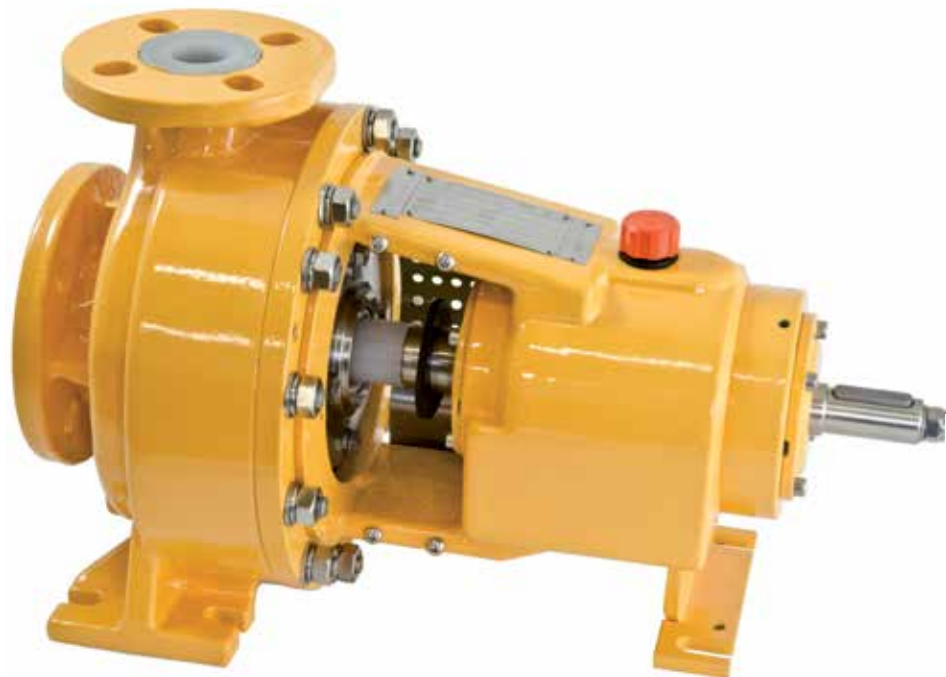


# UCL / UCL-B

UCL lined PFA  
End Suction - Back pull-out design



CSS-35  
Single Mechanical Seal




CDC-35  
Double Cartridge  
Mechanical Seal



Comply to :  
2006/42/CE

Design to :  
EN 22858 / ISO 2858  
(ex DIN 24256)

ISO 5199

ATEX 100   
Directive 94/9/EC

Flanged  
UNI 1092-2 (ISO 7005-2)  
PN16 RF type B  
slotted ANSI 150 RF

Plastic and Fluoroplastic Lined Process Horizontal - Single Stage - Centrifugal pumps with Mechanical Seal

Lining: PP (Polypropylene), PVDF (Polyvinylidene fluoride), PFA (Perfluoroalkoxy)

Long-coupled and Close-coupled executions

## Mechanical seal arrangement

The lined shaft seal chamber with its conical design can accommodate the following mechanical seal types :

- CSS-35 Single mechanical seal
- CDC-35 Double cartridge mechanical seal

Single-acting and double-acting mechanical seals configuration, also on cartridge execution



### UCL

**Long-coupled execution  
Back pull-out design**

Pumps use the back pull-out principle and a strong bearing housing with flexible coupling



### UCL-B

**Close coupled execution**

Pumps are equipped with standard motors

#### Versatility

Suitable for handling corrosive, aggressive and hazardous liquids (low viscosity, clean or slightly to dirty contaminated) in the chemical, petrochemical and pharmaceutical industries.

#### Reliability

The UCL offers a wide range of shaft sealing and the pumps are also equipped with reliable bearing bracket, especially developed to be suitable even under heavy duty service.

#### Design

UCL range shares the same hydraulic design with the UTN series (magnetic drive pumps) which have been developed focusing on chemical industry's requests.

Application Fields

Fertilizer Processing

Basic Chemical Processing

Air Treatment

Fine Chemical

Waste Water Treatment

Pharmaceutical Industry



# 3D VIEW

Rigid shaft made of corrosion resistant stainless steel minimizes the shaft deflection  $< 0,05$  mm : the design is in "dry shaft execution" where there is no contact between shaft and medium.

- CSS-35 Single mechanical seal
- CDC-35 Double cartridge mechanical seal
- Single-acting and double-acting mechanical seals configuration, also on cartridge execution

All PFA components are made through Transfer Moulding process. The Transfer Moulding process is also employed for PVDF/PP casing and seal chambers.

The bearing frame can be equipped with 3 different type of protections :

- Standard oil seal
- Labyrinth seal
- Non-contacting labyrinth seal

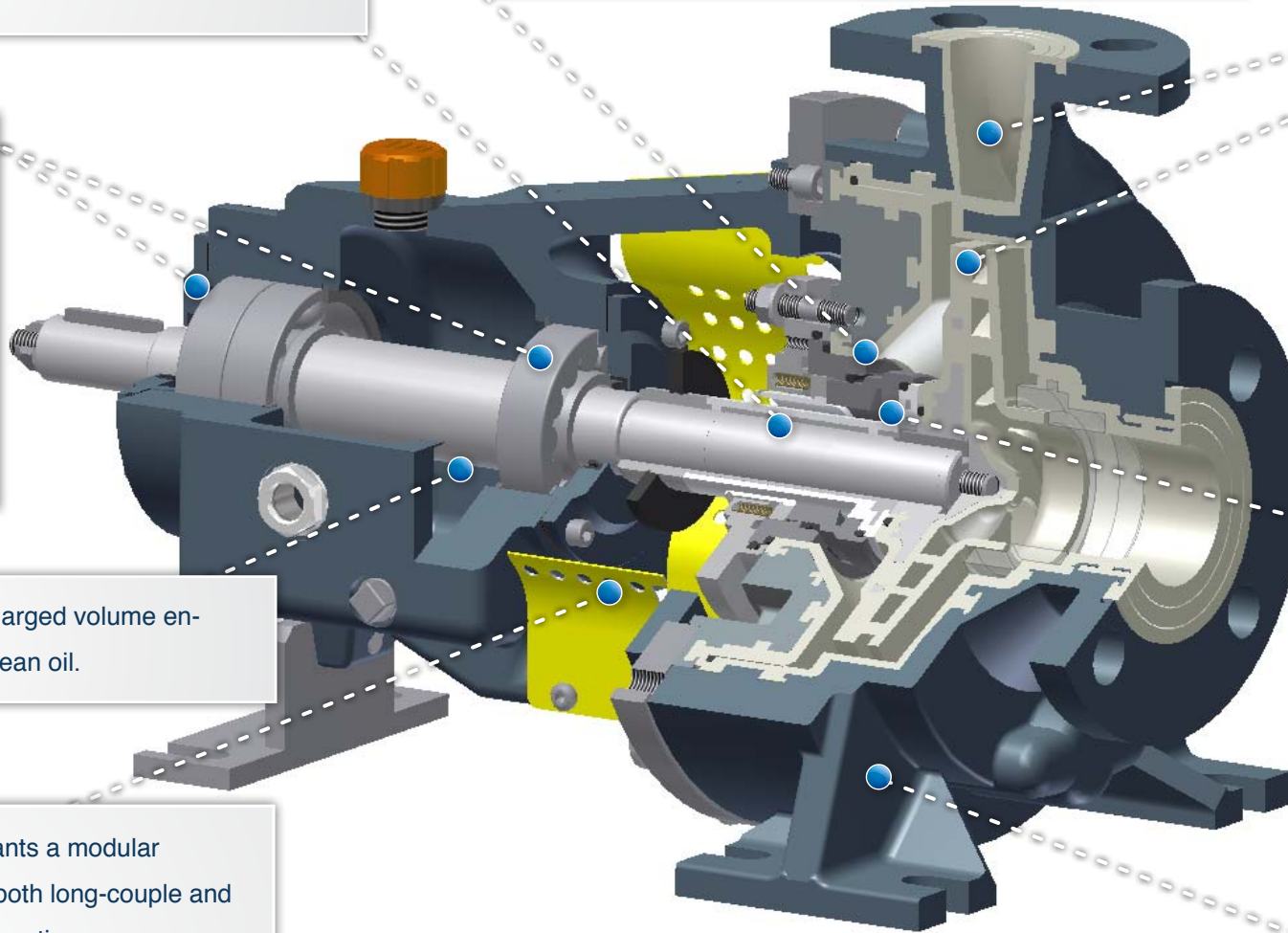
All the UCL pumps can be equipped with closed or open radial impeller, single stage execution.

Easy-to-replace slip-on shaft sleeve facilitates seal maintenance in the field and reduces long-term maintenance costs. It is made by a core of high-strength stainless steel, covered by PFA through Transfer moulding process.

Oil sump with enlarged volume ensures cool and clean oil.

Pump design grants a modular configuration on both long-couple and close-coupled execution.

All wetted parts have a high chemical resistance employing a performing material as Virgin unfilled PFA, granting also a wall thickness of at least 4 mm to 5 mm. Alternative available materials for the wetted parts: PP and PVDF.



# FEATURES



## LINED CASING

The ductile cast iron armour protects the fluoroplastic peripheral surfaces of the pump from pipe strain, vibration, external shocks and during the handling; moreover it allows the casing to be Vacuum resistant.

Top centerline discharge for air handling, self-venting.

Draining casing (optional).

## LINED IMPELLER

The combination of a solid metal core and a Fluopolymers lining (PFA \ PVDF \ PP) made by Transfer Moulding assures an excellent mechanical reliability and an optimal chemical resistance.

The problem of reverse rotation during start-up has been eliminated thanks to the key driven system.

Standard back vanes reduce axial thrust and seal chamber pressures to guarantee an extraordinary bearing and seal life.



## LINED SEAL CHAMBER



Wide conical design equipped with breaking ribs. Available in PFA, PVDF or PP lined execution and in a conical shape .

The conical seal chamber is designed to push away from the seal solids and slurry, back into the flow path of the process liquid.

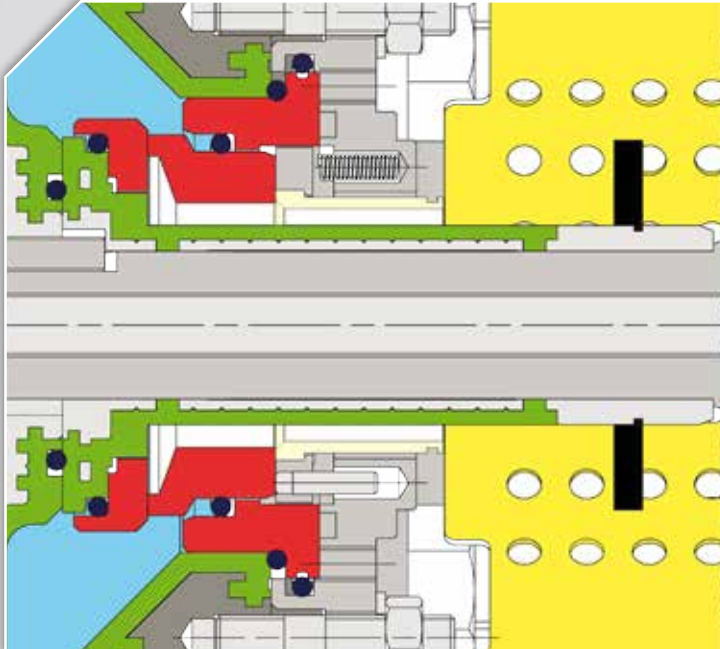
Self-venting, Self-flushing, Self-draining.

## SHAFT

The special design of the shaft guarantees no weak point that could cause leakage; the impeller is fixed on the shaft with a long screw that pass through the shaft.

Rigid shaft designed for less than 0.05 mm shaft deflection increases the seal life.

Standard 400 series stainless steel shaft (1.4057) provides reliable power transmission and corrosion resistance at both the pump and coupling ends.



## LINED SHAFT SLEEVE

- Impeller and shaft sleeve will be 2 separate pieces : thanks to this design, in case of failure the shaft sleeve design will protect from damage the impeller
- The seal, between the shaft sleeve and the impeller, is guaranteed by the push-in-position design.
- All the parts in contact with the medium are made by PFA Lined and SiC
- The shaft sleeve is synchronized to the shaft and the impeller, securing against loosening if the pump is started up in the wrong direction of rotation
- The shaft sleeve is available made by PFA lined, however its design allows to use other materials (i.e. Hastelloy C)
- The inner metallic core of the shaft sleeve, pushes the O-ring against the impeller, granting a secured seal, even in case of failure



# MECHANICAL SEAL

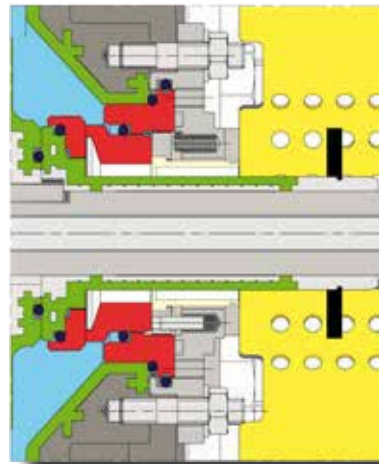
- Wide choice of sealing arrangements for maximum sealing flexibility.
- The CDR mechanical seals have been developed for difficult operating conditions, hazardous and corrosive medium.
- CSS-35 Single mechanical seal
- CDC-35 Double cartridge mechanical seal
- Other mechanical seals can be adapted on UCL pumps, from single seal up to double back-to-back cartridge sealing system

## MICROCRYSTALLINE DIAMOND COATING TREATMENT ON MECHANICAL SEAL FACES

- Lowest coefficient of friction and heat generation, even when lubrication is insufficient or under dry running condition
- Increased service life
- Virtually no wearing of the diamond coating
- Significant energy savings

### CSS-35 SINGLE INTERNAL SEAL TAPERED SEAL CHAMBER

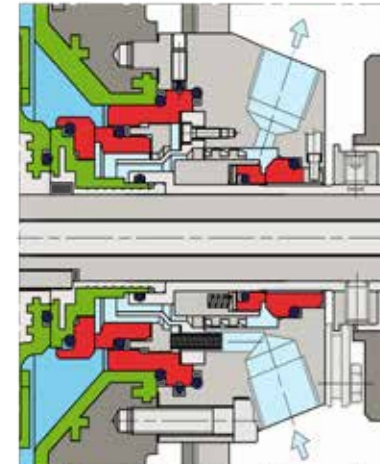
Available also as CSS-35Q (PLAN62)



- Suitable to work with low/ moderate dirty corrosive liquids.
- Easy maintenance thanks to the semi-cartridge design.
- Extremely abrasion-resistant SiC seats, no metal parts in contact with the processed liquid and a wide range of options allow the CSS seals to be the best solution for every application.
- In case of liquid crystallization due to air contact, CDR offers plan 62

### CDC- 35 DOUBLE CARTRIDGE SEAL TAPERED SEAL CHAMBER

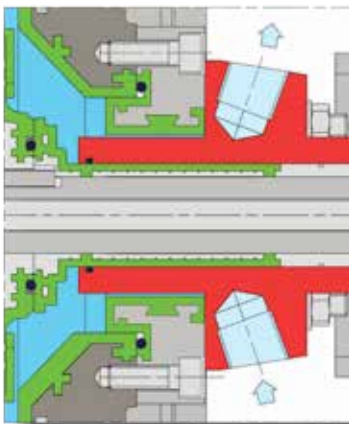
Suitable to PLAN 53A-54



- Applications where no leakage can be tolerated e.g. hazardous, toxic, inflammable media.
- For dirty, abrasive or polymerizing products where media is unsuitable as a lubricant for inboard seal faces.
- When pump is operating under cavitation or low flows.
- Standard equipped with pumping ring.

### DOUBLE CARTRIDGE SEAL TAPERED SEAL CHAMBER

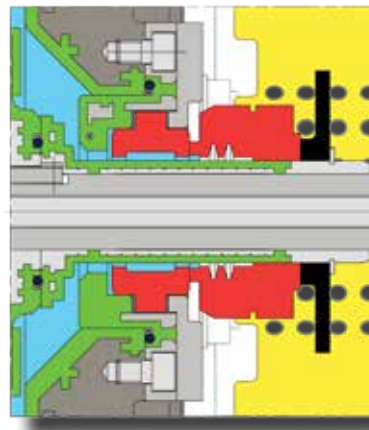
Suitable to PLAN 52-53-54



Same applications as conventional double seal  
Easy maintenance thanks to cartridge design

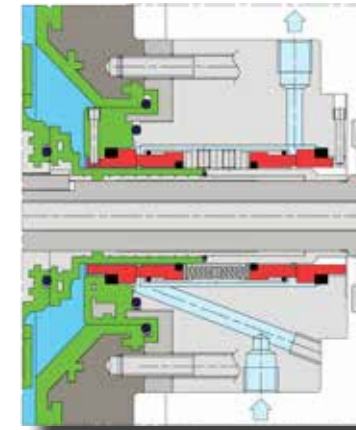
### SINGLE EXTERNAL SEAL TAPERED SEAL CHAMBER

Suitable to PLAN 01



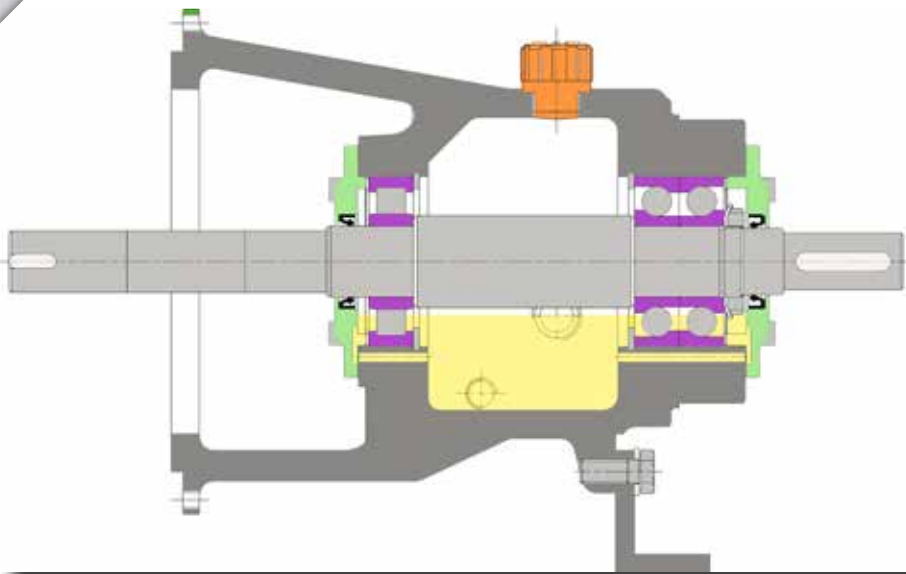
Single PTFE bellows seals designed for external mountings, available in various materials and/or brands, like Crane 10T

### CONVENTIONAL DOUBLE SEAL - CYLINDRICAL SEAL CHAMBER EXTERNAL FLUSHED ISO 12756 -EX DIN 24960



Applications where no leakage to atmosphere can be tolerated e.g. hazardous, toxic, inflammable media  
When pump is operating under cavitation or low flows  
For dirty, abrasive or polymerizing products where media is unsuitable as a lubricant for inboard seal faces  
Double mechanical seal such as CRANE 2N\2N ,Crane 58U\58U

# FEATURES



## BEARING BRACKET FOR LOMG COUPLED EXECUTION

Extra-Large Oil Sump design allows to get a large oil capacity.

Breather / filling plug on top .

Oil sight glass grants a proper oil level.

Large drain plug.

The bearing frame can be equipped with 3 different type of protections :

- Standard oil seal
- Labyrinth seal
- Non-contacting labyrinth seal

Constant level oiler (as an option).

Conditions monitoring (as an option).

## BEARINGS

Heavy duty ball bearings configuration to provide L10 bearing life in excess of 17,500 hours (up to 1.25 QBEP).

Frontal (impeller side) : one row roller bearings type with high radial load rating.

Rear (motor side) : pair of angular contact ball bearings with high axial load rating.

## PAINTING COATING QUALITY

The metal surfaces are protected by a high performance three coating layers (240 micron )

- Epoxy zinc paint
- Epoxy amidic modified vinyl
- Epoxy enamel paint or aliphatic acrylic polyurethane

Available upon request :

EN ISO 12944-5 C5M and C5I protecting paint system grades.



## CLOSED IMPELLER



Closed impellers are indicated to be used with clean liquid. They have a good hydraulic efficiency and there's no recirculation between the blade's plane.

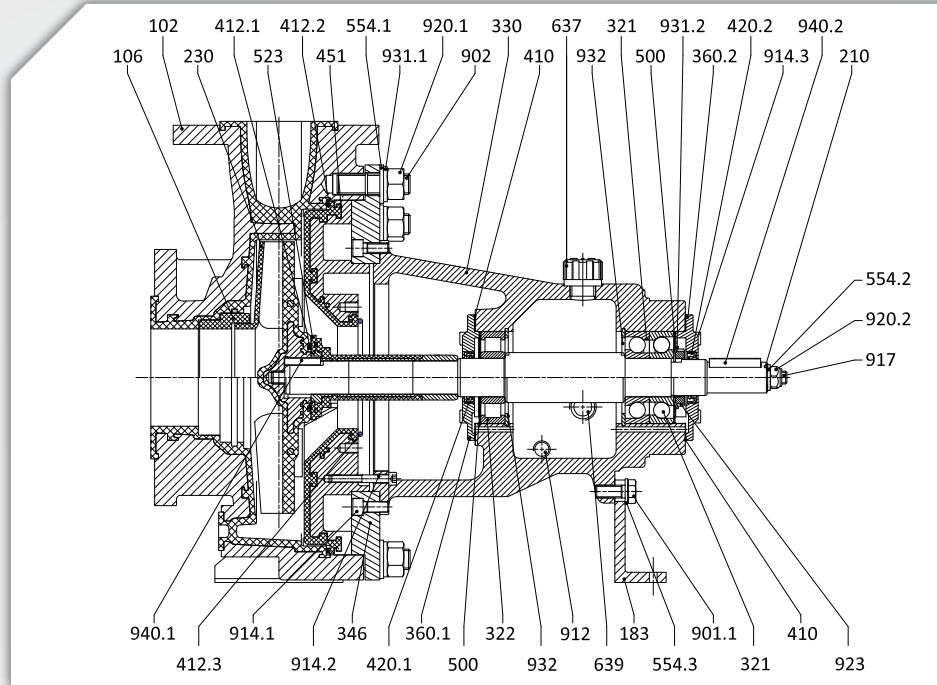
## SEMI OPEN RADIAL IMPELLER



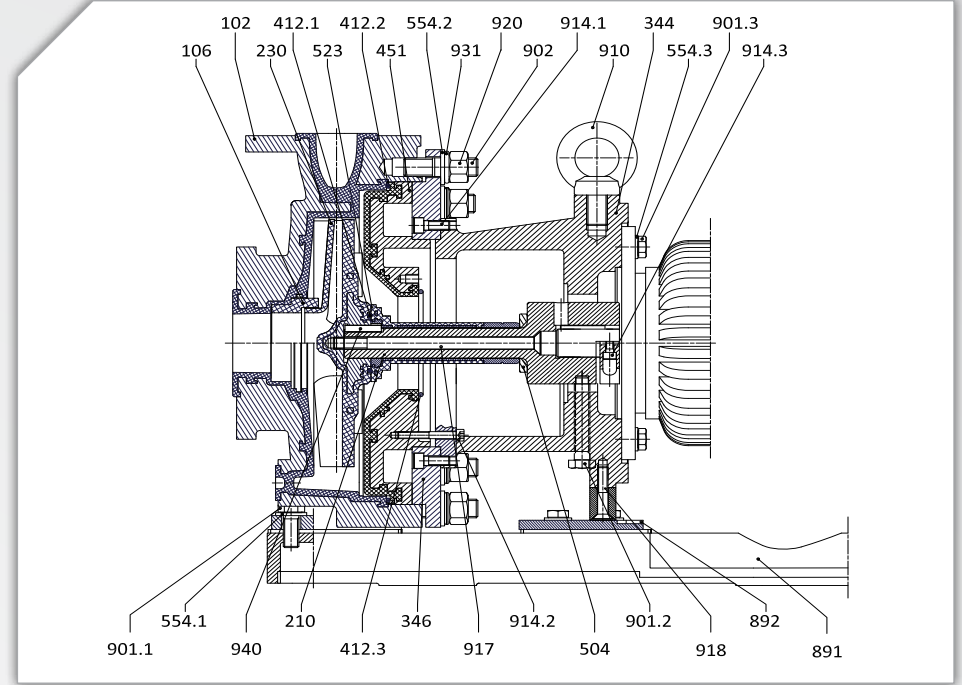
Semi - open Radial impellers are indicated to be used with high solids concentration liquids. They have a low hydraulic efficiency and there's recirculation between the blade's plane.

# SECTIONAL DRAWING

UCL : LONG COUPLED EXECUTION



UCL-B : CLOSE COUPLED EXECUTION



Technical Specifications

<b>Performances 2900 rpm</b>	Q max = 110 m3/h -> H max = 65 mcl
<b>Electric Motors</b>	UCL : 1,1 kW (size 80) -> 25 kW (size 200) UCL-B : 1,1 kW (size 90) -> 18.5 kW (size 160)
<b>Temperature range</b>	PP : -10 °C -> +70 °C PVDF : -30 °C -> +100 °C PFA : -50 °C -> +140 °C
<b>Allowable Pressure Range</b>	PN16 (20 °C)
<b>Flange Connections</b>	UNI 1092-2 / ISO 7005-2 PN 16, type B slotted ANSI 150
<b>Viscosity</b>	min : 1cSt - max : 200 cSt

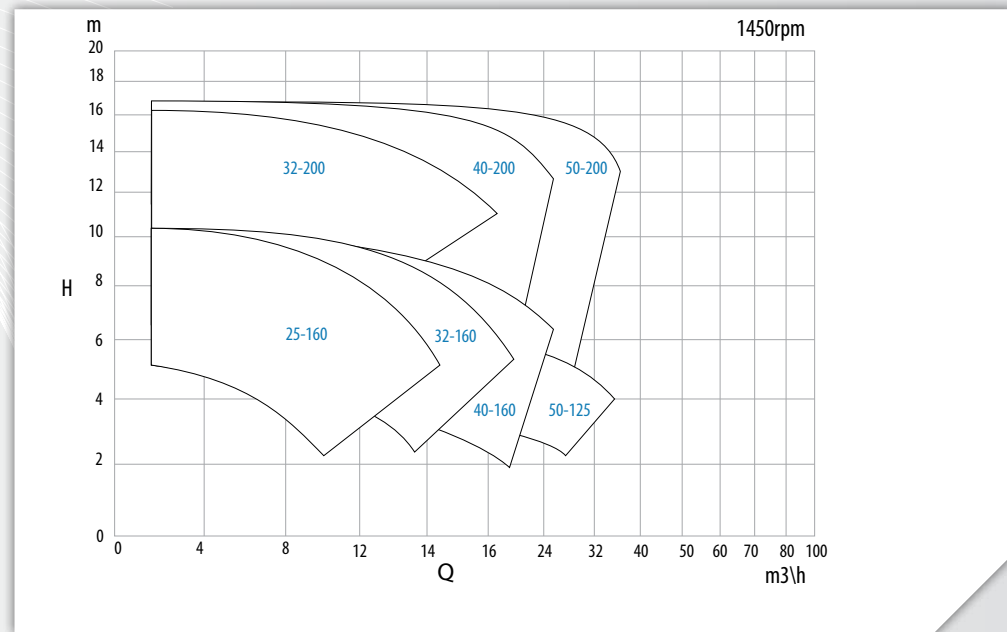
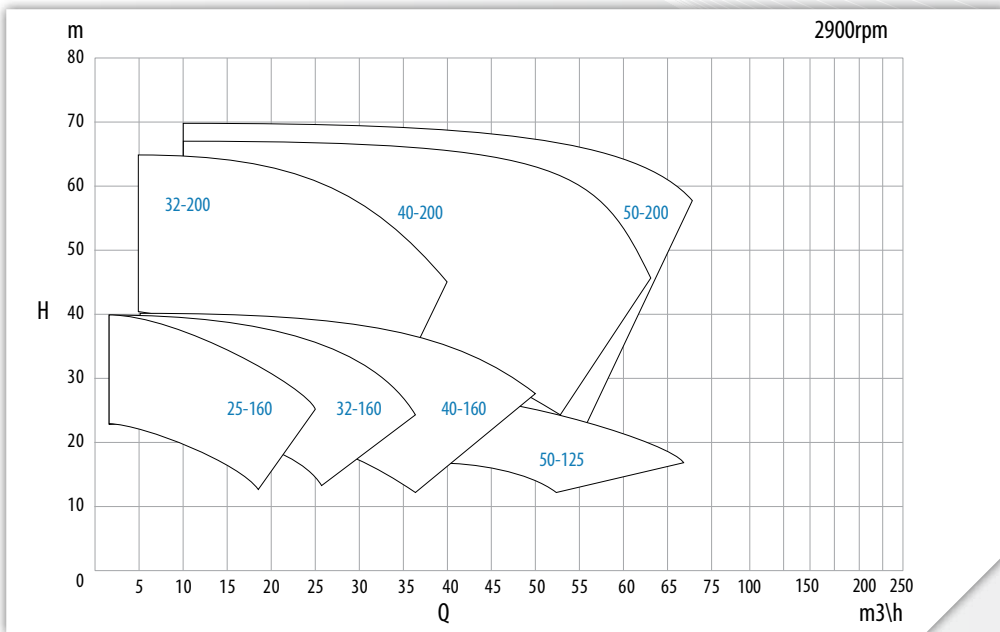
Parts and Materials

DIN	Description	Material
102	Casing	PP lined \ PVDF lined \ PFA lined
106	Suction Casing	PFA
210	Shaft	Aisi 431
230	Impeller	PP lined \ PVDF lined \ PFA lined
330	Bearing Bracket	GS400
344	Lantern	GS400
412.1	O-Ring (Shaft Sleeve)	EPDM \ FPM \ FFKM
412.2	O-Ring (Casing)	EPDM \ FPM \ FPM enc. FEP
412.3	O-Ring (Stuffing box)	EPDM \ FPM \ FPM enc. FEP\FFKM
451	Seal Chamber	PP lined \ PVDF lined \ PFA lined
891	Pump foot pad	GS400

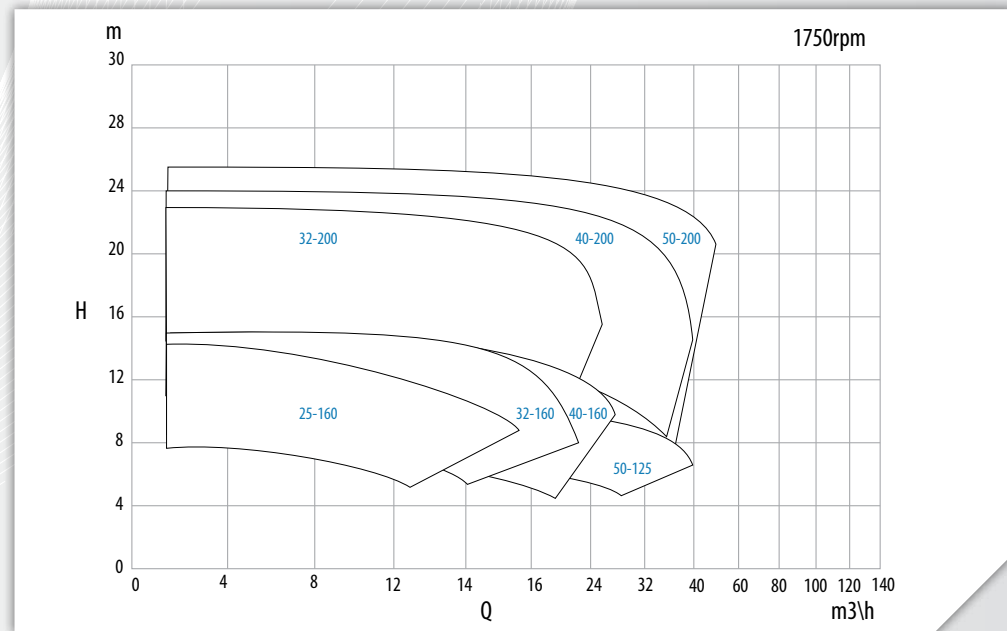
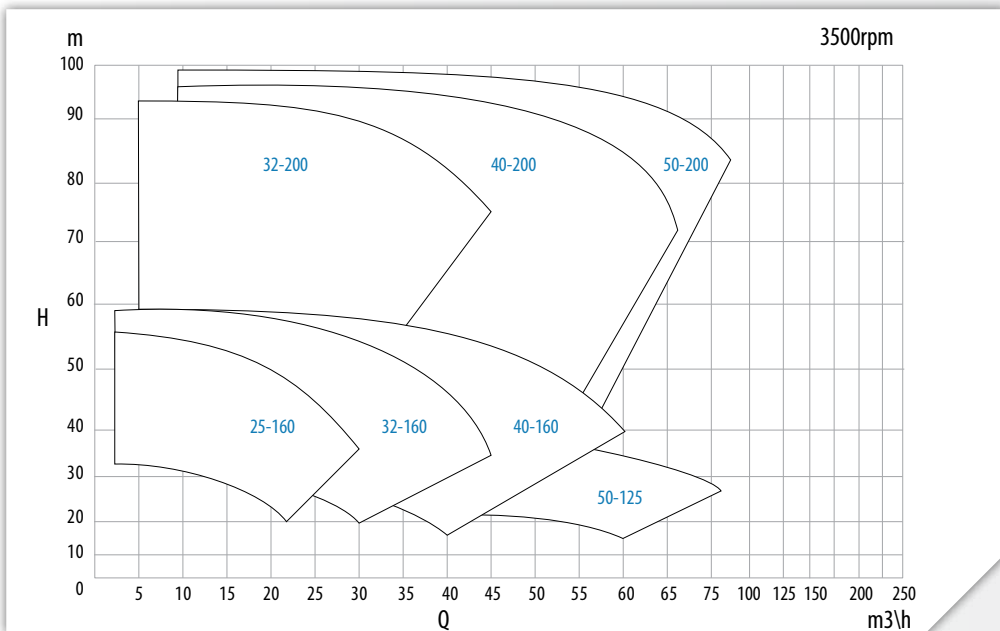
# PERFORMANCE FIELDS closed impeller

Closed impellers are indicated to be used with clean liquids. They have a good hydraulic efficiency and there's no recirculation between the blade's planes, granting same performances and reliability

50 Hz



60 Hz

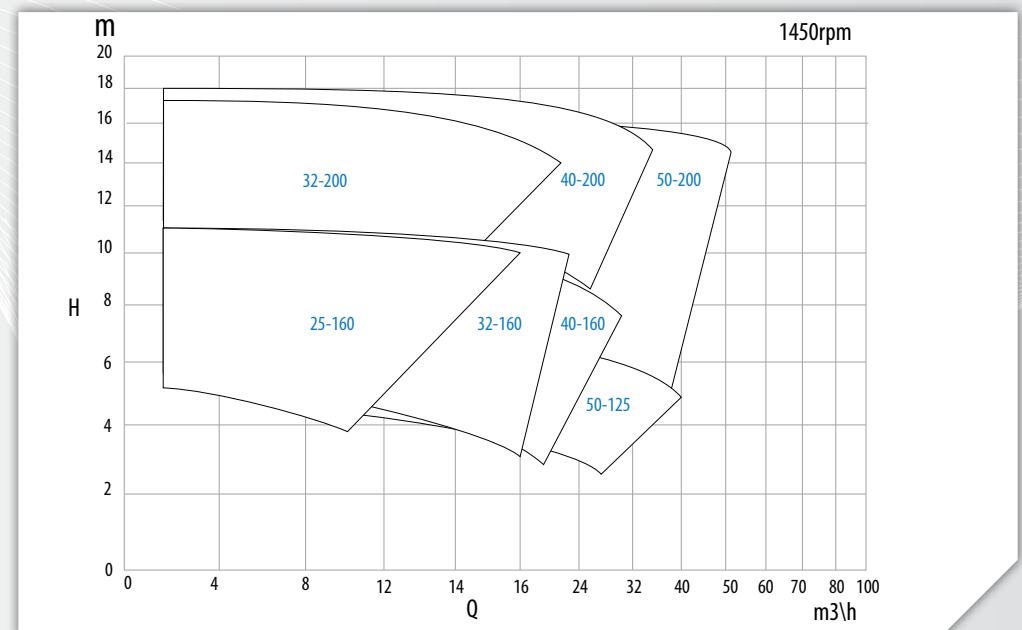
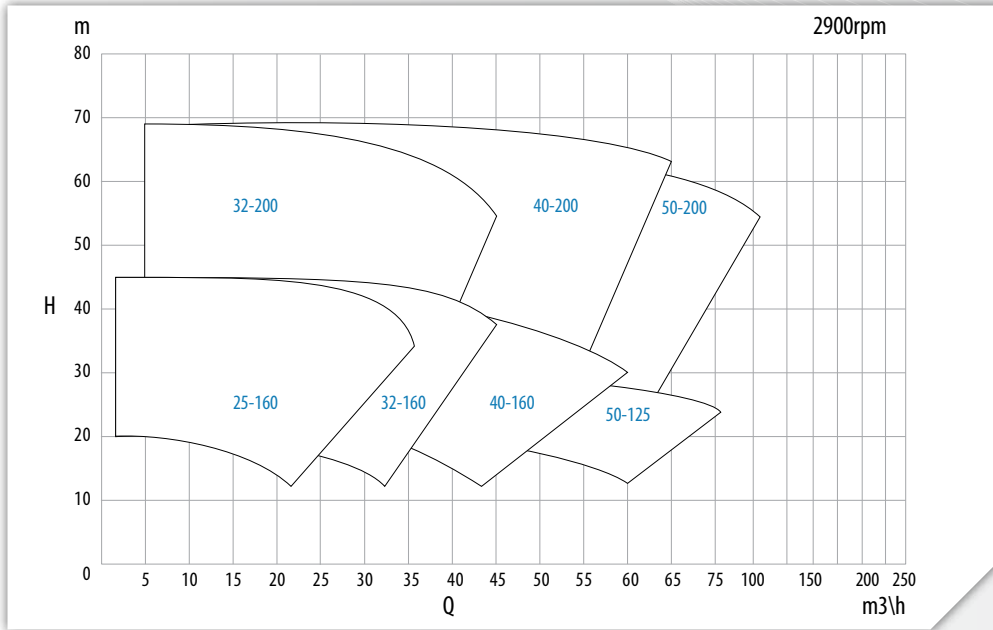




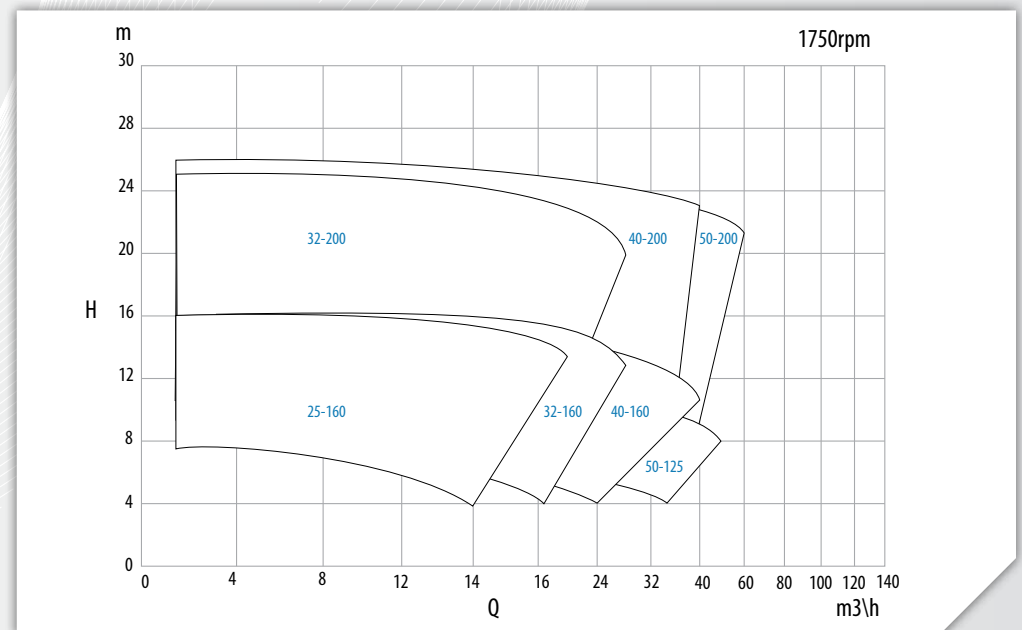
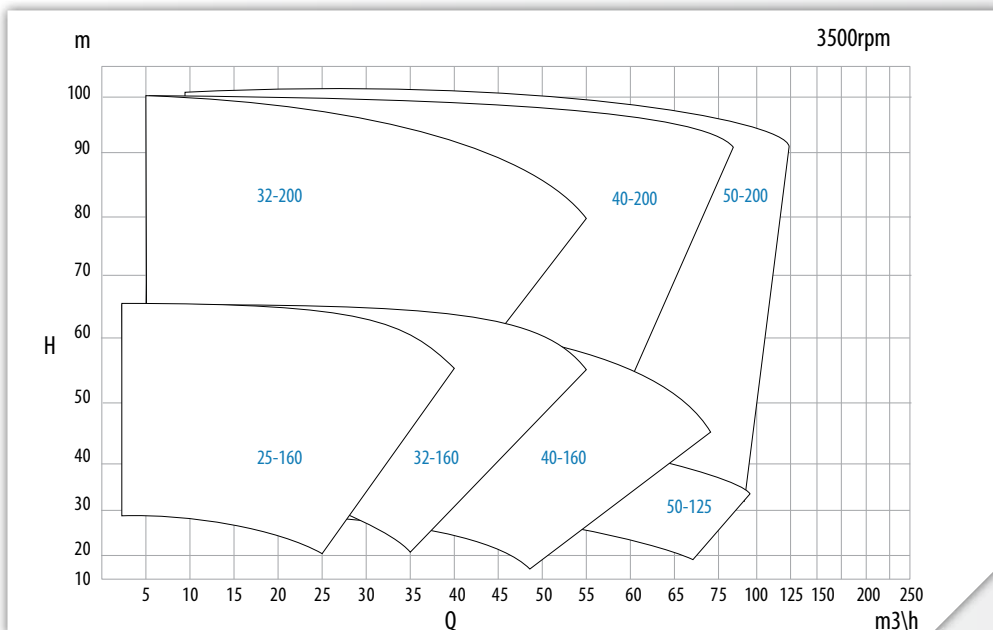
# PERFORMANCE FIELDS open radial impeller

Semi open (Radial) are indicated to be used with dirty liquids. They have a low hydraulic efficiency and there's recirculation between the blade's plane

50 Hz

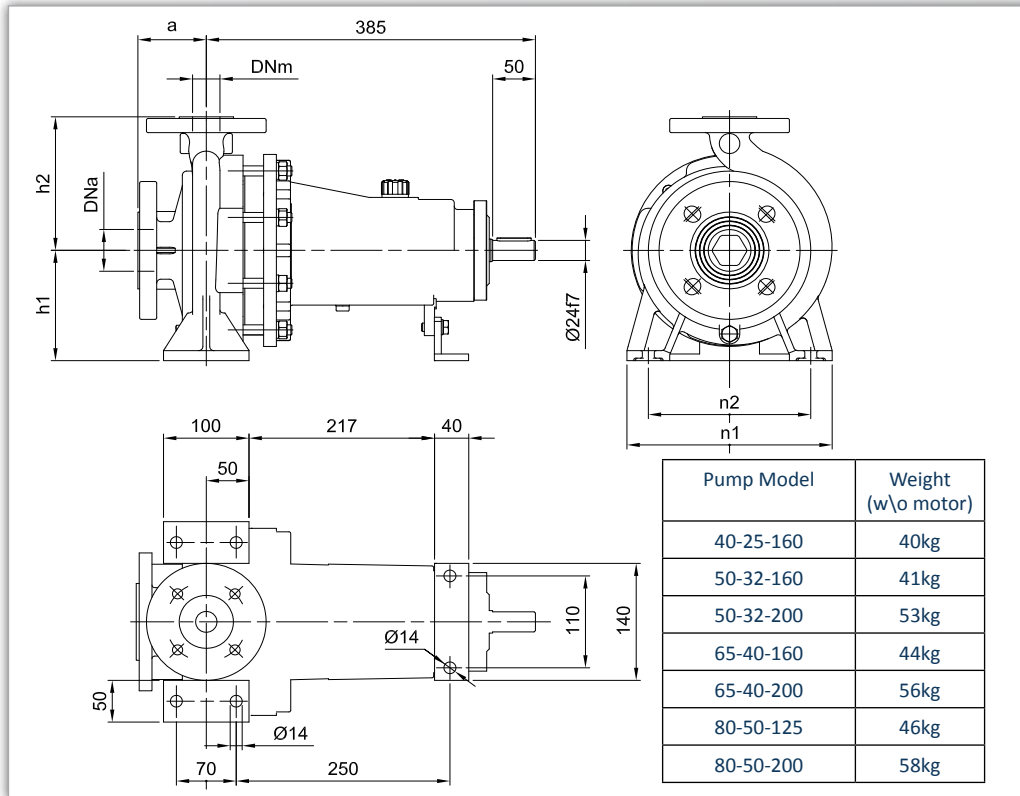


60 Hz



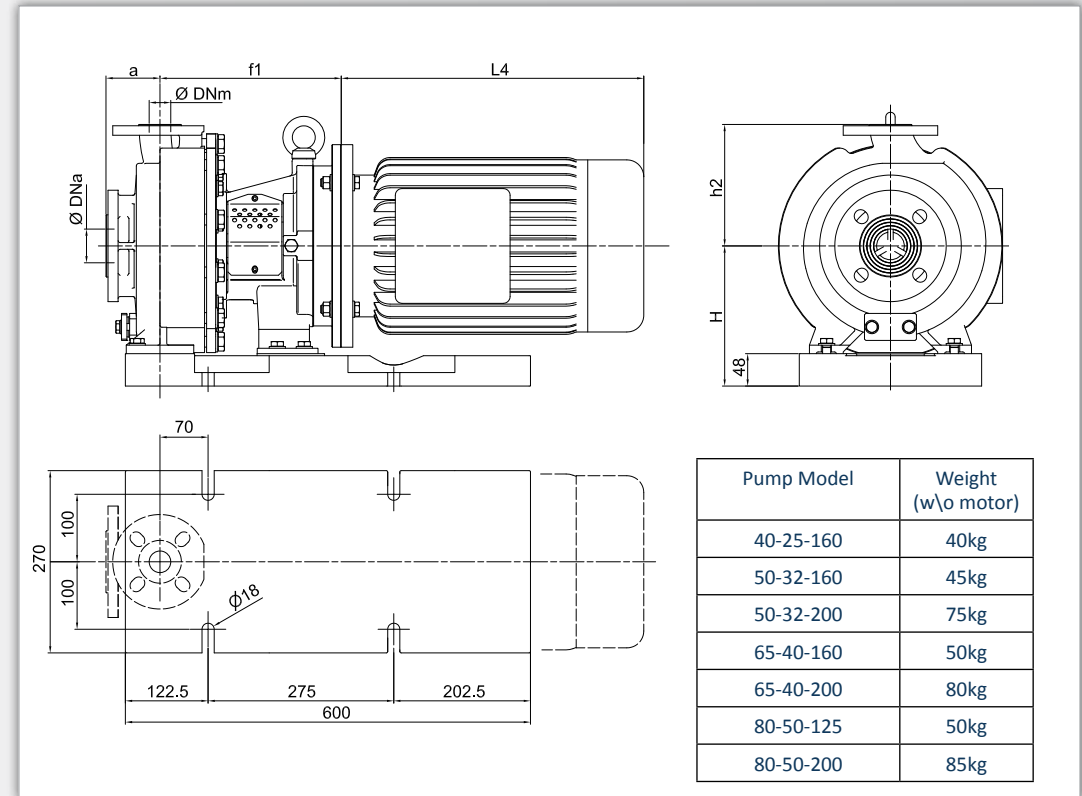
# OVERALL DIMENSIONS

## UCL



Pump Model	DNa	DNm	a	h1	h2	n1	n2
			mm	mm	mm	mm	mm
UCL 40-25-160	40	25	80	132	160	240	190
UCL 50-32-160	50						
UCL 50-32-200	50						
UCL 65-40-160	65						
UCL 65-40-200	65						
UCL 80-50-125	80						
UCL 80-50-200	80	50	100	160	180	265	212
				132	160	240	190
				160	200	265	212

## UCL-B

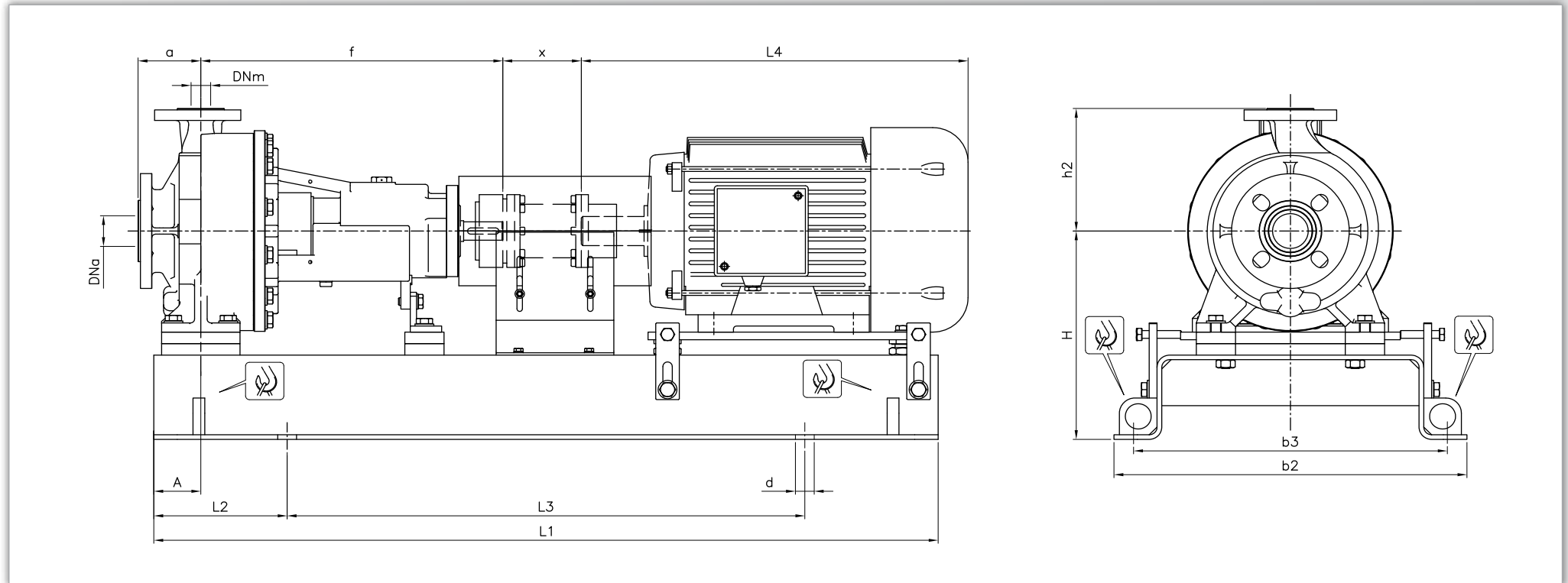


Pump Model	DNa	DNm	a	H	h2	Motor Size	f1	Frame
			mm	mm	mm			
UCL-B 40-25-160	40	25	80	180*	160	90	221.5	B5
UCL-B 50-32-160	50							
UCL-B 50-32-200	50							
UCL-B 65-40-160	65							
UCL-B 65-40-200	65							
UCL-B 80-50-125	80							
UCL-B 80-50-200	80	50	100	208	180	160	280	B5
				180*	160			
				208	200			

\* for UCL-B serie 125/160 equipped with motor frame 160: H=208

\* L4 dimension is according to installed motor manufacturer

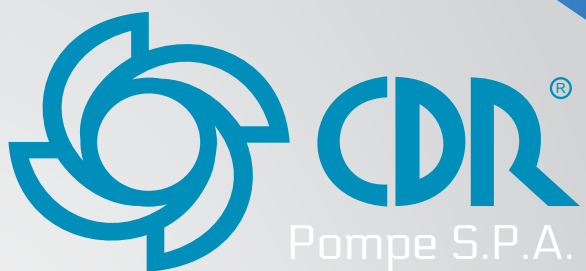
## UCL : Baseplate installation



Pump model	Dna	DNm	A	a	f	h2	x	Motor Size					
								90	100	112	132	160	180
	∅	∅	mm	mm	mm	mm	mm	H					
UCL 40-25-160	40	25	60	80	385	160	100	257	257	257	272	272	292
UCL 50-32-160	50	32	60	80	385	160	100	257	257	257	272	272	292
UCL 50-32-200	50	32	60	80	385	180	100	270	270	270	300	300	300
UCL 65-40-160	65	40	60	80	385	160	100	257	257	257	272	272	292
UCL 65-40-200	65	40	60	100	385	180	100	270	270	270	300	300	300
UCL 80-50-125	80	50	60	100	385	160	100	257	257	257	272	272	292
UCL 80-50-200	80	50	60	100	385	200	100	270	270	270	300	300	300

Motor size	L1	L2	L3	b2	b3	d
	mm	mm	mm	mm	mm	∅ mm
90-100-112	900	150	600	390	350	19
132	1000	170	660	450	400	24
160-180	1120	190	740	490	440	24

\* L4 dimension is according to installed motor manufacturer



**C.D.R. Pompe S.p.A.**

Via P. Togliatti, 26/A - 20030 Senago (MI) - Italy

Tel. +39029901941

Fax +39029980606

[www.cdrpompe.com](http://www.cdrpompe.com)

[info@cdrpompe.it](mailto:info@cdrpompe.it)

TB - UCL 2013.01

#### Technical Characteristics

The technical data and characteristics stated in this General Catalogue are not binding. CDR Pompe S.p.a. reserves the right to make modifications without notice. Therefore data, dimensions, performances and any other stated issues are indicative only and not binding. Anyway for any technical details you must require an up-to-date product technical card.

A collection of various industrial pumps and motors, including centrifugal pumps, submersible pumps, and specialized units, displayed against a blue background. The pumps are shown in different colors like teal, yellow, and silver.

For further info, please visit  
[www.cdrpompe.com](http://www.cdrpompe.com)