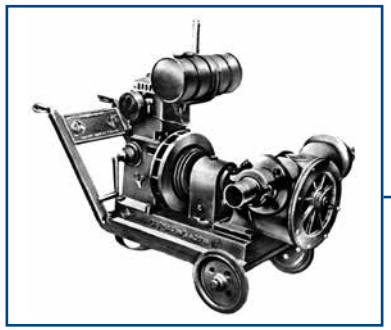
GARBARINO®

Company Presentation

Company History

Founded in 1932 by Paolo Garbarino



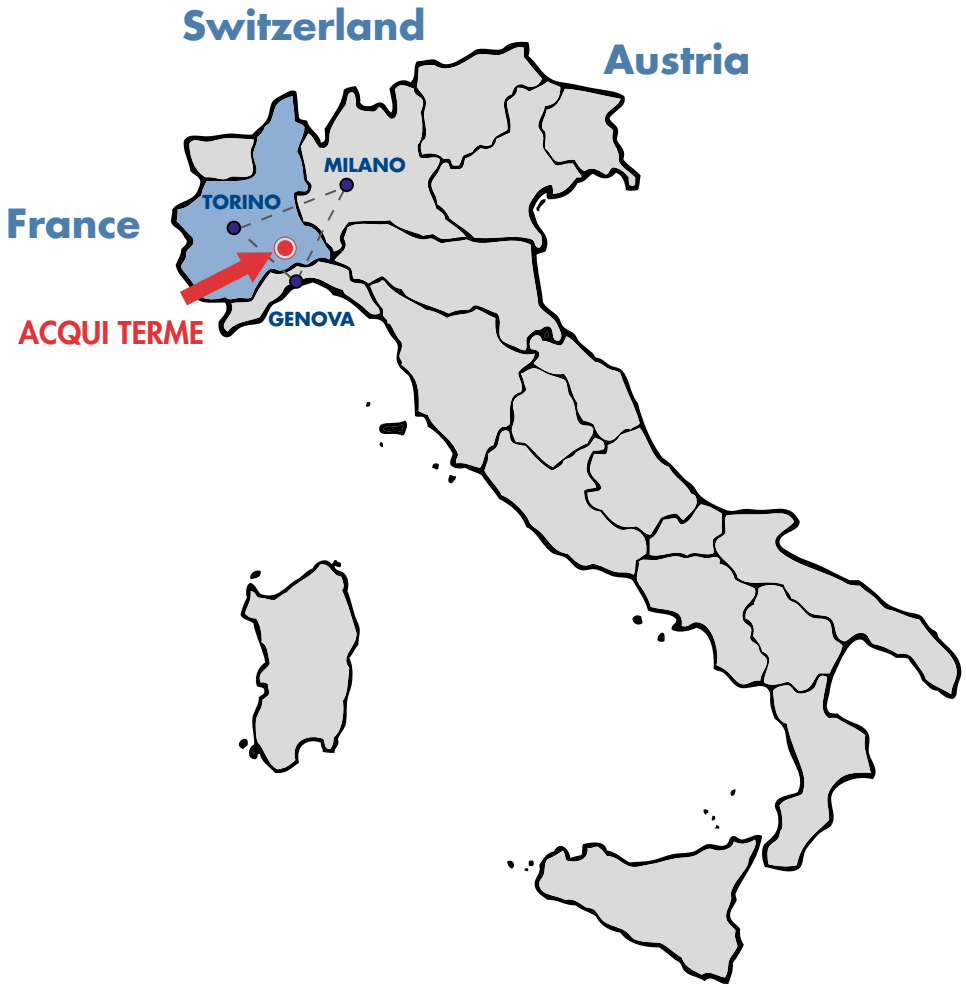
1932
Wine Industry field

60's
Marine field

50's
Italian Navy Supplier

80's
Industrial field

Location in Italy



Acqui Terme (AL), Piedmont

HEADQUARTERS

2 WORKSHOPS

Company Features

Tailor Made products

High quality standards

Long experience

High flexibility

Technical consultancy

After sales

Warehouse - Spare parts

Materials

Quality Standards

ISO 9001:2015
by RINA

ISO 14001:2015
by RINA

AQAP 2110
by the Italian Ministry of Defence since 1987

Classification societies:
RINA, ABS, BV, LR, DNV, NKK, RS, CCS, TL

Markets: marine&offshore, navy and industry

Marine&Offshore

supplier of major shipyards in Europe and Asia,ship owners worldwide, world market leader in cruise shipbuilding

Navy

official supplier of the Italian Navy since 1950, supplier of several foreign navies

Industry

pumps specifically manufactured for industrial applications and different type of plants

GARBARINO®

Marine&Offshore

GARBARINO®

Shipyards References

FINCANTIERI

MEYER TURKU

BAKU SHIPYARD

CSIC

intermarine

DAMEN

stx Offshore & Shipbuilding

Boustead Naval Shipyard Sdn. Bhd

T. MARIOTTI

REMONTOWA

SAMSUNG HEAVY INDUSTRIES

Keppel Offshore & Marine

ROSETTI MARINO

DESAN SHIPYARD

HYUNDAI MIPO DOCKYARD

sembcorp

CHANTIERS DE L'ATLANTIQUE

Lamprell

HYUNDAI HEAVY INDUSTRIES CO.,LTD

ST Engineering Marine

NAVAL GROUP

NPCC

MITSUBISHI HEAVY INDUSTRIES

PAL INDONESIA

Navantia

CSSC

ESTALEIRO AtlânticoSul

Vessels Type

- CRUISE VESSELS
- MEGA YACHTS
- WORK BOATS:

  Tug boats,

  Supply vessels,

  AHTS,

  Oceanographic/ research vessels.
- GENERAL CARGO SHIPS
- CONTAINER CARRIERS
- BULK CARRIERS
- OIL TANKERS/OBO's
- FERRIES, RO-RO / PAX
- OFFSHORE:

  Semi-Sub platforms,

  Drilling platforms,

  Drilling ships,

  FPSO's
- LPG / LNG
- CHEMICAL/PRODUCT CARRIERS
- OTHERS:

  Floating Docks,

  Floating Power Stations,

  Heavy Bulk Cargo Barges,

  Pipe laying vessels

GARBARINO®

Cruise References

ACCOR
ADORA CRUISES
AIDA
ĀMAN
AZAMARA CLUB CRUISES
Carnival
Costa
CUNARD
CRYSTAL CRUISES

Disney Cruise Line
Four Seasons Yachts
Holland America Line
MSC Crociere
NCL Norwegian Cruise Line
Oceania Cruises
P&O Cruises
PONANT Yacht Cruises & Expeditions

Princess Cruises
Regent Seven Seas Cruises
SEABOURN
SILVERSEA
The Ritz-Carlton Yacht Collection
TUI Cruises
VIKING
Virgin Voyages

Marine and Naval Applications

- Main and auxiliaries cooling
- Ballast service
- Bilge service
- Deck water sealing
- Sludge
- Sewage transfer
- Main engine lub oil system
- Lub oil, fuel oil, waste oil transfer
- Boiler feed
- Economizer circulation
- Fire fighting & general services
- Fresh water system
- AC chilled water circulation
- HT/LT circulation
- Grey / Black water handling
- Water chilling
- Scrubber system
- Ballast water treatment

GARBARINO®

Navy

Naval Quality Standards

- NATO AQAP-2110
- Military Standards MIL STD:
- Mechanical Vibrations MIL STD 167-1
- Airborne Sound MIL STD 740 1
- Structure borne vibrations MIL STD 740 2
- Shock Test MIL S 901 D
- Non magnetic executions

Naval Yards and Vessels Type

Naval Yards

- Fincantieri - Italy
- Intermarine - Italy
- NAVAL Group - France
- Chantiers de l'Atlantique - France
- Chantiers Piriou - France
- CMN – France
- Navantia - Spain
- Umoe Mandal Shipyard - Norway
- Schelde Naval Shipbuilding - Holland
- Elefsis Shipyard - Greece
- Remontowa Shipbuilding - Poland
- Boustead Naval Shipyard - Malaysia
- Hyundai Heavy Industries - Korea
- ST Marine - Singapore
- PT Pal - Indonesia
- Arsenal de Marinha do Rio de Janeiro - Brazil

Vessels Type

- Aircraft Carriers
- Submarines
- Frigates
- Mine Hunters
- Corvettes
- Destroyers
- Patrol Boats
- Oceanographic vessels
- Training vessels

Naval References

Europe:


• Italian Navy


• French Navy


• Spanish Navy


• Finnish Navy


• Royal Norwegian Navy


• Royal Netherlands Navy


• Belgium Navy


• Russian Navy


• Hellenic Navy


• Polish Navy


• Bulgarian Navy

Asia:


• Iraqi Navy


• Qatari Navy


• U.A.E. Navy


• Royal Navy of Oman


• Bangladesh Navy


• Republic of China Navy


• Philippine Navy


• Royal Thai Navy


• Royal Malaysian Navy


• Singapore Navy


• Indonesian Navy

Naval References

Africa:

- Algerian Navy

- Royal Moroccan Navy

- Libyan Navy

- Nigerian Navy

- Angolan Navy

- South African Navy

America:

- Mexican Navy

- Colombian n Navy

- Venezuelan Navy

- Ecuadorian Navy

- Peruvian Navy

- Brazilian Navy

GARBARINO®

Industry

Industrial Plants

- Desalination plants
- Power plants
- Sewage, water treatments
- Paper industries
- Sugar industries
- Processing plants: up-stream applications
- Chemical and petrochemical plants
- Pharmaceutical industries
- Steelworks
- Refineries
- Painting plants
- Acrylic fibers production plants

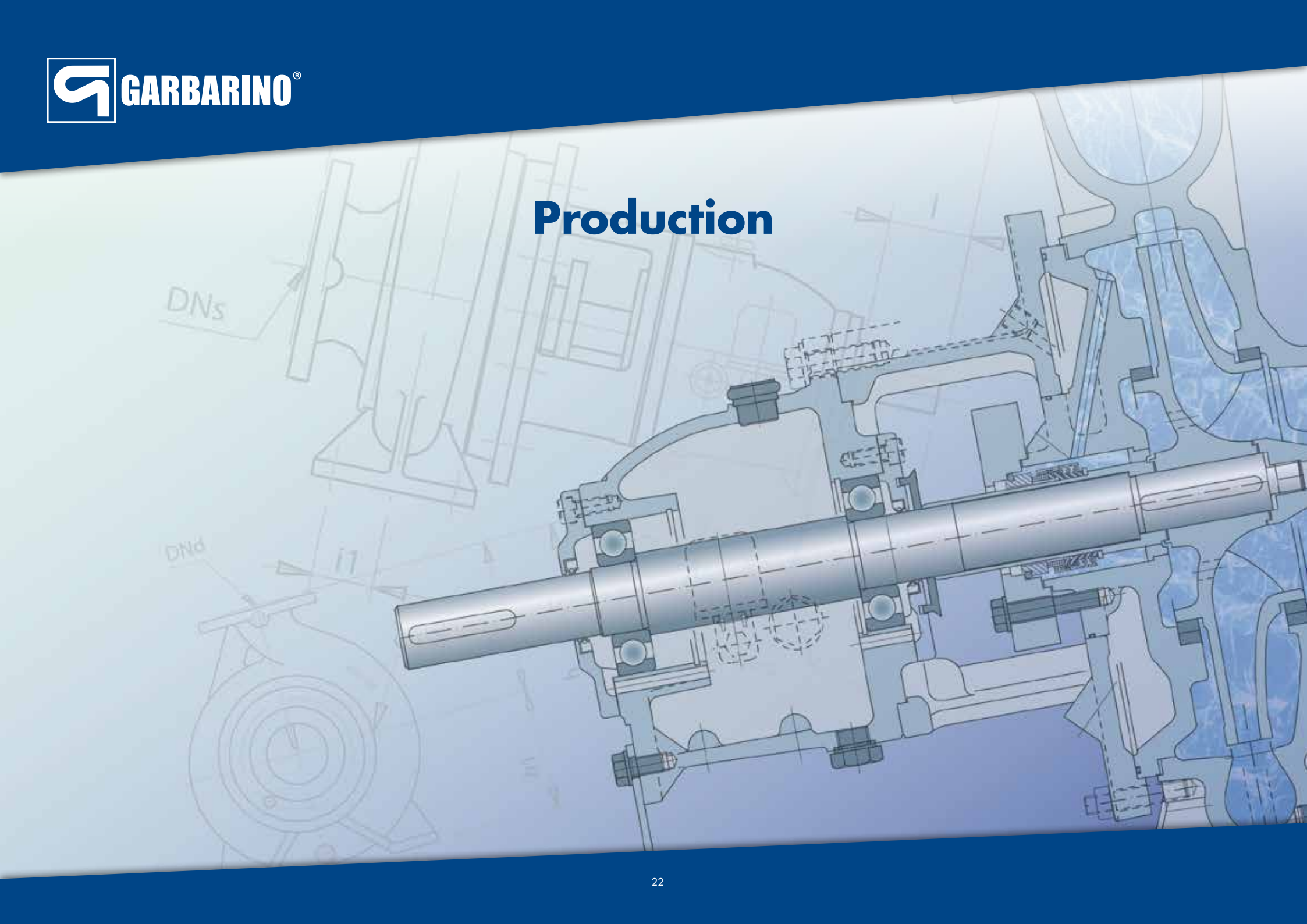
Industrial Applications

- Cooling service
- Sea water service
- Acid and alkaline liquids with suspended solids transfer
- Hydrocarbons transfer
- Condensate and gaseous fluids transfer
- Drain service
- Reverse osmosis
- Boiler feed
- Chemical services
- Air conditioning, air cooling, chilled water services
- Oil&gas upstream various services
- Screen wash system service

Industrial References

GARBARINO®

Production



Products

CENTRIFUGAL PUMPS

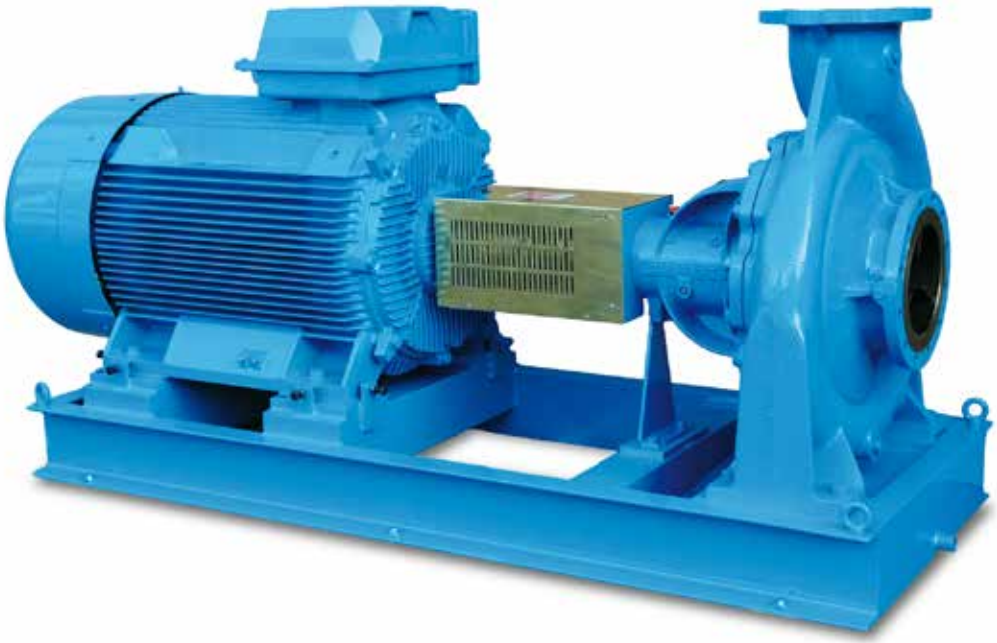
MU	pumps according to EN 733
MU-L	vertical in line pumps
MU-LDS	vertical in line double suction pumps
VS	vertically suspended line-shaft pumps
MCA	recessed impeller torque flow pumps
CN	chemical pumps according to ISO 2858-5199
ZN	diathermic oil circulation pumps
BT	side channel pumps
G	multistage pumps
GH	multistage high pressure pumps
MM	fire fighting naval pumps
MPF	portable diesel engine fire pumps
VL	main engine lubrication pumps
AD	self-priming pumps with open impeller

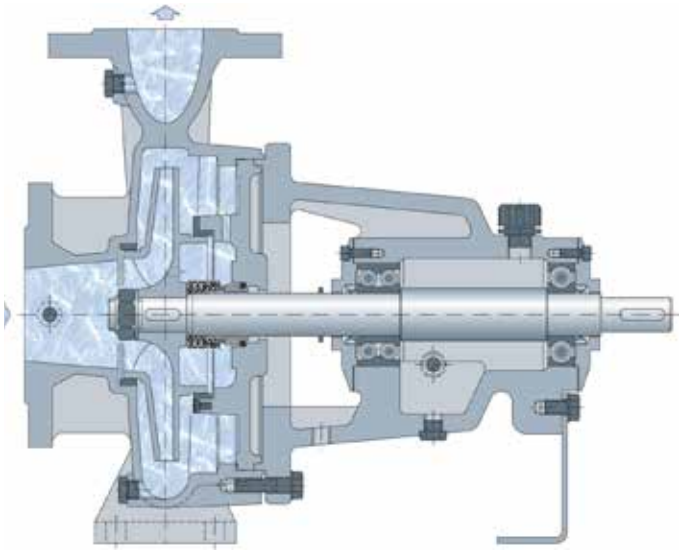
POSITIVE DISPLACEMENT PUMPS

P	hollow oscillating disk pumps
IN	gears pumps
SWL	piston pumps

Horizontal pump (according to EN 733)

- Self-priming by liquid ring or air ejector
- Disassembly back pull out system
- Oil Lubrication
- Bare shaft and close-coupled executions
- Exchangeable components
- Easy-replaceable wear rings

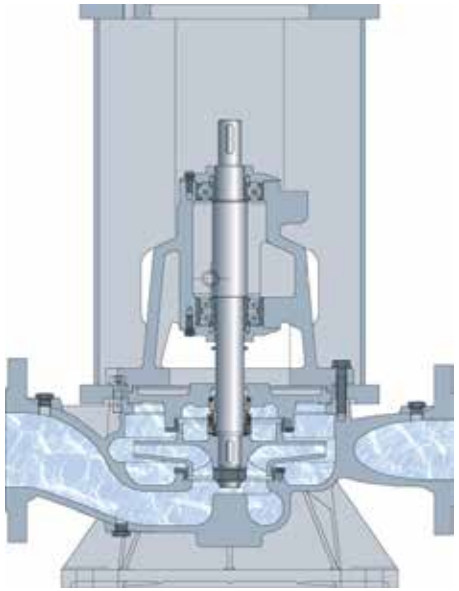




ND	mm	25÷300
Q	m^3/h	≤ 2500
H	m	≤ 120
n	rpm	≤ 3500
t	°C	≤ 200

Vertical in line pump

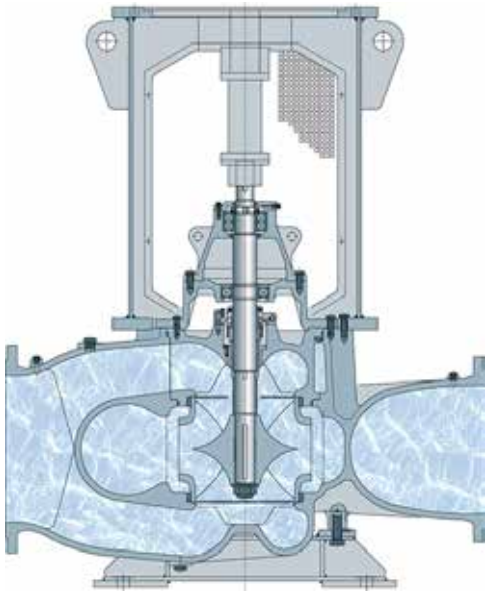
- Space saving configuration
- Higher structural stiffness: baseplate casted with casing
- Self-priming by liquid ring or air ejector
- Disassembly back pull out system flexible coupling with spacer
- Grease Lubrication
- Bare shaft and close-coupled executions
- Exchangeable components



ND	mm	25÷300
Q	m^3/h	≤ 1700
H	m	≤ 120
n	rpm	≤ 3500
t	°C	≤ 120

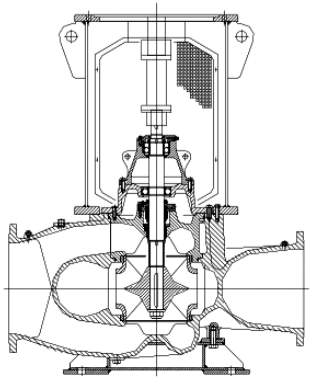
In line double suction pump

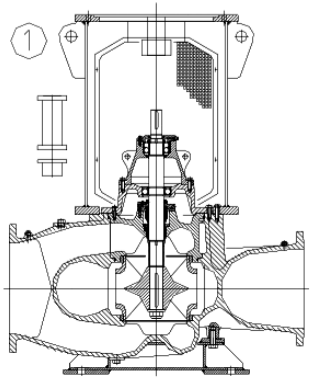
- Low NPSH and no axial thrust
- Double volute casing and double suction impeller
- Double volute for minimum radial load on impeller
- Back pull out for internal part without motors and pipes removing

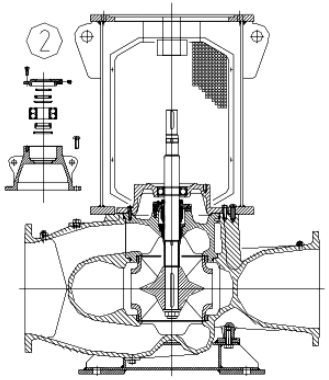


ND	mm	250÷450
Q	m^3/h	≤ 3500
H	m	≤ 50
n	rpm	≤ 1780
t	°C	≤ 60

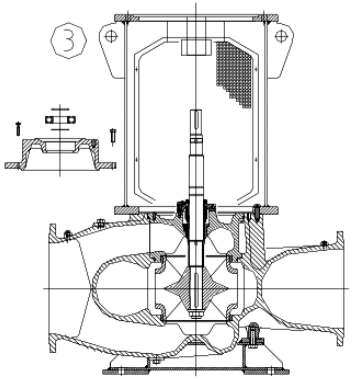
Back pull-out system

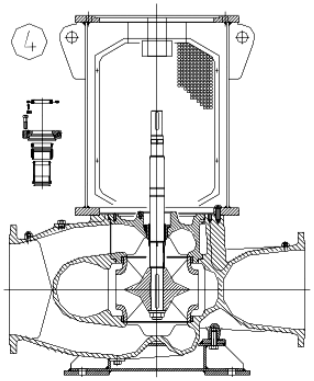




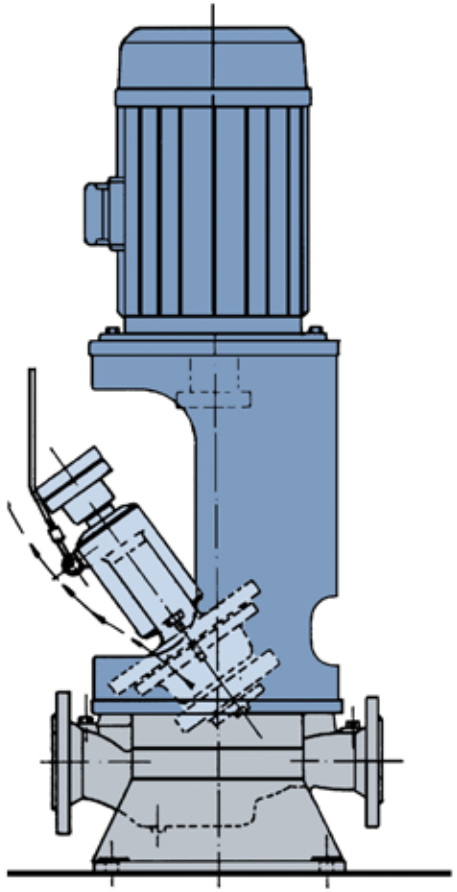


MU-LDS sequence

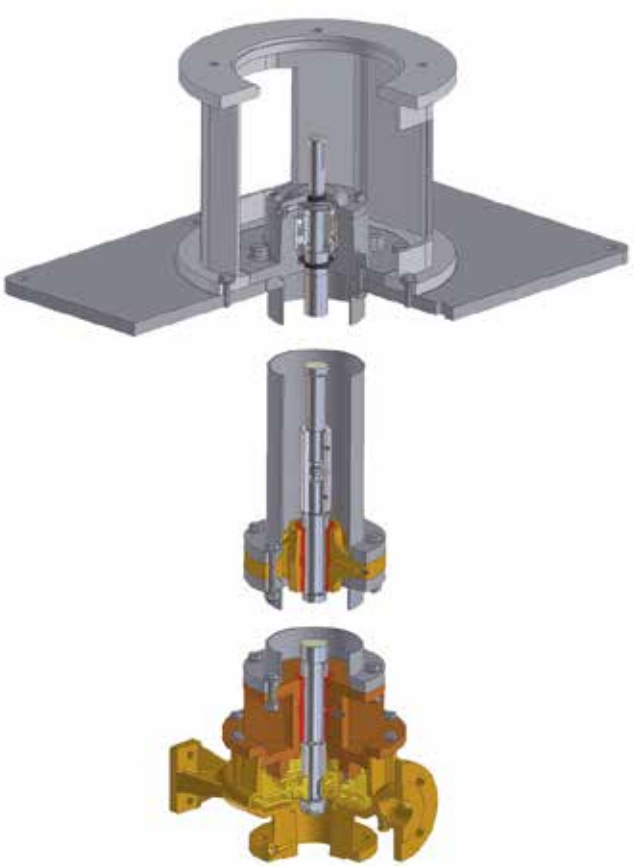




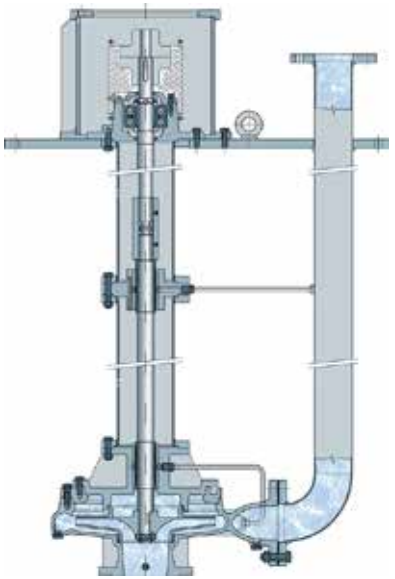
MU-L



Vertically suspended line-shaft pump

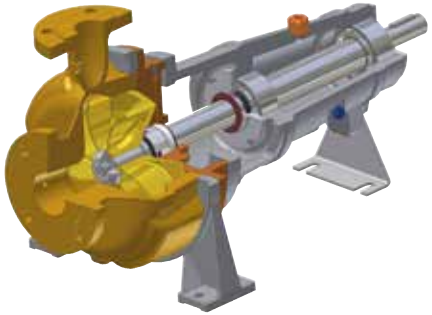


bare shaft version

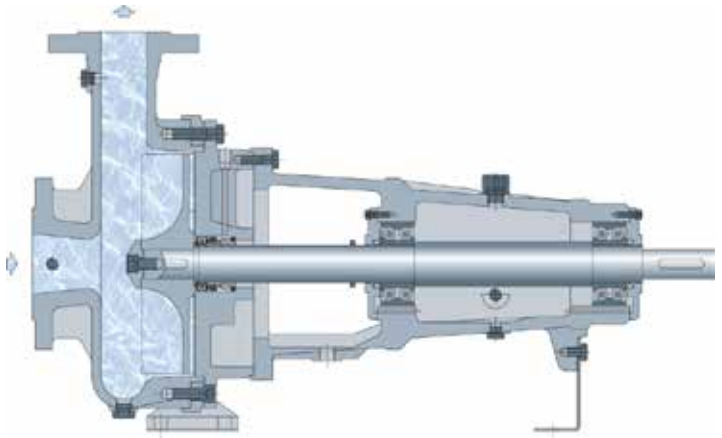


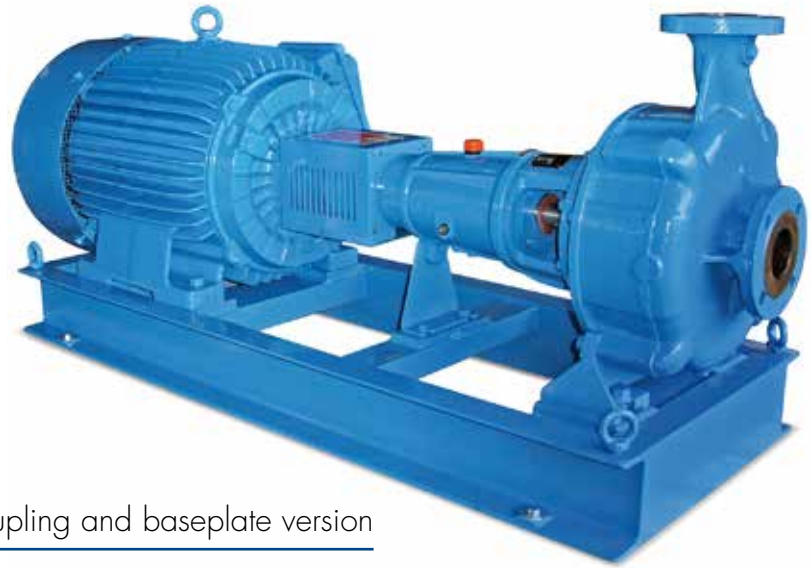
ND	mm		32÷350
Q	m^3/h	≤	1200
H	m	≤	80
n	rpm	≤	3500
t	°C	≤	90

Recessed impeller torque flow pump



bare shaft version



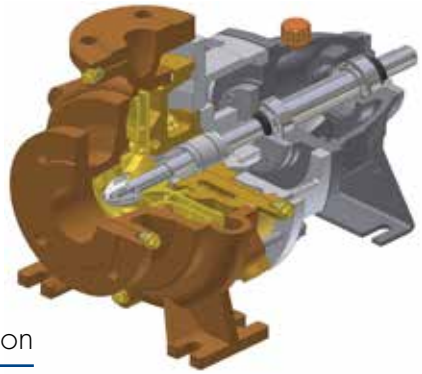


coupling and baseplate version

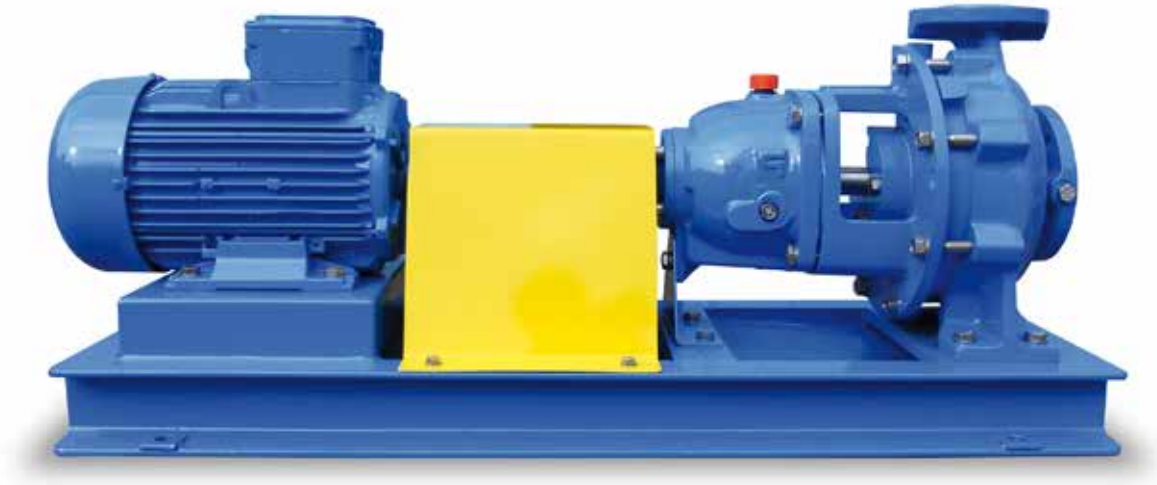
ND	mm	32÷150
Q	m^3/h	≤ 500
H	m	≤ 80
n	rpm	≤ 3500
t	°C	≤ 150

Chemical pump

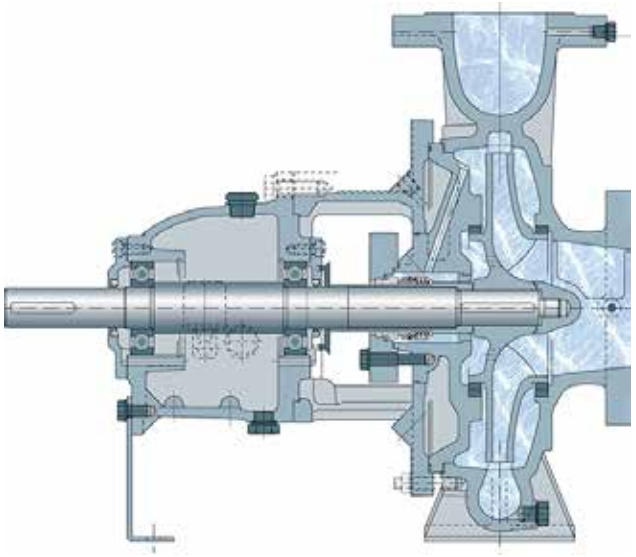
according to ISO 2858-5199



bare shaft version

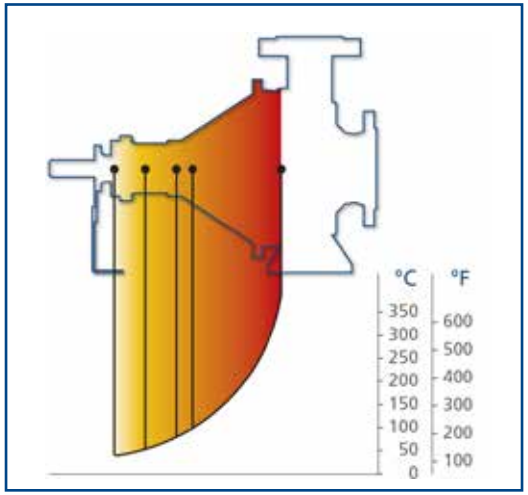


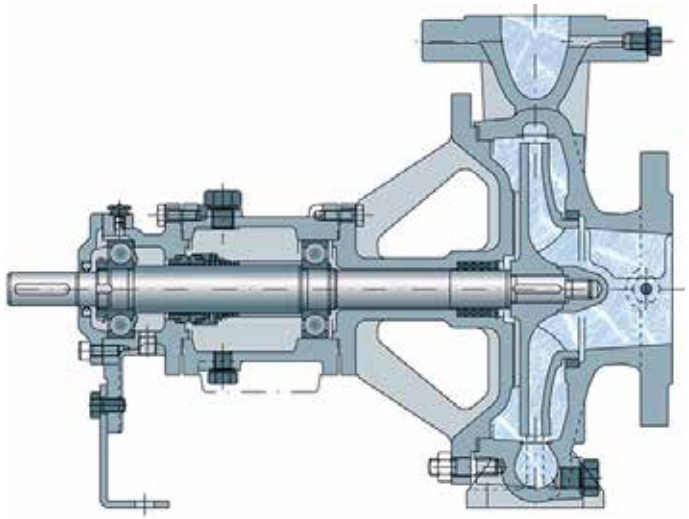
coupling and baseplate version



ND	mm	25÷150
Q	m^3/h	≤ 400
H	m	≤ 150
n	rpm	≤ 3500
t	°C	≤ 350

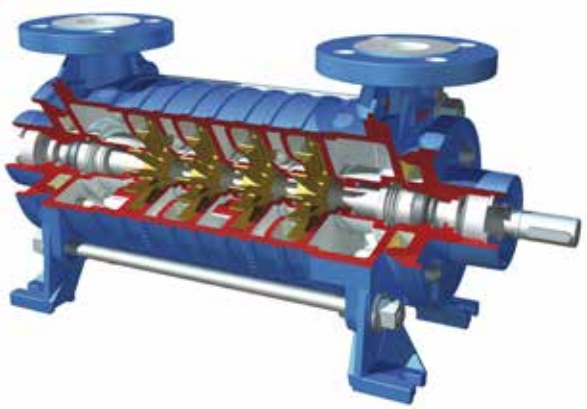
Diathermic oil circulation pump



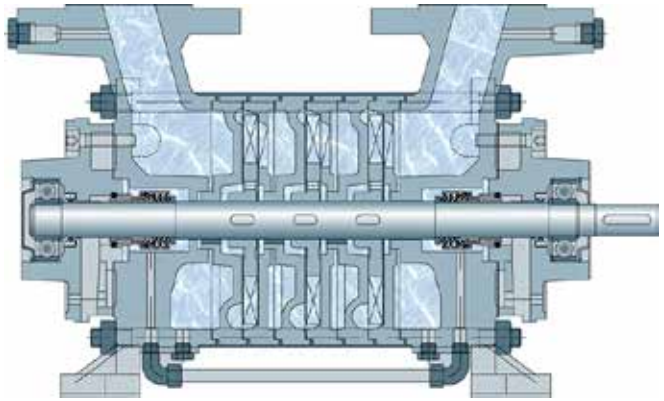


ND	mm	32÷100
Q	m^3/h	≤ 350
H	m	≤ 100
n	rpm	≤ 3000
t	°C	≤ 350

Side channel pump

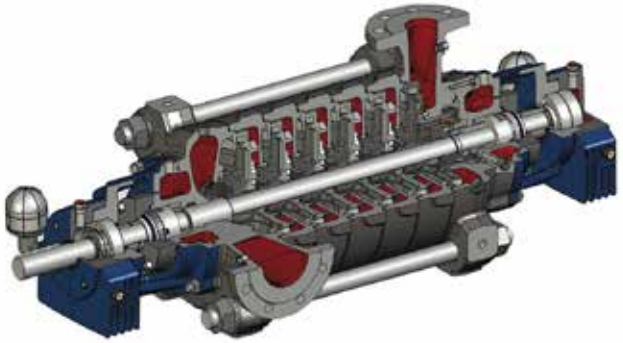


bare shaft version

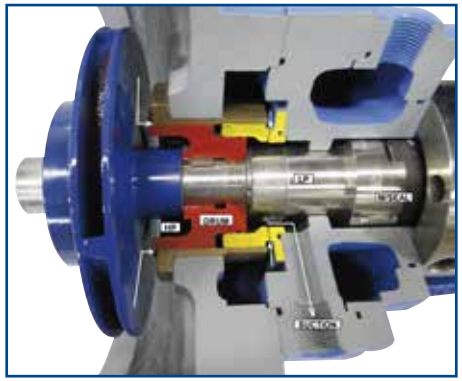


ND	mm	20÷65
Q	m^3/h	≤ 40
H	m	≤ 300
n	rpm	≤ 1750
t	°C	≤ 160

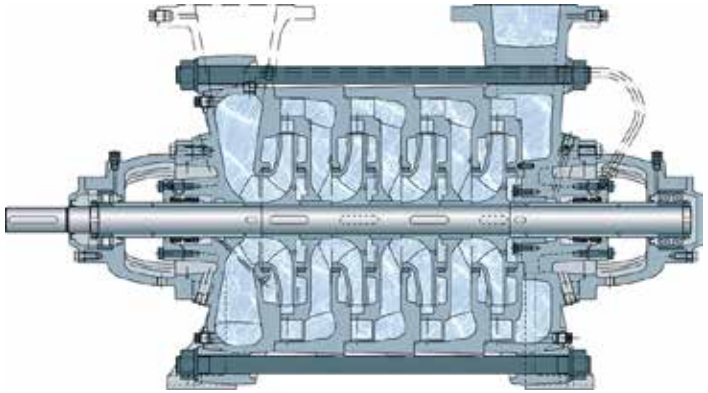
Multistage high pressure pump



bare shaft version (GH)



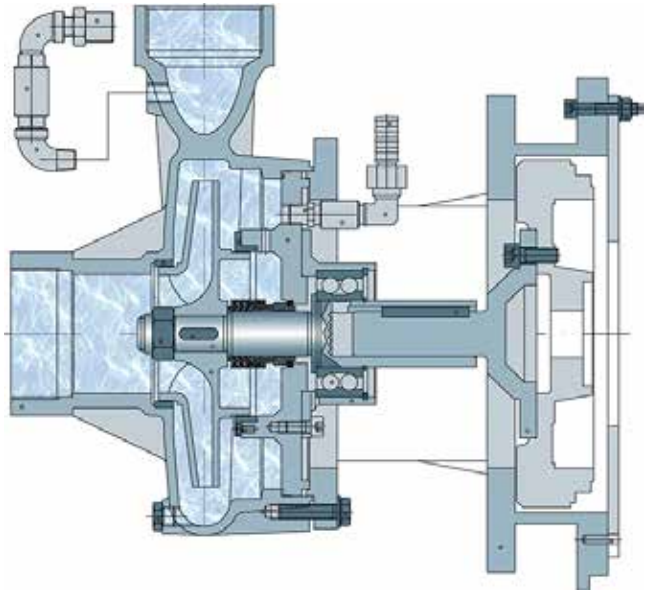
patented throttling device in order to reduce the recirculation flow from balancing drum to suction



ND	mm	32÷200
Q	m^3/h	≤ 600
H	m	≤ 850
n	rpm	≤ 3500
t	°C	≤ 200

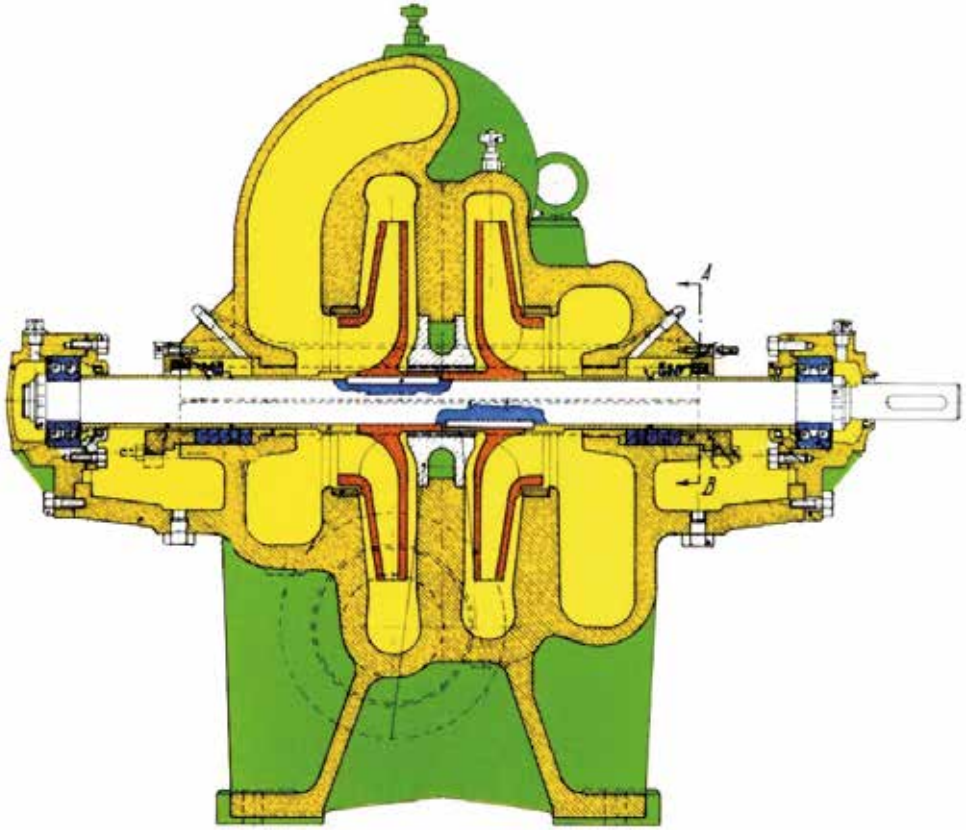
coupling and baseplate version

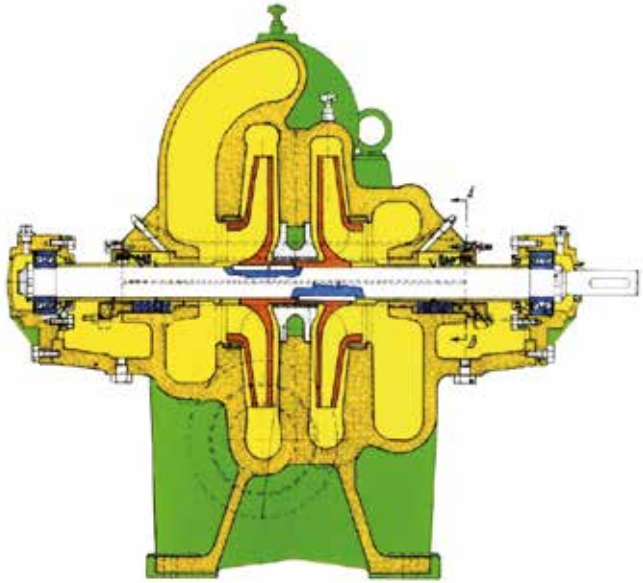
Portable fire pump



ND	mm	70/UNI 810
Q	m^3/h	≤ 45-100
H	m	≤ 80-30
n	rpm	3600
t	°C	≤ //

Fire fighting naval pump





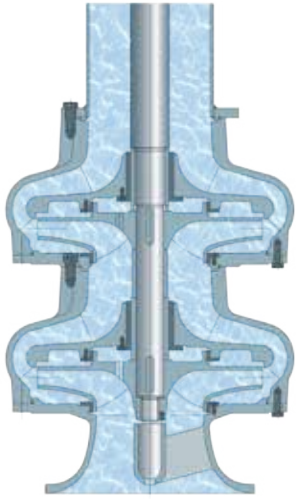
ND	mm	100÷125
Q	m^3/h	≤ 65+130
H	m	≤ 100
n	rpm	≤ 1750
t	°C	≤ 160

Main engine lubrication pump

Single stage

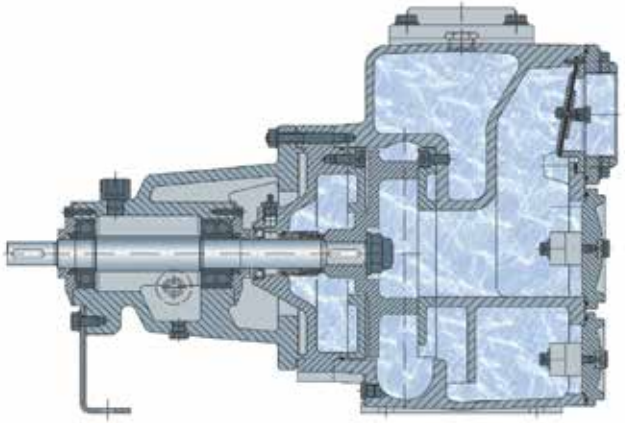
ND	mm		250
Q	m^3/h	≤	550
H	m	≤	75
n	rpm	≤	1750
t	°C	≤	100

Double stage



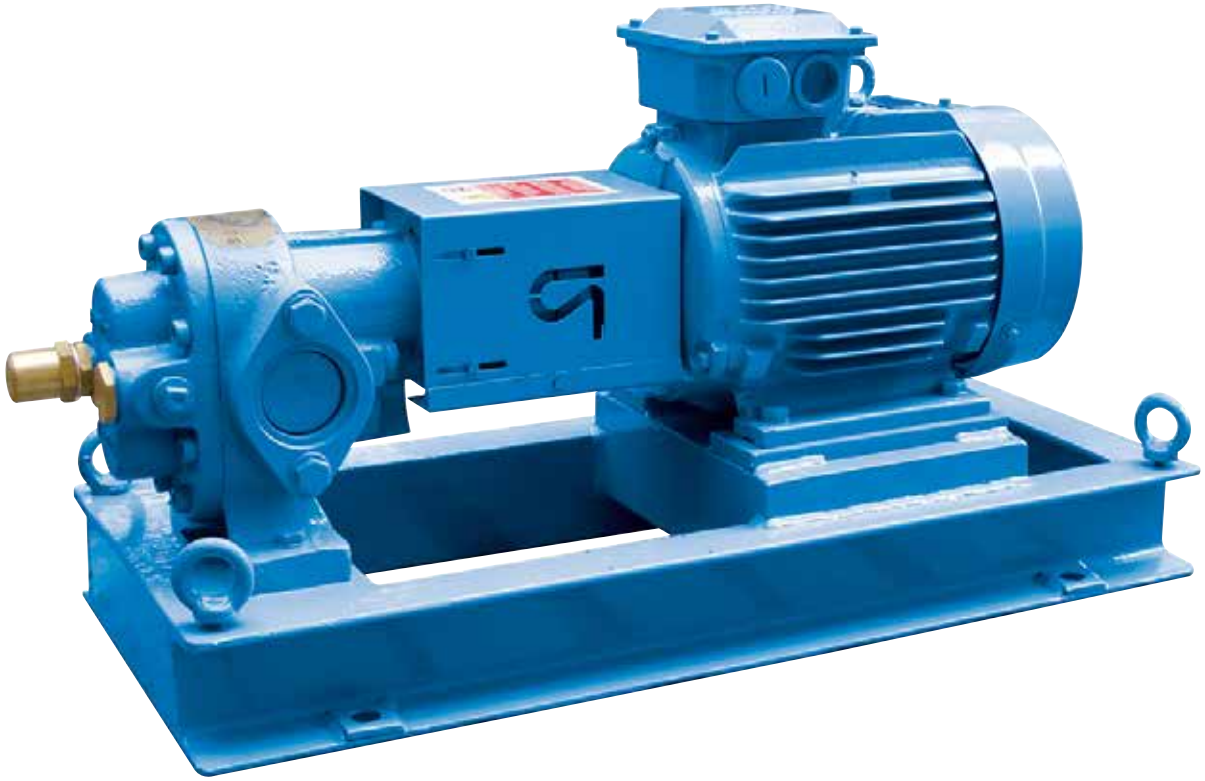
ND	mm		250
Q	m^3/h	≤	550
H	m	≤	75
n	rpm	≤	1750
t	°C	≤	100

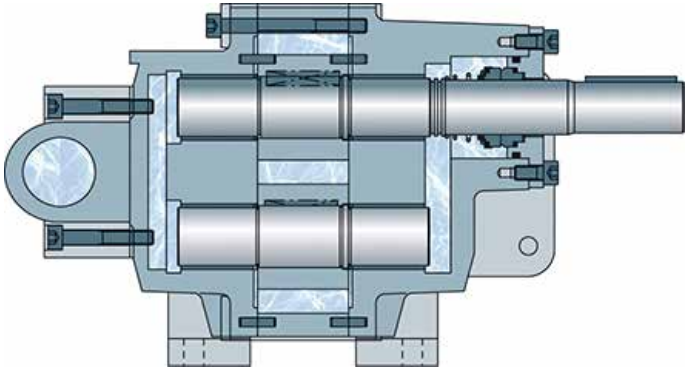
Self-priming pumps with open impeller



ND	mm	1½”- 3”
Q	m3/h	≤ 120
H	m	≤ 80
n	rpm	≤ 1750
t	°C	≤ 90

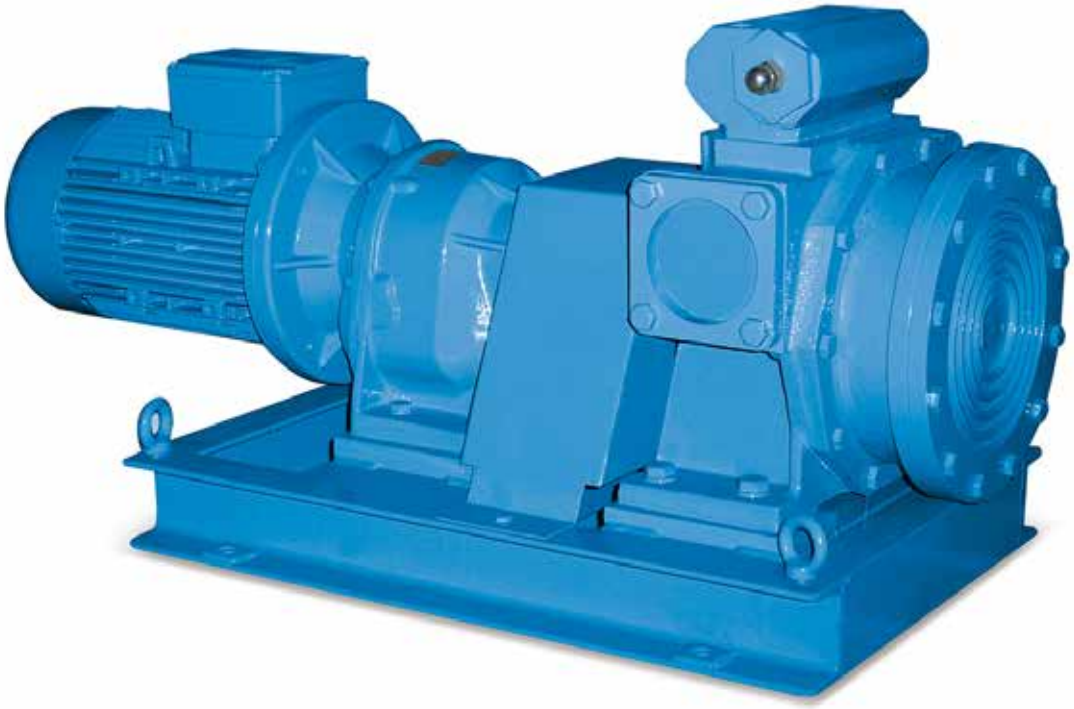
Gears pump

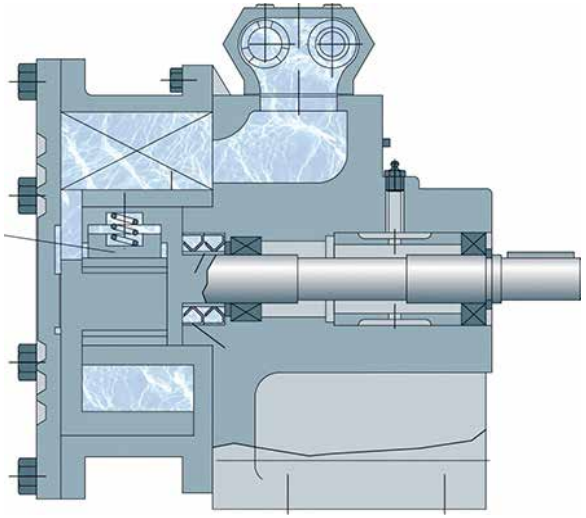




ND	mm	1/2”÷125
Q	m^3/h	≤ 120
H	m	≤ 100
n	rpm	≤ 1750
t	°C	≤ 250

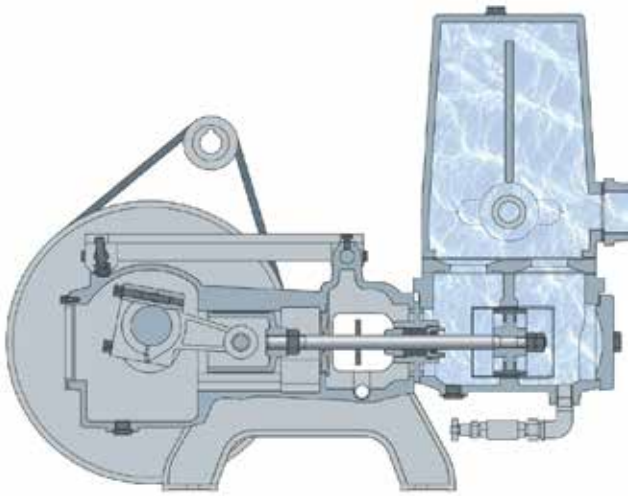
Hollow oscillating disk pump





ND	mm		25÷100
Q	m^3/h	≤	80
H	m	≤	80
n	rpm	≤	350
t	°C	≤	160

Piston pump

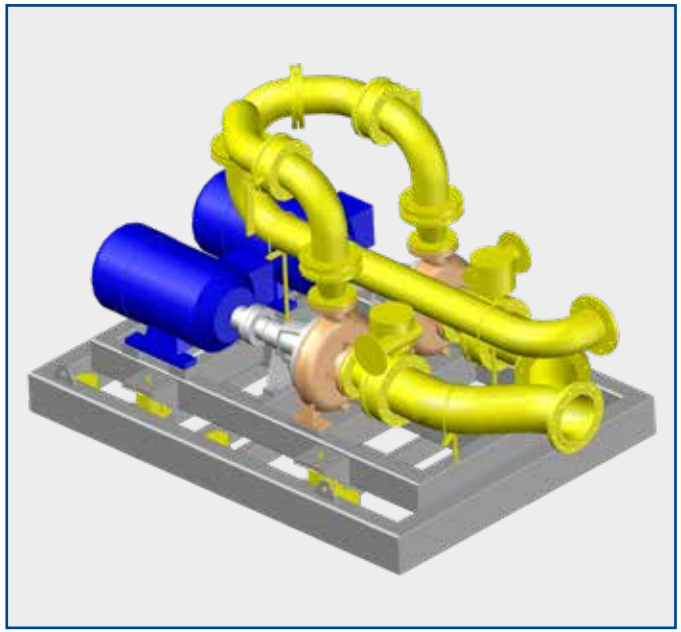


ND		=	G 1” 1/2
Q	m^3/h	≤	5
H	m	≤	45
n	rpm	≤	1450/1750
t	°C	≤	60

Quality Tests and Procedures

- Hydrostatic pressure testing to avoid leakage (1,5 nominal pressure - 30 mins minimum)
- Performance test at 3 working points:
  - *contractual working point*
  - *50% contractual working point*
  - *120% contractual working point*
- Bearings temperature control
- Vibration test (according to ISO 10816-1)
- Structural noise
- Wear components hardness test
- Chemical analysis/mechanical properties for casing, impeller and shaft
- Impeller balancing
- Shaft ultrasonic examination
- Magnetic particle examination
- Penetrant dye examination
- RX examination on welding piping
- Strip down test
- Motor test certificate
- Painting/Packing check
- Final documentation review

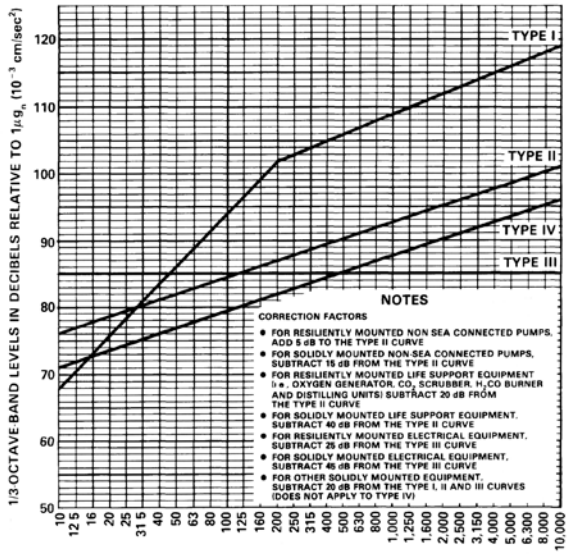
Modules



Air Conditioning Chilled - Water Module - Pump type MU 100-315

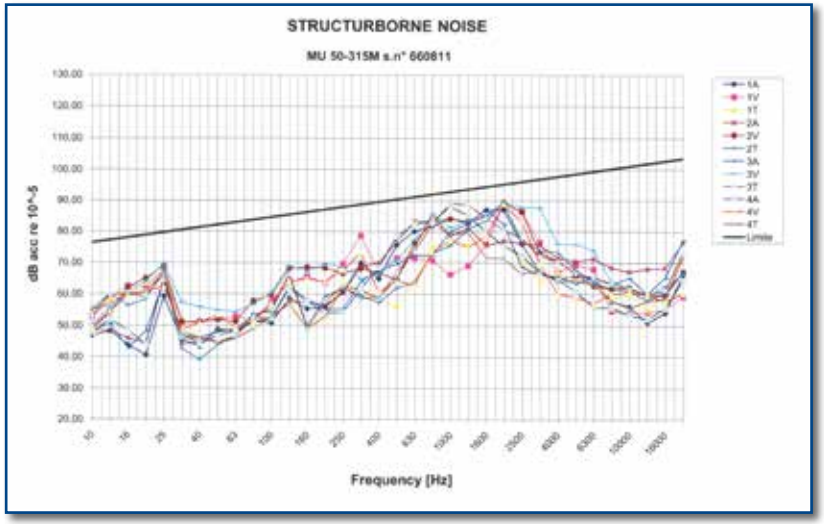
Vibration, Airborne, Structurborne Noise Testing

MIL-STD-740-2(SH)
30 December 1986



SH 131830

FIGURE 2. Structureborne vibratory acceleration acceptance criteria.



GARBARINO®

Materials

Materials

- Cast Iron (Grey Cast Iron G25, Nodular Cast Iron GS400 and GS600, Ni-Resist Cast Iron)
- Bronze (Tin Bronze B10 And BZN4, Nickel-Aluminium Bronze ASTM B148-C95800)
- Martensitic Stainless Steel (AISI 410 – 420), Austenitic Stainless
- Steel (AISI 304, AISI 304 L, AISI 316 L, AISI 317 L)
- Duplex and Superduplex (ASTM A890 GR. 4a, 5a, CD4MCU)
- Special Alloys (Monel, Hastelloy, Alloy 20, Incoloy 825)

Any other material combination can be supplied.

GARBARINO®

Pompe Garbarino S.p.A.

90 years of experience

High quality standards

Easy maintenance

Customer oriented

thanks for your attention

www.pompegarbarino.com