



Engineering Flow Solutions

API PUMPS FOR OIL & GAS INDUSTRY

PRODUCT CATALOGUE



CONTENTS

HMS GROUP EXPERTISE IN OIL & GAS INDUSTRY PUMPS & SYSTEMS	2
APPLICATION OF PUMPS BY HMS GROUP IN OIL & GAS INDUSTRY PROCESSES	3
API 610 CENTRIFUGAL PROCESS PUMPS	4
API 685 CENTRIFUGAL HERMETIC PROCESS PUMPS WITH MAGNETIC COUPLING	32
API 675 MEMBRANE HERMETIC AND PLUNGER DOSING PUMPING SYSTEMS	34
QUALITY CERTIFICATES	36

HMS GROUP EXPERTISE IN OIL & GAS INDUSTRY PUMPS & SYSTEMS



HMS Group – a diversified holding company integrating the major machine building and engineering companies in Germany, Ukraine, Belarus, and Russia, serving a wide range of industries.

KEY FACTS AND FIGURES

- HMS Group year of foundation: 1993 while some plants have over 100 years history
- Manufacturing facilities in Germany, Ukraine, Belarus, and Russia
- 14,500 employees
- Branch and representative offices in Kazakhstan, Turkmenistan, Italy, Iran, and UAE

For oil & gas industry HMS Group offers a wide range of standard and customized API-compliant pumps and systems for all stages of hydrocarbons production, transportation and processing.

ENGINEERING

The pumps engineering is performed by the own R&D centers of HMS Group located in Russia, CIS and Europe with centralized management and application of the latest 3D design software based on SolidWorks, ANSYS CFX and other CAD/CAM platforms.

MANUFACTURING

The cast pump elements are made at inhouse foundry shops provided with the newest molding lines and induction furnaces as well as at the subcontracted facilities capable to provide special castings according to NORSOK, meeting NACE, and EN 10204 2.2.

A full-cycle production of the pumping equipment including all critical components is arranged by the HMS Group companies equipped with up-to-date CNC machine tools and processing centers from the leading manufacturers of Germany, Great Britain, and South Korea.

TESTING

The supplied pumping systems are factory tested in real operation conditions in accordance with standard ISO 9906-2012 Grade 2B at the own testing facilities within up to 16,000 m³/h capacity range, up to 4,200 m pressure head and up to 14,000 kW drive power.

STANDARDS & QUALITY

The pumping equipment is manufactured in compliance with standards API 610, API 685, API 675 and other international and national industry standards as ISO, DIN, ANSI, ASME.

The integrated Quality Management System at production facilities of the HMS Group companies is compliant with ISO 9001 standard requirements.

SERVICE

The HMS Group customers are provided with a full range of related services for pumps & systems including installation & commissioning supervision, routine maintenance, repair and overhaul, supply of original spare parts, integrated retrofit, extended engineering and technical support.

WORLDWIDE SUPPLIES

The pumps supplied by HMS Group are successfully operated within years at large upstream, midstream and downstream facilities (including offshore oil and gas production platforms) in Russia, Europe, Middle East, Americas, Africa, and Asia.

APPLICATION OF PUMPS BY HMS GROUP IN OIL & GAS INDUSTRY PROCESSES

HMS Group engineers and manufactures a wide range of sophisticated pumps and systems in accordance with standards API 610 of the 11th edition, API 685 of the 2nd edition, and API 675 of the 3rd edition for oil, gas and condensate upstream, midstream and downstream processes.

The pumps are produced at the leading manufacturing companies of HMS Group: APOLLO Goessnitz (Germany), Nasosenergomash (Ukraine), Bobruisk Machine Building Plant (Belarus), HMS Livgidromash (Russia).

API 610 CENTRIFUGAL PROCESS PUMPS

Pump series	Pump type by API	Onshore/Offshore production of oil, gas & condensate	Transportation of hydrocarbons via trunk and infield pipelines	Storage tanks and loading/unloading terminals	Oil refining and petroleum chemistry processes	Gas processing and gas chemistry plants
KRH/KRHA	OH2	■	■		■	■
2NK	OH2	■	■		■	■
KRI	OH3	■	■		■	■
ND, NM, NGPN-M	BB1		■	■	■	■
ZMK/ZMKV	BB1		■	■	■	■
ZPR/NND	BB2	■	■		■	■
KGR/KGRD	BB2	■	■		■	■
AMG/NPS	BB3		■		■	■
HP/GP, GMHD	BB4	■	■	■	■	■
CNSDp	BB5	■	■		■	■
TL/TG, TGDX	BB5	■	■		■	■
HPV/HPVX, GDV	VS1	■	■	■	■	■
GLKV/GSTV, HPTV, GDTV	VS6	■	■	■	■	■
NPV/NPV-M, NMV	VS6, VS7	■	■	■	■	■

API 685 CENTRIFUGAL HERMETIC PROCESS PUMPS WITH MAGNETIC COUPLING

2NKG	OH2	■	■		■	■
------	-----	---	---	--	---	---

API 675 MEMBRANE HERMETIC AND PLUNGER DOSING PUMPING SYSTEMS

UNDM-L	membrane/plunger type	■			■	■
--------	-----------------------	---	--	--	---	---

CENTRELINE-MOUNTED, SINGLE-STAGE OVERHUNG PROCESS PUMPS

KRH/KRHA

Type OH2

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

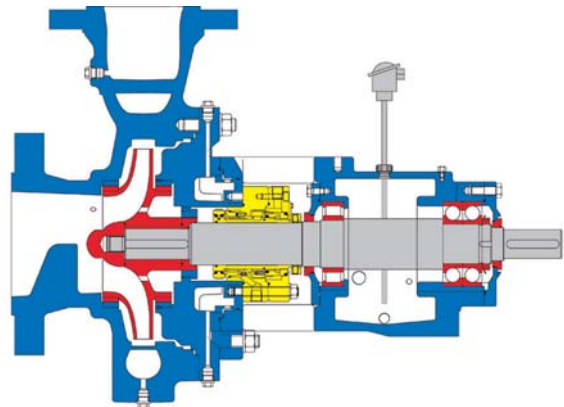


DESIGN FEATURES

- Compliance with the API 610 standard
- Replaceable durable wearing rings
- Dynamically balanced impeller
- Back pull-out flow path with detachable coupling
- Inducer at the suction side (option)

MATERIALS

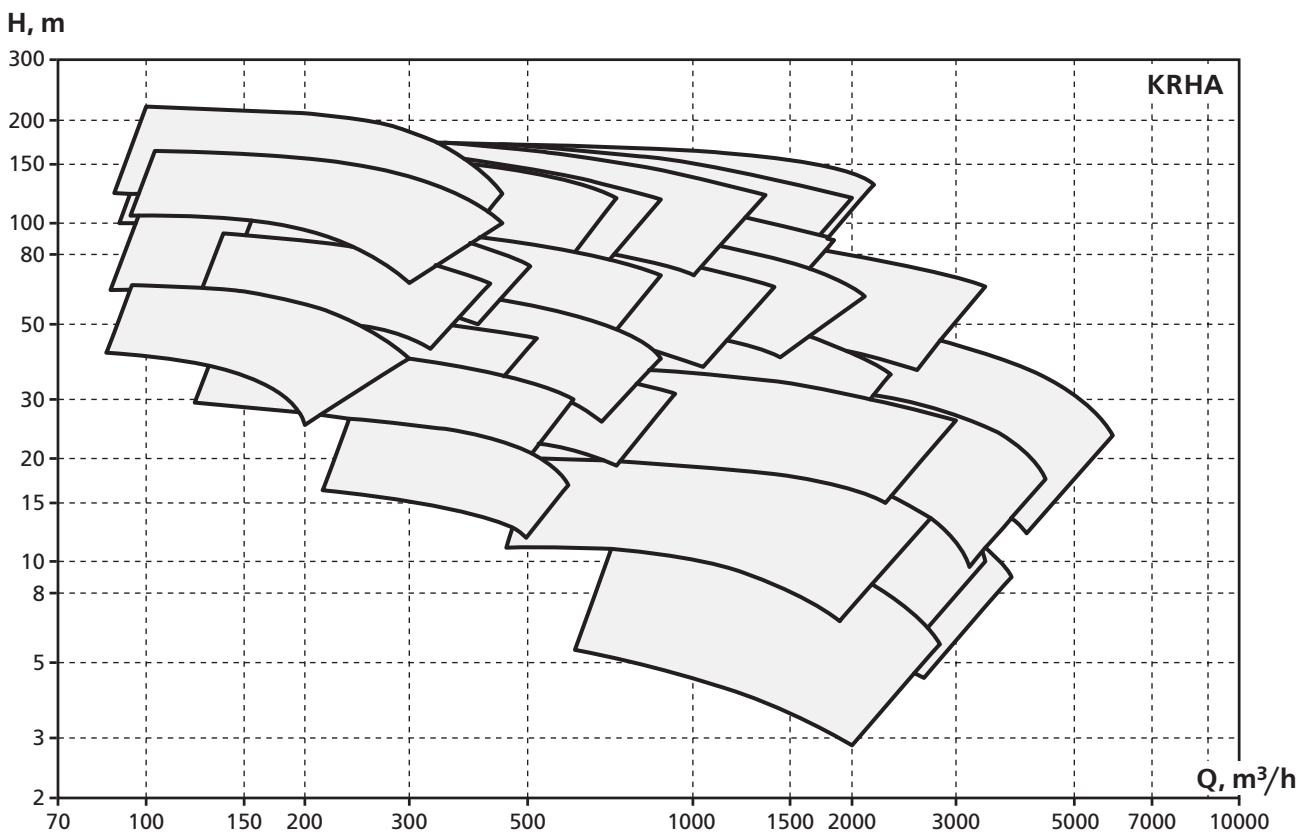
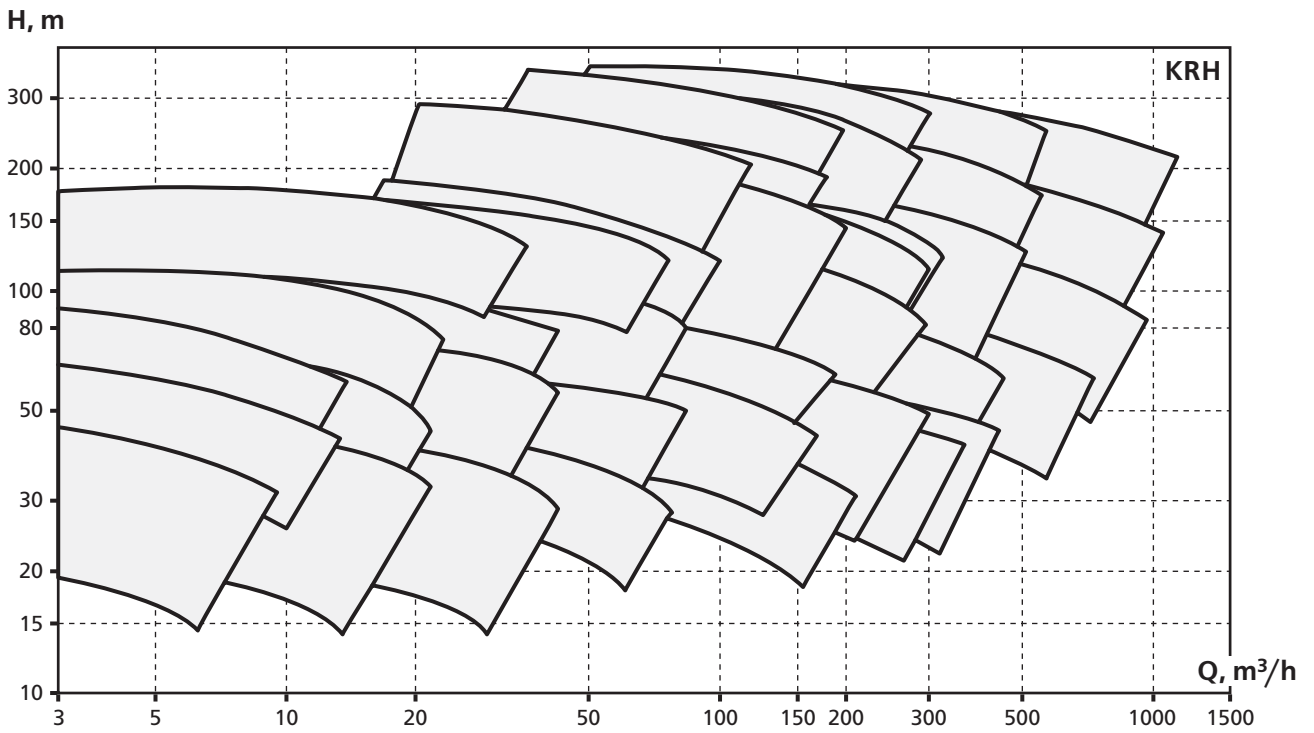
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Titanium
- Special alloys according to NORSOK, NACE



TECHNICAL DATA

	KRH/KRHA
Capacity, m ³ /h	3 – 5,000
Head, m	3 – 390
Pressure, kgf/cm ²	up to 55 / 90 (two versions)
Temperature, °C	-80 ... +450

PERFORMANCE RANGE







CENTRELINE-MOUNTED, SINGLE-STAGE OVERHUNG PROCESS PUMPS

2NK

Type OH2

APPLICATION

-  Onshore/Offshore production of oil, gas & condensate
-  Transportation of hydrocarbons via trunk and infield pipelines
-  Oil refining and petroleum chemistry processes
-  Gas processing and gas chemistry plants

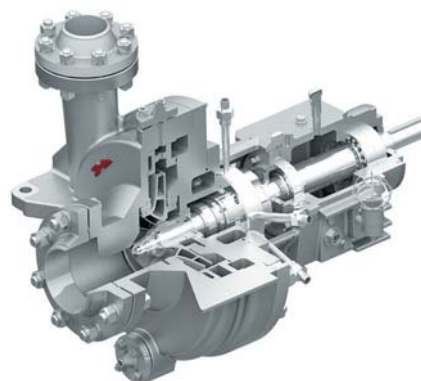


DESIGN FEATURES

- Compliance with the API 610 standard
- Optimized flow path with high efficiency
- Advanced cooling system of casing, bracket and bearing housings
- Back pull-out flow path with detachable coupling
- Inducer at the suction side (option)

MATERIALS

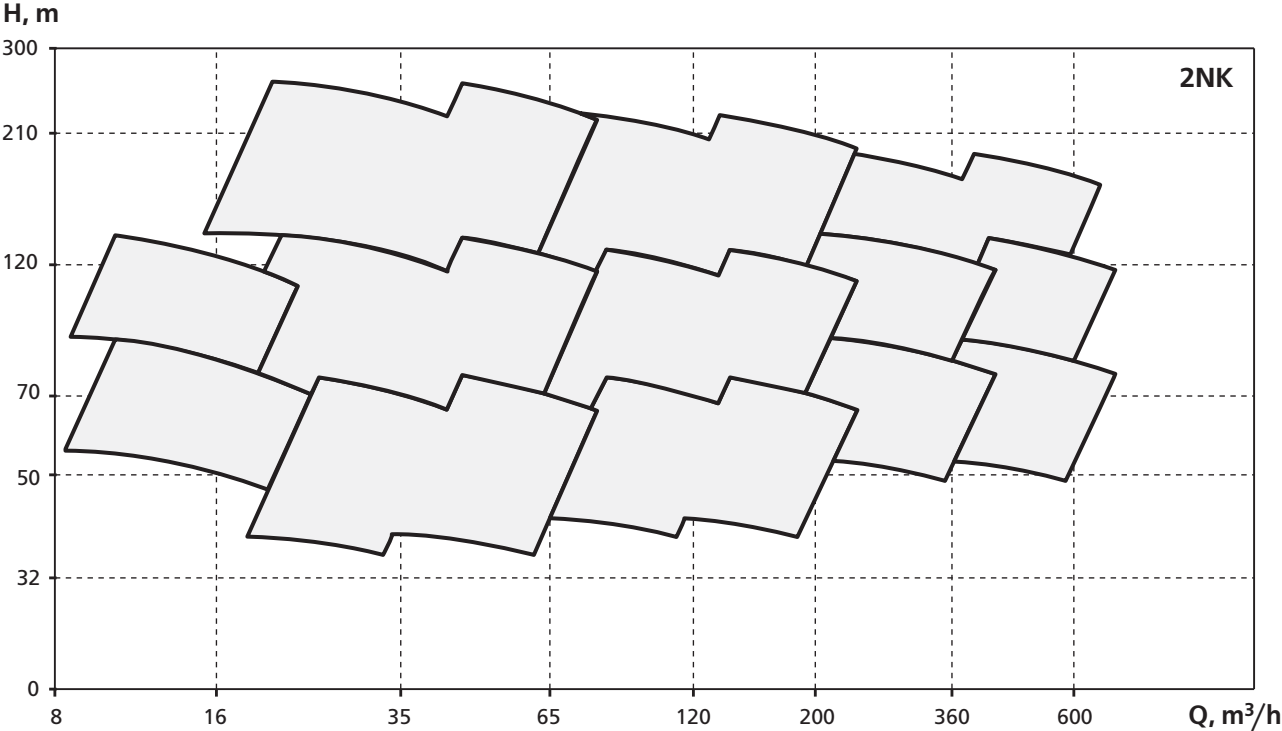
- Carbon steel
- Chromium steel
- Chromium-nickel-titanium steel
- Duplex steel



TECHNICAL DATA

	2NK
Capacity, m ³ /h	10 – 720
Head, m	35 – 255
Pressure, kgf/cm ²	up to 65
Temperature, °C	-80 ... +400

PERFORMANCE RANGE



VERTICAL, IN-LINE, SINGLE-STAGE OVERHUNG PROCESS PUMPS

KRI

Type OH3

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

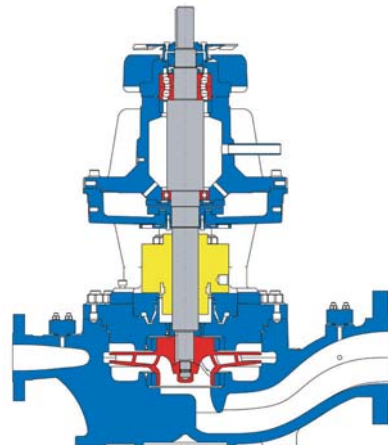


DESIGN FEATURES

- Compliance with the API 610 standard
- Designed for vertical installation, normal priming
- In-line arranged discharge and suction nozzles
- Bearings with grease or oil lubrication

MATERIALS

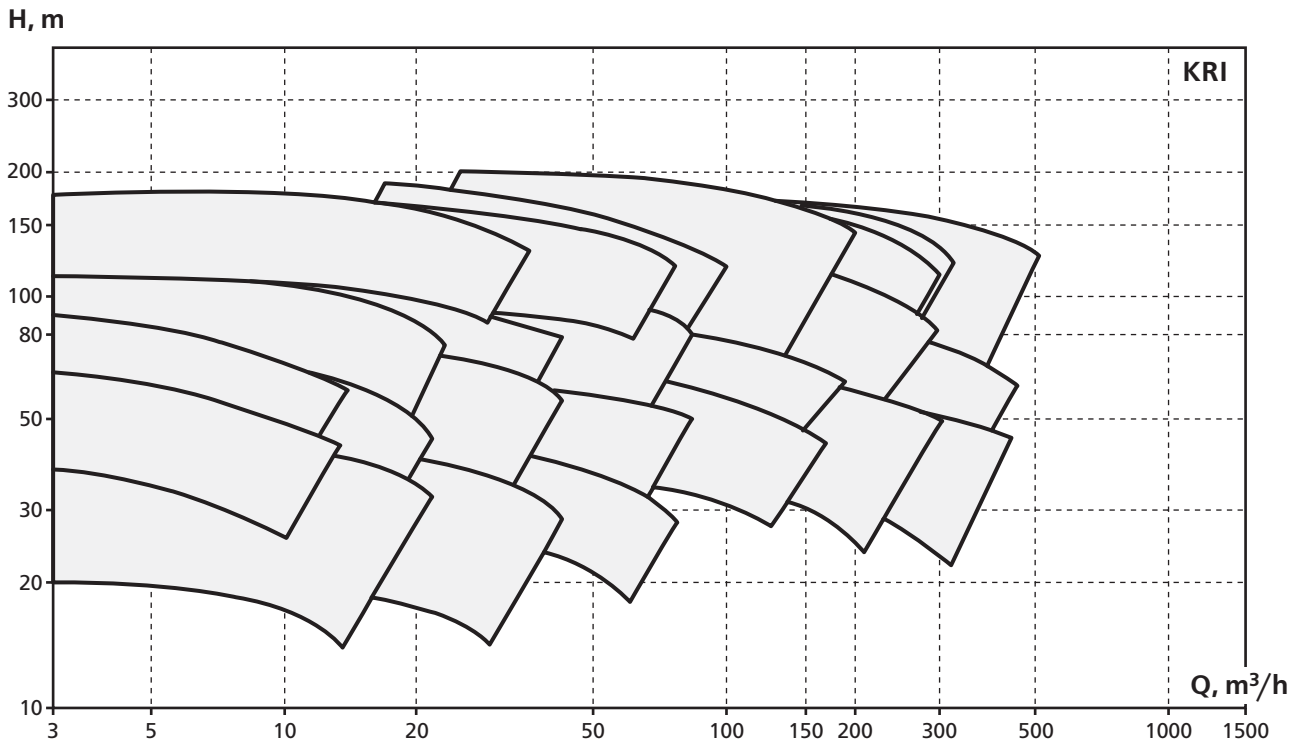
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Titanium
- Special alloys according to NORSOK, NACE



TECHNICAL DATA

	KRI
Capacity, m ³ /h	3 – 600
Head, m	15 – 320
Pressure, kgf/cm ²	up to 55
Temperature, °C	-80 ... +385

PERFORMANCE RANGE



AXIALLY SPLIT, ONE-STAGE, BETWEEN-BEARINGS PROCESS PUMPS

ND, NGPN-M, NM

Type BB1

APPLICATION



Transportation of hydrocarbons via trunk and infield pipelines



Storage tanks and loading/unloading terminals



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants



DESIGN FEATURES

- Compliance with the API 610 standard
- Double suction impeller for axial forces compensation
- Double-volute pumps casing
- Replaceable wearing rings for operation reliability and easy maintenance
- Cyclone separators for mechanical seals barrier liquid

MATERIALS

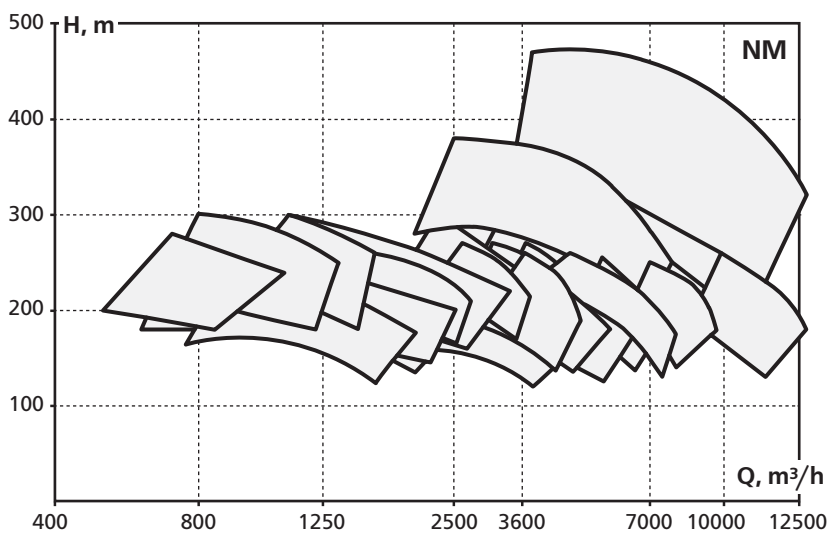
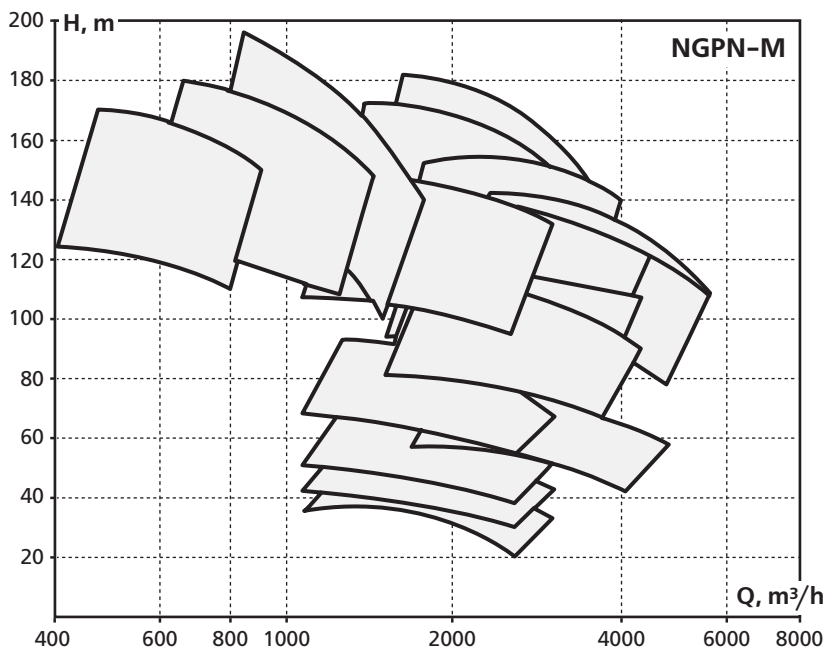
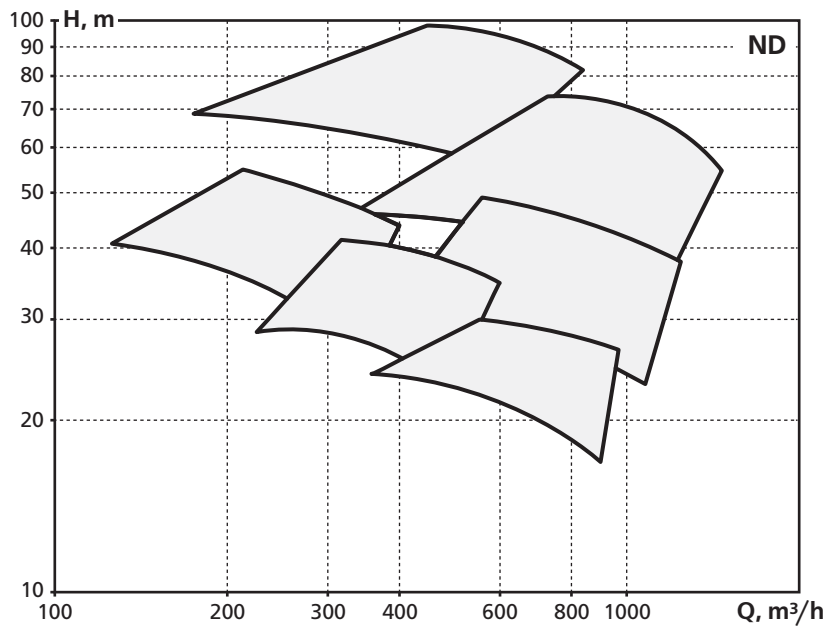
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel



TECHNICAL DATA

	ND	NGPN-M	NM
Capacity, m ³ /h	150 – 1,500	400 – 5,600	600 – 13,000
Head, m	18 – 95	30 – 190	160 – 470
Pressure, kgf/cm ²	up to 16	up to 25	up to 100
Temperature, °C	-15 ... +85	-10 ... +60	-10 ... +60

PERFORMANCE RANGE



AXIALLY SPLIT, ONE-STAGE, BETWEEN-BEARINGS PROCESS PUMPS

ZMK/ZMKV

Type BB1

APPLICATION



Transportation of hydrocarbons via trunk and infield pipelines



Storage tanks and loading/unloading terminals



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

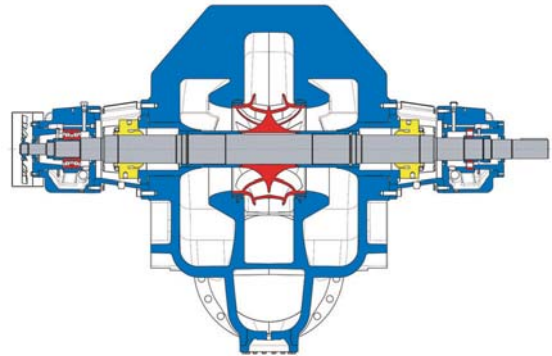


DESIGN FEATURES

- Compliance with the API 610 standard
- Double suction impeller for axial forces compensation
- Double-volute pump casing
- Replaceable wearing rings for operation reliability and easy maintenance

MATERIALS

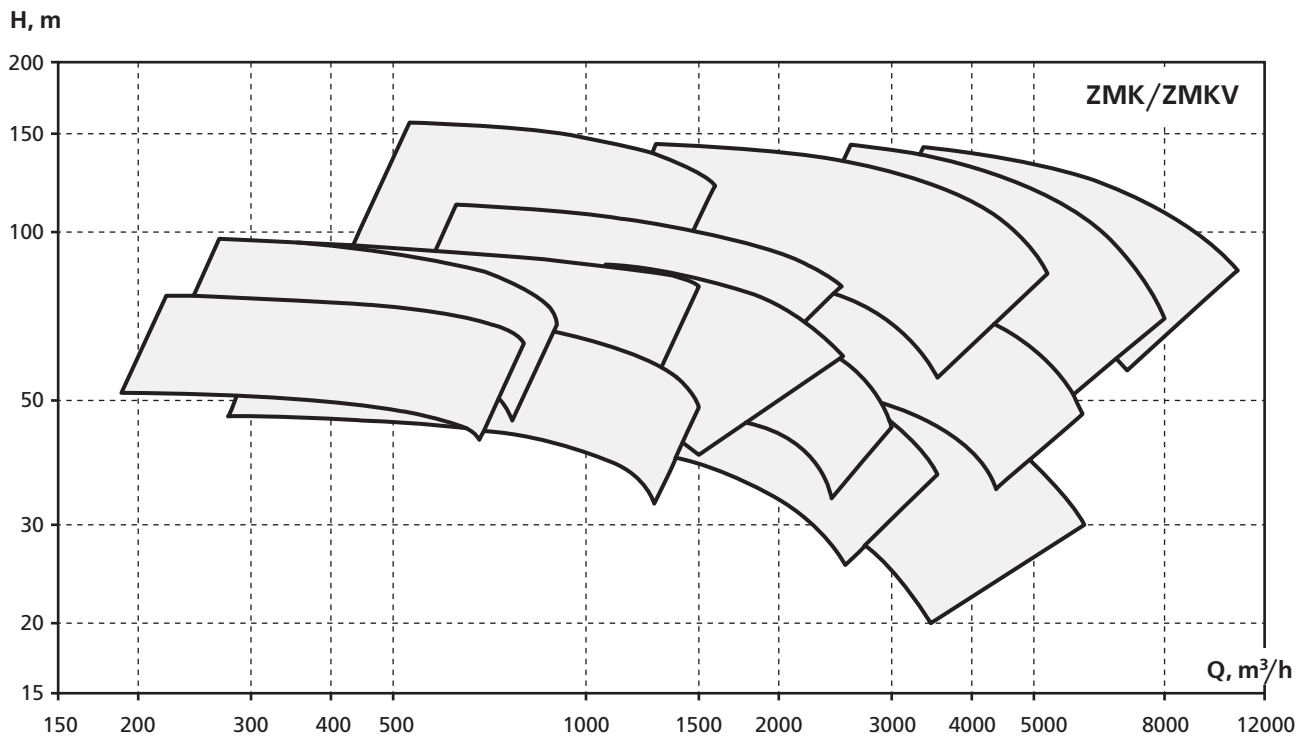
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Titanium
- Special alloys according to NORSOK, NACE



TECHNICAL DATA

	ZMK/ZMKV
Capacity, m ³ /h	180 - 10,000
Head, m	20 – 140
Pressure, kgf/cm ²	up to 25 / 40 (two versions)
Temperature, °C	-80 ... +150

PERFORMANCE RANGE



RADIALLY SPLIT, ONE-STAGE, BETWEEN-BEARINGS PROCESS PUMPS

ZPR/NND

Type BB2

APPLICATION



Onshore/Offshore production of oil, gas & condensate



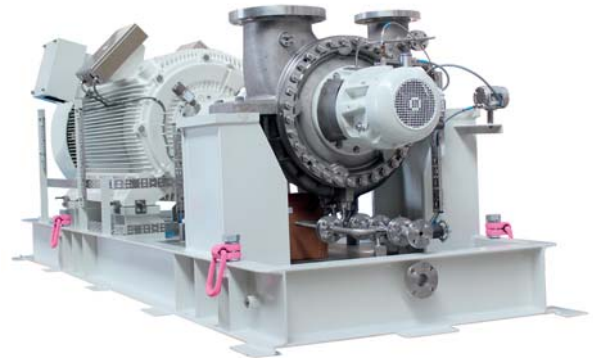
Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

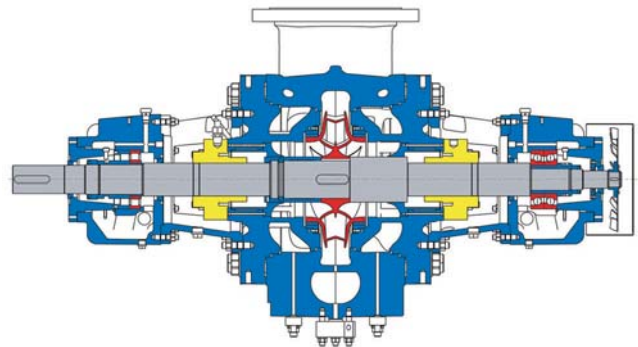


DESIGN FEATURES

- Compliance with the API 610 standard
- Double suction impeller
- Radially split casing with centreline-located support pads
- Sleeve or ball bearings

MATERIALS

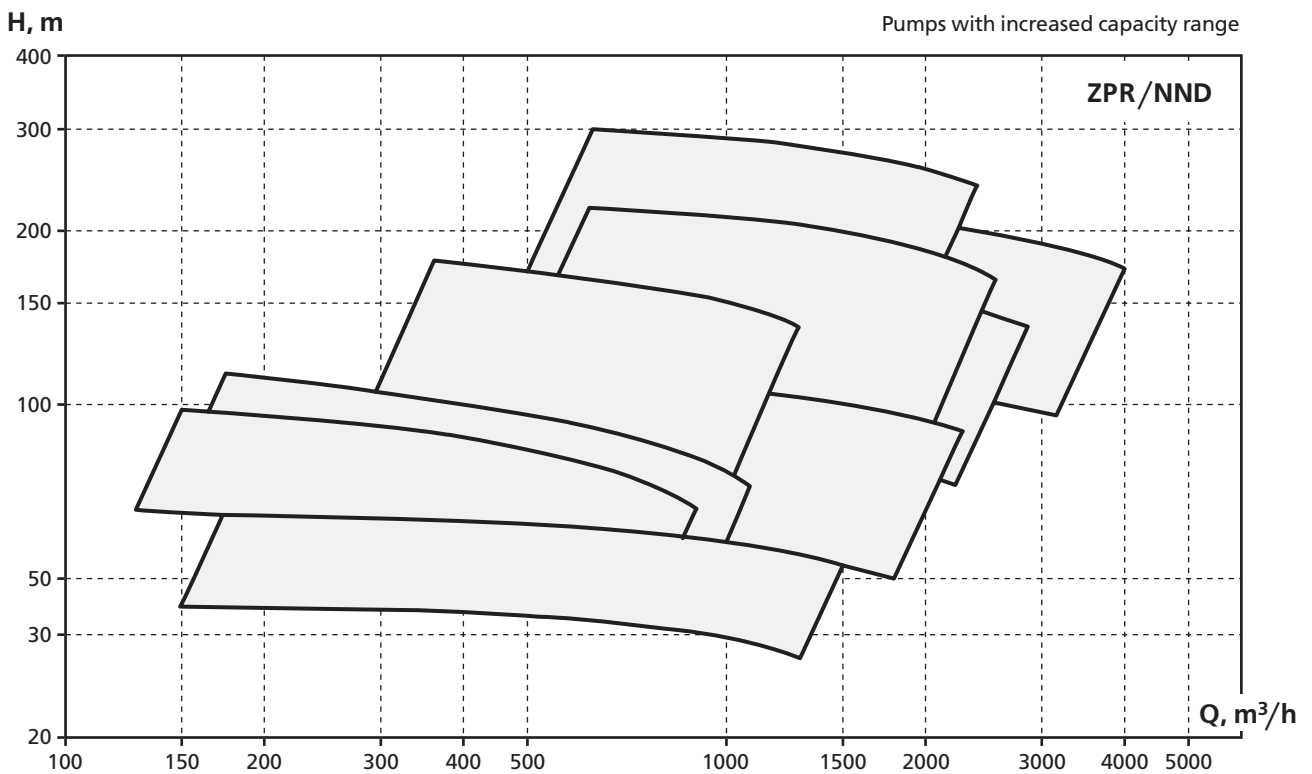
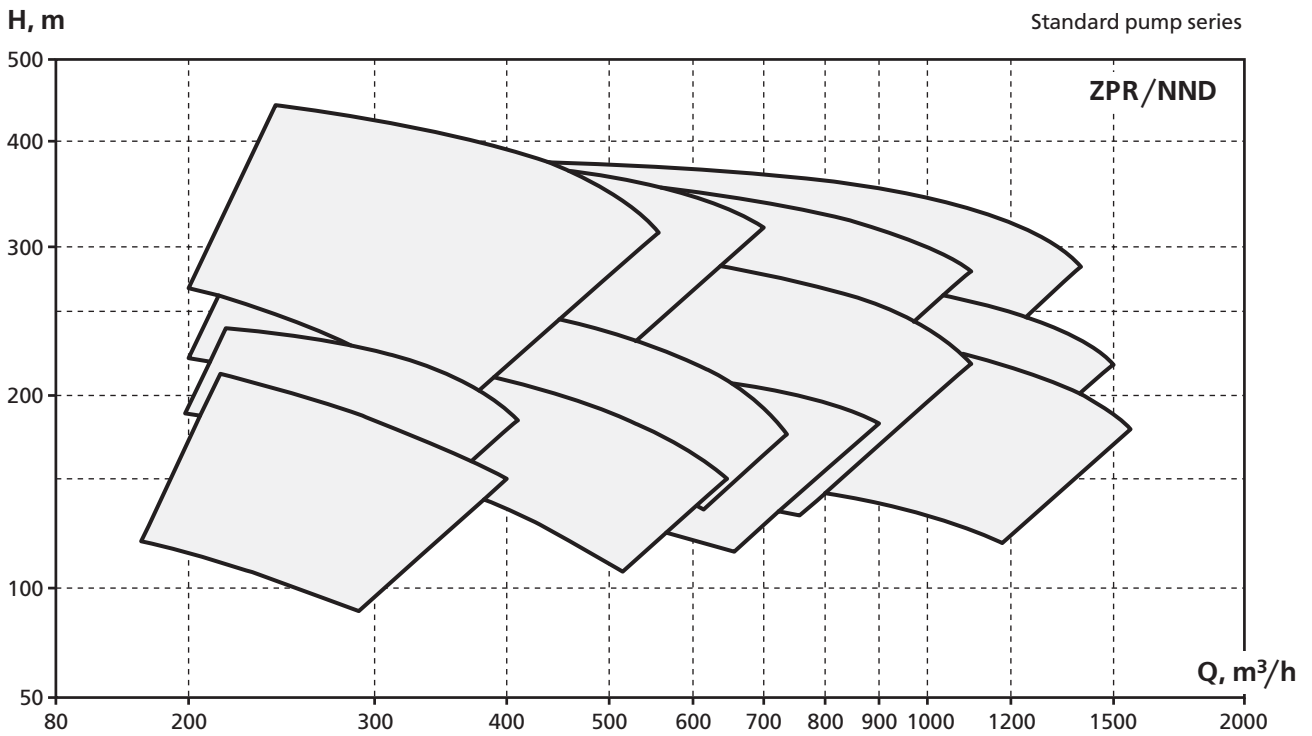
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Titanium
- Special alloys according to NORSOK, NACE



TECHNICAL DATA

	ZPR/NND
Capacity, m ³ /h	130 – 4,000
Head, m	25 – 400
Pressure, kgf/cm ²	up to 160
Temperature, °C	-80 ... +450

PERFORMANCE RANGE







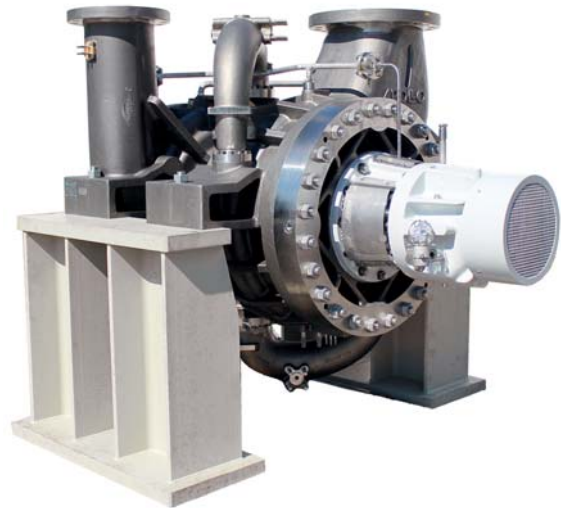
RADIALLY SPLIT, TWO-STAGE, BETWEEN-BEARINGS PROCESS PUMPS

KGR/KGRD

Type BB2

APPLICATION

-  Onshore/Offshore production of oil, gas & condensate
-  Transportation of hydrocarbons via trunk and infield pipelines
-  Oil refining and petroleum chemistry processes
-  Gas processing and gas chemistry plants

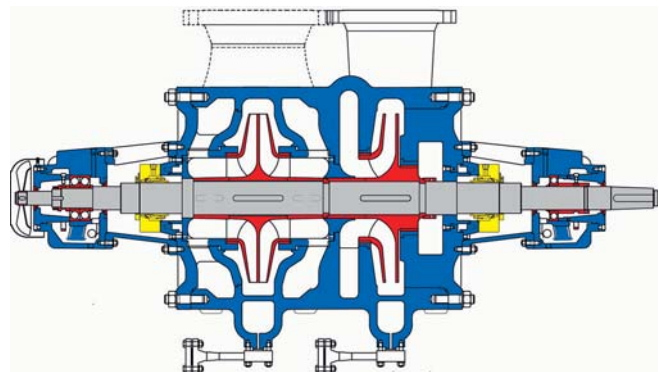


DESIGN FEATURES

- Compliance with the API 610 standard
- Back-to-back arranged impellers for axial forces compensation
- Radially split casing with centreline-located support pads
- Single-flow or double-flow first stage impeller
- Sleeve or ball bearings on both sides

MATERIALS

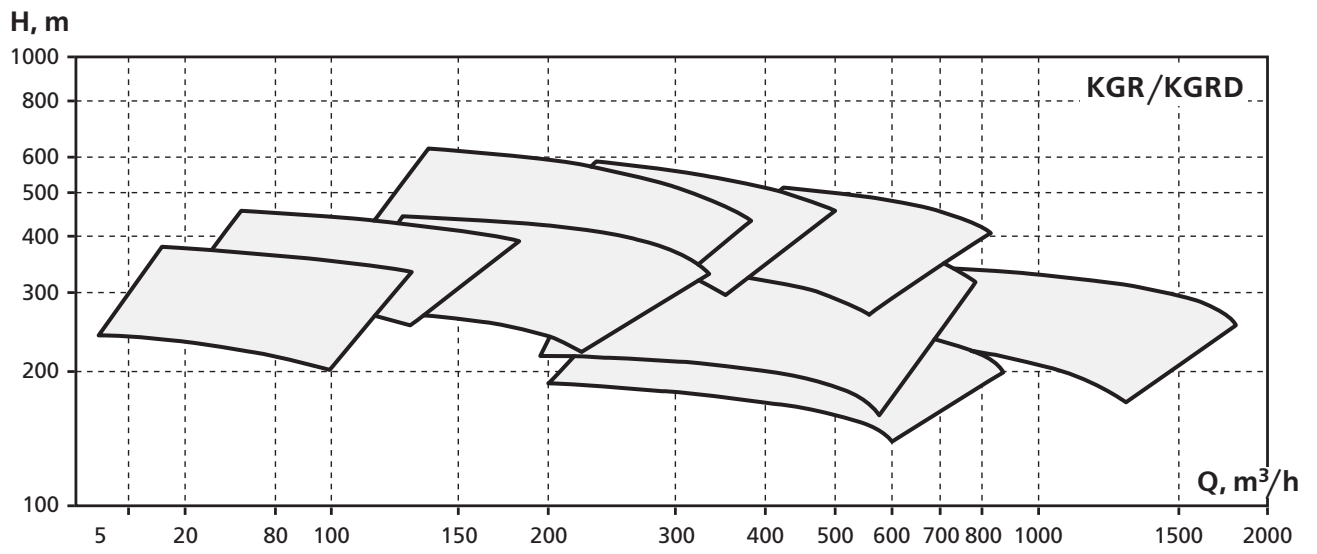
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Titanium
- Special alloys according to NORSOK, NACE



TECHNICAL DATA

	KGR/KGRD
Capacity, m ³ /h	3 – 1,600
Head, m	150 – 600
Pressure, kgf/cm ²	up to 80
Temperature, °C	-80 ... +400

PERFORMANCE RANGE



AXIALLY SPLIT, MULTISTAGE, BETWEEN-BEARINGS PROCESS PUMPS

AMG/NPS

Type BB3

APPLICATION



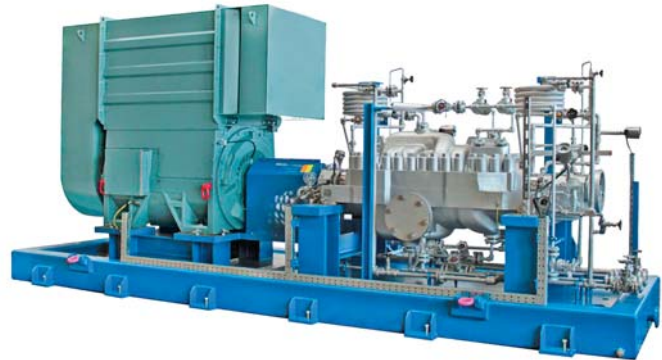
Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes

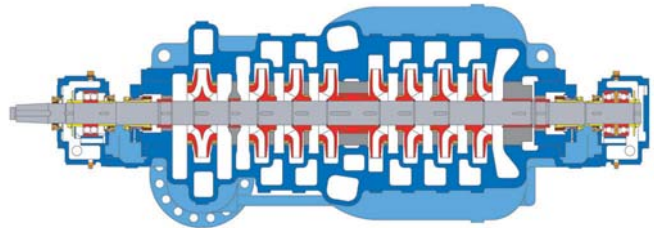


Gas processing and gas chemistry plants



DESIGN FEATURES

- Compliance with the API 610 standard
- Radially balanced rotor due to volute casing
- Back-to-back arranged impellers for axial forces compensation
- First stage inducer with improved suction capabilities



MATERIALS

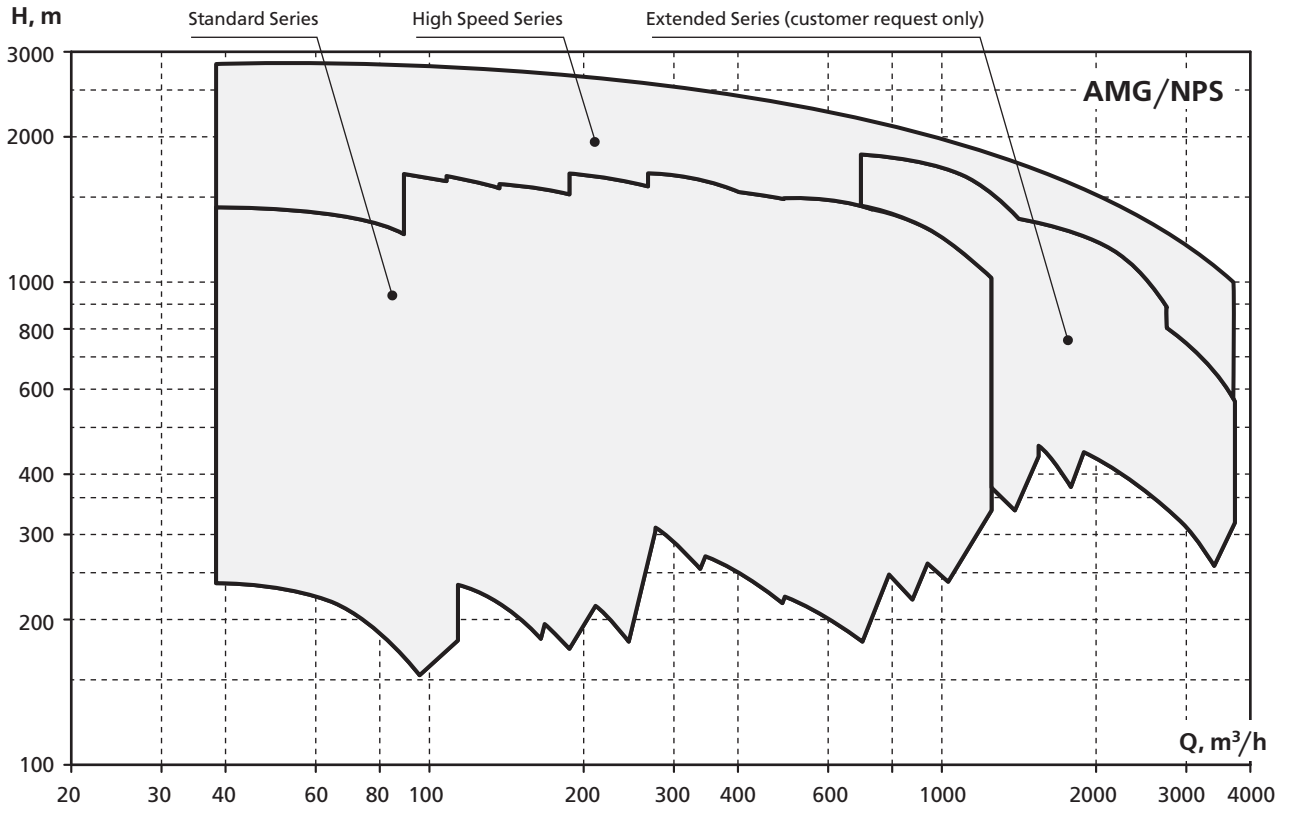
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Special alloys according to NORSOK, NACE

TECHNICAL DATA

	AMG/NPS
Capacity, m ³ /h	32 – 3,800*
Head, m	150 – 2,400*
Pressure, kgf/cm ²	up to 275
Temperature, °C	-80 ... +250

* The parameters can be increased by customer request

PERFORMANCE RANGE



SINGLE-CASING, RADIALLY SPLIT, MULTISTAGE, BETWEEN-BEARINGS PROCESS PUMPS

HP/GP, GMHD

Type BB4

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Transportation of hydrocarbons via trunk and infield pipelines



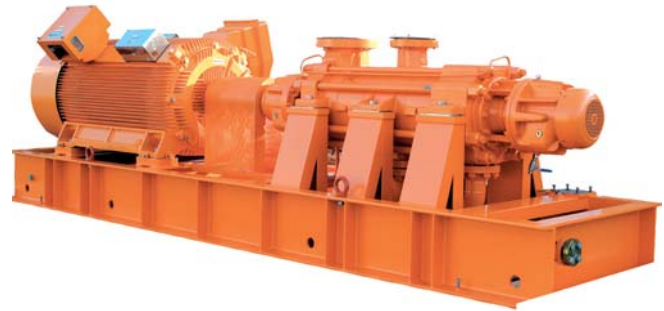
Storage tanks and loading/unloading terminals



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants



DESIGN FEATURES

- Compliance with the API 610 standard
- In-line or back-to-back impellers arrangement
- Axial forces compensation by single/double piston or hydraulic balancing disc
- First stage inducer with improved suction capabilities
- Optionally available first stage with double suction low NPSH impeller

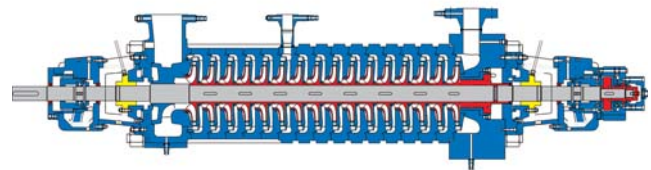
MATERIALS

- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Special alloys according to NORSOK, NACE

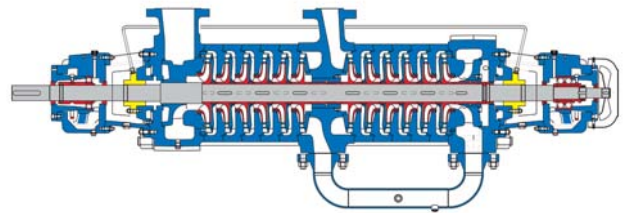
TECHNICAL DATA

	HP/GP	GMHD
Capacity, m ³ /h	10 – 800	170 – 1,400
Head, m	350 – 2,600	80 – 320
Pressure, kgf/cm ²	up to 250	up to 64
Temperature, °C	-80 ...+200	-80 ...+150

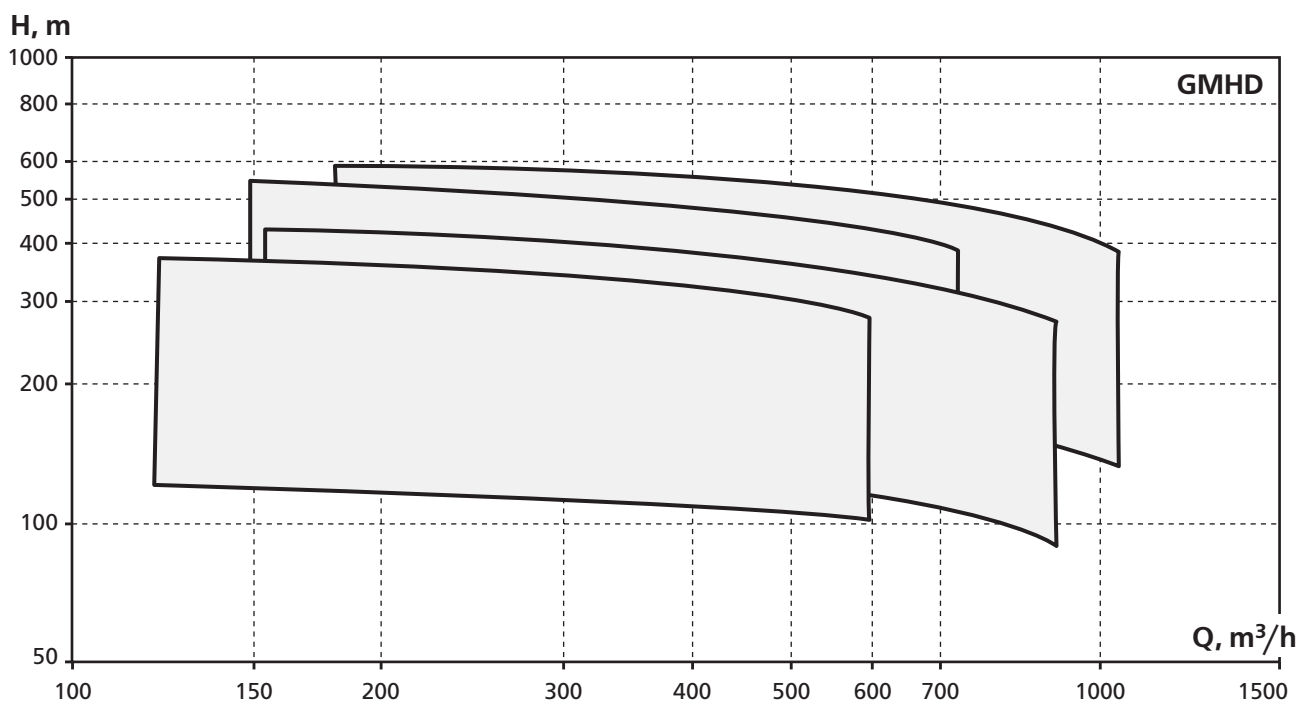
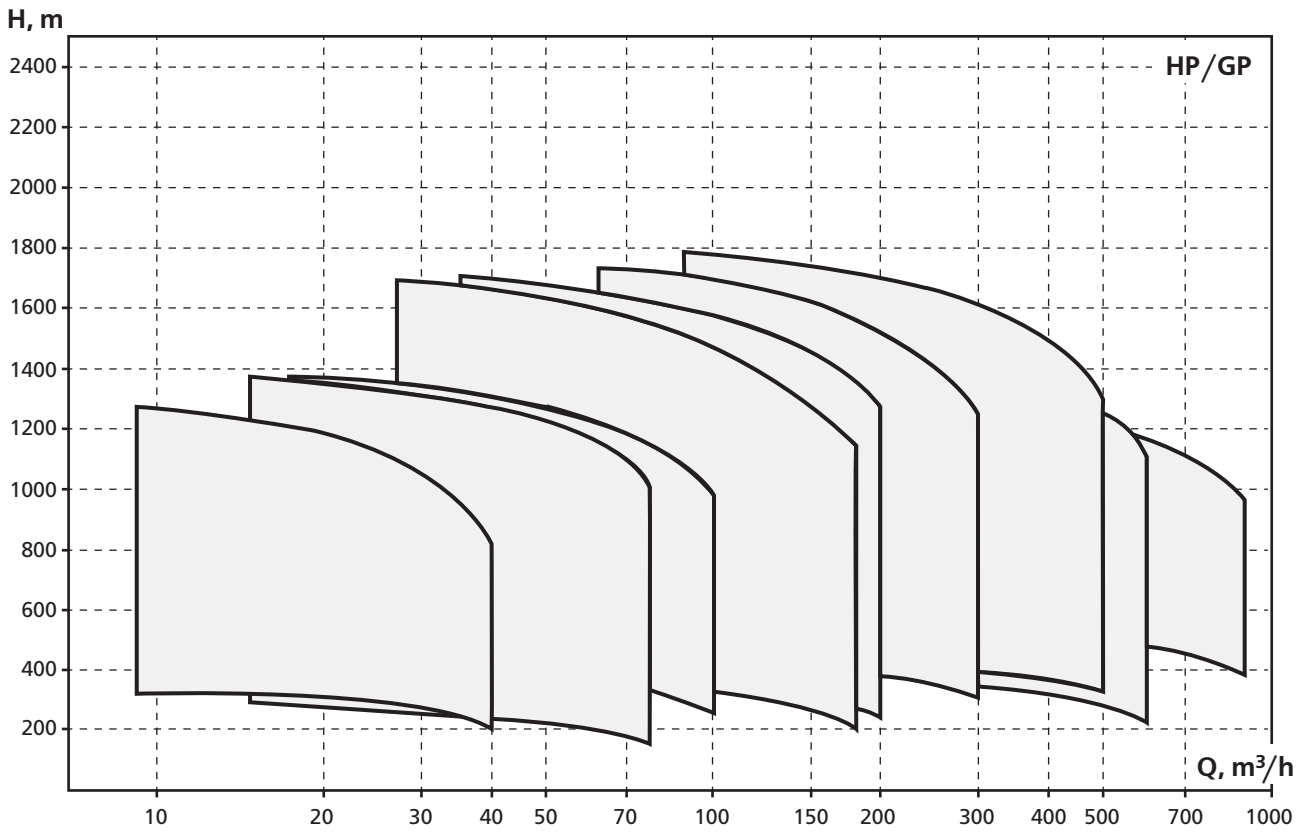
HP, GMHD



GP



PERFORMANCE RANGE



DOUBLE-CASING, RADIALY SPLIT, MULTISTAGE, BETWEEN-BEARINGS PROCESS PUMPS

CNSDp

Type BB5

APPLICATION



Onshore/Offshore production of oil, gas & condensate



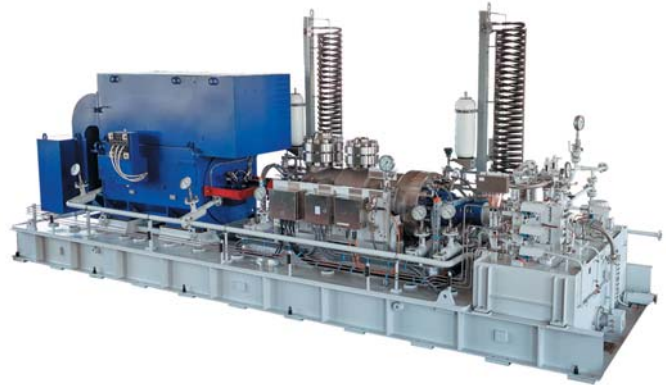
Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes

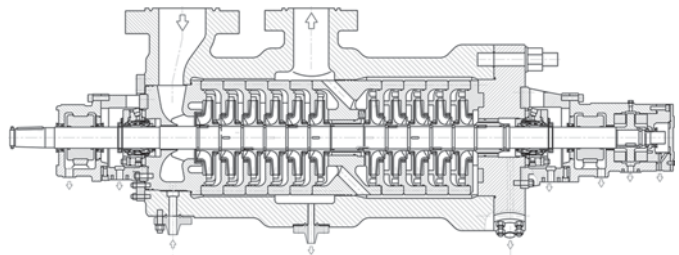


Gas processing and gas chemistry plants



DESIGN FEATURES

- Compliance with the API 610 standard
- Sections with metal-to-metal sealing and additional rubber rings
- Back-to-back impellers arrangement for hydraulically unloaded rotor
- Inner casing can be pulled-out without dismantling the outer casing and pipelines
- Segmental sleeve bearings with forced lubrication



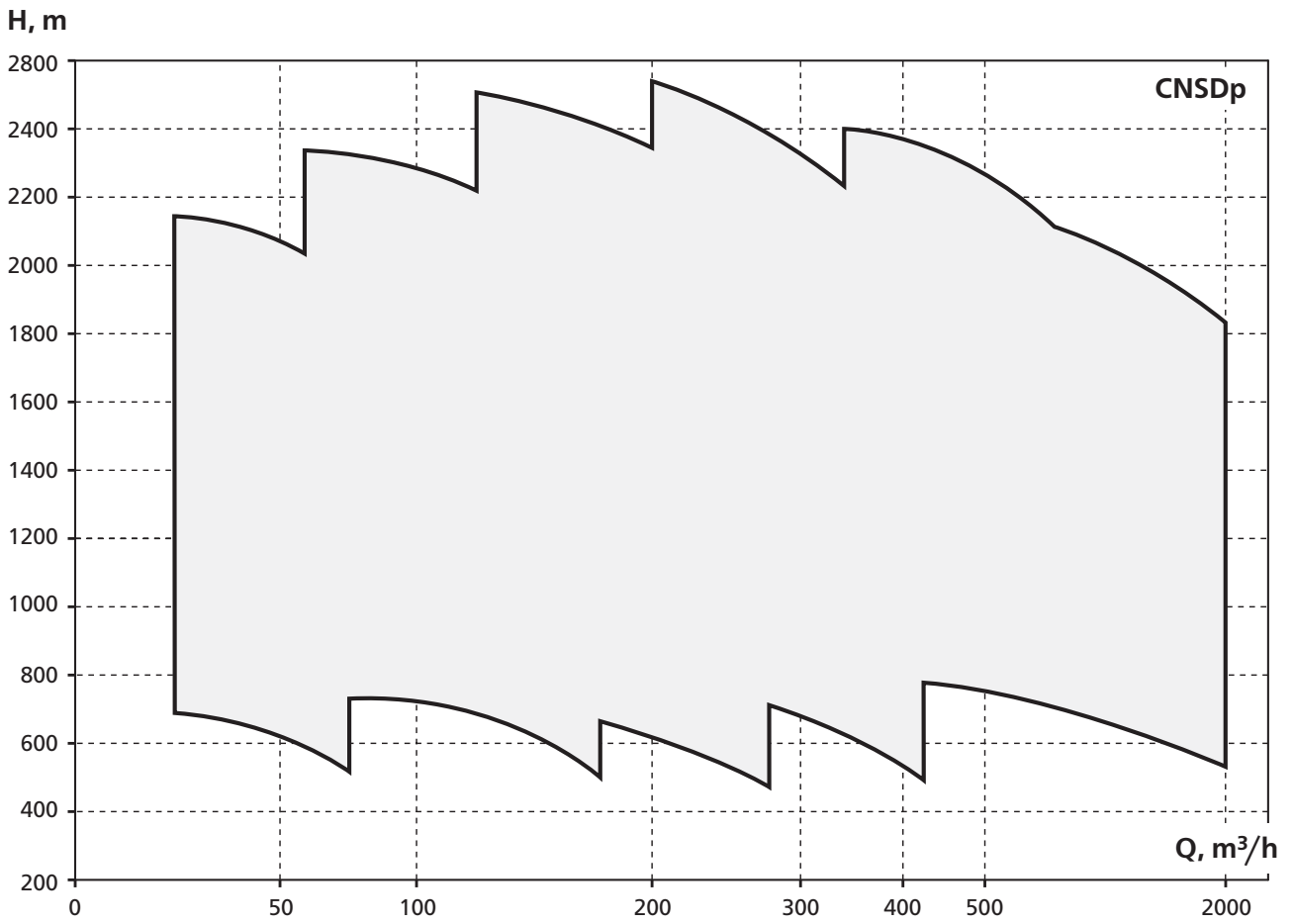
MATERIALS

- Carbon steel
- 12% chromium steel
- Duplex and super duplex steel

TECHNICAL DATA

	CNSDp
Capacity, m ³ /h	25 – 1,840
Head, m	700 – 2,800
Pressure, kgf/cm ²	up to 300
Temperature, °C	-80 ... +400

PERFORMANCE RANGE



DOUBLE-CASING, RADIALY SPLIT, MULTISTAGE, BETWEEN-BEARINGS PROCESS PUMPS

TL/TG, TGDX

Type BB5

APPLICATION



Onshore/Offshore production of oil, gas & condensate



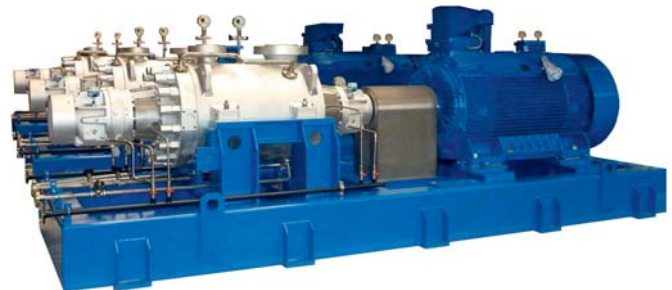
Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants



DESIGN FEATURES

- Compliance with the API 610 standard
- Inner casing can be pulled-out without dismantling the outer casing and pipelines
- In-line or back-to-back impellers arrangement
- First stage impeller with improved suction capabilities
- Ball of sleeve bearings

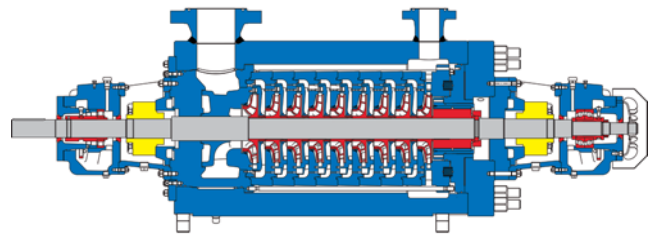
MATERIALS

- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Special alloys according to NORSOK, NACE

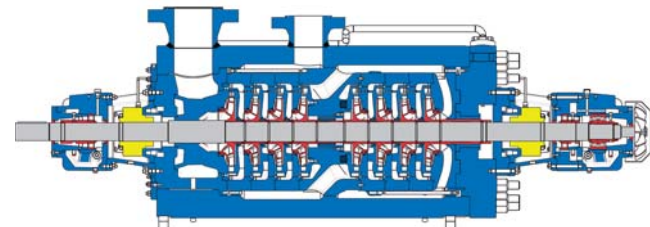
TECHNICAL DATA

	TL/TG	TGDX
Capacity, m ³ /h	8 – 1,500	40 – 700
Head, m	180 – 2,800	180 – 4,200
Pressure, kgf/cm ²	up to 350	up to 450
Temperature, °C	-80 ... +450	-80 ... +360

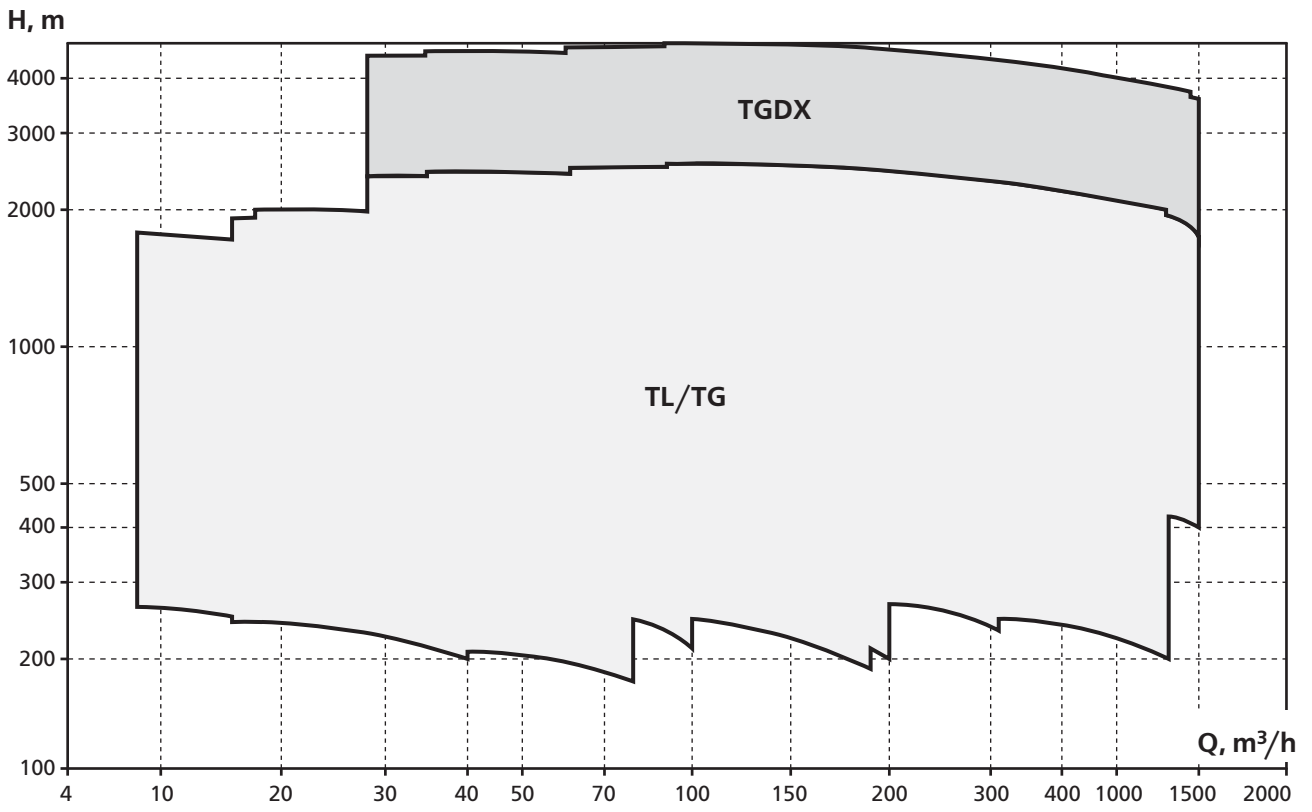
TL



TG, TGDX



PERFORMANCE RANGE



VERTICALLY SUSPENDED, SINGLE-CASING DIFFUSER PROCESS PUMPS

HPV/HPVX, GDV

Type VS1

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Transportation of hydrocarbons via trunk and infield pipelines



Storage tanks and loading/unloading terminals



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

DESIGN FEATURES

- Compliance with the API 610 standard
- Radial impellers with improved suction capabilities and suspended first stage impeller (option)
- Balance piston for axial forces compensation
- Sleeve bearings lubricated by the pumped liquid in the immersed part
- Ball bearings or combined journal-and-thrust sleeve bearings in the upper part

MATERIALS

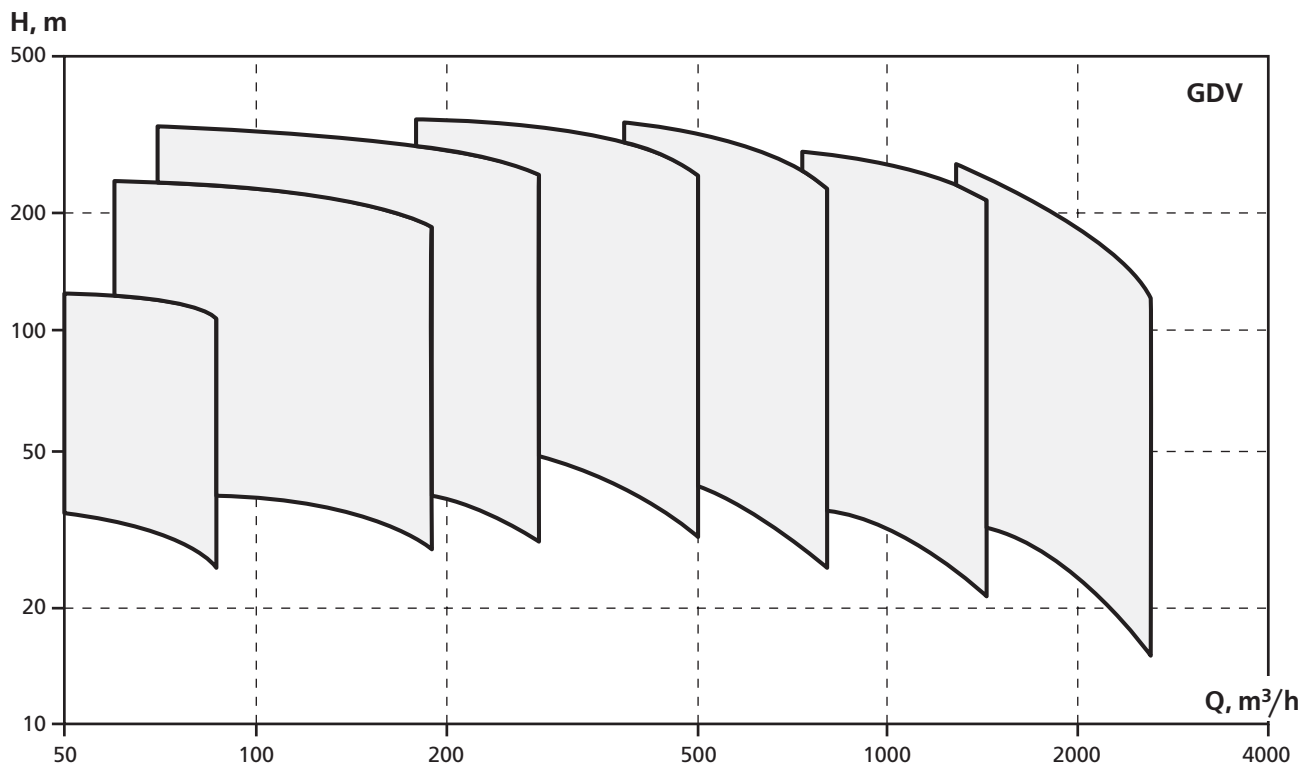
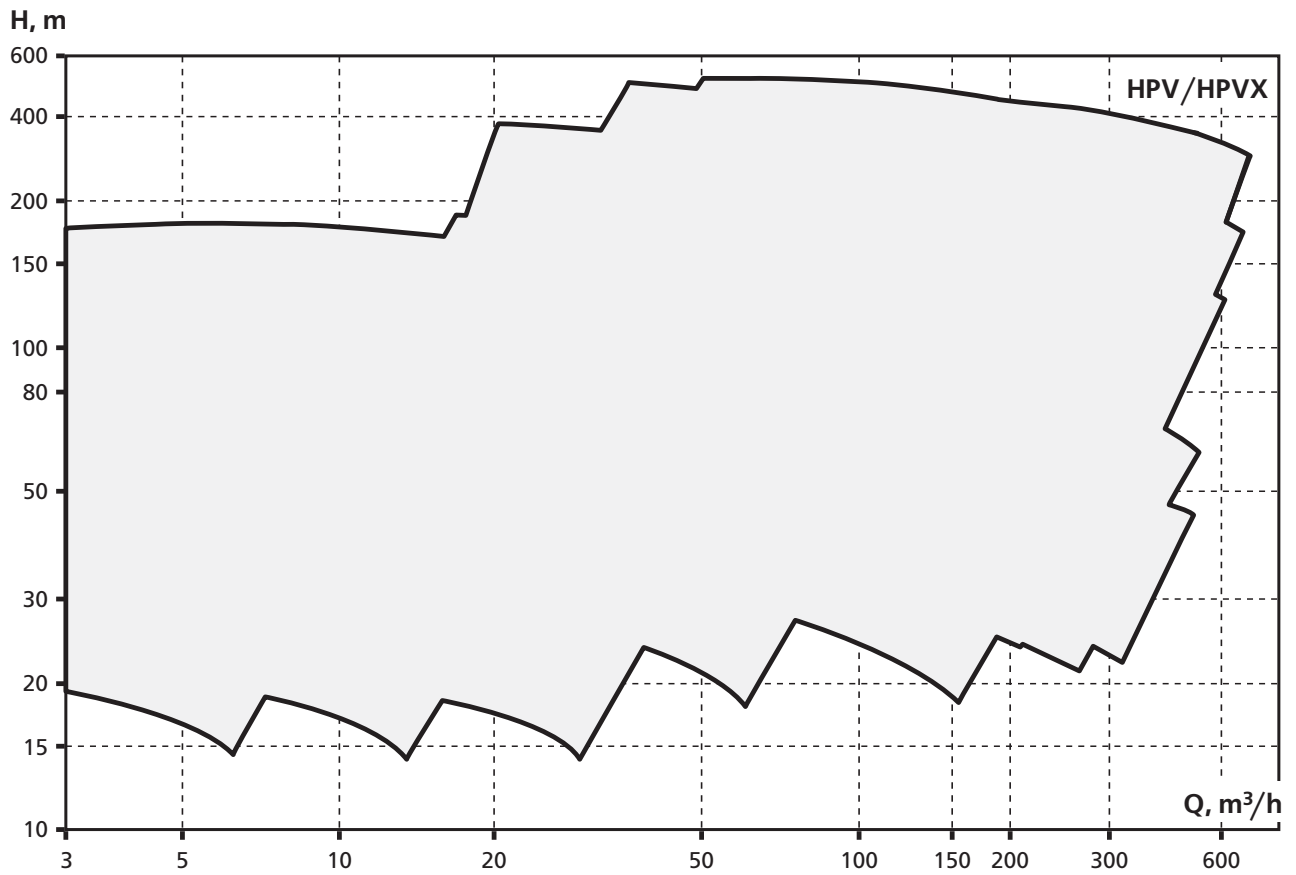
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Special alloys according to NORSOK, NACE

TECHNICAL DATA

	HPV/HPVX	GDV
Capacity, m ³ /h	3 – 600	50 – 3,200
Head, m	14 – 600	15 – 460
Temperature, °C	-80 ... +180	-80 ... +160



PERFORMANCE RANGE



DOUBLE-CASING, DIFFUSER, VERTICALLY SUSPENDED PROCESS PUMPS

GLKV/GSTV, HPTV, GDTV Type VS6

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Transportation of hydrocarbons via trunk and infield pipelines



Storage tanks and loading/unloading terminals



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

DESIGN FEATURES

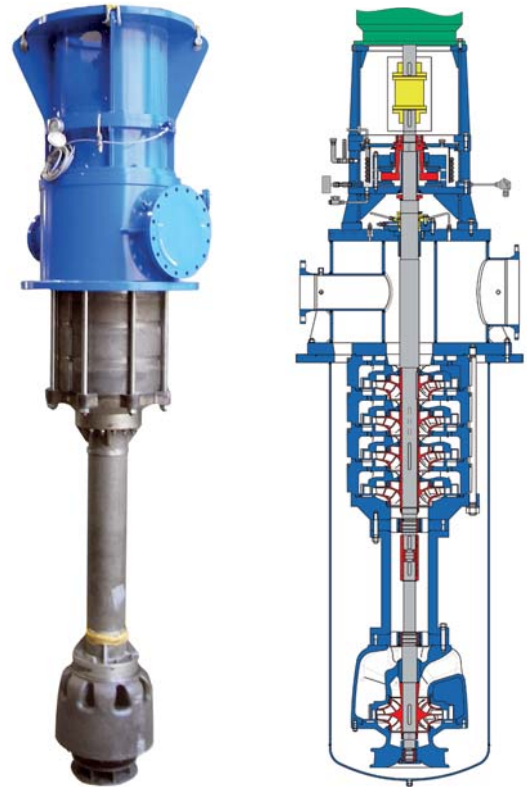
- Compliance with the API 610 standard
- Axial forces compensation by balance piston
- The first stage impeller in single-flow or double-flow version with improved suction capabilities
- Flow path version with diagonal impellers for higher capacity
- Ball bearing or combined journal-and-thrust sleeve bearings

MATERIALS

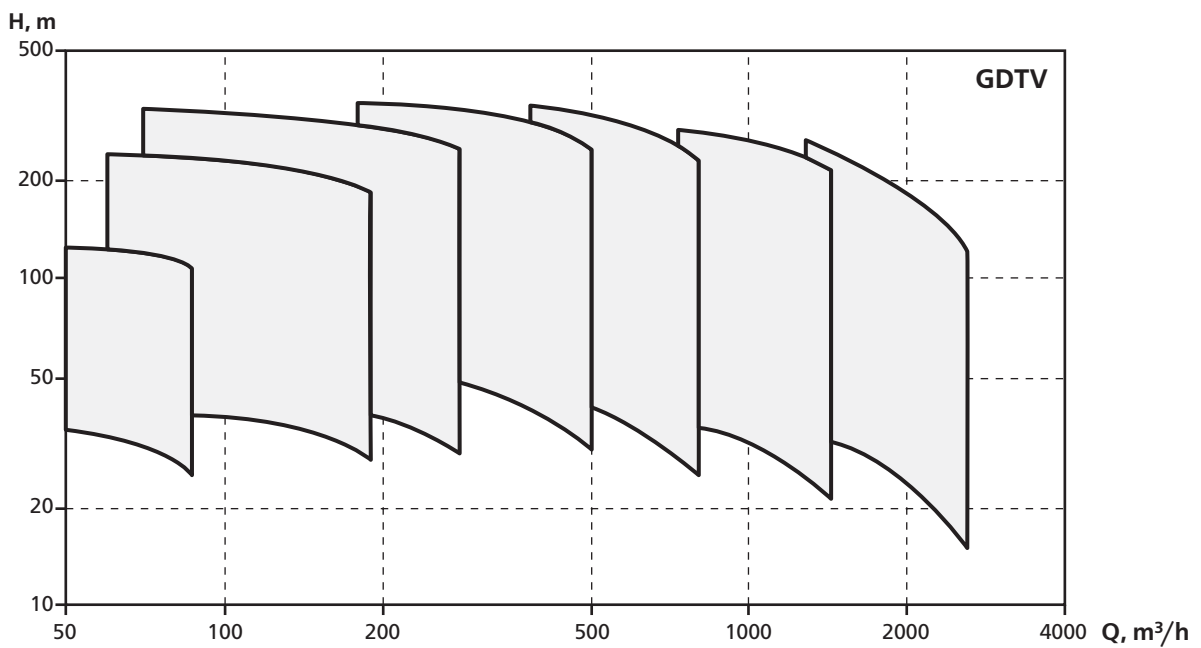
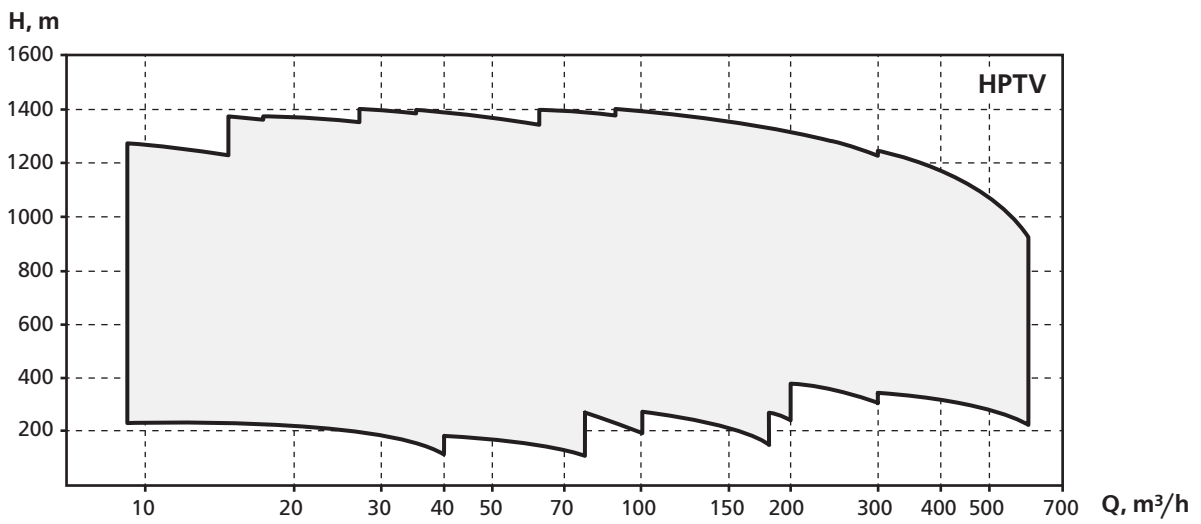
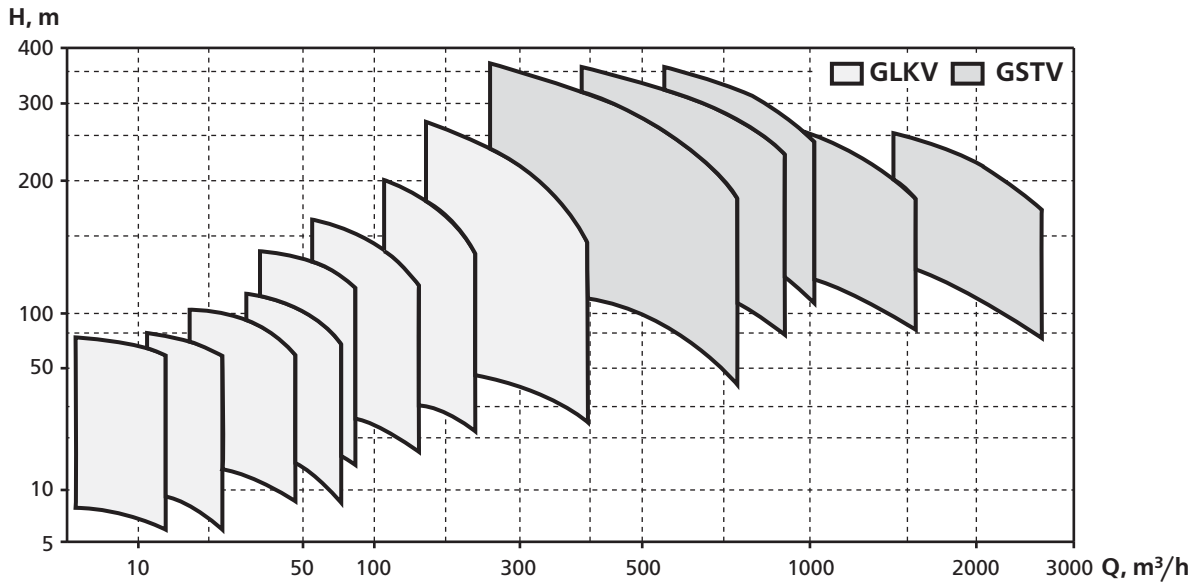
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel
- Duplex and super duplex steel
- Special alloys according to NORSOK, NACE

TECHNICAL DATA

	GLKV	HPTV	GDTV
Capacity, m ³ /h	6 – 3,000	8 – 550	50 – 3,200
Head, m	6 – 360	100 – 1,400	15 – 460
Temperature, °C	-80 ... +160	-180 ... +260	-30 ... +160



PERFORMANCE RANGE








DOUBLE-CASING, DIFFUSER AND VOLUTE, VERTICALLY SUSPENDED PROCESS PUMPS

NPV/NPV-M, NMV

Type VS6, VS7

APPLICATION

-  Onshore/Offshore production of oil, gas & condensate
-  Transportation of hydrocarbons via trunk and infield pipelines
-  Storage tanks and loading/unloading terminals
-  Oil refining and petroleum chemistry processes
-  Gas processing and gas chemistry plants

DESIGN FEATURES

- Compliance with the API 610 standard
- In-line suction and discharge nozzles (in VS6 version)
- Balance piston for axial forces compensation
- Optional installation of axial-centrifugal stage for improved cavitation properties

MATERIALS

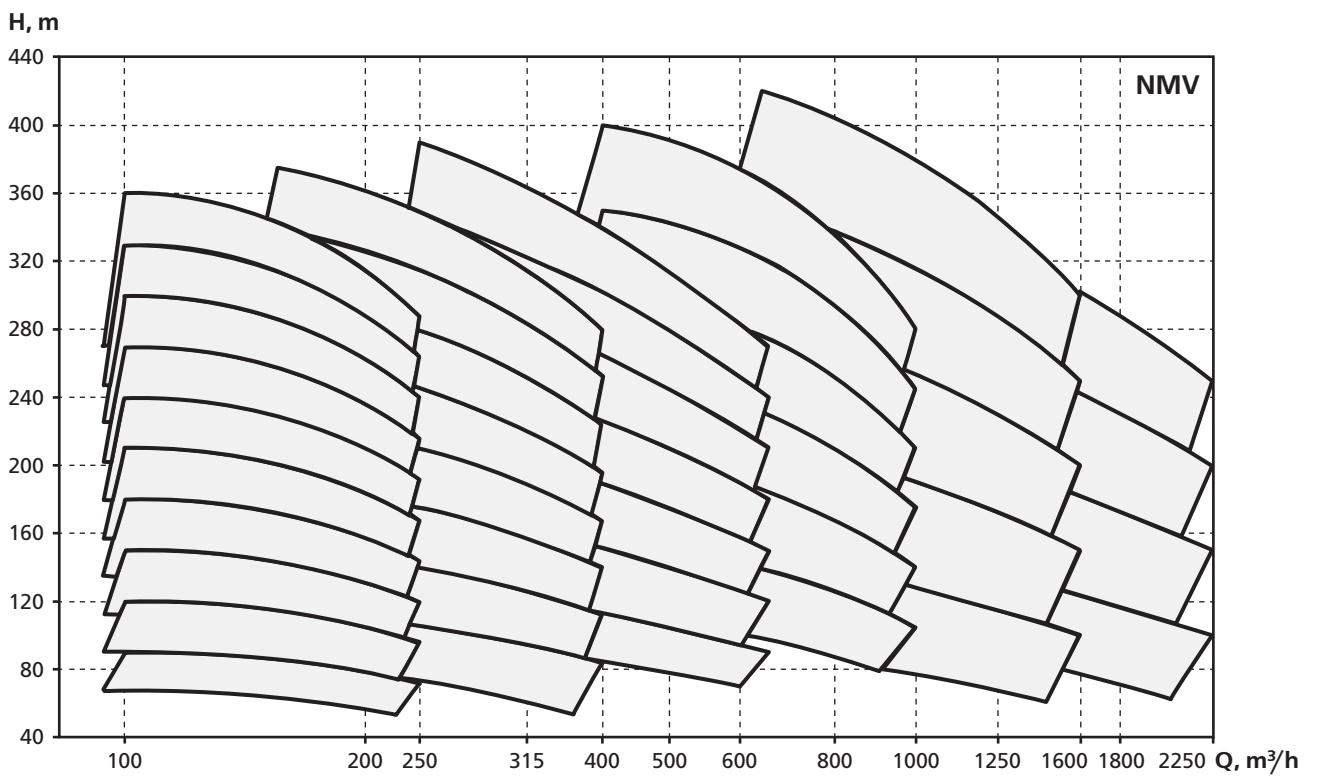
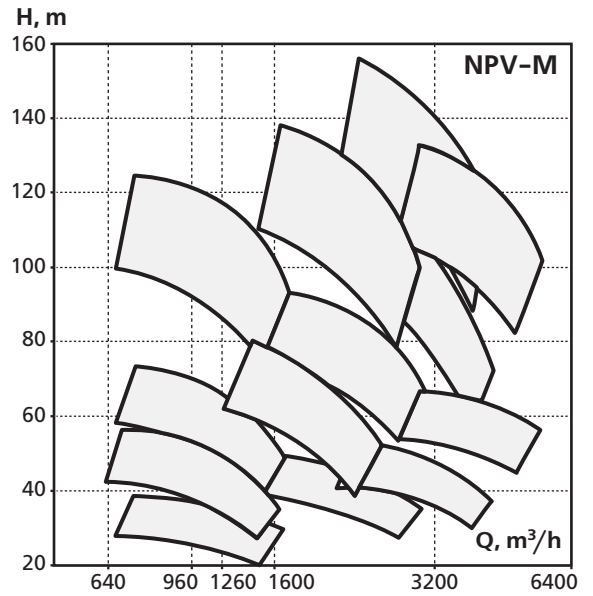
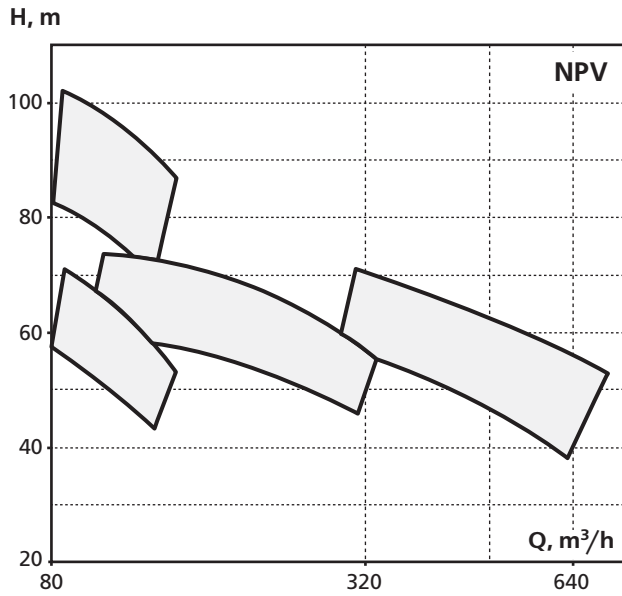
- Carbon steel
- 12% chromium steel
- Austenitic stainless steel

TECHNICAL DATA

	NPV/NPV-M	NMV
Capacity, m ³ /h	100 – 6,000	100 – 2,250
Head, m	20 – 150	60 – 420
Temperature, °C	-15 ... +50	-15 ... +50



PERFORMANCE RANGE



HERMETIC, CENTRELINE-MOUNTED, SINGLE-STAGE OVERHUNG PROCESS PUMPS WITH MAGNETIC COUPLING

2NKG

Type OH2

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Transportation of hydrocarbons via trunk and infield pipelines



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants



DESIGN FEATURES

- Pumps design compliance with the API 610 standard
- Magnetic coupling design compliance with API 685 standard
- Completely leakproof flow path
- Back pull-out rotor with detachable coupling
- Optionally available inducer at the suction side
- Fully compatible with 2NK pumps by installation and mounting dimensions

MATERIALS

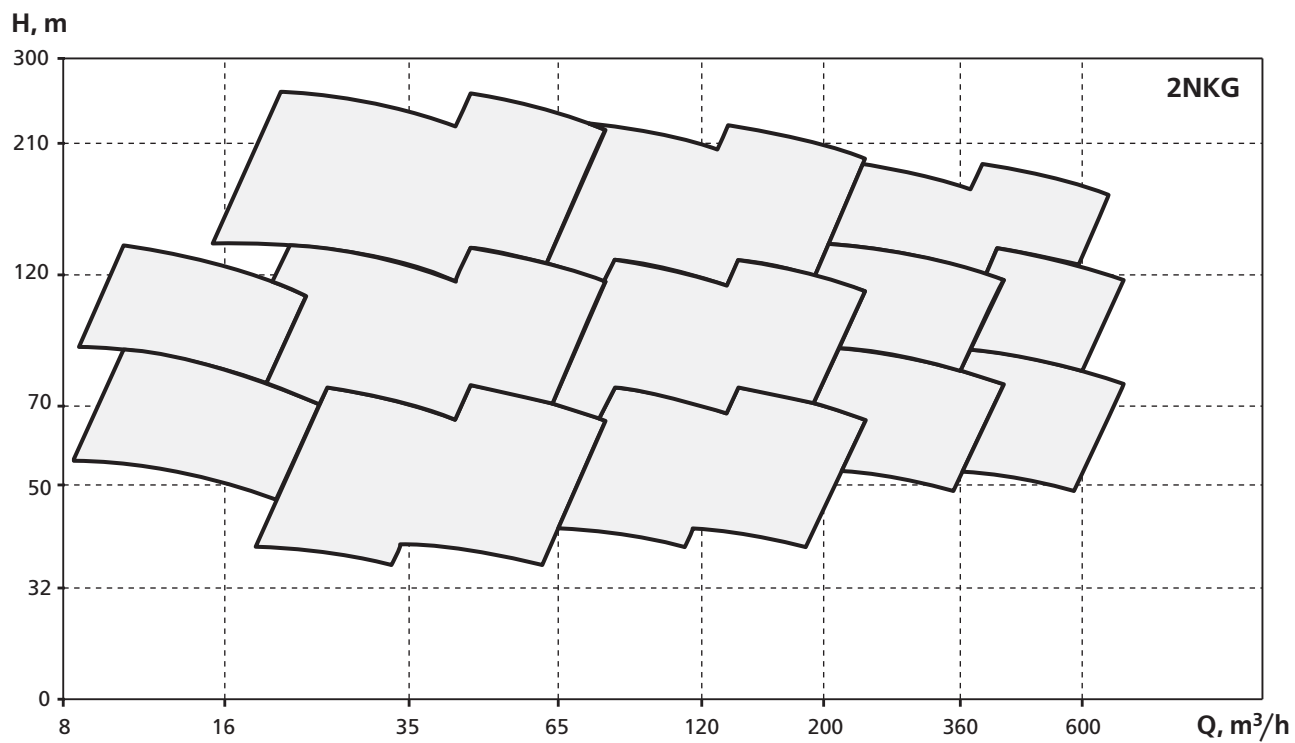
- Carbon steel
- Chromium steel
- Chromium-nickel-titanium and chromium-nickel-molybdenum austenitic steel
- Duplex steel
- Other materials according to API 610



TECHNICAL DATA

	2NKG
Capacity, m ³ /h	10 – 600
Head, m	35 – 255
Pressure, kgf/cm ²	up to 64
Temperature, °C	-80 ... +250

PERFORMANCE RANGE



MEMBRANE HERMETIC AND PLUNGER DOSING PUMPING SYSTEMS

UNDM-L

APPLICATION



Onshore/Offshore production of oil, gas & condensate



Oil refining and petroleum chemistry processes



Gas processing and gas chemistry plants

DESIGN FEATURES

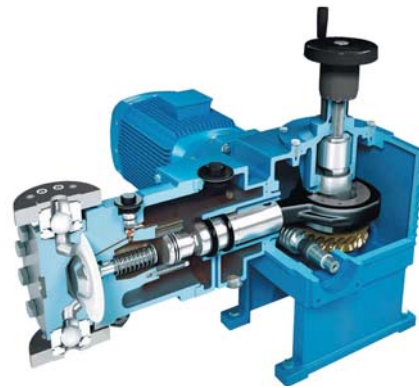
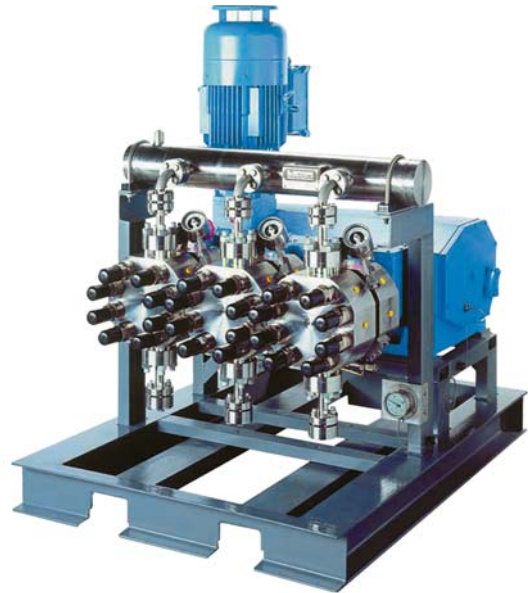
- Compliance with the API 675 standard
- Modular design integrating several pumping heads with a single drive
- Completely leak-proof flow path (for membrane pumps)
- Double membrane with a blowout sensor for leaks prevention
- Capacity regulation by VFD without stopping the pump or by piston working stroke adjustment

MATERIALS

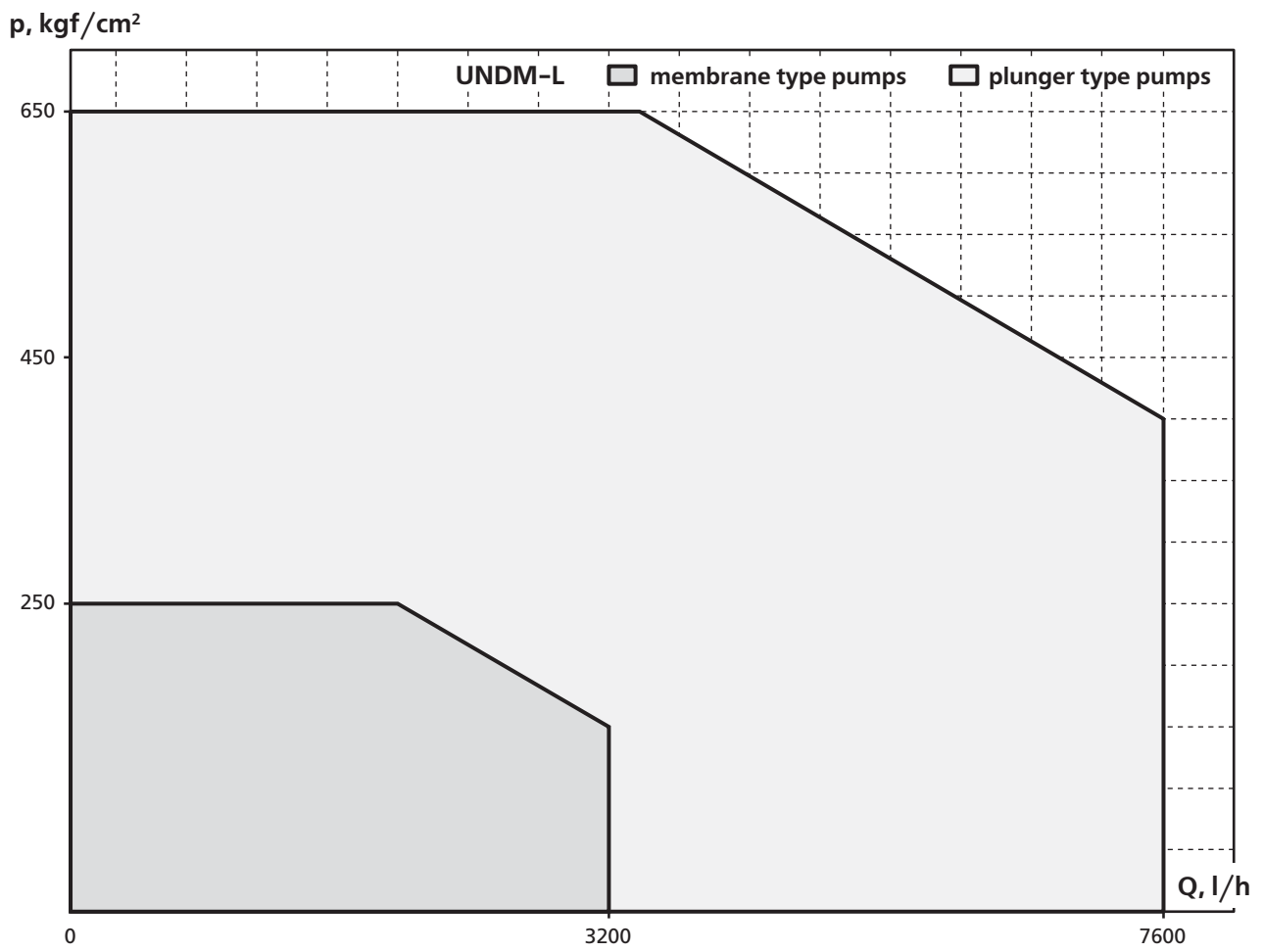
- Chromium-nickel-titanium and chromium-nickel-molybdenum austenitic steel
- Duplex steel
- Other materials according to API 675

TECHNICAL DATA

	UNDM-L membrane type pumps	UNDM-L plunger type pumps
Capacity, l/h	25 – 3,200	100 – 7,600
Discharge pressure, kgf/cm ²	1 – 250	1 – 650
Temperature, °C	-30 ... +150	-30 ... +200



PERFORMANCE RANGE



QUALITY CERTIFICATES

- The quality management system at manufacturing facilities of APOLLO Goessnitz, Nasosenergomash, Bobruisk Machine Building Plant, and HMS Livgidromash is compliant with requirements of the ISO 9001 standard



APOLLO Goessnitz



Nasosenergomash



Bobruisk Machine Building Plant



HMS Livgidromash

**HMS Group Moscow
International Sales Department**

Phone: + 7 (495) 730 6601

Fax: + 7 (495) 730 6602

E-mail: export@hms.ru

www.grouphms.com www.hms.biz

The information contained in this catalogue is intended for reference purposes only and basic selection of products manufactured by HMS Group and its affiliated companies.

Full and detailed technical information regarding specific products of HMS Group or its affiliated companies is available in relevant manufacturer's technical manuals.

HMS Group reserves the right to alter the products without prior notice and is not responsible for possible errors and misprints in catalogs, brochures and other printed or published materials in any form.