	Pharmaceutical	DIN EN 1.4435, Fe ≤ 3 %	Ra ≤ 3.2 µm
3A2.05	Sterile	DIN EN 1.4435, Fe ≤ 1 %	Ra ≤ 0.8 µm
3A3.06	Sterile	DIN EN 1.4435, Fe ≤ 1 %	Ra ≤ 0.4 µm
3A3.07	Sterile	DIN EN 1.4404/1.4435 (AISI 316L)	Ra ≤ 0.4 µm
3A2.33	Sterile	DIN EN 1.4404/1.4435 Fe ≤ 3 % (AISI 316L)	Ra ≤ 0.8 µm
3A3.37	Sterile	DIN EN 1.4404/1.4435 Fe ≤ 3 % (AISI 316L)	Ra ≤ 0.4 µm

Certificate	Standard
EHDG test report	
QHD test report	
Material specification report	
Material report with certificate	
CE declaration of conformity	
ATEX-approved pump	
Inspection certificate	EN 10.204 3.1
Inspection certificate - Lloyds Register of Shipping (LRS) - Det Norske Veritas (DNV) - Germanischer Lloyd (GL) - Bureau Veritas (BV)	EN 10.204 3.1
Surface roughness report	
Sound pressure measuring report	EN 12639
Motor test report	
Standard test report	ISO 9906
Vibration report	
Certificate of compliance with the order	EN 10.204 2.1
Test report - non-specific inspection and testing	EN 10.204 2.2
Report, Cleaned and dried pump	
Report, Electro-polished pump	

Mechanical installation

Never install the pump with the motor pointing downwards.

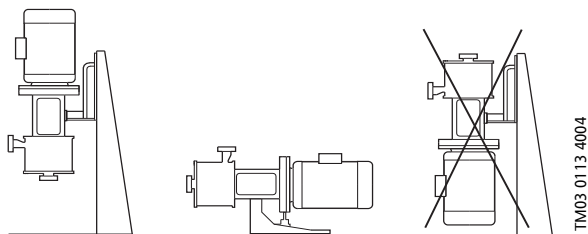


Fig. 42 Installation

The pumps must be installed in such a way that strain from the pipework is not transferred to the pump housing.

When installed outdoors, the motor must be provided with a suitable cover to avoid condensation on the electronic components and to protect pump and motor against the direct effects of the elements.

Space requirements

Vertical installation

- Pumps fitted with motors up to and including 4 kW require a 300 mm clearance above the motor. See fig. 43.
- Pumps fitted with motors of 5.5 kW and up require at least a 1 metre clearance above the motor to allow the use of lifting equipment. See fig. 43.

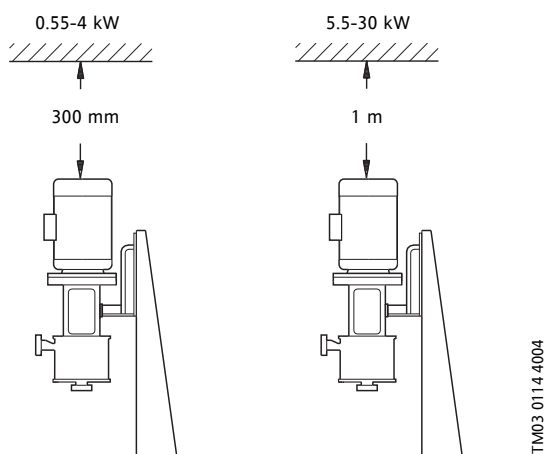


Fig. 43 Vertical installation

Horizontal installation

- Pumps fitted with motors up to and including 4 kW require a 300 mm clearance behind the motor. See fig. 44.
- Pumps fitted with motors of 5.5 kW and up require a 300 mm clearance behind and a 1 metre clearance above the motor to allow the use of lifting equipment. See fig. 44.

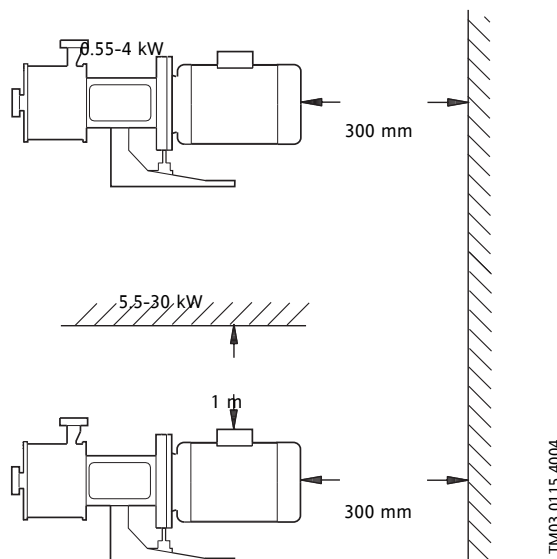


Fig. 44 Horizontal installation

Elimination of noise and vibration

In order to achieve optimum operation and minimum noise and vibration, consider vibration dampening of the pump. Generally, always consider this for pumps with motors above 11 kW. Smaller motors, however, may also cause undesirable noise and vibration.

Noise and vibration are generated by the rotations in the motor and pump and by the flow in pipes and fittings. The effect on the environment is subjective and depends on correct installation and the state of the remaining system.

Foundation

Vibration dampening is best achieved by installing the pumps on a plane and rigid concrete foundation. See fig. 45.

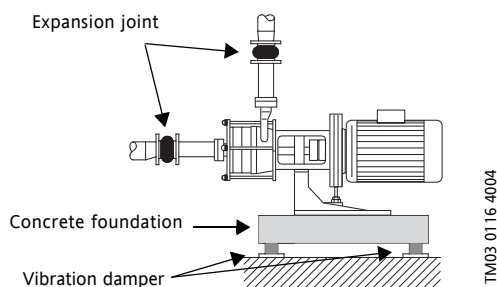


Fig. 45 Example of foundation of a Contra II pump

As a rule of thumb, the weight of a concrete foundation should be 1.5 times the pump weight.

Vibration dampers

To prevent the transmission of vibrations to buildings, we recommend that you isolate the pump foundation from building parts by means of vibration dampers.

The selection of the right vibration damper requires these data:

- forces transmitted through the damper
- motor speed considering speed control, if any
- required dampening in % (suggested value is 70 %).

Which is the right damper varies from installation to installation, and a wrong damper may increase the vibration level. Vibration dampers should therefore be sized by the supplier.

Expansion joints

If you install the pump on a foundation with vibration dampers, always fit expansion joints on the pump flanges. This is important to prevent the pump from "hanging" in the flanges.

Install expansion joints to

- absorb expansions/contractions in the pipework caused by changing liquid temperature
- reduce mechanical strains in connection with pressure surges in the pipework
- isolate mechanical structure-borne noise in the pipework (only rubber bellows expansion joints).

Note: Do not install expansion joints to compensate for inaccuracies in the pipework such as centre displacement of flanges.

Fit expansion joints at a distance of minimum 1 to 1½ times the nominal flange diameter away from the pump on the suction as well as on the discharge side. This will prevent the development of turbulence in the expansion joints, resulting in better suction conditions and a minimum pressure loss on the discharge side. At high water velocities (> 5 m/s), we recommend you to install larger expansion joints corresponding to the pipework.

Expansion joints with limiting rods can be used to minimise the forces caused by the expansion joints. We always recommend expansion joints with limiting rods for flanges larger than DN 100.

The pipes should be anchored so that they do not stress the expansion joints and the pump. Follow the supplier's instructions and pass them on to advisers or pipe installers.

Terminal box positions

The terminal box positions shown in fig. 46 are possible for all pump ranges.

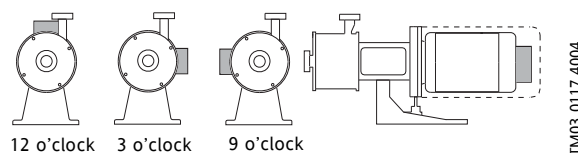
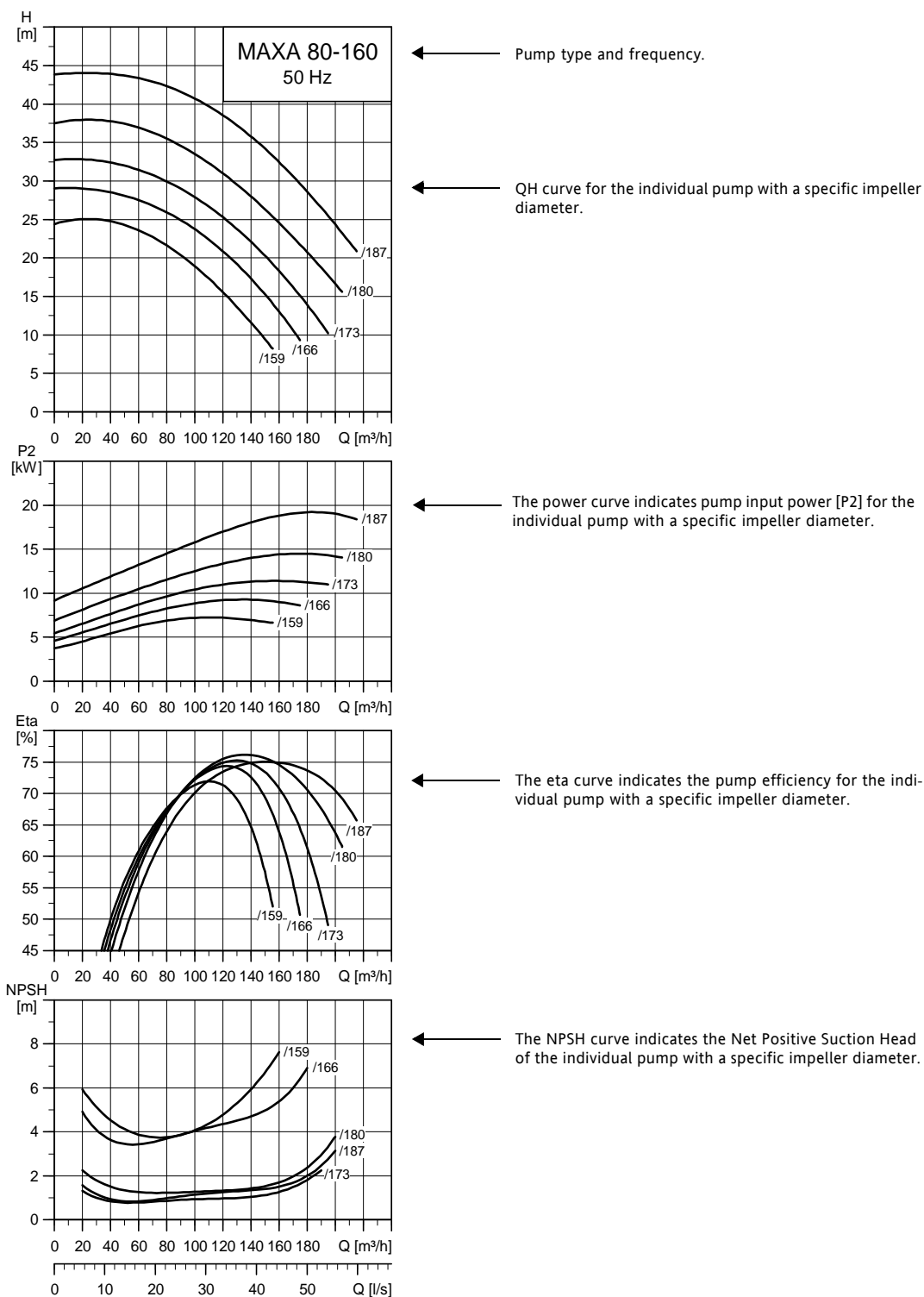


Fig. 46 Possible terminal box positions

How to read the curve charts



TM02 9722 4405

Curve conditions

The guidelines below apply to the curves shown on the following pages:

1. Tolerances to ISO 9906, Annex A.

1 kW < P₂ < 10 kW

Flow rate:	±9 %
Total head:	±7 %
Efficiency:	up to -7 % *

* Efficiency of motor sizes below 10 kW are calculated on the basis of a formula stated in ISO 9906.

P₂ > 10 kW

Flow rate:	±8 %
Total head:	±5 %
Efficiency:	-5 %

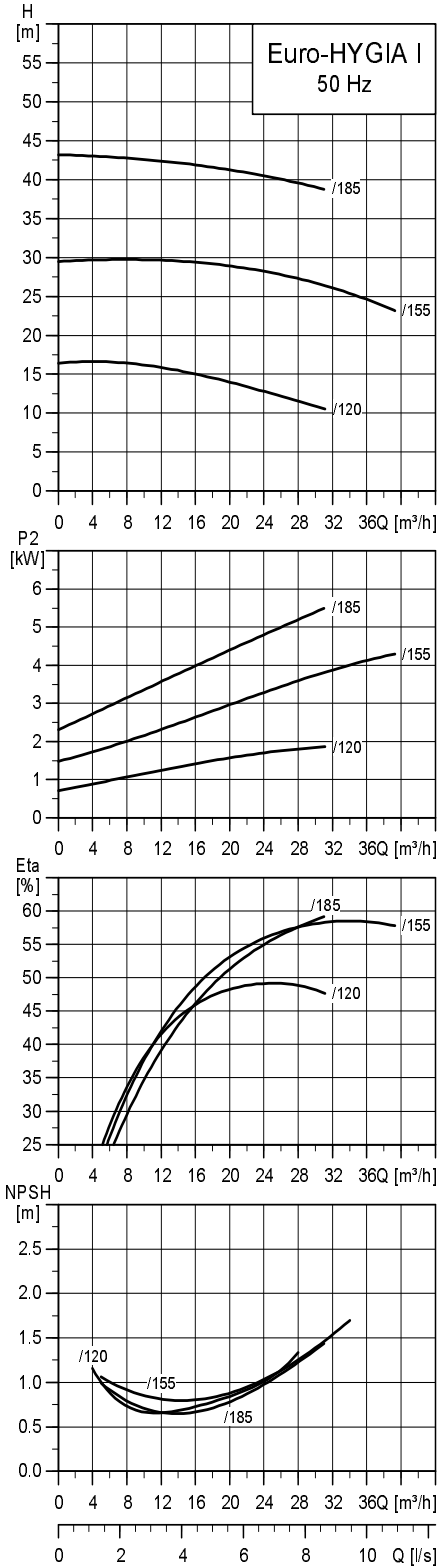
- QH curves of the individual pumps are shown with expected speed of a three-phase standard motor.
- Measurements have been made with airless water at a temperature of +20 °C.
- The curves apply to the following kinematic viscosity:
 $\nu = 1 \text{ mm}^2/\text{s}$ (1 cSt).
- If the pumped liquid density and/or viscosity is higher than that of water, it may be necessary to use a motor with a higher performance.

Performance curves/ technical data

Euro-HYGIA® I
50 Hz

Euro-HYGIA® I

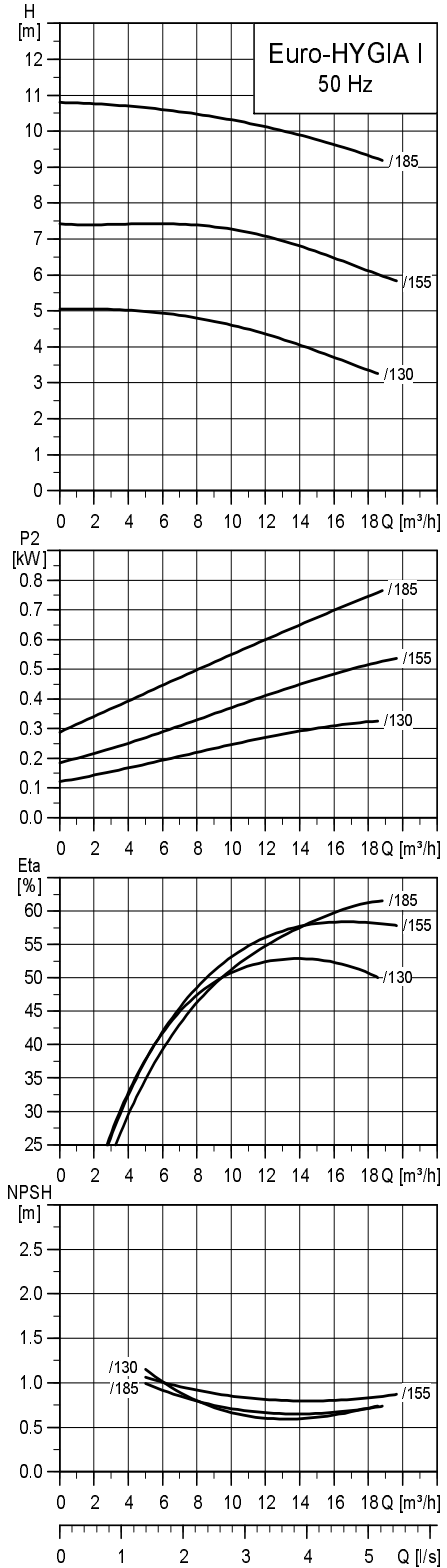
2-pole, 2900 min⁻¹



TM02 9742 4405

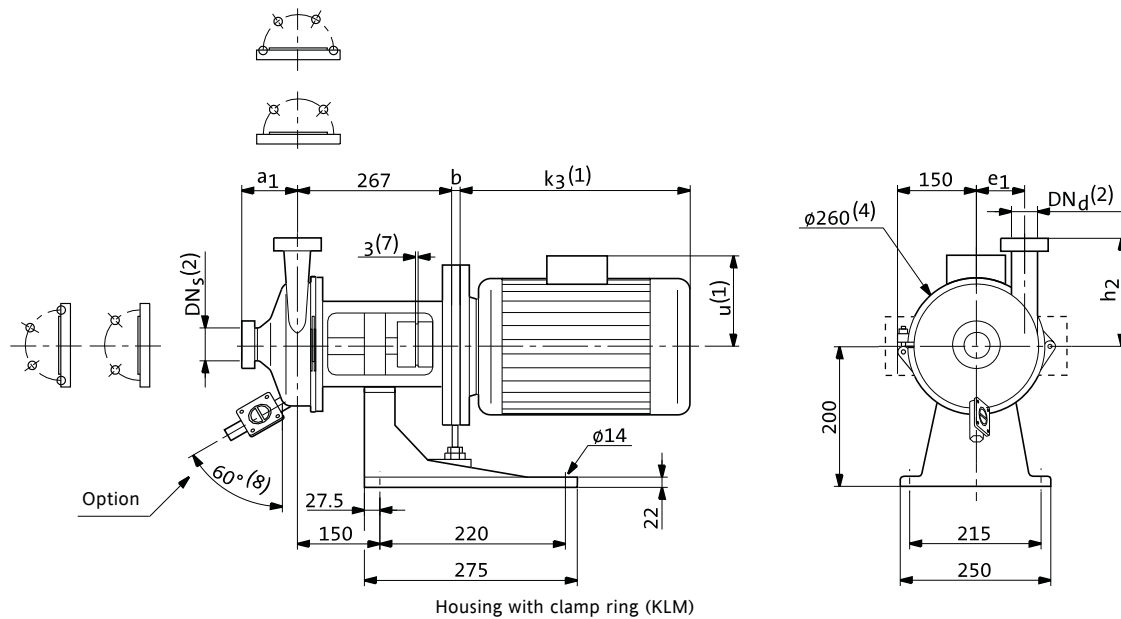
Euro-HYGIA® I

4-pole, 1450 min⁻¹



TM02 9741 4405

Euro-HYGIA® I Adapta® on cast iron foot



TM03 0039 3804

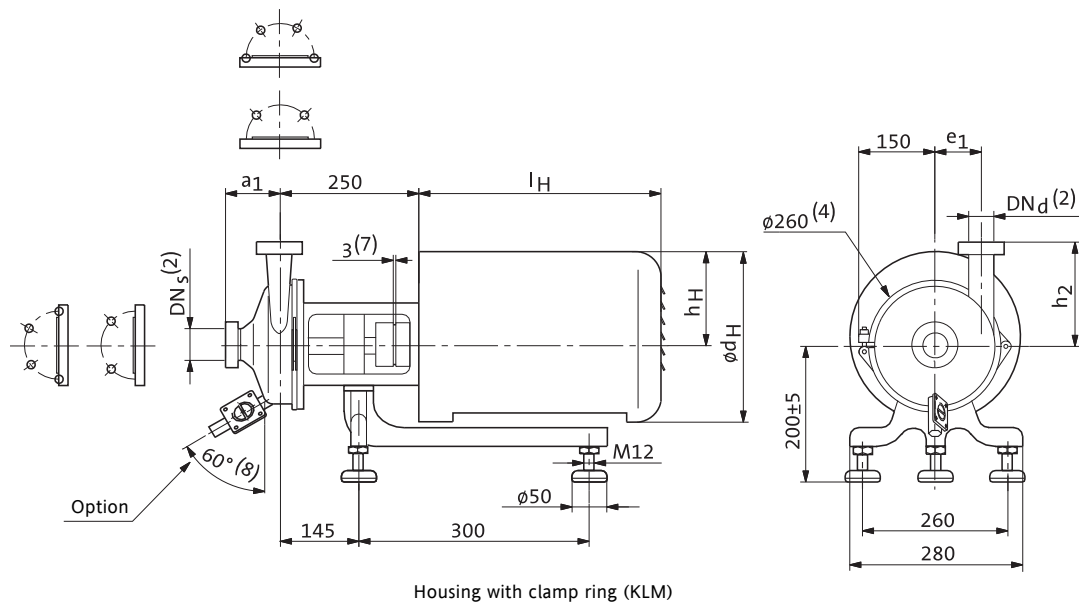
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot		
			b	k ₃ (1)	u(1)
0.55	1450	80	0	245	145
0.75	1450	80	0	245	145
1.1	2900	80	0	245	145
1.1	1450	90S	10	285	150
1.5	2900	90S	10	285	150
1.5	1450	90L	10	285	150
2.2	2900	90L	10	285	150
2.2	1450	100L	20	320	175
3.0	2900	100L	20	320	175
4.0	2900	112M	20	340	185
5.5	2900	132S	40	390	205

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 34.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® I Adapta® SUPER on stainless steel combi foot (frame size 80-90)



TM03 0040 3804

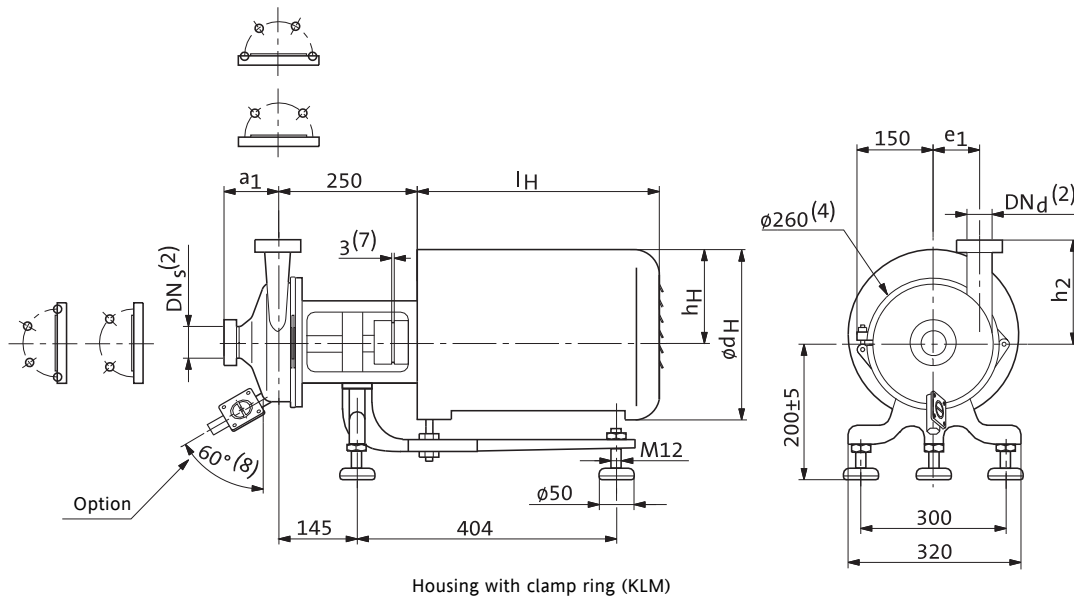
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l _H	h _H	ø d _H
0.55	1450	80	370	180	320
0.75	1450	80	370	180	320
1.1	2900	80	370	180	320
1.1	1450	90S	370	180	320
1.5	2900	90S	370	180	320
1.5	1450	90L	370	180	320
2.2	2900	90L	370	180	320

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 34.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® I Adapta® SUPER on stainless steel combi foot (frame size 100-132)



TM03 0041 3804

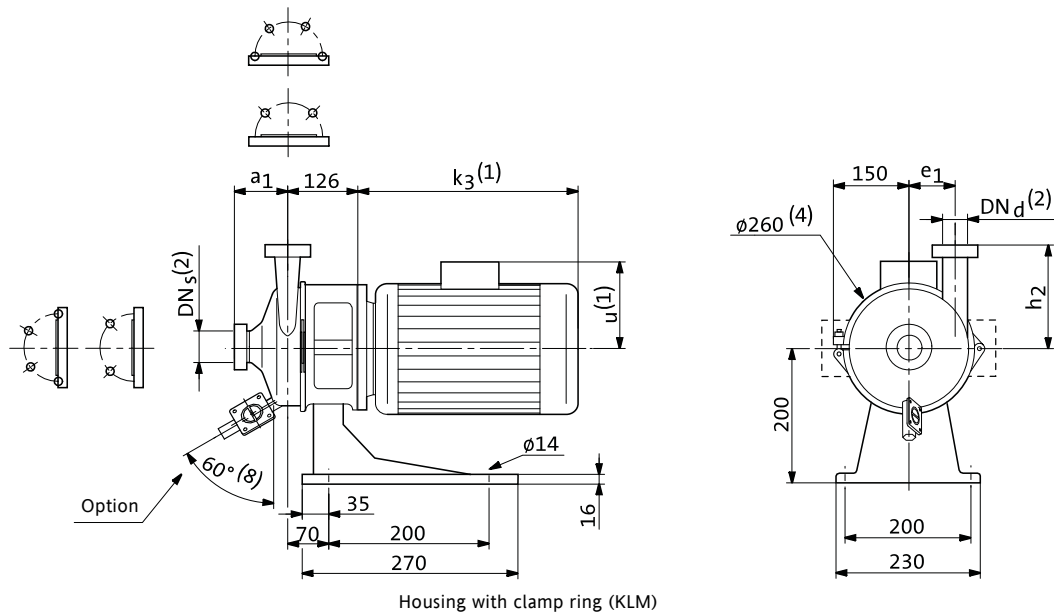
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l _H	h _H	ø d _H
2.2	1450	100L	460	210	370
3.0	2900	100L	460	210	370
4.0	2900	112M	460	210	370
5.5	2900	132S	510	240	420

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 34.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® I Bloc on cast iron foot



TM03 0042 3804

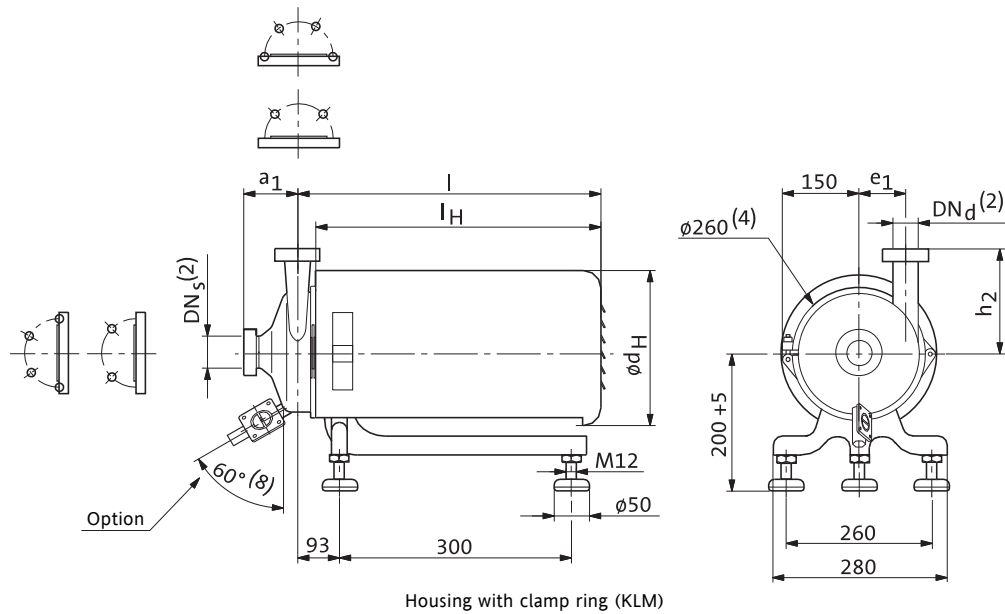
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot	
			k ₃ (1)	u(1)
0.55	1450	80	258	124
0.75	1450	80	258	124
1.1	2900	80	258	124
1.1	1450	90S	282	130
1.5	2900	90S	282	130
1.5	1450	90L	282	130
2.2	2900	90L	282	130
2.2	1450	100L	332	158
3.0	2900	100L	332	158
4.0	2900	112M	391	171
5.5	2900	112M	391	171

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 34.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® I Bloc-SUPER on stainless steel combi foot



TM03 0043 3804

Technical data

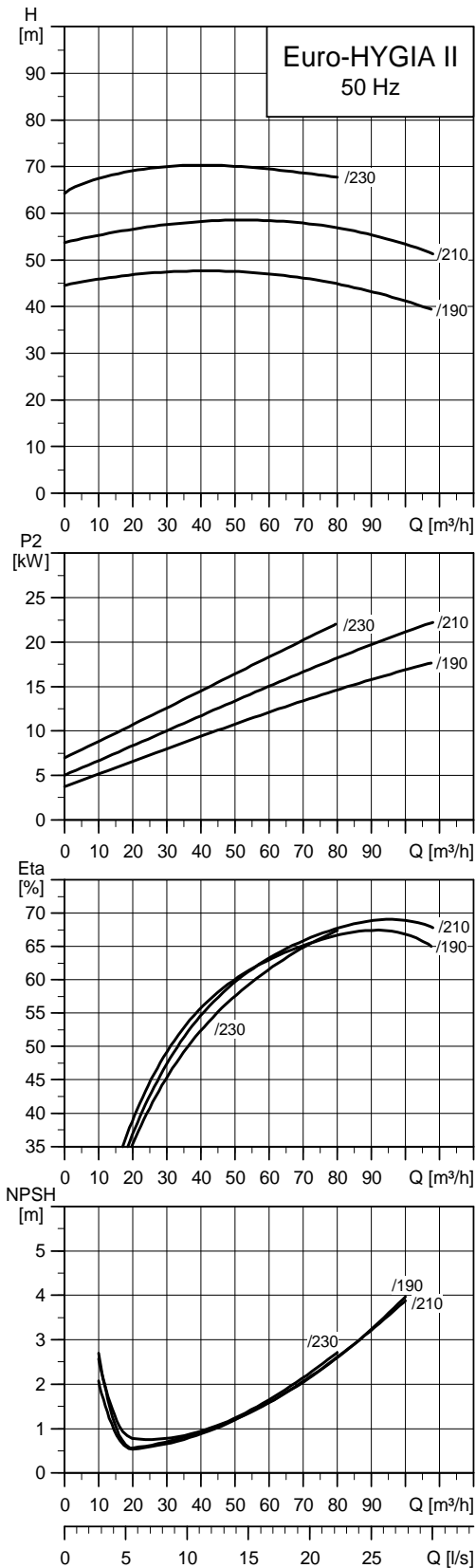
P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l	l _H	ø d _H
0.55	1450	80	470	410	220
0.75	1450	80	470	410	220
1.1	2900	80	470	410	220
1.1	1450	90S	470	410	220
1.5	2900	90S	470	410	220
1.5	1450	90L	470	410	220
2.2	2900	90L	470	410	220
2.2	1450	100L	580	520	270
3.0	2900	100L	580	520	270
4.0	2900	112M	580	520	270
5.5	2900	112M	580	520	270

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 34.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II

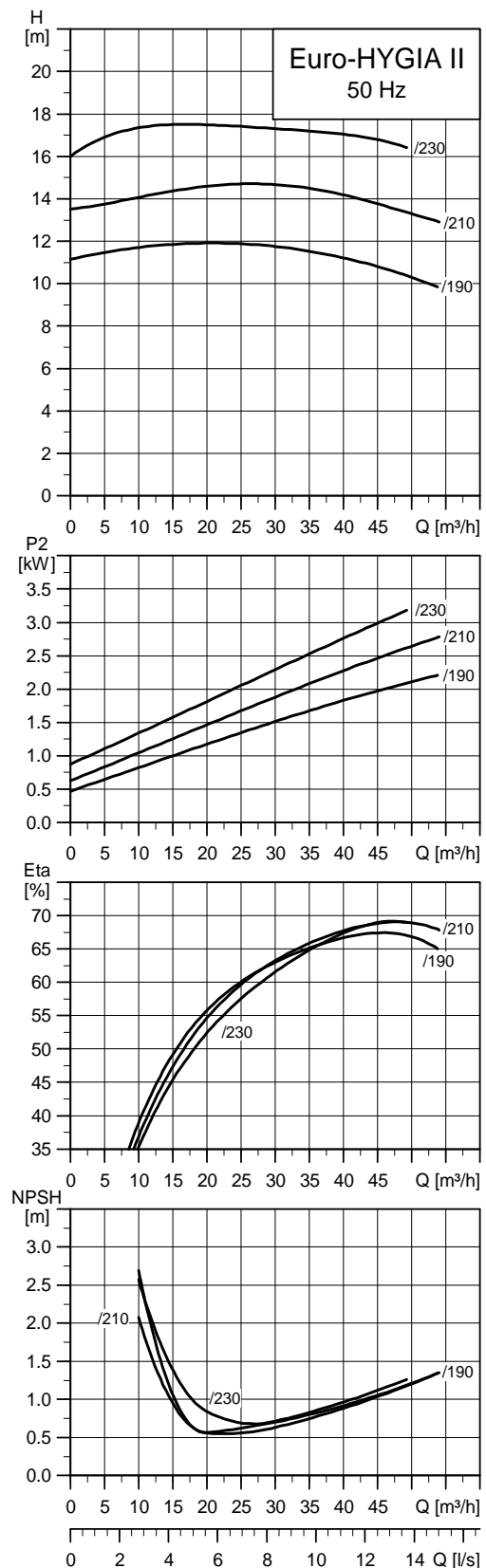
2-pole, 2900 min⁻¹



TM02 9746 4405

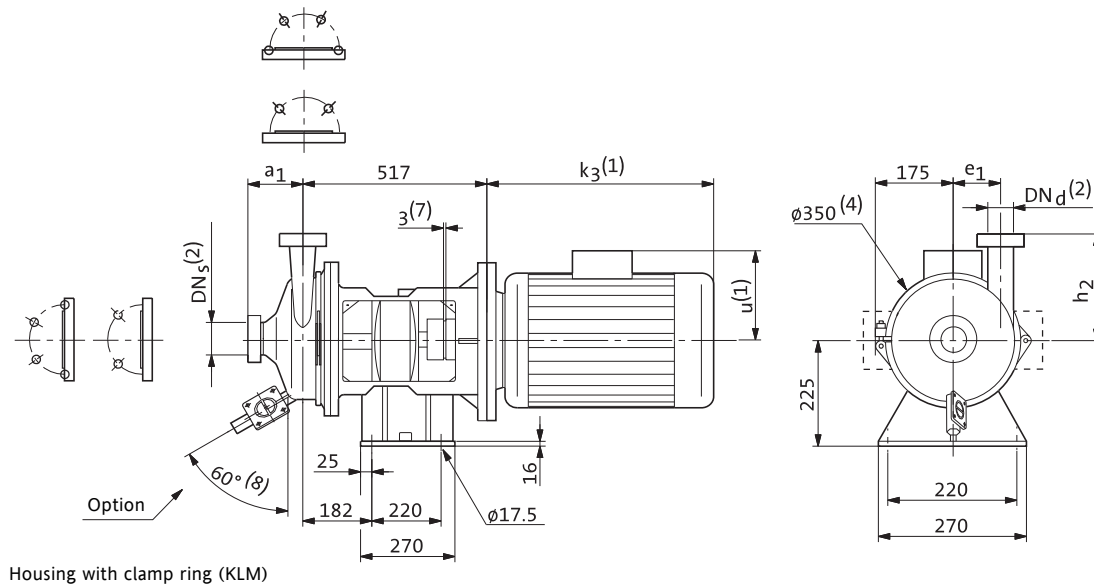
Euro-HYGIA® II

4-pole, 1450 min⁻¹



TM02 9745 4405

Euro-HYGIA® II Adapta® on Adapta® foot (frame size 180M)



TM03 0056 3804

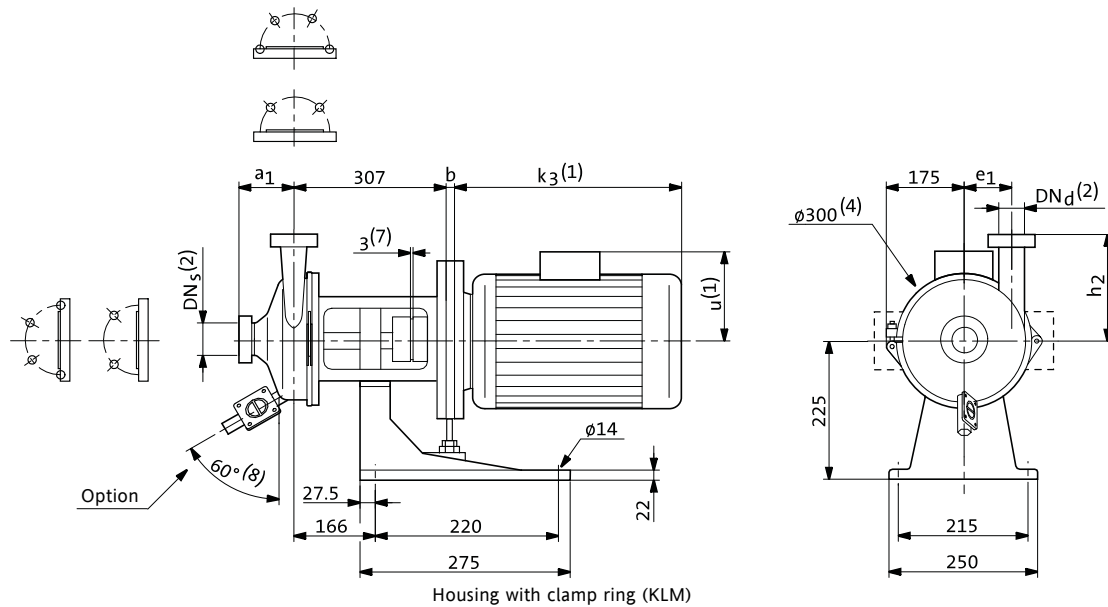
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	Su piede Adapta®	
			k ₃ (1)	u(1)
22.0	2900	180M	605	265

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Adapta® on cast iron foot (frame size 100-160)



TM03 0057 3804

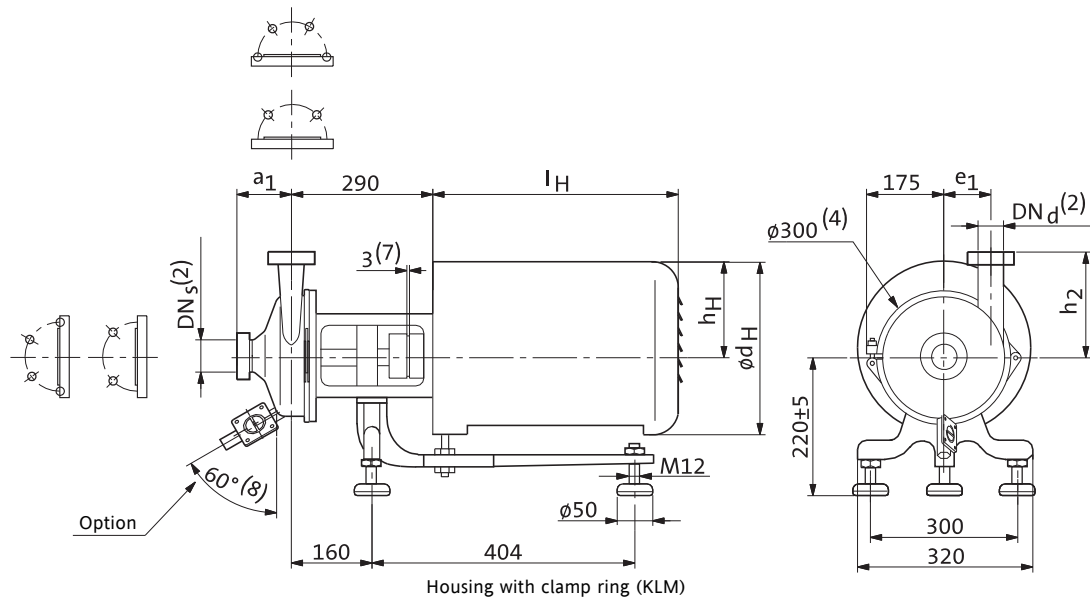
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot		
			b	k ₃ (1)	u(1)
2.2	1450	100L	0	320	175
3.0	1450	100L	0	320	175
3.0	2900	100L	0	320	175
4.0	1450	112M	0	340	185
4.0	2900	112M	0	340	185
5.5	1450	132S	20	390	205
5.5	2900	132S	20	390	205
7.5	2900	132S	20	390	205
7.5	1450	132M	20	420	205
11.0	2900	160M	51	490	240
15.0	2900	160M	51	490	240
18.5	2900	160L	51	530	240

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Adapta® SUPER on stainless steel combi foot (frame size 100-160)



TM03 0059 3804

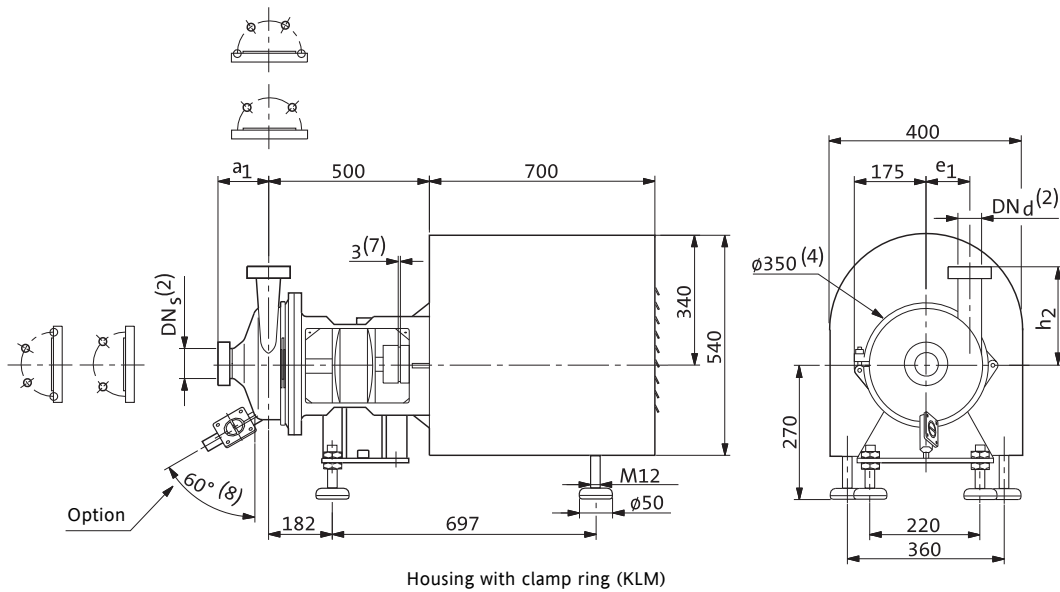
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l _H	h _H	ø d _H
2.2	1450	100L	510	240	420
3.0	1450	100L	510	240	420
3.0	2900	100L	510	240	420
4.0	1450	112M	510	240	420
4.0	2900	112M	510	240	420
5.5	1450	132S	510	240	420
5.5	2900	132S	510	240	420
7.5	2900	132S	510	240	420
7.5	1450	132M	510	240	420
11.0	2900	160M	650	285	485
15.0	2900	160M	650	285	485
18.5	2900	160L	650	285	485

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Adapta® SUPER on machine feet (frame size 180)



TM03 0058 3804

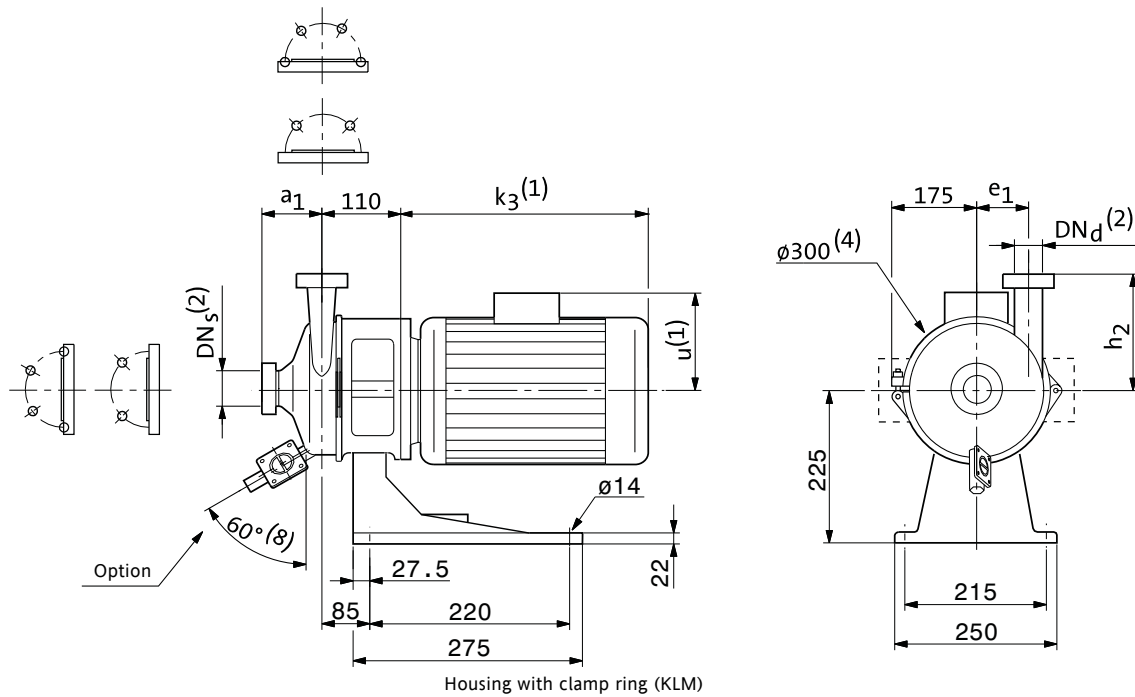
Technical data

P2 [kW]	n [min ⁻¹]	IEC size
22.0	2900	180M

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Bloc on cast iron foot (frame size 90-132)



TM03 0060 3804

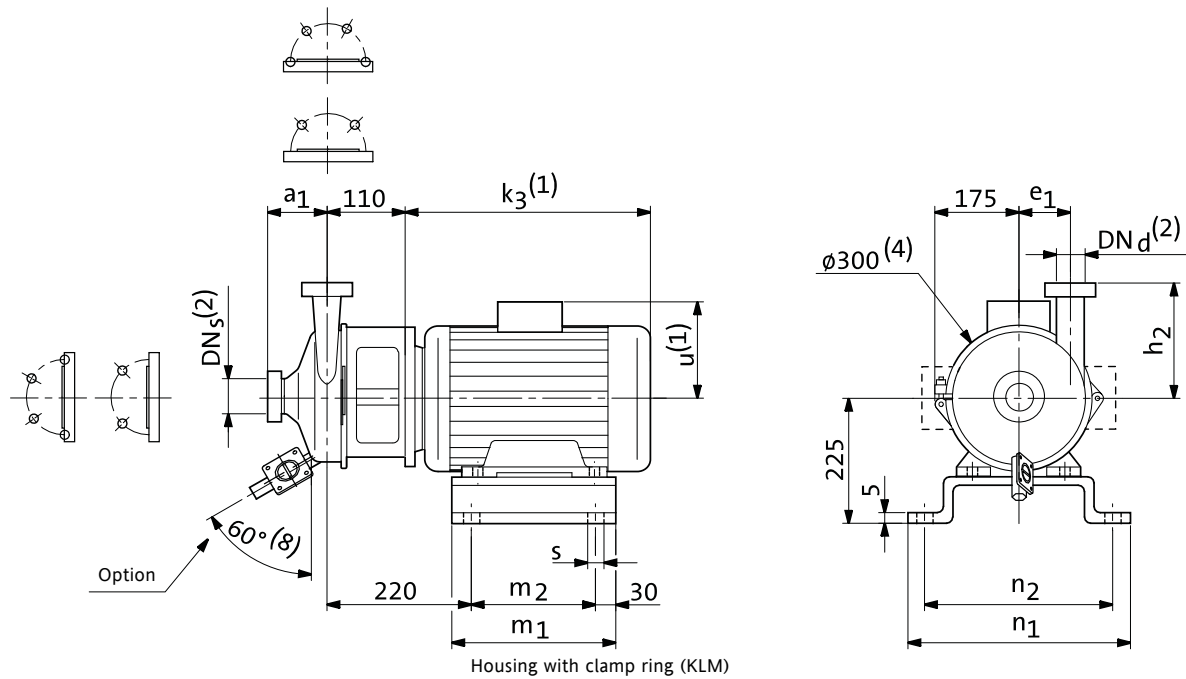
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot	
			k ₃ (1)	u(1)
0.75	1450	90S	282	130
1.5	1450	90L	282	130
1.5	2900	90S	282	130
2.2	2900	90L	282	130
2.2	1450	100L	312	163
3.0	1450	100L	312	163
3.0	2900	100L	312	163
4.0	1450	112M	335	176
4.0	2900	112M	335	176
5.5	1450	112M	371	176
5.5	2900	112M	371	176
7.5	1450	132M	433	196
7.5	2900	132S	433	196
11.0	2900	132M	433	196

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Bloc on motor foot with stainless steel support (frame size 160)



TM03 0061 3804

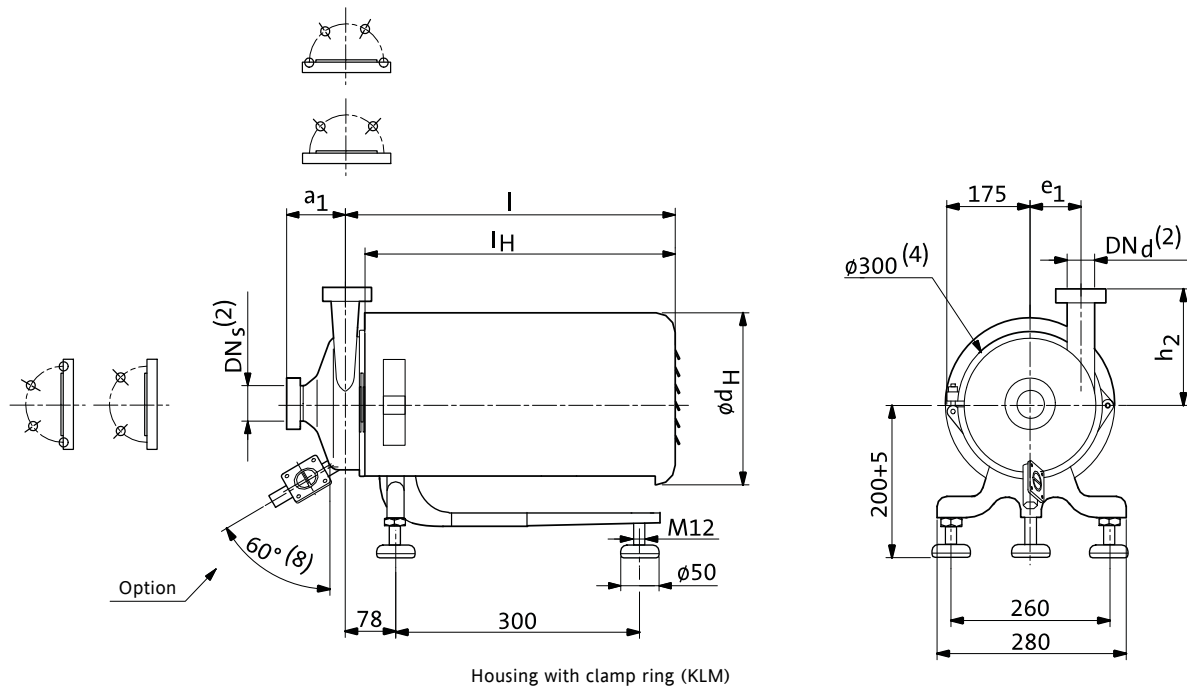
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On motor foot with stainless steel plinth						
			k ₃ ⁽¹⁾	u ⁽¹⁾	m ₁	m ₂	∅ s	n ₁	n ₂
15.0	2900	160M	522	226	310	250	13	410	380
18.5	2900	160L	562	226	310	250	13	410	380
22.0	2900	160L	562	226	310	250	13	410	380

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Bloc-SUPER on stainless steel combi foot (frame size 90-132)



TM03 0062 4306

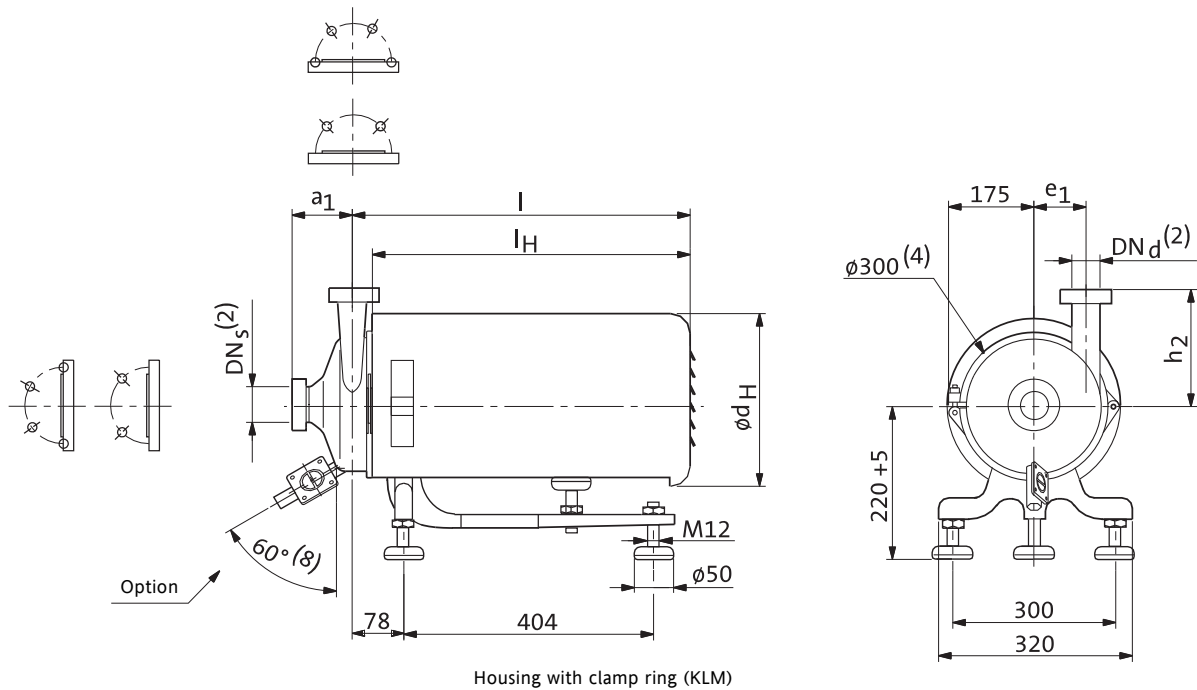
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l	l _H	ø d _H
0.75	1450	90S	580	520	270
1.5	1450	90L	580	520	270
1.5	2900	90S	580	520	270
2.2	2900	90L	580	520	270
2.2	1450	100L	580	520	270
3.0	1450	100L	580	520	270
3.0	2900	100L	580	520	270
4.0	1450	112M	580	520	270
4.0	2900	112M	580	520	270
5.5	1450	112M	580	520	270
5.5	2900	112M	580	520	270
7.5	1450	132M	660	600	320
7.5	2900	132S	660	600	320
11.0	2900	132M	660	600	320

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

Euro-HYGIA® II Bloc-SUPER on stainless steel combi foot (frame size 160)



TM03 0063 3804

Technical data

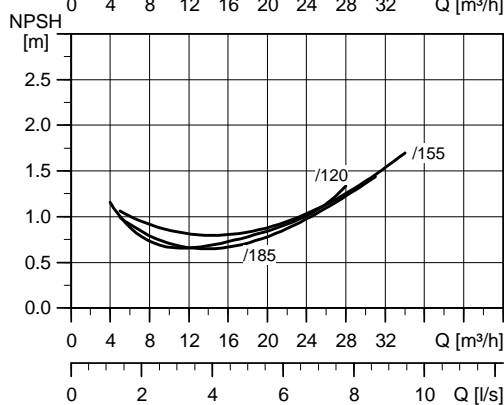
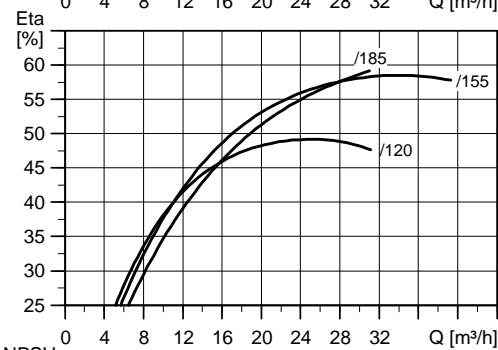
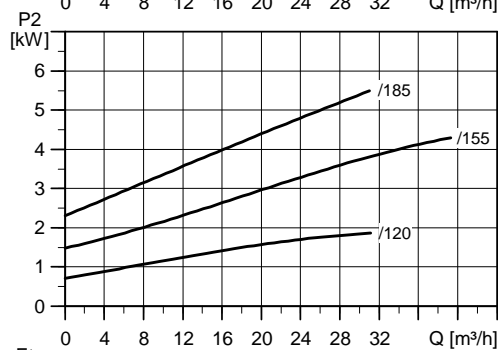
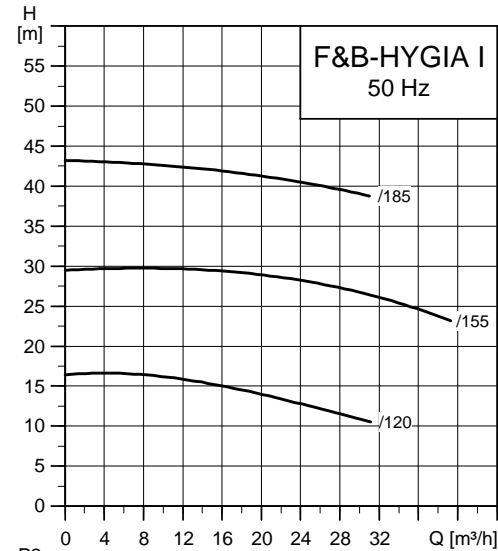
P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l	l _H	∅ d _H
15.0	2900	160M	810	750	350
18.5	2900	160L	810	750	350
22.0	2900	160L	810	750	350

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 35.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (8) Option: Gemü DN 15 diaphragm drain valve. Drain-clamp connection to DIN 32 676 DN 15 (45 ° angle).

F&B-HYGIA® I

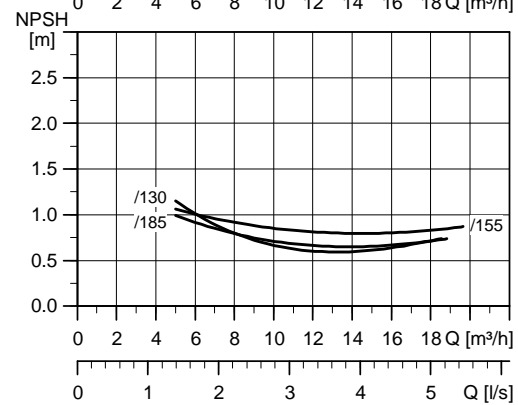
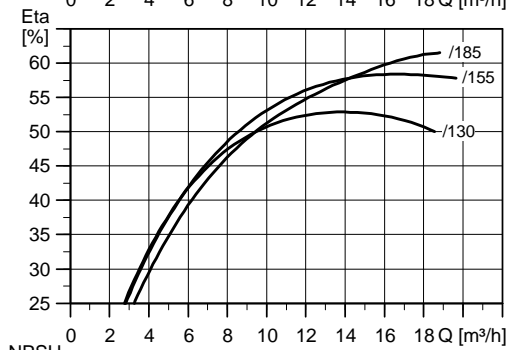
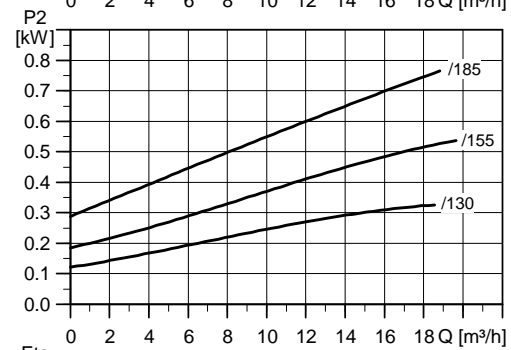
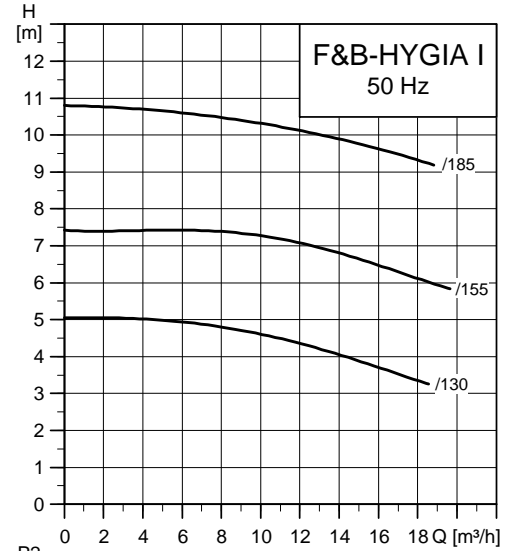
2-pole, 2900 min⁻¹



TM03 3593 0406

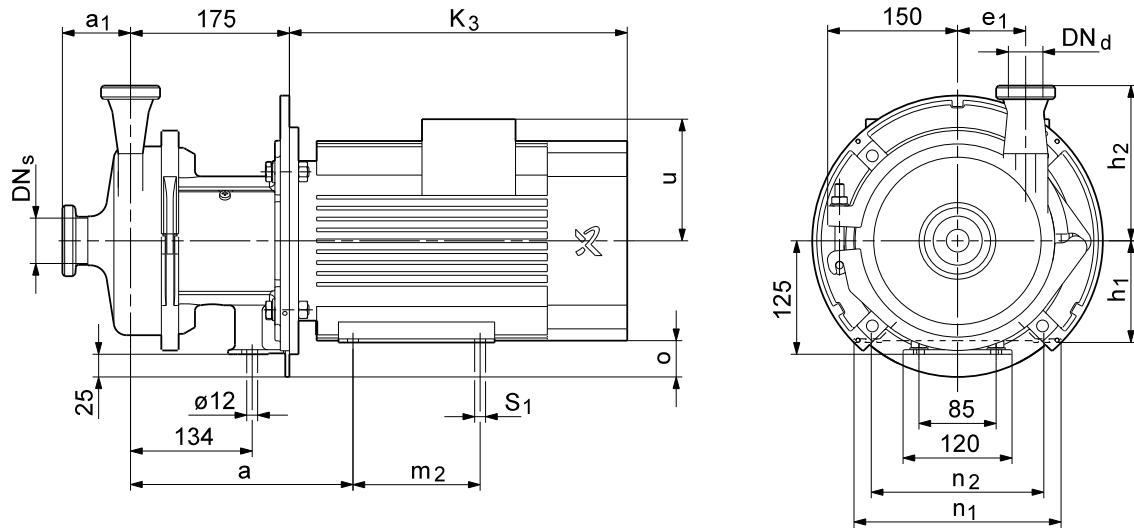
F&B-HYGIA® I

4-pole, 1450 min⁻¹



TM03 3592 0406

F&B-HYGIA® I K on motor foot



TM03 3791 1006

Technical data

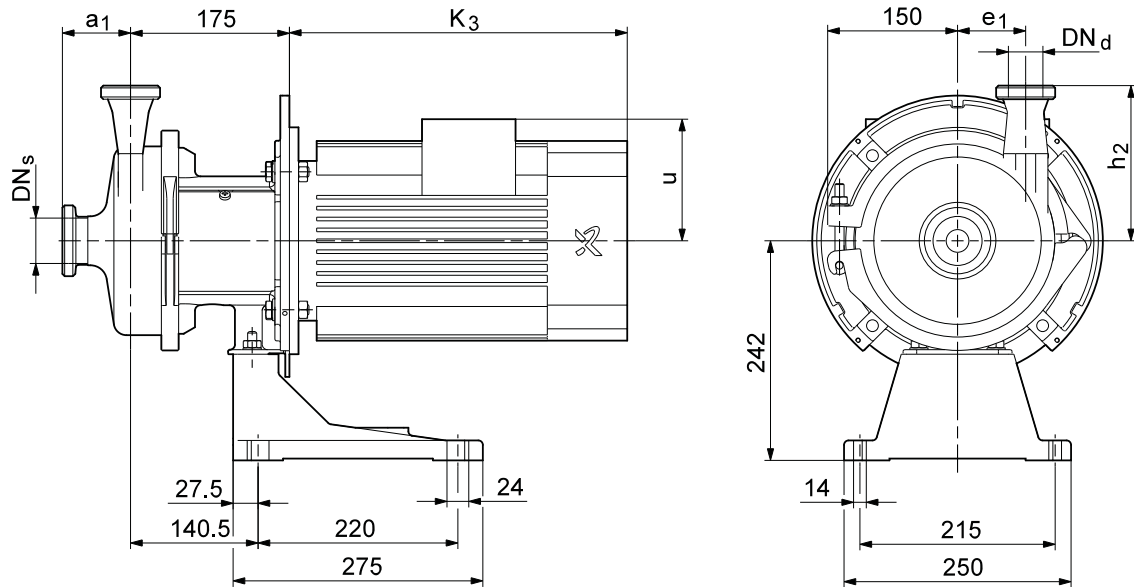
P2 [kW]	n [min ⁻¹]	IEC size	On motor foot									
			k ₃	u	a	m ₂	n ₂	n ₁	s ₁	h ₁	o	
1.1	1450	90S	321	110	227.5	100	140	178	10	90	60	281 ¹⁾
1.5	2900	90S	281	110	227.5	100	140	178	10	90	60	
1.5	1450	90L	321	110	227.5	100	140	178	10	90	60	281 ¹⁾
2.2	2900	90L	321	110	227.5	100	140	178	10	90	60	281 ¹⁾
2.2	1450	100L	335	110	234	140	160	178	12	100	50	
3.0	2900	100L	335	110	234	140	160	178	12	100	50	
4.0	2900	112M	372	134	241	140	190	228	12	112	38	
5.5	2900	132S	391	134	260	140	216	255	12	132	18	

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

All motors are Grundfos MG motors.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

F&B-HYGIA® I K on cast iron foot



TM03 3792 1006

Technical data

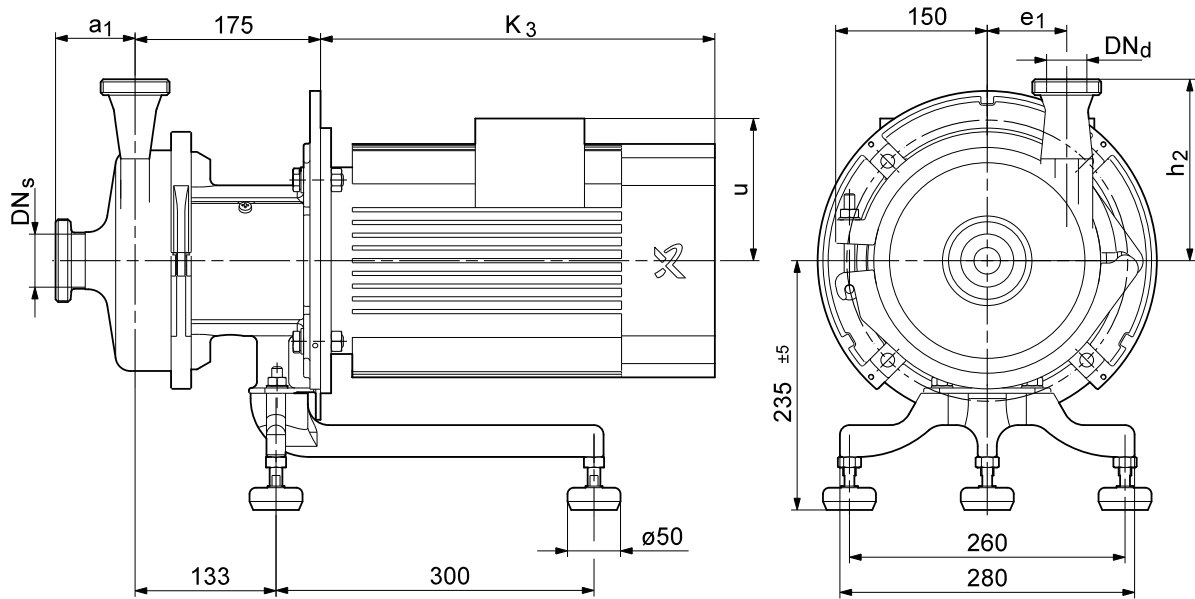
P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot	
			k ₃	u
1.1	1450	90S	321	110
			281 ¹⁾	
1.5	2900	90S	281	110
1.5	1450	90L	321	110
			281 ¹⁾	
2.2	2900	90L	321	110
			281 ¹⁾	
2.2	1450	100L	335	110
3.0	2900	100L	335	110
4.0	2900	112M	372	134
5.5	2900	132S	391	134

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

All motors are Grundfos MG motors.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

F&B-HYGIA® I K on combi foot



TM03 3789 1006

Technical data

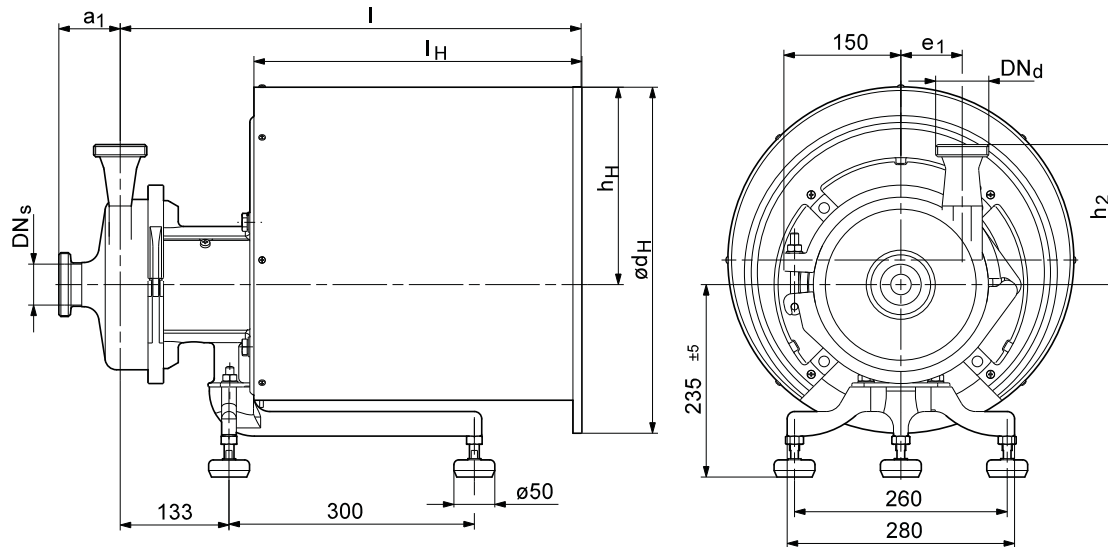
P2 [kW]	n [min ⁻¹]	IEC size	On combi foot	
			k ₃	u
1.1	1450	90S	321 281 ¹⁾	110
1.5	2900	90S	281	110
1.5	1450	90L	321 281 ¹⁾	110
2.2	2900	90L	321 281 ¹⁾	110
2.2	1450	100L	335	110
3.0	2900	100L	335	110
4.0	2900	112M	372	134
5.5	2900	132S	391	134

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

All motors are Grundfos MG motors.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motors.

F&B-HYGIA® I K SUPER on combi foot



TM03 3790 1006

Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On combi foot			
			l	l _H	h _H	ø d _H
1.1	1450	90S	591	426	160	320
			481 ¹⁾	316 ¹⁾		
1.5	2900	90S	481	316	160	320
1.5	1450	90L	591	426	160	320
			481 ¹⁾	316 ¹⁾		
2.2	2900	90L	591	426	160	320
			481 ¹⁾	316 ¹⁾		
2.2	1450	100L	591	426	160	320
3.0	2900	100L	591	426	160	320
4.0	2900	112M	591	426	160	320
5.5	2900	132S	591	426	160	320

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

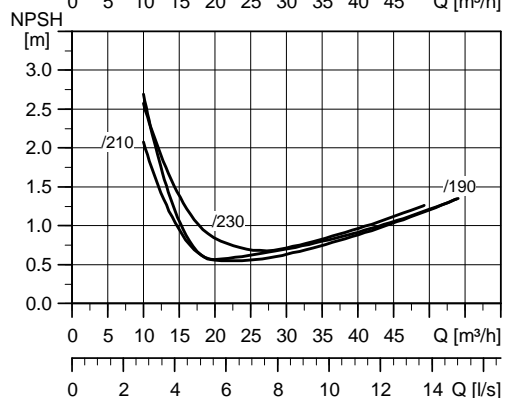
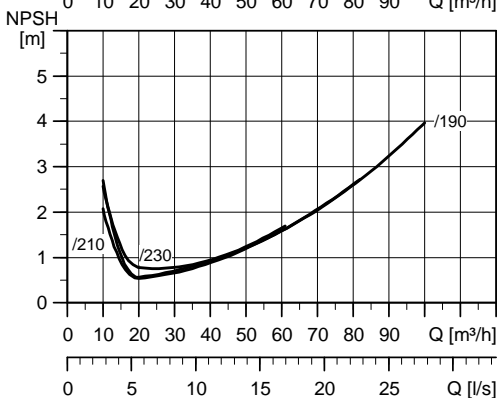
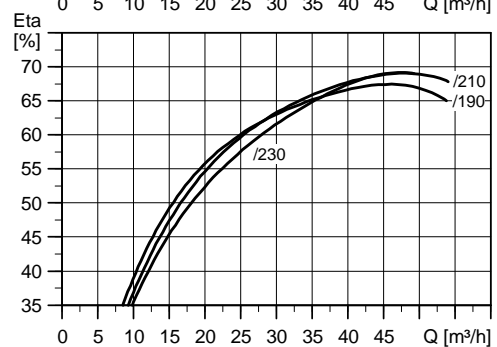
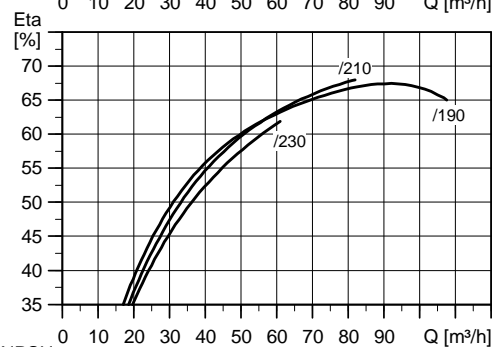
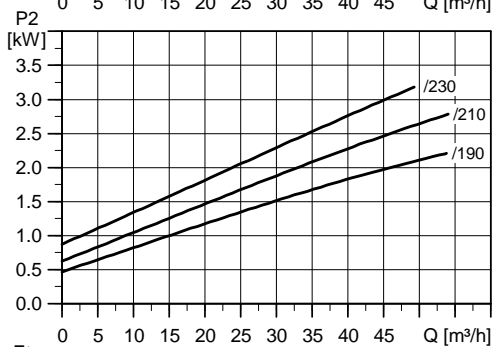
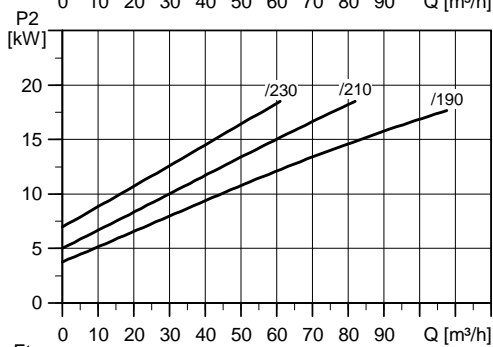
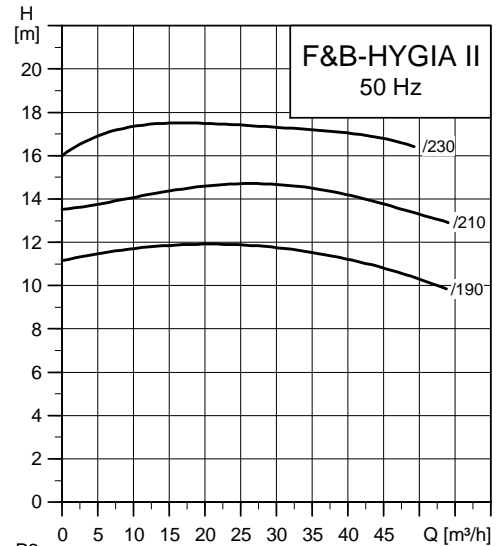
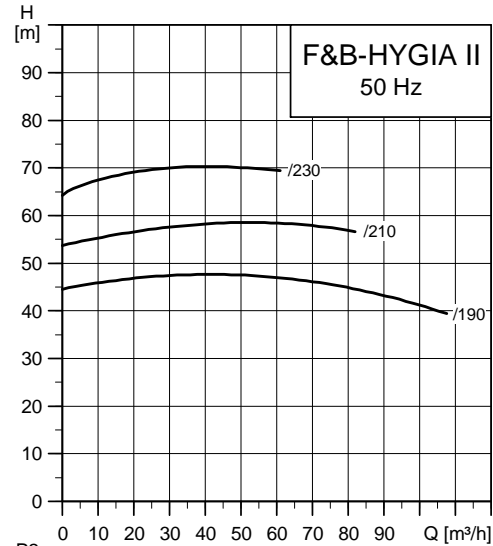
All motors are Grundfos MG motors.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

F&B-HYGIA® II

2-pole, 2900 min⁻¹

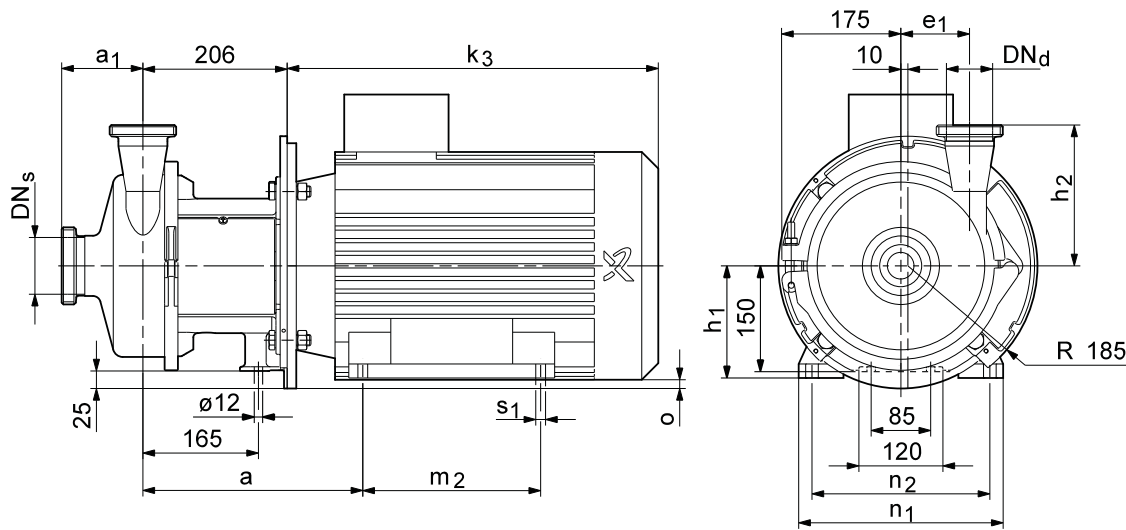
4-pole, 1450 min⁻¹



TM03 3595 0406

TM03 3594 0406

F&B-HYGIA® II K on motor foot



TM03 3794 1006

Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On motor foot									
			k ₃	u	a	m ₂	n ₂	n ₁	s ₁	h ₁	o	
2.2	1450	100L	335	110	265	140	160	178	12	100	75	
3.0	1450	100L	335	110	265	140	160	178	12	100	75	
3.0	2900	100L	372	134	265	140	160	178	12	100	75	
4.0	1450	112M	372	134	272	140	190	228	12	112	63	
4.0	2900	112M	372	134	272	140	190	228	12	112	63	
5.5	1450	132S	391	134	291	140	216	255	12	132	43	
5.5	2900	132S	391	134	291	140	216	255	12	132	43	
7.5	2900	132S	391	134	291	140	216	255	12	132	43	
11.0	2900	160M	499	172	309	210	254	302	15	160	15	
			464 ¹⁾									
15.0	2900	160M	500	255	309	210	254	-	15	160	15	
18.5	2900	160L	555	255	309	254	254	-	15	160	15	

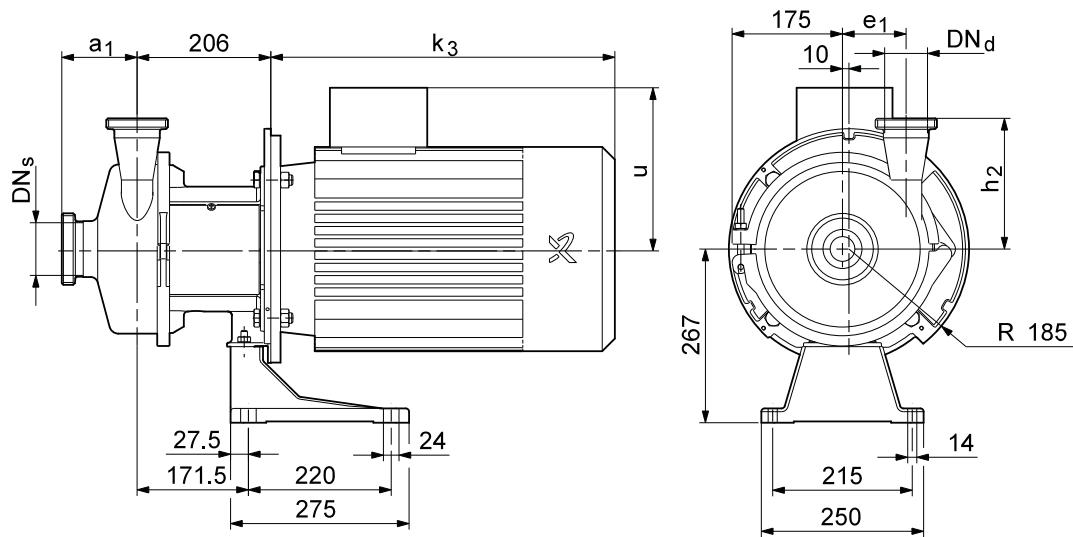
Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

Motors up to 11 kW are Grundfos MG motors. The EFF 1 MG motor is not available as 5.5 kW, 4-pole.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

15 kW and 18.5 kW are Siemens motors.

F&B-HYGIA® II K on cast iron foot



TM03 3798 1006

Technical data

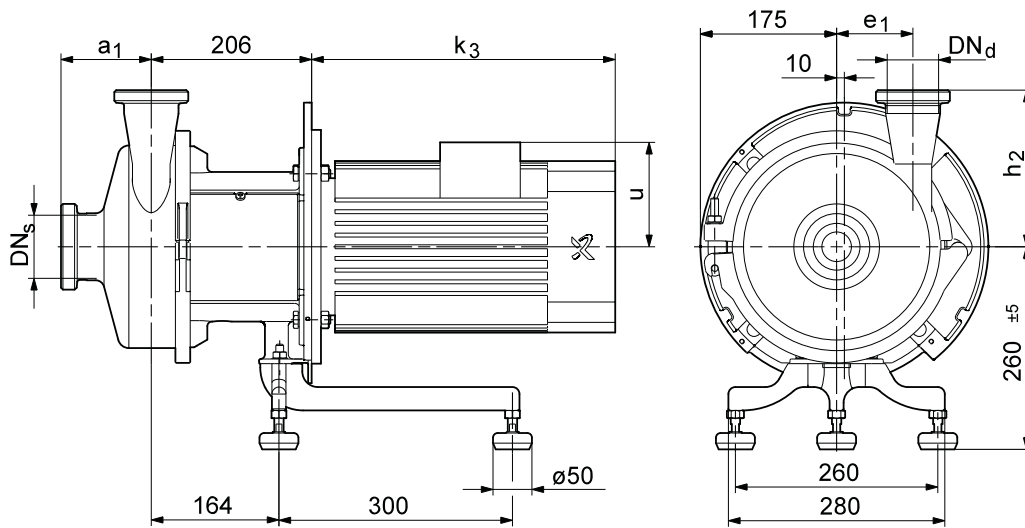
P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot	
			k ₃	u
2.2	1450	100L	335	110
3.0	1450	100L	335	110
3.0	2900	100L	372	134
4.0	1450	112M	372	134
4.0	2900	112M	372	134
5.5	1450	132S	391	134
5.5	2900	132S	391	134
7.5	2900	132S	391	134

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

All motors are Grundfos MG motors. The EFF 1 MG motor is not available as 5.5 kW, 4-pole.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

F&B-HYGIA® II K on combi foot (frame size 100-132)



TM03 3797 1006

Technical data

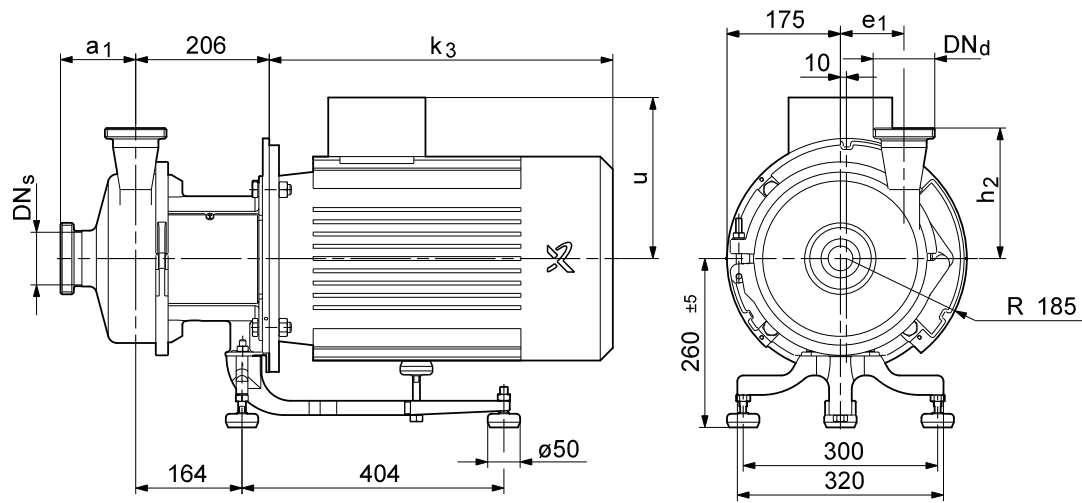
P2 [kW]	n [min ⁻¹]	IEC size	On combi foot	
			k ₃	u
2.2	1450	100L	335	110
3.0	2900	100L	335	110
3.0	1450	112M	335	110
4.0	1450	112M	372	134
4.0	2900	112M	372	134
5.5	1450	132S	391	134
5.5	2900	132S	391	134
7.5	2900	132S	391	134

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

All motors are Grundfos MG motors. The EFF 1 MG motor is not available as 5.5 kW, 4-pole.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

F&B-HYGIA® II K on combi foot (frame size 160)



TM03 3896 1106

Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On combi foot	
			k ₃	u
11.0	2900	160M	499 464 ¹⁾	172
15.0	2900	160M	500	255
18.5	2900	160L	555	255

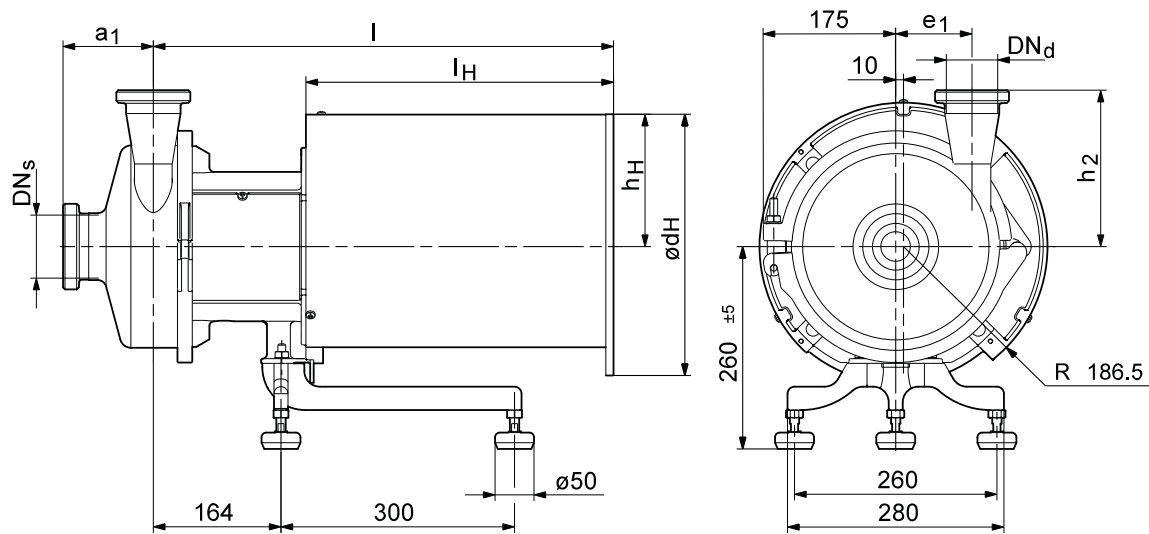
Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

11 kW is a Grundfos MG motor.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

15 kW and 18.5 kW are Siemens motors.

F&B-HYGIA® II K SUPER on combi foot (frame size 100-132)



TM03 3796 1006

Technical data

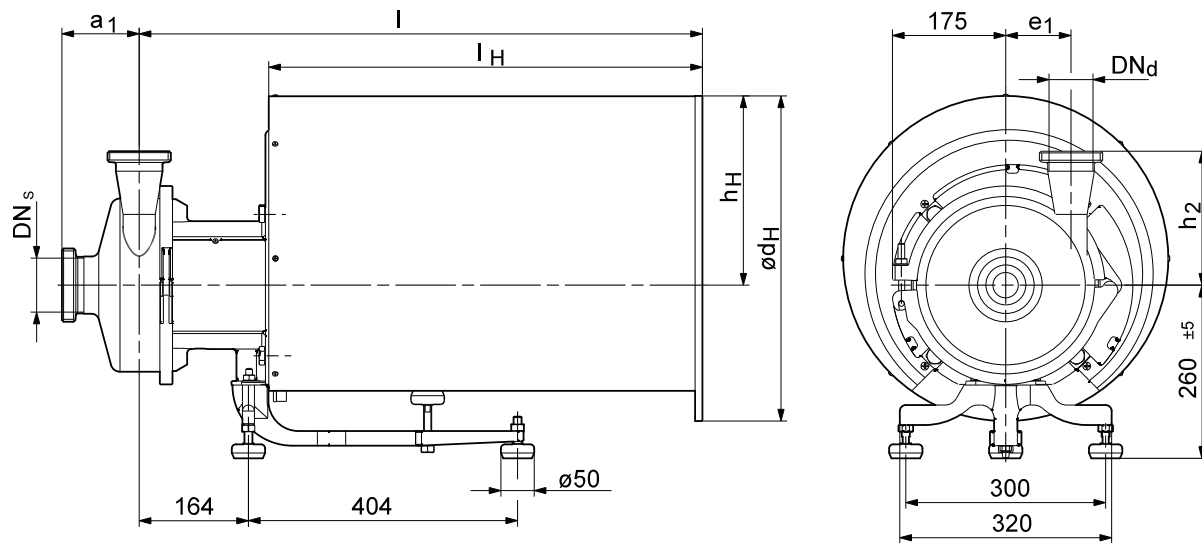
P2 [kW]	n [min ⁻¹]	IEC size	On combi foot			
			l	l _H	h _H	ø d _H
2.2	1450	100L	702	506	185	370
3.0	1450	100L	702	506	185	370
3.0	2900	100L	702	506	185	370
4.0	1450	112M	702	506	185	370
4.0	2900	112M	702	506	185	370
5.5	1450	132S	702	506	185	370
5.5	2900	132S	702	506	185	370
7.5	2900	132S	702	506	185	370

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

All motors are Grundfos MG motors. The EFF 1 MG motor is not available as 5.5 kW, 4-pole.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

F&B-HYGIA® II K SUPER on combi foot (frame size 160)



TM03 3788 1006

Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On combi foot			
			l	l _H	h _H	ø d _H
11.0	2900	160M	778	583	282.5	485
			702 ¹⁾	506 ¹⁾	185 ¹⁾	370 ¹⁾
15.0	2900	160M	778	583	282.5	485
18.5	2900	160L	778	583	282.5	485

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂, e₁). See table of connections, page 36.

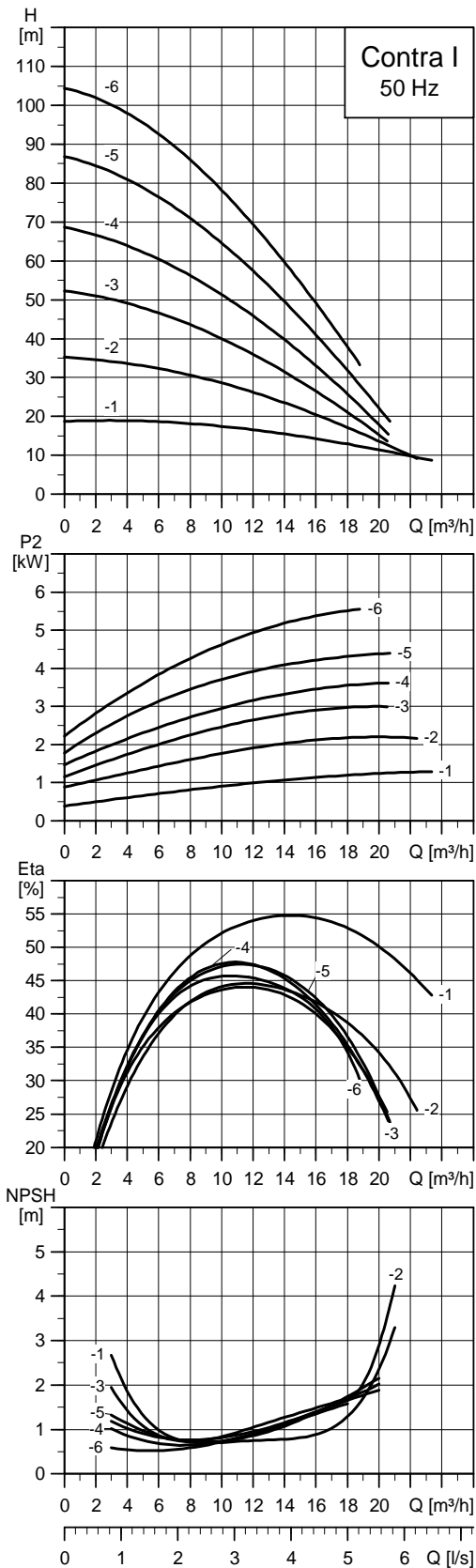
11 kW is a Grundfos MG motor.

¹⁾ Indicates the dimensions of the EFF 2 MG motor when they differ from the dimensions of the EFF 1 MG motor.

15 kW and 18.5 kW are Siemens motors.

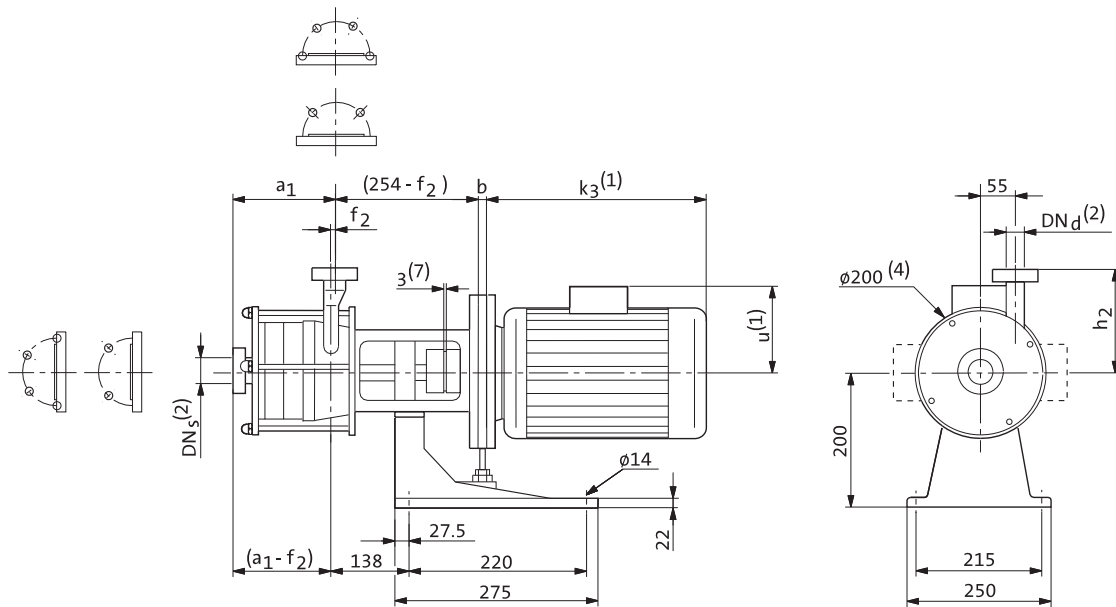
Contra I

2-pole, 2900 min⁻¹



TM02 9749 4405

Contra I Adapta[®] on cast iron foot



TM03 0064 3804

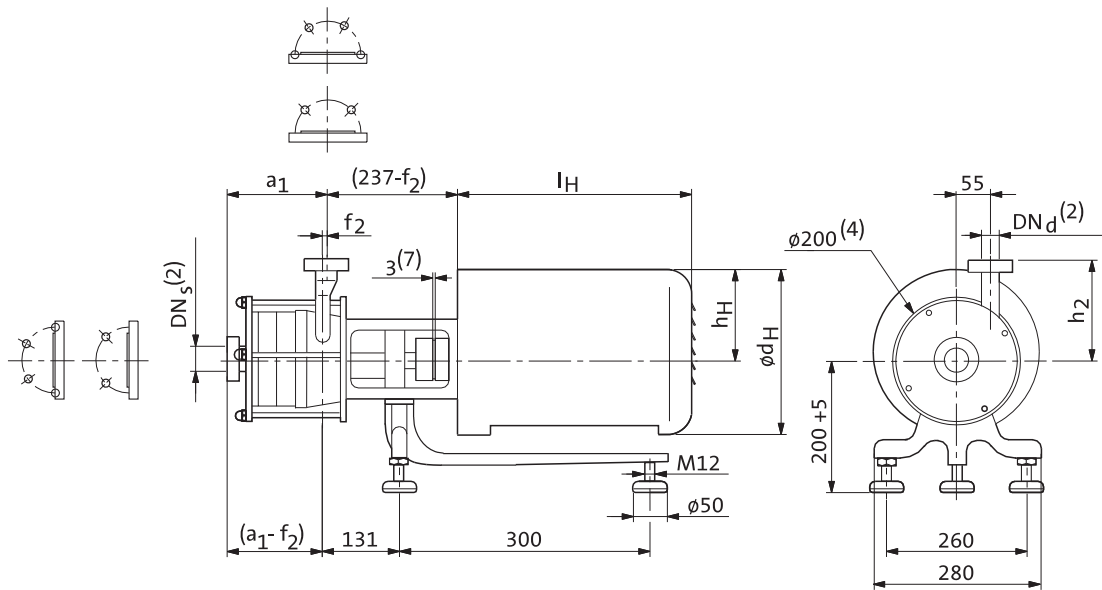
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot		
			b	k ₃ ⁽¹⁾	u ⁽¹⁾
0.55	1450	80	-	245	145
0.75	1450	80	-	245	145
0.75	2900	80	-	245	145
1.1	2900	80	-	245	145
1.1	1450	90S	10	285	150
1.5	2900	90S	10	285	150
1.5	1450	90L	10	285	150
2.2	2900	90L	10	285	150
2.2	1450	100L	20	320	175
3.0	2900	100L	20	320	175
4.0	2900	112M	20	340	185
5.5	2900	132S	40	390	205

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 37.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) Coupling of our choice.

Contra I Adapta[®] SUPER on stainless steel combi foot (frame size 80-90)



TM03 0065 3804

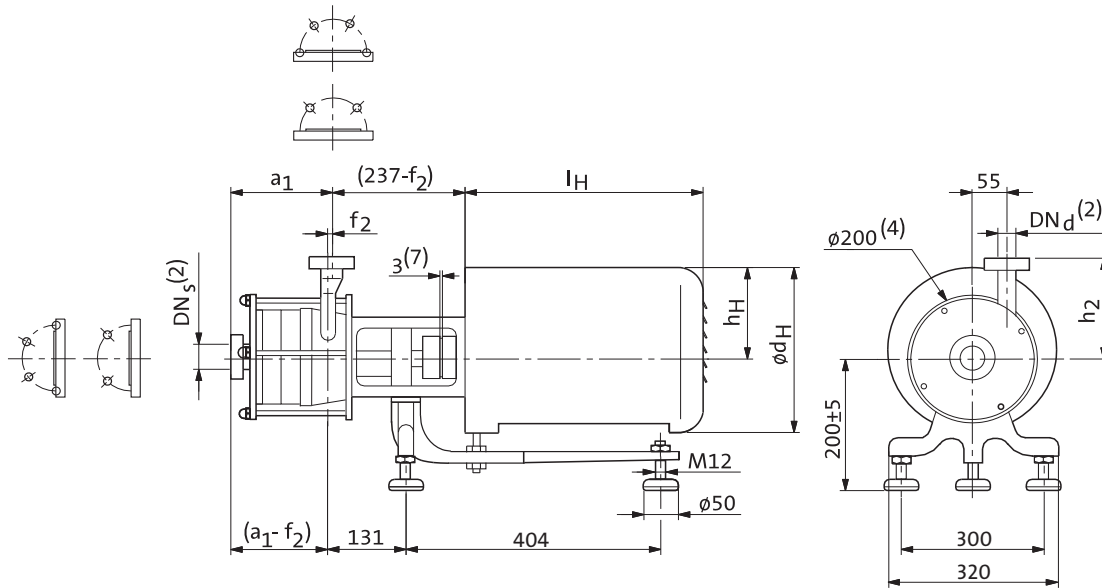
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l _H	h _H	ø d _H
0.55	1450	80	370	180	320
0.75	1450	80	370	180	320
0.75	2900	80	370	180	320
1.1	2900	80	370	180	320
1.1	1450	90S	370	180	320
1.5	2900	90S	370	180	320
1.5	1450	90L	370	180	320
2.2	2900	90L	370	180	320

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 37.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) Coupling of our choice.

Contra I Adapta[®] SUPER on stainless steel combi foot (frame size 100-132)



TM03 0066 3804

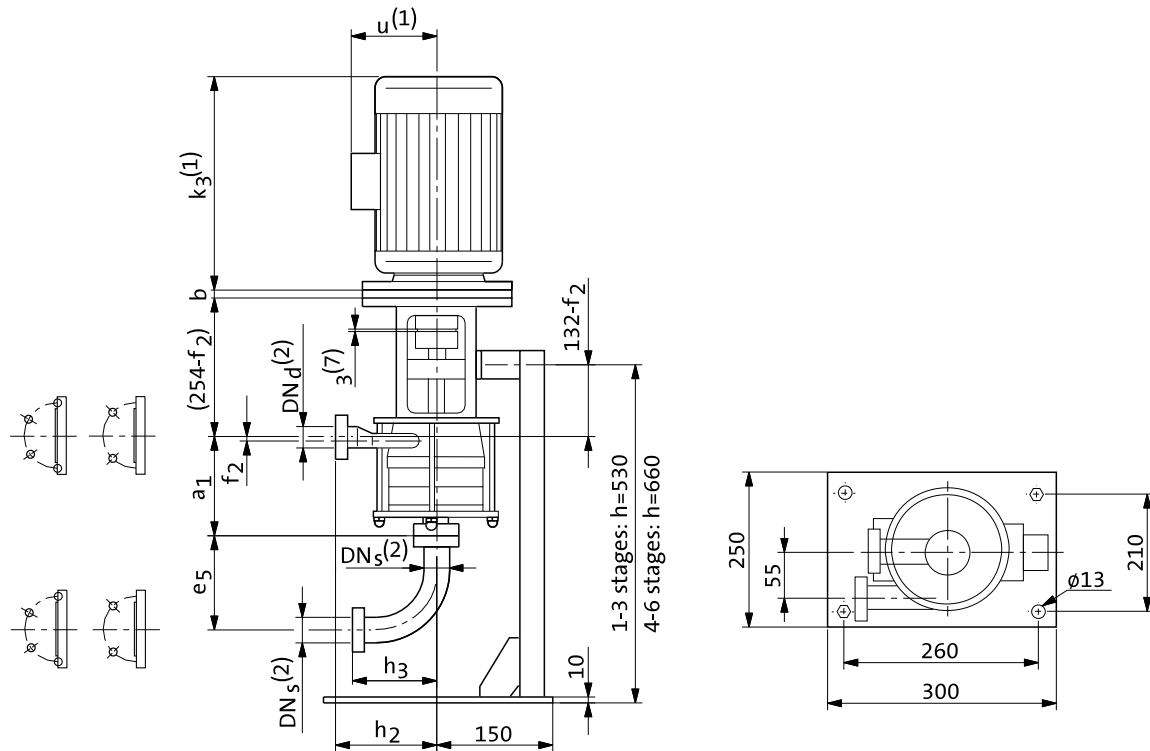
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l _H	h _H	ø d _H
2.2	1450	100L	460	210	370
3.0	2900	100L	460	210	370
4.0	2900	112M	460	210	370
5.5	2900	132S	510	240	420

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 37.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) Coupling of our choice.

Contra I Adapta[®]-V on stainless steel pedestal with/without suction elbow



For installing, removing and servicing the pump, lifting points should be provided directly above the pump and removable lengths incorporated into the suction line.

TM03 0067 3804

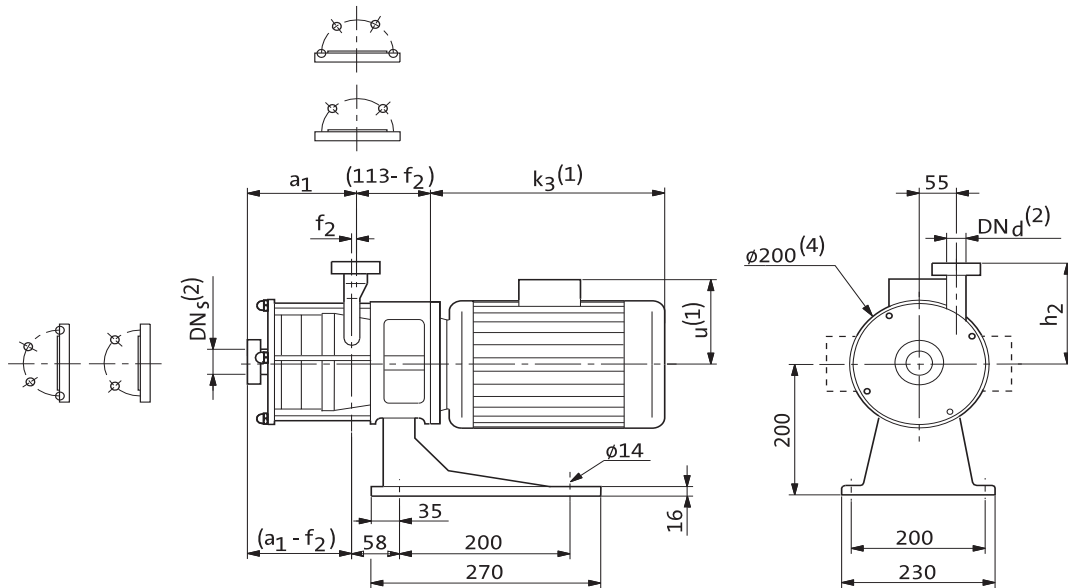
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel pedestal with/without suction elbow		
			b	k ₃ ⁽¹⁾	u ⁽¹⁾
0.55	1450	80	-	245	145
0.75	1450	80	-	245	145
0.75	2900	80	-	245	145
1.1	2900	80	-	245	145
1.1	1450	90S	10	285	150
1.5	2900	90S	10	285	150
1.5	1450	90L	10	285	150
2.2	2900	90L	10	285	150
2.2	1450	100L	20	320	175
3.0	2900	100L	20	320	175
4.0	2900	112M	20	340	185
5.5	2900	132S	40	390	205

Dimensions depend on housing size (DN_s, DN_d, a₁, e₅, f₂, h₂, h₃). See table of connections, page 37.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) Coupling of our choice.

Contra I Bloc on cast iron foot



TM03 0068 3804

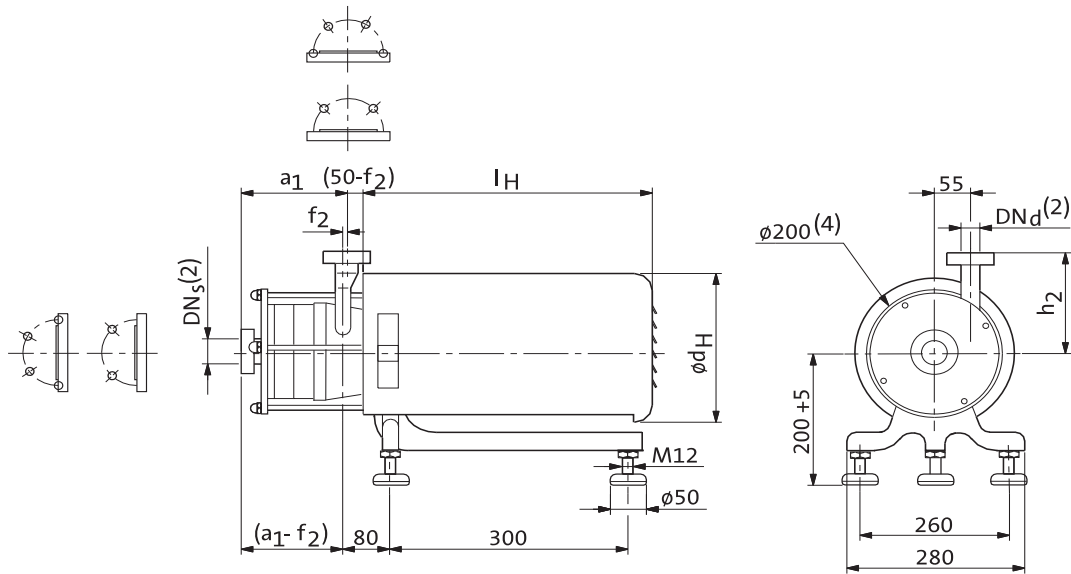
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot	
			k ₃ (1)	u ⁽¹⁾
0.55	1450	80	258	124
0.75	1450	80	258	124
0.75	2900	80	258	124
1.1	2900	80	258	124
1.1	1450	90S	282	130
1.5	2900	90S	282	130
1.5	1450	90L	282	130
2.2	2900	90L	282	130
2.2	1450	100L	332	158
3.0	2900	100L	332	158
4.0	2900	112M	391	171
5.5	2900	112M	391	171

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 37.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.

Contra I Bloc-SUPER on stainless steel combi foot



TM03 0069 3804

Technical data

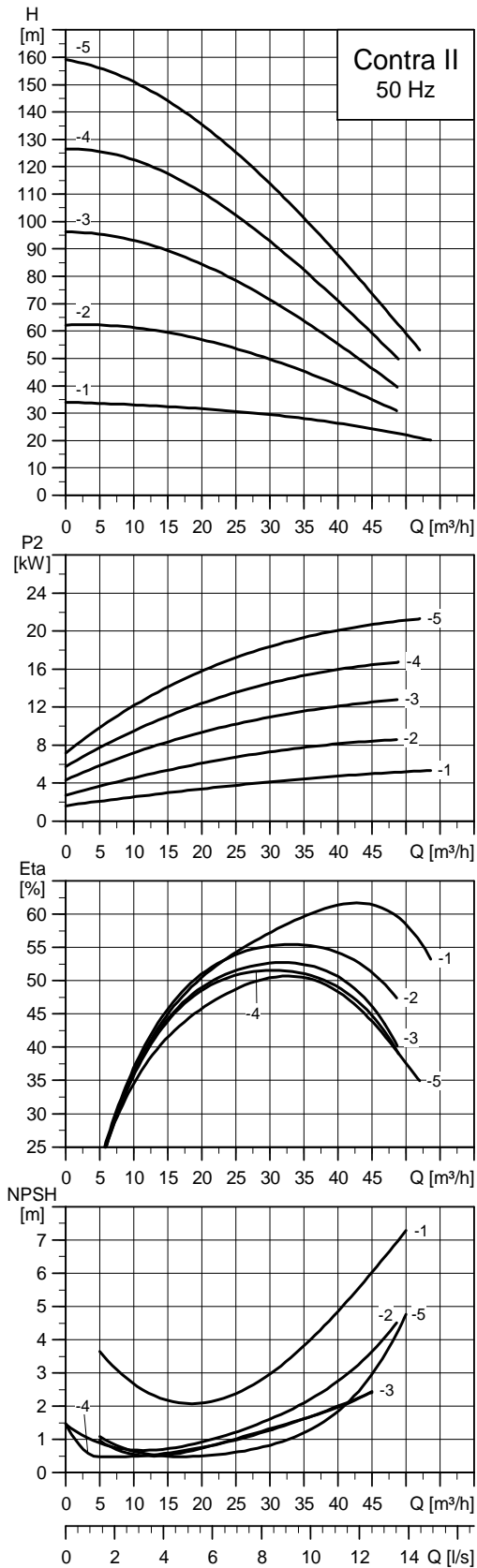
P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot	
			l _H	ø d _H
0.55	1450	80	410	220
0.75	1450	80	410	220
0.75	2900	80	410	220
1.1	2900	80	410	220
1.1	1450	90S	410	220
1.5	2900	90S	410	220
1.5	1450	90L	410	220
2.2	2900	90L	410	220
2.2	1450	100L	520	270
3.0	2900	100L	520	270
4.0	2900	112M	520	270
5.5	2900	112M	520	270

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 37.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.

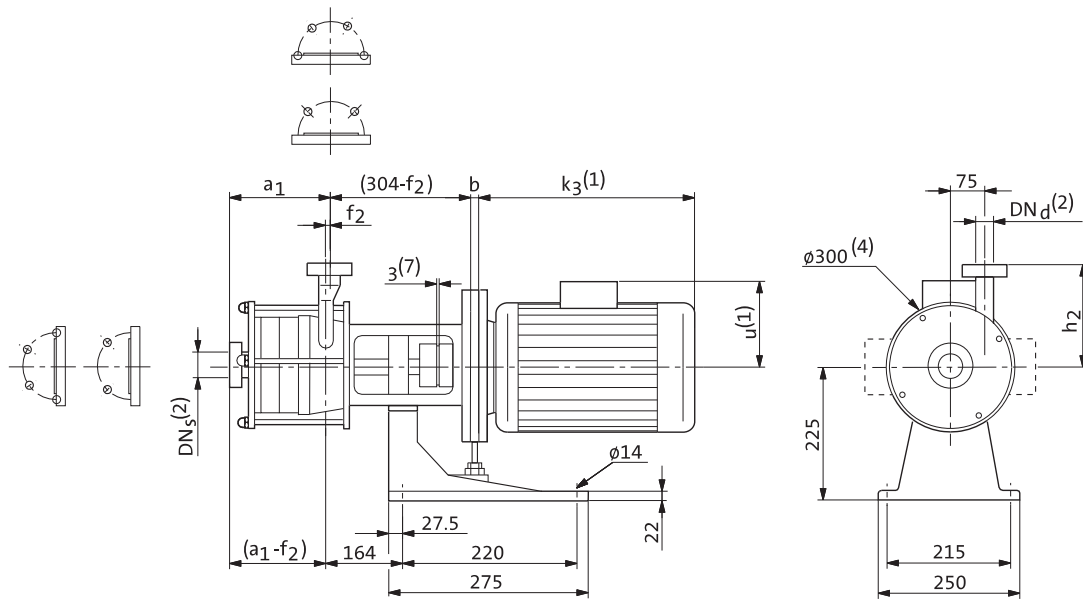
Contra II

2-pole, 2900 min⁻¹



TM02 9750 4405

Contra II Adapta[®] on cast iron foot



TM03 0070 3804

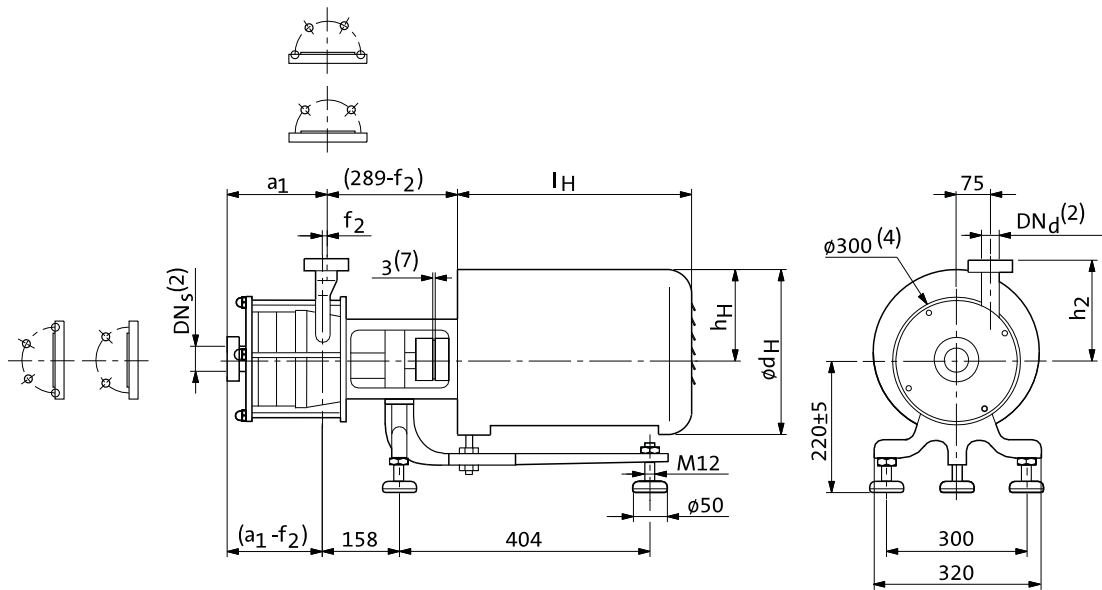
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot		
			b	k ₃ (1)	u(1)
3.0	2900	100L	-	320	175
4.0	1450	112M	-	340	185
4.0	2900	112M	-	340	185
5.5	1450	132S	20	390	205
5.5	2900	132S	20	390	205
7.5	2900	132S	20	390	205
7.5	1450	132M	20	420	205
11.0	2900	160M	51	490	240
15.0	2900	160M	51	490	240
18.5	2900	160L	51	530	240

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 40.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.

Contra II Adapta[®] SUPER on stainless steel combi foot (frame size 100-160)



TM03 0071 3804

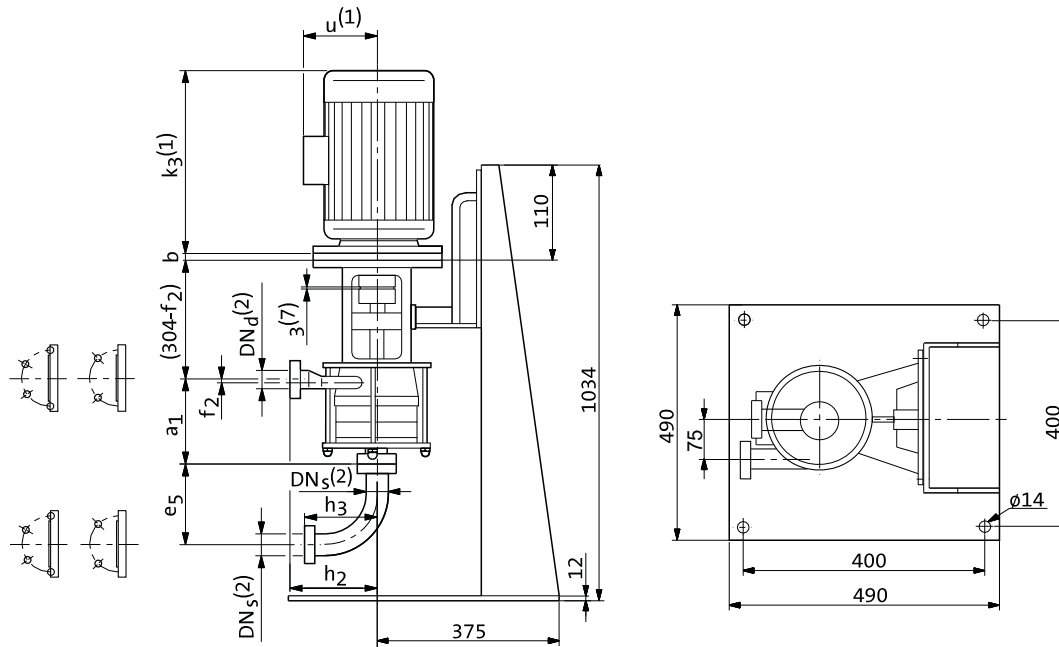
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l _H	h _H	ø d _H
3.0	2900	100L	510	240	420
4.0	1450	112M	510	240	420
4.0	2900	112M	510	240	420
5.5	1450	132S	510	240	420
5.5	2900	132S	510	240	420
7.5	2900	132S	510	240	420
7.5	1450	132M	510	240	420
11.0	2900	160M	650	285	485
15.0	2900	160M	650	285	485
18.5	2900	160L	650	285	485

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 40.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.

Contra II Adapta[®]-V on stainless steel pedestal with/without suction elbow (frame size 100-160)



For installing, removing and servicing the pump, lifting point should be provided directly above the pump and removable lengths incorporated into the suction line.
The discharge port is asymmetric; the pump can be drained completely.

TM03 0072 2507

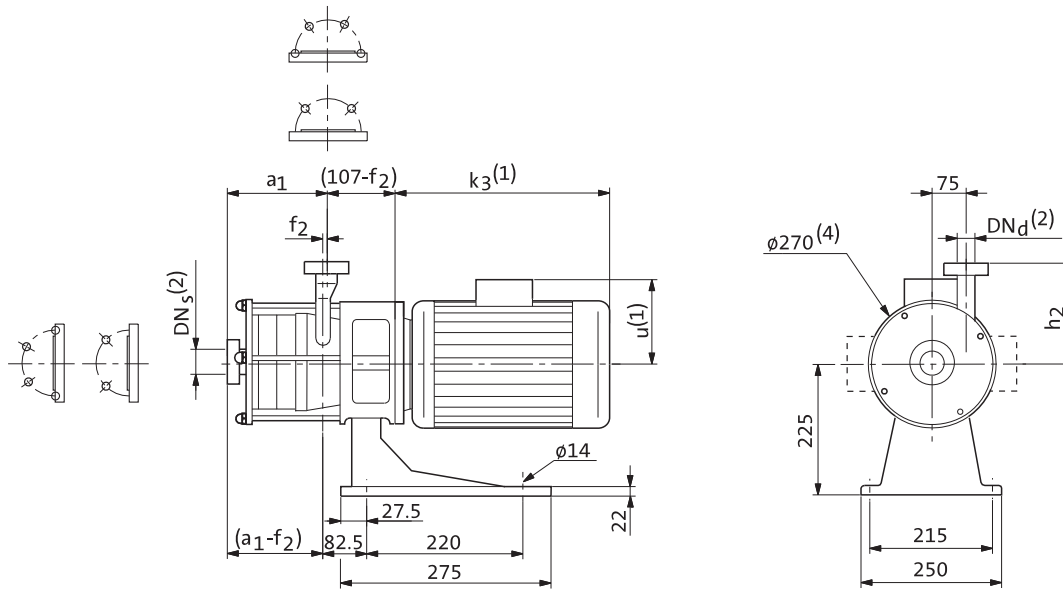
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel pedestal with/without suction elbow		
			b	k ₃ ⁽¹⁾	u ⁽¹⁾
2.2	1450	100L	-	320	175
3.0	1450	100L	-	320	175
3.0	2900	100L	-	320	175
4.0	1450	112M	-	340	185
4.0	2900	112M	-	340	185
5.5	1450	132S	20	390	205
5.5	2900	132S	20	390	205
7.5	2900	132S	20	390	205
7.5	1450	132M	20	420	205
11.0	2900	160M	51	490	240
15.0	2900	160M	51	490	240
18.5	2900	160L	51	530	240

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂, h₃, e₁, e₂). See table of connections, page 40.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (7) N-Eupex coupling.

Contra II Bloc on cast iron foot (frame size 90-132)



TM03 0073 3804

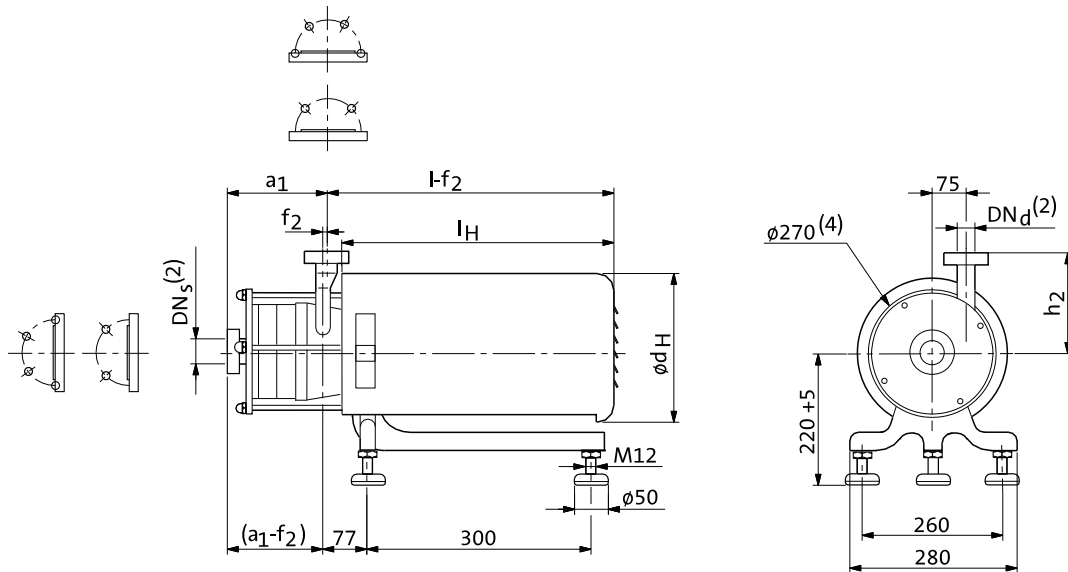
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On cast iron foot	
			k ₃ (1)	u (1)
0.75	1450	90S	282	130
1.1	1450	90S	282	130
1.5	1450	90L	282	130
1.5	2900	90S	282	130
2.2	2900	90L	282	130
2.2	1450	100L	312	163
3.0	1450	100L	312	163
3.0	2900	100L	312	163
4.0	2900	112M	335	176
4.0	1450	112M	335	176
5.5	2900	112M	371	176
7.5	2900	132S	433	196
11.0	2900	132M	433	196

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 40.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.

Contra II Bloc-SUPER on stainless steel combi foot (frame size 90-132)



TM03 0074 3804

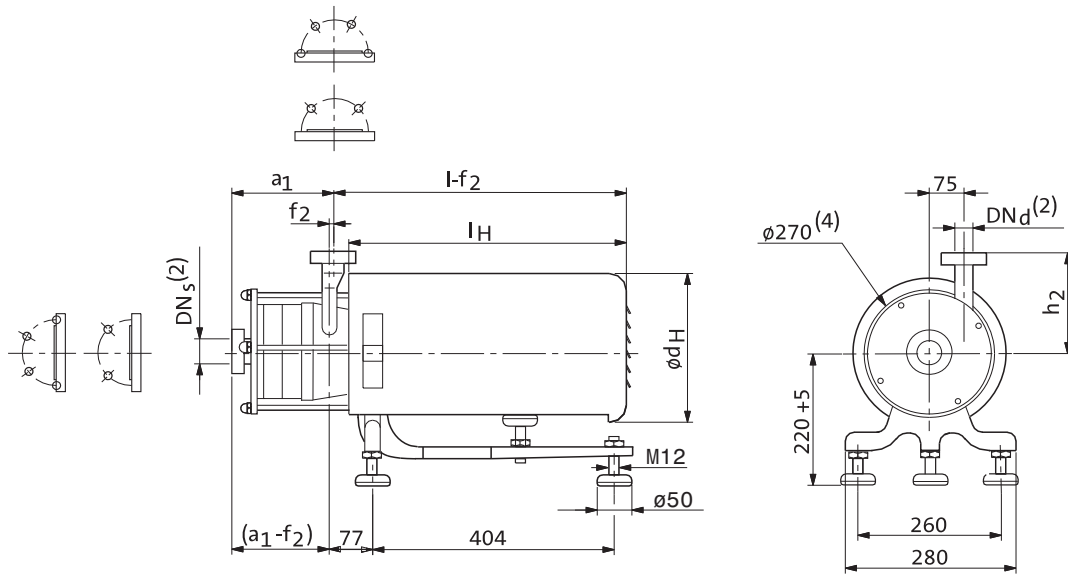
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l	l _H	ø d _H
0.75	1450	90S	561	520	270
1.1	1450	90S	561	520	270
1.5	1450	90L	561	520	270
1.5	2900	90S	561	520	270
2.2	2900	90L	561	520	270
2.2	1450	100L	561	520	270
3.0	1450	100L	561	520	270
3.0	2900	100L	561	520	270
4.0	2900	112M	561	520	270
4.0	1450	112M	561	520	270
5.5	2900	112M	561	520	270
7.5	2900	132S	641	600	320
11.0	2900	132M	641	600	320

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 40.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.

Contra II Bloc-SUPER on stainless steel combi foot (frame size 160)



TM03 0075 3804

Technical data

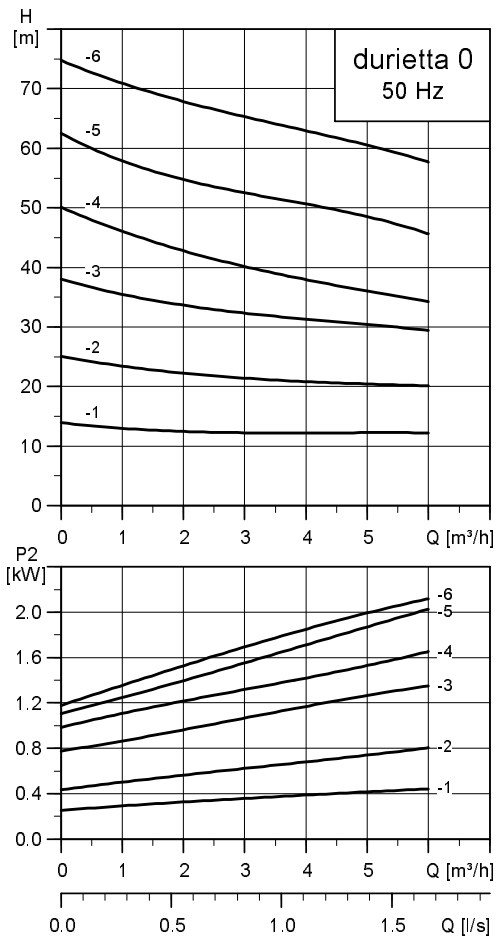
P2 [kW]	n [min ⁻¹]	IEC size	On stainless steel combi foot		
			l	l _H	ø d _H
15.0	2900	160M	791	750	350
18.5	2900	160L	791	750	350

Dimensions depend on housing size (DN_s, DN_d, a₁, f₂, h₂). See table of connections, page 40.

- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.

durietta 0

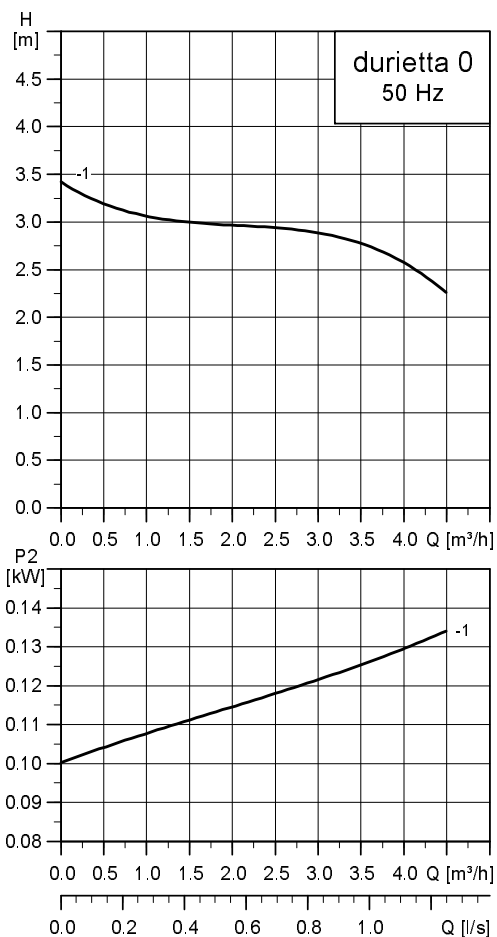
2-pole, 2900 min⁻¹



TM03 4056 3309

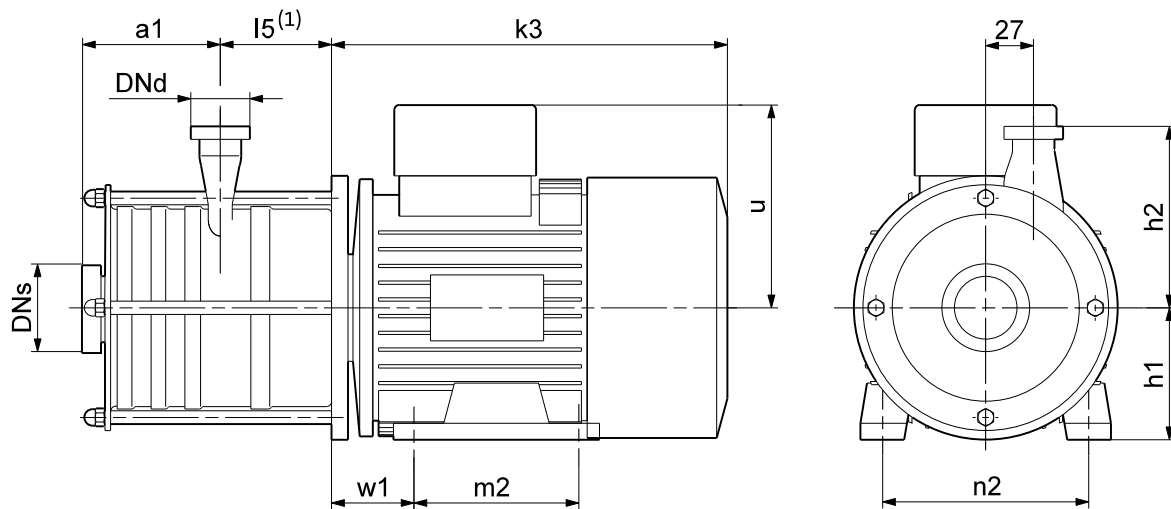
durietta 0

4-pole, 1450 min⁻¹



TM03 4057 3309

durietta 0 K on motor foot



TM03 3785 3509

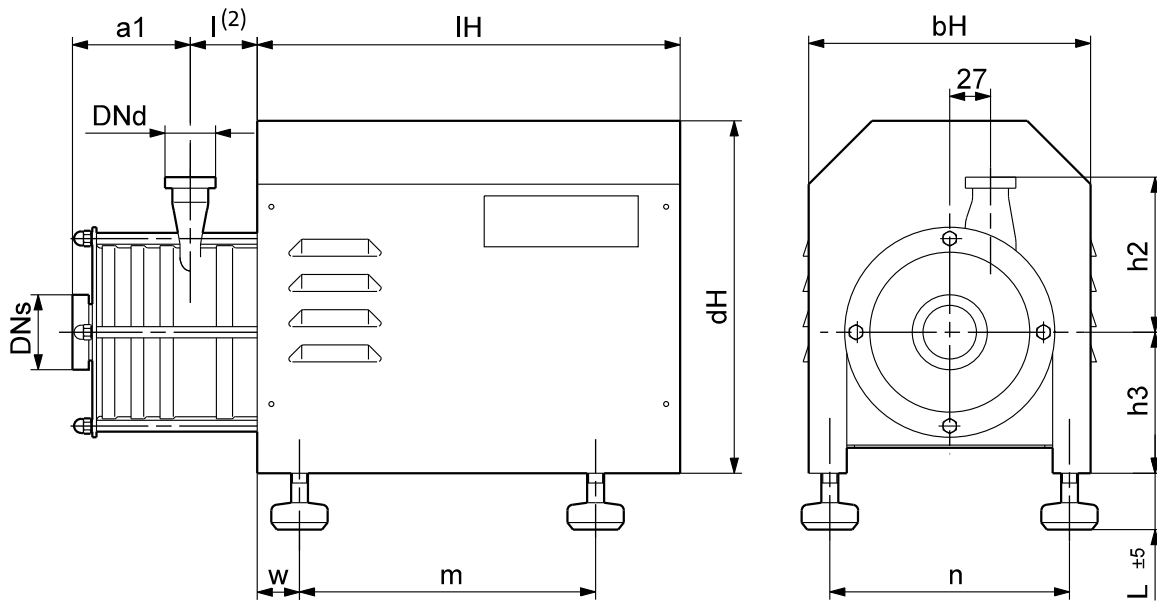
Technical data

P2 [kW]	n [min ⁻¹]	IEC size	Stage	h ₁	k ₃	n ₂	m ₂	u	w ₁	Net weight [kg]
0.25	1450	71	1	71	215	112	90	109	45	10
0.55	2900	71	1	71	215	112	90	109	45	10
0.55	2900	71	2	71	215	112	90	109	45	11
0.75	2900	71	1	71	215	112	90	109	45	11
0.75	2900	71	2	71	215	112	90	109	45	11.5
1.5	2900	90S	3	90	253	140	100	129	56	16
1.5	2900	90S	4	90	253	140	100	129	56	18
1.5	2900	90S	5	90	253	140	100	129	56	20
2.2	2900	90L	3	90	278	140	125	129	56	20
2.2	2900	90L	4	90	278	140	125	129	56	21
2.2	2900	90L	5	90	278	140	125	129	56	22
2.2	2900	90L	6	90	278	140	125	129	56	25

Dimensions depend on housing size (DN_s, DN_d, A, A', B⁽¹⁾, B⁽²⁾, C, J, K). See table of connections, page 43.

(1) Add 37.5 mm for pumps with double mechanical seal. 5- and 6-stage pumps are not available with double mechanical seal.

durietta 0 K SUPER on stainless steel combi foot



TM03 3784 3509

Technical data

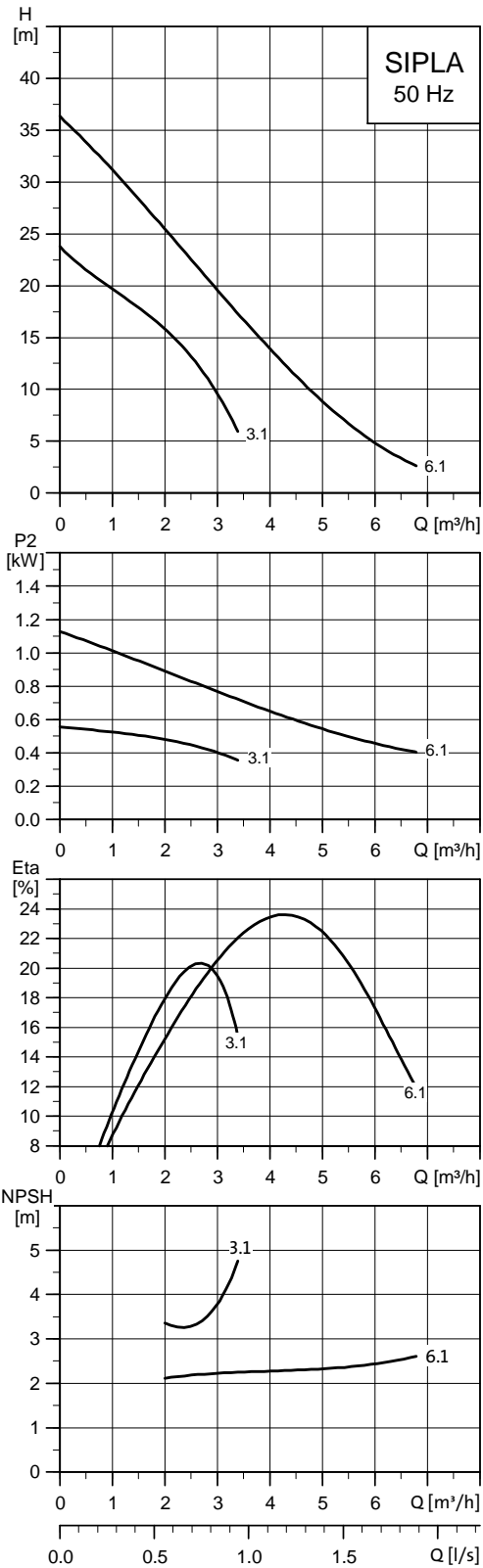
P2 [kW]	n [min ⁻¹]	IEC size	Stage	b _H	d _H	h ₃	l _H	m	n	w	L ±5	Net weight [kg]
0.25	1450	71	1	180	200	87	235	145	150	14	25	12.5
0.55	2900	71	1	180	200	87	235	145	150	14	25	12.5
0.55	2900	71	2	180	200	87	235	145	150	14	25	13.5
0.75	2900	71	1	180	200	87	235	145	150	14	25	13.5
0.75	2900	71	2	180	200	87	235	145	150	14	25	14.0
1.5	2900	90S	3	200	250	110	300	210	170	15	30	19.5
1.5	2900	90S	4	200	250	110	300	210	170	15	30	21.5
1.5	2900	90S	5	200	250	110	300	210	170	15	30	23.5
2.2	2900	90L	3	200	250	110	300	210	170	15	30	23.5
2.2	2900	90L	4	200	250	110	300	210	170	15	30	24.5
2.2	2900	90L	5	200	250	110	300	210	170	15	30	25.5
2.2	2900	90L	6	200	250	110	300	210	170	15	30	28.5

Dimensions depend on housing size (DN_s, DN_d, A, A', B⁽¹⁾, B⁽²⁾, C, J, K). See table of connections, page 43.

(2) Add 37.5 mm for pumps with double mechanical seal. 5- and 6-stage pumps are not available with double mechanical seal.

SIPLA

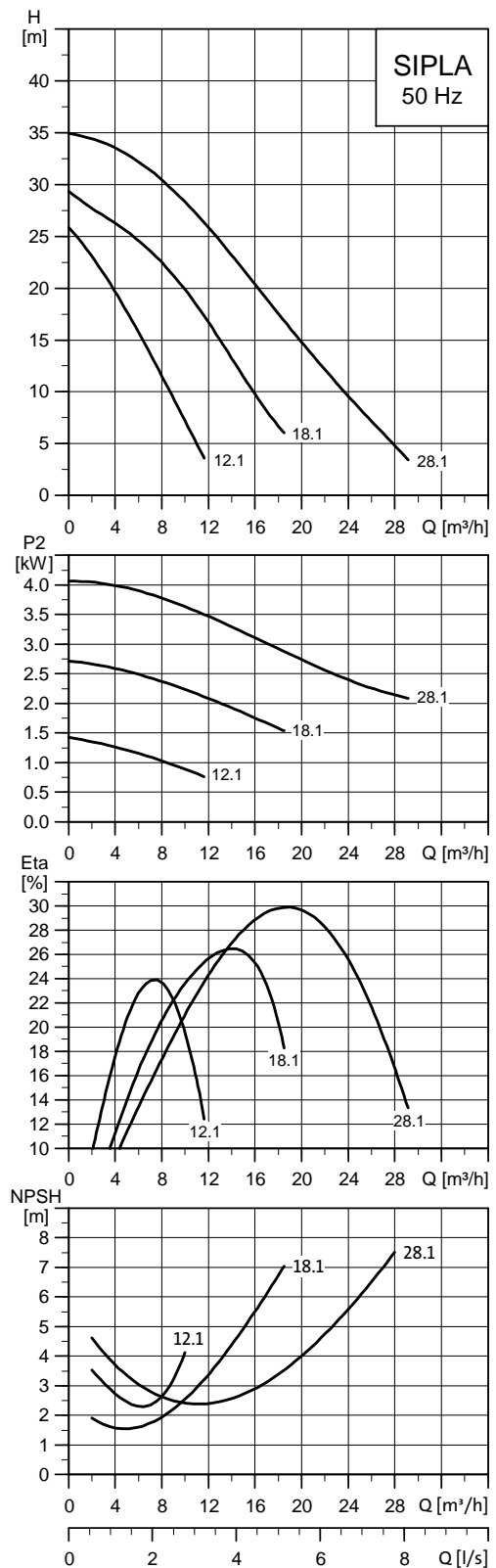
3.1 and 6.1, 4-pole, 1450 min⁻¹



TM02 9683 2307

SIPLA

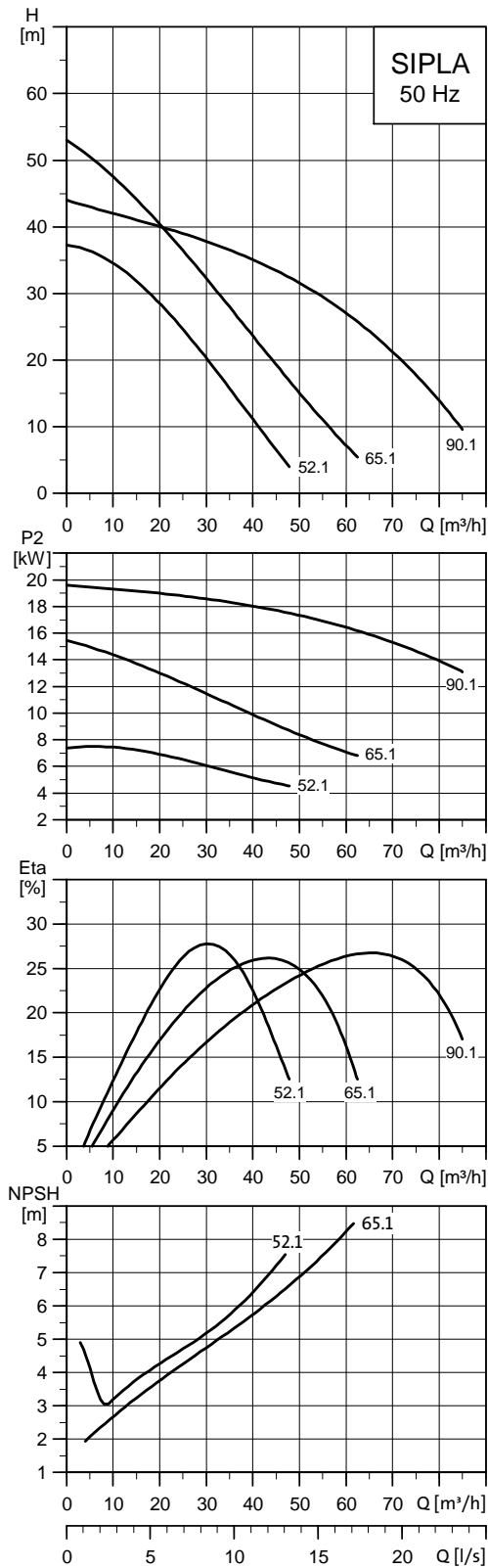
12.1, 18.1 and 28.1, 4-pole, 1450 min⁻¹



TM02 9685 2307

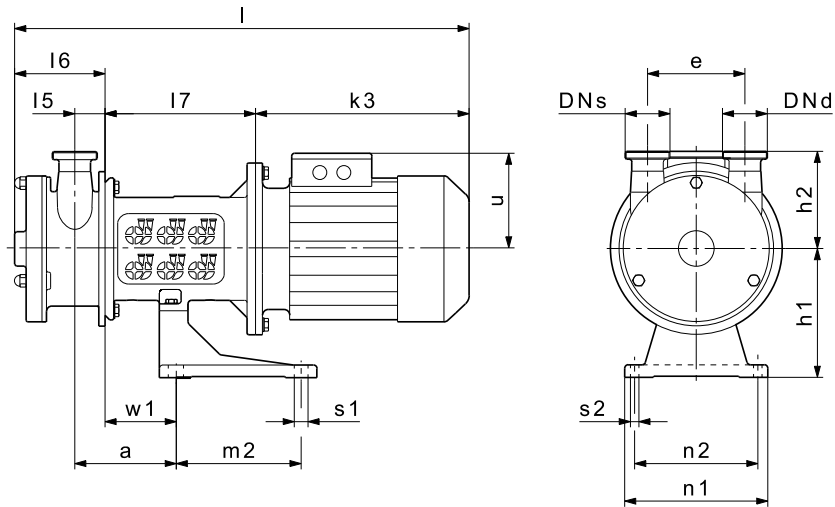
SIPLA

52.1, 65.1 and 90.1, 4-pole, 1450 min⁻¹



TM02 9689 2307

SIPLA Adapta® on cast iron foot

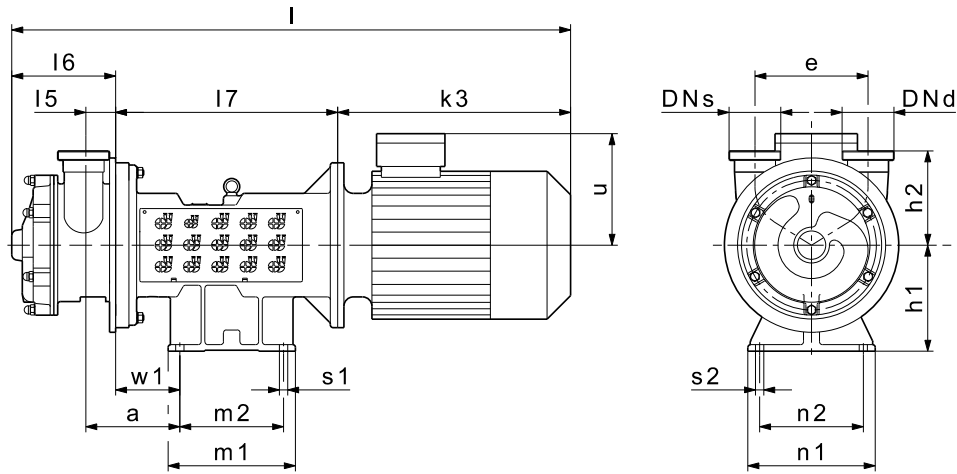


TM02 9655 2909

Technical data

Pump type	DN _s /DN _d	a	l	Pump			Motor				On cast iron foot									
				e	l ₅	l ₆	IEC size	P2 [kW]	k ₃	u	Size	w ₁	m ₂	n ₁	n ₂	s ₁ /s ₂	h ₁	h ₂	l ₇	
3.1	32	145	598	100	40	108	80M	0.75	234	120	I	105	220	250	215	24/14	200	150	221	
6.1 / 12.1	40	161	640	120	56	137	90L	1.5	282	128	I	105	220	250	215	24/14	200	150	221	
	40	161	691	120	56	137	100L	2.2 ¹⁾	313	166	I	105	220	250	215	24/14	200	150	241	
18.1	50	174	734	170	52	158	100L	3.0	313	166	II	122	220	250	215	24/14	225	170	263	
	50	174	755	170	52	158	112M	4.0 ¹⁾	334	177	II	122	220	250	215	24/14	225	170	263	
	50	174	795	170	52	158	132S	5.5 ¹⁾	374	202	II	122	220	250	215	24/14	225	170	263	
28.1	65	178	762	170	56	165	112M	4.0	334	177	II	122	220	250	215	24/14	225	170	263	
	65	178	822	170	170	165	132S	5.5 ¹⁾	374	202	II	122	220	250	215	24/14	225	170	283	
	65	178	822	170	170	165	132M	7.5 ¹⁾	374	202	II	122	220	250	215	24/14	225	170	283	
52.1	65	178	836	170	56	179	132M	7.5	374	202	II	122	220	250	215	24/14	225	200	283	
	65	178	971	170	56	179	160M	11.0 ¹⁾	478	237	II	122	220	250	215	24/14	225	200	314	

¹⁾ The pumps are fitted with oversized motors for the pumping of high-viscosity liquids.



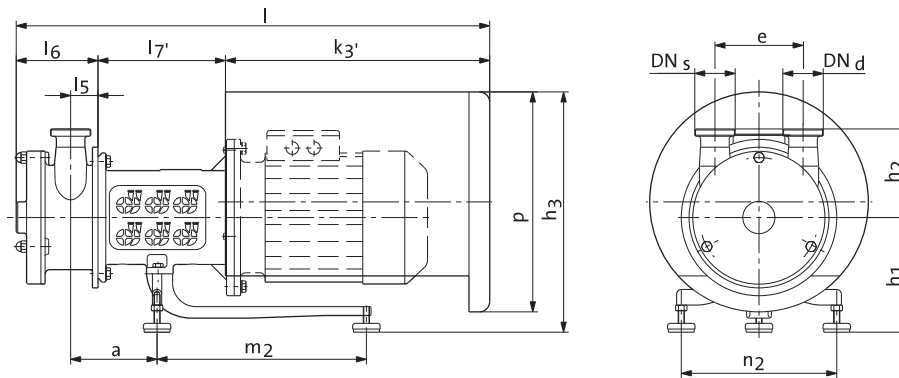
TM04 5205 2909

Technical data

Pump type	DN _s /DN _d	a	l	Pump			Motor				On cast iron foot									
				e	l ₅	l ₆	IEC size	P2 [kW]	k ₃	u	Size	w ₁	m ₂	n ₁	n ₂	s ₁ /s ₂	h ₁	h ₂	l ₇	
65.1	80	204	1186	240	68	221	160L	15.0	494	237	III	136	220	270	220	17.5	225	200	471	
	80	204	1294	240	68	221	180M	18.5 ¹⁾	602	258	III	136	220	270	220	17.5	225	200	471	
	80	204	1294	240	68	221	180L	22.0 ¹⁾	602	258	III	136	220	270	220	17.5	225	200	471	
90.1	80	204	1300	240	68	227	180M	18.5	602	258	III	136	220	270	220	17.5	225	200	471	
	80	204	1300	240	68	227	180L	22.0 ¹⁾	602	258	III	136	220	270	220	17.5	225	200	471	

¹⁾ The pumps are fitted with oversized motors for the pumping of high-viscosity liquids.

SIPLA Adapta[®] SUPER on combi foot



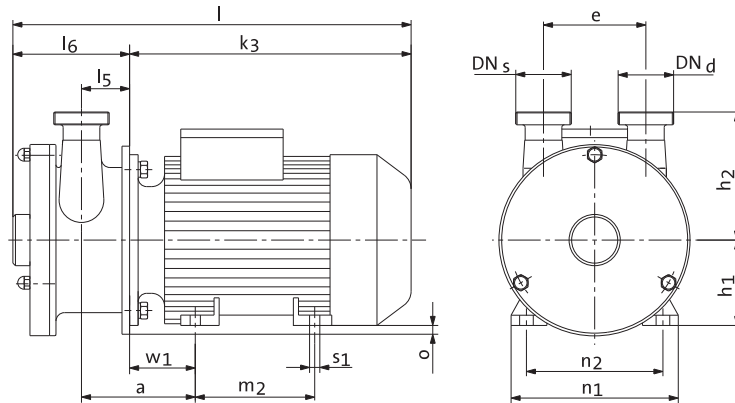
TM02 9656 3604

Technical data

Pump type	DN _s /DN _d	a	l	h ₁	h ₂	h ₃	Pump			Motor		AD		On combi foot			Shroud		
							e	l ₅	l ₆	IEC size	P2 [kW]	Size	l ₇ '	Size	m ₂	n ₂	Size	p	k ₃ '
3.1	32	138	682	200	150	380	100	40	108	80M	0.75	I	204	I	300	260	1.1	320	370
6.1	40	154	711	200	150	380	120	56	137	90L	1.5	I	204	I	300	260	1.1	320	370
12.1	40	154	801	200	150	410	120	56	137	100L	2.2 ¹⁾	I	204	II	404	300	1.2	370	460
	50	167	914	220	170	460	170	52	158	100L	3.0	II	246	II	404	300	2.2	420	510
18.1	50	167	914	220	170	460	170	52	158	112M	4.0 ¹⁾	II	246	II	404	300	2.2	420	510
	50	167	914	220	170	460	170	52	158	132S	5.5 ¹⁾	II	246	II	404	300	2.2	420	510
28.1	65	171	921	220	170	460	170	56	165	112M	4.0	II	246	II	404	300	2.2	420	510
	65	171	921	220	170	460	170	56	165	132S	5.5 ¹⁾	II	246	II	404	300	2.2	420	510
52.1	65	171	921	220	170	460	170	56	165	132M	7.5 ¹⁾	II	246	II	404	300	2.2	420	510
	65	171	1074	220	200	503	170	56	179	160M	11.0 ¹⁾	II	245	II	404	300	2.3	485	650

¹⁾ The pumps are fitted with oversized motors for the pumping of high-viscosity liquids.

SIPLA Bloc on motor foot



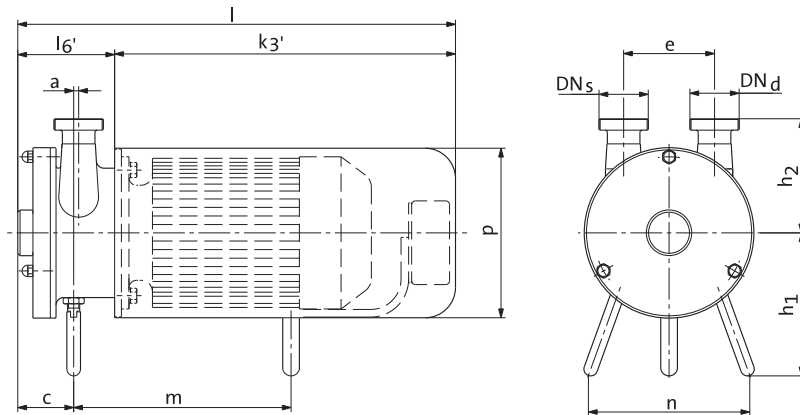
TM02 9657 3604

Technical data

Pump type	DN _s /DN _d	a	l	o	h ₂	Pump			Motor								
						e	l ₅	l ₆	IEC size	P2 [kW]	h ₁	k ₃	m ₂	n ₁	n ₂	s ₁	w ₁
3.1	32	90	342	30	150	100	40	108	80M	0.75	80	234	100	150	125	9.5	50
6.1 / 12.1	40	134	464	10	150	120	56	137	100L	1.5	100	327	140	196	160	12	78
	40	134	464	10	150	120	56	137	100L	2.2 ¹⁾	100	327	140	196	160	12	78
18.1	50	130	485	35	170	170	52	158	100L	3.0	100	327	140	196	160	12	78
	50	142	511	23	170	170	52	158	112M	4.0 ¹⁾	112	353	140	226	190	12	90
28.1	50	160	551	3	170	170	52	158	132S	5.5 ¹⁾	132	393	140	256	216	12	108
	65	146	518	23	170	170	56	165	112M	4.0	112	353	140	226	190	12	90
52.1	65	164	558	3	170	170	56	165	132S	5.5 ¹⁾	132	393	140	256	216	12	108
	65	164	558	3	170	170	56	165	132M	7.5 ¹⁾	132	393	178	256	216	12	108
65.1	65	145	553	28	200	170	56	179	132M	7.5	132	374	178	256	216	12	89
	65	145	589	28	200	170	56	179	132M	11.0 ¹⁾	132	410	178	256	216	12	89
90.1	80	176	699	25	200	240	68	221	160L	15.0	160	478	254	300	254	15	108
	80	176	739	25	200	240	68	221	160L	22.0 ¹⁾	160	518	254	300	254	15	108
90.1	80	176	745	25	200	240	68	227	160L	22.0 ¹⁾	160	518	254	300	254	15	108

¹⁾ The pumps are fitted with oversized motors for the pumping of high-viscosity liquids.

SIPLA Bloc-SUPER on stainless steel ball feet



TM02 9658 3604

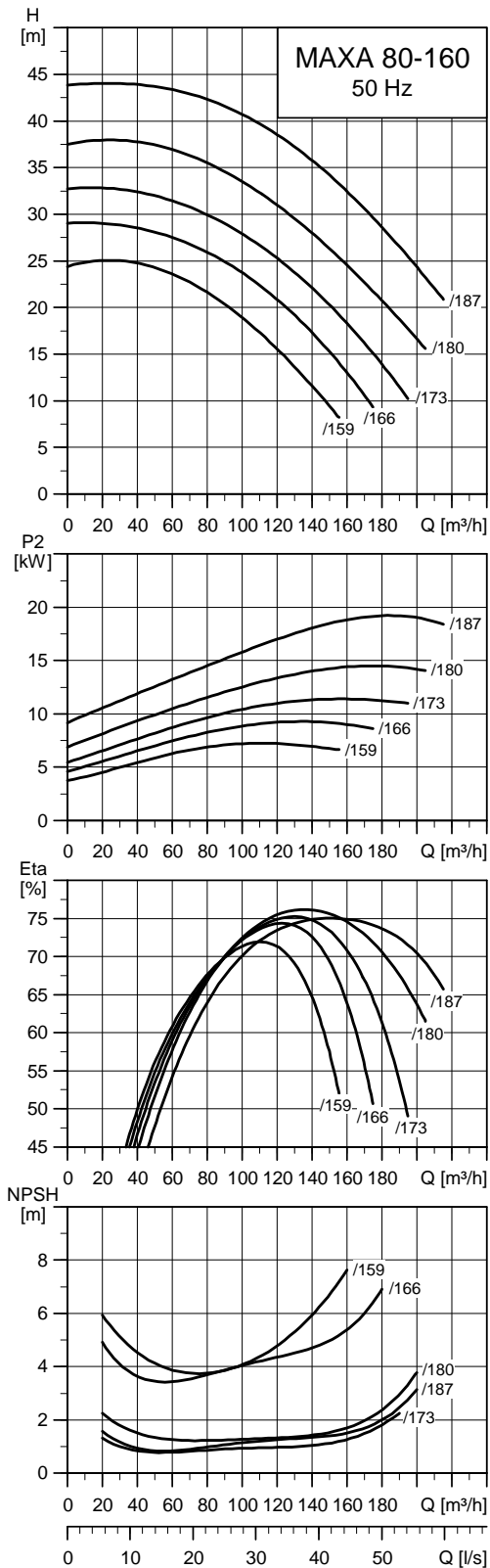
Technical data

Pump type	DN _s /DN _d	h ₁	h ₂	l	n	m	Pump				Motor		Shroud	
							e	l ₆ '	a	c	IEC size	P2 [kW]	p	k ₃ '
3.1	32	155	150	508	200	220	100	98	0	68	80M	0.75	224	410
6.1 / 12.1	40	200	150	608	220	252	120	128	1	78	100L	1.5	274	480
	40	200	150	608	220	252	120	128	1	78	100L	2,2 ¹⁾	274	480
18.1	50	200	170	628	225	267	170	148	21	84	100L	3.0	274	480
	50	200	170	628	225	279	170	148	21	84	112M	4,0 ¹⁾	274	480
	50	200	170	748	225	320	170	148	21	84	132S	5,5 ¹⁾	324	600
28.1	65	200	170	634	225	279	170	154	19	91	112M	4.0	274	480
	65	200	170	754	225	320	170	154	19	91	132S	5,5 ¹⁾	324	600
	65	200	170	754	225	320	170	154	19	91	132M	7,5 ¹⁾	324	600
52.1	65	200	200	768	225	300	170	168	18	104	132M	7.5	324	600
	65	200	200	818	225	300	170	168	18	104	132M	11,0 ¹⁾	374	650
65.1	80	200	200	858	225	397	240	208	21	132	160L	15.0	374	650
	80	200	200	858	225	397	240	208	21	132	160L	22,0 ¹⁾	374	650
90.1	80	200	200	864	225	397	240	214	21	138	160L	22,0 ¹⁾	374	650

¹⁾ The pumps are fitted with oversized motors for the pumping of high-viscosity liquids.

MAXA 80-160

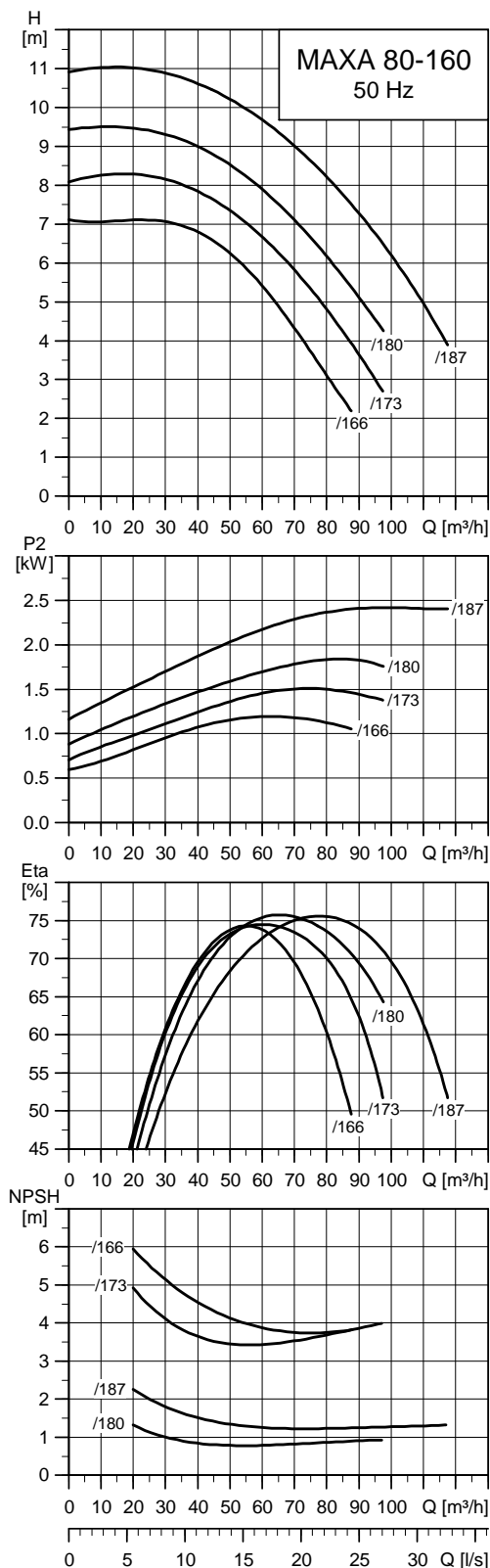
2-pole, 2900 min⁻¹



TM02 9722 4405

MAXA 80-160

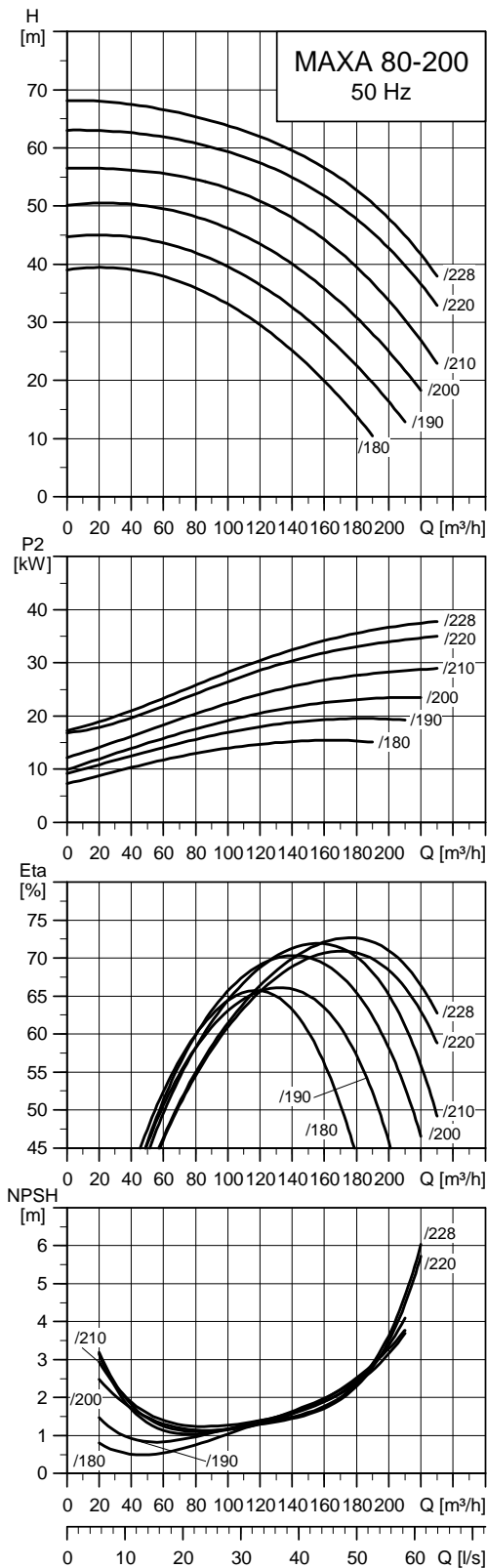
4-pole, 1450 min⁻¹



TM02 9727 4405

MAXA 80-200

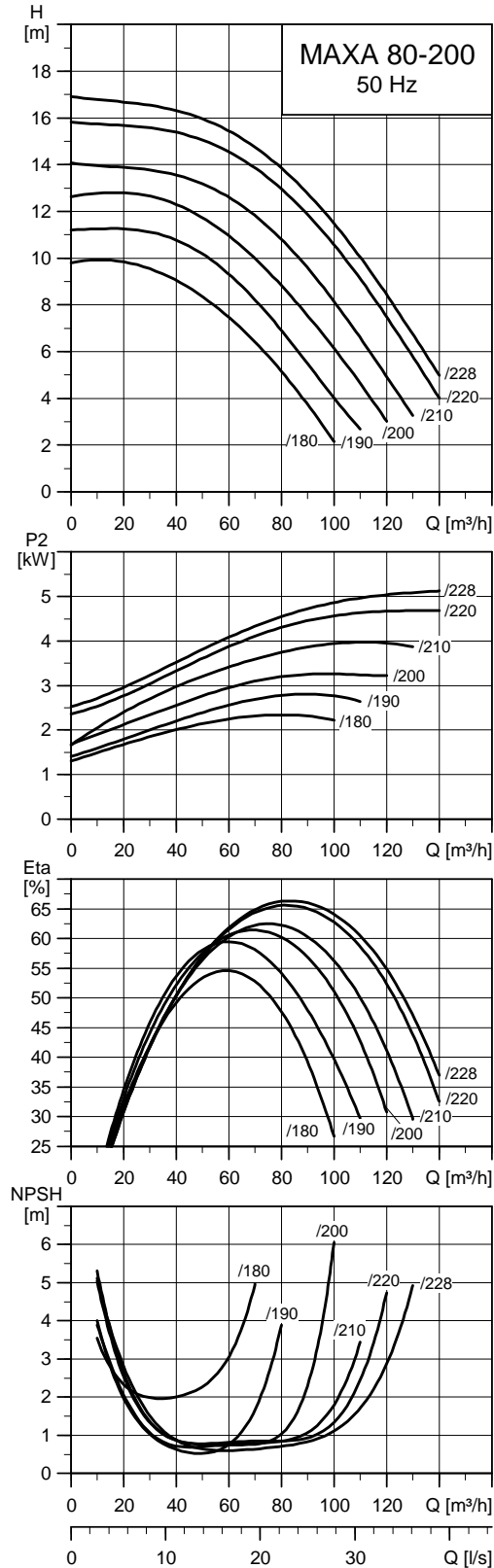
2-pole, 2900 min⁻¹



TM02 9723 4405

MAXA 80-200

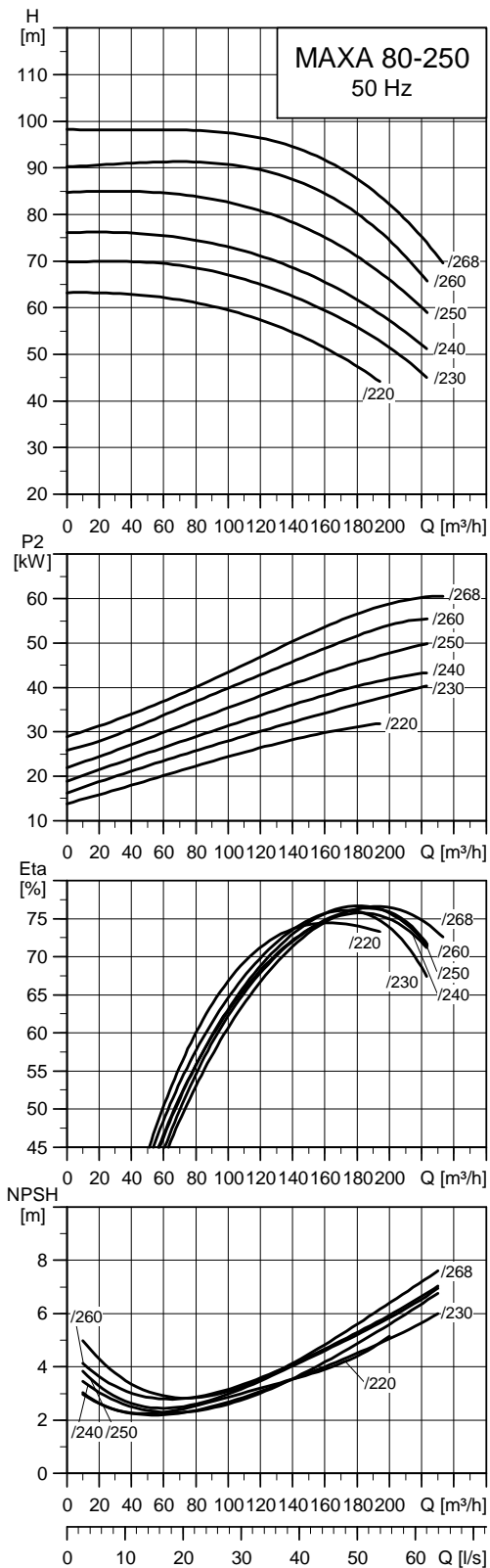
4-pole, 1450 min⁻¹



TM02 9728 4405

MAXA 80-250

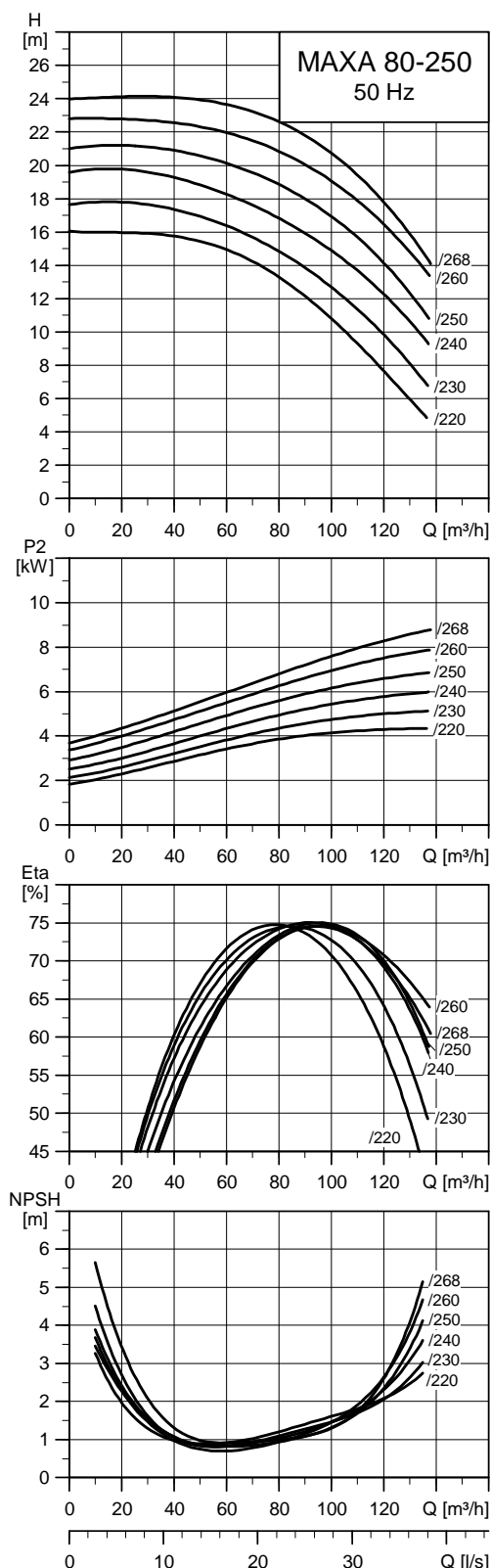
2-pole, 2900 min⁻¹



TM02 9724 4405

MAXA 80-250

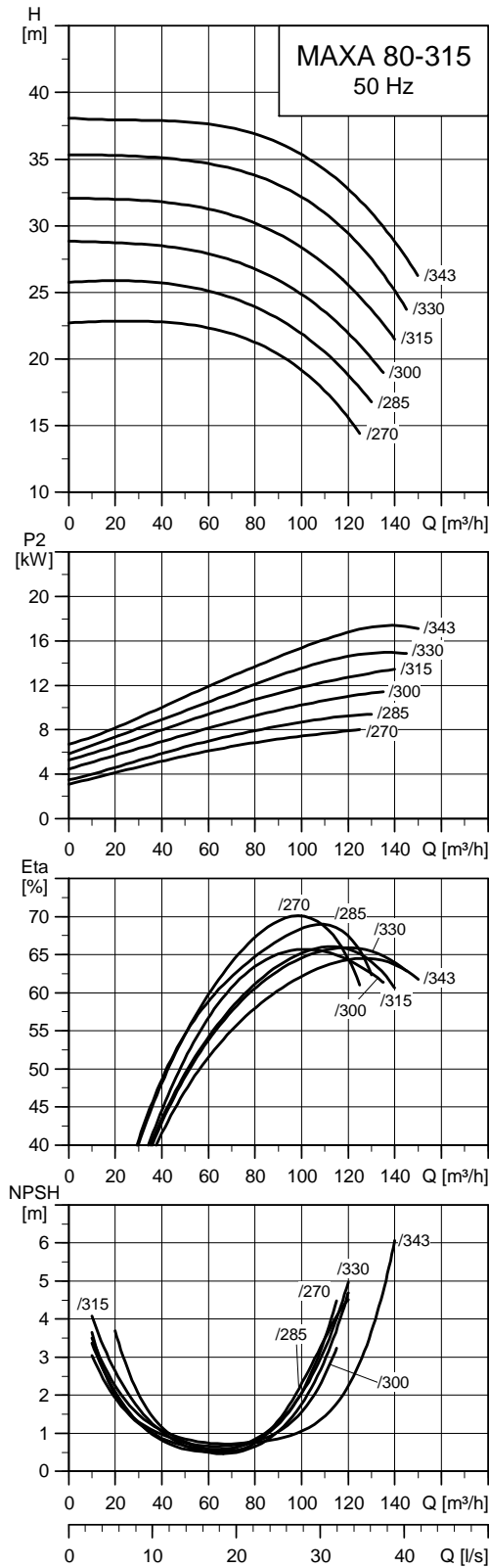
4-pole, 1450 min⁻¹



TM02 9729 4405

MAXA 80-315

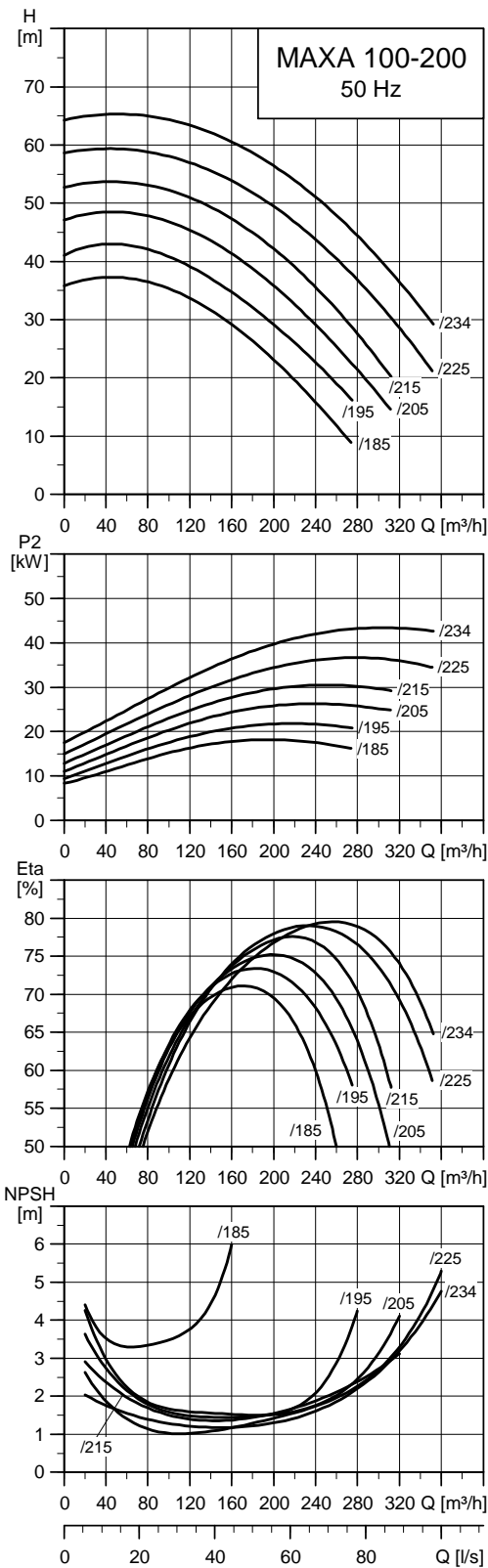
4-pole, 1450 min⁻¹



TM02 9730 4405

MAXA 100-200

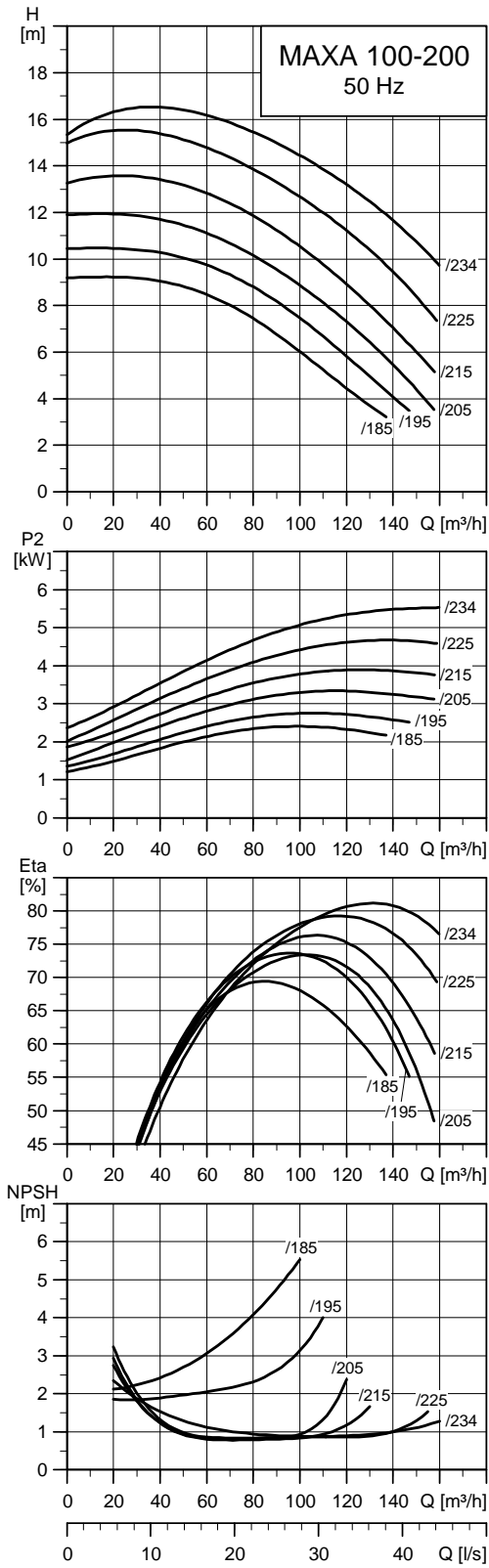
2-pole, 2900 min⁻¹



TM02 9725 4405

MAXA 100-200

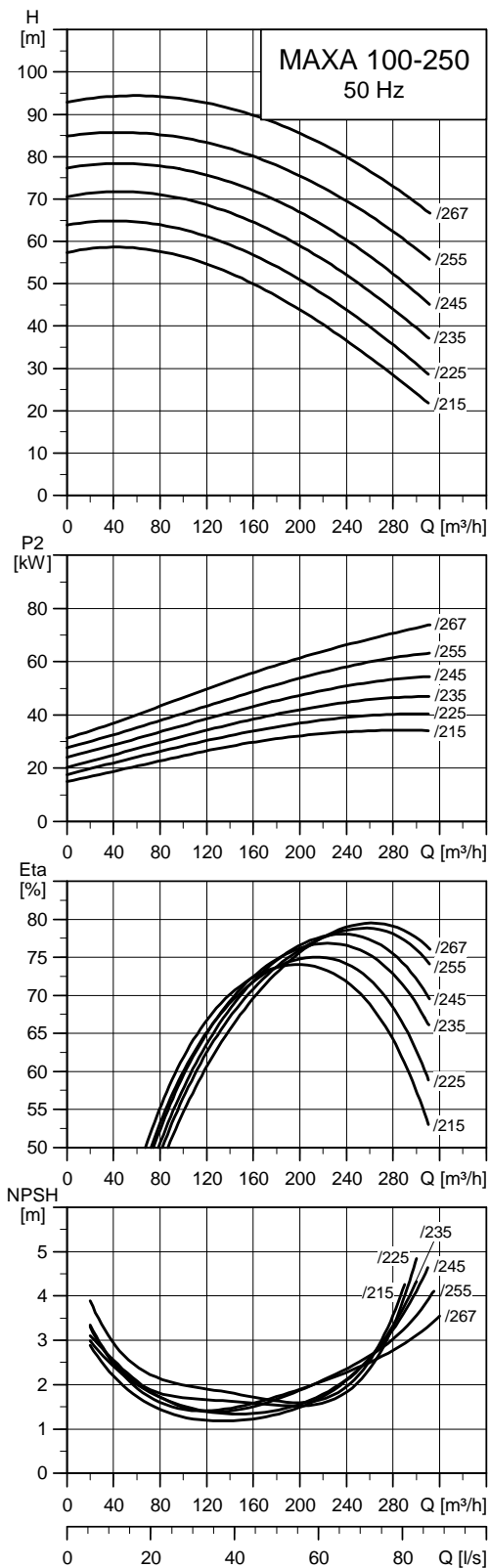
4-pole, 1450 min⁻¹



TM02 9731 4405

MAXA 100-250

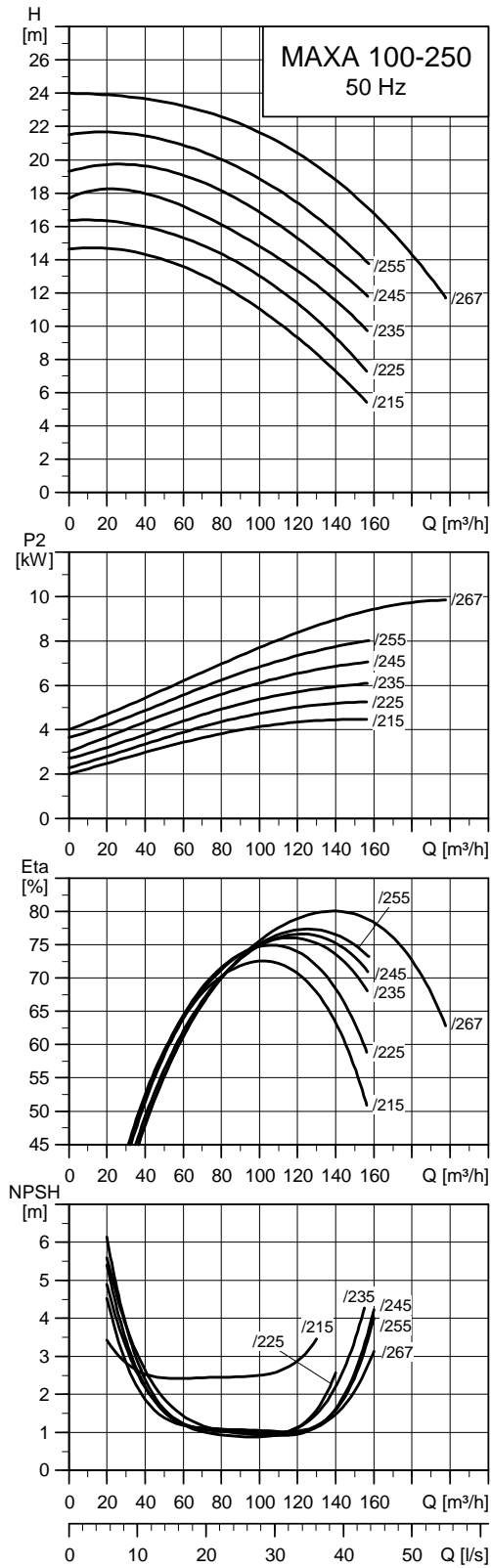
2-pole, 2900 min⁻¹



TM02 9726 4405

MAXA 100-250

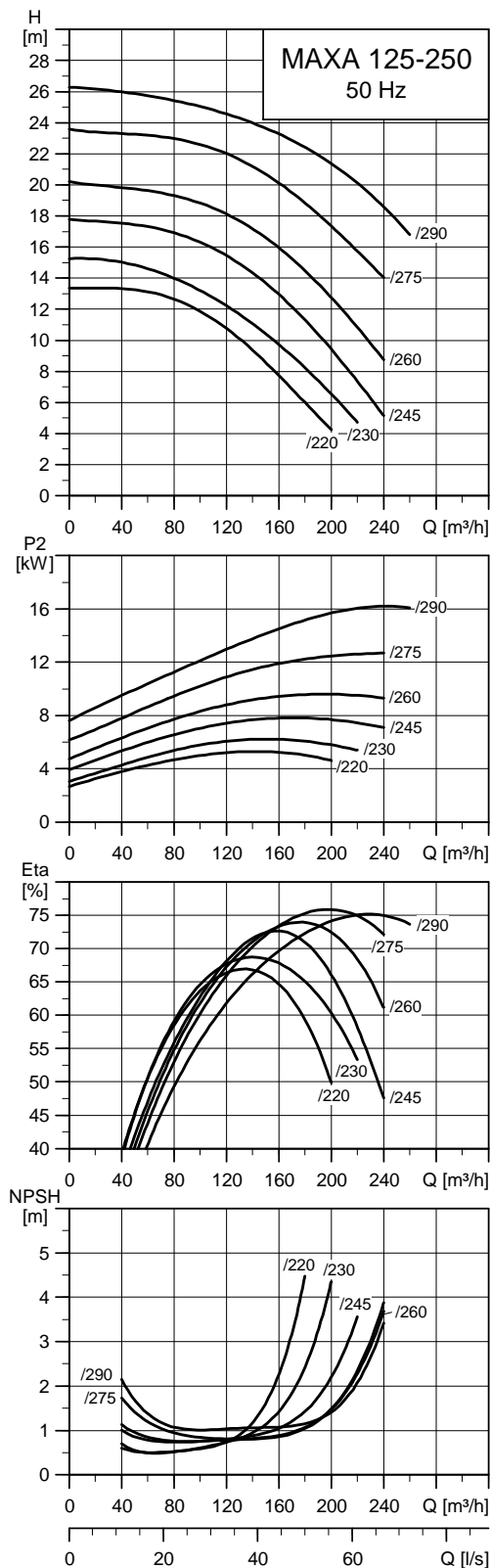
4-pole, 1450 min⁻¹



TM02 9732 4405

MAXA 125-250

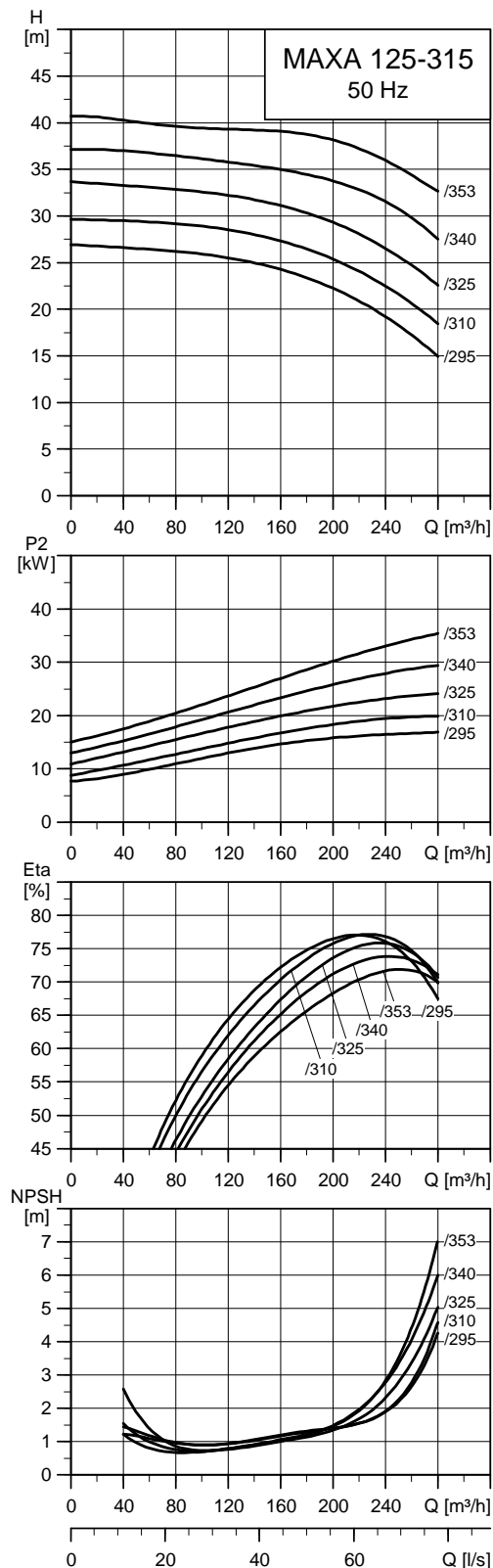
4-pole, 1450 min⁻¹



TM02 9733 4405

MAXA 125-315

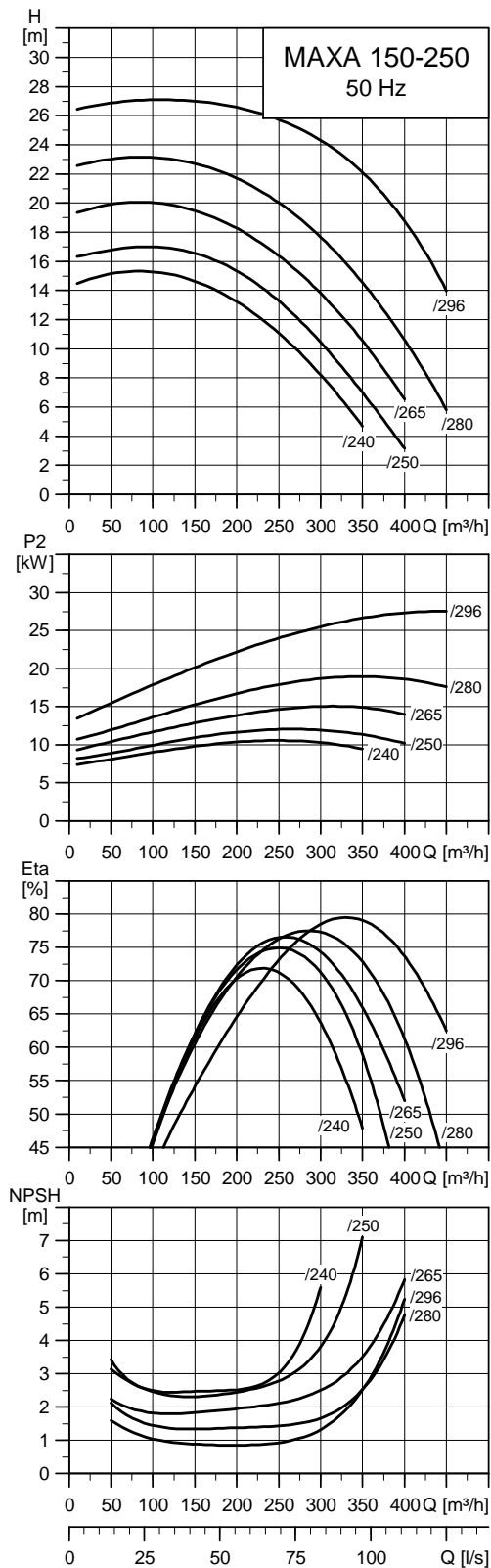
4-pole, 1450 min⁻¹



TM02 9734 4405

MAXA 150-250

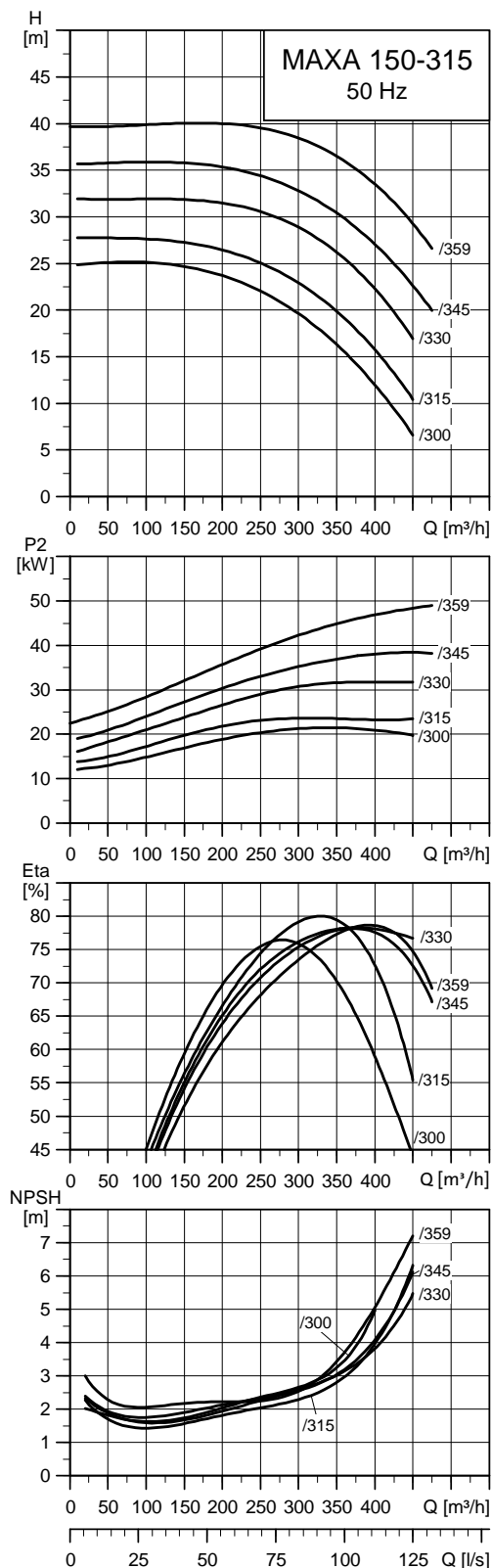
4-pole, 1450 min⁻¹



TM02 9735 4405

MAXA 150-315

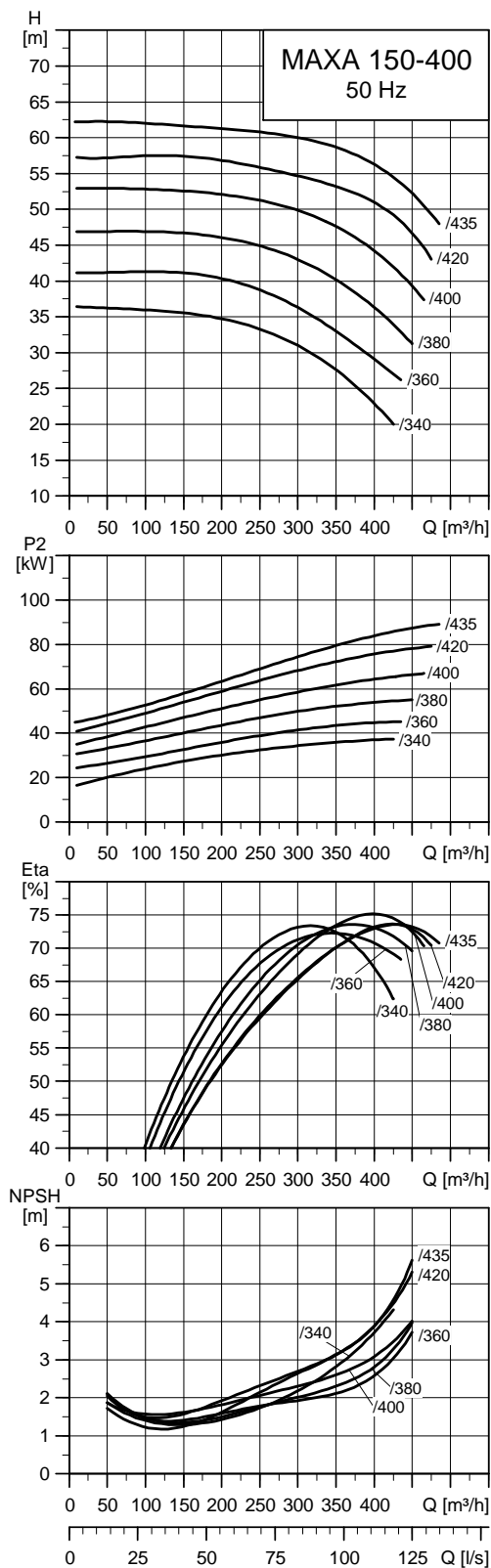
4-pole, 1450 min⁻¹



TM02 9736 4405

MAXA 150-400

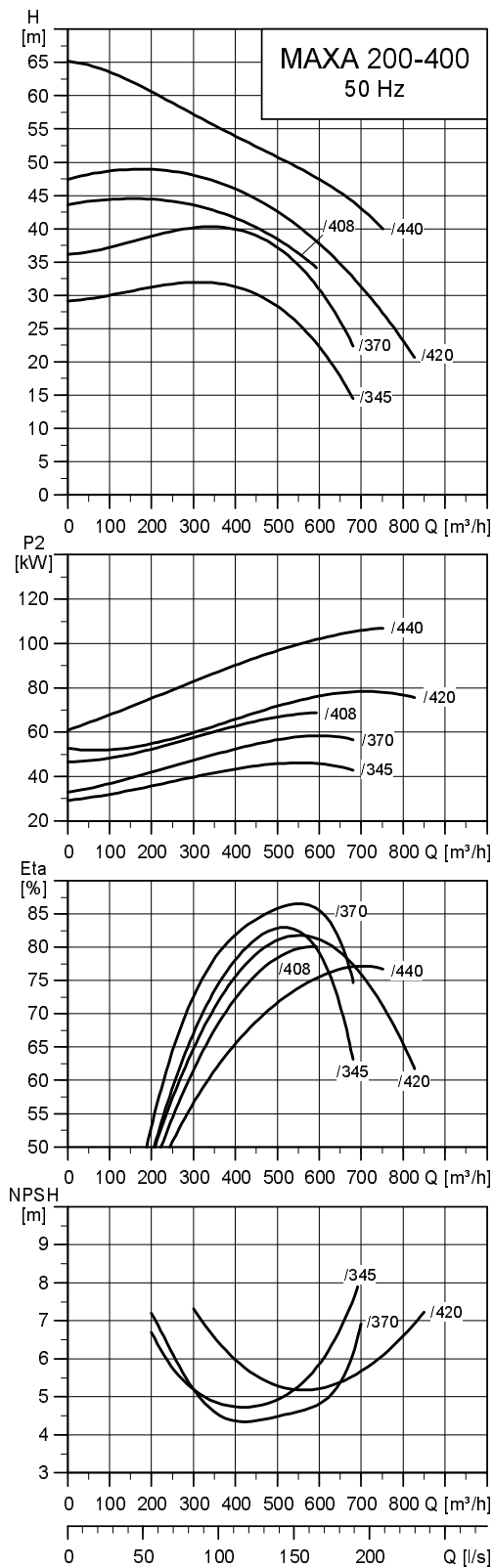
4-pole, 1450 min⁻¹



TM02 9737 4405

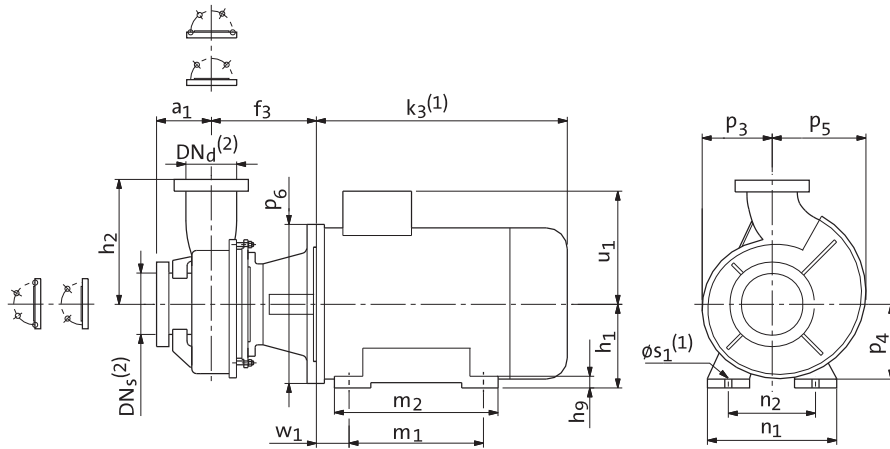
MAXA 200-400

4-pole, 1450 min⁻¹



TM02 9738 4309

MAXA L



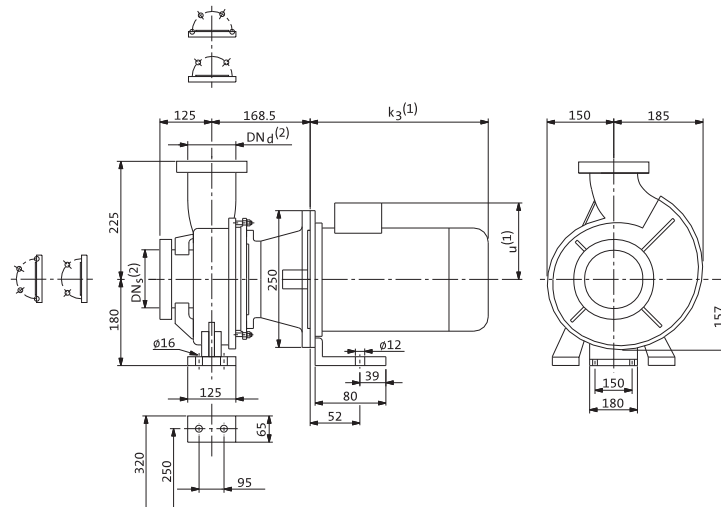
TM02 9653 3604

Technical data, 2-pole

Pump size	P2 [kW]	IEC size	k ₃ ⁽¹⁾	a ₁	f ₃	h ₂	p ₃	p ₄	p ₅	DN _s ⁽²⁾	DN _d ⁽²⁾	p ₆	u ⁽¹⁾	w ₁	h ₁	m ₁	m ₂	n ₁	n ₂	h ₉	s ₁	Net weight [kg]
80-160	11	160M	490	125	218	225	150	157	185	100 (125, 150)	80 (100)	350	240	108	160	210	256	300	254	18	15	118
	15	160M	490	125	218	225	150	157	185			350	240	108	160	210	256	300	254	18	15	131
	18.5	160L	530	125	218	225	150	157	185			350	240	108	160	254	300	300	254	18	15	148
80-200	22	180M	605	125	218	225	150	157	185	100 (125, 150)	80 (100)	350	265	121	180	241	287	339	279	18	15	164
	15	160M	490	125	220	250	170	171	205			350	240	108	160	210	256	300	254	18	15	166
	18.5	160L	530	125	220	250	170	171	205			350	240	108	160	254	300	300	254	18	15	183
	22	180M	605	125	220	250	170	171	205			350	265	121	180	241	287	339	279	18	15	199
	30	200L	665	125	220	250	170	171	205			400	310	133	200	305	355	388	318	24	19	249
80-250	37	200L	665	125	220	250	170	171	205	125 (150)	100 (125)	400	310	133	200	305	355	388	318	24	19	272
	30	200L	665	125	220	280	180	189	220			400	310	133	200	305	355	388	318	24	19	264
100-200	37	200L	665	125	220	280	180	189	220	125 (150)	100 (125)	400	310	133	200	305	355	388	318	24	19	287
	18.5	160L	530	125	220	280	170	171	205			350	240	108	160	254	300	300	254	18	15	196
	22	180M	605	125	220	280	170	171	205			350	265	121	180	241	287	339	279	18	15	212
	30	200L	665	125	220	280	170	171	205			400	310	133	200	305	355	388	318	24	19	262
	37	200L	665	125	220	280	170	171	205			400	310	133	200	305	355	388	318	24	19	285

(1) Motor dimensions depend on make; motor dimensions show maximum size.

(2) Flange dimensions are according to DIN EN 1092-1 (DIN 2632). Nominal diameters in parentheses are available on request.



* This drawing applies to pump size 80-160, only.
For pump sizes 80-200 to 125-250, see previous page.

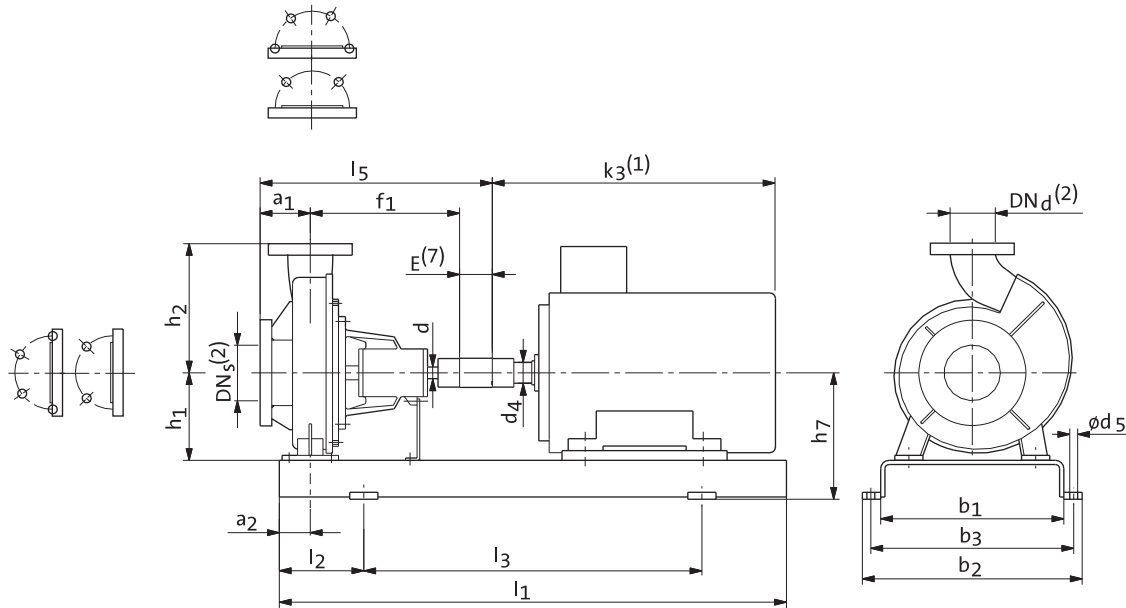
TM03 0142 4104

Technical data, 4-pole

Pump size	P2 [kW]	IEC size	$k_3^{(1)}$	a_1	f_3	h_2	P_3	P_4	P_5	$DN_s^{(2)}$	$DN_d^{(2)}$	P_6	$u^{(1)}$	w_1	h_1	m_1	m_2	n_1	n_2	h_9	s_1	Net weight [kg]	
80-160*	3	100L	320	125	168.5	225	150	157	185			250	175	52	180	-	-	-	-	-	-	-	77
	4	112M	340	125	168.5	225	150	157	185			250	185	52	180	-	-	-	-	-	-	-	82
80-200	5.5	132S	390	125	200	250	170	171	205			300	205	89	132	140	180	256	216	15	12		116
	7.5	132M	420	125	200	250	170	171	205			300	205	89	132	178	218	256	216	15	12		129
80-250	5.5	132S	390	125	200	280	180	189	220			300	205	89	132	140	180	256	216	15	12		123
	7.5	132M	420	125	200	280	180	189	220	100 (125. 150)	80 (100)	300	205	89	132	178	218	256	216	15	12		136
80-315	11	160M	490	125	220	280	180	189	220			350	240	108	160	210	256	300	254	18	15		163
	5.5	132S	390	125	200	315	208	215	225			300	205	89	132	140	180	256	216	15	12		136
	7.5	132M	420	125	200	315	208	215	225			300	205	89	132	178	218	256	216	15	12		149
	11	160M	490	125	220	315	208	215	225			350	240	108	160	210	256	300	254	18	15		176
100-200	15	160L	530	125	220	315	208	215	225			350	240	108	160	254	300	300	254	18	15		193
	18.5	180M	605	125	220	315	208	215	225			350	265	121	180	241	287	339	279	18	15		267
	22	180L	605	125	220	315	208	215	225			350	265	121	180	279	325	339	279	18	15		282
	5.5	132S	390	125	200	280	170	171	205			300	205	89	132	140	180	256	216	15	12		123
100-250	7.5	132M	420	125	200	280	170	171	205			300	205	89	132	178	218	256	216	15	12		136
	5.5	132S	390	140	200	280	180	189	220	125 (150)	100 (125)	300	205	89	132	140	180	256	216	15	12		131
	7.5	132M	420	140	200	280	180	189	220			300	205	89	132	178	218	256	216	15	12		144
	11	160M	490	140	220	280	180	189	220			350	240	108	160	210	256	300	254	18	15		171
125-250	15	160L	530	140	220	280	180	189	220			350	240	108	160	254	300	300	254	18	15		188
	7.5	132M	420	140	200	355	200	206	260			300	205	89	132	178	218	256	216	15	12		160
	11	160M	490	140	220	355	200	206	260			350	240	108	160	210	256	300	254	18	15		187
	15	160L	530	140	220	355	200	206	260	150 (200)	125 (150)	350	240	108	160	254	300	300	254	18	15		204
125-250	18.5	180M	605	140	220	355	200	206	260			350	265	121	180	241	287	339	279	18	15		278
	22	180L	605	140	220	355	200	206	260			350	265	121	180	279	325	339	279	18	15		293

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Flange dimensions are according to DIN EN 1092-1 (DIN 2632).
- (3) Nominal diameters in parentheses are available on request.
- (6) Pumps fitted with motors of IEC size 100 and 112 are supported with pump foot and motor foot; from IEC size 132 pumps are fitted with motor foot, only.

MAXA CN



TM02 9654 3604

Technical data, 2-pole

Pump size	P2 [kW]	IEC size	k ₃ (1)	l ₅	E(7)	f ₁	a ₁	h ₁	h ₂	h ₇	ø d	ø d ₄	DN _s (2)	DN _d (2)	a ₂	l ₁	l ₂	l ₃	b ₁	b ₂	b ₃	d ₅	Base plate size	Net weight [kg]
80-160	11	160M	600	559	74	360	125	180	225	290	24	42			75	1250	205	840	480	590	540	24	6	212
	15	160M	600	559	74	360	125	180	225	290	24	42			75	1250	205	840	480	590	540	24	6	225
	18.5	160L	640	559	74	360	125	180	225	290	24	42			75	1250	205	840	480	590	540	24	6	240
	22	180M	715	665	80	360	125	180	225	290	24	48			75	1250	205	840	480	590	540	24	6	255
	30	200L	775	573	88	360	125	180	225	310	24	55			75	1250	205	840	480	590	540	24	6	305
80-200	15	160M	600	669	74	470	125	180	250	290	32	42			75	1250	205	840	480	590	540	24	6	235
	18.5	160L	640	669	74	470	125	180	250	290	32	42			75	1250	205	840	480	590	540	24	6	250
	22	180M	715	676	80	470	125	180	250	290	32	48	100	80	75	1250	205	840	480	590	540	24	6	265
	30	200L	775	683	88	470	125	180	250	310	32	55	(125)	(100)	75	1250	205	840	480	590	540	24	6	315
	37	200L	775	683	88	470	125	180	250	310	32	55	(150)		75	1250	205	840	480	590	540	24	6	338
80-250	45	225M	840	683	88	470	125	180	250	365	32	55			75	1600	270	1060	580	710	650	28	7	542
	30	200L	775	683	88	470	125	200	280	310	32	55			90	1250	205	840	480	590	540	24	6	330
	37	200L	775	683	88	470	125	200	280	310	32	55			90	1250	205	840	480	590	540	24	6	353
	45	225M	840	683	88	470	125	200	280	365	32	55			90	1600	270	1060	580	710	650	28	7	557
	55	250M	930	697	102	470	125	200	280	390	32	60			90	1600	270	1060	580	710	650	28	7	662
100-200	75	280S	1040	697	102	470	125	200	280	420	32	65			90	1800	300	1200	650	780	720	28	8	861
	90	280M	1040	697	102	470	125	200	280	420	32	65			90	1800	300	1200	650	780	720	28	8	901
	18.5	160L	640	669	74	470	125	200	280	310	32	42			90	1250	205	840	480	590	540	24	6	263
	22	180M	715	676	80	470	125	200	280	310	32	48			90	1250	205	840	480	590	540	24	6	278
	30	200L	775	683	88	470	125	200	280	310	32	55			90	1250	205	840	480	590	540	24	6	328
100-250	37	200L	775	683	88	470	125	200	280	310	32	55			90	1250	205	840	480	590	540	24	6	351
	45	225M	840	683	88	470	125	200	280	365	32	55			90	1600	270	1060	580	710	650	28	7	555
	55	250M	930	697	102	470	125	200	280	390	32	60			90	1600	270	1060	580	710	650	28	7	660
	75	280S	1040	697	102	470	125	200	280	420	32	65	125	100	90	1800	300	1200	650	780	720	28	8	859
	30	200L	775	698	88	470	140	225	280	335	32	55	(150)	(125)	90	1250	205	840	480	590	540	24	6	339
100-250	37	200L	775	698	88	470	140	225	280	335	32	55			90	1250	205	840	480	590	540	24	6	362
	45	225M	840	698	88	470	140	225	280	365	32	55			90	1600	270	1060	580	710	650	28	7	566
	55	250M	930	712	102	470	140	225	280	390	32	60			90	1600	270	1060	580	710	650	28	7	671
	75	280S	1040	712	102	470	140	225	280	420	32	65			90	1800	300	1200	650	780	720	28	8	870
	90	280M	1040	712	102	470	140	225	280	420	32	65			90	1800	300	1200	650	780	720	28	8	910

Technical data, 4-pole

Pump size	P2 [kW]	IEC size	k ₃ ⁽¹⁾	l ₅	E ⁽⁷⁾	f ₁	a ₁	h ₁	h ₂	h ₇	∅ d	∅ d ₄	DN _s ⁽²⁾	DN _d ⁽²⁾	a ₂	l ₁	l ₂	l ₃	b ₁	b ₂	b ₃	d ₅	Base plate size	Net weight [kg]		
80-160	3	100L	380	543	58	360	125	180	225	282	24	28			75	1120	190	740	430	540	490	24	5	142		
	4	112M	400	543	58	360	125	180	225	282	24	28			75	1120	190	740	430	540	490	24	5	147		
80-200	2.2	100L	380	653	58	470	125	180	250	282	32	28			75	1120	190	740	430	540	490	24	5	165		
	3	100L	380	653	58	470	125	180	250	282	32	28			75	1120	190	740	430	540	490	24	5	168		
	4	112M	400	653	58	470	125	180	250	282	32	28			75	1120	190	740	430	540	490	24	5	172		
80-250	5.5	132S	470	663	68	470	125	180	250	282	32	38			75	1120	190	740	430	540	490	24	5	183		
	4	112M	400	653	68	470	125	200	280	310	32	28			90	1250	205	840	480	590	540	24	6	195		
	5.5	132S	470	663	68	470	125	200	280	310	32	38	100 (125, 150)	80 (100)	90	1250	205	840	480	590	540	24	6	206		
80-315	7.5	132M	500	663	68	470	125	200	280	310	32	38			90	1250	205	840	480	590	540	24	6	218		
	11	160M	600	669	74	470	125	200	280	310	32	42			90	1250	205	840	480	590	540	24	6	239		
	5.5	132S	470	663	68	470	125	250	315	360	32	38			90	1250	205	840	480	590	540	24	6	218		
	7.5	132M	500	663	68	470	125	250	315	360	32	38			90	1250	205	840	480	590	540	24	6	232		
	11	160M	600	669	74	470	125	250	315	360	32	42			90	1250	205	840	480	590	540	24	6	253		
	15	160L	640	669	74	470	125	250	315	360	32	42			90	1250	205	840	480	590	540	24	6	270		
100-200	18.5	180M	715	675	80	470	125	250	315	360	32	48			90	1250	205	840	480	590	540	24	6	344		
	22	180L	715	675	80	470	125	250	315	360	32	48			90	1250	205	840	480	590	540	24	6	358		
	3	100L	380	653	58	470	125	200	280	302	32	28			90	1120	190	740	430	540	490	24	5	152		
	4	112M	400	653	58	470	125	200	280	302	32	28			90	1120	190	740	430	540	490	24	5	179		
	5.5	132S	470	663	68	470	125	200	280	302	32	38			90	1120	190	740	430	540	490	24	5	191		
	7.5	132M	500	663	68	470	125	200	280	302	32	38			90	1120	190	740	430	540	490	24	5	203		
	4	112M	400	668	58	470	140	225	280	335	32	28			125 (150)	100 (125)	90	1250	205	840	480	590	540	24	6	202
	5.5	132S	470	678	68	470	140	225	280	335	32	38			90	1250	205	840	480	590	540	24	6	214		
	100-250	7.5	132M	500	678	68	470	140	225	280	335	32	38			90	1250	205	840	480	590	540	24	6	226	
	125-250	11	160M	600	684	74	470	140	225	280	335	32	42			90	1250	205	840	480	590	540	24	6	247	
15		160L	640	684	74	470	140	225	280	335	32	42			90	1250	205	840	480	590	540	24	6	260		
7.5		132M	500	678	68	470	140	250	355	360	32	38			90	1250	205	840	480	590	540	24	6	243		
11		160M	600	684	74	470	140	250	355	360	32	42			90	1250	205	840	480	590	540	24	6	263		
125-315	15	160L	640	684	74	470	140	250	355	360	32	42			90	1250	205	840	480	590	540	24	6	281		
	18.5	180M	715	690	80	470	140	250	355	360	32	48			90	1250	205	840	480	590	540	24	6	355		
	11	160M	600	744	74	530	140	280	355	420	42	42	150 (200)	125 (150)	110	1600	270	1060	580	710	650	28	7	386		
125-315	15	160L	640	744	74	530	140	280	355	420	42	42			110	1600	270	1060	580	710	650	28	7	403		
	18.5	180M	715	750	80	530	140	280	355	420	42	48			110	1600	270	1060	580	710	650	28	7	480		
	22	180L	715	750	80	530	140	280	355	420	42	48			110	1600	270	1060	580	710	650	28	7	496		
	30	200L	775	758	88	530	140	280	355	420	42	55			110	1600	270	1060	580	710	650	28	7	559		
	37	225S	840	772	102	530	140	280	355	420	42	60			110	1600	270	1060	580	710	650	28	7	621		

To be continued on the next page.

Continued from previous page

Pump size	P2 [kW]	IEC size	k ₃ ⁽¹⁾	l ₅	E ⁽⁷⁾	f ₁	a ₁	h ₁	h ₂	h ₇	ø d	ø d ₄	DN _s ⁽²⁾	DN _d ⁽²⁾	a ₂	l ₁	l ₂	l ₃	b ₁	b ₂	b ₃	d ₅	Base plate size	Net weight [kg]	
150-250	11	160M	600	764	74	530	160	280	375	420	42	42				110	1600	270	1060	580	710	650	28	7	367
	15	160L	640	764	74	530	160	280	375	420	42	42				110	1600	270	1060	580	710	650	28	7	383
	18.5	180M	715	770	80	530	160	280	375	420	42	48				110	1600	270	1060	580	710	650	28	7	458
	22	180L	715	770	80	530	160	280	375	420	42	48				110	1600	270	1060	580	710	650	28	7	473
	30	200L	775	778	88	530	160	280	375	420	42	55				110	1600	270	1060	580	710	650	28	7	533
150-315	15	160L	640	764	74	530	160	280	400	420	42	42				110	1800	300	1200	650	780	720	28	8	500
	18.5	180M	715	770	80	530	160	280	400	420	42	48				110	1800	300	1200	650	780	720	28	8	525
	22	180L	715	770	80	530	160	280	400	420	42	48				110	1800	300	1200	650	780	720	28	8	540
	30	200L	775	778	88	530	160	280	400	420	42	55				110	1800	300	1200	650	780	720	28	8	600
	37	225S	840	792	102	530	160	280	400	420	42	60			150	110	1800	300	1200	650	780	720	28	8	660
150-400	45	225M	840	792	102	530	160	280	400	420	42	60				110	1800	300	1200	650	780	720	28	8	690
	55	250M	930	792	102	530	160	280	400	420	42	65				110	1800	300	1200	650	780	720	28	8	795
	30	200L	775	778	88	530	160	315	450	455	42	55		200 (250)		110	1800	300	1200	650	780	720	28	8	657
	37	225S	840	792	102	530	160	315	450	455	42	60				110	1800	300	1200	650	780	720	28	8	717
	45	225M	840	792	102	530	160	315	450	455	42	60				110	1800	300	1200	650	780	720	28	8	747
200-400	55	250M	930	792	102	530	160	315	450	455	42	65				110	1800	300	1200	650	780	720	28	8	852
	75	280S	1040	806	116	530	160	315	450	455	42	75				110	1800	300	1200	650	780	720	28	8	1032
	90	280M	1040	806	116	530	160	315	450	455	42	75				110	1800	300	1200	650	780	720	28	8	1090
	30	200L	775	814	88	551	175	315	530	455	42	55				110	1800	300	1200	650	780	720	28	8	687
	37	225S	840	828	102	551	175	315	530	455	42	60				110	1800	300	1200	650	780	720	28	8	747
200-400	45	225M	840	828	102	551	175	315	530	455	42	60				110	1800	300	1200	650	780	720	28	8	777
	55	250M	930	828	102	551	175	315	530	455	42	65			200	110	1800	300	1200	650	780	720	28	8	882
	75	280S	1040	842	116	551	175	315	530	455	42	75				110	1800	300	1200	650	780	720	28	8	1062
	90	280M	1040	842	116	551	175	315	530	455	42	75				110	1800	300	1200	650	780	720	28	8	1120
	110	315S	1140	842	116	551	175	315	530	455	42	80				110	1800	300	1200	650	780	720	28	8	1290

(1) Motor dimensions depend on make; motor dimensions show maximum size.

(2) Flange dimensions are according to DIN EN 1092-1 (DIN 2632).

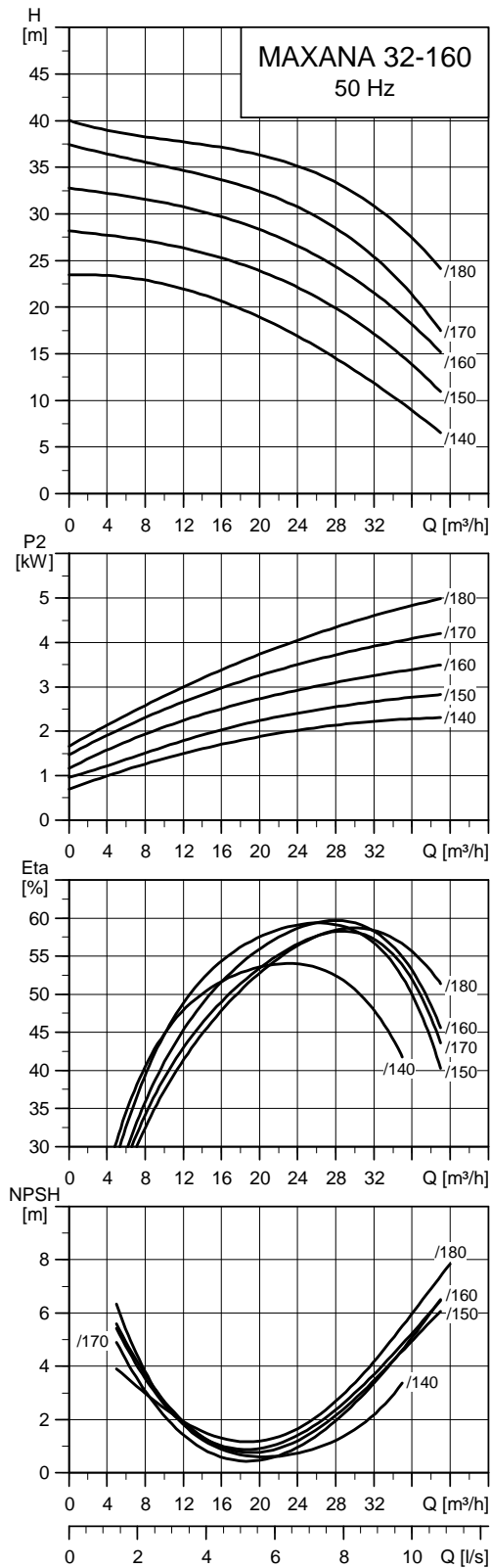
(3) Nominal diameters in parentheses are available on request.

(7) Coupling of our choice.

Larger motors, threaded pipe connections and special flanges are available on request.

MAXANA 32-160

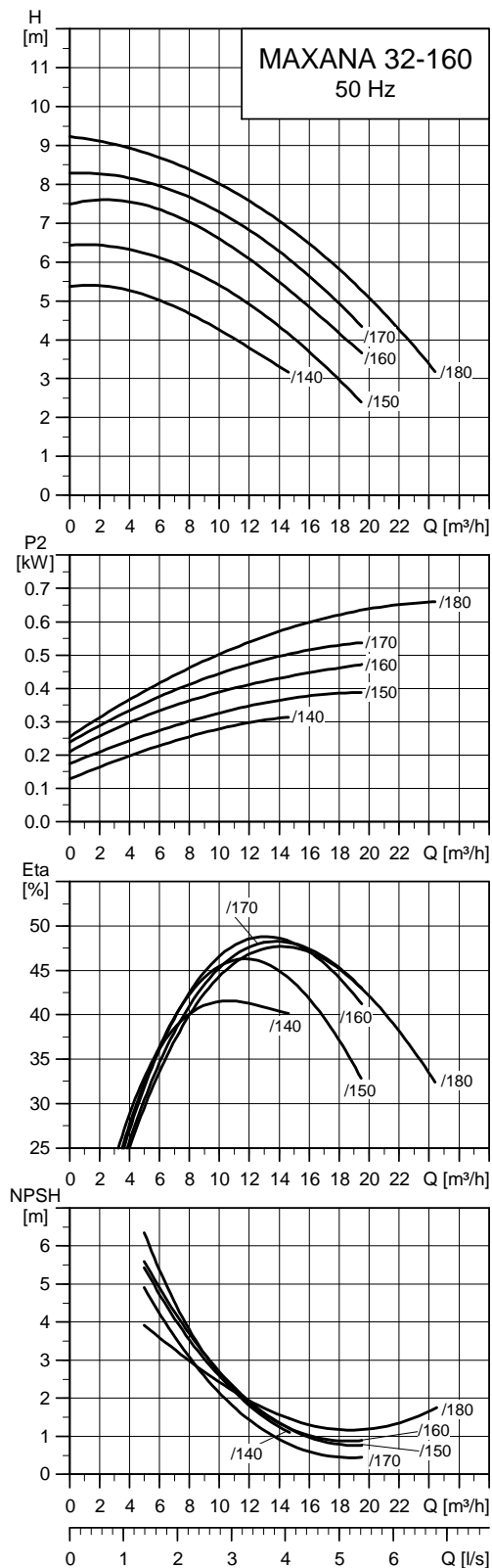
2-pole, 2900 min⁻¹



TM02 9699 4405

MAXANA 32-160

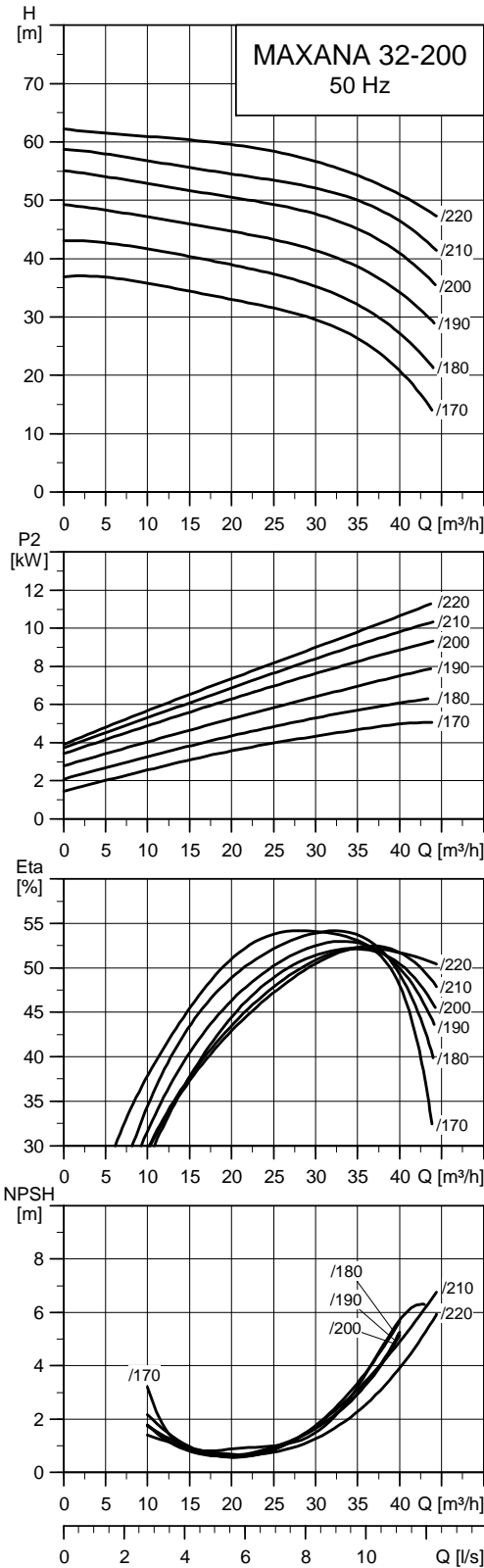
4-pole, 1450 min⁻¹



TM02 9710 4405

MAXANA 32-200

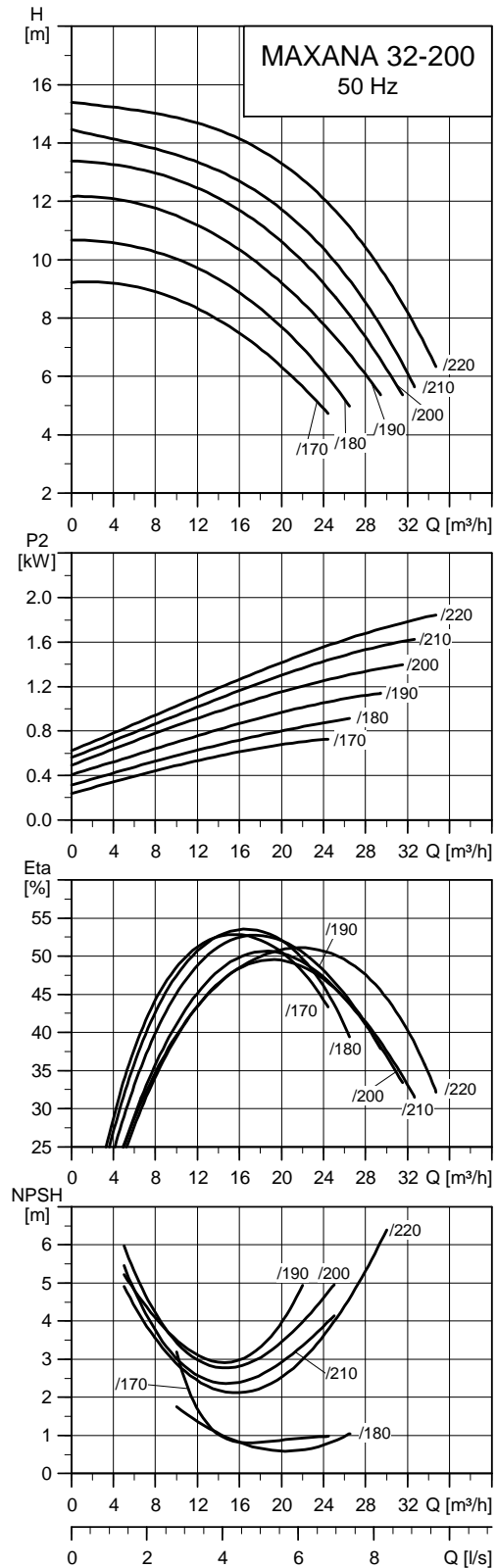
2-pole, 2900 min⁻¹



TM02 9700 4405

MAXANA 32-200

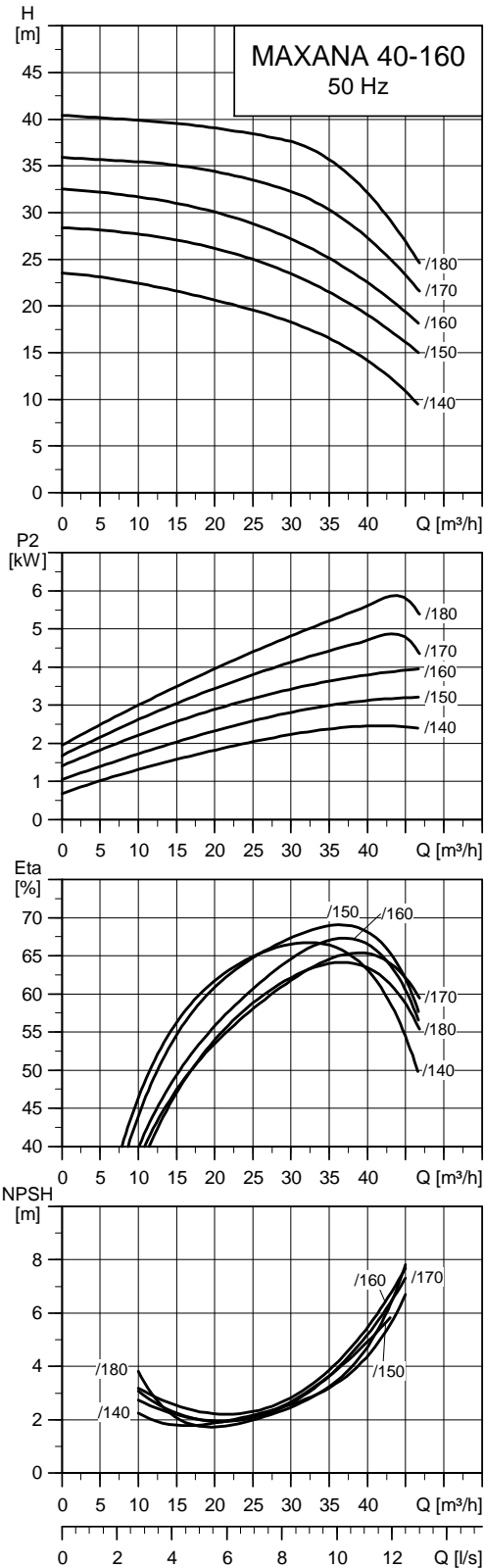
4-pole, 1450 min⁻¹



TM02 9711 4405

MAXANA 40-160

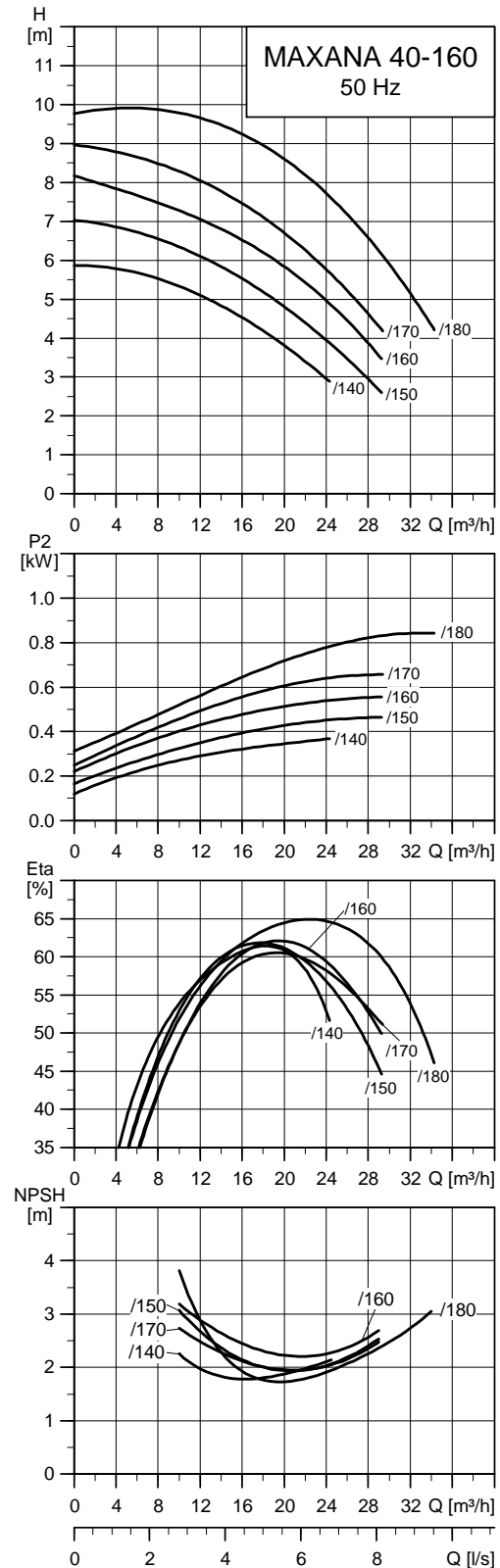
2-pole, 2900 min⁻¹



TM02 9701 4405

MAXANA 40-160

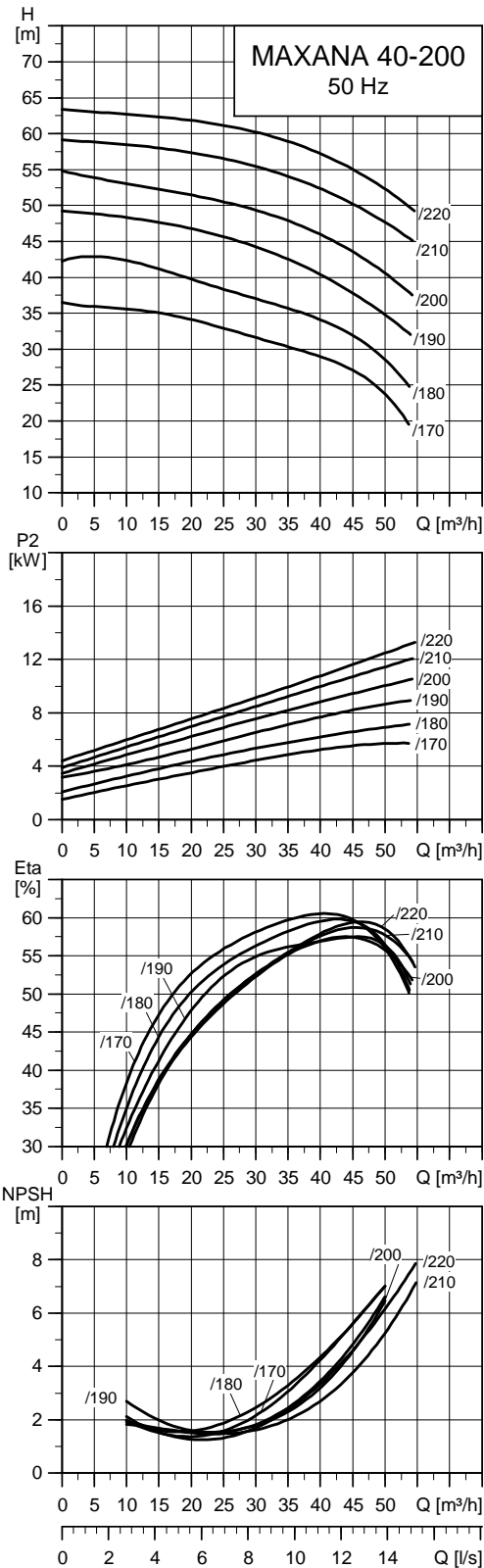
4-pole, 1450 min⁻¹



TM02 9712 4405

MAXANA 40-200

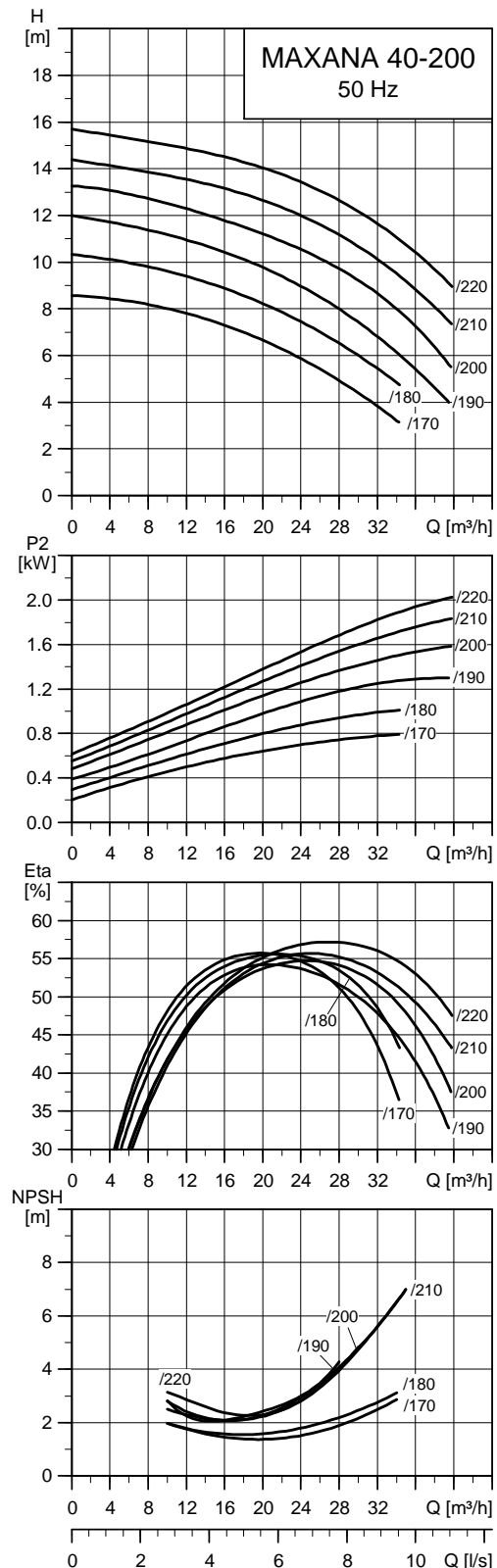
2-pole, 2900 min⁻¹



TM02 9702 4405

MAXANA 40-200

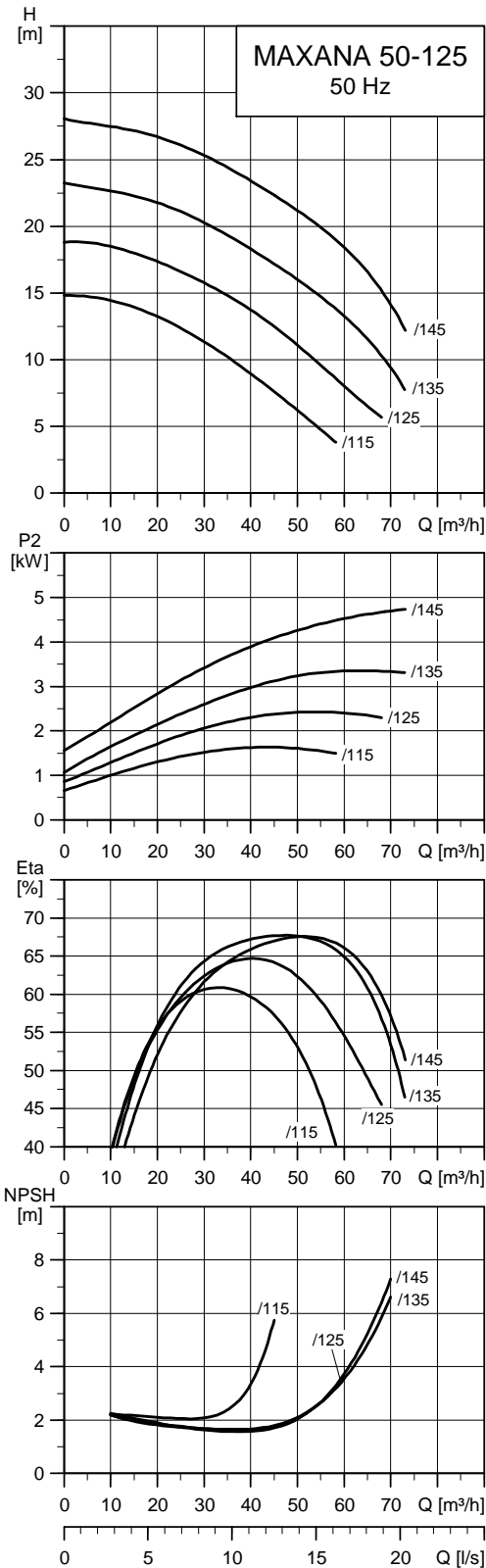
4-pole, 1450 min⁻¹



TM02 9713 4405

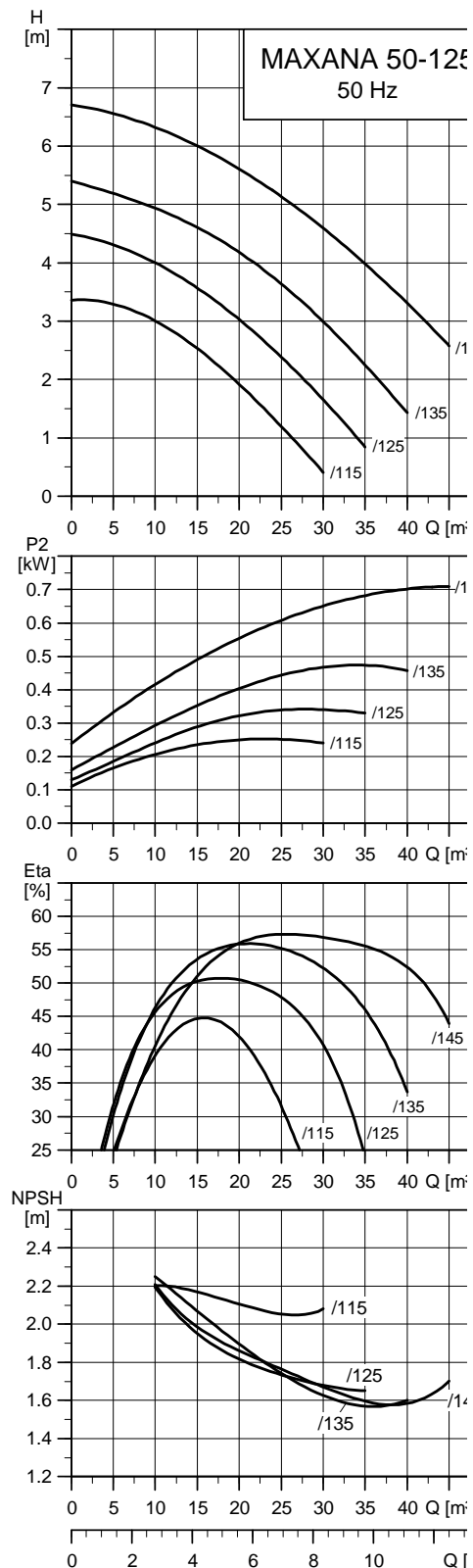
MAXANA 50-125

2-pole, 2900 min⁻¹



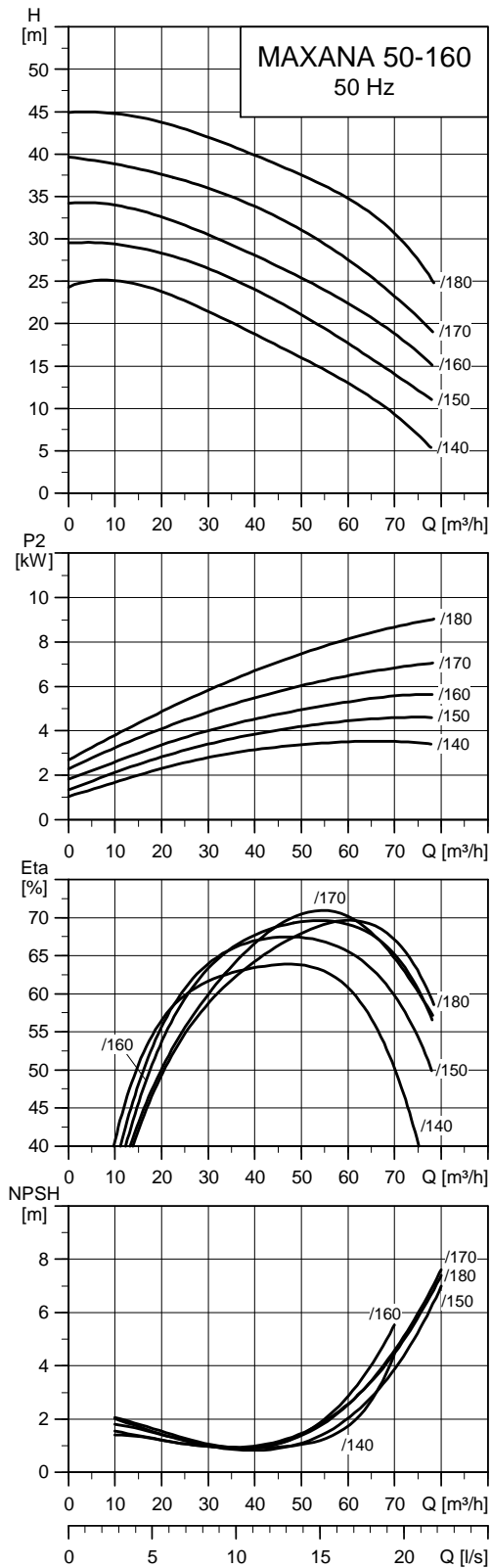
MAXANA 50-125

4-pole, 1450 min⁻¹



MAXANA 50-160

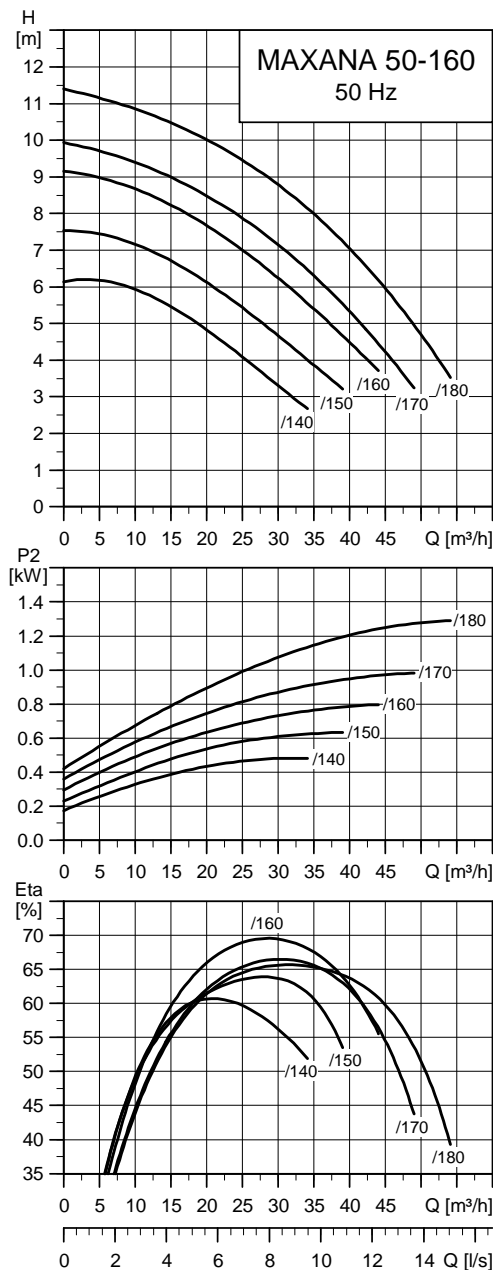
2-pole, 2900 min⁻¹



TM02 9704 4405

MAXANA 50-160

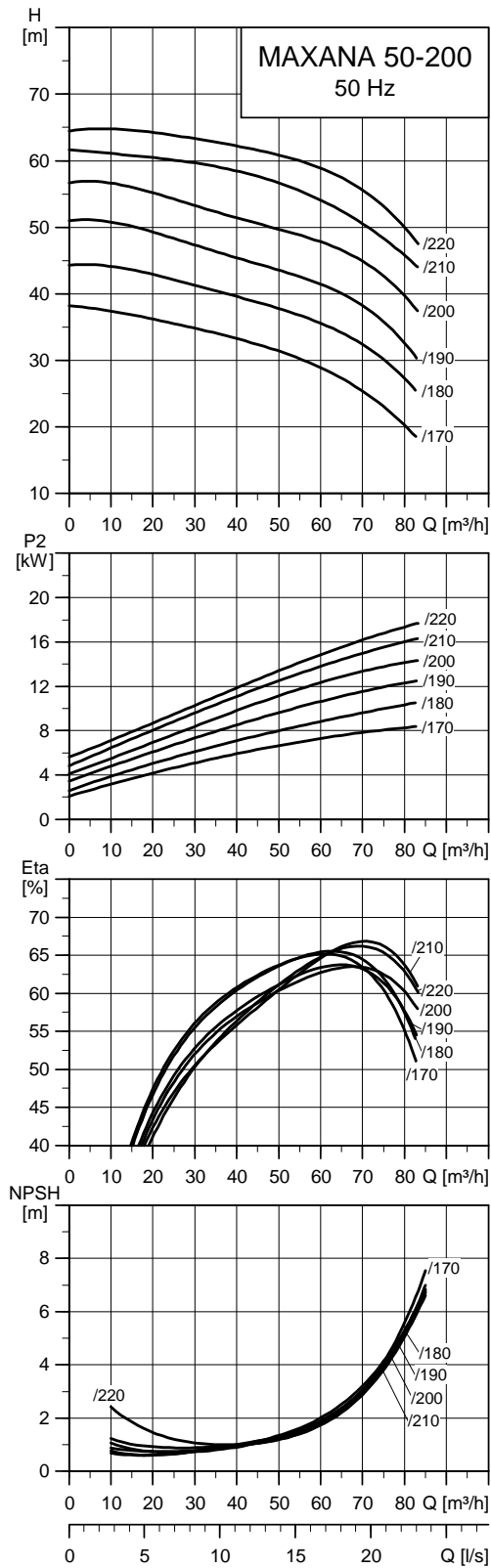
4-pole, 1450 min⁻¹



TM02 9715 2607

MAXANA 50-200

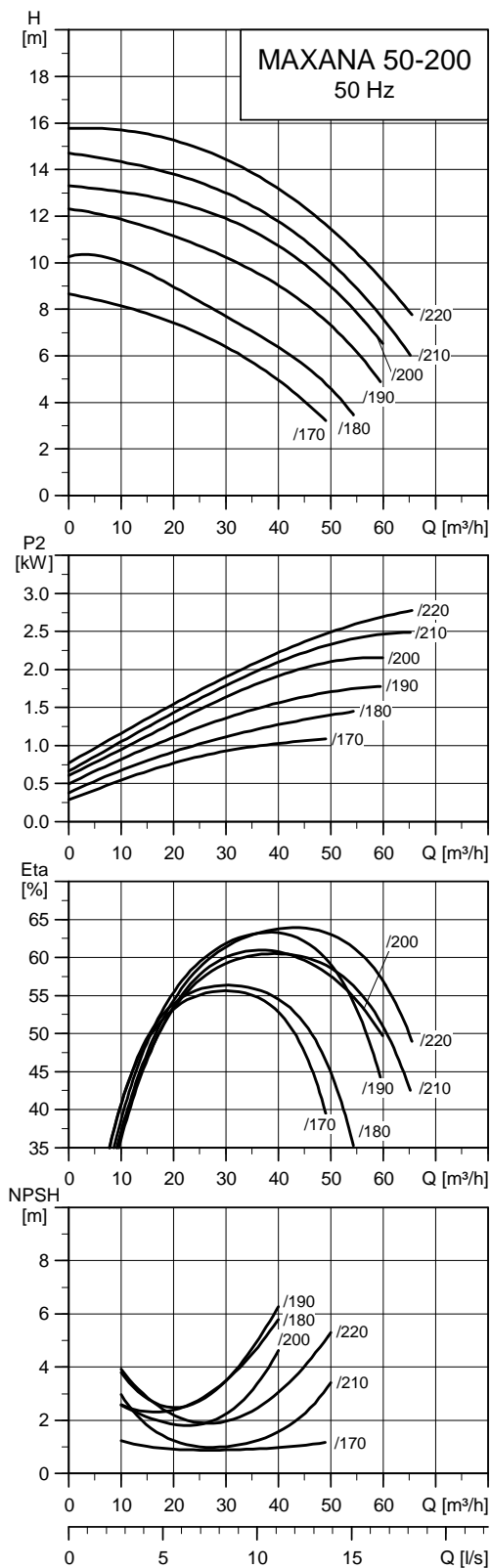
2-pole, 2900 min⁻¹



TM02 9705 4405

MAXANA 50-200

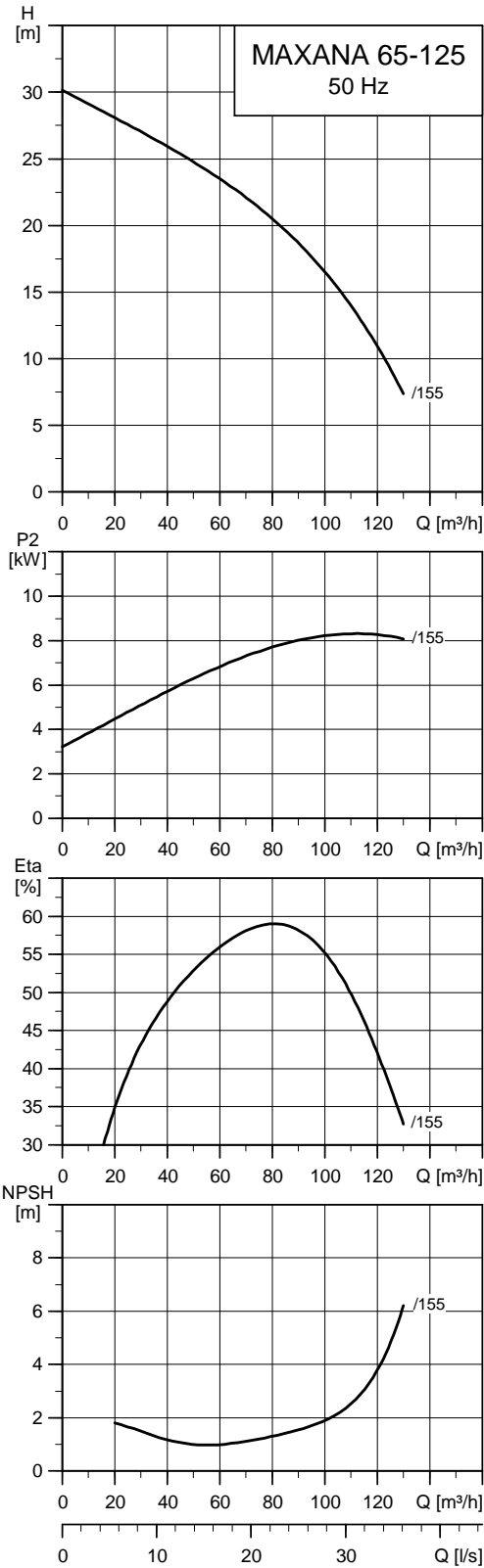
4-pole, 1450 min⁻¹



TM02 9716 4405

MAXANA 65-125

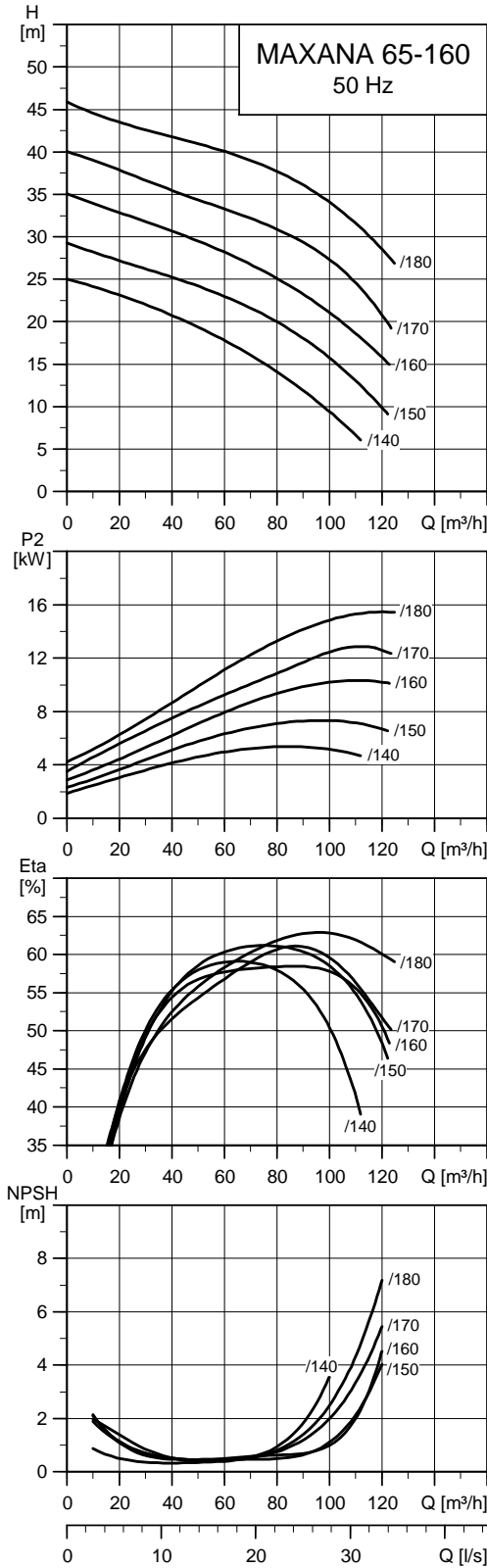
2-pole, 2900 min⁻¹



TM02 9706 4405

MAXANA 65-160

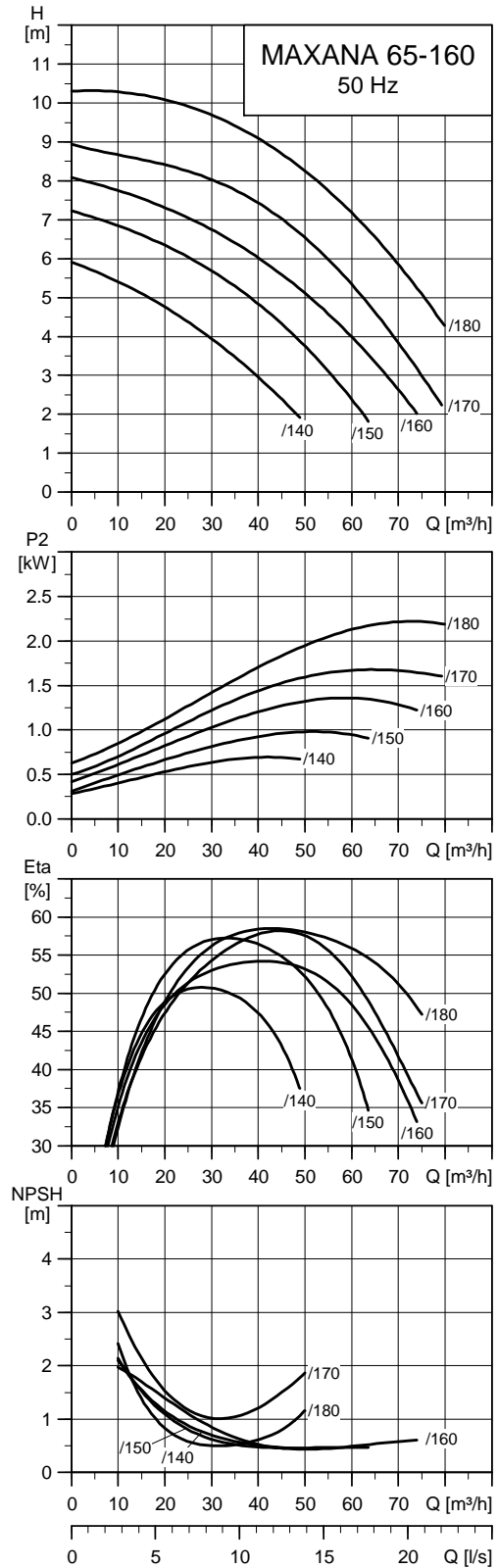
2-pole, 2900 min⁻¹



TM02 9707 1706

MAXANA 65-160

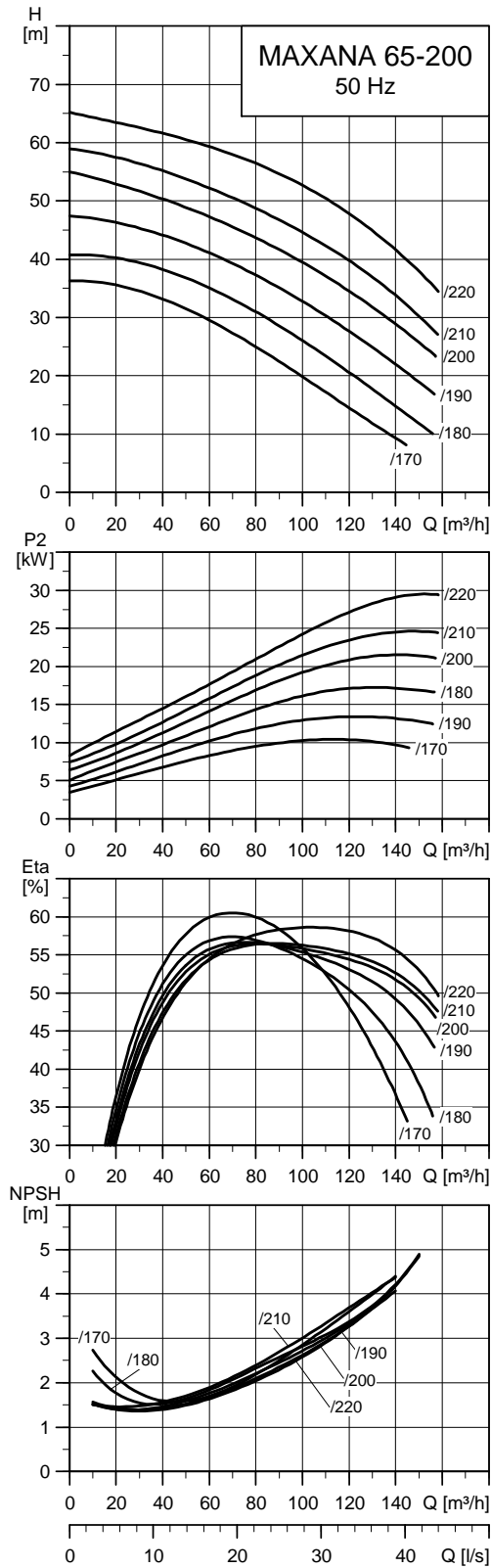
4-pole, 1450 min⁻¹



TM02 9717 1706

MAXANA 65-200

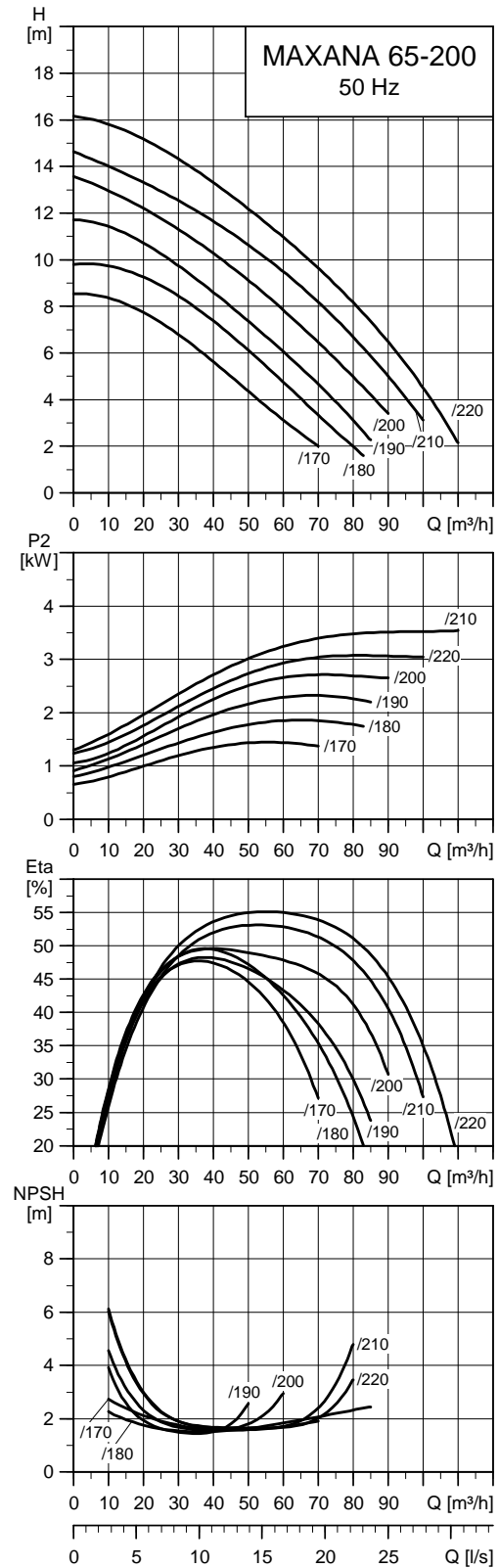
2-pole, 2900 min⁻¹



TM02 9708 4405

MAXANA 65-200

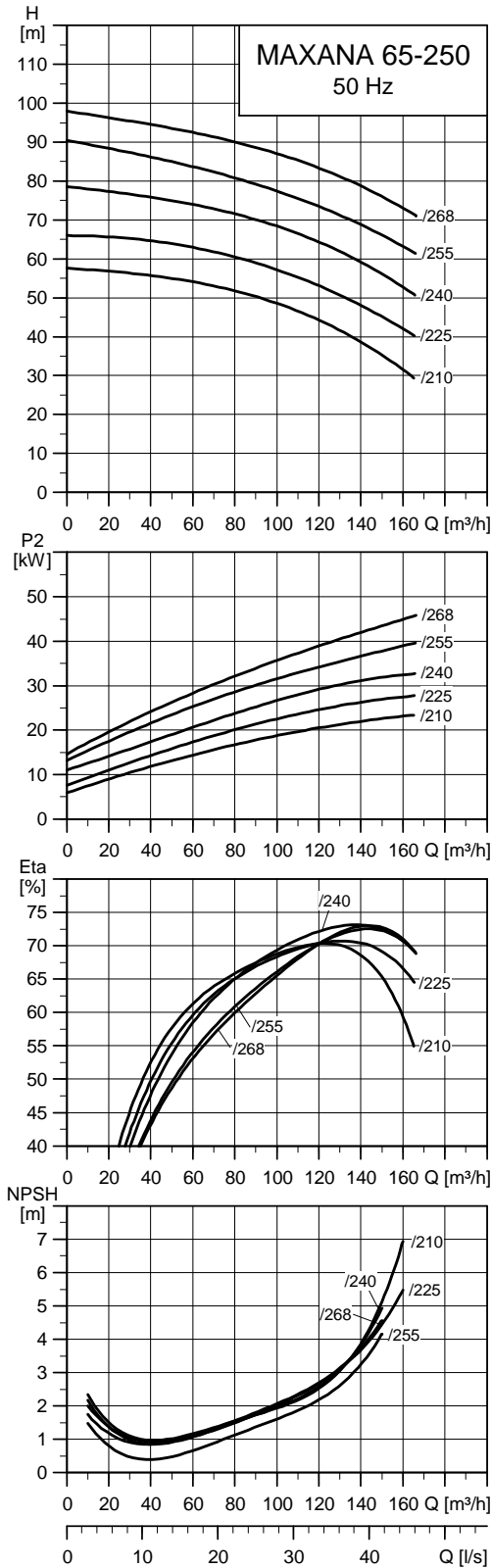
4-pole, 1450 min⁻¹



TM02 9718 4405

MAXANA 65-250

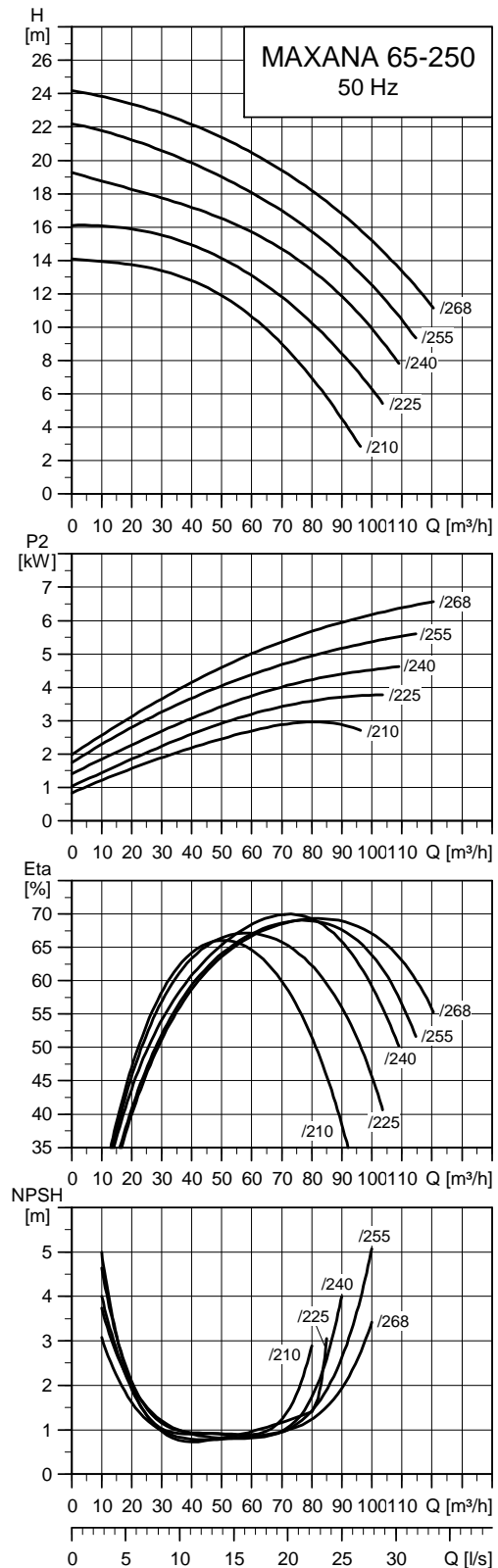
2-pole, 2900 min⁻¹



TM02 97/09 4405

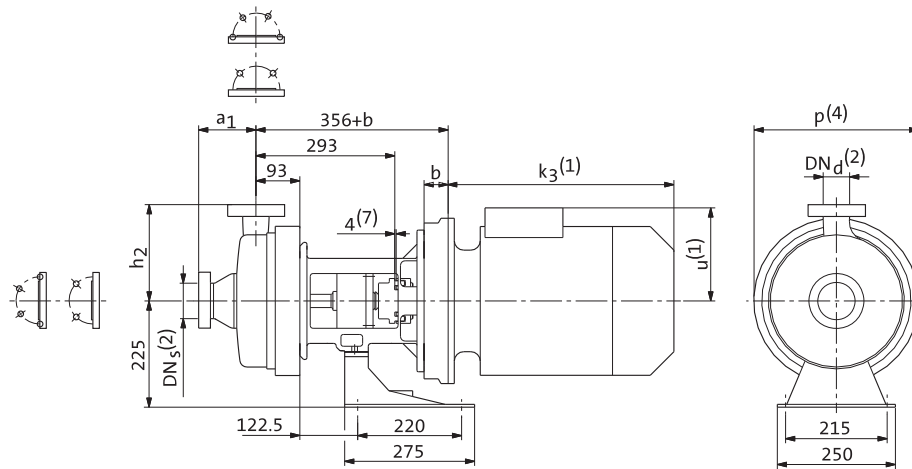
MAXANA 65-250

4-pole, 1450 min⁻¹



TM02 97/19 4405

MAXANA Adapta® on stainless steel foot



TM02 9652 3604

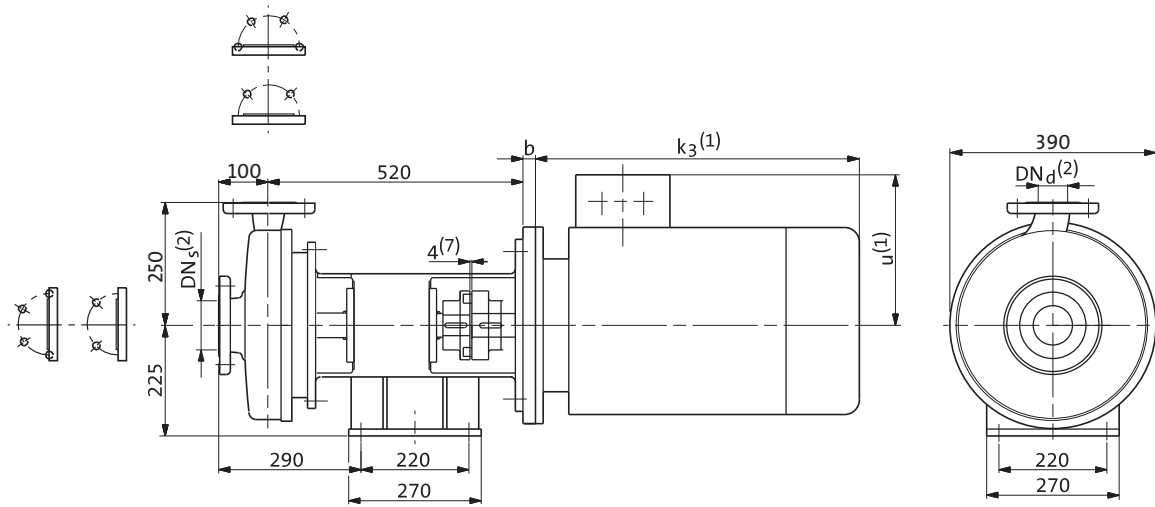
Technical data

Pump size	P2 [kW]	IEC size	k ₃	u ⁽¹⁾	a ₁	h ₂	p ⁽⁴⁾	b	DN _s ⁽²⁾	DN _d ⁽²⁾	Net weight [kg]
32-160	3	100L	320	175	80	160	264	0	50 (65)	32 (40)	71
	4	112M	340	185	80	160	264	0			78
	5.5	132S	390	205	80	160	264	20			90
32-200	3	100L	320	175	80	180	316	0	65 (80)	32 (40)	77
	4	112M	340	185	80	180	316	0			84
	5.5	132S	390	205	80	180	316	20			96
	7.5	132S	390	205	80	180	316	20			106
	11	160M	490	240	80	180	316	51			127
40-160	4	112M	340	195	80	160	264	0	40 (50)	32 (40)	79
	5.5	132S	390	205	80	160	264	20			91
	7.5	132S	390	205	80	160	264	20			101
	11	160M	490	240	80	160	264	51			140
	7.5	132S	390	205	100	180	316	20			107
40-200	11	160M	490	290	100	180	316	51	40 (50)	32 (40)	126
	15	160M	490	290	100	180	316	51			139
50-125	3	100L	320	175	100	160	264	0	65 (80)	32 (40)	76
	4	112M	340	185	100	160	264	0			83
	5.5	132S	390	205	100	160	264	20			95
	7.5	132S	390	205	100	160	264	20			105
50-160	5.5	132S	390	205	100	180	288	20	80 (100)	50 (65)	93
	7.5	132S	390	205	100	180	288	20			103
	11	160M	490	240	100	180	288	51			115
	15	160M	490	240	100	180	288	51			135
	11	160M	490	240	100	200	316	51			129
50-200	15	160M	490	240	100	200	316	51	80 (100)	50 (65)	142
65-125	4	112M	340	185	100	180	288	0			86
	5.5	132S	390	205	100	180	288	20	98		
	7.5	132S	390	205	100	180	288	20	108		
65-160	5.5	132S	390	205	100	200	308	20	80 (100)	65 (80)	98
	7.5	132S	390	205	100	200	308	20			108
	11	160M	490	240	100	200	308	51			127
	15	160M	490	240	100	200	308	51			140
65-200	11	160M	490	240	100	225	348	51	80 (100)	65 (80)	134
	15	160M	490	240	100	225	348	51			147

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂). See table of connections, page 49.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Flange dimensions are according to DIN EN 1092-1 (DIN 2632). Nominal diameters in parentheses are available on request.
- (4) Largest diameter of pump without motor.
- (7) N-Eupex coupling.

MAXANA Adapta® on Adapta® foot



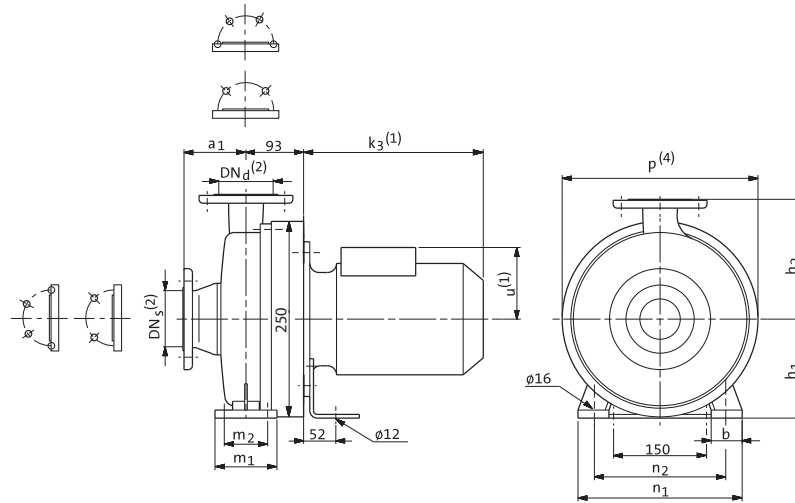
TM03 0183 4404

Technical data

Pump size	P2 [kW]	n [min ⁻¹]	IEC size	b	k ₃ ⁽¹⁾	u ⁽¹⁾
65-250	15	2900	160M	-	490	240
	18.5	2900	160L	-	530	240
	22	2900	180L	-	605	265
	30	2900	200L	25	665	310
	37	2900	200L	25	665	310
	45	2900	225M	30	700	330

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (7) N-Eupex coupling.

MAXANA Bloc on pump and motor foot



TM03 0202 4504

Technical data, 2-pole

Pump size	P2 [kW]	IEC size	k ₃ (1)	u(1)	a ₁	h ₁	h ₂	p(4)	m ₁	m ₂	n ₁	n ₂	b	DN _s (2)	DN _d (2)	Net weight [kg]
32-160	2.2	90L	285	150	80	132	160	264	100	70	240	190	50	50 (65)	32 (40)	34
	3	100L	320	175	80	132	160	264	100	70	240	190	50			40
	4	112M	340	185	80	132	160	264	100	70	240	190	50			47
32-200	5.5	112M	340	185	80	132	160	264	100	70	240	190	50	50 (65)	32 (40)	59
	3	100L	320	175	80	160	180	316	100	70	240	190	50			46
	4	112M	340	185	80	160	180	316	100	70	240	190	50			53
40-160	5.5	112M	340	185	80	132	160	264	100	70	240	190	50	50 (65)	40 (50)	65
	4	112M	340	185	80	132	160	264	100	70	240	190	50			48
	5.5	112M	340	185	80	132	160	264	100	70	240	190	50			60
50-125	3	100L	320	175	100	132	160	264	100	70	240	190	50	65 (80)	50 (65)	45
	4	112M	340	185	100	132	160	264	100	70	240	190	50			52
	5.5	112M	340	185	100	132	160	264	100	70	240	190	50			64
50-160	5.5	112M	340	185	100	160	180	288	100	70	265	212	50	80 (100)	65 (80)	62
65-125	4	112M	340	185	100	160	180	288	125	95	280	212	65			55
	5.5	112M	340	185	100	160	180	288	125	95	280	212	65			67
65-160	5.5	112M	340	185	100	160	200	308	125	95	280	212	65	80	80	67

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Other sizes and special connections are available on request.
- (4) Largest diameter of pump without motor.

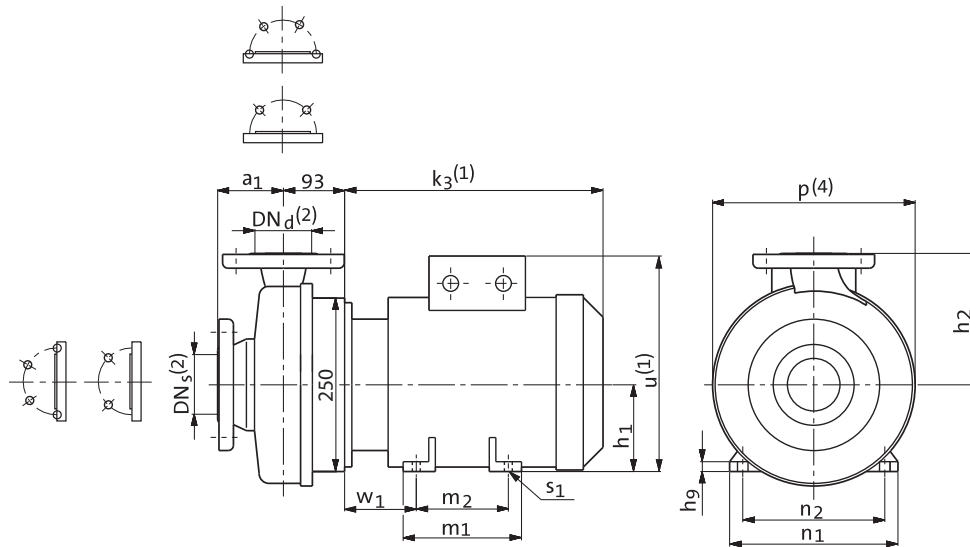
Technical data, 4-pole

Pump size	P2 [kW]	IEC size	k ₃ ⁽¹⁾	u ⁽¹⁾	a ₁	h ₁	h ₂	p ⁽⁴⁾	m ₁	m ₂	n ₁	n ₂	b	DN _s ⁽²⁾	DN _d ⁽²⁾	Net weight [kg]
32-160	0.55	80	245	145	80	132	160	264	100	70	240	190	50			27
	0.75	90S	285	150	80	132	160	264	100	70	240	190	50			28
32-200	0.75	90S	285	150	80	160	180	316	100	70	240	190	50	50 (65)	32 (40)	34
	1.1	90S	285	150	80	160	180	316	100	70	240	190	50			37
	1.5	90L	285	150	80	160	180	316	100	70	240	190	50			40
40-160	0.55	80	245	145	80	132	160	264	100	70	240	190	50			28
	0.75	90S	285	150	80	132	160	264	100	70	240	190	50			29
	1.1	90S	285	150	80	132	160	264	100	70	240	190	50			32
	1.5	90L	285	150	80	132	160	264	100	70	240	190	50			35
40-200	1.1	90S	285	150	100	160	180	316	100	70	265	212	50	40 (50)		38
	1.5	90L	285	150	100	160	180	316	100	70	265	212	50			41
	2.2	100L	320	175	100	160	180	316	100	70	265	212	50			48
50-125	0.55	80	245	145	100	132	160	264	100	70	240	190	50	65 (80)	50 (65)	32
	0.75	90S	285	150	100	132	160	264	100	70	240	190	50			33
	1.1	90S	285	150	100	132	160	264	100	70	240	190	50			36
50-160	1.1	90S	285	150	100	160	180	288	100	70	265	212	50			34
	1.5	90L	285	150	100	160	180	288	100	70	265	212	50			38
	2.2	100L	320	175	100	160	180	288	100	70	265	212	50			44
50-200	1.5	90L	285	150	100	160	200	316	100	70	265	212	50	40 (50)		44
	2.2	100L	320	175	100	160	200	316	100	70	265	212	50			51
	3	100L	320	175	100	160	200	316	100	70	265	212	50			53
65-125	4	112M	340	185	100	160	200	316	100	70	265	212	50			58
	0.75	90S	285	150	100	160	180	288	125	95	280	212	65			36
	1.1	90S	285	150	100	160	180	288	125	95	280	212	65			39
65-160	0.75	90S	285	150	100	160	200	308	125	95	280	212	65			36
	1.1	90S	285	150	100	160	200	308	125	95	280	212	65			39
	1.5	90L	285	150	100	160	200	308	125	95	280	212	65			43
65-200	2.2	100L	320	175	100	160	200	308	125	95	280	212	65	80 (100)	65 (80)	49
	3	100L	320	175	100	160	200	308	125	95	280	212	65			51
	1.5	90L	285	150	100	180	225	348	125	95	320	250	65			50
65-200	2.2	100L	320	175	100	180	225	348	125	95	320	250	65			56
	3	100L	320	175	100	180	225	348	125	95	320	250	65			58
	4	112M	340	185	100	180	225	348	125	95	320	250	65			63
	5.5	112M	340	185	100	180	225	348	125	95	320	250	65			76

Dimensions depend on housing size (DN_s, DN_d, a₁, h₂). See table of connections, page 49.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Flange dimensions are according to DIN EN 1092-1 (DIN 2632). Nominal diameters in parentheses are available on request.
- (4) Largest diameter of pump without motor.

MAXANA Bloc on motor foot



TM03 0201 4504

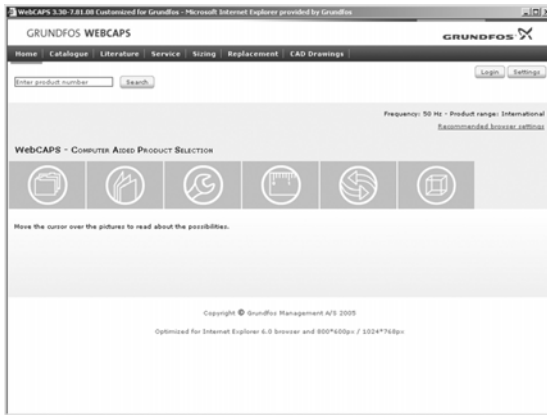
Technical data

Pump size	P2 [kW]	IEC size	a ₁	h ₁	h ₂	p	m ₁	m ₂	n ₁	n ₂	h ₉	s ₁	DN ₅ ⁽²⁾	DN _d ⁽²⁾	Net weight [kg]
32-200	7.5	132S	80	132	180	316	180	140	256	216	15	12	50 (65)	32 (40)	75
	11	132S	80	132	180	316	180	140	256	216	15	12			94
	15	160M	80	160	180	316	256	210	300	254	18	15			107
40-160	7.5	132S	80	132	160	264	180	140	256	216	15	12			70
	11	132S	80	132	160	264	180	140	256	216	15	12			89
40-200	7.5	132S	100	132	180	316	180	140	256	216	15	12	40 (50)		76
	11	132S	100	132	180	316	180	140	256	216	15	12			95
	15	160M	100	160	180	316	256	210	300	254	18	15			108
	18.5	160L	100	160	180	316	300	254	300	254	18	15			125
50-125	7.5	132S	100	132	160	264	180	140	256	216	15	12	65 (80)		74
	7.5	132S	100	132	180	288	180	140	256	216	15	12			72
	11	132S	100	132	180	288	180	140	256	216	15	12			91
	15	160M	100	160	180	288	256	210	300	254	18	15			104
	18.5	160L	100	160	180	288	300	254	300	254	18	15			121
50-160	11	132S	100	132	200	316	180	140	256	216	15	12	50 (65)		98
	15	160M	100	160	200	316	256	210	300	254	18	15			111
	18.5	160L	100	160	200	316	300	254	300	254	18	15			128
	22	160L	100	160	200	316	300	254	300	254	18	15			149
	11	132S	100	132	200	316	180	140	256	216	15	12			98
50-200	15	160M	100	160	200	316	256	210	300	254	18	15	80 (100)	65 (80)	111
	18.5	160L	100	160	200	316	300	254	300	254	18	15			128
	22	160L	100	160	200	316	300	254	300	254	18	15			149
	7.5	132S	100	132	180	288	180	140	256	216	15	12			77
	11	132S	100	132	200	308	180	140	256	216	15	12			96
65-125	15	160M	100	160	200	308	256	210	300	254	18	15	80 (100)	65 (80)	109
	18.5	160L	100	160	200	308	300	254	300	254	18	15			126
	22	160L	100	160	200	308	300	254	300	254	18	15			147
	11	132S	100	132	225	348	180	140	256	216	15	12			103
65-160	15	160M	100	160	225	348	256	210	300	254	18	15			116
	18.5	160L	100	160	225	348	300	254	300	254	18	15			133
	22	160L	100	160	225	348	300	254	300	254	18	15			154

Dimensions depend on housing size (DN₅, DN_d, a₁, h₂). See table of connections, page 49.

- (1) Motor dimensions depend on make; motor dimensions show maximum size.
- (2) Flange dimensions are according to DIN EN 1092-1 (DIN 2632). Nominal diameters in parentheses are available on request.
- (4) Largest diameter of pump without motor.

WebCAPS

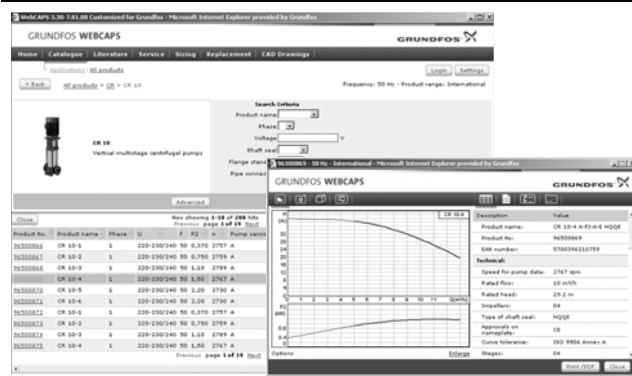


WebCAPS is a **Web-based Computer Aided Product Selection** program available on www.grundfos.com.

WebCAPS contains detailed information on more than 185,000 Grundfos products in more than 20 languages.

In WebCAPS, all information is divided into 6 sections:

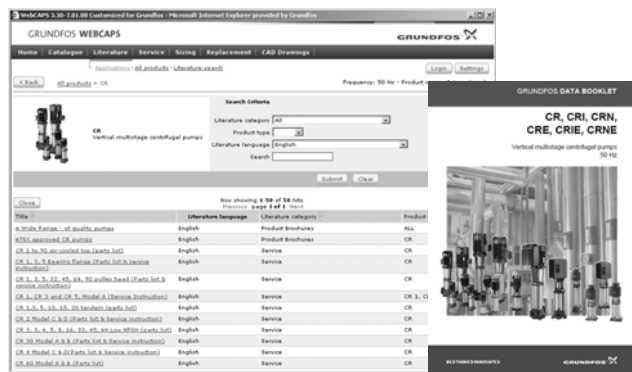
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

This section is based on fields of application and pump types, and contains

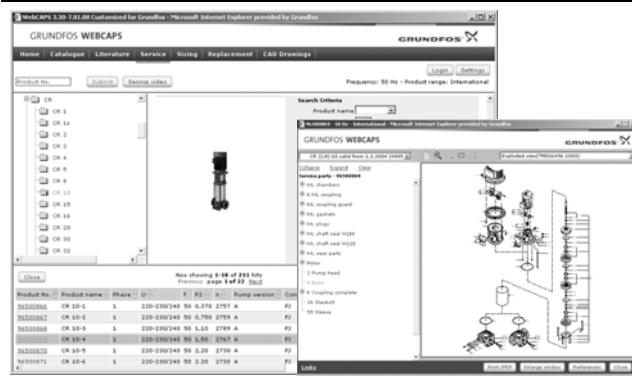
- technical data
- curves (QH, Eta, P1, P2, etc) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

In this section you can access all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures, etc.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.

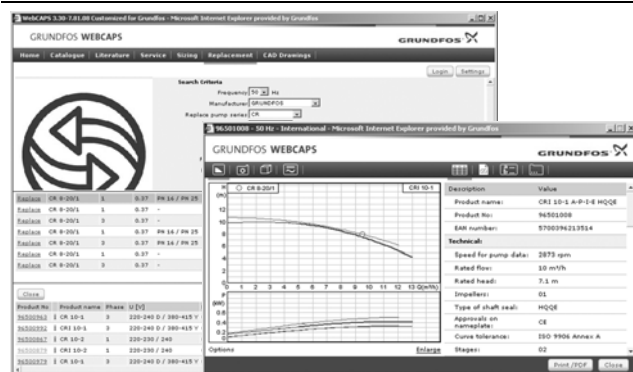
Furthermore, this section contains service videos showing you how to replace service parts.



Sizing

This section is based on different fields of application and installation examples, and gives easy step-by-step instructions in how to

- select the most suitable and efficient pump for your installation
- carry out advanced calculations based on energy consumption, payback periods, load profiles, life cycle costs, etc.
- analyse your selected pump via the built-in life cycle cost tool
- determine the flow velocity in wastewater applications, etc.



Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.

The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

2-dimensional drawings:

- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings:

- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

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Subject to alterations.

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