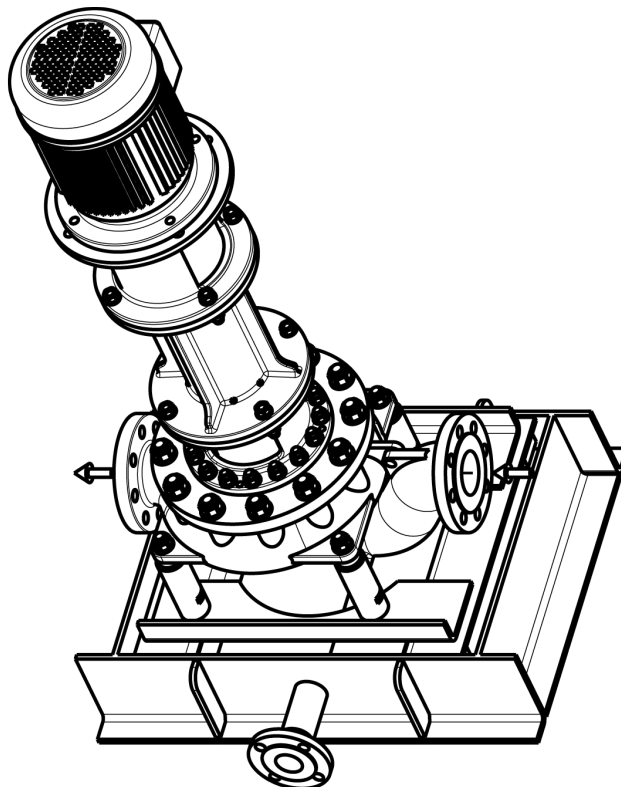


Inline pumps Series INP

- Overview of products
- Executions
- Materials
- Types of seals
- Dimensional drawings

STROBL



We are your partner in transporting any liquid from one place to another. We offer a wide range of pumps for different applications as well as complete systems, optimized to your needs. With this strategy we are able to deliver pumps, valves and every other needed part to our customers. This strategy also helps our customers to realize their projects cost and energy efficient. If we find any potential for optimizing your systems, we will help developing a specialized product fitting your needs.

Since our founding in 2006 we have permanently extended and optimized our production program to be in position to offer to our partners the possibilities to achieve their needs. Despite our short history, we are able to profit from more than 50 years of experience in building pumps and systems. This is possible through our experienced personnel, which takes the main part in our philosophy. Only with our motivated personnel we are able to take care of new developments and help our customers realizing their projects.

To meet our own and the quality requirements of our customers, we have implemented documentation standards for all production and development steps at a very early stage. This culminated in the fact that we have been certified since 2012 according to ISO 9001:2008 and since 2016 according to ISO 9001:2015. Thus our customers can rely on a consistent quality.



Our pumps are manufactured exclusively at our headquarters in Hilpoltstein. Hilpoltstein is located about 35 km south of Nuremberg. Our high speed of developing of our product series led to a higher demand for production capacity. We have therefore moved into our new building in 2010, which has been extended by a new fabrication hall in 2016. This now provides the opportunity to test all pumps on a modern test bed and to carry out witnessed tests together with our customers. Due to our constant and strong growth, we reached the edges of our office capacities this year. Therefore we started building up new office space in autumn 2018.



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General Description

Centrifugal pumps series INP are single stage, normal priming pumps with side nozzles at the same level for direct mounting into pipework. The pumps are available according to API 610 - OH3, OH4 or OH5 as well. The casing design pressure is, depending on seal selection, for system pressures up to 40 bar. Some versions are additionally available with suction connection rotated 90° left or right from discharge side.

Fields of application

Main field of application of our inline pumps is conveying clean liquids. These pumps are available with inducer, as an option, to allow low system NPSH values.

Due to the different materials available, conveying of various aggressive liquids in the chemical industry and oil and gas applications is possible. Our customers currently use our inline pumps for the following applications:

- Circulation of liquids in open and closed circuits
- Conveying of clean liquids
- Water treatment
- Offshore systems and refinery
- Reverse osmoses systems

Operating data

Flow:	Q up to 380 m ³ /h
Total head:	H up to 100 m
Motor power:	P from 1,1 kW to 110 kW
Degree of protection:	IP 55

Connections

Suction and discharge connections are equipped with flanges according to DIN or ANSI.

Motors

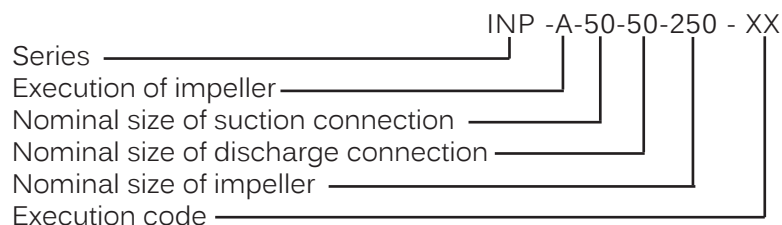
As drive, induction motors in construction form IMV1 are used. Motors are in efficiency class IE3 acc. to EN 60034-30 as standard.

Voltage:	up to 2,2kW	230/400V, 50Hz	from 3kW	400/690V, 50Hz
	up to 2,6kW	265/460V, 60Hz	from 3,6kW	460V, 60Hz
	other voltages / frequencies, explosion proof versions, as well as DC or hydraulic motors are available on request.			

Degree of protection: IP 55

Direction of rotation: Clock-wise viewed onto fan cover

Type code



Series:

- INP - Standard version
- INPL.. - Standard version with special bearing system (L20 oil lubricated, etc.)
- INPN - Pump with standard motor with reinforced bearing and stub shaft
- INPE - Pump with suction bend; connections are not on same level

Execution of impeller:

- Standard version
- A,B, ... - Impeller with special geometry
- O.. - Semi open impeller with wear plate
- I - Inducer

Nominal size of suction connection:

See dimensional drawing, characteristic curve, resp.

Nominal size of discharge connection:

See dimensional drawing, characteristic curve, resp.

Nominal size of impeller:

Nominal size of impeller in millimetres

Execution code:

- Standard version
- XX - Special versions (e.g. special connections, execution according to project specification, etc.)

Materials

Part	Material code								
	Standard - Y101	Y301	Y302	Y403	Y404	Y501	Y601	Y602	Y505
Casing	Cast iron - GG 25	Bronze	Aluminium bronze	Carbon steel	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Suction bend	Cast iron - GG 25	Bronze	Aluminium bronze	Carbon steel	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Impeller	Cast iron - GG 20	Bronze	Aluminium bronze	Cast iron - GG 20	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Casing wear rings	Cast iron	Duplex	Duplex	Cast iron	Chromium steel	Duplex		Super duplex	High alloy SS
Impeller wear rings	Cast iron	Duplex	Duplex	Cast iron	Chromium steel	Duplex		Super duplex	High alloy SS
Shaft	Chromium steel	Duplex		Chromium steel		Duplex		Super duplex	High alloy SS
Bearing housing	Carbon steel	Stainless steel - 316		Carbon steel	Stainless steel - 316				
Sole plate	Carbon steel	Stainless steel - 316	Duplex	Carbon steel	Stainless steel - 316		Duplex	Super duplex	High alloy SS
Material code acc. to API 610	I-1			S-1	C-6	A-8	D-1	D-2	

Base execution	Impeller / Diffuser options							
	Bronze	Aluminium bronze	Carbon steel	Chromium steel	Stainless steel - 316	Duplex	Super duplex	High alloy SS
Y101	X	X	X	X	X	X	X	X
Y301		X			X	X	X	X
Y302					X	X	X	X
Y403	X	X	X	X	X	X	X	X
Y404	X	X			X	X	X	X
Y501						X	X	X
Y601							X	X
Y602								X

Other materials are available on request.

Material	German description	German material code number	EU description	EU material code number	ASTM - UNS - description
Cast iron	GG 20	0.6020	EN-GJL-200	JL 1030	A48 - Grade 30
	GG 25	0.6025	EN-GJL-250	JL 1040	A48 - Grade 35
Bronze	G-CuSn10	2.1050.01	CuSn10-C	CC480K-GS	B505 - C90700
Aluminium Bronze	G-CuAl10Ni	2.0975.01	CuAl10 Fe5Ni5-C	CC333G-GS	B505 - C95500
Carbon steel	St 37	1.0037	S235JR	1.0037	A29 - 1013
	C 22	1.0402	C22	1.0402	A29 - 1020
	GS-C25	1.0619	GP240GH	1.0619	A216 - WCB - J03002
Chromium steel	G-X4 CrNi 13-4	1.4317	GX4CrNi 13-4	1.4317	A487 - CA6NM - J91540
	X20 Cr13	1.4021	X20Cr13	1.4021	A276 - S42000
Stainless steel - 316	G-X5 CrNiMo 19-11-2	1.4408	GX5CrNiMo 19-11-2	1.4408	A351 - CF8M - J92900
	X5 CrNiMo 17-12-2	1.4401	X5CrNiMo 17-12-2	1.4401	A276 - S31600
	X6 CrNiMoTi 17-12-2	1.4571	X6CrNiMoTi 17-12-2	1.4571	A276 - S31635
Duplex	G-X2 CrNiMoN 22-5-3	1.4470	GX2CrNiMoN 22-5-3	1.4470	A995-4A - J92905
	G-X2 CrNiMoCuN 25-6-3-3	1.4517	Gx2CrNiMoCuN 25-6-3-3	1.4517	A995-4A - J93372
	X2 CrNiMoN 22-5-3	1.4462	X2CrNiMoN 22-5-3	1.4462	A276 - S31803
Super duplex	G-X2 CrNiMoN 26-7-4	1.4469	GX2CrNiMoN 26-7-4	1.4469	A995-5A - J93404
High alloy stainless steel	G-X2CrNiMoCuN 20-18-6	1.4557	GX2CrNiMoN 20-18-6	1.4557	A744 - 6MO - J93254
	X1 CrNiMoCuN 20-18-7	1.4547	X1CrNiMoCuN 20-18-7	1.4547	A276 - 6MO - S31254

In many cases materials can be delivered according to special standards (NORSOK, etc.). Other materials are available on request.

Types of seals

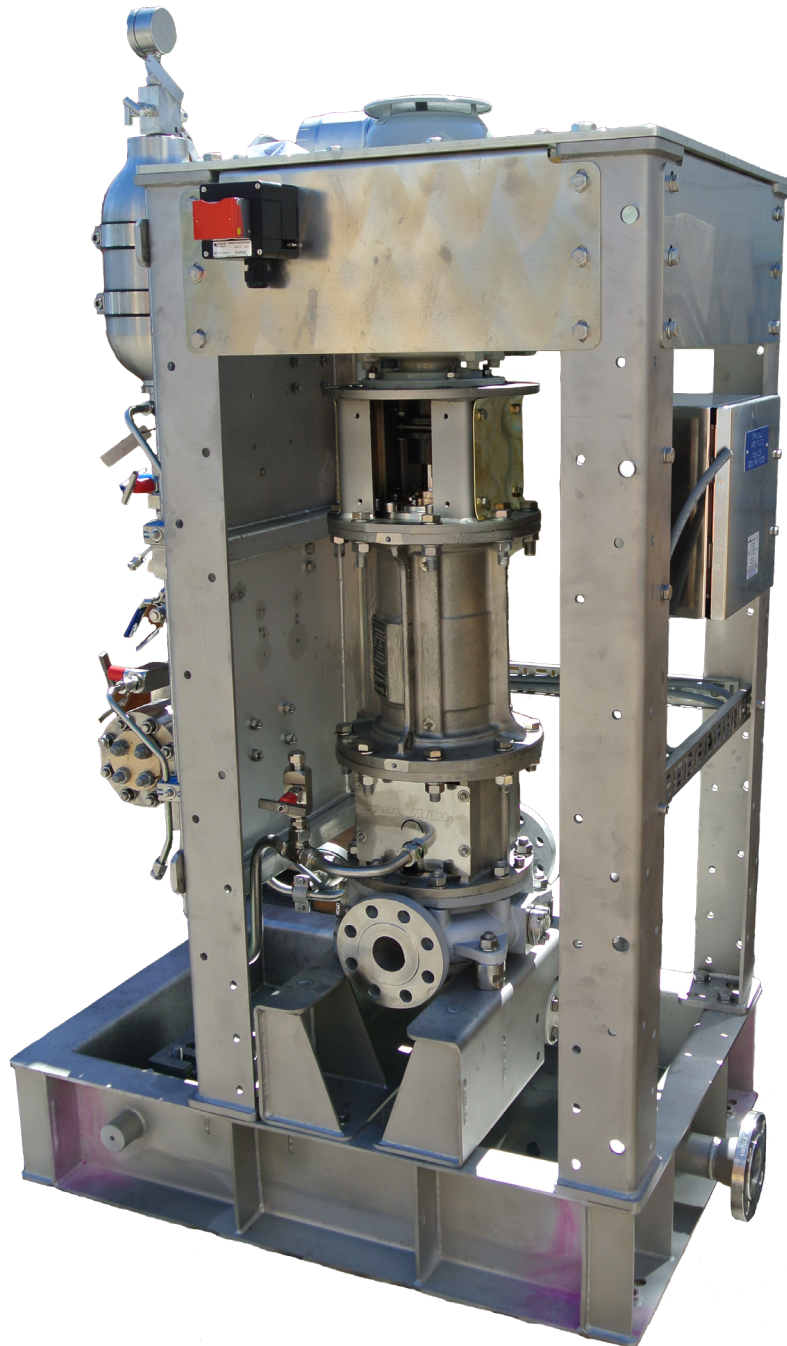
Part	Seal code							
	Z102	Z103	Z104	Z105	Z201	Z202	Z203	Z204
Rotating ring	Carbon - A	Carbon - A	SiC - Q	SiC - Q	Carbon - A	Carbon - A	SiC - Q	SiC - Q
Stationary seat	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q	SiC - Q
Elastomer	FKM - V	EPDM - E	FKM - V	EPDM - E	FKM - V	EPDM - E	FKM - V	EPDM - E
Spring	1.4571 - G							
Metal parts	1.4571 - G							
Remark	Rubber bellow seal for pressure up to 12 bar.	Rubber bellow seal for pressure up to 12 bar.	Rubber bellow seal for pressure up to 12 bar.	Rubber bellow seal for pressure up to 12 bar.	Balanced mechanical seal for pressure up to 40 bar.	Balanced mechanical seal for pressure up to 40 bar.	Balanced mechanical seal for pressure up to 40 bar.	Balanced mechanical seal for pressure up to 40 bar.

Part	Seal code						
	Z302	Z303	Z ..	Magnetic drive	Z801	Z802	Z804
Rotating ring	Carbon - A	Carbon - A	Seal in special execution with quench or tandem arrangement or cartridge versions according to customer specification. As far as necessary, we can offer the required seal fluid supply systems.	Magnet	NdFeB	SmCo	SmCo
Stationary seat	SiC - Q	SiC - Q		Sliding bearing	SiC / SiC		
Elastomer	EPDM - E	FKM - V		Inner metal parts	1.4462 - G1		
Spring	1.4571 - G	1.4571 - G		Can	1.4571 - G		Titan - T
Metal parts	1.4571 - G	1.4571 - G		Remark	Coupling for pressure up to 16 bar and temperatures up to 120°C	Coupling for pressure up to 16 bar and temperatures up to 250°C	Coupling for pressure up to 100 bar and temperatures up to 250°C
Remark	Double acting mechanical seal for pressure up to 40 bar. Without necessary seal fluid supply system	Double acting mechanical seal for pressure up to 40 bar. Without necessary seal fluid supply system					

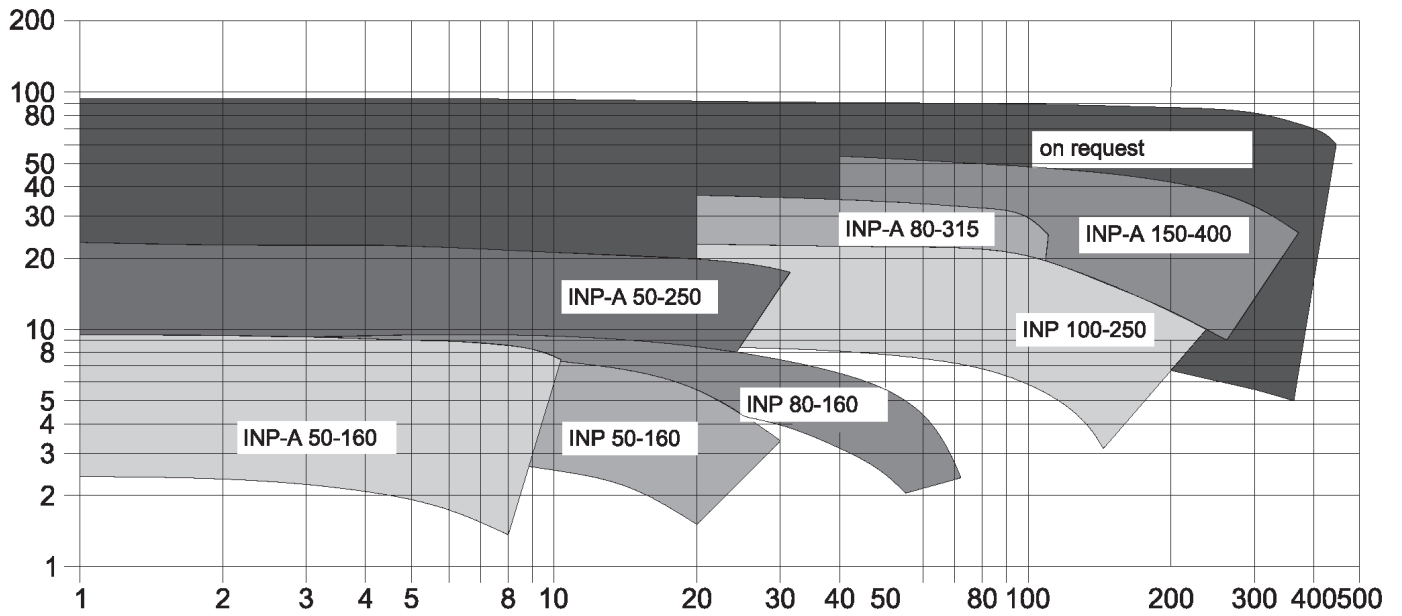
Other seal types available on request.

Inline pumps
Series INP

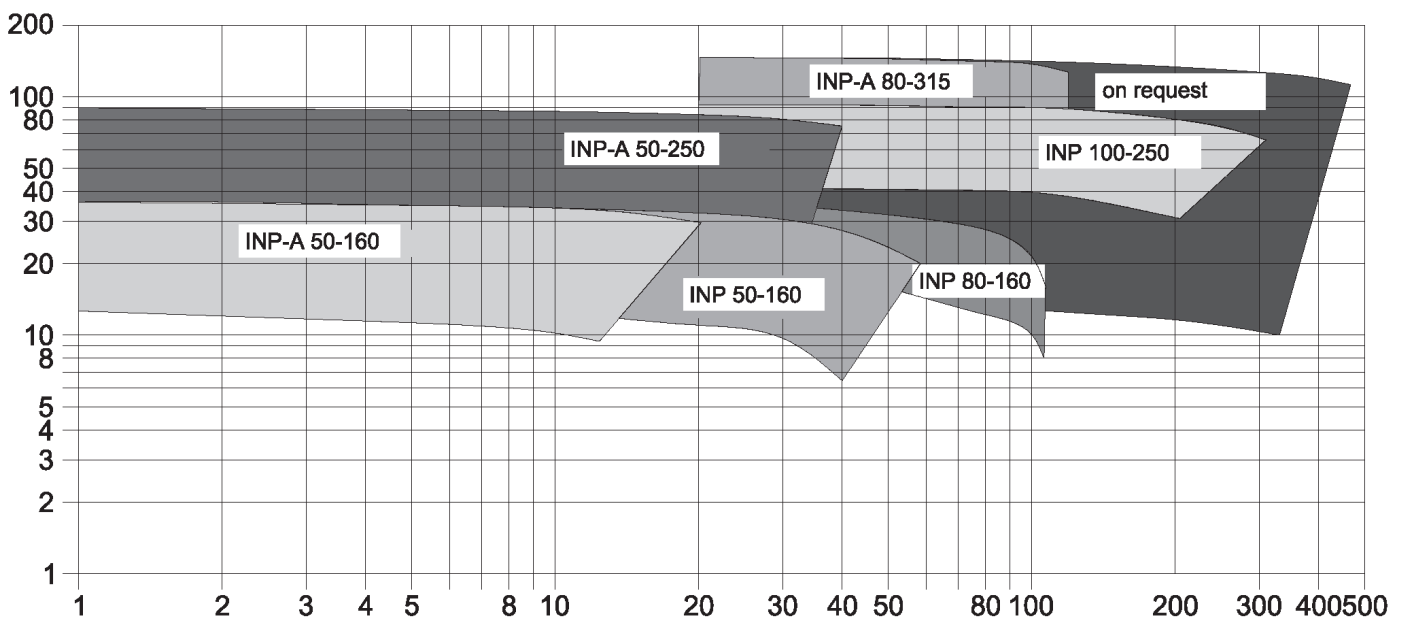
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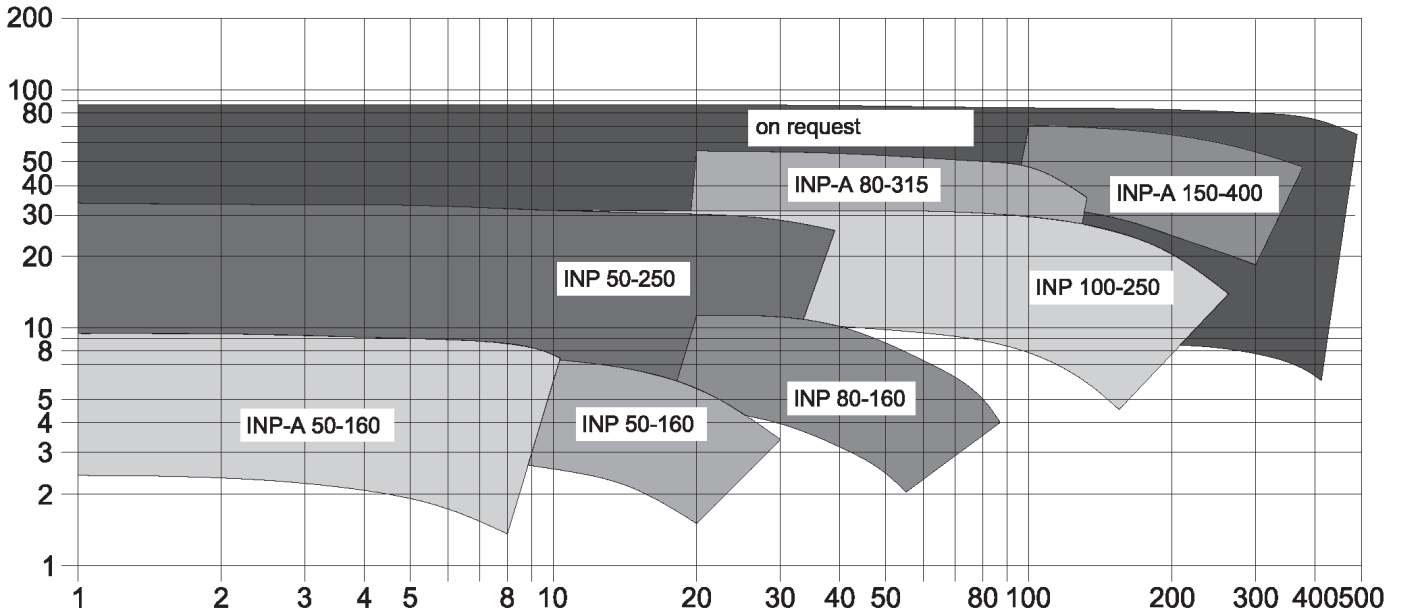
Characteristic curve 50 Hz - 1500 rpm



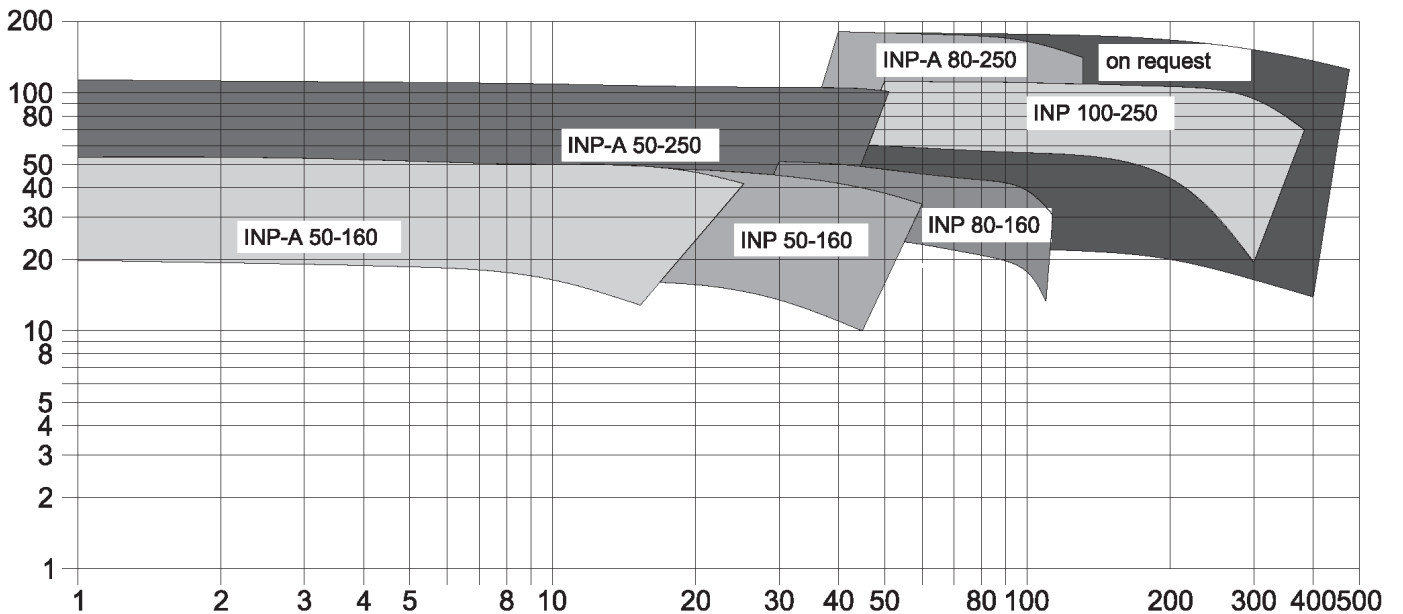
Characteristic curve 50 Hz - 3000 rpm



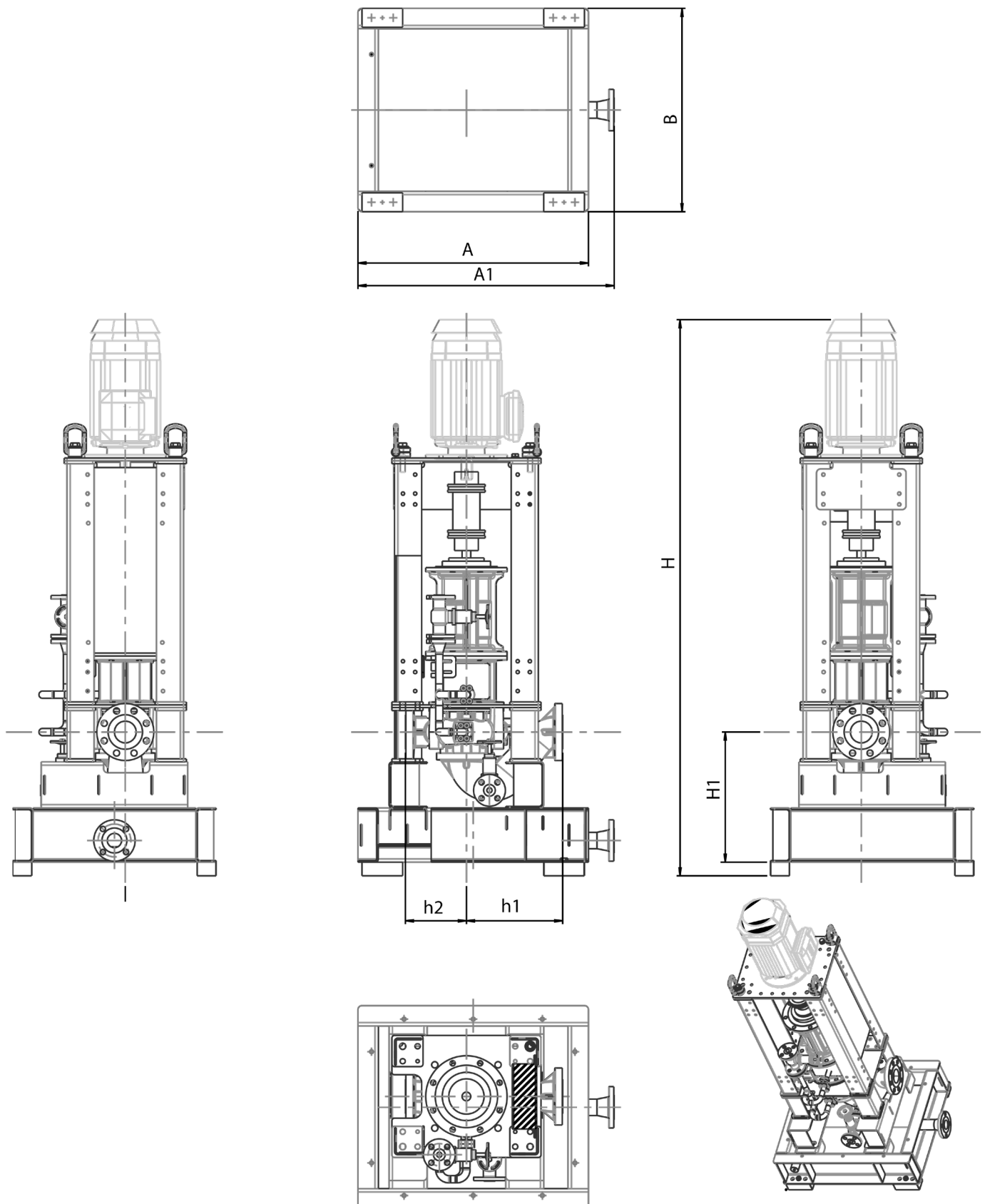
Characteristic curve 60 Hz - 1800 rpm



Characteristic curve 60 Hz - 3600 rpm

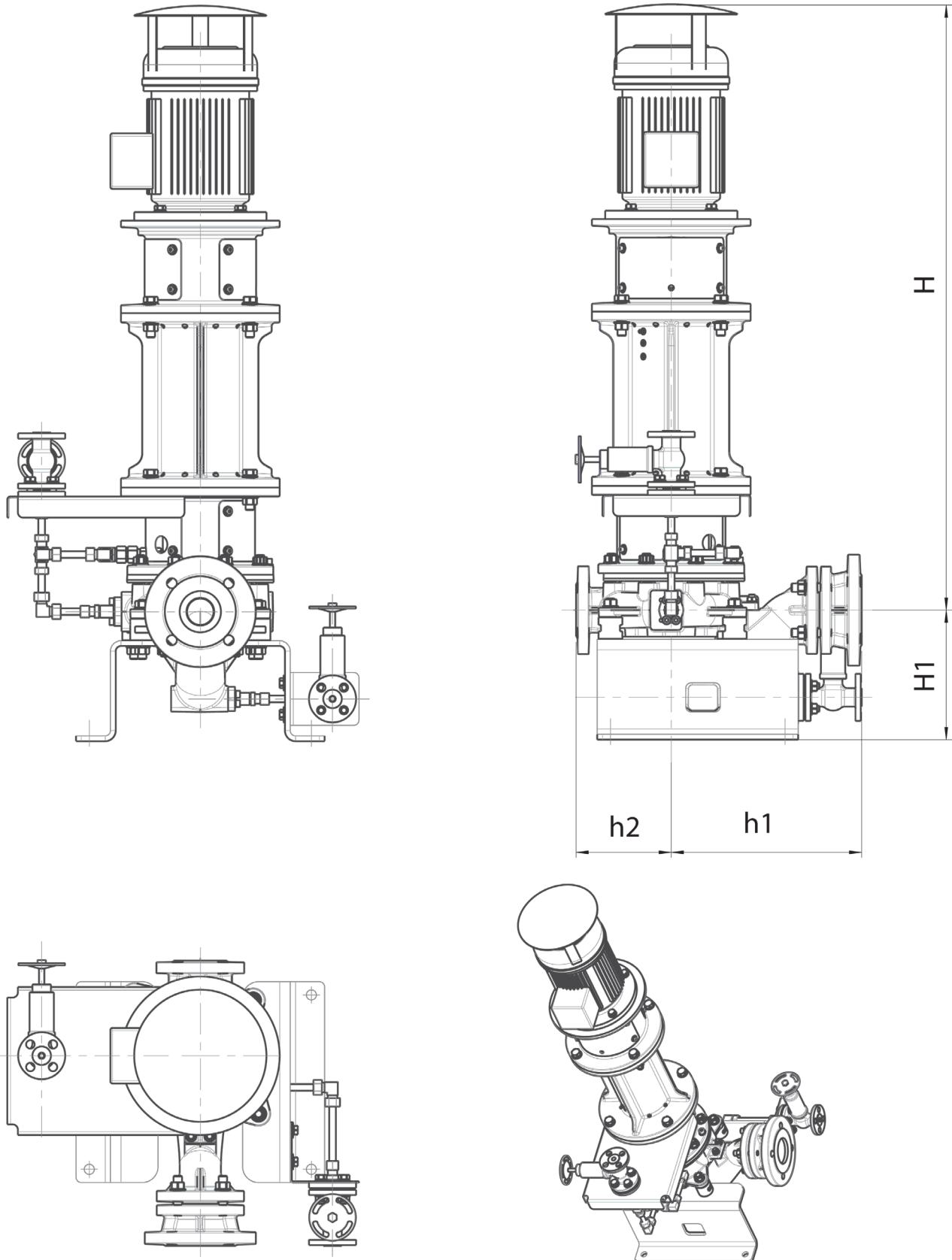


Dimensional drawing INP with spacer coupling, lantern and base plate



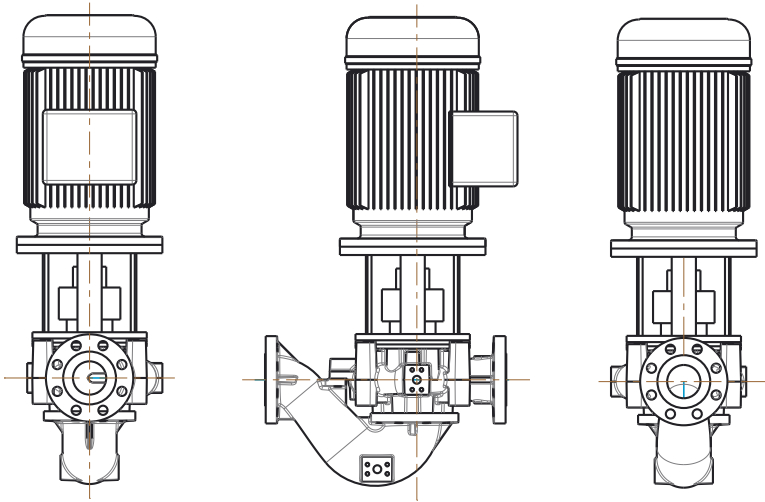
Dimensions, weights and related, on request

Dimensional drawing INP with lantern and standard motor

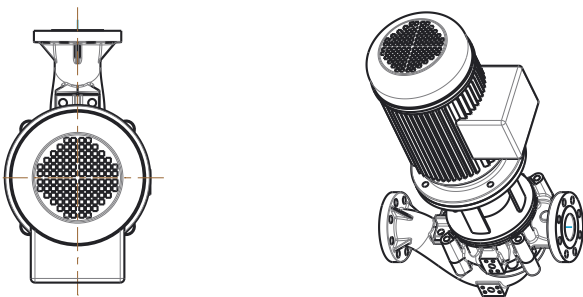


Dimensions, weights and related, on request

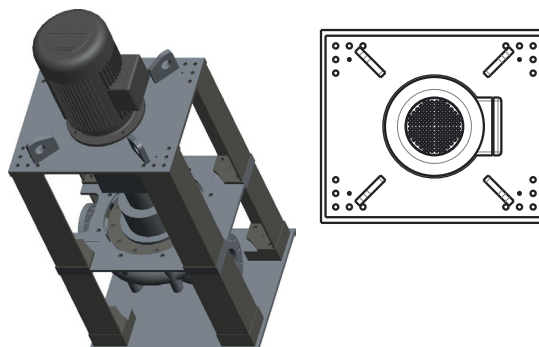
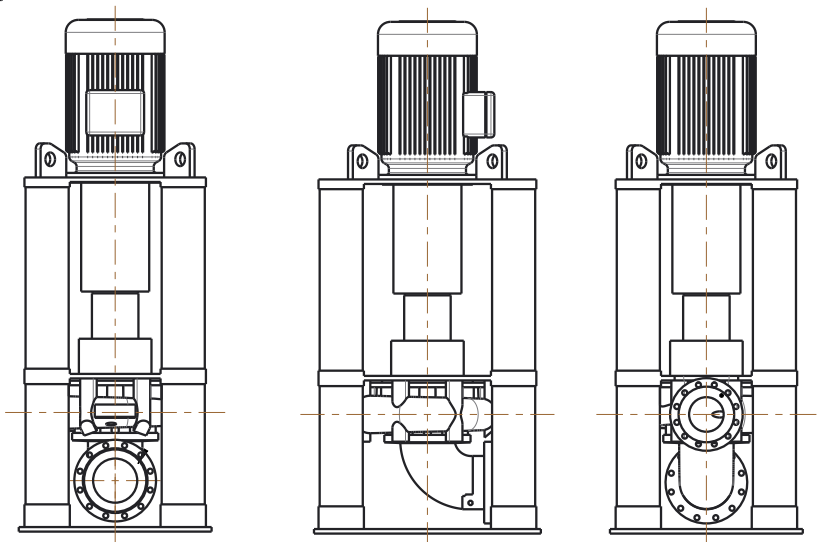
Examples for special executions



INPN - Pump with stub shaft and standard motor. (OH4)



INPE - Pump with suction bend. The bend can be positioned in 90° steps. Therefore an arrangement of discharge above suction connection is even possible.



Inline pumps
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