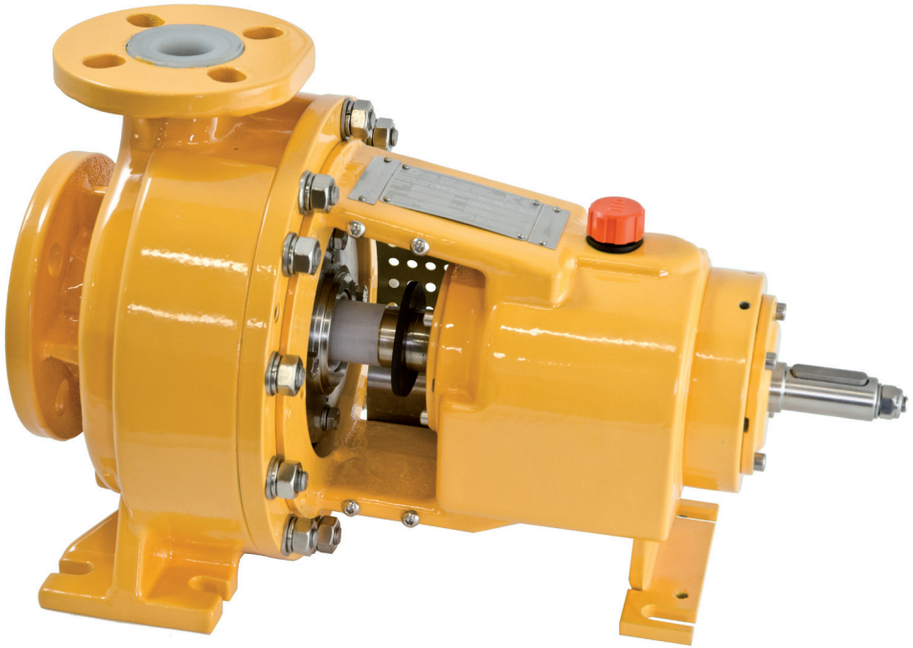
UCL / UCL-B

Lined Mechanical Seal Process Centrifugal Pumps

UCL lined PFA
End Suction – Back pull-out design



CSS
Single Mechanical Seal

CDC
Double Cartridge
Mechanical Seal

Comply to :
2006/42/CE

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

ISO 5199

ATEX 100
Directive 2014/34/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

CDR® Pompe S.r.l.

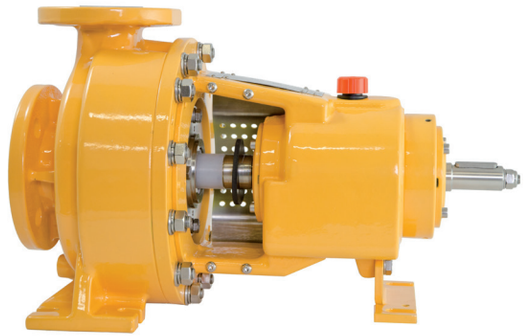
UCL SERIES

Mechanical seal arrangement

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

- CSS Single mechanical seal
- CDC 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

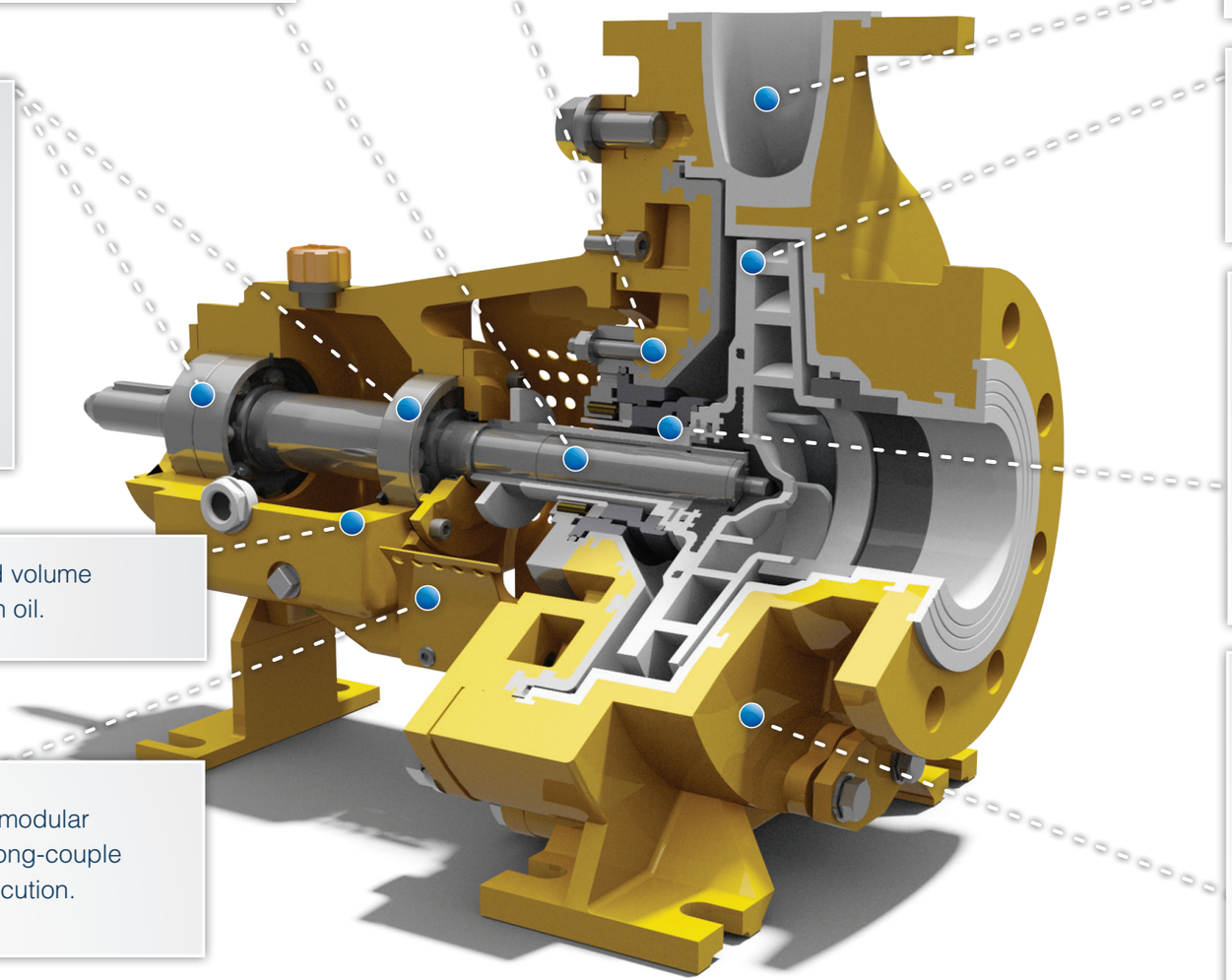
Rigid shaft made of corrosion resistant stainless steel minimizes the shaft deflection < 0,05 mm: the design is in “dry shaft execution” where there is no contact between shaft and medium.

- CSS Single mechanical seal
- CDC 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 2 different type of protections:

- Standard oil 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 mainte- nance 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.

All wetted parts have a high chemical resistance employing a performing material as Virgin unfilled PFA, granting also a wall thickness of at least4 mm to 5 mm. Alternative available materials for the wetted parts: PP and PVDF.

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

FEAUTURES

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 and 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.

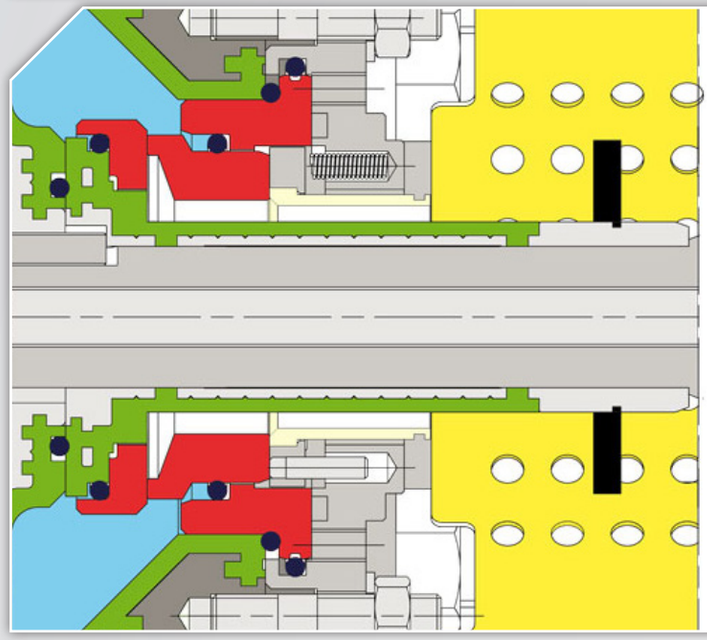
Self-venting, Self-flushing, Self-draining.

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

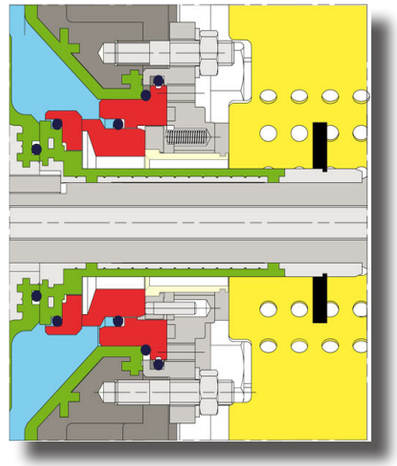
- Wide choice of sealing arrangements for maximum sealing flexibility.
- The CDR mechanical seals have been developed for difficult operating conditions, hazardous and corrosive medium.
- CSS Single mechanical seal
- CDC Double cartridge mechanical seal
- Other mechanical seals can be adapted on UCL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

FACCE TENUTA IN SIC DIAMANTATO

- 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
SINGLE INTERNAL SEAL
TAPERED SEAL CHAMBER

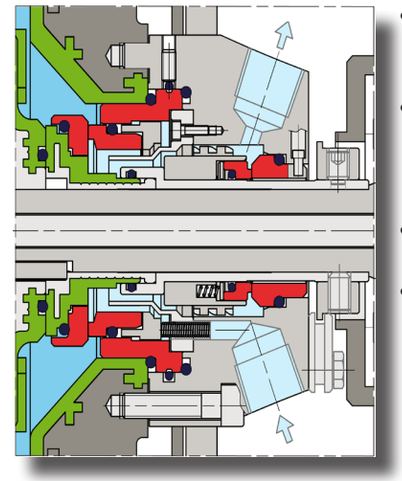
Available also as CSS-Q (PLAN62)



- Suitable to work with low/ mod- erate 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
DOUBLE CARTRIDGE SEAL
TAPERED SEAL CHAMBER

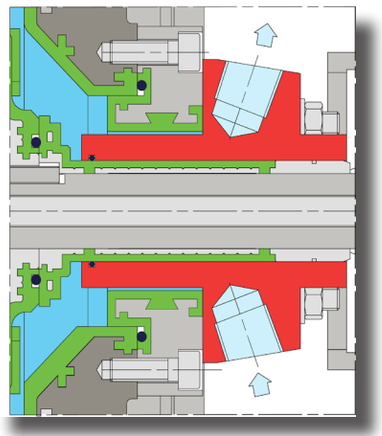
Suitable to PLAN 53A-54



- 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

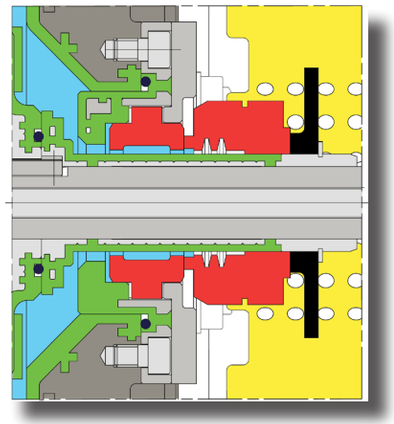
Suitable to PLAN 52-53-54



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

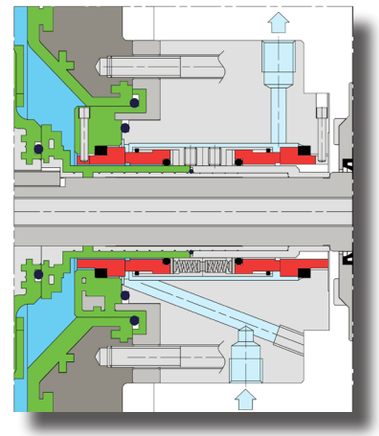
SINGLE EXTERNAL SEAL
TAPERED SEAL CHAMBER

Suitable to PLAN 02



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

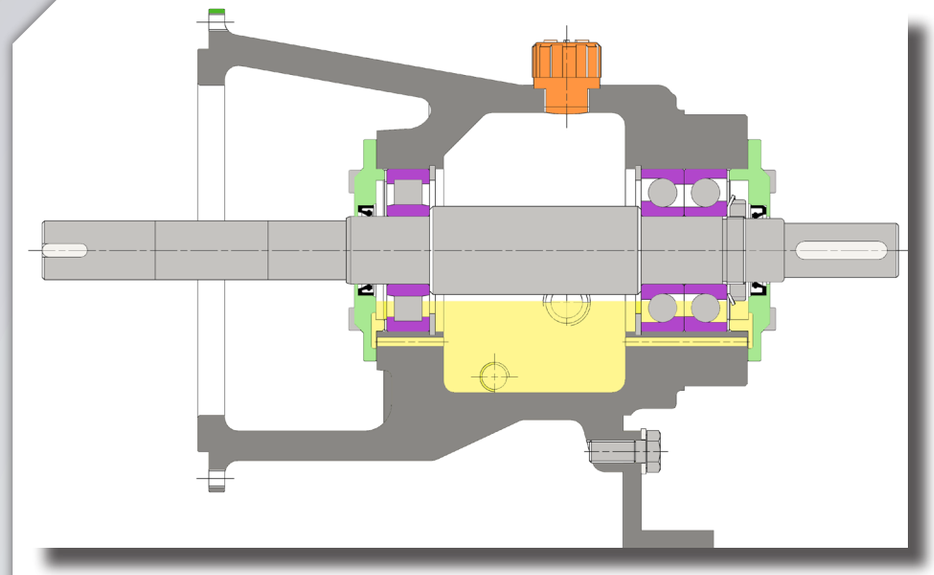
CONVENTIONAL DOUBLE SEAL -
CYLINDRICAL SEAL CHAMBER EXTERNAL FLUSHED - ISO 12756 –EX DIN 24960



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

TECHNICAL 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 2 different type of protections :

- Standard oil 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)

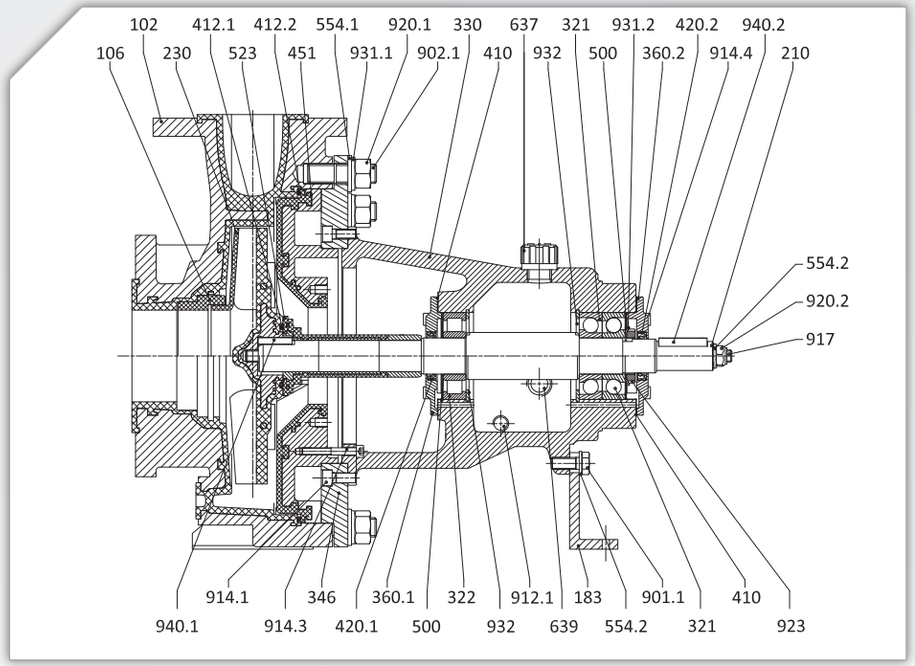
- Epoxy zinc paint
- Epoxy amidic modified vinyl
- Epoxy enamel paint or aliphatic acrylic polyurethane

Available upon request :
EN ISO 12944-5 C5M and C5I protecting paint system grades.

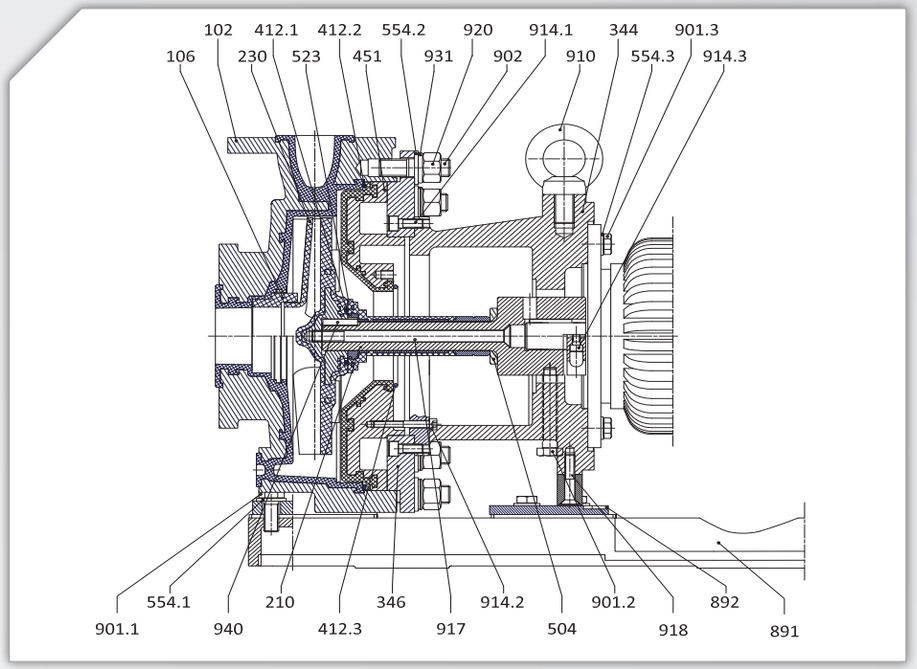
	**CLOSED IMPELLER** Closed impellers are indicated to be used with clean liquid. They have a good hydraulic efficiency and there's no recirculation between the blade's plane.
	**SEMI OPEN RADIAL IMPELLER** Semi - open Radial impellers are indicated to be used with high solids concentration liquids. They 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

Performances 2900 rpm	Q max = 250 m3/h -> H max = 65 mcl
Electric Motors	UCL : 1,1 kW (size 80) -> 55 kW (size 250) UCL-B : 1,1 kW (size 90) -> 18.5 kW (size 160)
Temperature range	PP : - 10 °C -> +70 °C PVDF : - 30 °C -> +100 °C PFA : - 50 °C -> +140 °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 : 100 cSt

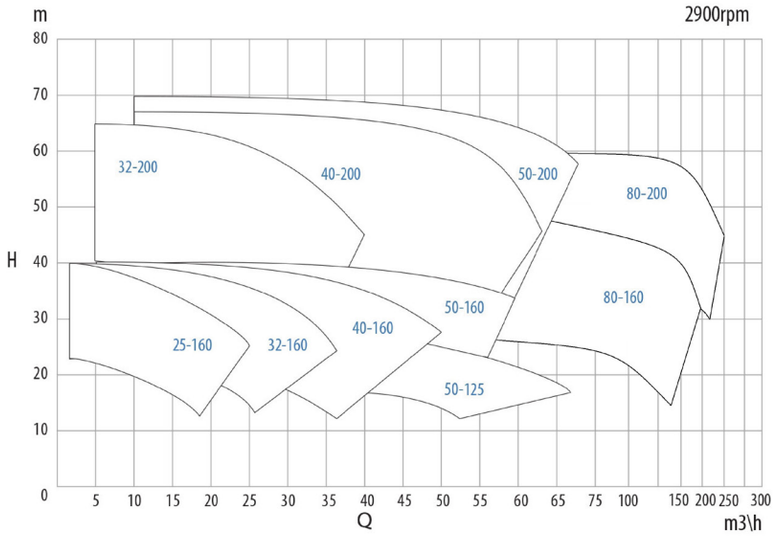
Parts and Materials

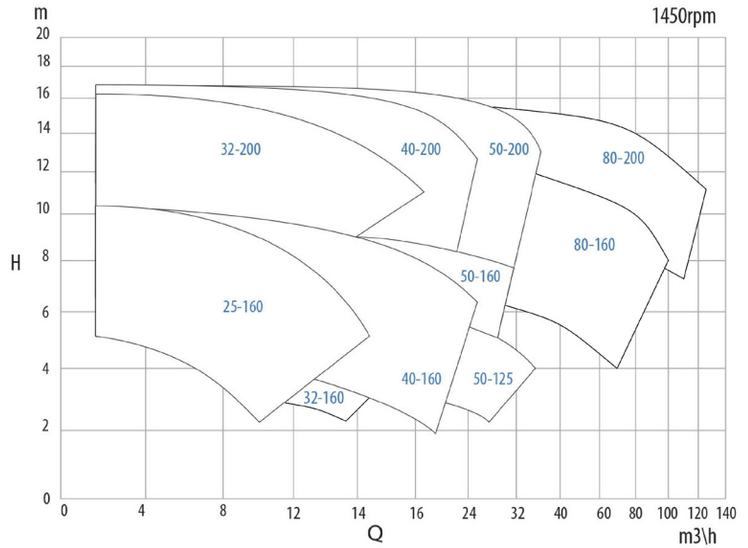
DIN	Description	Material
102	Casing	PP lined \ PVDF lined \ PFA lined
106	Suction Casing	PFA
210	Shaft	Aisi 431
230	Impeller	PP llined \ PVDF lined \ PFA lined
330	Bearing Bracket	GS400
344	Lantern	GS400
412.1	O-Ring (Shaft Sleeve)	EPDM \ FPM \ FFKM
412.2	O-Ring (Casing)	EPDM \ FPM \ FPM enc. FEP
412.3	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

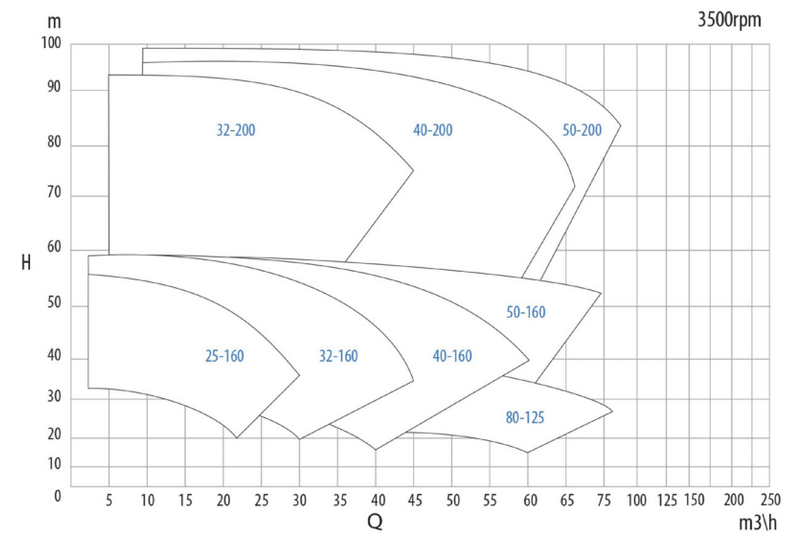
Closed impellers are indicated to be used with clean liquids. They have a good hydraulic efficiency and there's no recirculation between the blade's planes, granting same performances and reliability

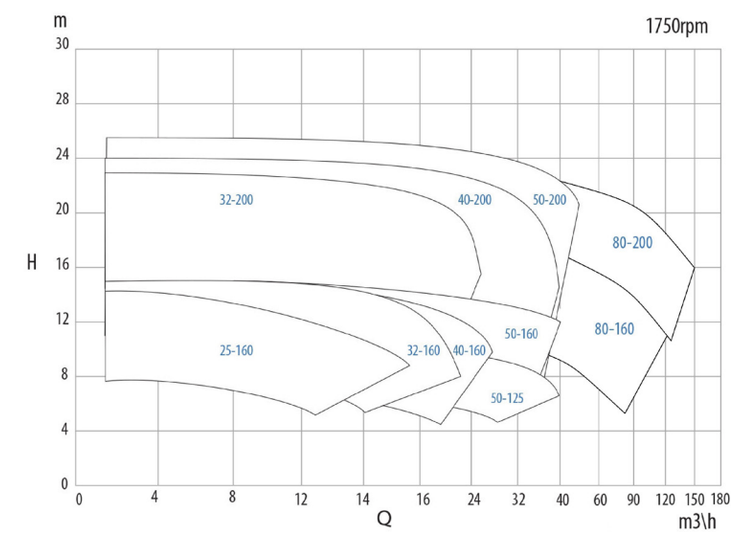
50 Hz





60 Hz



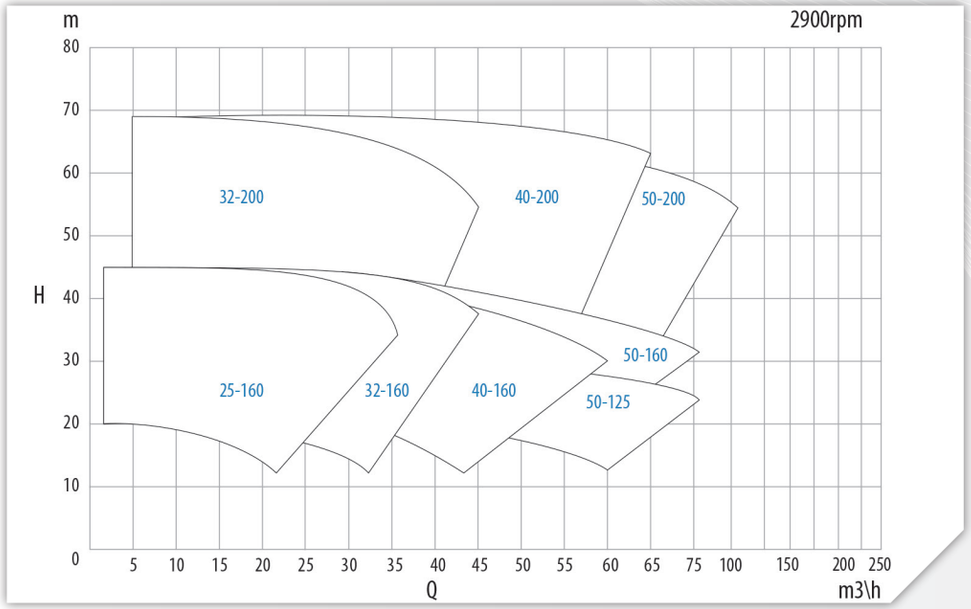


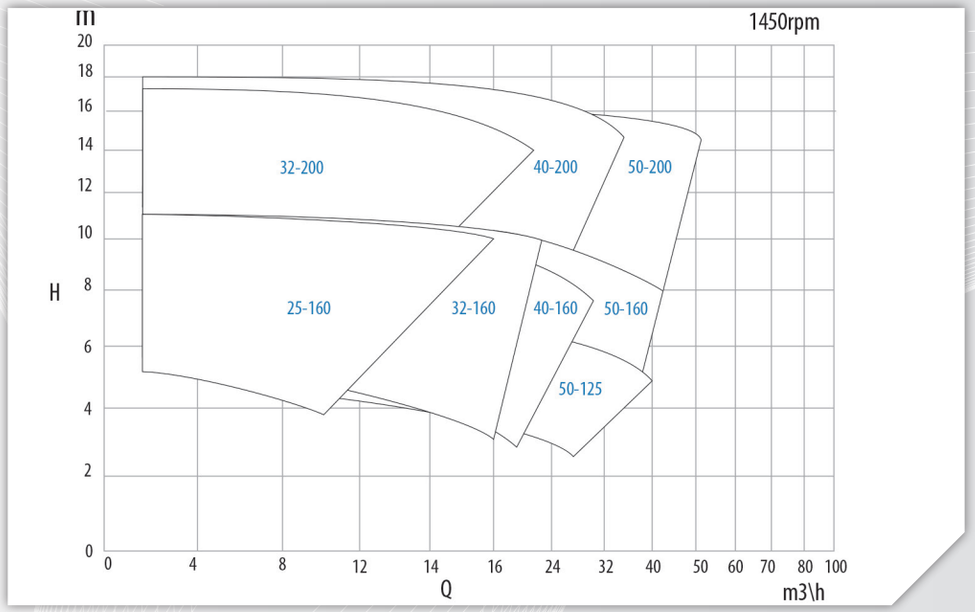
No binding data refers to water at room temperature. For specific performance curve contact CDR Pompe S.R.L.

PERFORMANCE FIELDS Open Radial Impeller

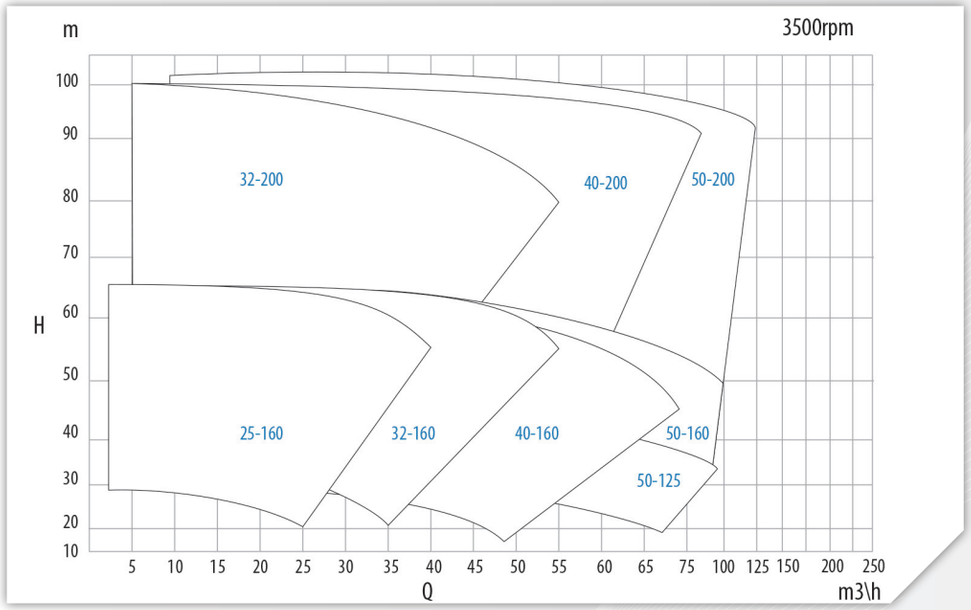
Semi open (Radial) are indicated to be used with dirty liquids. They have a low hydraulic efficiency and there's recirculation between the blade's plane

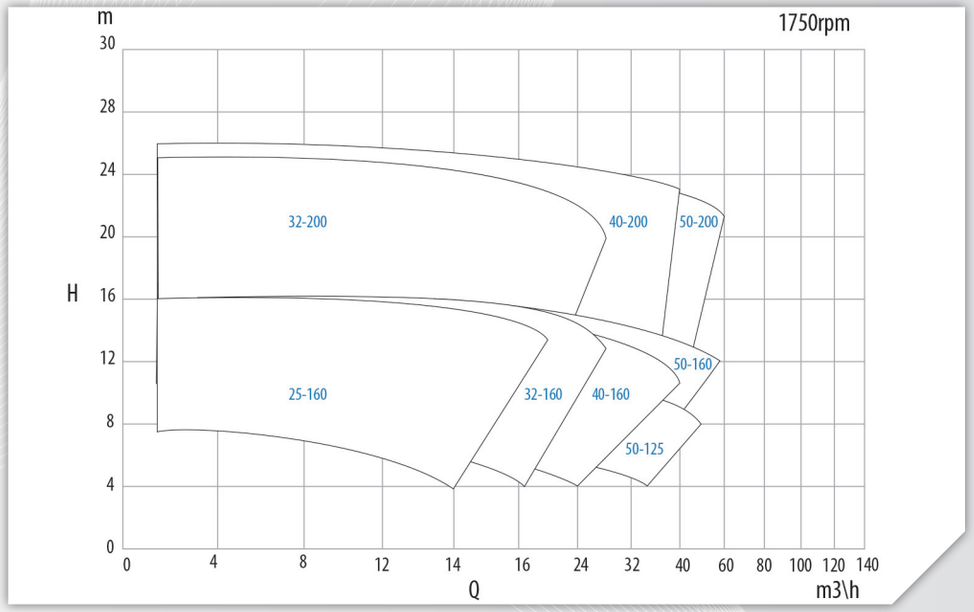
50 Hz





60 Hz





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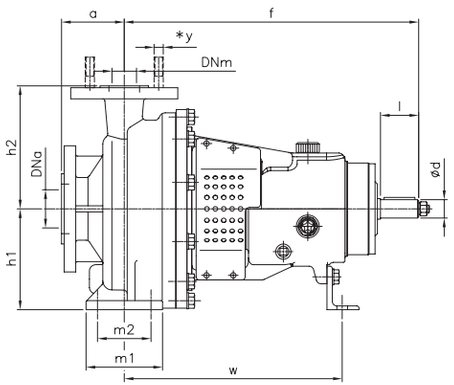
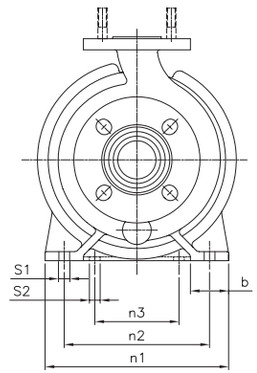
OVERALL DIMENSIONS

UCL

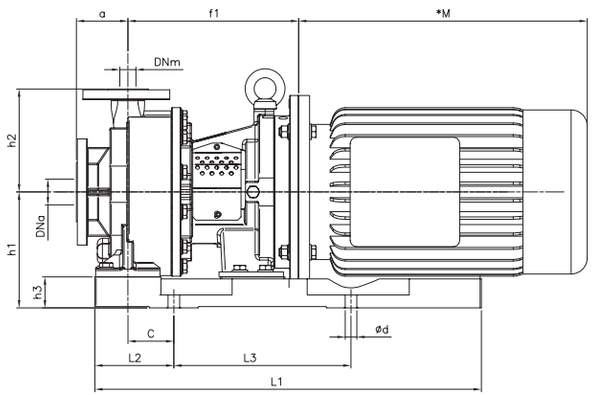


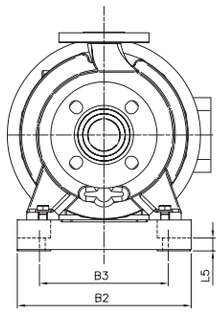


Pump Model	DNa		DNm		a	b	Ød	f	h1	h2	l	m1	m2	n1	n2	n3	S1	S2	w	Weight (w\o motor)
	mm		mm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
UCL 25-25-160	25	UNI EN 1092-1 PN 16RF slotted to ANSI 150	25	UNI EN 1092-1 PN 16RF slotted to ANSI 150	80	50	24	385	132	160	50	100	70	240	190	110	14	14	285	40
UCL 40-25-160	40		25		80	50	24	385	132	160	50	100	70	240	190	110	14	14	285	40
UCL 50-32-160	50		32		80	50	24	385	132	160	50	100	70	240	190	110	14	14	285	41
UCL 65-40-160	65		40		80	50	24	385	132	160	50	100	70	240	190	110	14	14	285	44
UCL 80-50-125	80		50		100	50	24	385	132	160	50	100	70	240	190	110	14	14	285	46
UCL 80-50-160	80		50		100	50	24	385	160	180	50	100	70	265	212	110	14	14	285	48
UCL 50-32-200	50		32		80	50	24	385	160	180	50	100	70	240	190	110	14	14	285	53
UCL 65-40-200	65		40		100	50	24	385	160	180	50	100	70	265	212	110	14	14	285	56
UCL 80-50-200	80		50		100	50	24	385	160	200	50	100	70	265	212	110	14	14	285	60
UCL 125-80-160	125		80		125	65	32	500	180	225	80	125	95	320	250	110	16	16	370	100
UCL 125-80-200	125		80		125	65	32	500	180	250	80	125	95	345	280	110	16	16	370	115

*y = DNm 80 equipped with 4 studs M16x60 for ANSI 150

UCL-B

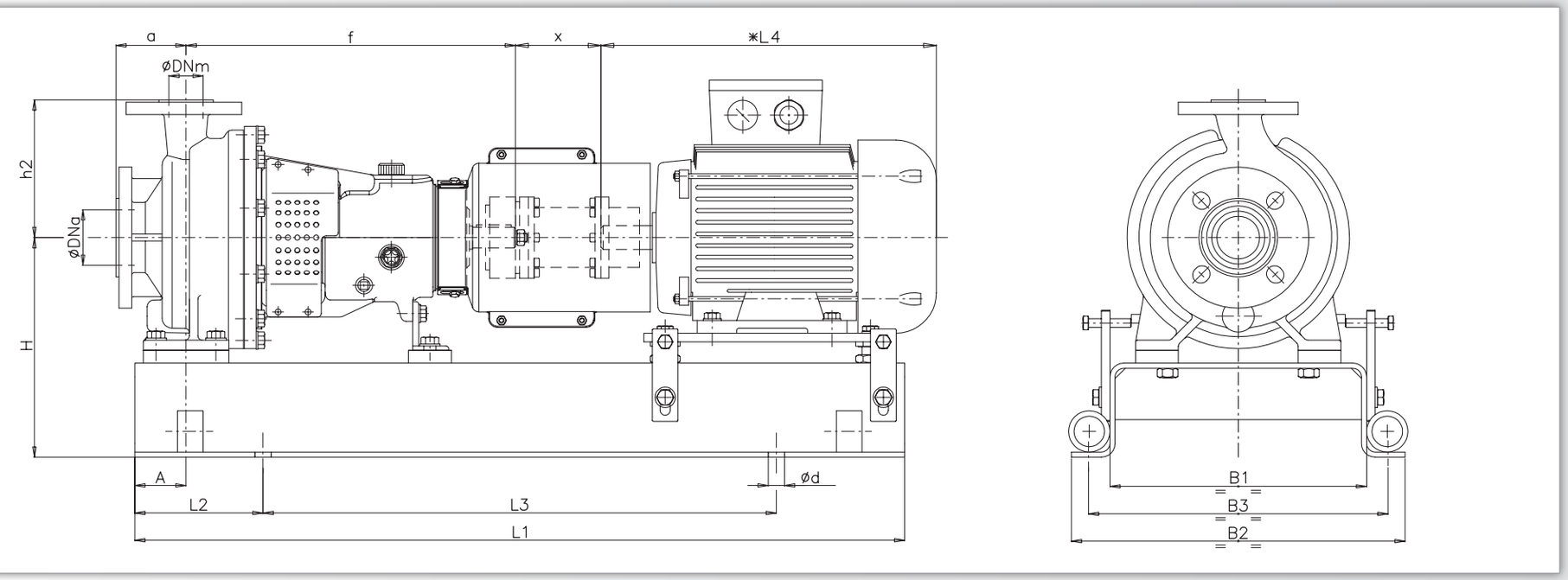




Pump Model	DNa		DNm		a	B2	B3	C	Ød	h2	h3	L1	L2	L3	L5	f1				h1				Motor frame	Weight (w\o motor)
																Motor size				Motor size					
																90	100 112	132	160	90	100 112	132	160		
	mm		mm		mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm		kg
UCL-B 25-25-160	25	UNI EN 1092-1 PN 16RF slotted to ANSI 150	25	UNI EN 1092-1 PN 16RF slotted to ANSI 150	80	270	200	70	18	160	48	550	123	275	20	226	235	265	280	180	180	180	208	B5	40
UCL-B 40-25-160	40		25		80	270	200	70	18	160	48	550	123	275	20	226	235	265	280	180	180	180	208	B5	40
UCL-B 50-32-160	50		32		80	270	200	70	18	160	48	550	123	275	20	226	235	265	280	180	180	180	208	B5	45
UCL-B 65-40-160	65		40		80	270	200	70	18	160	48	550	123	275	20	226	235	265	280	180	180	180	208	B5	50
UCL-B 80-50-125	80		50		100	270	200	70	18	160	48	550	123	275	20	226	235	265	280	180	180	180	208	B5	50
UCL-B 80-50-160	80		50		100	270	200	70	18	180	48	550	123	275	20	226	235	265	280	208	208	208	208	B5	55
UCL-B 50-32-200	50		32		80	270	200	70	18	180	48	550	123	275	20	226	235	265	280	208	208	208	208	B5	75
UCL-B 65-40-200	65		40		100	270	200	70	18	180	48	550	123	275	20	226	235	265	280	208	208	208	208	B5	80
UCL-B 80-50-200	80		50		100	270	200	70	18	200	48	550	123	275	20	226	235	265	280	208	208	208	208	B5	85

*M dimension is according to installed motor manufacturer

UCL : Baseplate installation



Pump Model	Frame n°	DNa		DNm		a	A	f	h2	x	H											Weight pump (w\o motor)
											Motor Size											
											80	90	100	112	132	160	180	200	225	250	
						mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	Kg
UCL **25-25-160**	1	25	UNI EN 1092-1 PN 16RF slotted to ANSI 150	25	UNI EN 1092-1 PN 16RF slotted to ANSI 150	80	60	385	160	100	257	257	257	257	272	272					40
UCL **40-25-160**		40		25		80	60	385	160	100	257	257	257	257	272	272					40
UCL **50-32-160**		50		32		80	60	385	160	100	257	257	257	257	272	272					41
UCL **65-40-160**		65		40		80	60	385	160	100	257	257	257	257	272	272					44
UCL **80-50-125**		80		50		100	60	385	160	100	257	257	257	257	272	272					46
UCL **80-50-160**		80		50		100	60	385	180	100	285	285	285	285	300	300					48
UCL **50-32-200**		50		32		80	60	385	180	100	285	285	285	285	300	300	300				53
UCL **65-40-200**		65		40		100	60	385	180	100	285	285	285	285	300	300	300				56
UCL **80-50-200**		80		50		100	60	385	200	100	285	285	285	285	300	300	300				60
UCL **125-80-160**	2	125		80		125	75	500	225	140					298	318	318	358	383	403	100
UCL **125-80-200**		125		80		125	75	500	250	140					298	318	318	358	383	403	115

Motor size	Frame n°	B1	B2	B3	Ød	L1	L2	L3	Weight baseplate + coupling (w\o motor)
		mm	mm	mm	mm	mm	mm	mm	kg
80-90-100-112	1	300	390	350	M16	900	150	600	45
132		340	450	400	M20	1000	170	660	58
160-180		380	490	440	M20	1120	190	740	90
132	2	402	490	440	M20	1120	190	740	80
160-180		444	540	490	M20	1300	205	840	100
200-225		480	610	550	M24	1400	230	940	130
250		554	660	600	M24	1600	270	1060	170

*L4 dimension is according to installed motor manufacturer

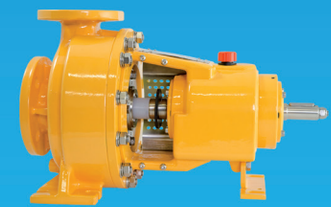
*y = DNm 80 pump size 125-80-160/200 equipped with 4 studs M16x60 for ANSI 150




For further info, please visit:
www.cdrpompe.com







C.D.R. Pompe S.R.L.

Via Raffaello Sanzio, 57 - 20021 Bollate (MI) - Italy

Tel. +39029901941 Fax +39029980606

www.cdrpompe.com **rdo@cdrpompe.com**

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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.