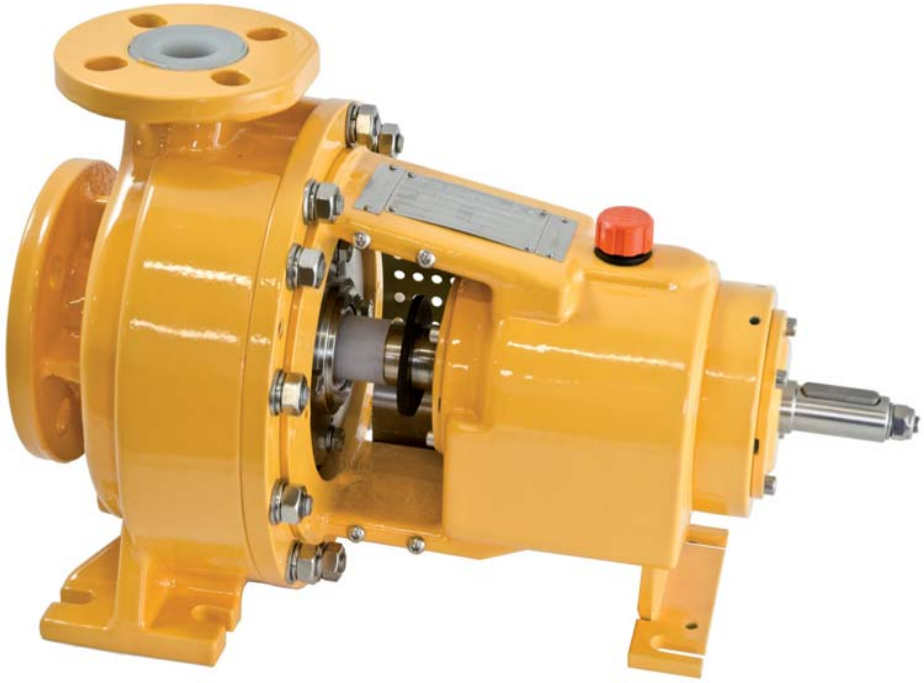
CCL / CCL-B

PP Lined Mechanical Seal Centrifugal Pumps

CCL lined PP
End Suction – Back pull-out design



TSI single internal /
TSE single external/
CSE35 single internal /
Double tandem Mechanical Seals

Comply to :
2006/42/CE

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

ISO 5199

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

Plastic Lined Horizontal - Single Stage - Centrifugal pump with Mechanical Seal

Lining: PP (Polypropylene)

Long-coupled and Close-coupled executions

CDR® Pompe s.r.l.

Mechanical seal arrangement

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

- TSI Single internal mechanical seal for clean fluids
- TSE Single external mechanical seal for corrosive fluids
- CSE35 Single internal mechanical seal for aggressive or dirty fluids
- Double tandem mechancial seal TSI / TSI to avoid any leakage of dangerous fluids

CCL

Long- coupled execution
Back pull--out design

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

CCL-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 fertilizer processing, biodiesel, general industry, air treatment, waste water treatment and desalination

Reliability

The CCL 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

CCL range shares the same hydraulic design with the UCL series which have been developed focusing on chemical industry's requests.

Application Fields

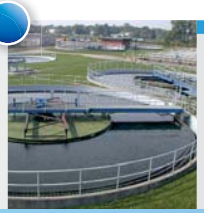
Fertilizer Processing

Biodiesel

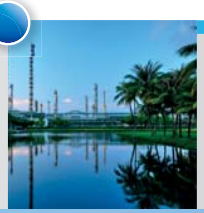
Air Treatment

General Industry

Waste Water Treatment



Desalination



3D VIEW

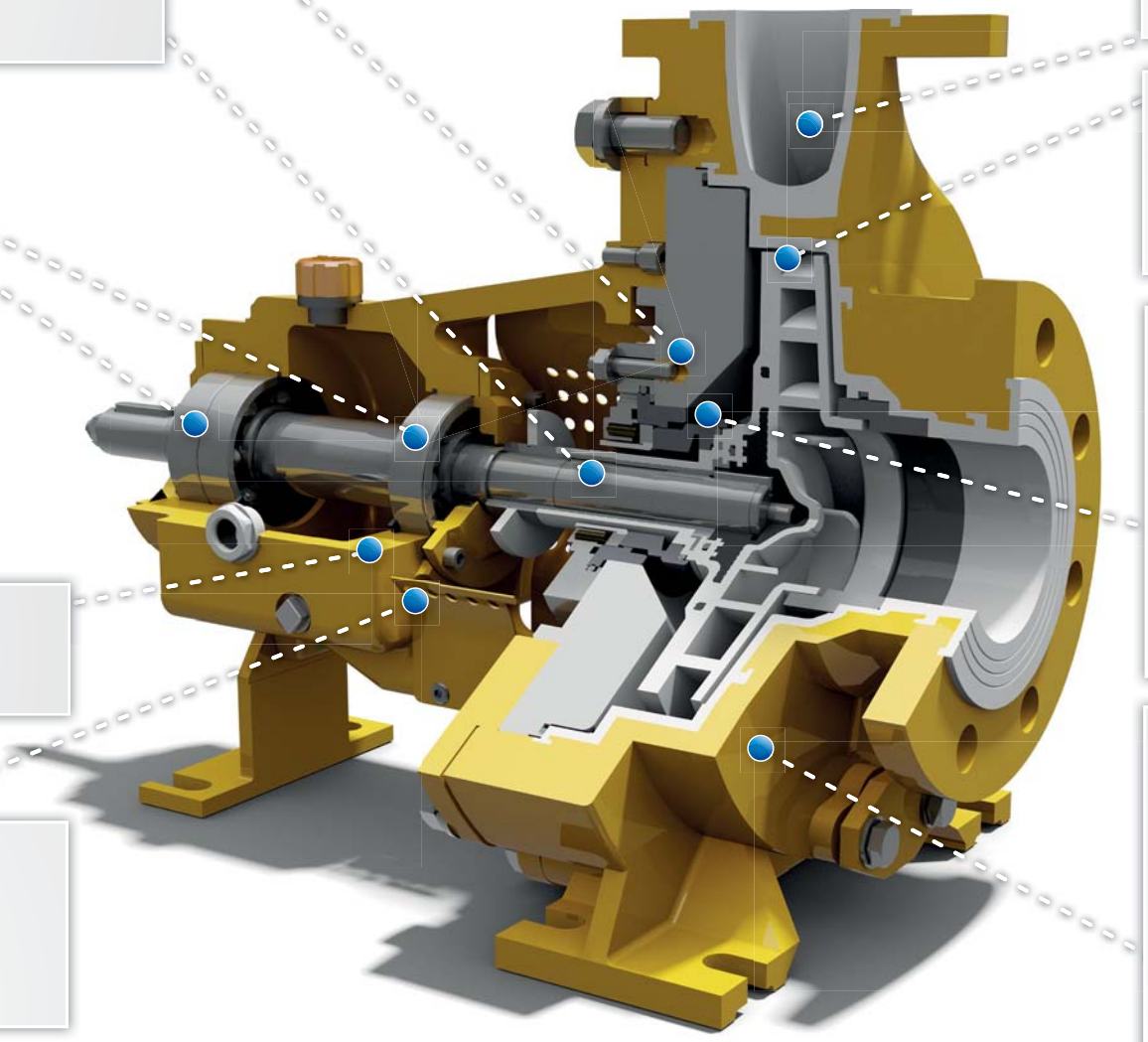
Rigid shaft made of corrosion resistant stainless steel minimizes the shaft deflection < 0,05 mm : the design is in “dry shaft execution” where there is no contact between shaft and medium.

- TSI Single internal mechanical seal
- TSE Single external mechanical seal
- CSE35 Single internal mechanical seal
- Double tandem TSI / TSI mechancial seal

PP lined casing and impeller are made through transfer moulding process.

The bearing frame can be equipped with:

- Standard oil seal
- Labyrinth seal



All the CCL 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 PP through Transfer moulding process.

Oil sump with enlarged volume ensures cool and clean oil.

All wetted parts have a high chemical resistance employing a performing material as PP, granting also a wall thickness of at least 4 mm to 5 mm for lined parts.

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

FEATURES

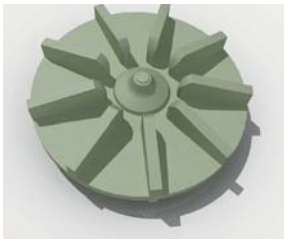
LINED CASING

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).

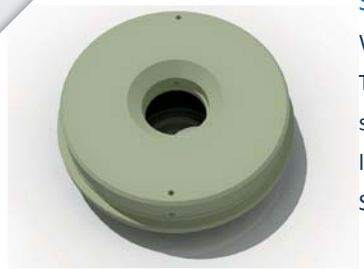
LINED IMPELLER



The combination of a solid metal core and a PP lining 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 and extraordinary bearing and seal life.



SEAL CHAMBER

Wide conical design.

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

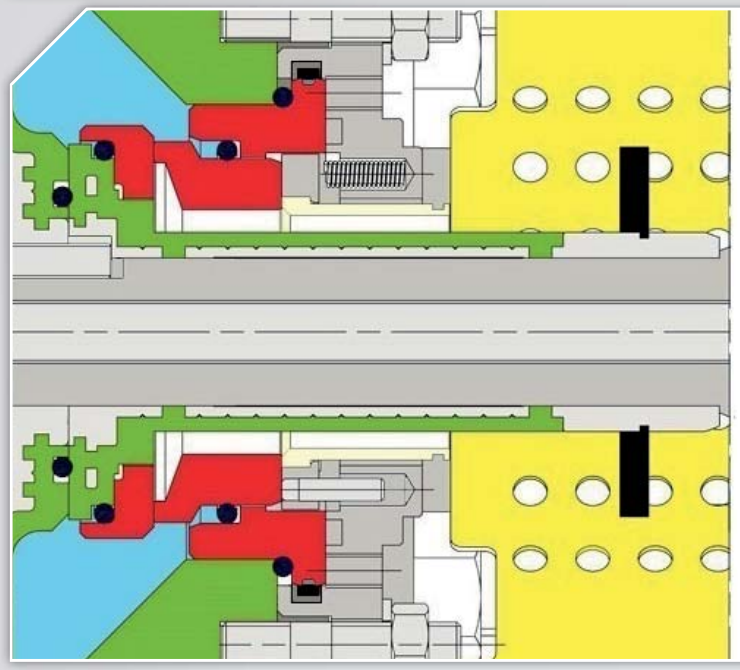
Self-venting, Self-flushing, Self-draining.

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.



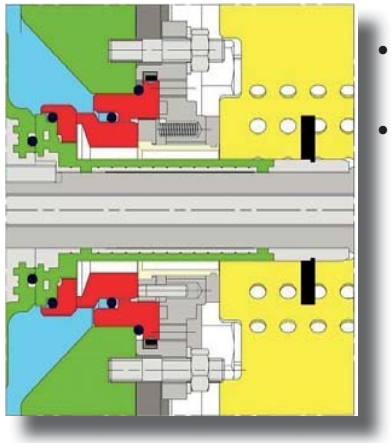
LINED SHAFT SLEEVE

- 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.
- Thanks to CSE35 mechanical seal design, no metallic part is in contat with fluid.
- 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 PP 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

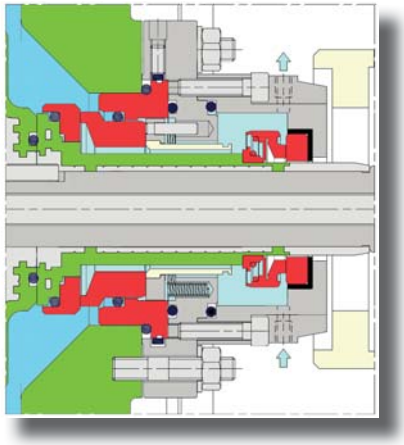
- Wide choice of sealing arrangements for maximum sealing flexibility.
- The CDR mechanical seals have been developed for difficult operating conditions, hazardous and corrosive medium.
- CSE-35 Single mechanical seal

CSE-35
SINGLE INTERNAL SEAL
TAPERED SEAL CHAMBER



- 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 CSE seals to be the best solution for every application.

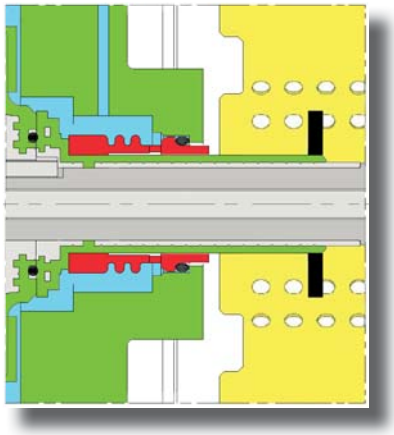
CSE-35Q
SINGLE INTERNAL MECHANICAL SEAL WITH QUENCH



- In case of liquid cristallization, due to air contact, CDR offers plan 62.

TSI - SINGLE INTERNAL MECHANICAL SEAL

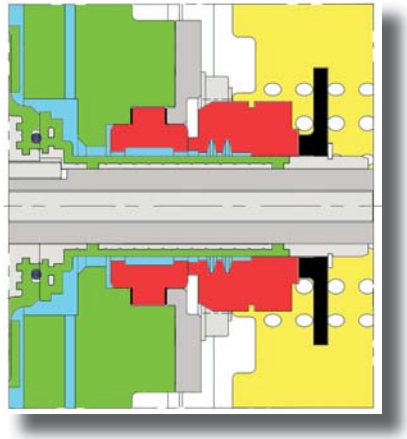
Suitable to PLAN 02



SIngle internal mechanical seal for applications with clean fluids or low to moderate contaminated, such as CRANE 2N

TSE - SINGLE EXTERNAL MECHANICAL SEAL

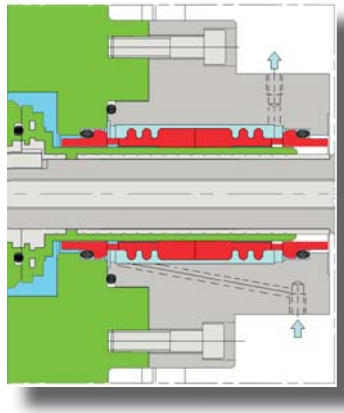
Suitable to PLAN 02



Single external mechanical seals, with PTFE bellow, suitable for corosive fluids without solid parts, such as CRANE10T

TSI/TSI - DOUBLE TANDEM MECHANICAL SEAL

Suitable to PLAN 53A/54



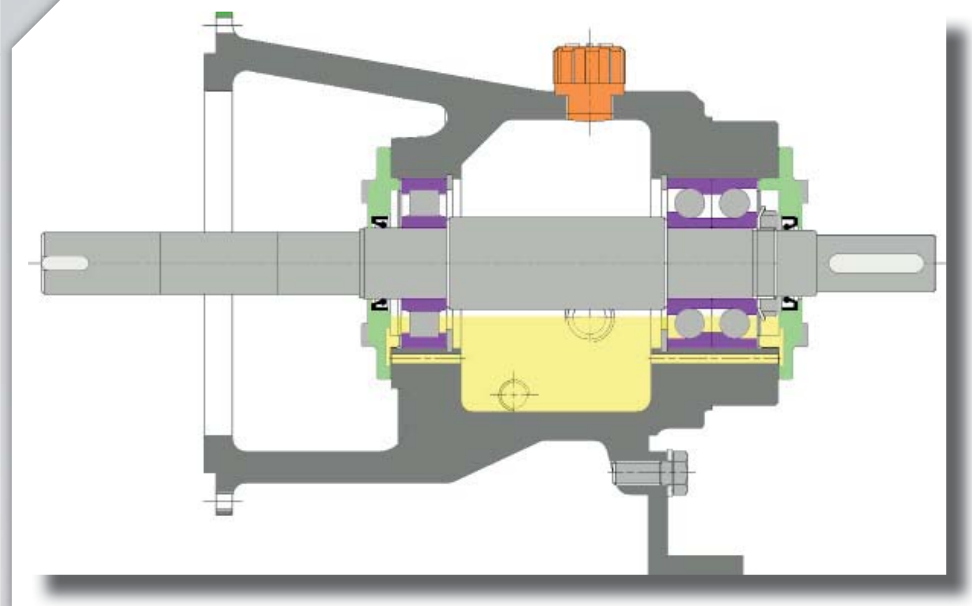
Applications where no leakage to atmosphere can be tolerated e.g. hazardous, toxic, inflammable media

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

FEATURES



BEARING BRACKET FOR LONG 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

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.

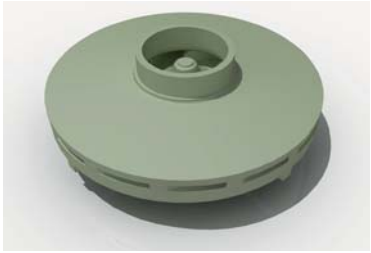
PAINTING COATING QUALITY

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 polyure-thane

Available upon request :

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



CLOSED IMPELLER

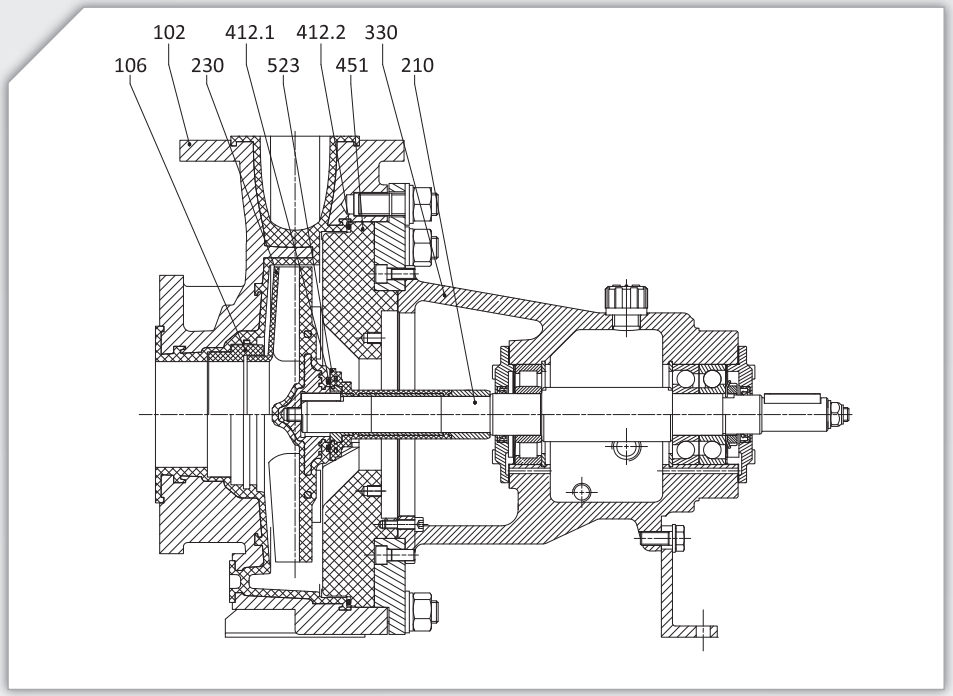
Closed impellers are indicated to be used with clean liquid. They have a good hydraulic efficiency and there's no recirculation between the blade's plane.

SEMI OPEN RADIAL IMPELLER

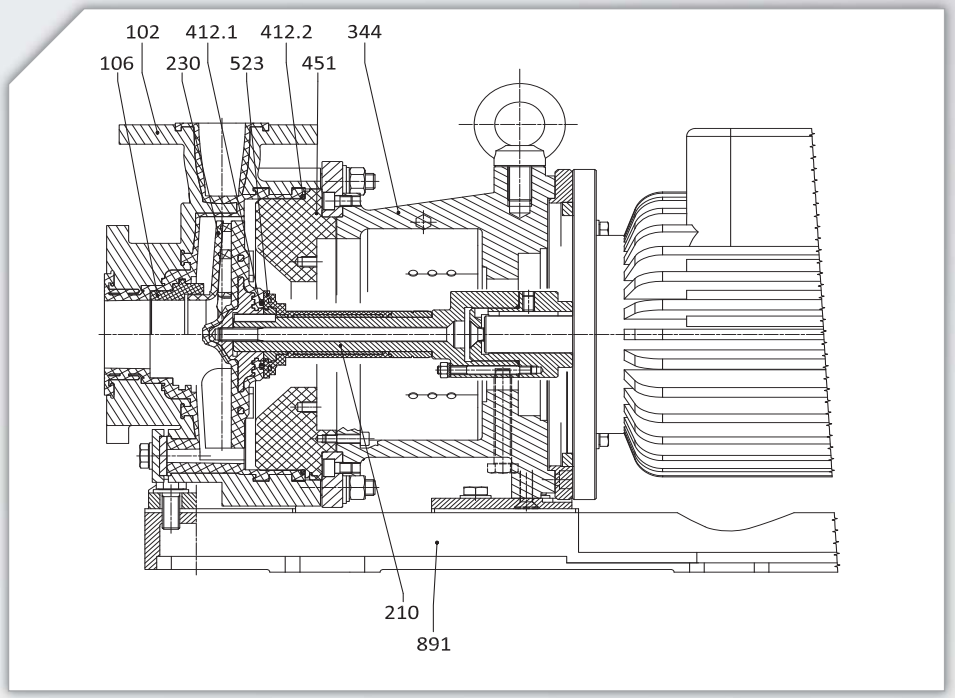
Semi - open Radial impellers are indicated to be used with high solids concentration liquids. They have a low hydraulic efficiency and there's recirculation between the blade's plane.

SECTIONAL DRAWING

CCL : LONG COUPLED EXECUTION



CCL-B : CLOSE COUPLED EXECUTION



Technical Specifications

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

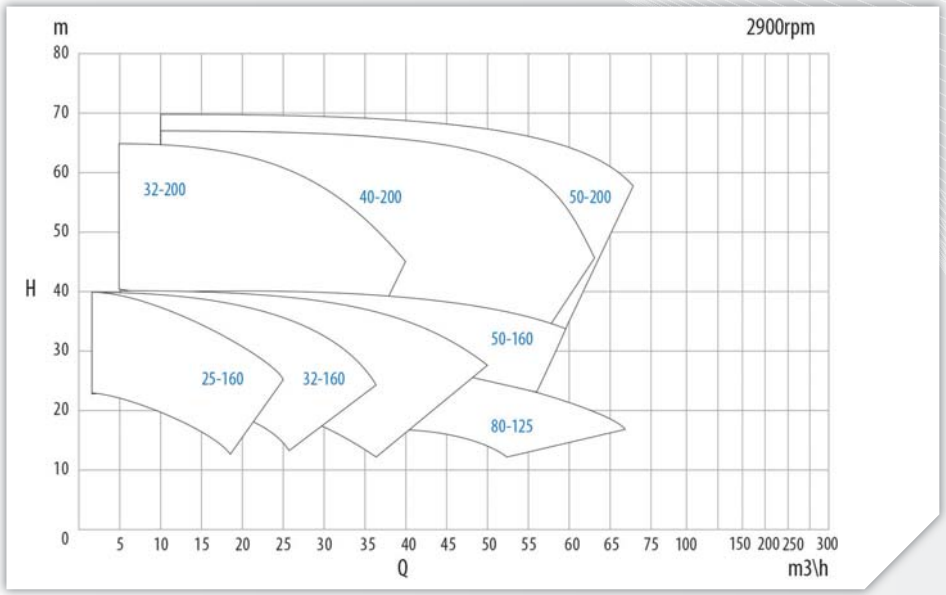
Parts and Materials

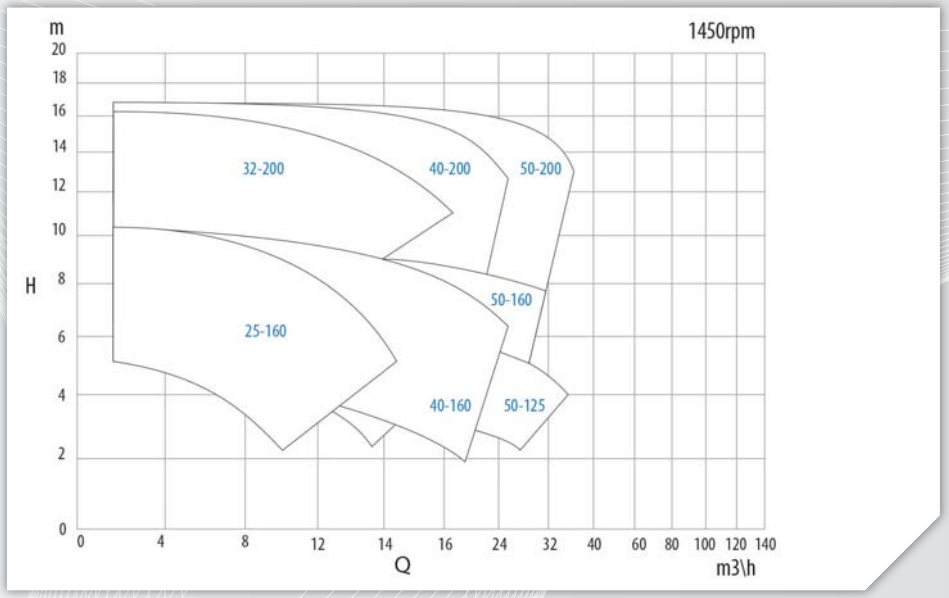
DIN	Description	Material
102	Casing	PP lined
106	Suction Casing	PP
210	Shaft	Aisi 431
230	Impeller	PP lined
330	Bearing Bracket	GS400
344	Lantern	GS400
412.1	O-Ring (Shaft Sleeve)	EPDM \ FPM \ FFKM
412.2	O-Ring (Casing)	EPDM \ FPM \ FPM enc. FEP
412.3	O-Ring (Stuffing box)	EPDM \ FPM \ FPM enc. FEP\FFKM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

PERFORMANCE FIELDS closed impeller

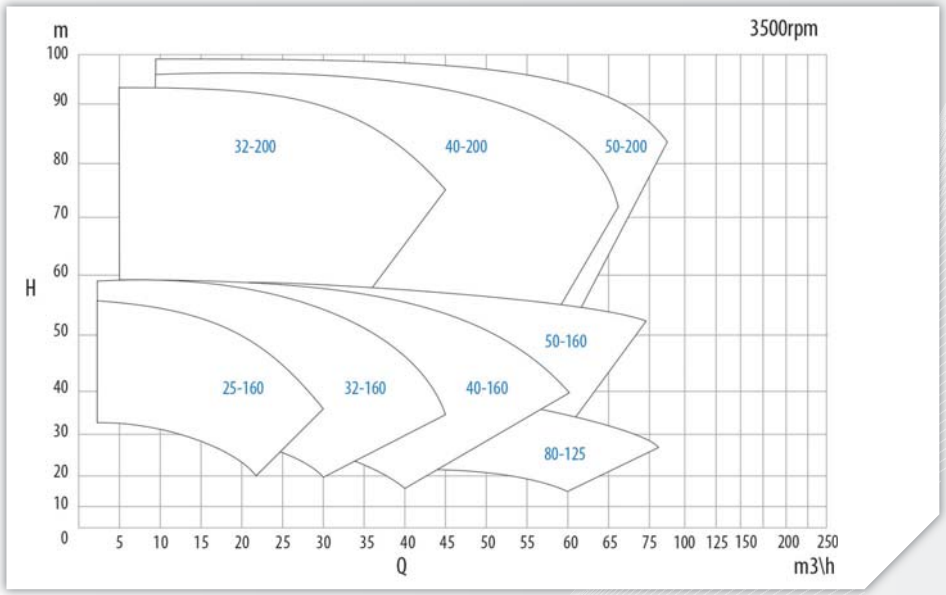
Closed impellers are indicated to be used with clean liquids. They have a good hydraulic efficiency and there's no recirculation between the blade's planes, granting same performances and reliability

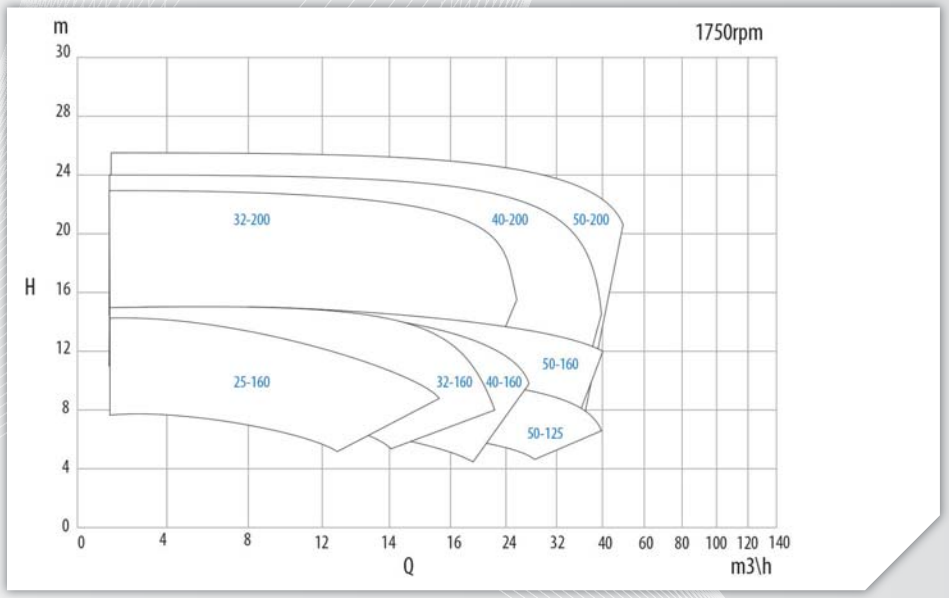
50 Hz





60 Hz



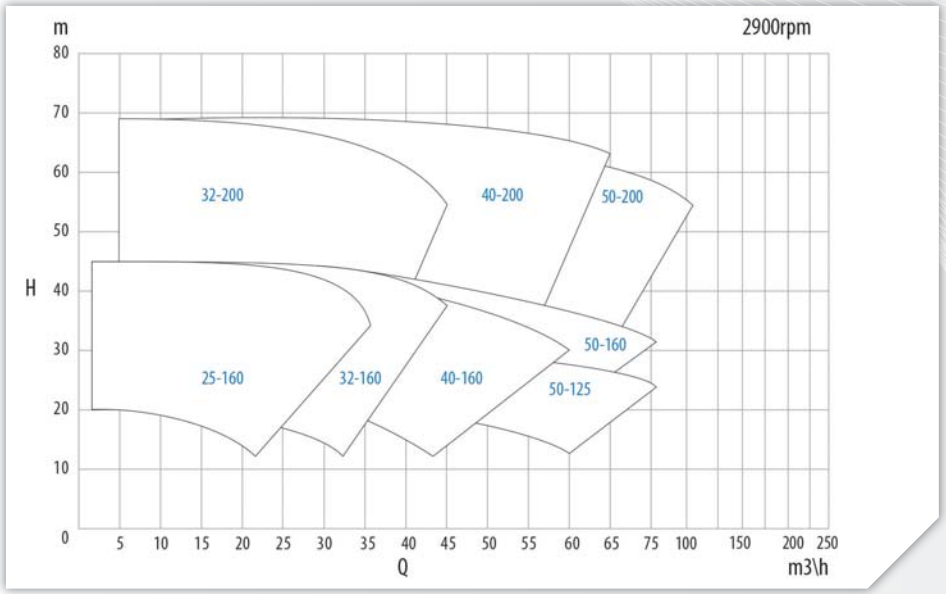


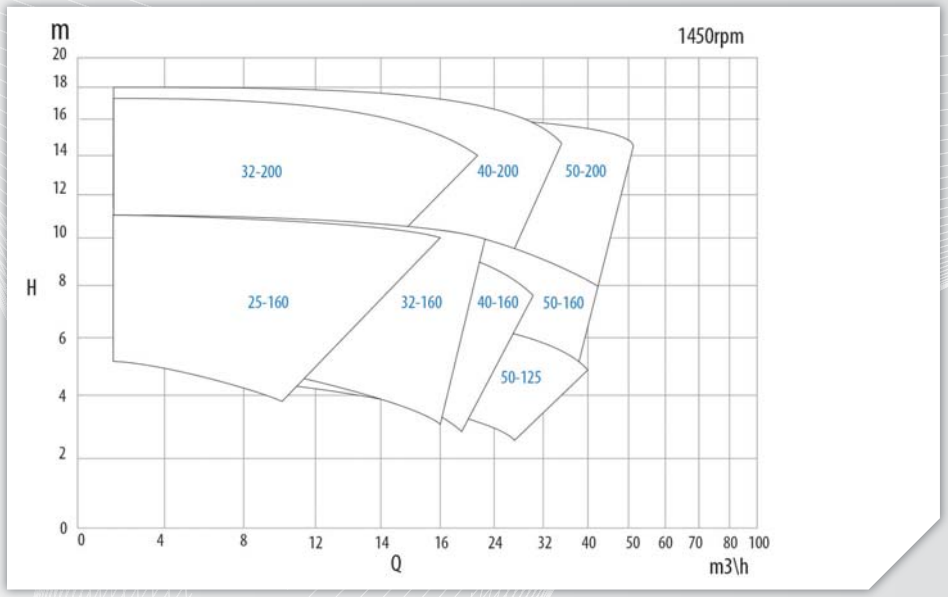
Not binding data refers to water at room temperature. For specific performance curve contact CDR Pompe S.R.L.

PERFORMANCE FIELDS open radial impeller

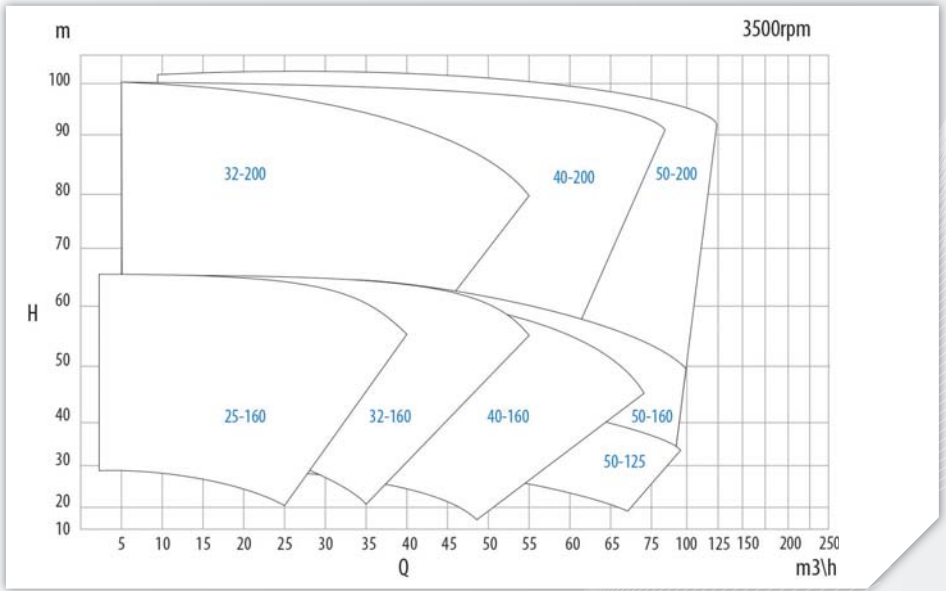
Semi open (Radial) are indicated to be used with dirty liquids. They have a low hydraulic efficiency and there's recirculation between the blade's plane

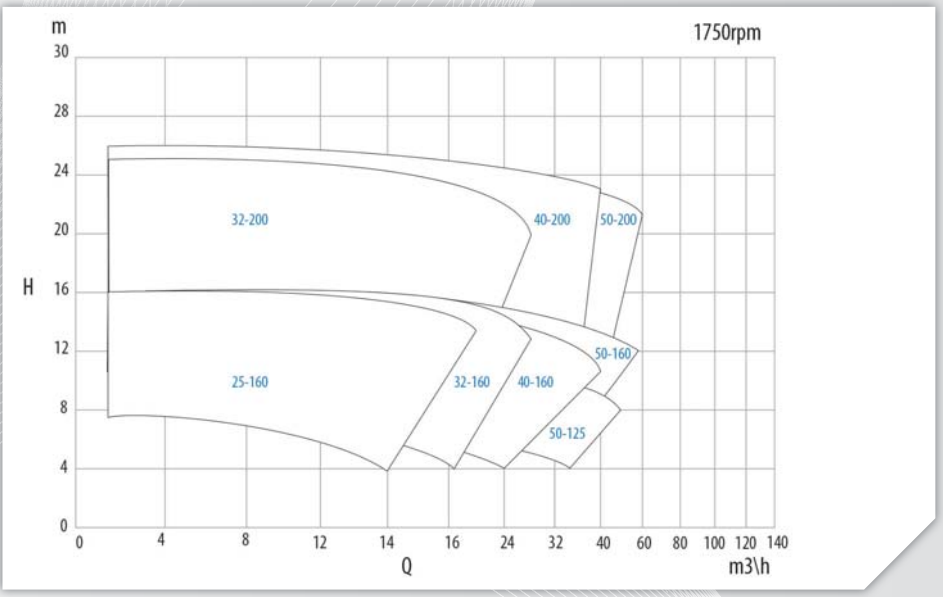
50 Hz





60 Hz





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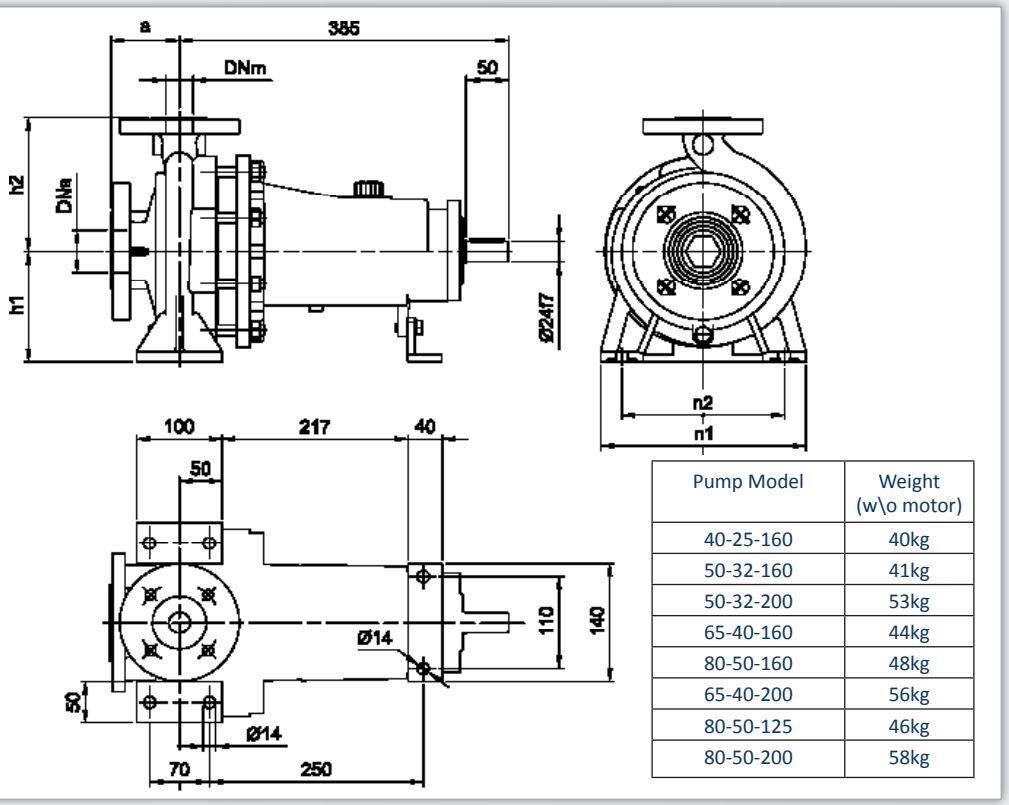
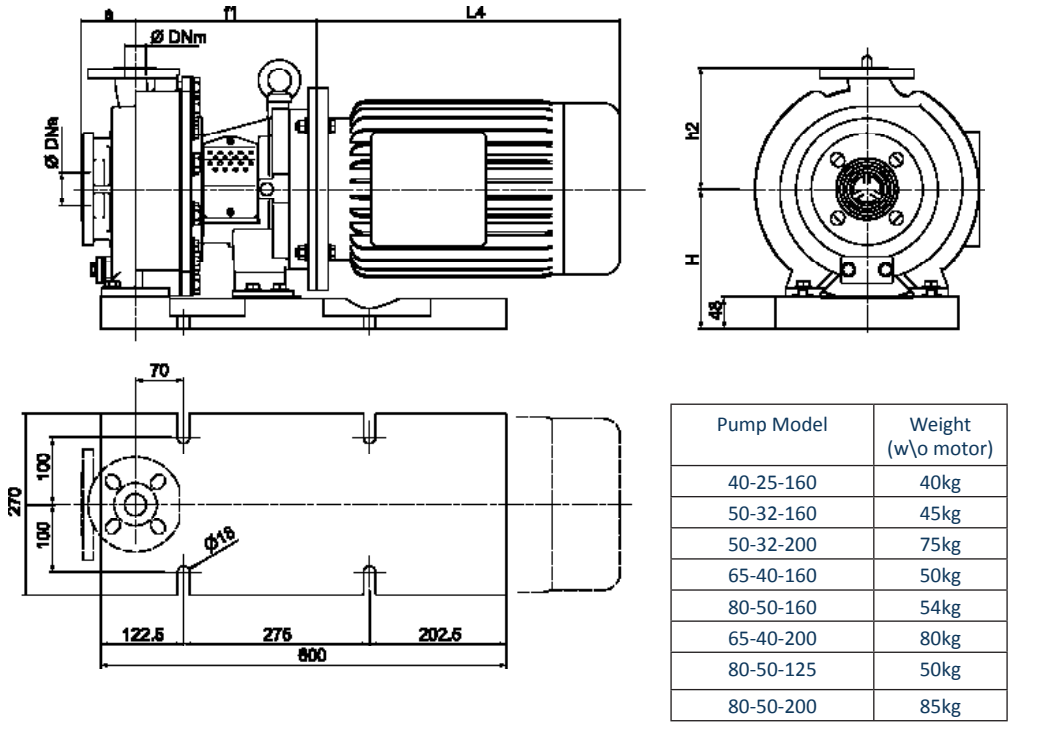
OVERALL DIMENSIONS

CCL



Pump Model	Weight (w\o motor)
40-25-160	40kg
50-32-160	41kg
50-32-200	53kg
65-40-160	44kg
80-50-160	48kg
65-40-200	56kg
80-50-125	46kg
80-50-200	58kg

CCL-B



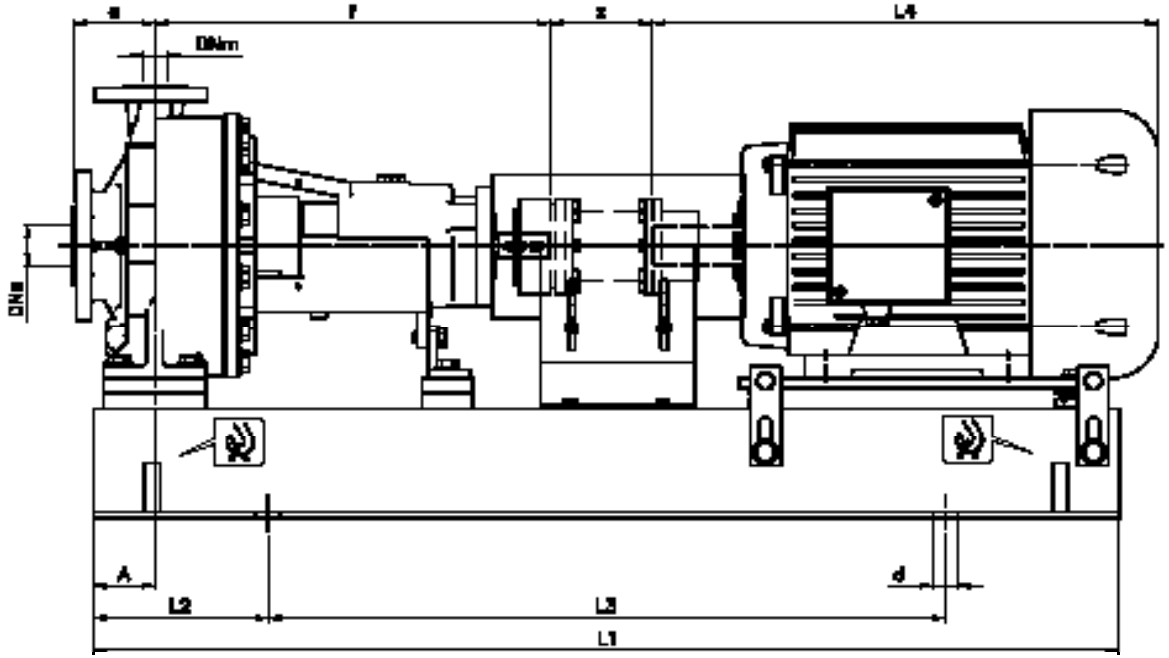
Pump Model	Weight (w\o motor)
40-25-160	40kg
50-32-160	45kg
50-32-200	75kg
65-40-160	50kg
80-50-160	54kg
65-40-200	80kg
80-50-125	50kg
80-50-200	85kg

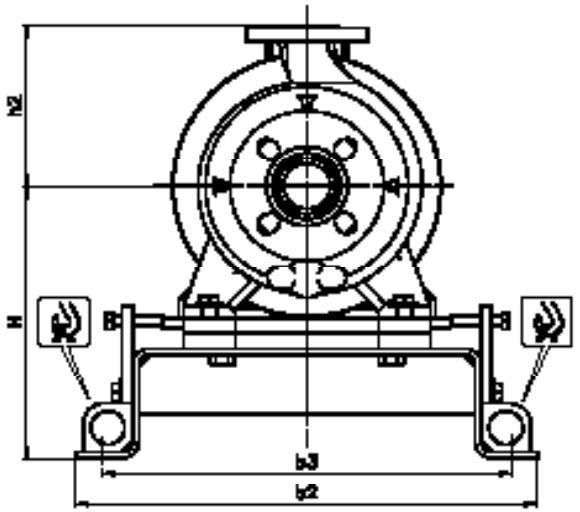
Pump Model	DNa		DNm		a	h1	h2	n1	n2
					mm	mm	mm	mm	mm
CCL 40-25-160	40	UNI EN 1092-2 PN 16RF slotted to ANSI 150	25	UNI EN 1092-2 PN 16RF slotted to ANSI 150	80	132	160	240	190
CCL 50-32-160	50		32			132	160	240	190
CCL 50-32-200	50		32			160	180	240	190
CCL 65-40-160	65		40			132	160	240	190
CCL 80-50-160	80		50		100	160	180	265	212
CCL 65-40-200	65		40			160	180	265	212
CCL 80-50-125	80		50			132	160	240	190
CCL 80-50-200	80		50			160	200	265	212

Pump Model	DNa		DNm		a	H	h2
					mm	mm	mm
CCL-B 40-25-160	40	UNI EN 1092-2 PN 16RF slotted to ANSI 150	25	UNI EN 1092-2 PN 16RF slotted to ANSI 150F	80	180*	160
CCL-B 50-32-160	50		32				
CCL-B 50-32-200	50		32			208	180
CCL-B 65-40-160	65		40			180*	160
CCL-B 80-50-160	80		50		100	208	180
CCL-B 65-40-200	65		40			208	180
CCL-B 80-50-125	80		50			180*	160
CCL-B 80-50-200	80		50			208	200
*for CCL-B serie 125/160 eqquipped with motor frame 160: H=208							
* L4 dimension is according to installed motor manufacturer							

Motor Size	f1	Frame
	mm	
90	221.5	B5
100	235	B5
112	235	B5
132	265	B5
160	280	B5

CCL : Baseplate installation





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

For further info, please visit
www.cdrpompe.com

CDR® Pompe s.r.l.

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TB - CCL 2016.12

Technical Characteristics
The technical data and characteristics stated in this General Catalogue are not binding. CDR Pompe S.r.l. 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.