

Durco® Mark 3™ ISO Mechanically Sealed Chemical Process Pumps

ISO 2858/5199



The premier name in ISO chemical process pumps

The Durco Mark 3 ISO chemical process pump provides outstanding hydraulic performance, unrivaled reliability and low total cost of ownership. Conforming to ISO 2858 and ISO 5199 design criteria, the Durco Mark 3 ISO pump incorporates many proven reliability and performance-enhancing features.

- Renewable, high-efficiency performance over the life of the pump with the reverse vane impeller
- Optimal, predictable seal chamber pressure that is re-established after every impeller setting
- Maximal mechanical seal life due to an ideal seal environment created by the SealSentry™ seal chamber
- Two-piece bearing bracket reduces inventory cost and facilitates retrofit for ISO 2858 compliant pumps
- Robust shaft and bearing designs that minimize shaft deflection and extend mechanical seal and bearing lives
- Fast and accurate impeller setting with the industry's most innovative external impeller adjustment mechanism
- In-shop reverse vane impeller adjustment with the only pump that takes full advantage of the back pullout design

Global design, unmatched performance

Durco Mark 3 ISO chemical process pumps are available in many designs that can be configured to meet precise application requirements.

- Long coupled
- Close coupled
- Unitized self-priming
- Recessed impeller
- Centerline mounted
- Vertical sump

Operating parameters

- Flows to 1,400 m³/h (6,160 US gpm)
- Heads to 220 m (720 ft)
- Pressures to 25 bar (365 psi)
- Temperatures from -80°C to 400°C (-110°F to 752°F)
- Discharge sizes from 20 to 200 mm (0.75 to 8 in.)

Three hydraulics

- A hydraulics: extended flow
- B hydraulics: ISO 2858 for reverse vane and open impeller
- C hydraulics: ISO 2858 for closed impeller



Available materials of construction

- Cast iron
- Ductile Iron
- Carbon steel
- 304 and 316 stainless steels
- Duplex and super duplex stainless steels
- Alloy 20
- Nickel and nickel-based alloys such as Alloy C-276 and Alloy B-2
- Reactive alloys such as titanium, palladium stabilized titanium and zirconium

Standards compliance

Durco Mark 3 ISO pumps conform to ISO 2858 and ISO 5199 design criteria and are CE marked. Compliance with the following directives is also available:

- ATEX II 2G T1 –T5 (2014/34/EU)
- Food grade (1935/2004/EC)
- Drinking water (98/83/EC)
- CUTR

Typical applications

- Acid transfer
- Brine
- Chemical processing
- Corrosive services
- Food and beverage processing
- Hydrocarbon processing
- Petrochemical processing
- Pharmaceuticals
- Polymers
- Pulp and paper
- Seawater
- Slurries
- Solvents
- Steel and primary metals
- Water and wastewater treatment

Designed for demanding applications

High-pressure components, a generous corrosion allowance, and a wide range of materials of construction are just some of the features and options that ensure Durco Mark 3 ISO pumps perform reliably under demanding conditions.

- ISO 2858 and extended flow hydraulics
- Standard (16 bar; 232 psi) or high-pressure (25 bar; 363 psi) casing
- Advanced SealSentry seal chambers
 - Self-flushing, -venting and -draining designs with flow modifiers extend mechanical seal life
 - Accommodate a wide variety of seal types
 - Standard high-pressure (25 bar; 363 psi)
- 3 mm (0.12 in.) corrosion allowance
- Corrosion- and erosion-resistant wet end materials
- Available centerline mounted casing
- Available drain, gauge and recirculation connections

Configurations

We know you have many different types of applications in your plant. That's why we offer the Durco Mark 3 ISO pump in four mechanically sealed configurations. All use the same energy-efficient hydraulics that deliver high performance and reliability with low energy costs. Available in a variety of materials of construction and with single, double or cartridge seals to suit application requirements.

Long coupled

The workhorse of chemical plants and other industries around the world, this proven model is ideal for handling aggressive liquids. Its back pullout design minimizes downtime by enabling removal of the rotating element without disturbing the casing, piping or motor. 45 sizes available.

Operating parameters

Flows to:	1,400 m ³ /h (6,160 gpm)
Heads to:	220 m (720 ft)
Pressure to:	25 bar (365 psi)
Temperature:	-80°C to 400°C (110°F to 752°F)

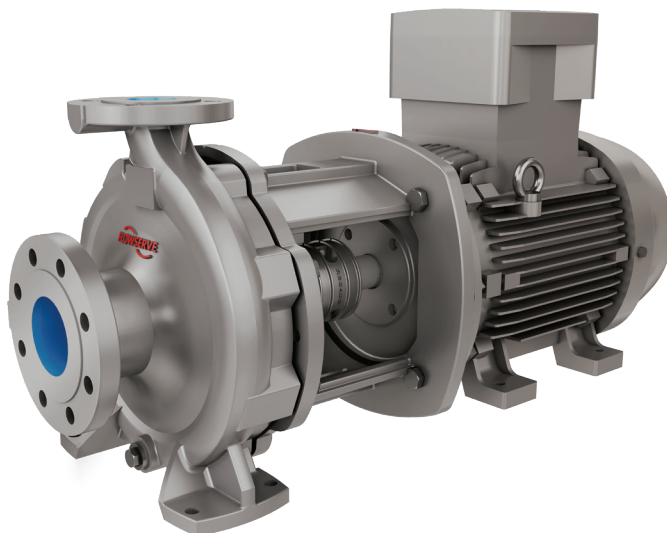


Close coupled

Durco Mark 3 ISO close coupled pumps provide a compact arrangement ideal for installations where space is at a premium. They are fitted with readily available standard electric motors, so you can choose an enclosure to suit the application. 37 sizes available.

Operating parameters

Flows to:	570 m ³ /h (2,500 gpm)
Heads to:	100 m (330 ft)
Pressure to:	25 bar (365 psi)
Temperature:	-20°C to 160°C (-5°F to 320°F)



Self-primer

Costing less to buy, install and maintain than submersible pumps, Durco Mark 3 ISO unitized self-priming pumps are designed to draw liquid from sources below ground level or with no positive pressure to naturally prime the pump. 7 sizes available.

Operating parameters

Flows to: 100 m³/h (440 gpm)
Heads to: 100 m (330 ft)
Pressure to: 25 bar (365 psi)
Temperature: -80°C to 400°C (110°F to 752°F)

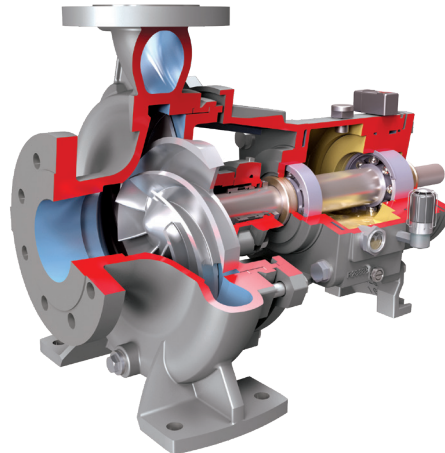


Recessed impeller

Combining a wide clearance casing with a vortex action that ensures less than 20% of the process fluid contacts the impeller, the recessed impeller pump is well-suited for applications with larger particles, stringy or fibrous slurries, or friable solids that require low shear pumping. 10 sizes available.

Operating parameters

Flows to: 750 m³/h (3,300 US gpm)
Heads to: 100 m (330 ft)
Pressure to: 25 bar (365 psi)
Temperature: -80°C to 400°C (110°F to 752°F)



Vertical sump

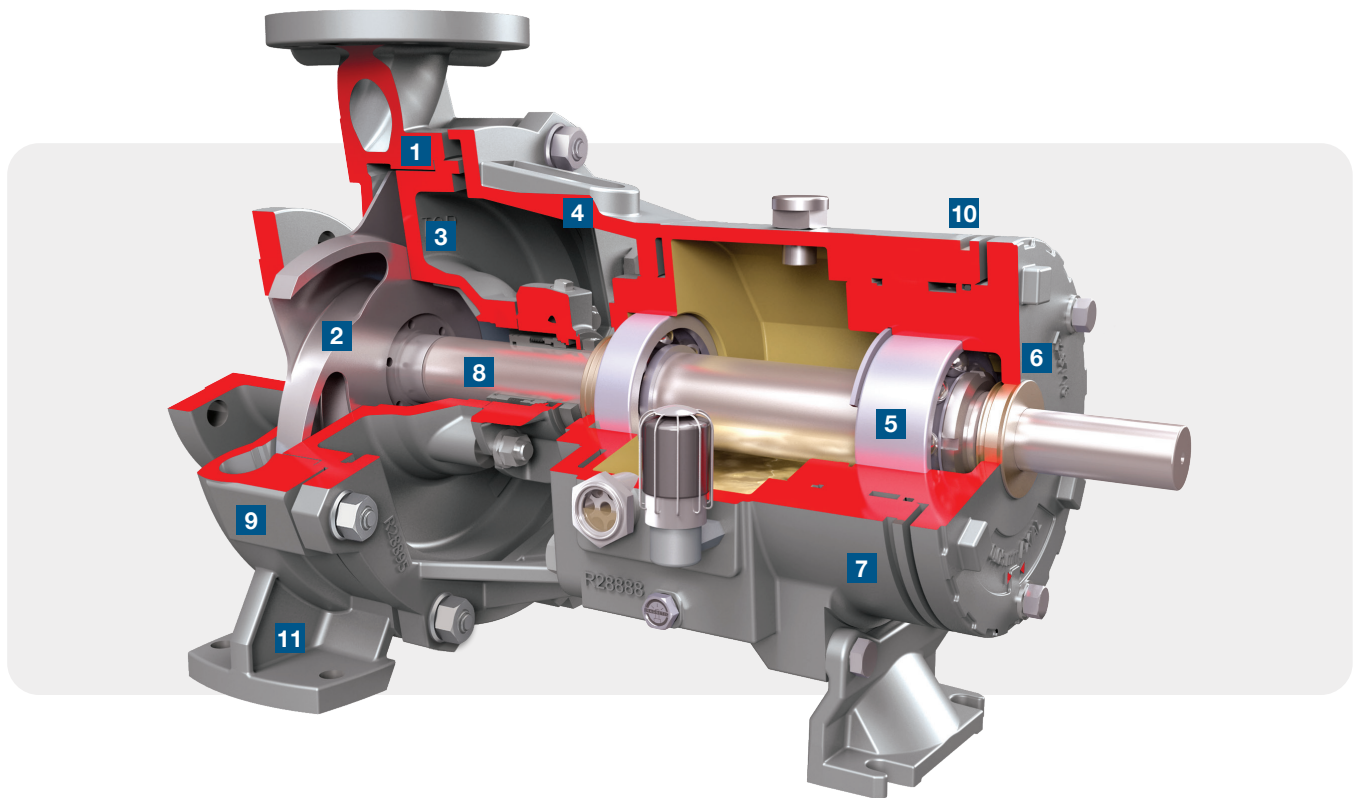
With column lengths up to 10 m (32 ft), Durco Mark 3 ISO vertical sump pumps can be customized to meet a wide range of needs. For oil and gas installations, they are offered with many ISO 13709/API 610 compliant features. 40 sizes available.

Operating parameters

Flows to: 1,400 m³/h (6,160 gpm)
Heads to: 250 m (820 ft)
Pressure to: 25 bar (365 psi)
Temperature: -40°C to 400°C (-40°F to 752°F)



Long coupled design



1 — Volute casing

- Standard PN 16 and PN 25 flanges per ISO 1092
- Drilling per ASME 150 and 300 flanges per ISO 1759 (ASME B16.5)
- Drain and recirculation connections
- Optional casing designs
 - Jacketed — for applications in which the pumped fluid must be heated or cooled to maintain optimal fluid viscosity.
 - Centerline mounted — for applications in which loads caused by thermal expansion need to be reduced. A and B hydraulics only.
 - Recessed impeller — for low-shear pumping of friable solids and trouble-free pumping of stringy or fibrous slurries. A hydraulics only.
 - High-pressure — A and B hydraulics only.

2 — Impeller

- Available hydraulics to ISO 2858 and extended flows
- Available impeller types

- Reverse vane
- Open
- Closed with balancing holes
- Impeller locking
 - Standard screw of open, reverse vane and recessed impeller
 - Key drive for open and closed impeller
 - Alternate anti-rotating locking
- External micrometer adjustment of open and reverse vane impellers with calibrated bearing carrier

3 — SealSentry seal chambers

- SealSentry seal chambers with flow modifiers extend seal life by expelling solids and preventing gas accumulation at the seal faces.
- Conical and cylindrical bore seal chamber designs accommodate a wide variety of seal types.

4 — Adapter

- Robust and structurally optimized design
- Ensures maximum compatibility and interchangeability with power end

5 — Ball bearing

Available with oil, greased and life-greased lubrication. Heavy-duty bearing with increased oil change rate as an option. Large oil sump.

Grease lubricated:

- Standard lifetime L10h > 17,500 h
- Temperature from -40°C to 180°C (-40°F to 356°F)
- Mineral, synthetic or food grade

Oil lubricated:

- Lifetime to L10h > 50,000 h
- Different oil seal options
- Oil splash bath, mineral or synthetic

6 — Bearing Gard™

- Standard equipment on all long coupled Mark 3 ISO pumps
- Static sealing technology prevents contamination during shutdown
- Transitions to non-contacting operation at startup
- Alternative bearing isolators available

7 — Power ends and interchangeability

- Two-piece design with metal-to-metal fit for maximum interchangeability and low maintenance cost
- Non-conduction bearing isolator for efficient operation and optimum bearing environment
- Ductile cast iron construction
- Stainless steel power end as an option for low ambient conditions

8 — Shaft

- Stiff solid shaft ensures less than 0.05 mm (0.002 in.) shaft deflection at the seal face.
- Provides a low L^3/D^4 shaft stiffness ratio to maximize mechanical seal life.
- Available in a wide range of corrosion-resistant materials, including:
 - 316 stainless steel
 - Duplex stainless steel
 - Alloy C-276
 - Alloy B-2
 - Alloy 20

9 — Heating and cooling options

- Water: 20°C (68°F); 16 bar (232 psi)
- Steam: 200°C (392°F); 13.3 bar (192 psi)
- Heating oil: 350°C (662°F); 6 bar (87 psi)

**The above figures may be subject to derating, dependent upon the material used for the jacket fabrication.*

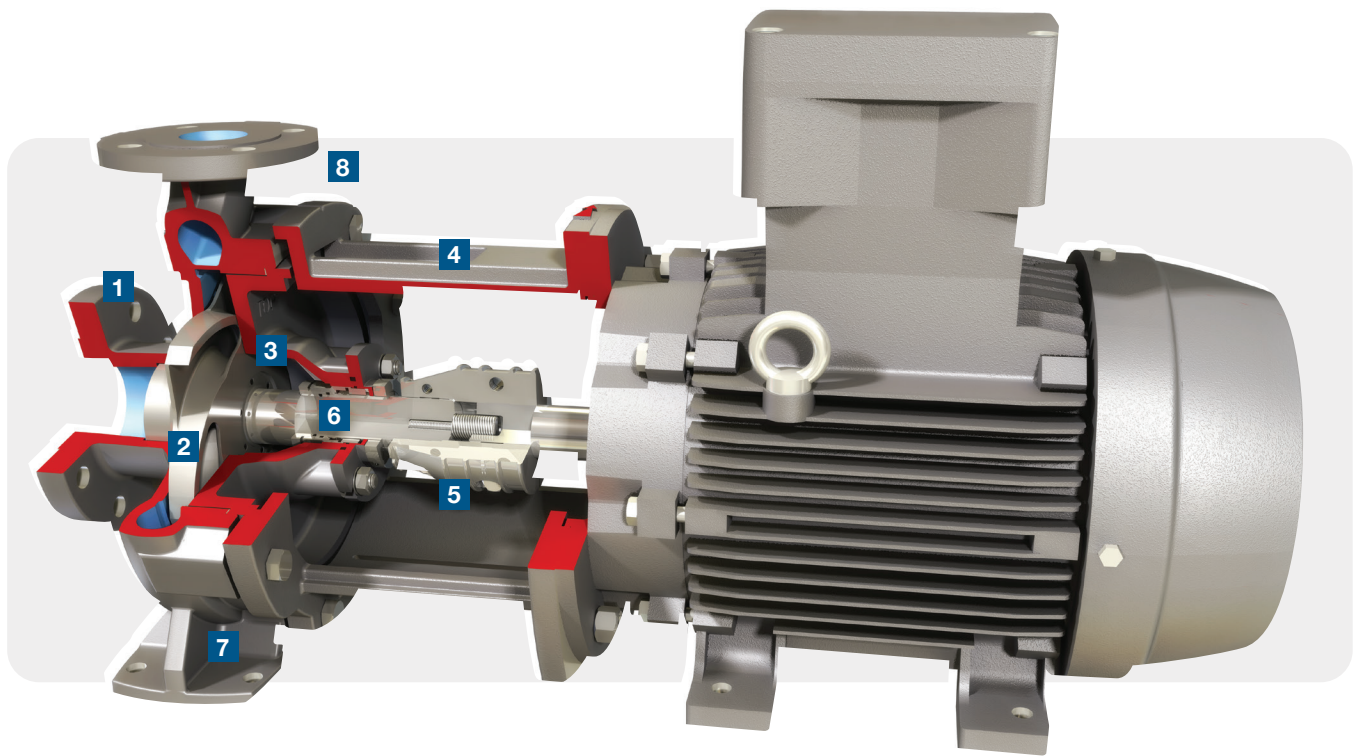
10 — Condition monitoring system

- Compatible with advanced internet of things (IoT) solutions such as RedRaven condition monitoring from Flowserve. Visit flowserve.com/iot to learn more.
- Cast bosses make installing additional performance monitoring products quick and easy.

11 — Painting

Offered with a range of paint systems, including those compliant with the ISO 12944 requirement of “long-term protection — up to 15 years to first maintenance”

Close coupled design



1 — Volute casing

- Standard PN 16 and PN 25 flanges per ISO 1092
- Drilling per ASME 150 and 300 flanges per ISO 1759 (ASME B16.5)
- Jackets for heating and cooling
- Drain and recirculation connections
- A and B hydraulics only

2 — Impeller

- Available hydraulics to ISO 2858 and extended flows
- Available impeller types
 - Reverse vane
 - Open
- Screwed impellers standard

3 — SealSentry seal chamber

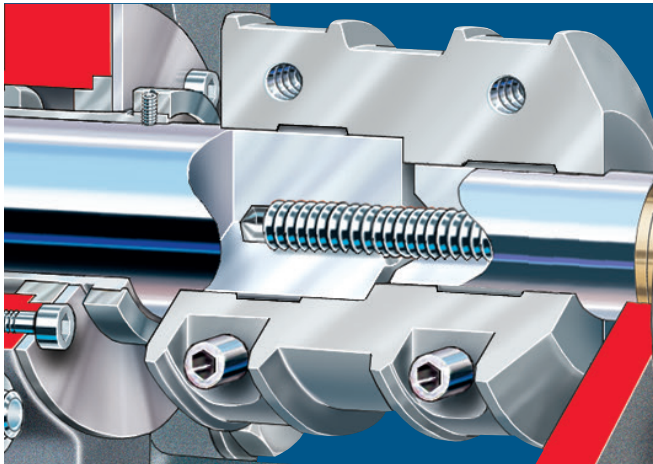
- SealSentry seal chambers with flow modifiers extend seal life by expelling solids and preventing gas accumulation at the seal faces.
- Conical and cylindrical bore seal chamber designs accommodate a wide variety of seal types.

4 — Adapter

- Adapters designed to interface directly with standard motors
- No bearing housing for minimized maintenance
- Permits use of readily available standard electric motors
- Provides a thermal barrier between the pump and motor
- Reduces installation cost by eliminating pump to motor alignment
- Incorporates a muff coupling, which serves as an additional deflector between the mechanical seal and motor

5 — Closed couple

- Close coupling eliminates influence of the baseplate and foundation on alignment.
- Muff coupling helps in setting the impeller face clearance; notches at 30-degree increments around the circumference
- Radiating surfaces dissipate heat and extend motor bearing and mechanical seal lives.



Investment cast (WEB) muff coupling

6 — Shaft

- Stiff solid shaft ensures less than 0.05 mm (0.002 in.) shaft deflection at the seal face.
- Provides a low L^3/D^4 shaft stiffness ratio to maximize mechanical seal life.
- Available in a wide range of corrosion-resistant materials, including:
 - 316 stainless steel
 - Duplex stainless steel
 - Alloy 20
 - Alloy C-276
 - Alloy B-2

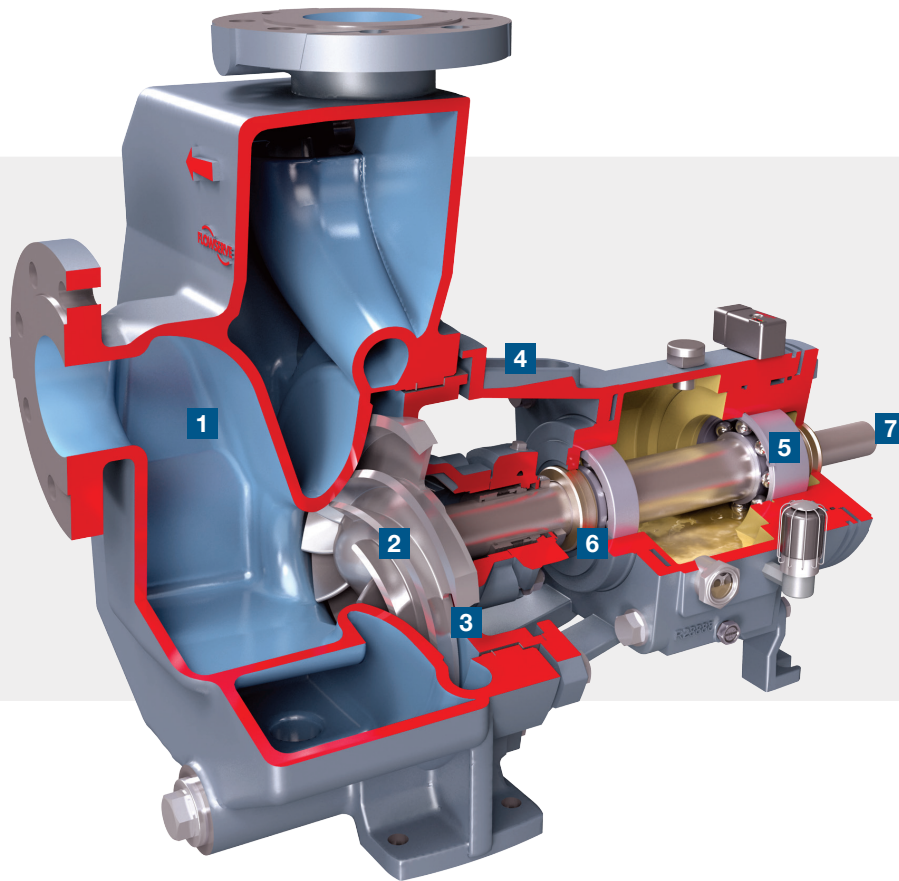
7 — Painting

Offered with a range of paint systems, including those compliant with the ISO 12944 requirement of “long-term protection—up to 15 years to first maintenance”

8 — Condition monitoring system

- Compatible with advanced internet of things (IoT) solutions such as RedRaven condition monitoring from Flowserve. Visit flowserve.com/iot to learn more.
- Cast bosses make installing additional performance monitoring products quick and easy.

Self-primer



1 — Unitized, self-priming volute

- Unitized casing has priming chamber, air separator and volute in one integral unit; eliminates the need for internal valves and external priming devices
- Standard PN 16 and PN 25 flanges per ISO 1092
- Drilling per ASME 150 and 300 flanges per ISO 1759 (ASME B16.5)
- Drain and recirculation connections

2 — Impeller

- A hydraulics (extended flow) only
- Open impeller
- Impeller locking
 - Screwed impeller standard
 - Keyed impeller optional
- External micrometer adjustment of open impellers with calibrated bearing carrier

3 — SealSentry seal chamber

- SealSentry seal chambers with flow modifiers extend seal life by expelling solids and preventing gas accumulation at the seal faces.
- Conical and cylindrical bore seal chamber designs accommodate a wide variety of seal types.

4 — Adapter

- Robust and structurally optimized design
- Ensures maximum compatibility and interchangeability with power end

5 — Ball bearing

Available with oil, greased and life-greased lubrication. Heavy-duty bearing with increased oil change rate as an option. Large oil sump.

Grease lubricated:

- Standard lifetime L10h > 17,500 h
- Temperature from -40°C to 180°C (-40°F to 356°F)
- Mineral, synthetic or food grade

Oil lubricated:

- Standard lifetime L10h > 50,000 h
- Different oil seal options
- Oil splash bath, mineral or synthetic

6 — Bearing Gard

- Standard equipment on all long coupled Mark 3 ISO pumps
- Static sealing technology prevents contamination during shutdown
- Transitions to non-contacting operation at startup
- Alternative bearing isolators available

7 — Power ends and interchangeability

Long coupled power end:

- Two-piece design with metal-to-metal fit for maximum interchangeability and low maintenance cost
- Non-conduction bearing isolator for efficient operation and optimum bearing environment
- Ductile cast iron construction
- Stainless steel power end as an option for low ambient conditions

Close coupled power end:

- Minimum footprint for application with limited space
- Adapters design to interface directly with standard motors
- No bearing housing for minimized maintenance

8 — Shaft

- Stiff solid shaft ensures less than 0.05 mm (0.002 in.) shaft deflection at the seal face.
- Provides a low L^3/D^4 shaft stiffness ratio to maximize mechanical seal life
- Available in a wide range of corrosion-resistant materials, including:
 - 316 stainless steel
 - Duplex stainless steel
 - Alloy 20
 - Alloy C-276
 - Alloy B-2

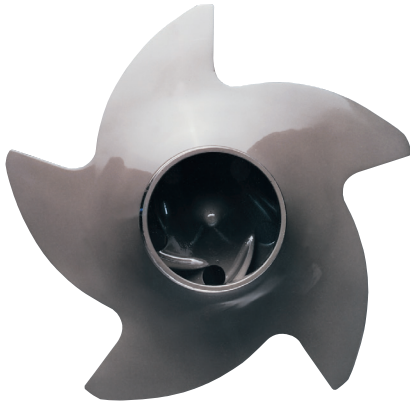
9 — Heating and cooling options

- Water: 20°C (68°F); 16 bar (232 psi)
- Steam: 200°C (392°F); 13.3 bar (192 psi)
- Heating oil: 350°C (662°F); 6 bar (87 psi)

10 — Painting

Offered with a range of paint systems, including those compliant with the ISO 12944 requirement of “long-term protection — up to 15 years to first maintenance”

Impellers



Reverse vane impeller

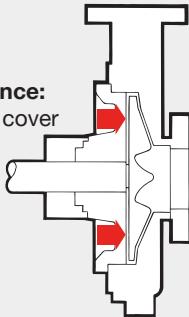
- Low NPSHR
- Low, unidirectional thrust loads
- Hydraulic balance holes
- Will pass large solids
- Low, predictable seal chamber pressure
- One setting to control performance, efficiency, thrust and seal chamber pressure
- Optional locked impeller

Operating performance

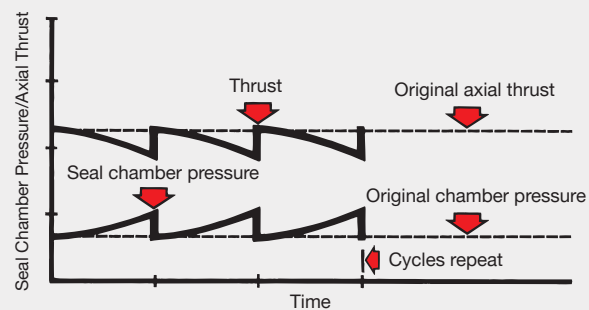
- ISO 2858 and extended flow
- Solid handling capability
 - Max solid size 28 mm (1.1 in.)
 - Max soft solid 35%
 - Max hard solid 10%

Reverse vane impeller adjustment

Only one tolerance:
impeller vane to cover



Reverse vane: repeatable performance

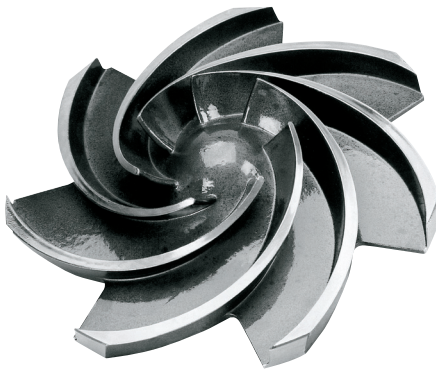


Closed impeller

- Low NPSHR
- Low, unidirectional thrust loads
- Hydraulic balance holes
- One setting to control performance, efficiency, thrust and seal chamber pressure
- Locked impeller as a standard

Operating performance

- ISO 2858
- Solid handling capability
 - Max solid size 0.3 mm (0.01 in.)
 - Max soft solid 2%
 - Max hard solid 2%
 - Max paper stock 1%



Front vane open impeller

- Optional
- Recommended where there are fibrous, stringy materials in the liquid
- Back vanes control axial thrust and seal chamber pressure
- Clearance adjusted between impeller and case
- Optional locked impeller

Operating performance

- ISO 2858 and extended flow
- Solid handling capability
 - Max solid size 25 mm (1.0 in.)
 - Max soft solid 35%
 - Max hard solid 10%
 - Max paper stock 10%

Recessed impeller pump

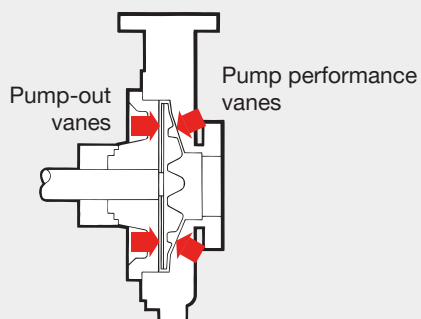
When used in the recessed impeller pump configuration, which has a wide clearance casing, the open impeller is able to handle solids up to 46 mm (1.8 in.).

- Vortex pumping action:
 - Minimizes shear, abrasion and clogging
 - Maintains integrity of solids
- Applications: solids, slurries, corrosive/erosive liquids, waste streams, shear-sensitive liquids

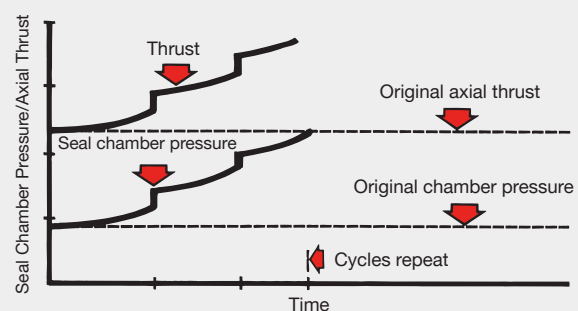
Operating performance

- Solid handling capability
 - Max solid size 46 mm (1.81 in.)
 - Max soft solid 35%
 - Max hard solid 10%
 - Max paper stock 3%

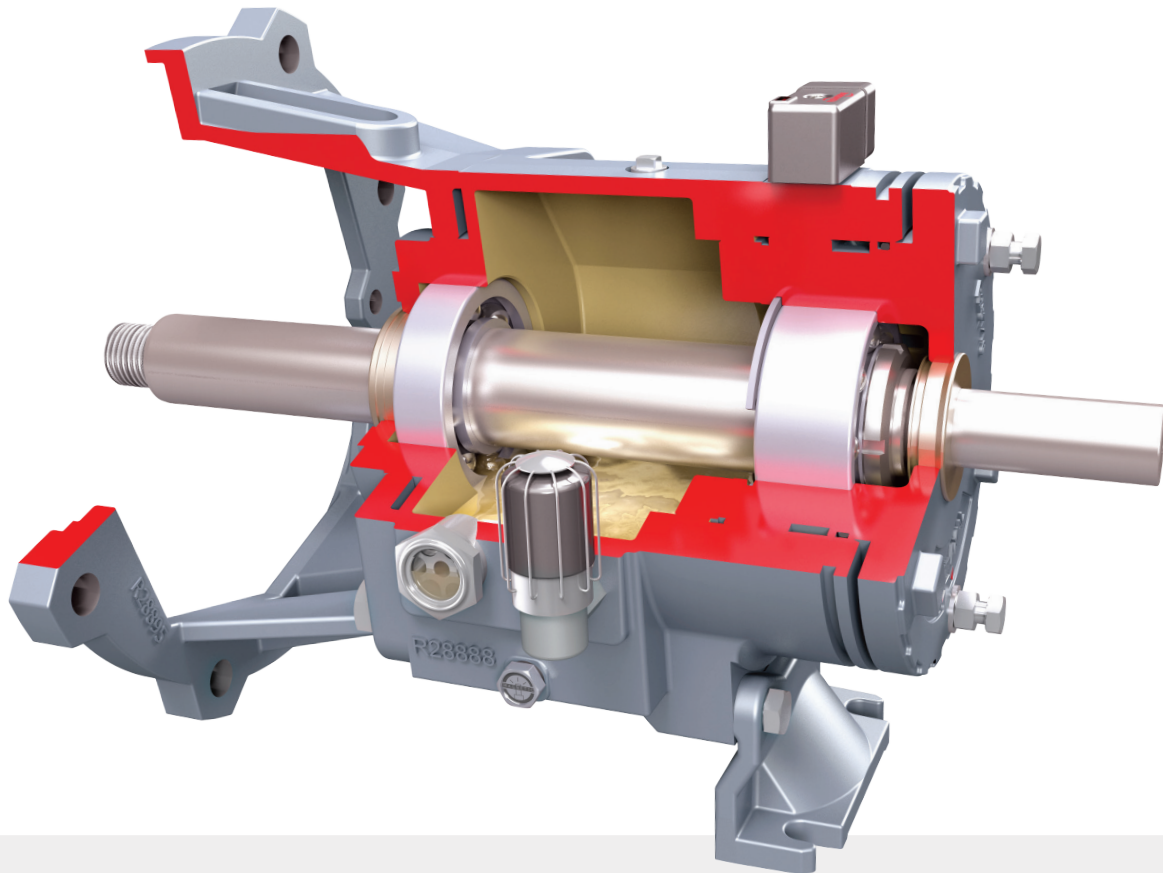
Front vane impeller adjustment



Open style: diminished performance

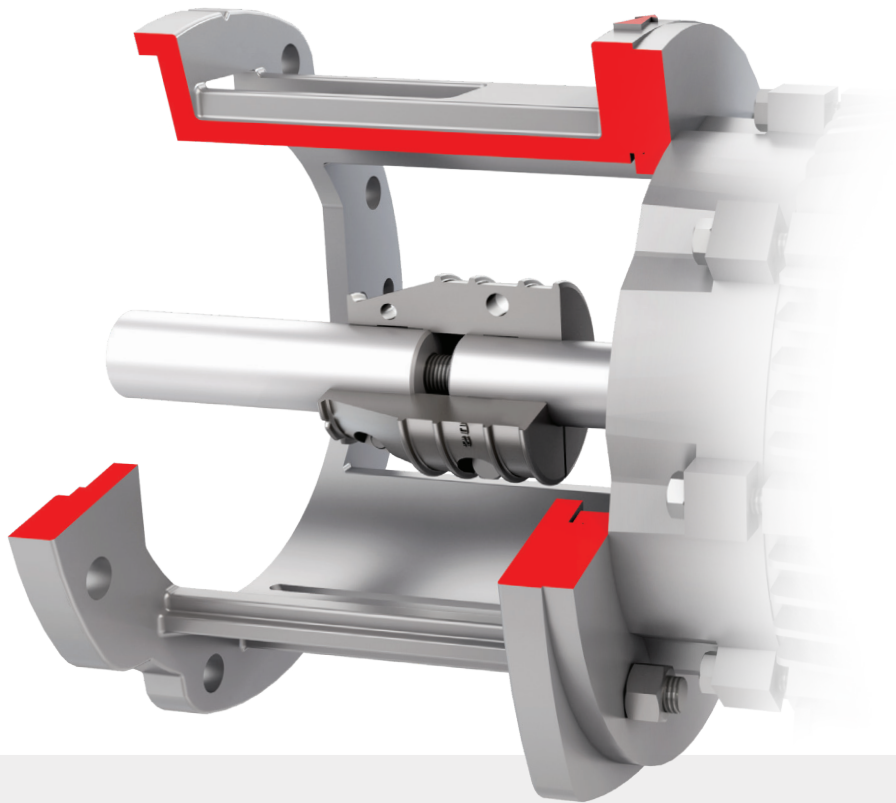


Power ends



Long coupled

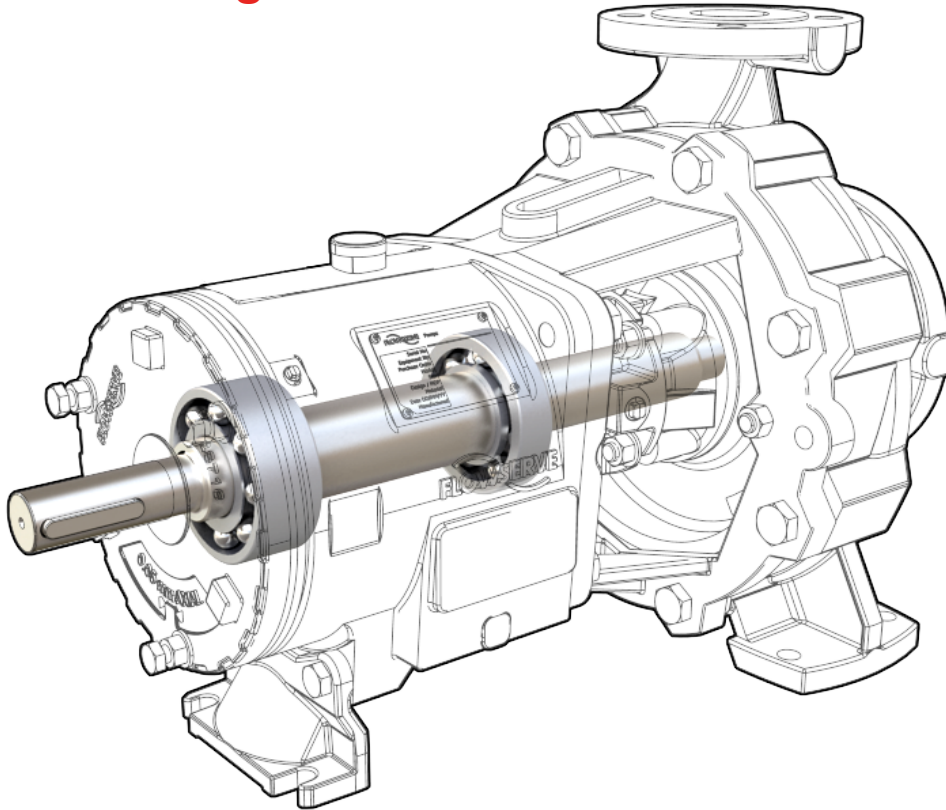
- Conforms with ISO 2858 and ISO 5199
- Clean environment assembly available as optional 3A design
- Two-piece bearing housing and adapter design with metal-to-metal fit
 - Ductile cast iron standard
 - Stainless steel available
- Standard double-row, angular contact ball bearings outboard; single-row ball bearings inboard
 - Available duplex, single-row angular contact ball bearings outboard; roller bearings inboard
 - Guaranteed L10h bearing life of 17,500 hours; optional L10h bearing life of 50,000+ hours
- External micrometer impeller adjustment mechanism
- Compatible with RedRaven equipment monitoring and IoT solutions
- Large oil sump with multiple oil or grease lubrication options
- Flowserve Bearing Gard bearing isolators; Inpro/Seal® VBXX isolators optional
- Magnetic drain plug
- Large 25 mm (1 in.) sight glass
- Top-mounted vent and oil filler
- Rigid foot design



Close coupled

- Conforms with ISO 5199
- Compact footprint
- Sturdy design does not require a baseplate
- Adapters interface directly with standard electric motors
- Ductile cast iron construction
- No bearing housing

Shafts and bearings



Solid shaft design

- Less than 0.05 mm (0.002 in.) shaft deflection at the seal face
- Low L^3/D^4 shaft stiffness ratios
- Sleeved shaft available

Durco Mark 3 ISO shaft stiffness ratio (L^3/D^4)

Frame Size	L^3/D^4 (Solid Shaft)		
	Open Impeller	Reverse Vane Impeller	Closed Impeller
1	3.5	3.06	4.74
2	1.8	1.64	2.40
3	0.94	0.85	1.07
4	1.07	0.92	-

Shaft materials

- 316 stainless steel
- Duplex stainless steel
- Super duplex stainless steel
- Alloy 20
- Alloy C-276
- Alloy B-2

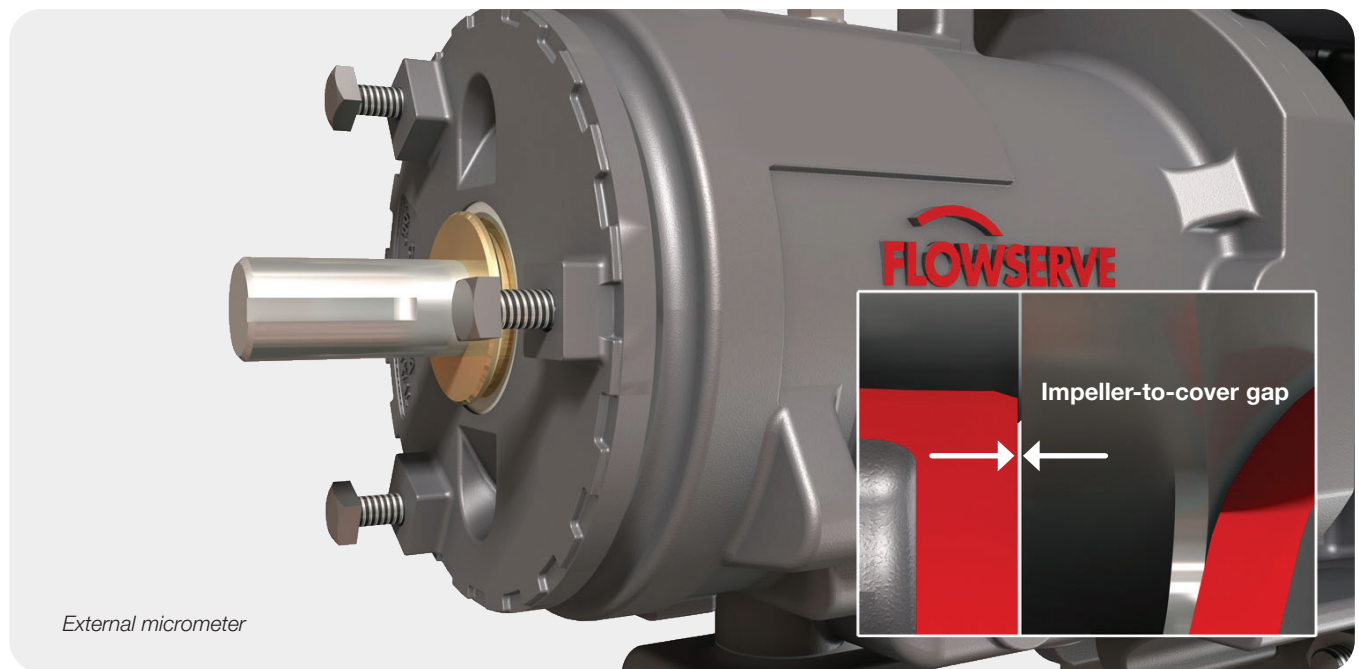
Robust bearing system

- Standard double-row, angular contact ball outboard and single-row ball inboard bearings
 - Guaranteed L10h bearing life of 17,500 hours
- Optional duplex, double-row angular contact ball outboard and roller inboard
 - Optional L10h bearing life of 50,000+ hours

Lubrication options

- Oil splash bath—mineral or synthetic
- Grease—mineral, synthetic or food grade
- Oil mist (pure or purge)
- Nitrogen purge over oil sump

Micrometer impeller adjustment

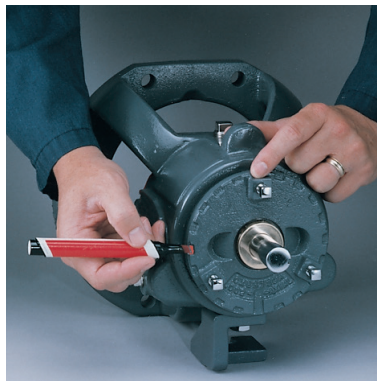


External micrometer reduces maintenance time and costs*

- Available on Mark 3 ISO A and B hydraulics only
- Superior to jackscrews, it accurately sets reverse vane impeller clearance in 20 seconds, in the shop or the field.



Step 1: Loosen the setscrews. Using a wrench, rotate the bearing carrier counterclockwise until the reverse vane impeller lightly touches the rear cover plate.



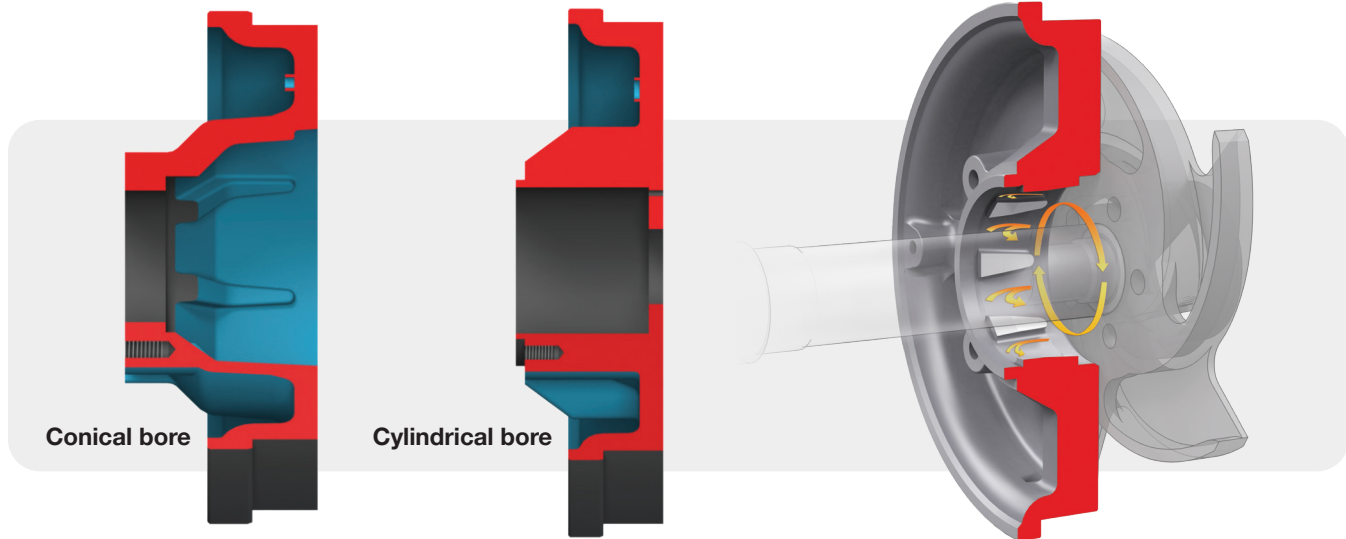
Step 2: Select the impeller setting. Each notch on the carrier ring represents exactly 0.10 mm (0.004 in.) of clearance. For an impeller setting of 0.5 mm (0.020 in.), count five notches counterclockwise.



Step 3: Move the carrier clockwise the selected number of notches. Tighten the setscrews and check the impeller clearance with the feeler gauge.

* Applicable for reverse vane impellers. Consult user instructions for pumps fitted with front vane open-style impellers.

SealSentry seal chambers



Advanced seal chamber technology

An integral part of the rear cover, Durco SealSentry seal chambers extend seal life, improve pump reliability, and reduce the total cost of pump ownership:

- Provide optimal seal chamber environment
- Extend mechanical seal life
 - Self-flushing
 - Self-venting
 - Self-draining
- Reduce maintenance and repair costs
- Permit use of less expensive seals and flush plans; plans 11, 31, 32, 52, 53, etc. can be eliminated
- Provide a safer environment for personnel

Conical bore seal chambers with flow modifiers – A and B hydraulics

Conical bore SealSentry seal chambers are preferred for most applications. These seal chambers feature flow modifiers to redirect flow and solids out of the seal chamber.

Available in several bore sizes and gland bolt circles, conical designs are ideal for:

- Single internal cartridge seals
- Dual internal/external cartridge seals
- Single internal component seals with flexible mounted seats
- Dual internal “true” tandem design cartridge seals
- Single seals with all seat mounting configurations

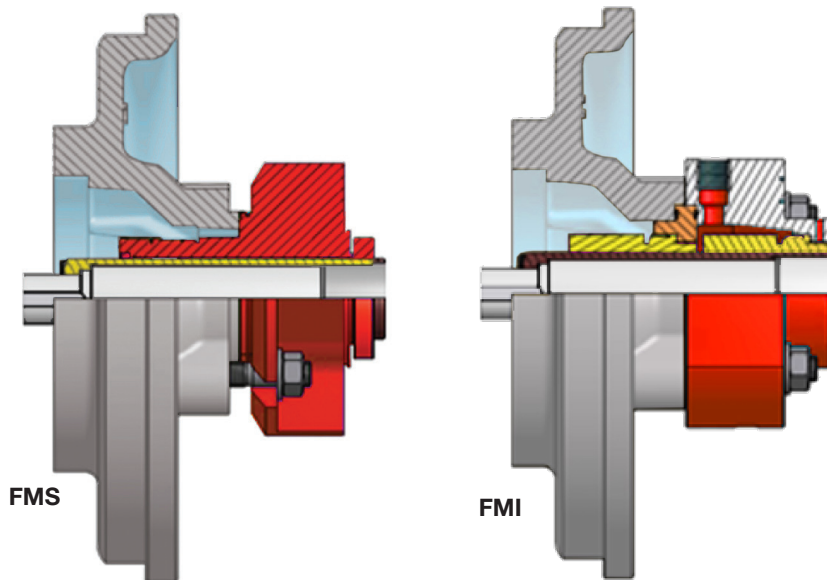
Cylindrical bore seal chambers – A and B hydraulics

With oversized and standard bores available, cylindrical bore seal chambers are ideal for seals with large and small gland bolt and gasket circles. Cylindrical designs may be used with:

- Dual internal component seals that isolate the seal chamber from the process with external barrier fluid
- Single seals with throttle bushing and flush to boost pressure over the flash point
- Packing arrangements and conventional seals with small gland bolt and gasket circles

Flow modifiers extend seal life

- Flow modifiers redirect flow from circumferential to axial.
- Balanced flow with low-pressure drop in the chamber helps keep solids in suspension, minimizing erosion.
- The mechanical seal creates a centrifuging action away from its parts.
- Solids and slurry merge into the returning flow path and are flushed out of the seal chamber.



FMS and FMI covers with flow modifiers – C hydraulics

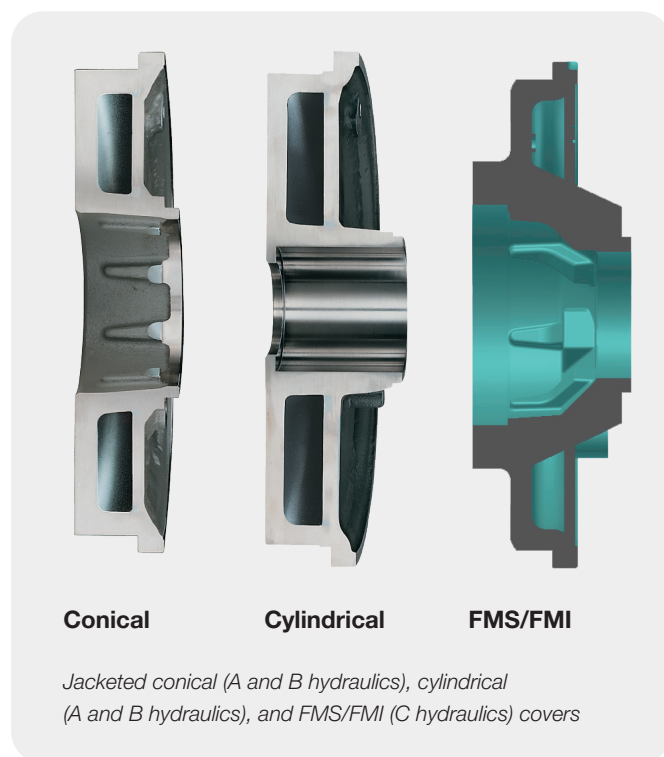
Because pumps with C hydraulics employ closed impellers with wear rings, Flowserve engineers designed covers to address their specific performance requirements. Like standard conical covers, FMS and FMI covers have a conical seal chamber with flow modifiers.

FMS — Ideal for use with single and double cartridge seals, as well as single component seal arrangements.

FMI — The seal mounting face of the FMI cover is designed for use with dual internal component seals in tandem arrangement.

Jacketed rear covers available

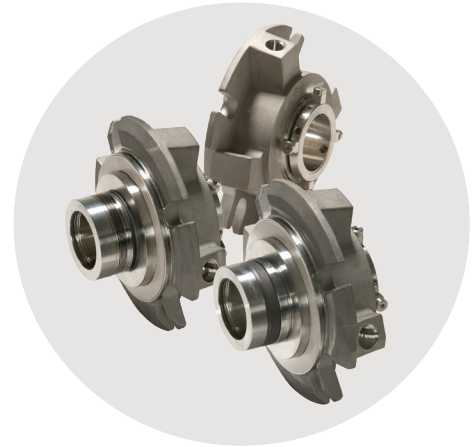
Jacketed versions of Durco rear covers with SealSentry seal chambers are available. Flowserve engineers will help you select the right jacketed cover for your application.



Sealing system

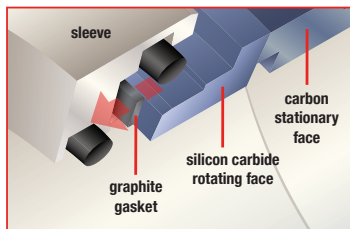
Seal option

- Single internal cartridge seals
- Dual internal/external cartridge seals
- Single internal component seals with flexible mounted seats
- Dual internal “true” tandem design cartridge seal
- Single seals with all seat mounting configuration
- Dual internal component seals using external barrier fluid
- Single seals with throttle bushing and flushes to boost pressure over the flash point



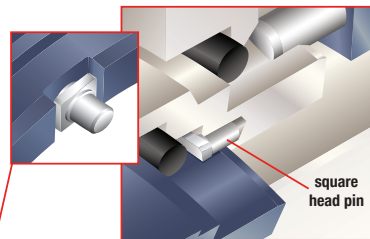
Tolerate dry running events with our exclusive thermal management technology

Thermally conductive and mechanically compliant graphite material dramatically improves heat transfer between the silicon carbide rotating seal face and the sleeve. The sleeve acts as a heat sink, lowering seal face operating temperatures and transforming cavitating and dry running bad actors into highly reliable installations.

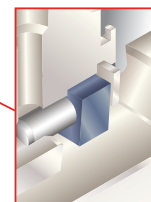
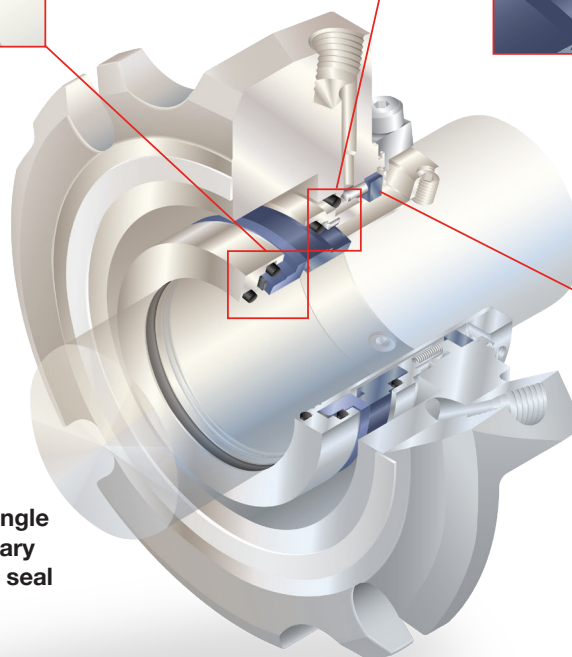


Robust drive mechanisms deliver high torque loads with low seal face stress

Square-head drive pins self-align with the seal faces to distribute torque loads evenly over an area instead of a high-stress point load, reducing seal face fractures. The torque-carrying capability of the ISC2 seal is three times that of similar competitor seals.



ISC2 single stationary pusher seal



Safe containment is provided by an uncompromising throttle bushing

A substantial fixed carbon bushing on the atmospheric side of single seals provides an added measure of safety and reliability in the unlikely event of a seal failure. Process leakage is directed to the drain for safe handling and disposal.

Protect your employees, protect your environment

ISC2 seals do more to provide a safe work environment and protect the natural environment than any other standard cartridge seal. Single seals have capable throttle bushings to protect against leaks. Pressurized dual seals provide zero process emissions. The outboard seal of dual seals can handle full operating conditions if the inboard seal were to fail. All seal faces are dual balanced for normal and reverse pressure operation.

ISC2 seals work hard to eliminate the possible causes of leakage. Our thermal management technology for dry running tolerance, robust seal face drive mechanisms, high-efficiency barrier circulation, rigid setting devices and high-quality materials all contribute to improve seal life, even with multiple service conditions, off-design operation, and frequent starts and stops. ISC2 seals are capable of sustaining years of uninterrupted, long-term operation.

Industry's most durable metal bellows are bigger and better

Edge-welded metal bellows of Alloy C-276 metallurgy are well-suited for a wide range of chemical environments in seal sizes to 95 mm (3.750 in.). Rotating bellows have a self-cleaning effect and are the preferred solution for highly corrosive services where avoiding seal face hang-up is especially critical.

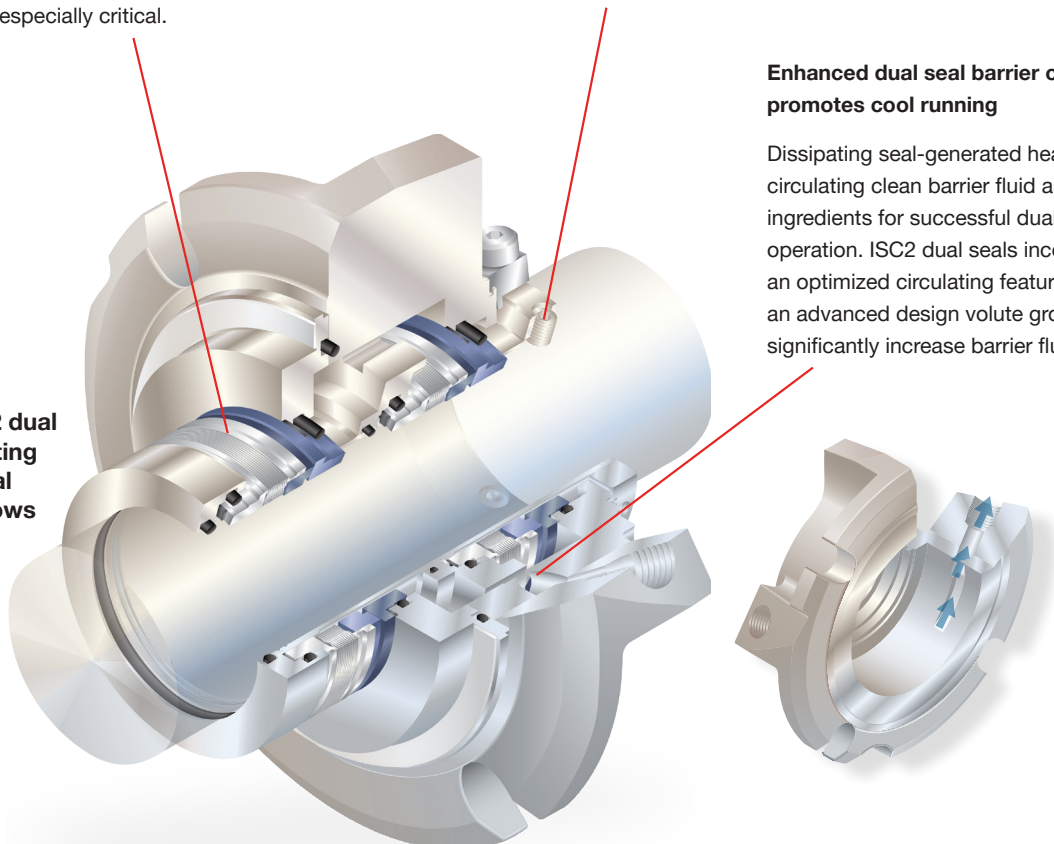
Hard set screws bite harder for better holding power

Drive collar set screws of 17-4 H900 stainless steel securely engage the shaft or pump sleeve and lock the cartridge sleeve in place. Opportunity for galling the shaft or drive collar is greatly reduced in case the seal ever needs to be removed.

Enhanced dual seal barrier circulation promotes cool running

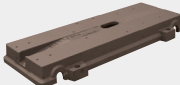
Dissipating seal-generated heat and circulating clean barrier fluid are essential ingredients for successful dual seal operation. ISC2 dual seals incorporate an optimized circulating feature, including an advanced design volute groove, to significantly increase barrier fluid flow.

ISC2 dual rotating metal bellows seal



Baseplates

Flowserve offers four pre-engineered baseplate designs to improve pump performance while reducing costs. This provides versatility in choosing the baseplate that best meets a user's application needs and operating budget. Reducing internal stress and vibration extends the life of pump and motor packages.

Baseplate	Folded Steel	Polybase	Reinforced	Cast Iron
				
Number of sizes —The right size baseplate for the pump/motor combination eliminates overhand and trip hazards.	9	6	16	8
ISO3661 compliance —Standards compliance for easy installation	Yes	Yes	No	Yes
Grouting required —Improved vibration response and stiffness for minimized MTBF	Yes	No	Optional	Yes
Rigidity —Torsional stress handling from high nozzle load applications	Medium	Very high	Very high	High
Chemical resistance —Minimizing MTBF	No	Yes	No	No
Integrated drain pan/port —Employee safety	Optional	Yes	Optional	No
Integrated lifting eye —Minimizing downtime and employee safety	No	No	Yes	No
Stilt mounting —Easy site modification with low installation costs	Optional	Optional	No	No

Nomenclature

Example:	Frame size	Series	Suction size in mm	Discharge size in mm	Special configuration	Impeller nominal diameter in mm	Hydraulic	Impeller type
1K100-65-N160A-OP	1	K	100	65	N	160	A	OP
1 = Frame 1 2 = Frame 2 3 = Frame 3 4 = Frame 4 C = Close coupled								
Durco Mark 3 family								
32, 40, 50, 65, 80, 100, 125, 150, 200, 250								
20, 25, 32, 40, 50, 65, 80, 100, 125, 150, 200								
Blank or no letter = 16 bar casing P = Self-priming casing R = Recessed impeller, low-shear design N = Centerline mounted 25 bar high-pressure casing H = 25 bar high-pressure, foot mounted								
125, 160, 200, 250, 315, 400								
A = Extended flow hydraulic B = Standard ISO 2858 A and B hydraulic C = Standard ISO 2858 C hydraulic								
RV = Reverse vane impeller OP = Open impeller CL = Closed impeller								

Parts interchangeability – A and B hydraulics

Frame 1					
BEARING HOUSING	ADAPTER	SEAL CHAMBER	REVERSE VANE OR OPEN IMPELLER	CASING	PUMP SIZE
					1K40-25-125
					1K50-32-125
					1K65-40-125
					1K80-50-125
					1K100-80-125
					1K32-20-160
					1K40-25-160
					1K50-32-160
					1K65-40-160
					1K80-50-160
					1K32-20-200
					1K40-25-200
					1K50-32-200
					1K65-40-200
					1K80-50-200

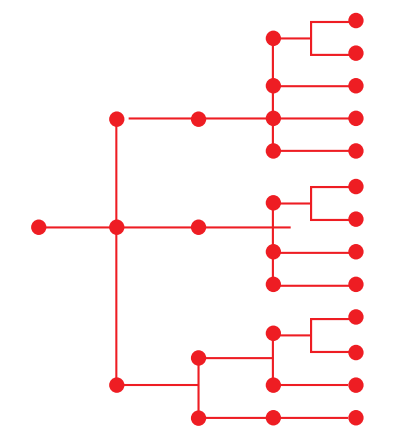
Frame 2					
BEARING HOUSING	ADAPTER	SEAL CHAMBER	REVERSE VANE OR OPEN IMPELLER	CASING	PUMP SIZE
					2K100-65-160
					2K125-80-160
					2K125-100-160
					2K100-65-200
					2K125-80-200
					2K125-100-200
					2K40-25-250
					2K50-32-250
					2K65-40-250
					2K80-50-250
					2K100-65-250
					2K125-80-250
					2K50-32-315
					2K65-40-315
					2K80-50-315

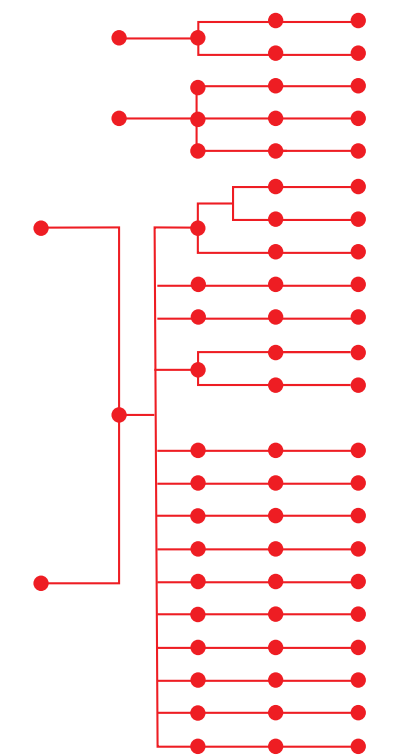
Frame 3					
BEARING HOUSING	ADAPTER	SEAL CHAMBER	REVERSE VANE OR OPEN IMPELLER	CASING	PUMP SIZE
					3K125-100-250
					3K150-125-250
					3K200-150-250
					3K100-65-315
					3K125-80-315
					3K125-100-315
					3K150-125-315
					3K100-65-400
					3K125-80-400
					3K125-100-400
					3K150-125-400

Frame 4					
BEARING HOUSING	ADAPTER	SEAL CHAMBER	REVERSE VANE OR OPEN IMPELLER	CASING	PUMP SIZE
					4K200-150-315
					4K200-150-400
					4K250-200-400
					4K200-150-500

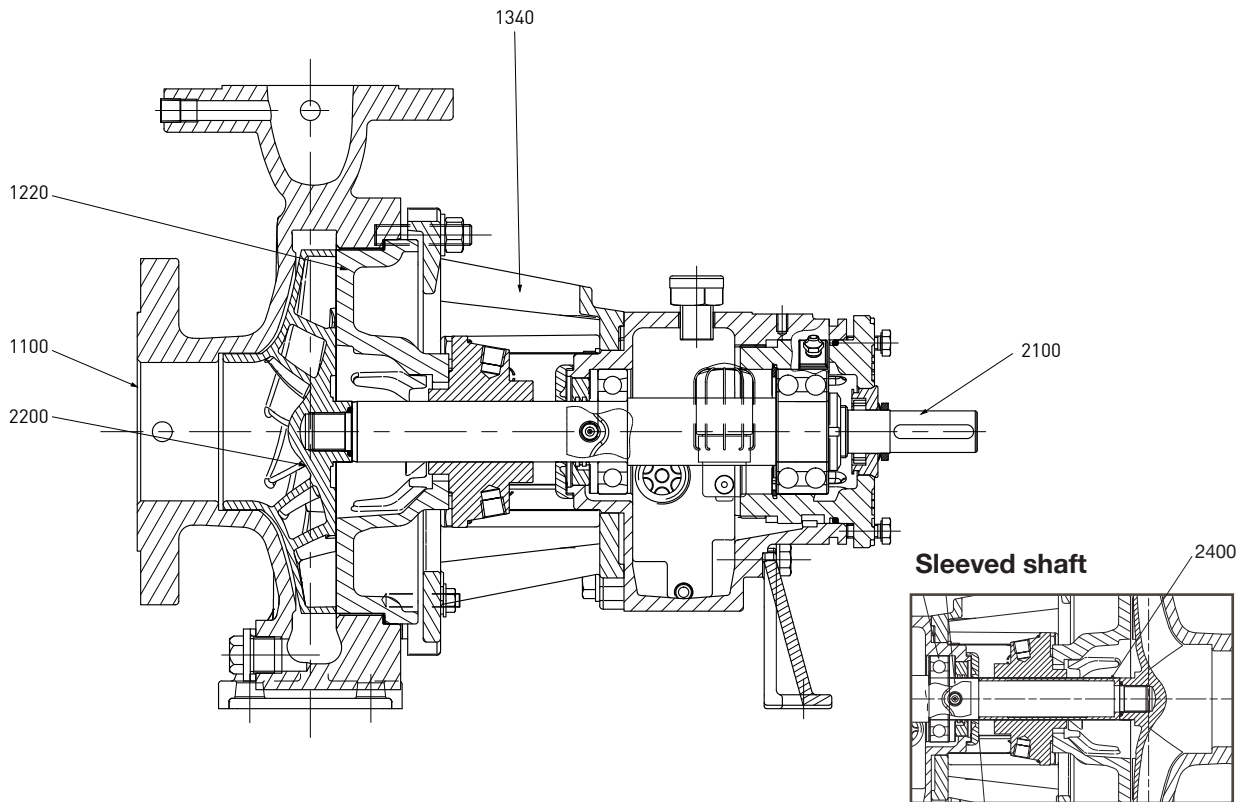
- Notes:**
1. Standard and high-output hydraulics available.
 2. Reverse vane impellers are not available on all sizes.
 3. Please request more detailed information if required.

Parts interchangeability – C hydraulics

Frame 1					
					PUMP SIZE
					1K40-2 5-125
					1K50-32-125
					1K65-40 125
					1K80-50-125
					1K100-65-125
					1K40-25-160
					1K50-32-160
					1K65-40-160
					1K80-50-160
					1K40-25-200
					1K50-32-200
					1K65-40-200
					1K80-50-200

Frames 2 and 3					
					PUMP SIZE
					2K100-65-160
					2K125-80-160
					2K100-65-200
					2K125-80-200
					2K125-100-200
					2K50-32-250
					2K65-40-250
					2K80-50-250
					2K100-65-250
					2K128-80-250
					2K 65-40-315
					2K80-50-315
					3K125-100-250
					3K150-125-250
					3K200-150-250
					3K100-65-315
					3K125-80-315
					3K125-100-315
					3K150-125-315
					3K125-80-400
					3K125-100-400
					3K150-125-400

Materials of construction



Materials of construction

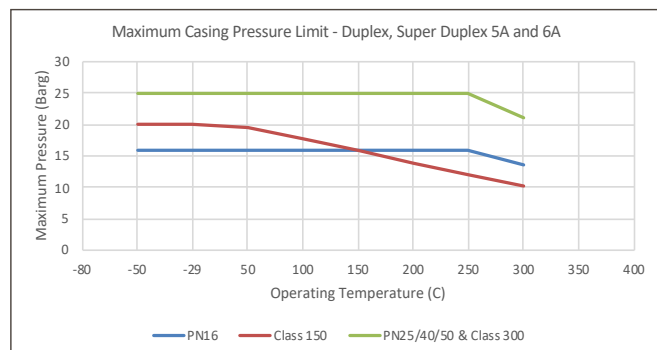
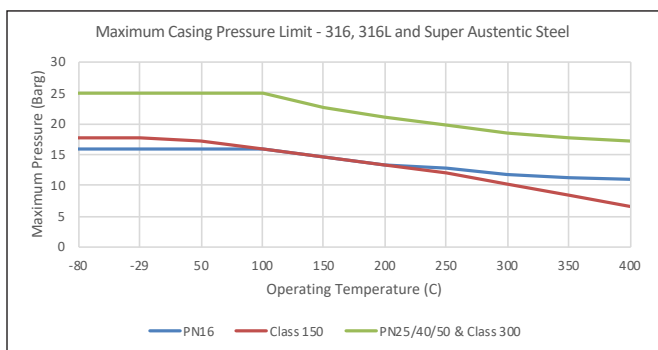
Item	Part	Build										
		Ductile Iron	Ductile NiResist	WCB Carbon Steel	316L Stainless Steel	316 Stainless Steel	304L Stainless Steel	304 Stainless Steel	Austenitic Stainless Steel	CD4MCuN Duplex	Super Duplex	Alloy 20
1100	Casing	Ductile iron	Ductile NiResist	WCB carbon steel	316L stainless steel	316 stainless steel	304L stainless steel	304 stainless steel	Austenitic stainless steel	CD4MCuN duplex	Super duplex	Alloy 20
1220	Cover											
1340	Adapter	Ductile Iron										
2100	Shaft (Solid)	316 stainless steel								CD4MCuN duplex	Super duplex	Alloy 20
	Shaft (Sleeved)	WCB carbon steel										
2400	Shaft Sleeve	316 stainless steel			CD4MCuN duplex		316 stainless steel			CD4MCuN duplex	Super duplex	Alloy 20
2200	Impeller (Open)	CD4MCuN duplex								CD4MCuN duplex		
	Impeller (Reverse Vane)	316 stainless steel										
	Impeller (Closed)	Cast iron	N/A		316 stainless steel		N/A			CD4MCuN duplex	N/A	

Note: These special materials also available:
 Chlorimet 2 (Alloy B-2), Chlorimet 3 (Alloy C-276), Alloy C22,
 Nickel, Titanium, Titanium-Pb, Zirconium

Operating limits

Limit	Configuration		Frame Size			
			1	2	3	4
Maximum speed (rpm)	"A" hydraulic - extended		4,700	3,600	3,600	1,800
	"B" hydraulic - ISO 2858		3,600	3,600	3,600	1,800
	"C" hydraulic - closed impeller		3,600	3,600	3,000	N/A
Maximum power (kW per 1000 rpm)	Steel shaft	Screw drive	11	27	55	88
		Key drive	6.3	22.5	38	100
	Carbon steel shaft	Screw drive	14.6	35.9	73.2	117
		Key drive	8.4	29.9	50.5	133
	Duplex shaft	Screw drive	16.2	39.7	80.9	129.4
		Key drive	9.3	33.1	55.9	147

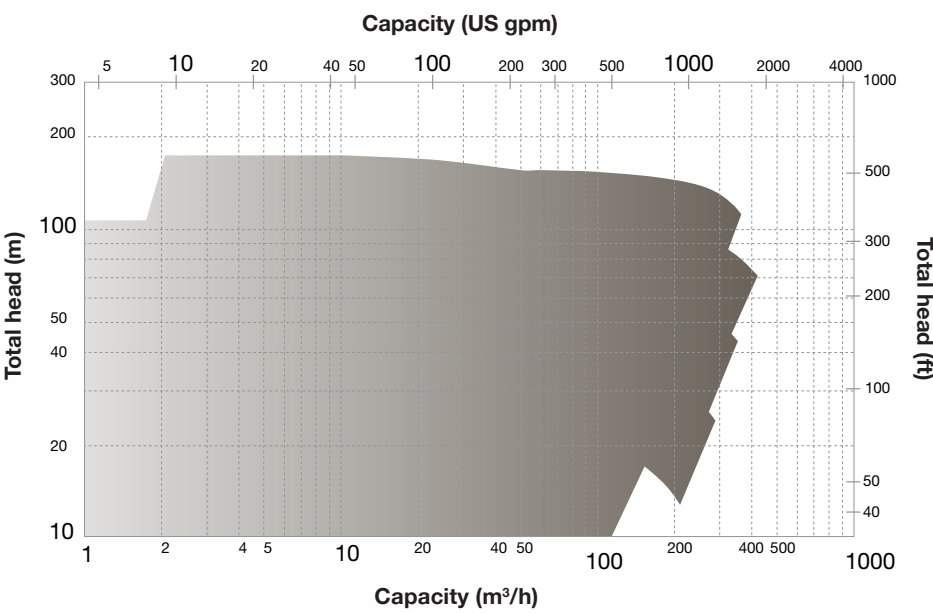
Casing pressure



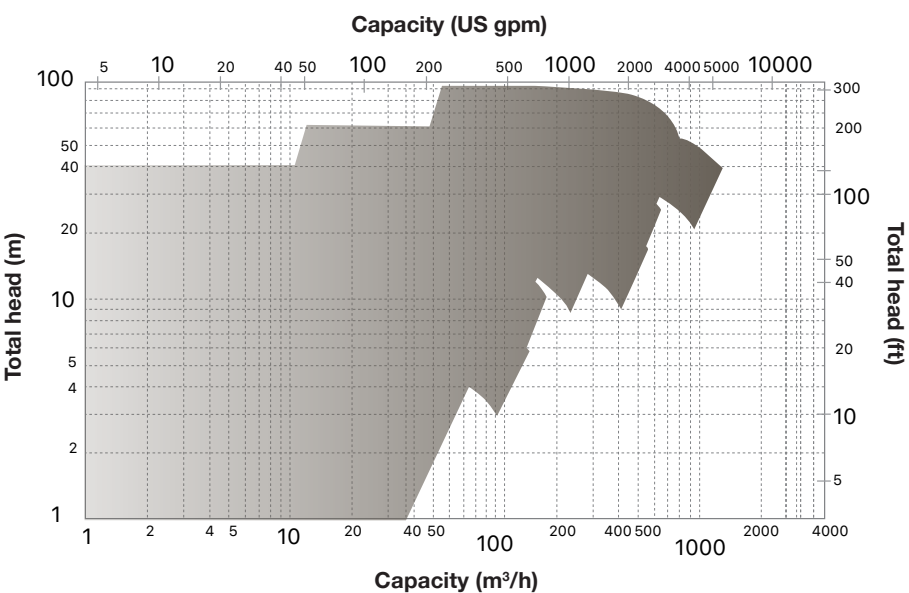
Note: This is an example for two material options. For more information, ask your local sales representative.

Coverage charts — A hydraulics 50 Hz (extended flow)

n = 2,900 rpm

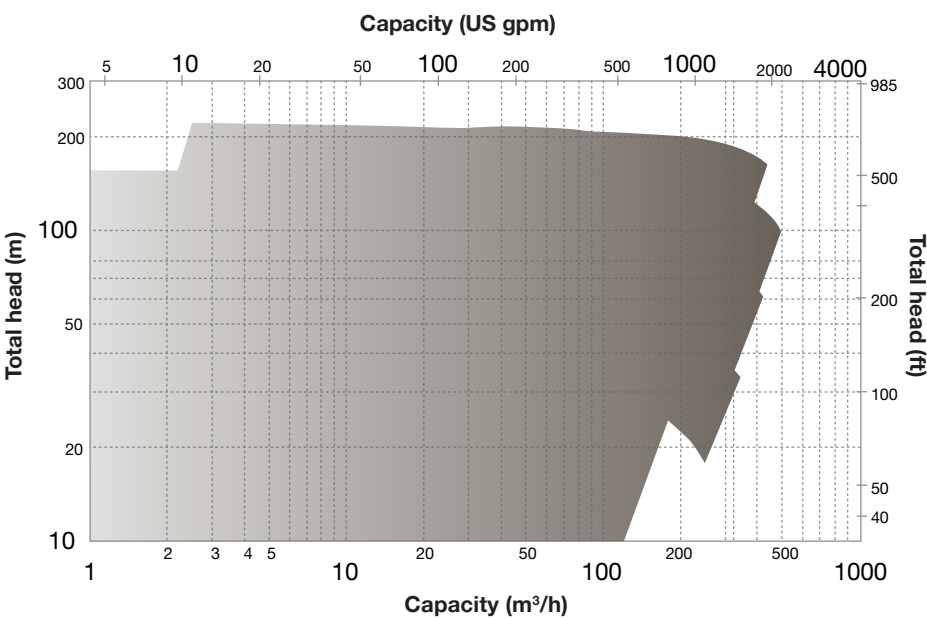


n = 1,450 rpm

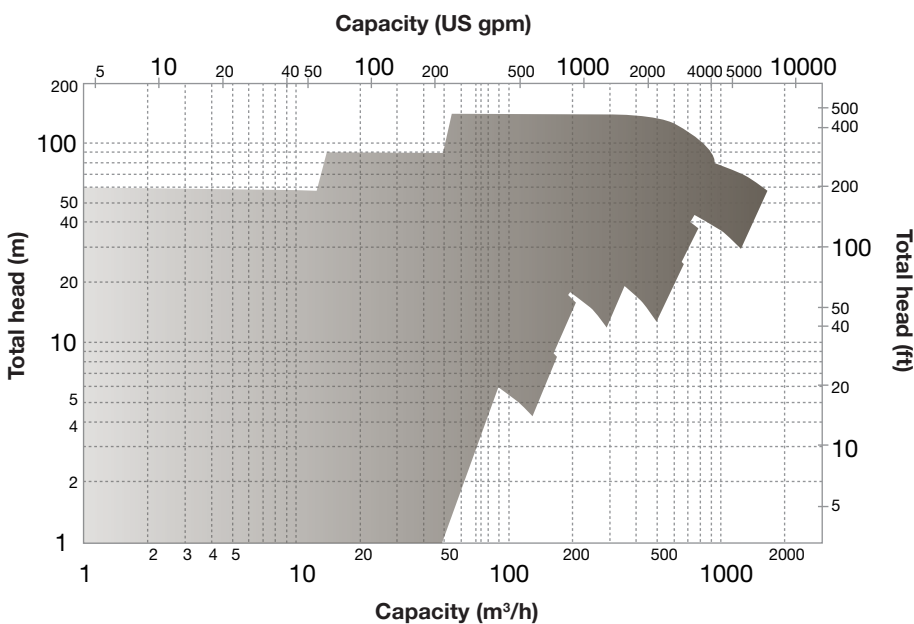


Coverage charts — A hydraulics 60 Hz (extended flow)

n = 3,500 rpm

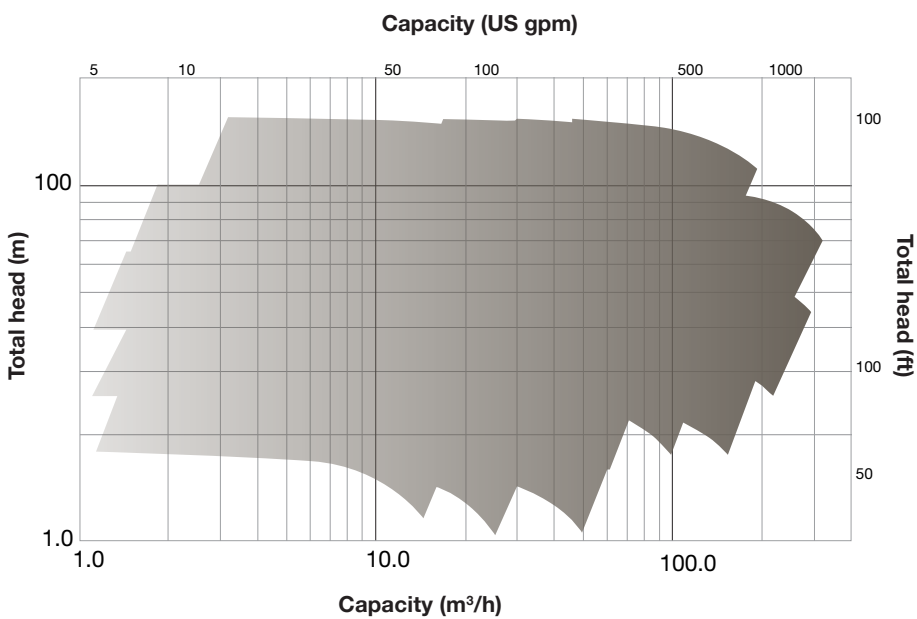


n = 1,750 rpm

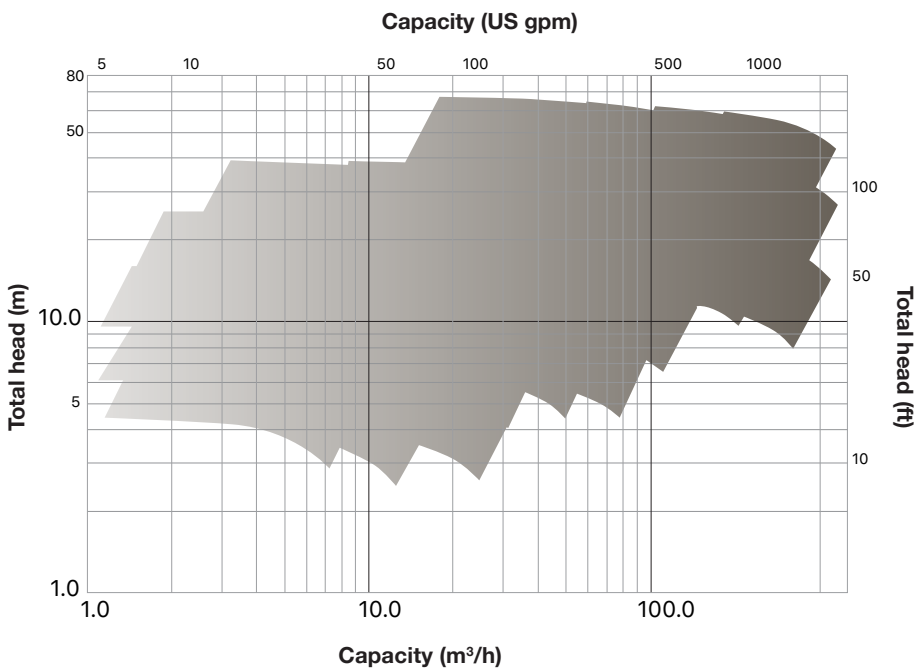


Coverage charts — B hydraulics 50 Hz ISO 2858

n = 2,900 rpm

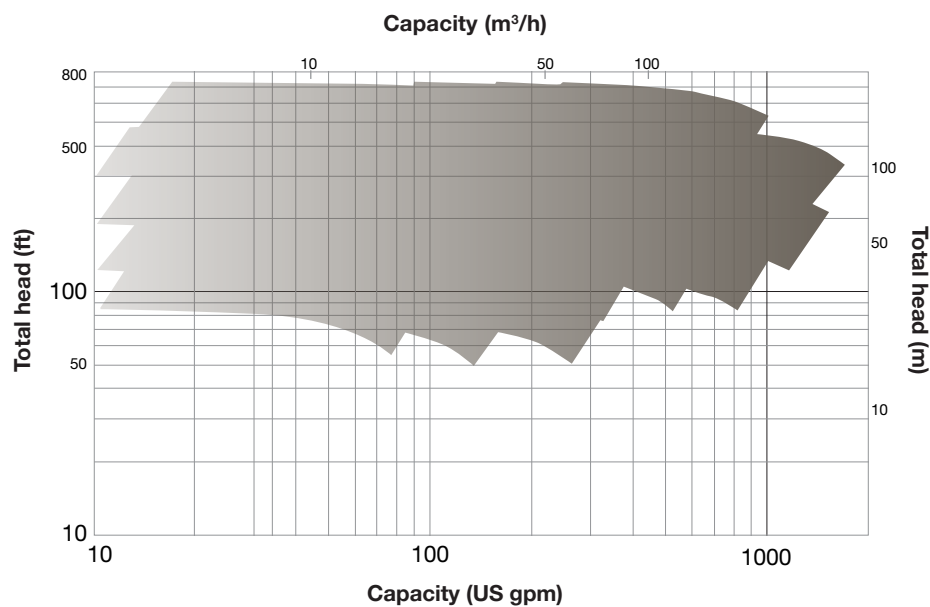


n = 1,450 rpm

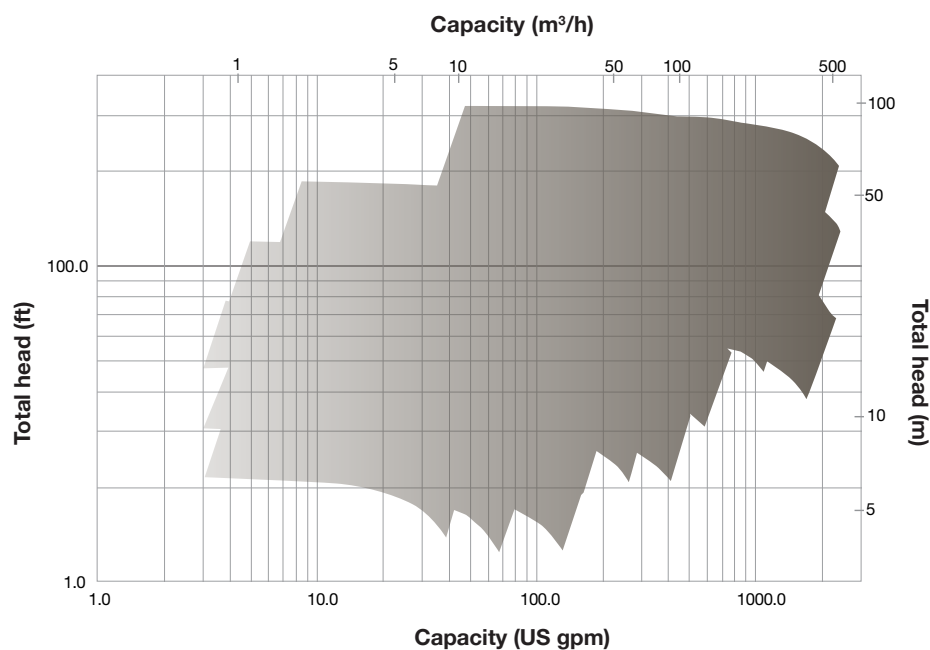


Coverage charts — B hydraulics 60 Hz ISO 2858

n = 3,500 rpm

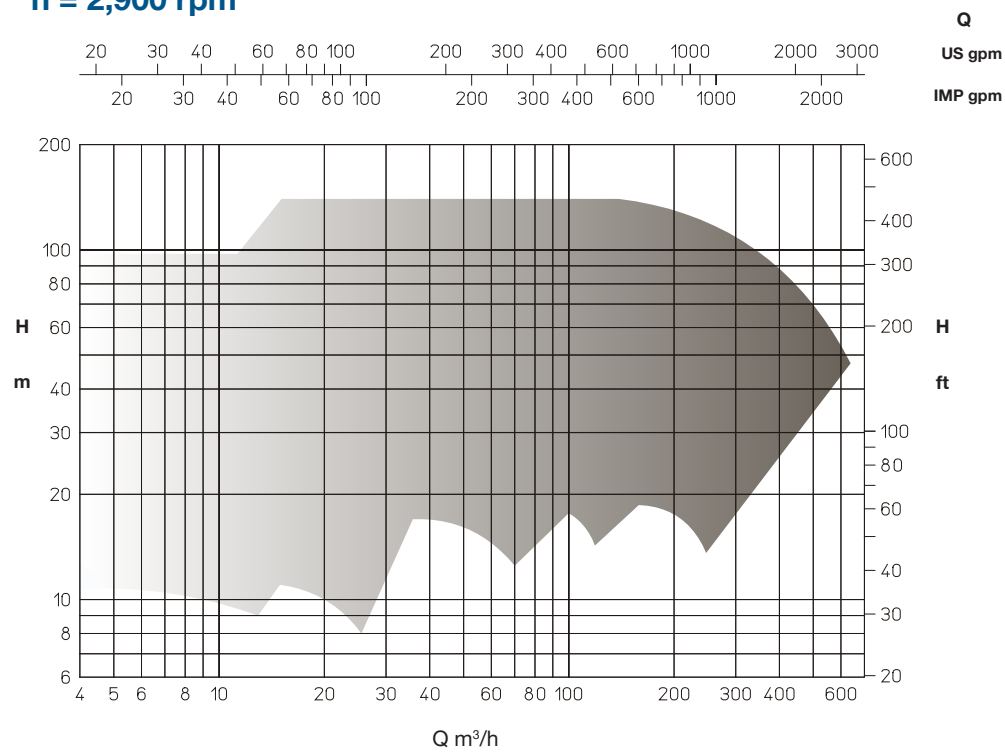


n = 1,750 rpm

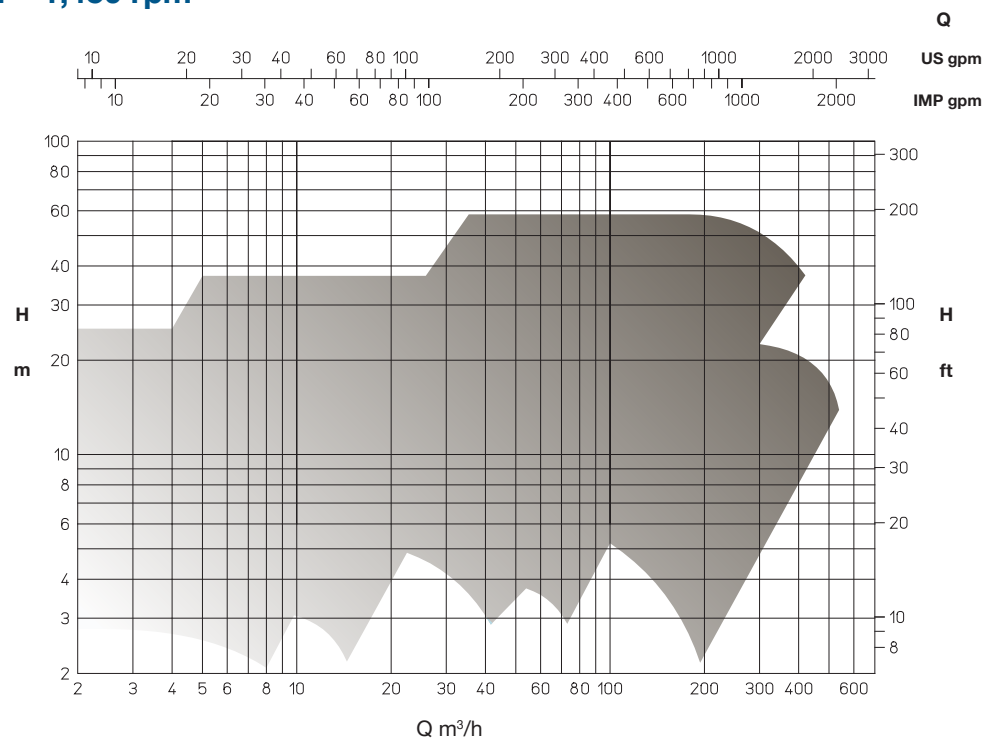


Coverage charts — C-hydraulics 50 Hz ISO 2858

n = 2,900 rpm

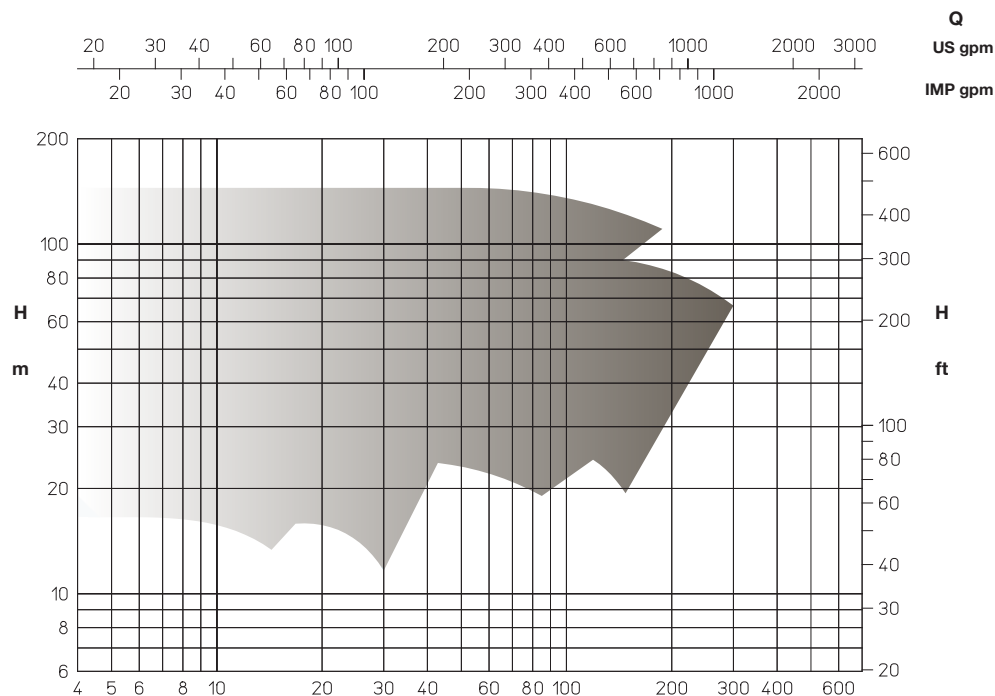


n = 1,450 rpm

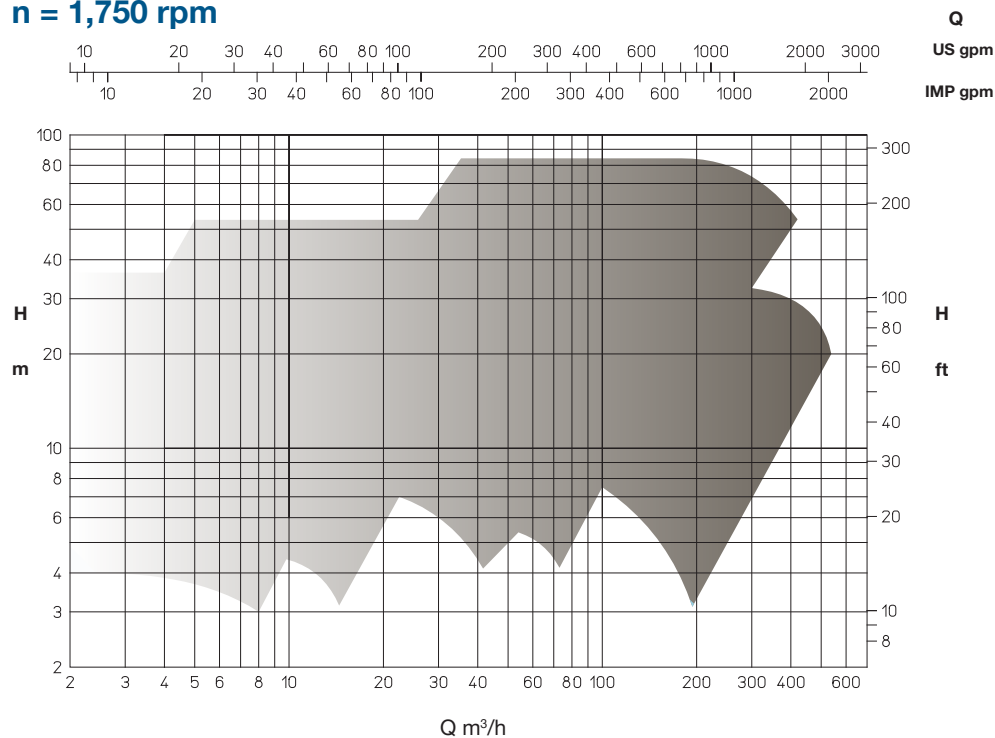


Coverage charts — C hydraulics 60 Hz ISO 2858

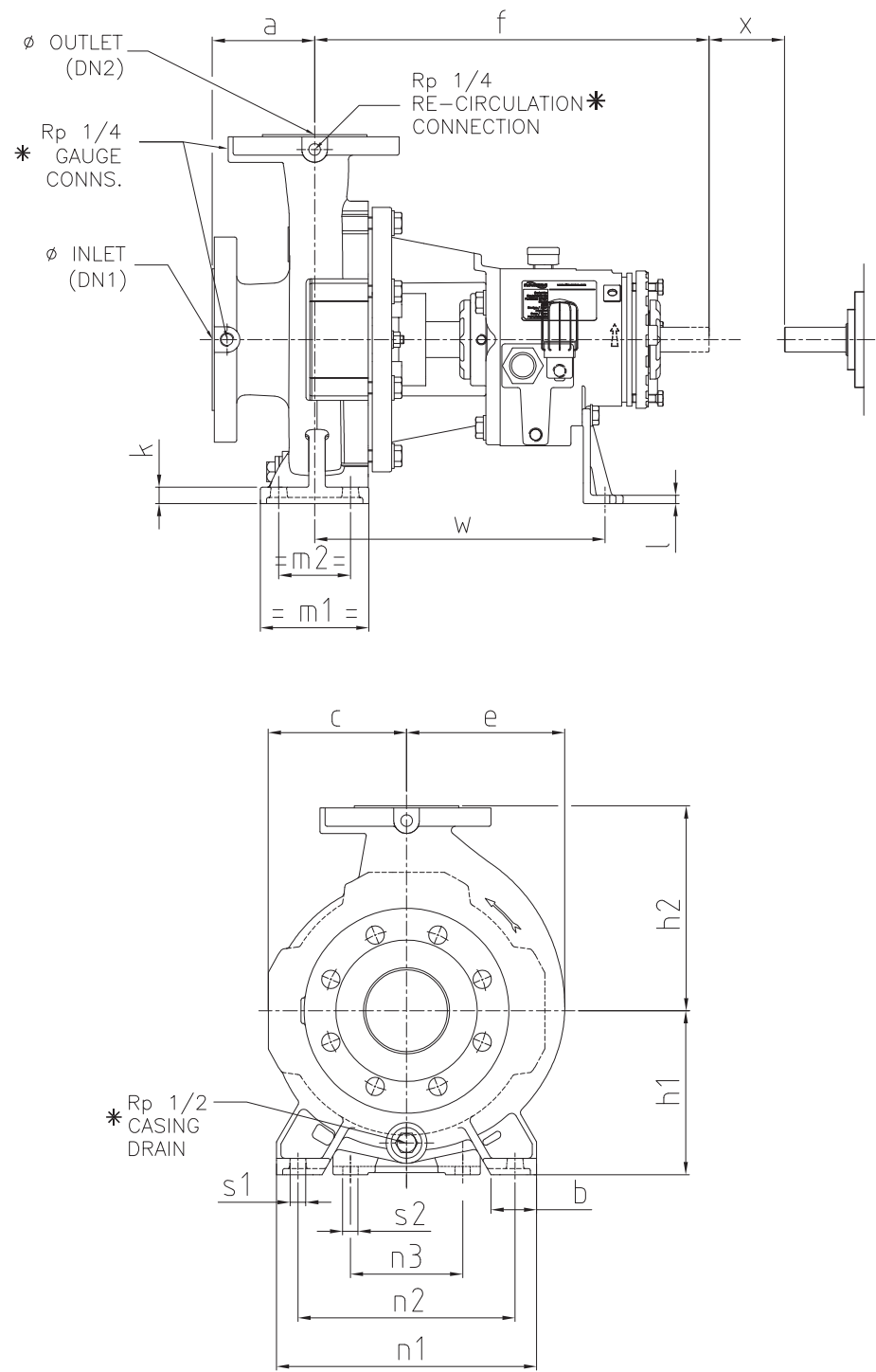
n = 3,500 rpm



n = 1,750 rpm



Dimensions — long coupled pump



* IF SPECIFIED

FOR DETAILS OF FLANGES AND SHAFT END REFER TO DRG No. B631/072 SHEET 2

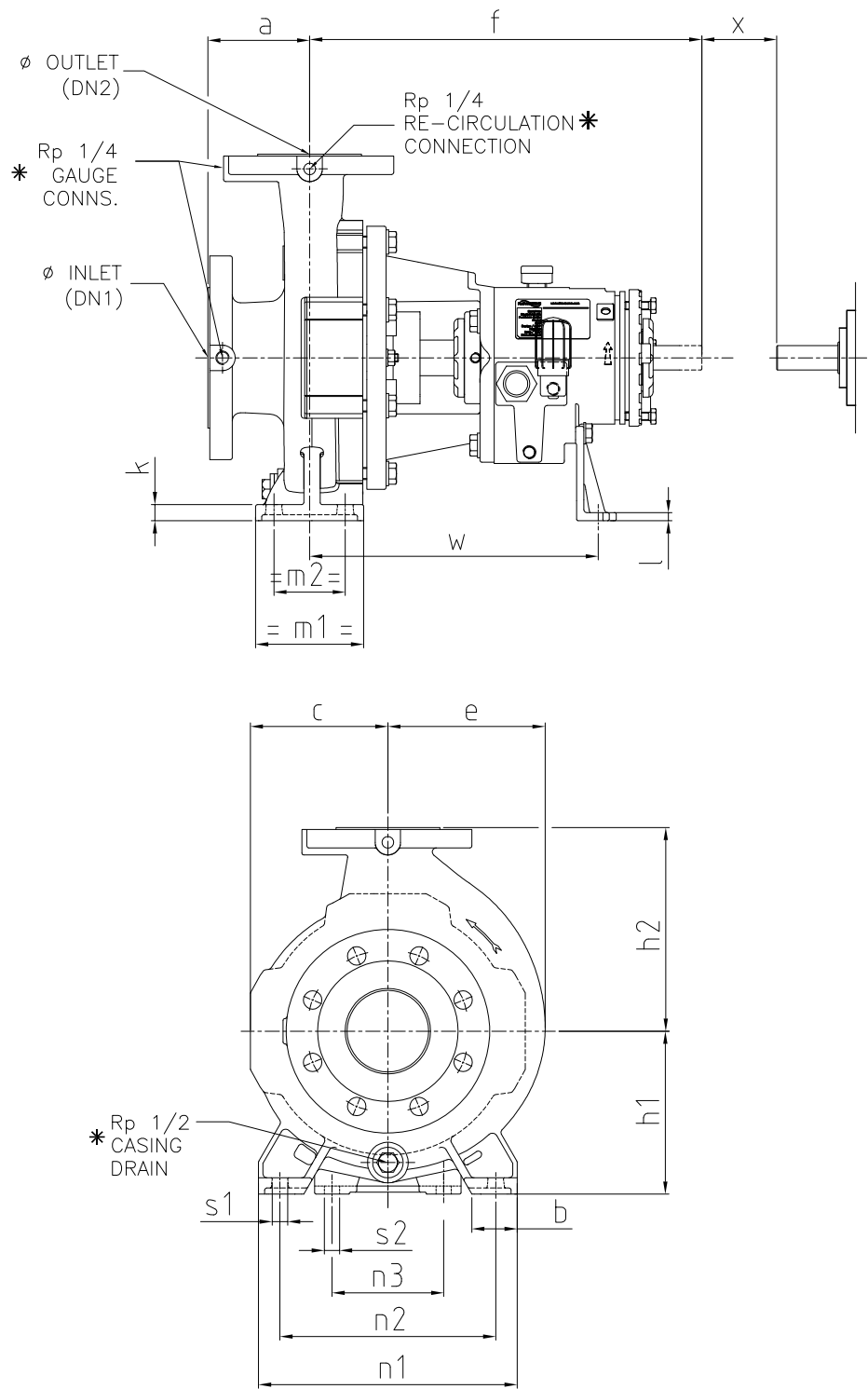
FOR DETAILS OF FLANGED CASING DRAIN ARRGT. REFER TO DRG No. B631/072 SHEET 3

Long coupled pump dimensions (see drawing on page 34)

All dimensions in mm, according to ISO 2858. A and B hydraulics to 16 bar (232 psi); C hydraulics to 25 bar (363 psi)

Pump Designation				Casing and Impeller Availability					Pump Dimensions										Support Dimensions										Clearance Holes for Bolts			DBSE to ISO 2858 X				
Inlet (DN)	Outlet (DN2)	Impeller	Frame Size	A HYD		B HYD		C HYD	a	f	h ₁	h ₂	A HYD	B HYD	C HYD	A HYD	B HYD	C HYD	b	m ₁	m ₂	n ₁	n ₂	n ₃	w	A & B HYD	C HYD	t	s ₁	s ₂						
				OP	RV	OP	RV						CL	c	c	c	e	e								e	k				k					
40	25	125	1	Yes	No	No	No	Yes	80	385	112	140	88	-	103	93	-	103	45	106	70	180	140	285	12	14	8	M12	100							
50	32	125		Yes	No	Yes	No	Yes					90	86	103	103	93	103																		
65	40	125		Yes	No	No	Yes	Yes					96	96	103	110	103	103																		
80	50	125		Yes	No	No	Yes	Yes					103	103	114	119	114	140																		
100	65	125		No	No	No	No	Yes					-	-	110	-	-	142																		
100	80	125		Yes	No	No	No	No					121	-	-	140	-	-	60																	
32	20	160		Yes	No	No	No	No	80	132	160	104	-	-	104	-	-	45	106	70	230	190	285	16	14	8	M12	100								
40	25	160		Yes	Yes	No	No	Yes				104	-	118	106	-	118																			
50	32	160		Yes	Yes	Yes	No	Yes				104	108	118	112	108	118																			
65	40	160		Yes	Yes	No	Yes	Yes				104	104	118	120	113	125																			
80	50	160		Yes	Yes	No	Yes	Yes				180	107	108	120	133	129												139							
100	65	160	2	Yes	No	No	Yes	Yes	100	500	160	180	200	133	121	130	147	140	159	60	125	95	270	212	370	19	-	10	M16	140						
125	80	160		No	No	No	Yes	Yes					180	225	-	138	142	-	158												177	65	125	95	320	250
125	100	160		Yes	No	No	No	No					200	280	139	-	-	188	-												-	75	160	120	350	280
32	20	200	1	Yes	No	No	No	No	80	385	160	180	133	-	-	133	-	-	45	106	70	230	190	285	14	8	M12	100								
40	25	200		Yes	No	No	No	Yes					133	-	138	133	-	138																		
50	32	200		Yes	Yes	Yes	No	Yes					133	128	138	133	128	138																		
65	40	200		Yes	Yes	No	Yes	Yes					133	130	138	140	130	142																		
80	50	200	2	Yes	Yes	No	Yes	Yes	100	500	180	225	140	135	139	156	155	156	60	125	95	310	250	110	16	14	8	M12	140							
100	65	200		Yes	Yes	No	Yes	Yes					250	-	138	155	-	171												186	75	160	120	350	280	
125	80	200		No	No	No	Yes	Yes					200	280	151	143	166	194												185	207	75	160	120	350	280
125	100	200		Yes	No	No	Yes	Yes	125	180	225	280	167	175	188	223	209	221	75	160	120	350	280		370	19	16	10	M16	180						
40	25	250		Yes	No	No	No	Yes					166	-	-	166	-	-																		
50	32	250		Yes	No	No	No	Yes					166	161	165	166	161	165																		
65	40	250		3	Yes	Yes	No	Yes	Yes	100	500	180	225	166	161	165	166	161	165	60	125	95	310		250	16	14	M12	100							
80	50	250			Yes	Yes	No	Yes	Yes					166	165	165	172	165	178																	
100	65	250			Yes	Yes	No	Yes	Yes					200	250	167	161	171	195											175	192					
125	80	250	No		No	No	Yes	Yes	-					170	182	-	199	208																		
125	100	250	Yes		Yes	No	Yes	Yes	225					280	167	175	188	223	209					221												
150	125	250	Yes		No	No	Yes	Yes	250					355	179	178	205	235	230					255												
200	150	250	4	Yes	No	No	Yes	Yes	160	670	315	400	192	188	215	272	262	272	95	200	150	540	450	140	500	20	20	M20	M16	180						
50	32	315		Yes	No	No	No	No					200	250	198	-	-	196													-	-				
65	40	315		Yes	No	No	Yes	Yes					198	197	200	202	197	200																		
80	50	315		Yes	Yes	No	Yes	Yes					198	200	200	207	200	211																		
100	65	315	3	Yes	Yes	No	Yes	Yes	530	250	315	400	198	200	204	213	212	219	75	160	120	390	315	19	19	M16	140									
125	80	315		Yes	Yes	No	Yes	Yes					207	201	209	245	224	233																		
125	100	315		No	No	No	Yes	Yes					-	-	218	-	230	241																		
150	125	315		Yes	Yes	No	Yes	Yes					212	208	227	262	249	262																		
200	150	315	4	Yes	No	No	Yes	No	180	670	355	500	290	-	-	385	-	-	95	200	150	540	450	140	500	24	-	12	M20	M16	180					
100	65	400		Yes	Yes	No	No	No					260	-	-	263	-	-																		
125	80	400		Yes	Yes	No	Yes	Yes					260	264	248	283	264	266																		
125	100	400		No	No	No	Yes	Yes					-	260	261	-	272	282																		
15	125	400	4	Yes	Yes	No	Yes	Yes	180	670	400	500	262	260	265	305	295	294	95	200	150	490	400	110	370	18	10	M20	M16	180						
200	150	400		Yes	Yes	No	Yes	No					277	264	-	356	303	-																		
250	200	400		Yes	No	No	No	No					290	-	-	385	-	-																		
200	150	500		Yes	No	No	No	No					380	-	-	445	-	-																		

Dimensions — long coupled, high-pressure pump



* IF SPECIFIED

FOR DETAILS OF FLANGES & SHAFT END REFER TO DRGNo. B631/073 SHEET 2

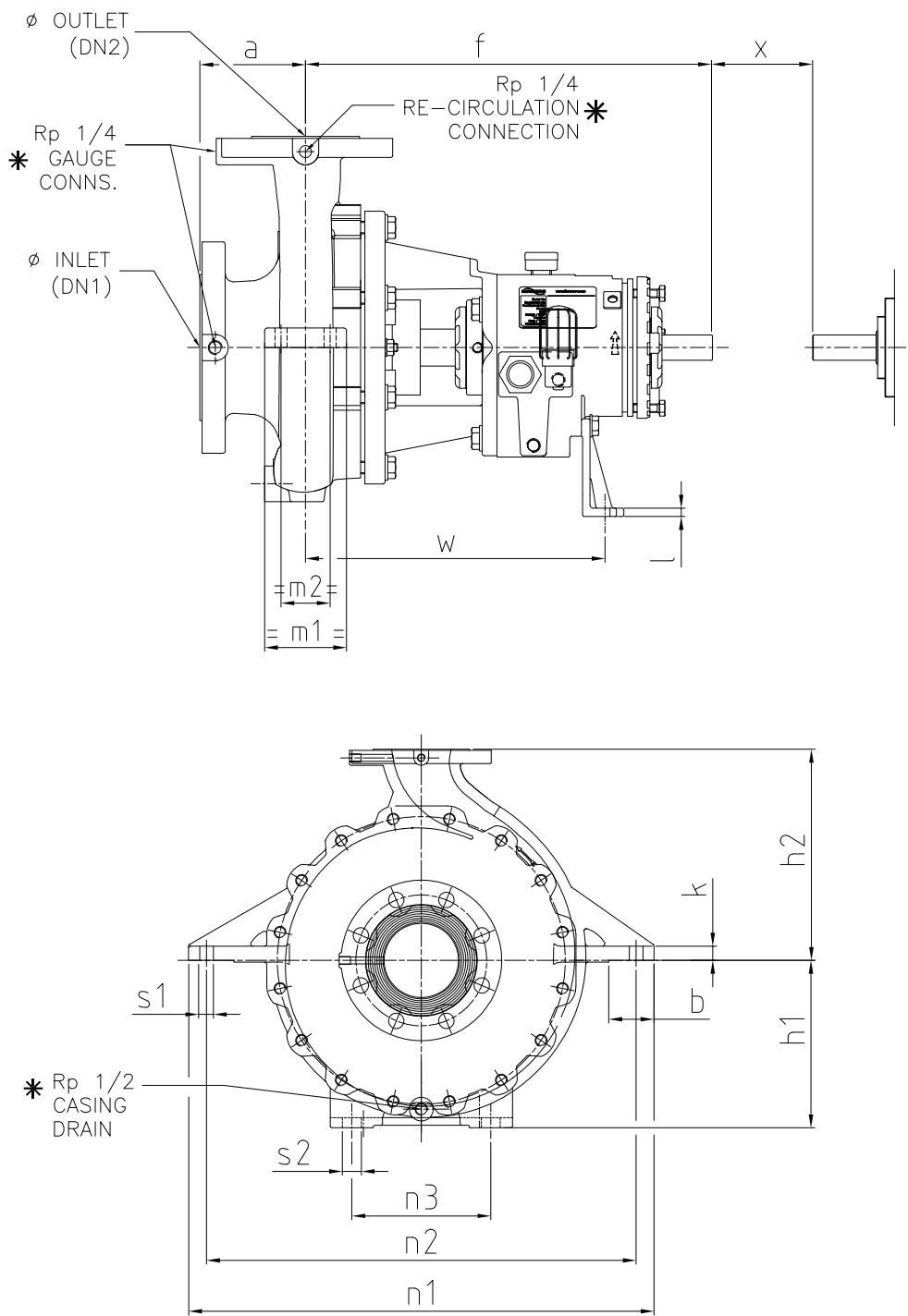
FOR DETAILS OF FLANGED CASING DRAIN ARRGT. REFER TO DRGNo. B631/073 SHEET 3

Long coupled, high-pressure pump dimensions (see drawing on page 36)

All dimensions in mm, according to ISO 2858. A and B hydraulics to 25 bar (363 psi)

Pump Designation				Casing and Impeller Availability				Pump Dimensions												Support Dimensions												Clearance Holes for Bolts		DBSE to ISO 2858 X											
Inlet (DN)	Outlet (DN2)	Impeller	Frame Size	A HYD		B HYD		A HYD	B HYD	f	h ₁	A HYD	B HYD	A HYD	B HYD	A HYD	B HYD	A HYD	B HYD	m ₁	m ₂	n ₁	n ₂	n ₃	w	A & B HYD	t	s ₁	s ₂																
				OP	RV	OP	RV	a	a			h ₂	h ₂	c	c	e	e	b	b			k																							
40	25	125	1	Yes	No	No	No		-	385	112	140	-	98	-	98	-	45	-	106	70	180	140	110	285	12	8	M12	M12	100															
50	32	125		Yes	No	Yes	No	80	80			140	90	86	101	94	45	45	12																										
65	40	125		Yes	No	No	Yes	80	80			155	140	99	96	111	104	45	45			12																							
80	50	125		Yes	No	No	Yes	100	100			132	165	160	108	103	120	115	45			45	12																						
32	20	160	1	No	No	No	No		-	385	132	160		104	-	104	-	45	-	106	70	230	190	110	285	16	8	M12	M12	100															
40	25	160		Yes	No	No	No	80	-				104	-	106	-	45	-	16																										
50	32	160		Yes	No	Yes	No	80	80			160	104	108	113	108	45	45	16																										
65	40	160		Yes	No	No	Yes	80	80			160	104	104	122	114	45	45	16																										
80	50	160	2	Yes	No	No	Yes	100	100	500	160	180	180	108	108	133	130	45	45	125	95	255	212	110		16	10	M12	M12	140															
100	65	160		Yes	No	No	Yes	115	-			210	200	133	121	148	142	60	60			16																							
125	80	160		Yes	No	No	Yes	-	125			180	-	225	-	138	-	160	-			75	320		250	-																			
32	20	200		Yes	No	No	No		-			385	160	180	-	133	-	133	-			45	-		106	70				230	190	285		16	8	M12	M12	100							
40	25	200	Yes	No	No	No	80	-	-	133	-				133	-	45	-	16																										
50	32	200	Yes	No	Yes	No	80	80	180	133	128				133	128	45	45	16																										
65	40	200	Yes	No	No	Yes			180	133	132				142	132	45	45	16																										
80	50	200	2	Yes	No	No	Yes	100	100	500	210	200	136	135	158	156	44.5	44.5	254	212	125	95	310	250	110		16	10	M12	M12	140														
100	65	200		Yes	No	No	Yes	-	125			180	-	250	-	139	-	174	-	75			350	280		-																			
125	80	200		Yes	No	No	Yes	125	-			200	280	280	152	145	195	187	75	75			160	120		350	280						16	10	M16	M12	100								
40	25	250		Yes	No	No	No					180	225	-	166	-	166	-	60	125			95	310		350	110				370	16													
50	32	250	Yes	No	No	No	100	-	166	-	166				-	60	125	95	310		350	110			370			16																	
65	40	250	Yes	No	No	No			166	-	166				-	60												125	95	310		350	110				370	16							
80	50	250	Yes	No	No	No	125	-	166	-	174				-	60																		125	95	310		350	110	370	16				
100	65	250	Yes	No	No	No			200	250	-	169	-	196	-	75				-			160	120		350	280															16	10	M16	M12
125	100	250	Yes	No	No	No	140	-	530	225	290	-	183	-	226	-	75	-	160	120	390	315	110	370	19	10	M16				M12										140				
150	125	250	Yes	No	No	No	140	-	530	250	355	-	182	-	237	-	75	-	160	120					19																				
50	32	315	2	Yes	No	No	No			500	200	250	-	198	-	198	-	60	125	95	335	280	110	370	16			10	M12	M12		100													
65	40	315		Yes	No	No	No						198	-	202	-	60	125			95	335			280								110	370	16										
80	50	315		Yes	No	No	No	125	-			225	290	-	200	-	209									-	60				125	95			335	280	110	370	16						
100	65	315		Yes	No	No	No					530	225	290	-	200	-									215	-												75	-	160	120	390	315	
125	80	315	Yes	No	No	No			530	250	315	-	209	-	247	-	79		-	160			120	398		315			24																
200	150	315	4	Yes	No	No	No	160	-	670	315	415	-	223	-	289	-	95	-	200	150	540	450	140	500	20	12	M20	M16	180															
150	125	400	4	Yes	No	No	No	140	-	530	315	415	-	265	-	308	-	95	200	150	490	400	110	370	24	10	20	M12	140																
200	150	400		Yes	No	No	No	160	-	670		465	-	276	-	255	-	95			-	540	450	140	500	24				12															

Dimensions — long coupled, centerline mounted, high-pressure pump



* IF SPECIFIED

FOR DETAILS OF FLANGES AND SHAFT END REFER TO DRGNo. C107/015 SHEET 2

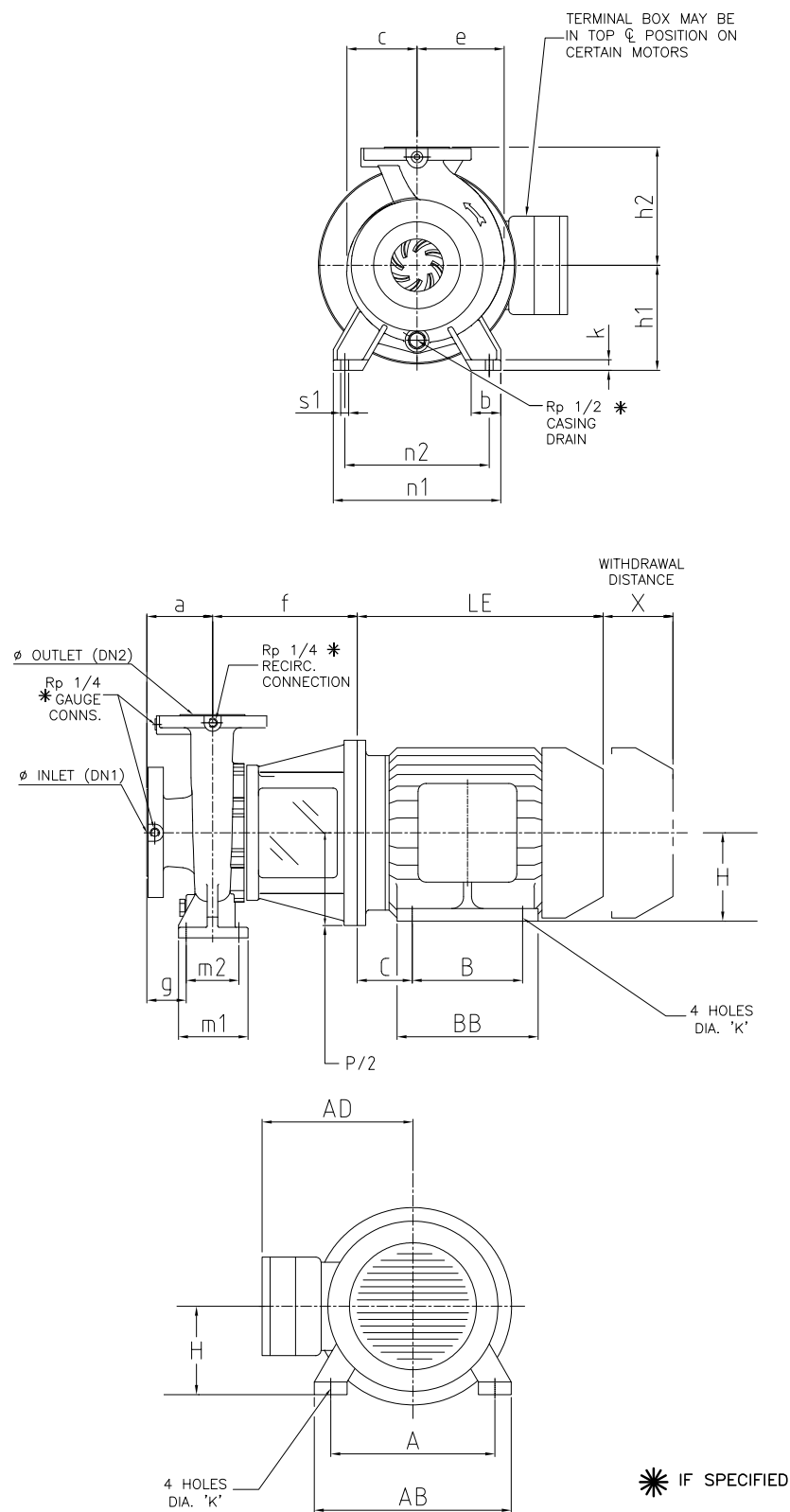
FOR DETAILS OF FLANGED CASING DRAIN ARRGT. REFER TO DRGNo. C107/015 SHEET 3

Long coupled, centerline-mounted, high-pressure pump dimensions (see drawing on page 38)

All dimensions in mm

Pump Designation				Casing and Impeller Availability				Pump Dimensions						Support Dimensions														Clearance Holes for Bolts		DBSE to ISO 2858 X
Inlet (DN)	Outlet (DN2)	Impeller	Frame Size	A HYD		B HYD		A HYD	B HYD	f	h ₁	A HYD	B HYD	A HYD	B HYD	A HYD	B HYD	A HYD	B HYD	n ₁	n ₂	n ₃	w	A & B HYD	l	s ₁	s ₂			
				OP	RV	OP	RV	a	a			h ₂	h ₂	b	b	m ₁	m ₁	m ₂	m ₂					k						
40	25	125	1	Yes	No	No	No	80	-	385	112	140	-	48	-	84	-	48	-	314	278	110	285	12	8	M12	M12	100		
50	32	125		Yes	No	Yes	No		-			140	-	48	-	84	-	48	-	314	278	110	285	12	8	M12	M12	100		
65	40	125		Yes	No	No	No		-			155	-	48	-	84	-	48	-	334	298	110	285	12	8	M12	M12	100		
80	50	125		Yes	No	No	No	100	-		132	165	-	48	-	84	-	48	-	348	312	110	285	12	8	M12	M12	100		
32	20	160		Yes	No	No	No	80	-			-	48	-	84	-	48	-	314	278	110	285	16	8	M12	M12	100			
40	25	160		Yes	No	No	No		-			-	48	-	84	-	48	-	314	278	110	285	16	8	M12	M12	100			
50	32	160		Yes	No	Yes	No		-			-	48	-	84	-	48	-	334	298	110	285	16	8	M12	M12	100			
65	40	160		Yes	No	No	No		-			-	48	-	84	-	48	-	348	312	110	285	16	8	M12	M12	100			
80	50	160		Yes	No	No	No	100	-			160	180	-	48	-	84	-	48	-	376	340	110	285	16	8	M12	M12	100	
100	65	160	Yes	No	No	No	115	-	500	210	-		48	-	84	-	48	-	408	372	110	370	16	10	M12	M12	100			
125	100	160	2	Yes	No	No	No	125	-	500	200	295	-	61	-	98	-	54	-	522	476	110	370	16	10	M16	M12	140		
32	20	200	1	Yes	No	No	No	80	-	385	160	180	-	48	-	84	-	48	-	376	340	110	285	16	8	M12	M12	100		
40	25	200		Yes	No	No	No		-	385			-	48	-	84	-	48	-	376	340	110	285	16	8	M12	M12	100		
50	32	200		Yes	No	Yes	No		-	385			-	48	-	84	-	48	-	376	340	110	285	16	8	M12	M12	100		
65	40	200		Yes	No	No	No		-	385			-	48	-	84	-	48	-	390	354	110	285	16	8	M12	M12	100		
80	50	200		Yes	No	No	No	100	-	385		210	-	48	-	84	-	48	-	428	392	110	285	16	10	M12	M12	100		
100	65	200		Yes	No	No	No	-	500	180		235	-	48	-	84	-	48	-	444	408	110	370	16	10	M12	M12	140		
125	100	200	2	Yes	No	No	No	125	-	500	200	280	-	61	-	98	-	54	-	522	476	110	370	16	10	M16	M12	140		
40	25	250		Yes	No	No	No	100	-	500	180	225	-	48	-	84	-	48	-	444	408	110	370	16	10	M12	M12	100		
50	32	250		Yes	No	No	No		100	500			225	48	48	84	100	48	60	444	408	110	370	16	10	M12	M12	100		
65	40	250		Yes	No	No	Yes		100	500			225	48	48	84	100	48	60	458	422	110	370	16	10	M12	M12	100		
80	50	250		Yes	No	No	Yes		125	500			200	250	250	61	61	98	124	54	80	522	476	110	370	16	10	M16	M12	140
100	65	250		Yes	No	No	Yes	-	125	500	225	-	280	-	61	-	124	-	80	586	540	110	370	-	10	M16	M12	140		
125	80	250		3	Yes	No	No	Yes	140	140	530	225	290	280	61	61	98	124	54	80	586	540	110	370	19	10	M16	M12	140	
150	125	250	Yes		No	No	Yes	140	140	530	250	355	355	61	61	98	124	54	80	604	558	110	370	19	10	M16	M12	140		
200	150	250	No		No	No	Yes	-	160	530	280	-	375	-	76	-	150	-	100	712	652	110	370	-	10	M20	M12	180		
50	32	315	2		Yes	No	No	No	125	-	500	200	250	-	48	-	84	-	48	-	522	486	110	370	16	10	M12	M12	100	
65	40	315		No	No	No	Yes	125		500	200	-	250	-	48	-	100	-	60	522	486	110	370	-	10	M12	M12	100		
80	50	315		Yes	No	No	Yes	125		500	225	290	280	48	48	84	100	48	60	522	486	110	370	16	10	M12	M12	100		
100	65	315	3	Yes	No	No	Yes	125	125	530	225	290	280	61	61	98	124	54	80	560	514	110	370	19	10	M16	M12	140		
125	80	315		Yes	No	No	Yes		125	530	250	315	315	61	61	98	124	54	80	624	578	110	370	24	10	M16	M12	140		
125	100	315		No	No	No	Yes		-	140	530	250	-	315	-	61	-	124	-	80	604	558	110	370	-	10	M16	M12	140	
150	125	315		No	No	No	Yes		-	140	530	280	-	355	-	76	-	150	-	100	982	622	110	370	-	10	M12	M12	140	
200	150	315	4	Yes	No	No	Yes	160	160	670	315	415	400	76	76	136	150	76	100	752	692	140	500	20	12	M20	M16	180		
125	80	400	4	No	No	No	Yes	-	125	530	280	-	355	-	61	-	124	-	80	704	658	110	370	-	10	M16	M12	140		
125	100	400		No	No	No	Yes	-	140	530	280	-	355	-	76	-	150	-	100	782	722	110	370	-	10	M20	M12	140		
150	125	400		Yes	No	No	Yes	140	140	530	315	415	400	76	76	136	150	76	100	782	722	110	370	24	10	M20	M12	140		
200	150	400	4	Yes	No	No	Yes	160	160	670	315	465	450	76	76	136	150	76	100	882	822	140	500	24	12	M20	M16	180		
200	150	500		Yes	No	No	No	180	-	670	400	515	-	76	-	136	-	76	-	1000	940	140	500	24	12	M20	M16	180		

Dimensions — close coupled pump



Close coupled pump dimensions (see drawing on page 40)

All dimensions in mm; A and B hydraulics

Pump Designation			Motor Frame Size	Pump Dimensions															Motor Dimensions											
Inlet (DN)	Outlet (DN2)	Impeller		a	h ₁	h ₂	c	e	b	m ₁	m ₂	n ₁	n ₂	k	g	s1	f	P/2	LE Max	X	AD max	H	A	B	C	K	AB max	BB max		
40	25	125	80	80	112	140	88	93	45	106	70	180	140	12	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	148									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
50	32	125	80	80	112	140	90	103	45	106	70	180	140	12	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	223		
			132S														232	150	290	150	218	132	216	140	89	12	261	223		
65	40	125	80	80	112	140	96	110	45	106	70	200	160	12	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
80	40	125	80	100	132	160	103	119	45	106	70	230	190	12	65	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
100	80	125	80	100	160	180	121	140	60	125	95	270	212	16	52.5	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
32	20	160	80	80	132	160	104	104	45	106	70	230	190	16	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
40	25	160	80	80	132	160	104	106	45	106	70	230	190	16	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
50	32	160	80	80	132	160	104	112	45	106	70	230	190	16	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
			132M														232	150	430	150	218	132	216	178	89	12	261	223		
160M	268	175	505	150	265	160	254	210	108	15	320	334																		

Close coupled pump dimensions, continued (see drawing on page 40)

All dimensions in mm; A and B hydraulics

Pump Designation			Motor Frame Size	Pump Dimensions															Motor Dimensions											
Inlet (DN)	Outlet (DN2)	Impeller		a	h ₁	h ₂	c	e	b	m ₁	m ₂	n ₁	n ₂	k	g	s ₁	f	P/2	LE Max	X	AD max	H	A	B	C	K	AB max	BB max		
65	40	160	80	80	132	160	101	120	45	106	70	230	190	16	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
			132M														232	150	430	150	218	132	216	178	89	12	261	223		
			160M														262	175	505	150	265	180	254	210	108	15	320	334		
80	50	160	80	100	160	180	107	133	45	106	70	255	212	16	65	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	214	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	180	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
			132M														232	150	430	150	218	132	218	178	89	12	261	223		
			160M														268	175	505	150	265	160	254	210	108	15	320	334		
			160L														268	175	550	150	265	160	254	254	108	15	320	334		
			180M														268	175	585	150	278	180	279	241	121	15	356	394		
			180L														268	175	599	150	288	180	279	279	121	15	356	394		
32	20	300	80	80	160	180	133	133	45	106	70	230	190	16	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	107	112	190	140	70	12	229	190		
			132S														232	150	300	150	218	132	216	140	89	12	281	223		
			132M														232	150	430	150	218	132	216	178	89	12	261	223		
			160M														268	175	505	150	265	160	254	210	108	15	320	334		
40	25	200	80	80	160	180	133	133	45	106	70	230	190	16	45	15		100	255	150	148	NO FOOT FITTED								
			90S															100	264	150	157									
			90L															100	289	150	157									
			100L														212	125	311	150	180	100	160	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	281	223		
			132M														232	150	430	150	218	132	216	178	89	12	261	223		
			160M														268	175	505	150	265	160	254	210	108	15	320	334		
			160L														268	175	550	150	265	160	254	254	108	15	320	334		
			180M														258	175	585	150	278	180	270	241	121	15	356	394		
50	32	200	80	80	160	180	133	133	45	106	70	230	190	16	45	15	201	100	255	150	148	NO FOOT FITTED								
			90S														201	100	264	150	157									
			90L														201	100	289	150	157									
			100L														212	125	311	150	180	100	180	140	63	12	204	170		
			112M														212	125	329	150	197	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
			132M														232	150	430	150	218	132	216	178	89	12	261	223		
			160M														268	175	505	150	265	160	254	210	108	15	320	334		
65	40	200	90S	100	160	180	133	140	45	106	70	255	212	16	65	15	201	100	264	150	157	NO FOOT FITTED								
			90L														201	100	289	150	157									
			100L														212	125	311	150	180									100
			112M														212	125	329	150	107	112	190	140	70	12	229	190		
			132S														232	150	390	150	218	132	216	140	89	12	261	223		
			132M														232	150	430	150	218	132	216	178	89	12	261	223		
			160M														268	175	505	150	285	160	254	210	108	15	320	334		
			160L														268	175	550	150	265	160	241	254	108	15	320	334		
			180M														268	175	585	150	278	180	270	241	121	15	356	394		
			180L														268	175	599	150	288	180	279	279	121	15	356	394		
			200L														268	200	705	150	348	200	318	305	133	19	394	365		

Close coupled pump dimensions, *continued* (see drawing on page 40)

All dimensions in mm; A and B hydraulics

Pump Designation			Motor Frame Size	Pump Dimensions																Motor Dimensions											
				Inlet (DN)	Outlet (DN2)	Impeller	a	h ₁	h ₂	c	e	b	m ₁	m ₂	n ₁	n ₂	k	g	s1	f	P/2	LE Max	X	AD max	H	A	B	C	K	AB max	BB max
80	50	200	90L	100	160	200	140	156	45	106	70	255	212	16	65	15	201	100	289	150	157	NO FOOT FITTED									
			100L														212	125	311	150	1110	100	160	140	63	12	204	170			
			112M														212	125	329	150	197	112	190	140	70	12	229	190			
			132S														232	150	390	150	218	132	216	140	89	12	261	223			
			132M														232	150	430	200	218	132	216	178	89	12	261	223			
			160M														268	175	505	150	265	160	254	210	108	12	320	334			
			160L														268	175	550	150	265	160	254	254	108	15	320	334			
			180M														268	175	585	150	278	180	279	241	121	15	356	394			
			180L														268	175	599	150	268	180	279	279	121	15	356	394			
			200L														268	200	705	150	346	200	318	305	133	19	394	365			
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			100L														242	125	311	200	1110	100	160	140	83	12	204	170			
			112M														242	125	329	200	1117	112	190	140	70	12	229	190			
			132S														262	150	390	200	218	132	216	140	89	12	261	223			
			132M														262	150	430	200	218	132	216	178	89	12	261	223			
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			112M														242	125	329	200	197	112	190	140	70	12	229	190			
			132S														262	150	390	200	218	132	216	140	89	12	261	223			
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			112M														232	125	329	200	197	112	190	140	70	12	229	190			
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			200L														298	200	705	200	346	200	318	305	133	19	394	365			

Close coupled pump dimensions, *continued* (see drawing on page 40)

All dimensions in mm; A and B hydraulics

Pump Designation			Motor Frame Size	Pump Dimensions																Motor Dimensions																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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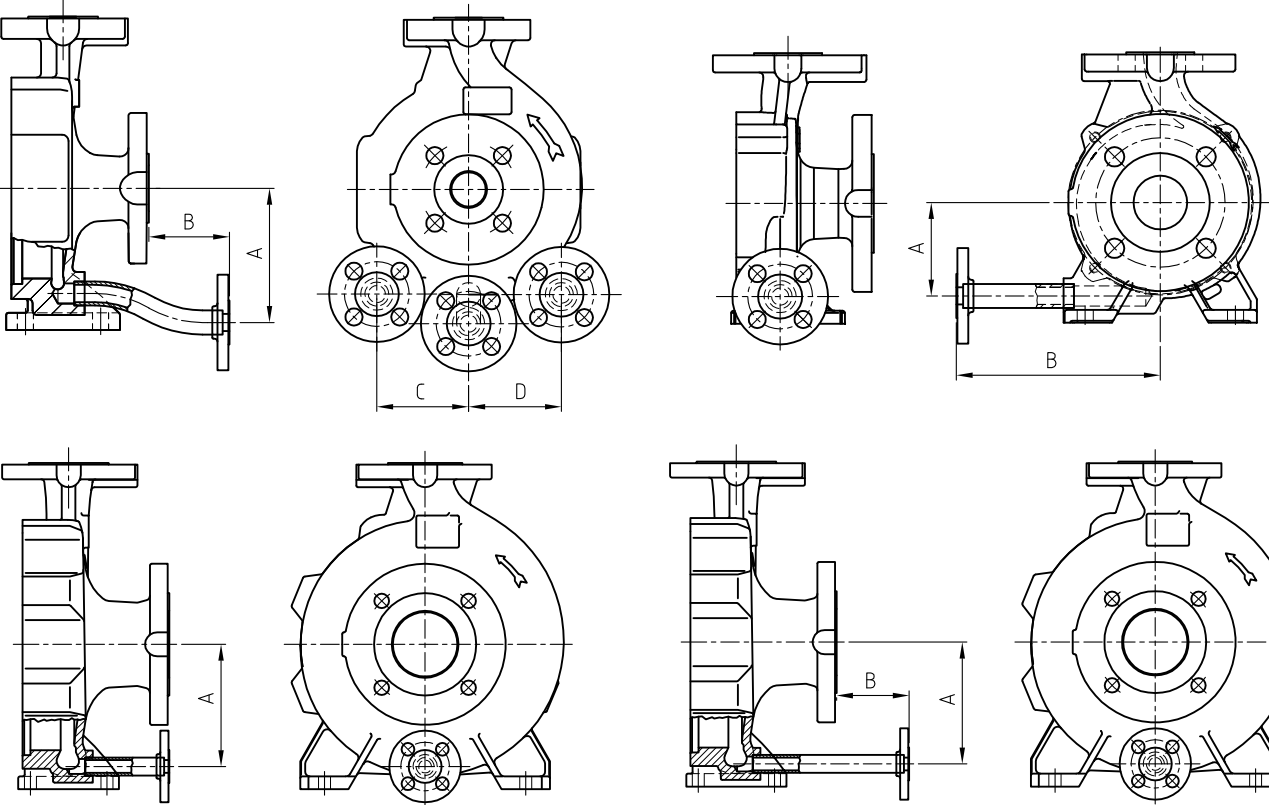
Close coupled pump dimensions, *continued* (see drawing on page 40)

All dimensions in mm; A and B hydraulics

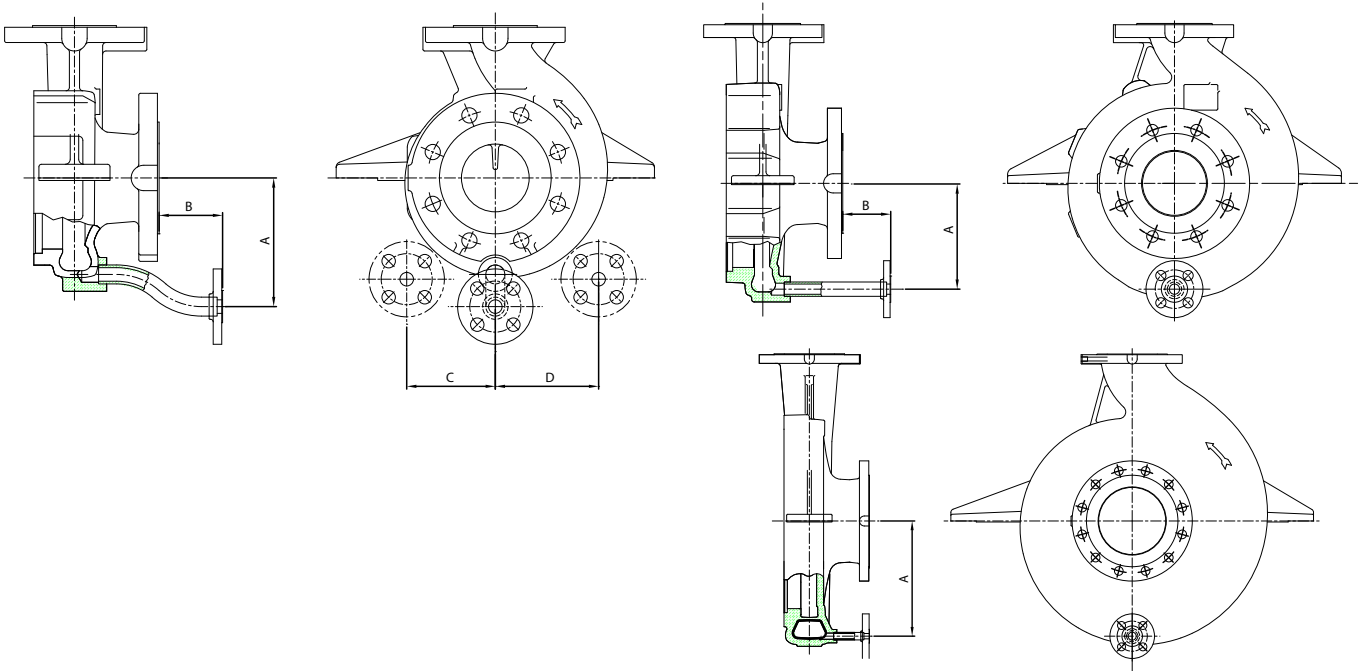
Pump Designation			Motor Frame Size	Pump Dimensions														Motor Dimensions											
Inlet (DN)	Outlet (DN2)	Impeller		a	h ₁	h ₂	c	e	b	m ₁	m ₂	n ₁	n ₂	k	g	s1	f	P/2	LE Max	X	AD max	H	A	B	C	K	AB max	BB max	
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			160L														298	175	550	200	265	160	254	254	108	15	356	394	
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			180L														298	175	599	200	288	180	279	279	121	15	356	394	
			200L														298	200	705	200	346	200	318	305	133	19	394	365	
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			200L														298	200	705	200	346	200	318	305	133	19	394	365	
50	32	315	132S	125	200	250	198	198	60	125	95	335	280	16	77.5	15	282	150	390	200	218	132	216	140	89	12	281	223	
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			160L														298	175	550	200	285	180	254	254	108	15	320	334	
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			180L														298	175	599	200	288	180	279	279	121	15	356	394	
			200L														298	200	705	200	346	200	318	305	133	19	394	365	
80	50	315	132S	125	225	280	198	207	60	125	95	335	280	16	77.5	15	262	150	390	200	218	132	218	140	89	12	281	223	
			132M														262	150	390	200	218	132	216	140	89	12	281	223	
			160M														298	175	505	200	285	180	254	210	108	15	320	334	
			160L														298	175	550	200	285	180	254	254	108	15	320	334	
			180M														298	175	585	200	278	180	279	241	121	15	356	394	
			180L														298	175	599	200	288	180	279	279	121	15	356	394	
			200L														298	200	705	200	346	200	318	305	133	19	394	365	
100	65	315	160M	125	225	280	198	213	75	160	120	390	315	19	65	19	298	175	505	200	265	180	254	210	108	15	320	334	
			160L														298	175	550	200	265	180	254	254	108	15	320	334	
			180M														298	175	585	200	278	180	279	241	121	15	356	394	
			180L														298	175	599	200	288	180	279	279	121	15	356	394	
			200L														298	200	705	200	346	200	318	305	133	19	394	365	
125	80	315	160M	125	250	315	207	245	79	160	120	398	315	24	65	19	298	175	505	200	265	180	254	210	108	15	320	334	
			160L														298	175	550	200	265	160	254	254	108	15	320	334	
			180M														298	175	585	200	278	180	279	241	121	15	356	394	
			180L														298	175	599	200	288	180	279	279	121	15	356	394	
			200L														298	200	705	200	346	200	318	305	133	19	394	365	
150	125	315	180M	140	280	355	212	262	95	200	150	490	400	20	65	22	298	175	585	200	278	180	279	241	121	15	356	394	
			180L														298	175	599	200	288	180	279	279	121	15	356	394	
			200L														298	200	705	200	346	200	318	305	133	19	394	365	

Drain options

Standard PN 16 and high-pressure designs



Centerline mounted



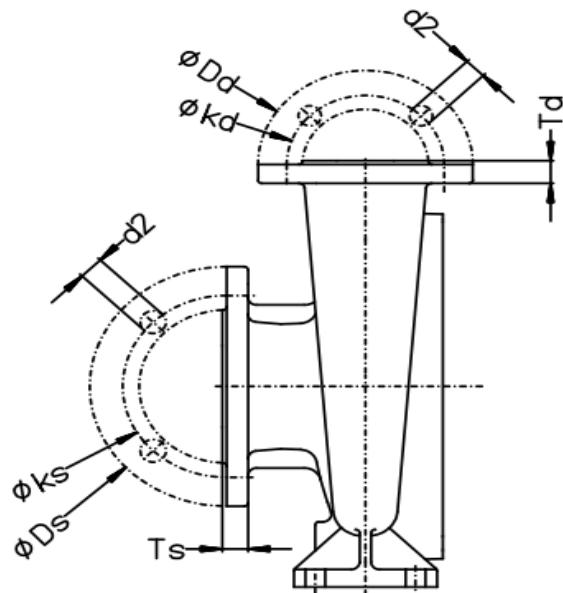
Lubrication options

Durco ISO lubrication options*

Version name	Features
Mark 3 ISO O	Oil, default
Mark 3 ISO OC	Oil, with constant level oiler
Mark 3 ISO OP	Oil, increased housing protection
Mark 3 ISO 3A	Oil, maximized protection, minimized maintenance
Mark 3 ISO OM	Pure oil mist two-point entry
Mark 3 ISO OS	Purge oil mist over oil sump two-point entry
Mark 3 ISO ON	Nitrogen purge over oil sump; single connection in vent tapping with vent on a tee
Mark 3 ISO G	Grease regreasable with grease nipples

* Available for all long coupled pumps

Dimensions — flanges



¹⁾ Execution 1¼" for DN32 not possible

²⁾ Execution 1" on suction side (DN40) with 4 x threads ½" – 13 UNC

Casing outlet and inlet flange dimensions

All dimensions in mm

Bore DN	Outside Diameter		Thickness		Standard	Bolting No. x Hole x PCD	Raised Face Diameter	Raised Face Height
	Standard Casing	HP Casing	Standard Casing	HP Casing				
20	105	120	24	24	PN 16, 25 and 25	4 x 14 x 75	56	2
			24	24	Class 150 (PN20)	4 x 16 x 70	43	2
			N/A	24	Class 300 (PN50)	4 x 18 x 82.5	43	2
25	115	125	21	21	PN 16, 25 and 25	4 x 14 x 85	65	2
			21	21	Class 150 (PN20)	4 x 16 x 79.5	51	2
			N/A	21	Class 300 (PN50)	4 x 18 x 89	51	2
32	140	140	18	19.5	PN 16, 25 and 25	4 x 18 x 100	76	2
			18	19.5	Class 150 (PN20)	4 x 16 x 89	64	2
			• •	19.5	Class 300 (PN50)	4 x 18 x 98.5	64	2
40	150	155	19	21	PN 16, 25 and 25	4 x 18 x 110	84	2
			91	21	Class 150 (PN20)	4 x 16 x 98.5	73	2
			• •	21	Class 300 (PN50)	4 x 22 x 114.5	73	2

Casing outlet and inlet flange dimensions, *continued* (see drawing on page 48)

All dimensions in mm

Bore DN	Outside Diameter		Thickness		Standard	Bolting No. x Hole x PCD	Raised Face Diameter	Raised Face Height
	Standard Casing	HP Casing	Standard Casing	HP Casing				
50	165	165	20	25	PN 16, 25 and 25	4 x 18 x 125	99	2
			20	25	Class 150 (PN20)	4 x 18 x 120.5	92	2
			• •	25	Class 300 (PN50)	8 x 18 x 127	92	2
65	185	190	22	N/A	PN 16 (Iron)	4 x 18 x 145	118	2
			22	25.5	PN 16 (Steel), PN 25 & PN 40	8 x 18 x 145	118	2
			22	25.5	Class 150 (PN20)	4 x 18 x 139.5	105	2
			• •	25.5	Class 300 (PN50)	8 x 22 x 149.5	105	2
80	200	210	24	29	PN 16, 25 and 25	8 x 18 x 160	132	2
			24	29	Class 150 (PN20)	4 x 18 x 152.5	127	2
			N/A	29	Class 300 (PN50)	8 x 22 x 168.5	127	2
100	235	255	24	32	PN 16	8 x 18 x 180	156	2
			24	32	PN 25 & 40 •	8 x 22 x 190	156	2
			24	32	Class 150 (PN20)	8 x 18 x 190.5	157	2
			N/A	32	Class 300 (PN50)	8 x 22 200	157	2
125	270	280	26	35	PN 16	8 x 18 x 210	184	2
			26	35	PN 25 & 40 •	8 x 26 x 220	184	2
			26	35	Class 150 (PN20)	8 x 22 x 216	186	2
			N/A	35	Class 300 (PN50)	8 x 22 x 235	186	2
150	300	320	28	37	PN 16	8 x 22 x 240	211	2
			28	37	PN 25 & 40 •	8 x 26 x 250	211	2
			28	37	Class 150 (PN20)	8 x 22 x 241.5	216	2
			N/A	37	Class 300 (PN50)	12 x 22 x 270	216	2
200	360	380	30	41.5	PN 16	12 x 22 x 295	266	2
			30	41.5	PN 25	12 x 26 x 310	274	2
			30	41.5	Class 150 (PN20)	8 x 22 x 298.5	270	2
			• • •	41.5	Class 300 (PN50)	12 x 26 x 330	270	2
250	425	450	32	48	PN 16	12 x 26 x 355	319	2
			32	48	PN 25	12 x 30 x 370	330	2
			32	48	Class 150 (PN20)	12 x 26 x 362	324	2
			• • •	48	Class 300 (PN50)	16 x 30 x 387.5	324	2

• Not available in ductile iron

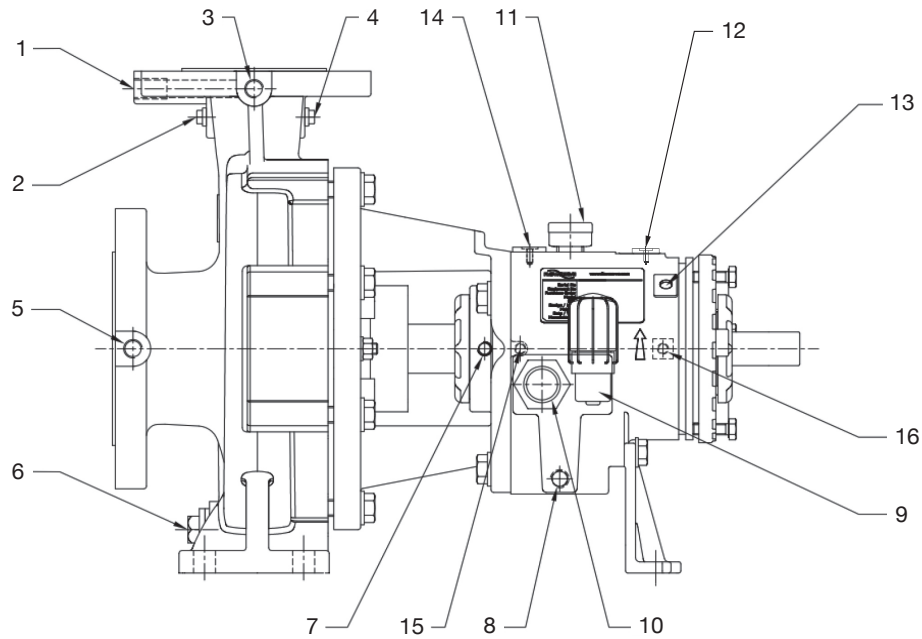
• • Class 300 (PN 50) not available except for sizes 2K50-32-315 and 2K65-40-315 in steel or alloys.

• • • Class 300 (PN 50) not available except for sizes 4K250-200-400 in steel or alloys.

The flange outside diameters and thicknesses in some cases differ from those of the flange standard.

This is permissible in accordance with VDMA 24297 and API 610.

Dimensions — connections



Dimensions of pump connections

Position No.	Description	Execution	Connection	
			A & B - Hydraulics	C - Hydraulics
1	Pressure gauge	By request	Rp1/4	N/A
2	Pressure gauge	By request	N/A	G1/4, G1/2*
3	Recirculation	By request	Rp1/4	N/A
4	Recirculation	By request	N/A	G1/4
5	Vacuum and pressure gauge	By request	Rp1/4	G1/4, G1/2*
6	Casing drain	By request	1/2 in. NPT	G1/4, G3/8*
7	Grease nipple	Grease nipple or oil mist inlet to pump end bearing	1/8 in. NPT	
8	Magnetic drain	Bearing housing drain	1/4 in. NPT	
9	Constant level oiler	Execution with oil level controller	1/4 in. NPT	
10	Oil level sight glass	For oil level indication	1 in. NPT	
11	Oil filler/vent/breather	For oil lubrication - vent	1/2 in. NPT	
12	Condition monitoring	By request	1/4 in. UNF	
13	Grease nipple	Grease nipple or oil mist inlet to drive end bearing	1/8 in. NPT	
14	Vibration monitoring	By request	1/4 in. UNF	
15	Temperature monitoring	By request (IB - inboard)	1/4 in. NPT	
16	Temperature monitoring	By request (OB - outboard)	1/4 in. NPT	

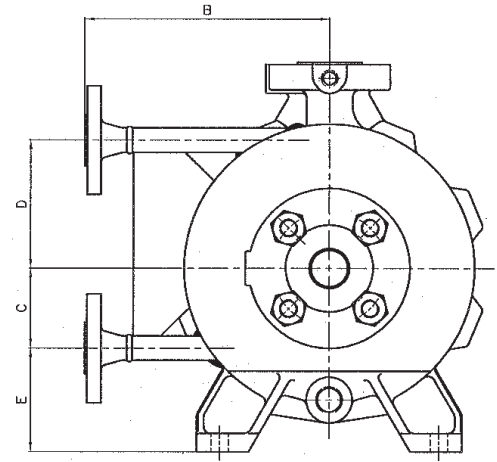
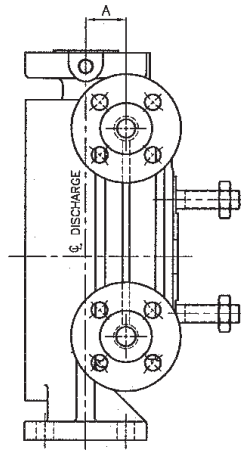
* Depending on size N/A - Not applicable

Jacketed casings

Flanged connections

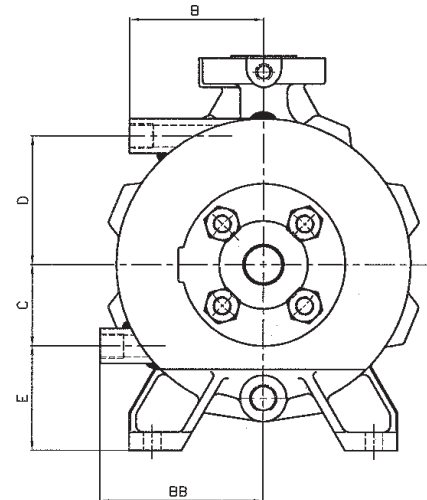
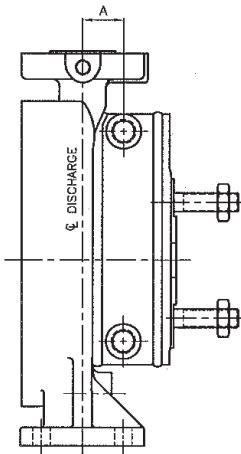
½ in. N.B. schedule 40 pipe with weld neck flanges

- BS EN 1092-1 for PN 16 or PN 25 ratings
- BS EN 1759-1 for PN 20 or PN 50 ratings; flange ratings to be specified on order



Bossed connections

30 mm O/D boss tapped Rp ½

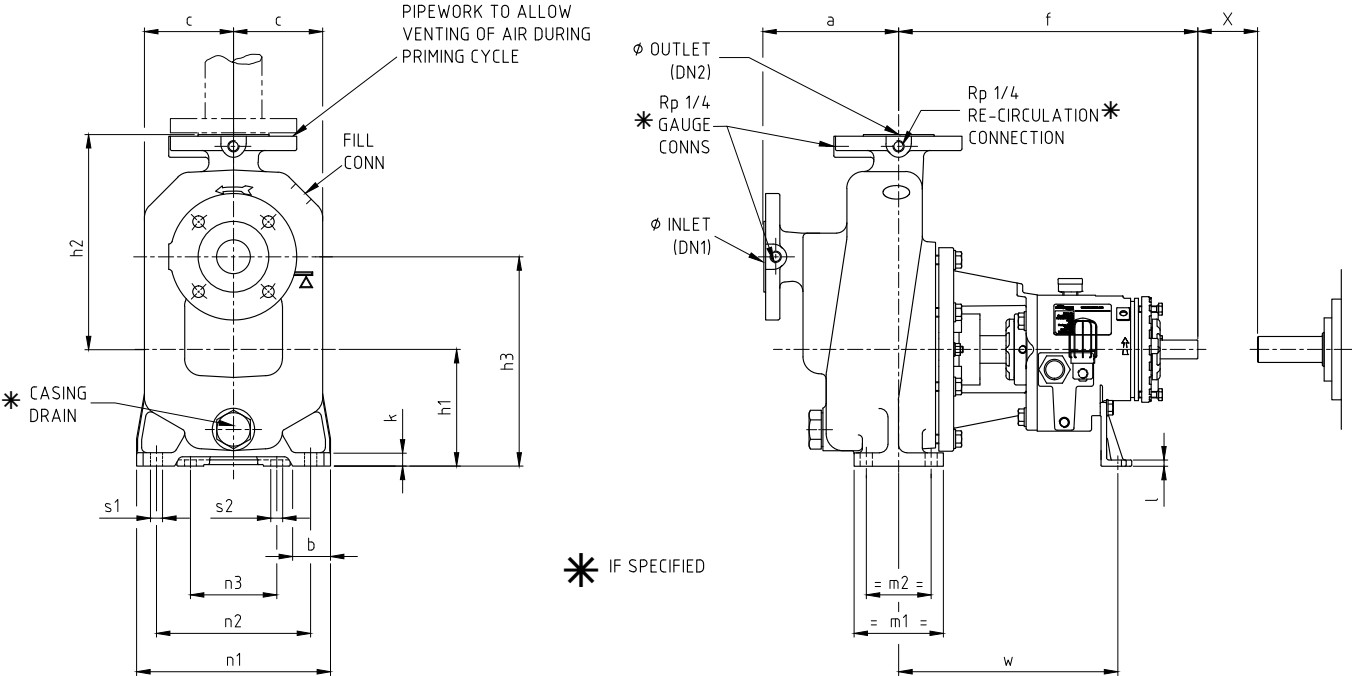


Temperature and pressure ratings*

Heating/Cooling Medium	Operational Temperature	Operational Pressure
Water	20°C (68°F)	16 barg (232 psi)
Steam	200°C (392°F)	13.3 barg (192 psi)
Heating oil	350°C (662°F)	6 barg (87 psi)

*The above figures may be subject to de-rating, dependent upon the material used for the jacket fabrication.

Dimensions — self-priming pump



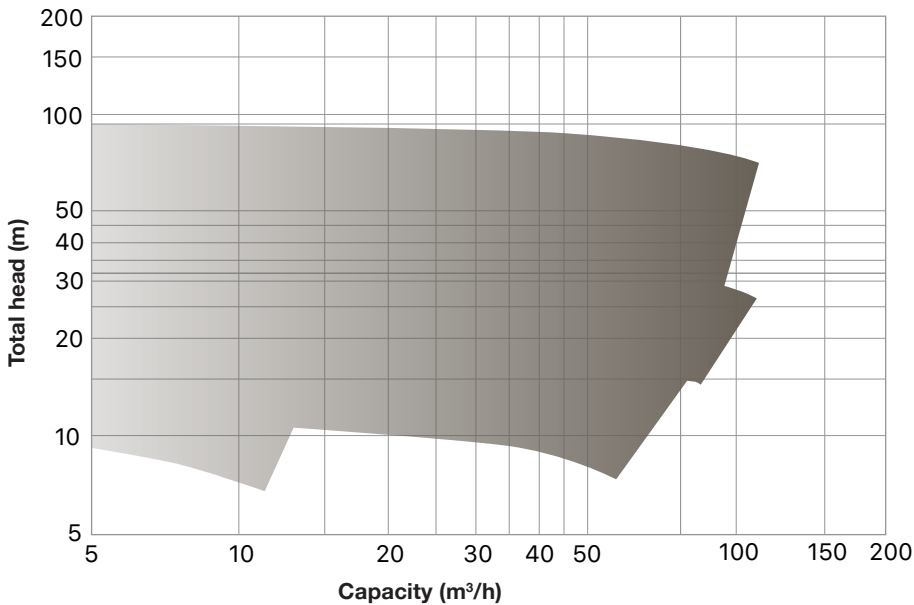
Self-priming pump dimensions

All dimensions in mm

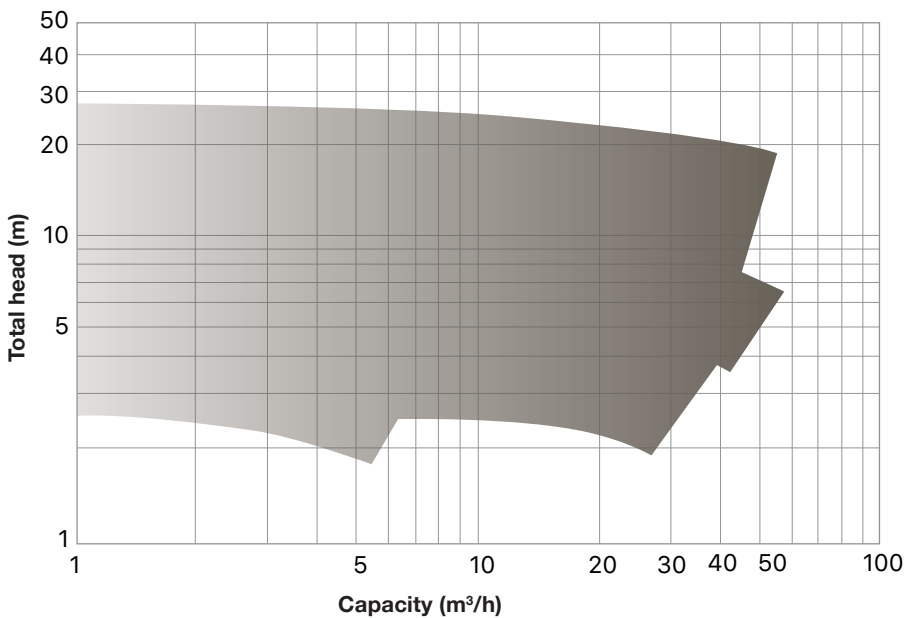
Pump Designation				Pump Dimensions						Support Dimensions									Clearance Holes for Bolts		DBSE to ISO 2858 'X'
Inlet (DN)	Outlet (DN2)	Impeller	Frame Size	a	f	h ₁	h ₂	h ₃	c	b	m ₁	m ₂	n ₁	n ₂	n ₃	w	k	l	s ₁	s ₂	
40	40	125	1	150	385	112	240	212	105	45	106	70	186	140	110	285	12	8	M12	M12	100
80	80	125	1	200	385	132	310	252	136	45	106	70	236	190	110	285	12	8	M12	M12	100
40	40	160	1	160	385	132	255	242	112	45	106	70	230	190	110	285	16	8	M12	M12	100
80	80	160	1	210	385	160	310	290	137	45	106	70	265	212	110	285	16	8	M12	M12	100
40	40	200	1	160	385	160	280	290	128	45	106	70	230	190	110	285	16	8	M12	M12	100
65	65	200	1	220	385	160	350	290	160	45	106	70	255	212	110	285	16	8	M12	M12	100
80	80	250	2	230	500	180	390	340	175	60	125	95	310	250	110	370	16	10	M12	M12	100
100	100	250	3	250	660	280	355	460	270	95	200	150	540	450	110	500	24	10	M16	M12	140
100	100	315	3	250	660	280	355	460	270	95	200	150	540	450	110	500	24	10	M16	M12	140
150	150	315	3	345	660	280	360	490	302	95	200	150	540	450	110	500	24	10	M16	M12	140

Coverage charts — self-priming pump

n = 2,900 rpm



n = 1,450 rpm



Self-priming pump — flange dimensions

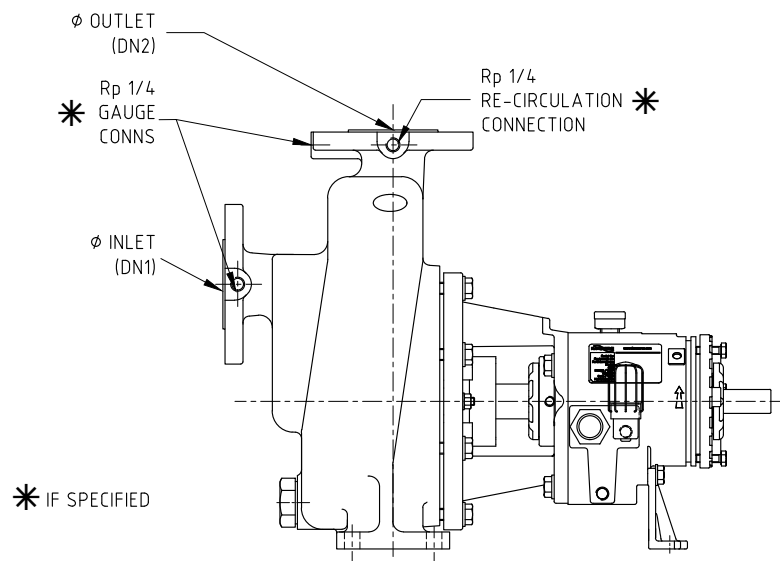
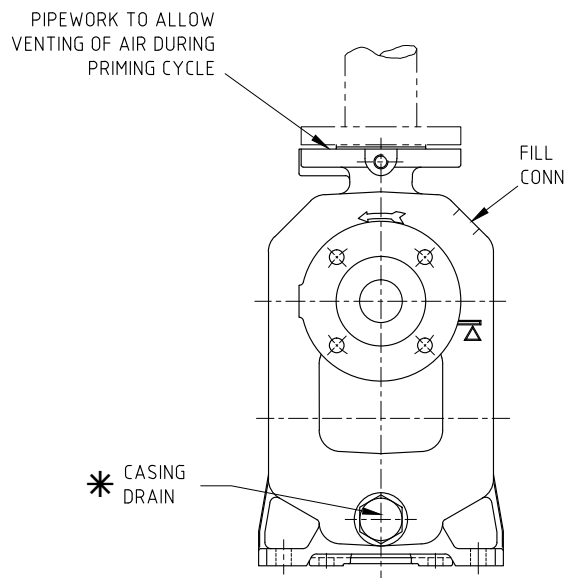
Outlet and inlet flange dimensions-EN1092-1:2007 for PN flanges and ASME 818.5-2009 for NPS flanges

All dimensions in mm

Bore DN	Outside Dia (D)	Thickness	Standard	Bolting No. x Hole X PCD	Raised Face Diameter	Raised Face Height
40	150	19	PN 16, 25 and 40	4 x 18 x 110	88	3
		19	Class 150 (PN20)	4 x 16 x 98.5	73	2
65	185	22	PN 16 (iron)	4 x 18 x 145	122	3
		22	PN 16 (steel), 25 and 40	8 x 18 x 145	122	3
		22	Class 150 (PN20)	4 x 19 x 139.5	105	2
80	200	24	PN 16, 25 and 40	8 x 18 x 160	138	3
		24	Class 150 (PN20)	4 x 19 x 152.5	127	2
100	235	24	PN 16	8 x 18 x 180	158	3
		24	PN 25 and 40 *	8 x 22 x 190	162	3
		24	Class 150 (PN20)	8 x 19 x 190.5	157.5	2
150	300	28	PN 16	8 x 22 x 240	212	3
		28	PN 25 and 40 *	8 x 26 x 250	218	3
		28	Class 150 (PN20)	8 x 22 x 241.5	216	2

* Not available in ductile iron

Self-priming pump — connections



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