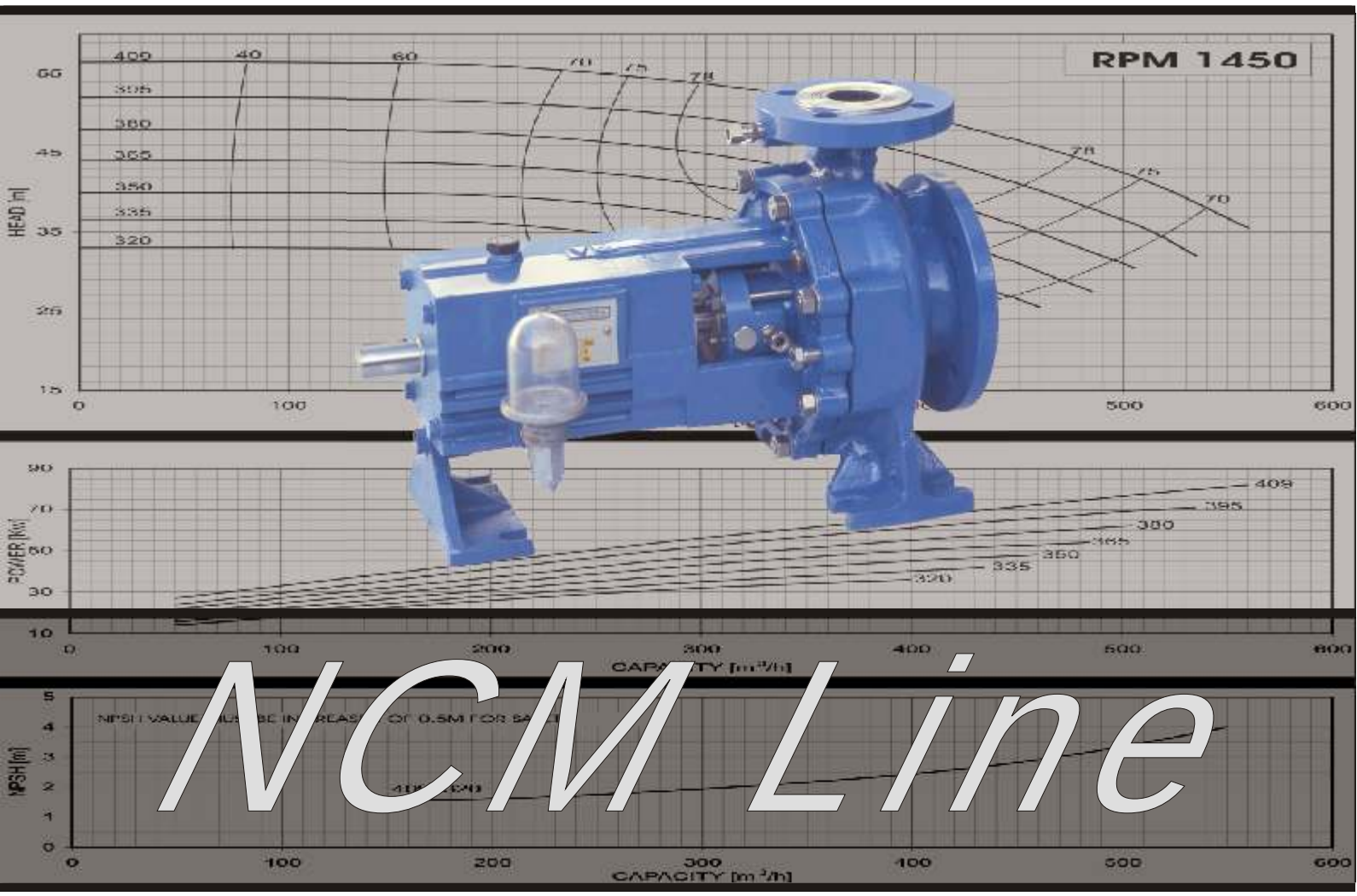
IDROCHEMICAL

CENTRIFUGAL PUMPS AND MIXERS



NCM Line

CENTRIFUGAL PUMPS FOR CHEMICAL SERVICE ACCORDING TO ISO 2858 STANDARDS

GENERAL FEATURES

The Idrochemical NCM process pumps conform to ISO 2858 dimensional and ISO 5199 design criteria. Casing and impeller profiles are designed to reach high hydraulic efficiency and low NPSH.
The NCM line has five sizes of bearing housing with a wide interchangeability of parts allowing the stock of few spare parts for maintenance.

APPLICATIONS

- Acid transfer
- Caustic and chlor-alkali
- Man made fibers
- Polymers
- Slurry processing
- Solvents
- Volatile organic compounds
- Waste processing

DESIGNATION

NCM/R -T 100-20 D

- Type series
- Execution
- Material Execution
- Mechanical Seal Configuration
- Rated Impeller Diameter
- Discharge Nozzle DN

OPERATING PARAMETERS

- Flows to 1500 m^3/h (6600 US gpm)
- Heads to 140 m (460 ft)
- Pressures to 25 bar (365 psi)
- Temperatures from -80°C (-110°F) to 350°C (660°F)
- Discharge size from 20 mm (¾ in) to 300mm (12 in)

STANDARDS COMPLIANCE

The NCM are CE marked and compliant with applicable European directives, such as ATEX.

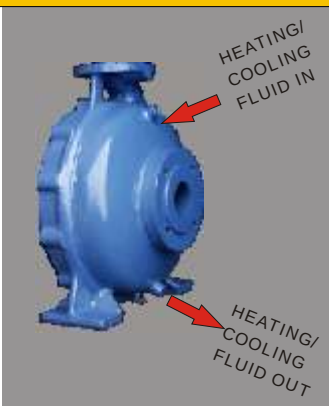
CONSTRUCTION

IMPELLER

Closed with six blades, closed with three blades or open types are available.
Axial thrust balanced with holes or dorsal vanes. Single or double wear ring.

CASING

Vertical split, one piece volute casing which has sturdy integrally cast feet. Axial suction and top delivery.
An optional jacketed casing is available for those applications in which the pumped fluid must be heated or cooled to maintain optimal viscosity.



SEAL HOUSING

Seal chamber accommodates many seal types including single, double and tandem arrangements. The double and tandem seals are available for more severe and environmentally sensitive applications.
All seals can be backed up by a range of flush plans and auxiliary systems.
Conventional and double cartridge seals can be fitted in accordance with the manufacturer's standard or with those designed to meet the latest ISO or DIN standards.
External seals and gland packing are optional, as is the seal housing jacket which controls the seal environment.

SHAFT AND SHAFT SLEEVE

NCM shafts and bearings are designed to improve pump reliability. The robust and stiff solid shaft esures less than 0.05 mm deflection at the seal face and low L/D ratio to maximize mechanical seal life.
As standard shaft is available in AISI 316 stainless steel.
To meet application requirements shaft can be provided with shaft sleeve. Shaft sleeve as well as shaft are available in a wide range of corrosion resistant alloys.

BEARINGS

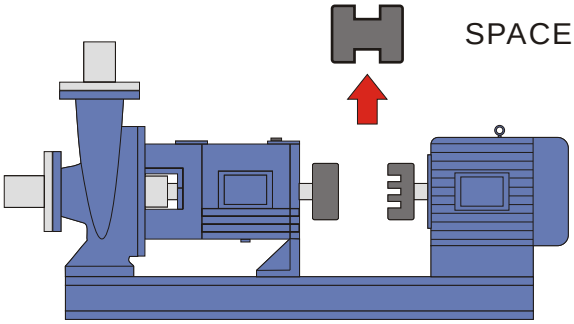
As standard the NCM is supplied with two deep groove ball bearings.
As an optional upgrade, the NCM can be supplied with a roller bearing to the impeller side and a double row angular contact thrust bearing providing life in excess of the minimum specified by ISO 5199

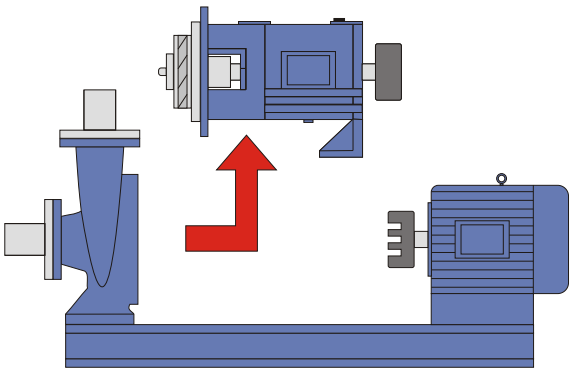
BEARING HOUSING AND LANTERN

Both one-piece, cast iron Bearing Housing and lantern are designed for safety, maximum concentricity, strength and alignment.

BACK PULL OUT

Hydraulic element is coupled to driver through flexible coupling. This characteristic allows rotating element dismantling for inspection or maintenance without disconnecting flanged connections and base plate. If coupling is provided with spacer, rotating group can be disassembled without disconnecting the driver, maintaining the axial alignment.





MATERIALS

Construction	Casing & Seal Housing	Impeller	Solid Shaft	Sleeved Shaft Option		Lantern	Bearing Housing
				Shaft	Sleeve		
G	Cast Iron	Cast Iron	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel	Cast Iron	Cast Iron
F	Carbon Steel	Carbon Steel					
H	304 Stainless Steel	304 Stainless Steel					
T	316 Stainless Steel	316 Stainless Steel					
TX	Duplex Stainless Steel	Duplex Stainless Steel	-		Duplex Stainless Steel		
W	Alloy 20	Alloy 20	-		Alloy 20		
NC	Alloy C	Alloy C	-		Alloy C		
NB	Alloy B	Alloy B	-		Alloy B		

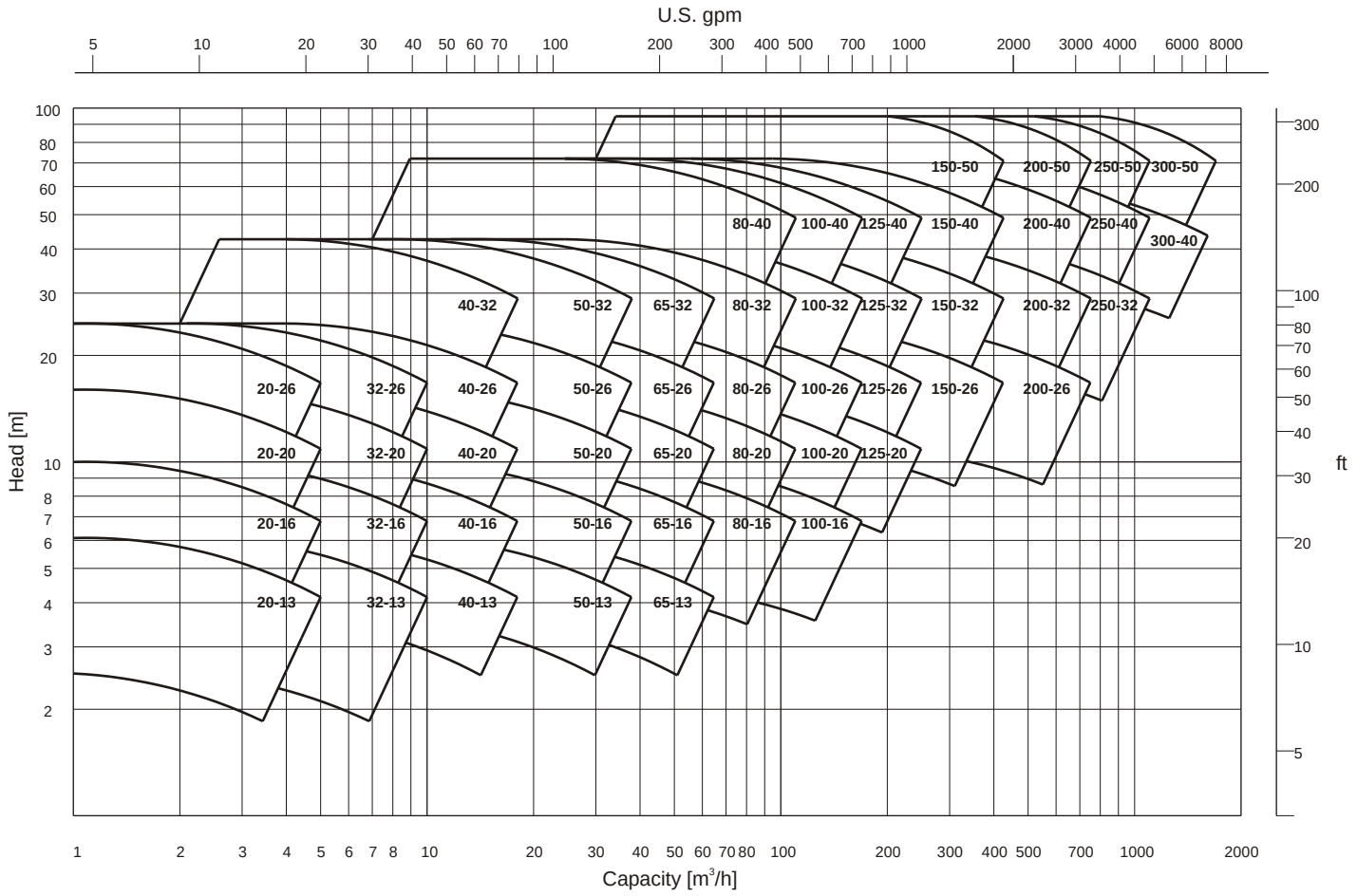
Other metallic alloys are available depending on medium handled

Idrochemical collaborates with foundries which are widely regarded as among European best. They pour alloys from common austenitic stainless steel to light reactive alloys such as titanium or zirconium.

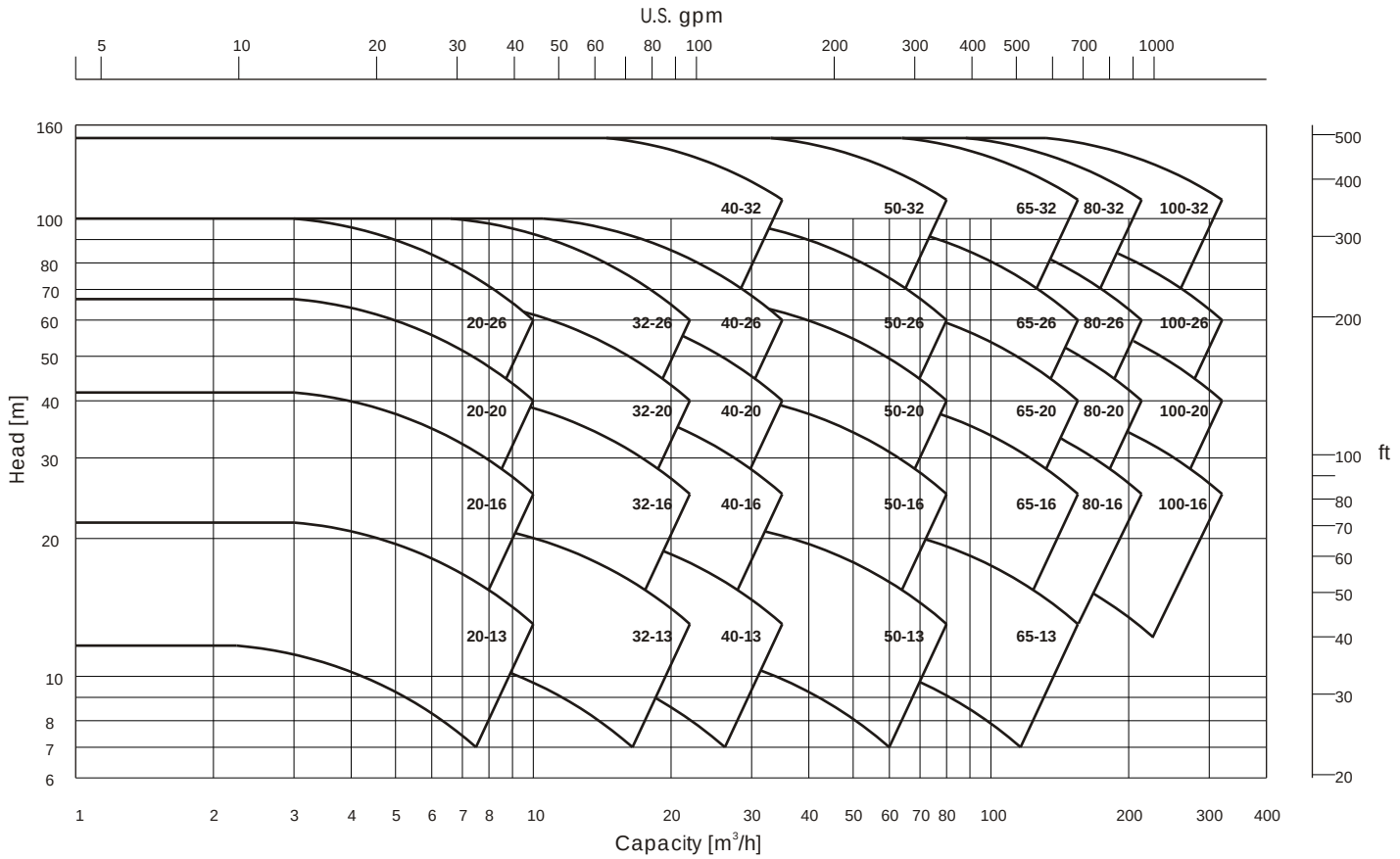
Material	Max Temperature [°C]	Max Pressure [bar]	Max Suction Pressure[bar]	Hydrostatic Test [bar]
Cast Iron	-27÷290 (-16.6÷554°F)	16 (232 psi)	14 (203 psi)	21 (305 psi)
Bronze	130 (266°F)	14 (203 psi)	11 (160 psi)	18 (261 psi)
Carbon Steel	300 (572°F)	25 (365 psi)	16 (232 psi)	36 (522 psi)
Stainless Steel/ Corrosion Resistant Alloys	-80÷350 (-112÷662°F)	25 (365 psi)	16 (232 psi)	36 (522 psi)

COVERAGE CHART - closed impeller

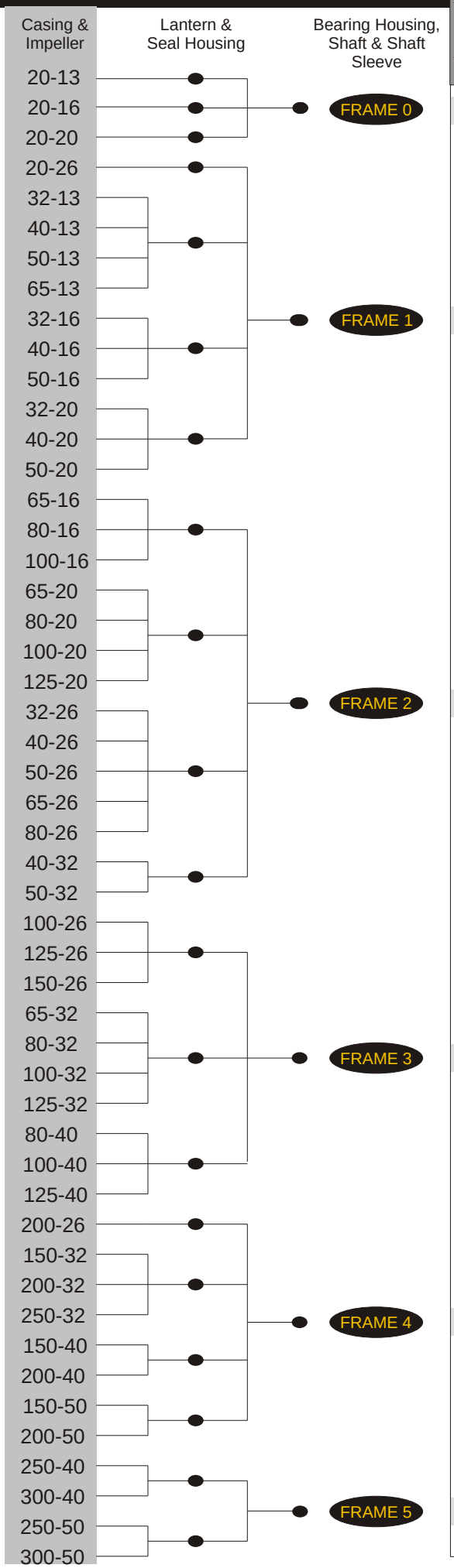
n=1450rpm



n=2900rpm

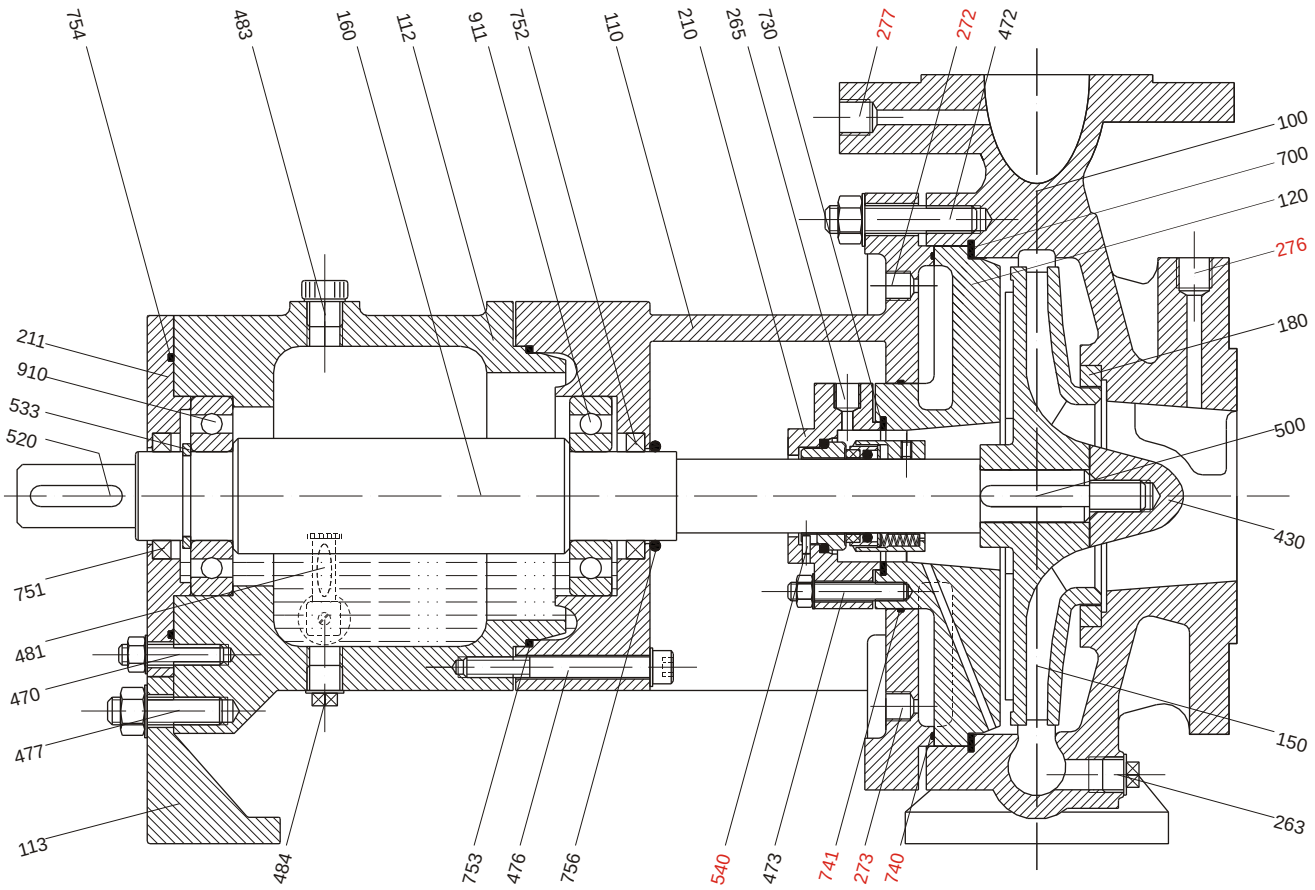


INTERCHANGEABILITY



Bearings				Shaft ø [mm]		
Standard Execution		Reinforced Execution /R		in Seal Housing		at Coupling
Pump End	Motor End	Pump End	Motor End	Solid Shaft	Sleeved Shaft	
6305 C3	6305 C3	NU 305	2x 7305 BG	24	28	22
6306 C3	6306 C3	NU 306	2x 7306 BG	28	33	24
6308C3	6308 C3	NU 308	2x 7308 BG	38	45	32
6309 C3	6309 C3	NU 309	2x 7309 BG	43	53	42
6411 C3	6411 C3	NU 410	2x 7310 BG	53	63	48
6413 C3	6313 C3	NU 411	2x 7311 BG	63	75	60

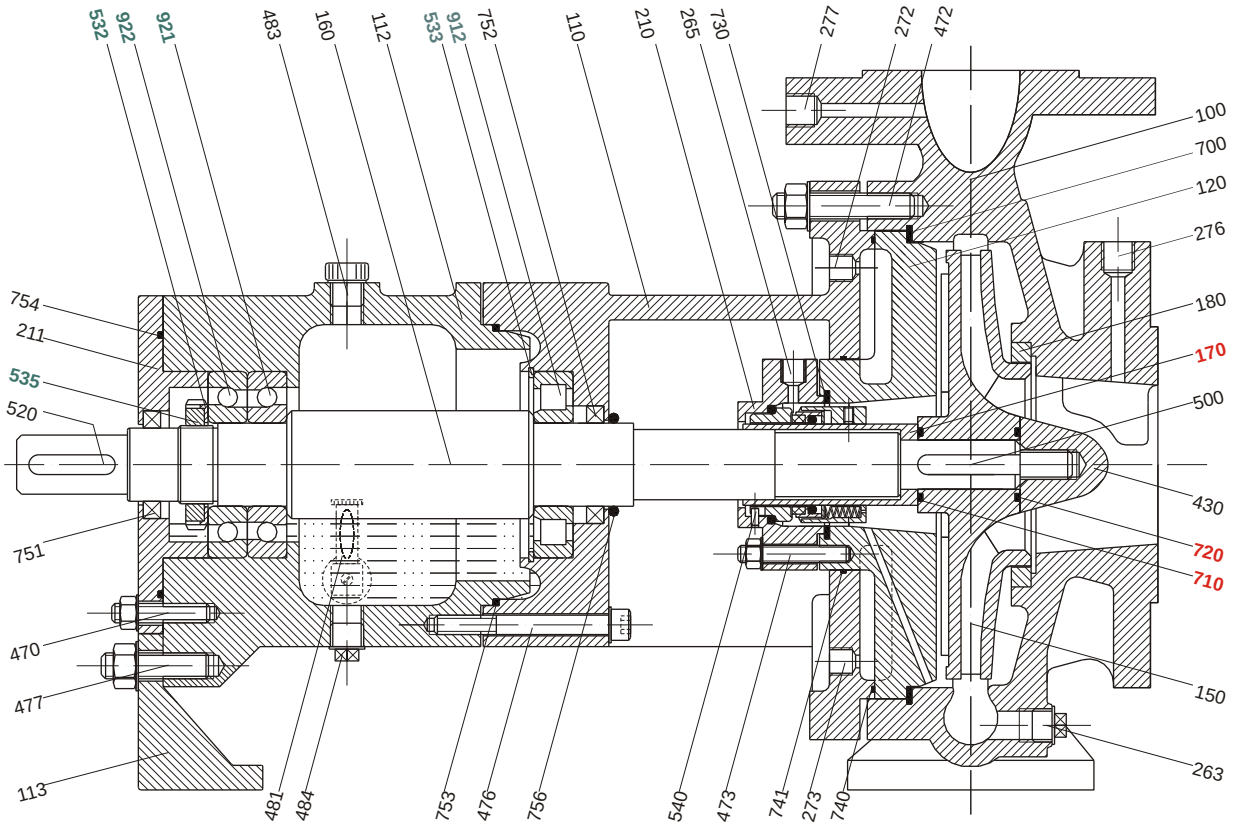
SECTIONS - Standard Execution



items highlighted in red are optional on request

POS	DESCRIPTION	POS	DESCRIPTION	POS	DESCRIPTION
100	CASING	277	CONNECTION	533	ANCHOR PIN CIRCLIP
110	LANTERN	430	IMPELLER NUT	540	PIN
112	BEARING HOUSING	470	SCREW	700	CASING GASKET
120	SEAL HOUSING	472	SCREW	730	GASKET
150	IMPELLER	473	SCREW	740	GASKET
160	SHAFT	475	SCREW	741	GASKET
180	WEAR RING	476	SCREW	751	LIP SEAL
210	MECHANICAL SEAL FLANGE	477	SCREW	752	LIP SEAL
211	BEARING COVER	481	CONSTANT LEVEL OILIER	753	GASKET
263	CASING DRAIN	483	FILLING OIL PLUG	754	GASKET
265	FLUSHING	484	OIL DRAIN	756	SPLASH GUARD
272	DISCHARGE CONNECTION	500	IMPELLER KEY	910	BALL BEARING
273	CONNECTION	520	COUPLING KEY	911	BALL BEARING
276	SUCTION CONNECTION				

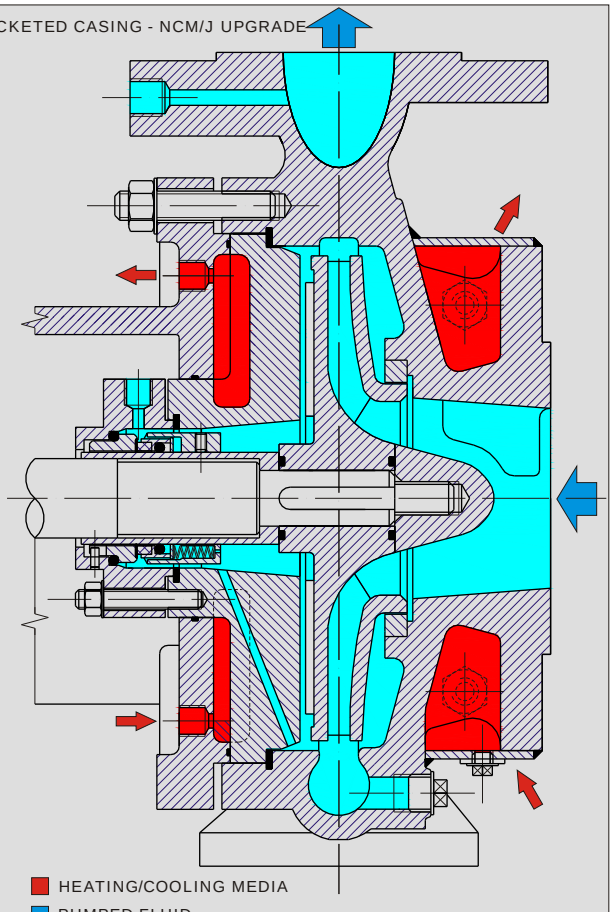
SECTIONS - Upgrades



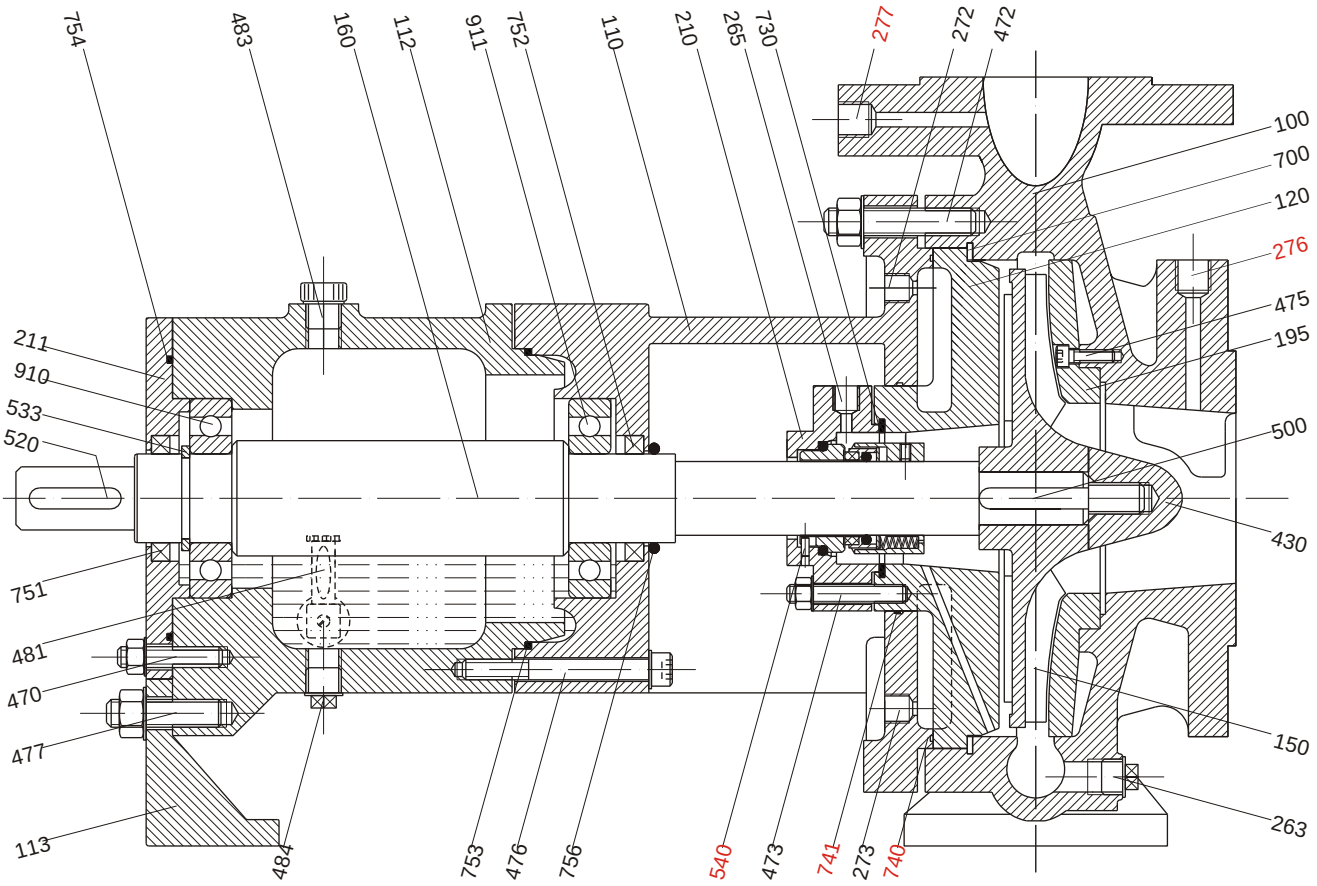
REINFORCED EXECUTION - NCM/R distinctive items indicated in green
SLEEVED SHAFT OPTION - distinctive items indicated in red

POS	DESCRIPTION	POS	DESCRIPTION
100	CASING	481	CONSTANT LEVEL OILIER
110	LANTERN	483	FILLING OIL PLUG
112	BEARING HOUSING	484	OIL DRAIN
120	SEAL HOUSING	500	IMPELLER KEY
150	IMPELLER	520	COUPLING KEY
160	SHAFT	532	WASHER
170	SHAFT SLEEVE	533	ANCHOR PIN CIRCLIP
180	WEAR RING	535	THREADED RING
210	MECHANICAL SEAL FLANGE	540	PIN
211	BEARING COVER	700	CASING GASKET
263	CASING DRAIN	710	GASKET
265	FLUSHING	720	GASKET
272	DISCHARGE CONNECTION	730	GASKET
273	CONNECTION	740	GASKET
276	SUCTION CONNECTION	741	GASKET
277	CONNECTION	751	LIP SEAL
430	IMPELLER NUT	752	LIP SEAL
470	SCREW	753	GASKET
472	SCREW	754	GASKET
473	SCREW	756	SPLASH GUARD
475	SCREW	912	ROLLER BEARING
476	SCREW	921	ANGULAR CONTACT THRUST BEARING
477	SCREW	922	ANGULAR CONTACT THRUST BEARING

JACKETED CASING - NCM/J UPGRADE



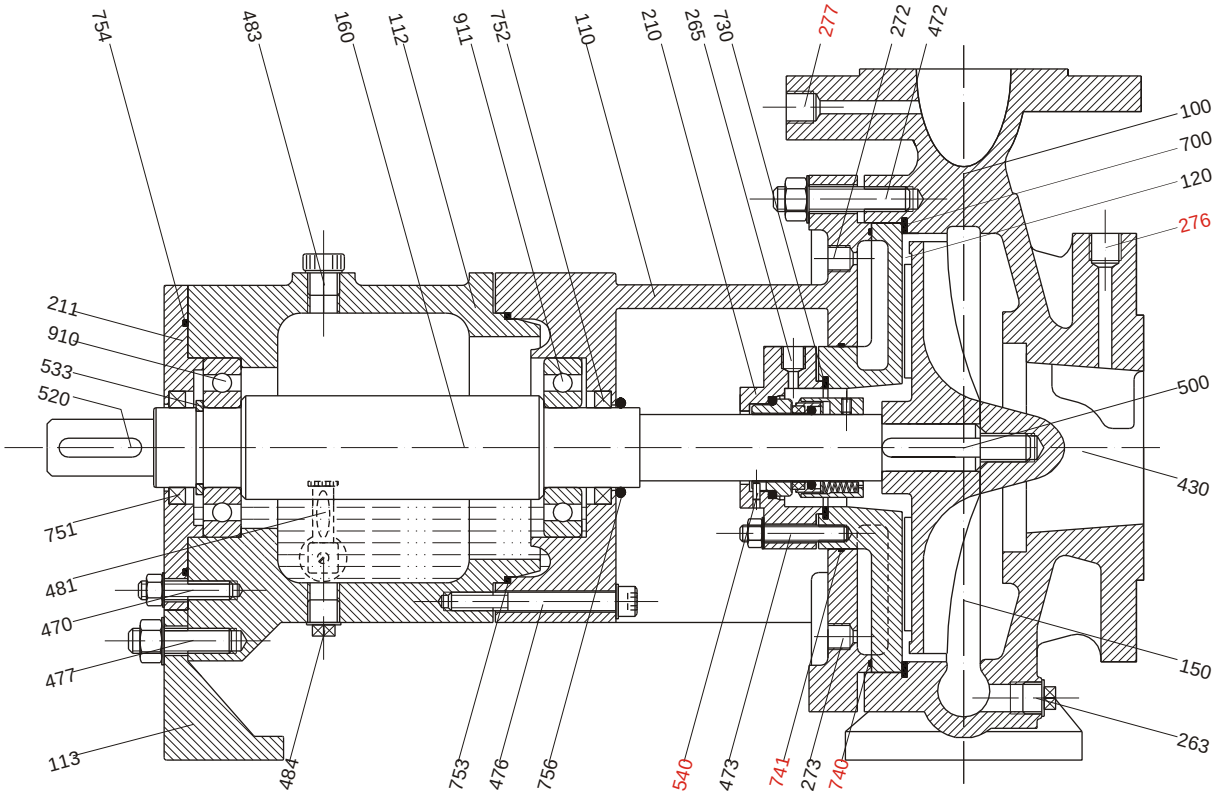
SECTIONS - open impeller (SCM Line)



Open impeller is suitable to convey liquids containing solid suspensions. Accurate construction with wear plate allows great efficiency and low NPSH values.

POS	DESCRIPTION	POS	DESCRIPTION	POS	DESCRIPTION
100	CASING	277	CONNECTION	533	ANCHOR PIN CIRCLIP
110	LANTERN	430	IMPELLER NUT	540	PIN
112	BEARING HOUSING	470	SCREW	700	CASING GASKET
120	SEAL HOUSING	472	SCREW	730	GASKET
150	IMPELLER	473	SCREW	740	GASKET
160	SHAFT	475	SCREW	741	GASKET
195	WEAR PLATE	476	SCREW	751	LIP SEAL
210	MECHANICAL SEAL FLANGE	477	SCREW	752	LIP SEAL
211	BEARING COVER	481	CONSTANT LEVEL OILIER	753	GASKET
263	CASING DRAIN	483	FILLING OIL PLUG	754	GASKET
265	FLUSHING	484	OIL DRAIN	756	SPLASH GUARD
272	DISCHARGE CONNECTION	500	IMPELLER KEY	910	BALL BEARING
273	CONNECTION	520	COUPLING KEY	911	BALL BEARING
276	SUCTION CONNECTION				

SECTIONS - vortex impeller (SCMX Line)



The SCMX recessed impeller pump provides low-shear pumping of friable solids and trouble-free pumping of stringy or fibrous slurries. It combines the state-of-the-art hydraulics of the SCM with the vortex action of a recessed impeller.
The SCMX has a wide clearance at the front of the semi-open impeller allowing passage of larger particles. Solids are drawn into the vortex of swirling liquid and discharged by centrifugal force through the open area in front of the impeller with little contact, minimizing particle degradation. Furthermore, the air and gas handling capability of the pump is improved.

APPLICATIONS

- Light slurries
- Corrosive/erosive services
- Large diameter solids
- Waste streams
- Shear-sensitive fluids
- Friable solids
- Fibrous materials

POS	DESCRIPTION	POS	DESCRIPTION	POS	DESCRIPTION
100	CASING	277	CONNECTION	533	ANCHOR PIN CIRCLIP
110	LANTERN	430	IMPELLER NUT	540	PIN
112	BEARING HOUSING	470	SCREW	700	CASING GASKET
120	SEAL HOUSING	472	SCREW	730	GASKET
150	IMPELLER	473	SCREW	740	GASKET
160	SHAFT	475	SCREW	741	GASKET
210	MECHANICAL SEAL FLANGE	476	SCREW	751	LIP SEAL
211	BEARING COVER	477	SCREW	752	LIP SEAL
263	CASING DRAIN	481	CONSTANT LEVEL OILIER	753	GASKET
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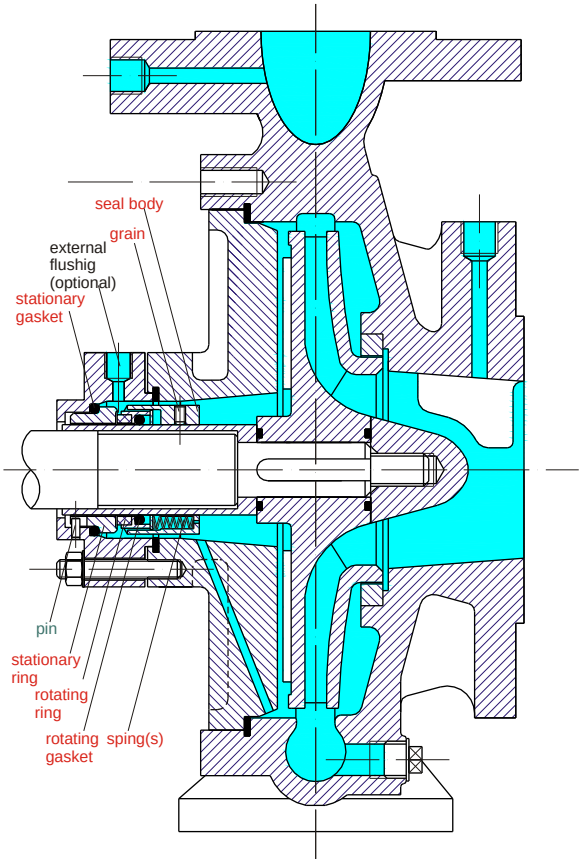
272	DISCHARGE CONNECTION	484	OIL DRAIN	756	SPLASH GUARD
273	CONNECTION	500	IMPELLER KEY	910	BALL BEARING
276	SUCTION CONNECTION	520	COUPLING KEY	911	BALL BEARING

MECHANICAL SEAL SINGLE ARRANGEMENTS

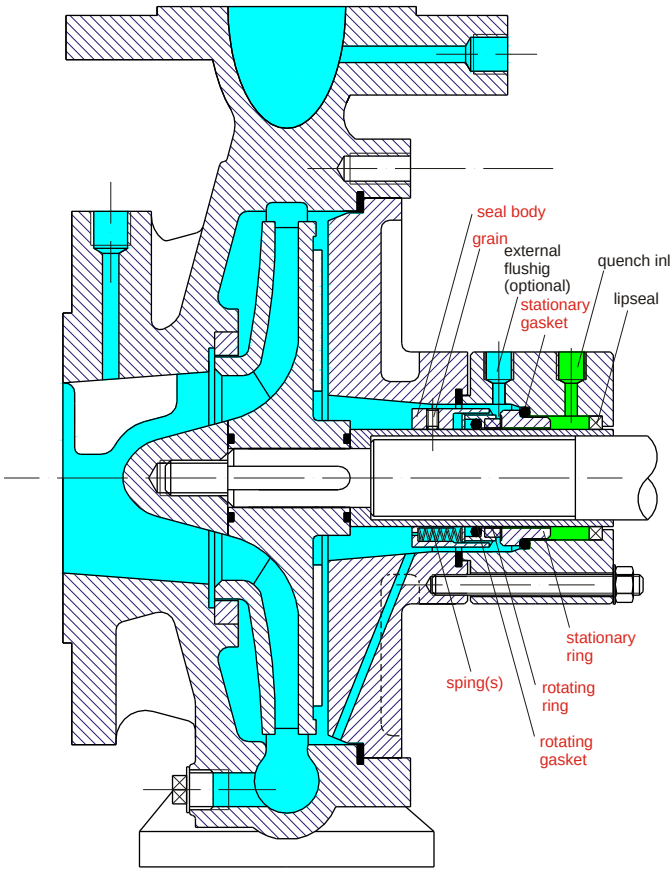
INNER SINGLE SEAL - s type

It is the most familiar layout. The medium is outside the seal and its pressure tends to keep faces closed. Additionally the centrifugal force tends to detain leakage and to pull away solid particles from sliding surfaces and springs. Mechanical seals with springs not in contact with liquid are available as option.



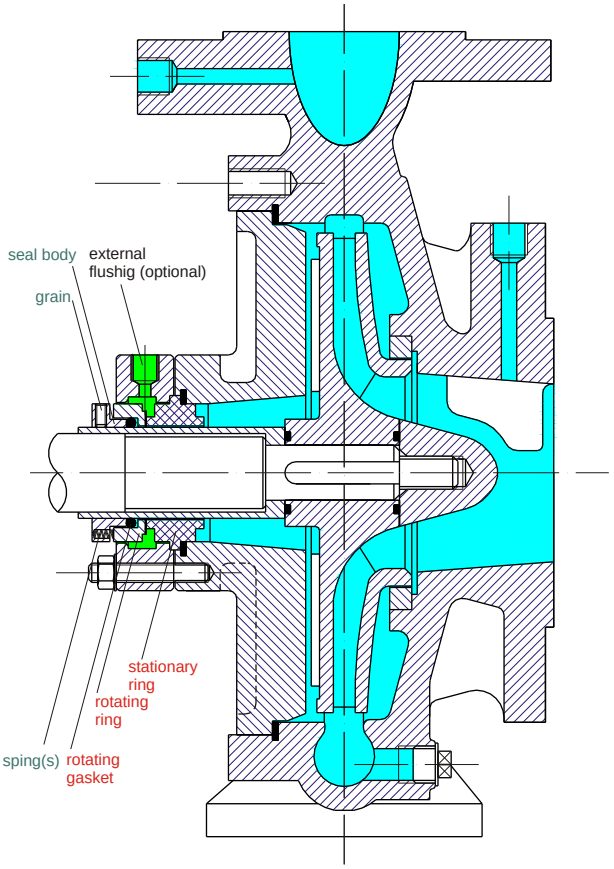
QUENCH - q type

The quench is recommendable when medium forms solid deposits or crystalizes when it comes in contact with the atmosphere or low temperature. Quench is normally applied conveying steam or clean liquid at a pressure not exceeding 1 bar. Quench is helpful to recover occasional leakages, or, in case of under vacuum, to avoid dry- running.



red items are in contact with pumped liquid
green items are not in contact with pumped liquid

- FLUSHING OR QUENCH
- PUMPED FLUID



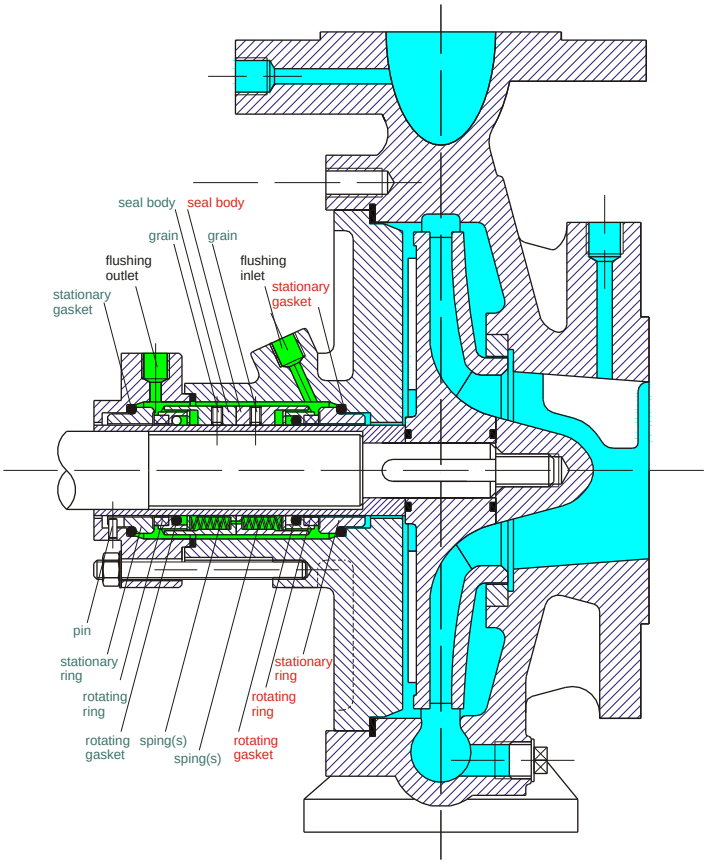
OUTER SINGLE SEAL - e type

The media is inside the seal. The outer seal is generally used to handle corrosive or toxic liquids. Springs and all the metallic parts are not in contact with the pumped fluid.

MECHANICAL SEAL DOUBLE ARRANGEMENTS

BACK TO BACK - d type

Double arrangement is used in presence of aggressive, abrasive, polluting, toxic media, etc. It is also recommendable when a neutral lubricant film is required between the sliding faces. To obtain this, a liquid is conveyed between the two seal at a higher pressure than the medium pumped. The flushing liquid has to compatible with the pumped fluid.

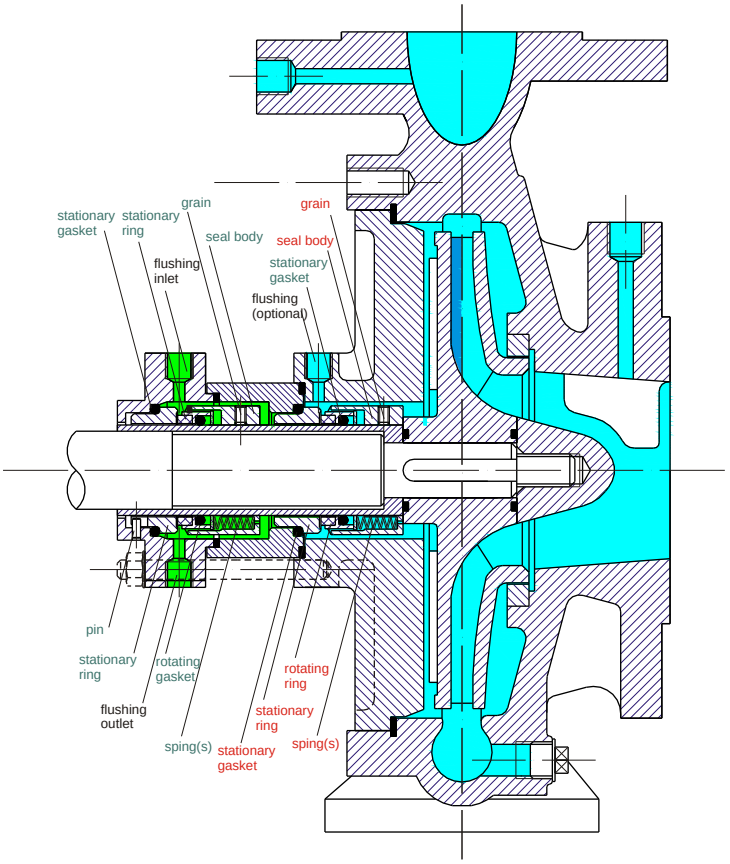


red items are in contact with pumped liquid
green items are not in contact with pumped liquid

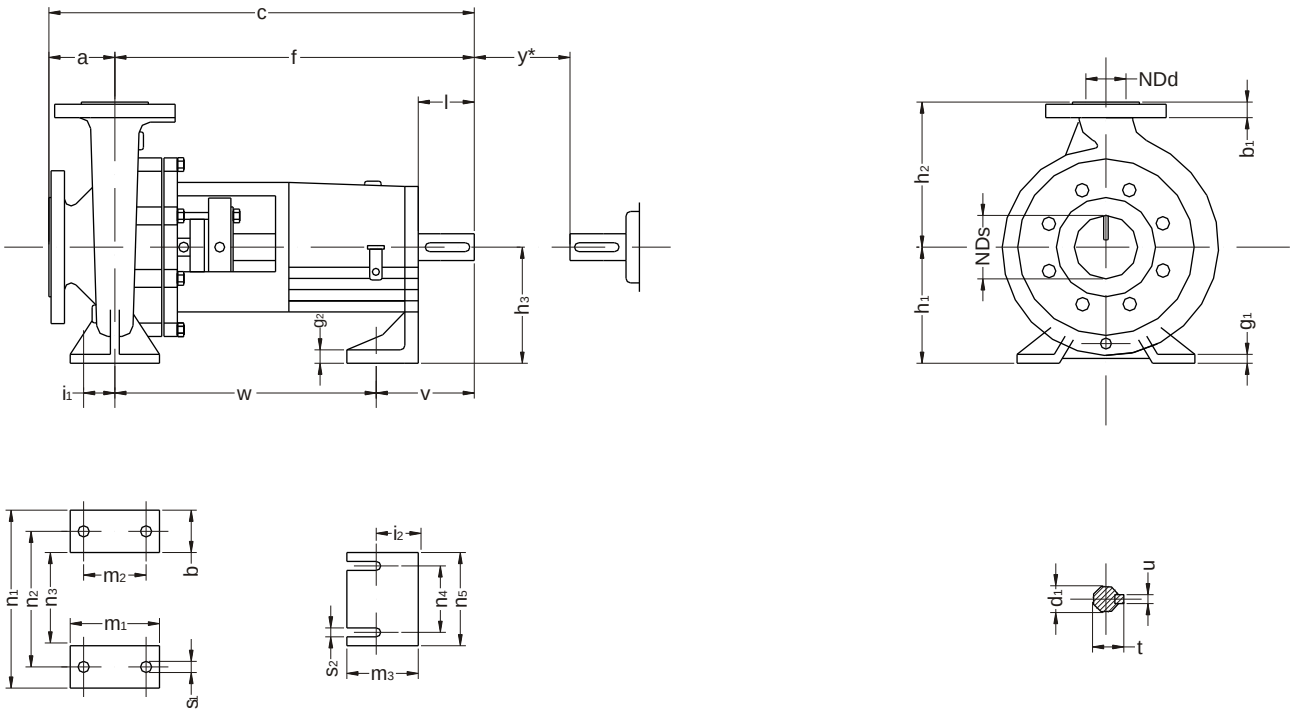
- FLUSHING OR QUENCH
- PUMPED FLUID

DOUBLE TANDEM SEAL - t type

The inner seal works like a single seal while the secondary seal is set up for safety to prevent leakages induced from a damage of the principal one.



DIMENSIONS



*only when coupling is provided with spacer

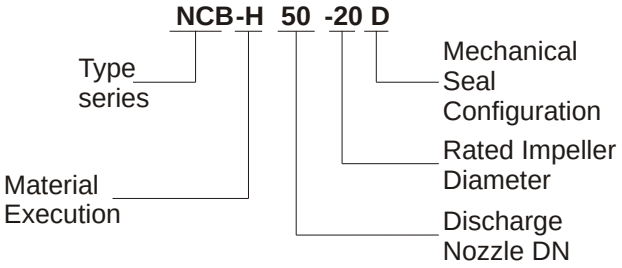
PUMP TYPE	B.E.P. (1450 rpm)		B.E.P. (2900 rpm)		flanges		dimensions [mm]																										shaft end				
	Q [m³/h]	H [m]	Q [m³/h]	H [m]	suction	discharge	f	a	c	h_1	h_2	h_3	n_1	b	n_5	m_1	m_2	m_3	g_1	g_2	n_2	n_4	s_1	s_2	w	v	i_1	i_2	d_{1k6}	l	t	u	y
20-13	3.5	5	7	20	25	20	315	60	375	90	120	90	160	35	140	60	40	45	12	8	90	90	12	12	195	80	25	26	22	48	2	5	100
20-16		8		32	32	20	315	60	375	112	140	112	160	35	140	60	40	45	12	8	90	90	12	12	195	80	25	26	22	48	23.5	5	100
20-20		12.5		50	32	20	315	60	375	132	160	132	220	35	140	60	32	45	12	8	90	90	12	12	195	80	25	26	22	48	23.5	5	100
20-26		20		80	32	20	388	60	448	160	180	160	265	50	160	60	40	45	14	8	140	110	14	14	285	100	35	28	24	50	26.9	8	100
32-13	6.3	5	12.5	20	50	32	385	80	465	112	140	112	190	50	160	100	70	45	12	8	140	110	14	14	285	100	35	28	24	50	26.9	8	100
32-16		8		32	50	32	385	80	465	132	160	132	240	50	160	100	70	45	14	8	190	110	14	14	285	100	35	28	24	50	26.9	8	100
32-20		12.5		50	50	32	385	80	465	160	180	160	240	50	160	100	70	45	14	8	190	110	14	14	285	100	35	28	24	50	26.9	8	100
32-26		20		80	50	32	500	100	600	180	225	180	320	65	160	125	95	47	16	8	260	110	14	14	370	130	47.5	30	32	80	35.3	10	100
40-13	12.5	5	25	20	65	40	385	80	465	112	140	112	190	50	160	100	70	45	14	8	190	110	14	14	285	100	35	28	24	50	26.9	8	100
40-16		8		32	65	40	385	80	465	132	160	132	240	50	160	100	70	45	14	8	242	110	14	14	285	100	35	28	24	50	26.9	8	100
40-20		12.5		50	65	40	385	100	485	160	180	160	265	50	160	100	70	45	14	8	250	110	14	14	285	100	35	28	24	50	26.9	8	100
40-26		20		80	65	40	500	100	600	180	225	180	320	65	160	125	95	47	16	8	280	110	14	14	370	130	47.5	30	32	80	35.3	10	100
40-32		32		32	65	40	500	125	625	200	250	200	345	65	160	125	95	47	18	8	212	110	14	14	370	130	47.5	30	32	80	35.3	10	100
50-13	25	5	50	20	80	50	385	100	485	112	140	112	190	50	160	100	70	45	14	8	212	110	14	14	285	100	35	28	24	50	26.9	8	100
50-16		8		32	80	50	385	100	485	160	180	160	265	50	160	100	70	45	14	8	250	110	14	14	285	100	35	28	24	50	26.9	8	100
50-20		12.5		50	80	50	385	100	485	160	200	160	265	50	160	100	70	45	14	8	280	110	14	14	285	100	35	28	24	50	26.9	8	100
50-26		20		80	80	50	500	125	625	180	225	180	320	65	160	125	95	47	16	8	212	110	14	14	370	130	47.5	30	32	80	35.3	10	100
50-32		32		125	80	50	500	125	625	225	280	225	345	65	160	125	95	47	18	8	250	110	14	14	370	130	47.5	30	32	80	35.3	10	100
65-16	50	8	100	32	100	65	500	100	600	160	200	160	280	65	160	125	95	47	15	8	280	110	14	14	370	130	47.5	30	32	80	35.3	10	100
65-20		12.5		50	100	65	500	100	600	180	225	180	320	65	160	125	95	47	16	8	212	110	14	14	370	130	47.5	30	32	80	35.3	10	140
65-26		20		80	100	65	500	125	625	200	250	200	360	80	160	160	120	47	18	8	250	110	18	14	370	160	60	30	32	80	35.3	10	140
65-32		32		125	100	65	530	125	655	225	280	225	400	80	160	160	120	52	18	12	280	110	18	14	370	130	60	33	42	110	45.1	12	140
80-16	80	8	160	32	125	80	500	125	625	180	225	180	320	65	160	125	95	47	15	8	315	110	18	14	370	130	47.5	30	32	80	35.3	10	140
80-20		12.5		50	125	80	500	125	625	180	250	180	345	65	160	125	95	47	16	8	250	110	18	14	370	130	47.5	30	32	80	35.3	10	140
80-26		20		80	125	80	500	125	625	225	280	225	400	80	160	160	120	47	18	8	280	110	18	14	370	160	60	30	32	80	35.3	10	140
80-32		32		125	125	80	530	125	655	250	315	250	400	80	160	160	120	52	18	12	315	110	18	14	370	160	60	33	42	110	45.1	12	140
80-40		50	-	-	125	80	530	125	655	280	355	280	435	80	160	160	120	52	20	12	315	110	18	14	370	130	60	33	42	110	45.1	12	140
100-20	125	12.5	250	50	125	100	500	125	625	200	280	200	360	80	160	160	120	47	16	8	355	110	18	14	370	160	60	30	32	80	35.3	10	140
100-26		20		80	125	100	530	140	670	225	280	225	400	80	160	160	120	52	18	12	280	110	18	14	370	160	60	33	42	110	45.1	12	140
100-32		32		125	125	100	530	140	670	250	315	250	400	80	160	160	120	52	18	12	315	110	18	14	370	160	60	33	42	110	45.1	12	140
100-40		50	-	-	125	100	530	140	670	280	355	280	500	100	160	200	150	52	20	12	315	110	23	14	370	160	75	33	42	110	45.1	12	140
125-26	200	20	-	-	150	125	530	140	670	250	355	250	400	80	160	160	120	52	18	12	400	110	18	14	370	160	60	33	42	110	45.1	12	140
125-32		32		-	150	125	530	140	670	280	355	280	500	100	160	200	150	52	20	12	315	140	23	18	500	160	75	33	42	110	45.1	12	140
125-40		50		-	150	125	530	140	670	315	400	315	500	100	160	200	150	52	20	12	400	140	23	18	500	160	75	33	42	110	45.1	12	140
150-26	350	20	-	-	200	250	530	160	690	280	375	280	500	100	160	200	150	52	20	12	400	140	23	18	500	170	75	33	42	110	45.1	12	180
150-32		32		-	200	250	670	160	830	315	400	315	550	100	200	200	150	60	22	12	400	140	23	18	500	170	75	39	48	110	51.5	14	180
150-40		50		-	200	250	670	160	830	315	450	315	550	100	200	200	150	60	22	12	450	140	23	18	500	170	75	39	48	110	51.5	14	180
150-50		80		-	200	250	670	180	850	375	500	375	550	100	200	200	150	60	22	12	450	140	23	18	500	170	75	39	48	110	51.5	14	180
200-26	600	20	-	-	250	200	670	180	850	355	425	355	550	100	200	200	150	60	22	12	450	140	23	18	500	170	75	39	48	110	51.5	14	180
200-32		32		-	250	200	670	200	870	355	450	355	550	100	200	200	150	60	22	12	450	140	23	18	500	170	75	39	48	110	51.5	14	180
200-40		50		-	250	200	670	180	850	355	500	355	550	100	200	200	150	60	22	12	450	140	23	18	500	170	75	39	48	110	51.5	14	180
200-50		80		-	250	200	670	200	870	425	560	425	660	100	200	200	150	60	22	12	560	140	23	18	500	170	75	39	48	110	51.5	14	180
250-32	1100	32	-	-	300	250	670	250	920	400	560	400	690	100	200	260	190	60	26	12	560	140	28	18	500	170	95	39	48	110	51.5	14	180
250-40		50		-	300	250	720	200	920	425	600	425	800	130	200	260	190	60	26	12	670	140	28	18	515	205	95	39	60	140	64.2	18	180
250-50		80		-	300	250	720	200	920	475	670	475	800	130	200	260	190	60	26	12	670	140	28	18	515	205	95	39	60	140	64.2	18	180

CLOSED COUPLED NCB LINE

With pump ends conforming to ISO 2858 dimensional and technical standards and to ISO 5199 design criteria, the NCB provides a compact, space-saving arrangement ideal for industrial processes or installations when space is at a premium. NCB pumps are fitted with standard, readily available electric motors so the user can choose an enclosure to suit the application.

Heavy-Duty Casing with integral foot and multi-ribbed discharge flange provides superior resistance to pipe loads.

DESIGNATION



OPERATING PARAMETERS

- Flows to 300 m^3/h (1320 US gpm)
- Heads to 140 m (460 ft)
- Pressures to 25 bar (365 psi)
- Temperatures from -80°C (-110°F) to 350°C (660°F)
- Discharge size from 20 mm (¾ in) to 300mm (12 in)

APPLICATIONS

- Acid transfer
- Caustic and chlor-alkali
- Man made fibers
- Polymers
- Slurry processing
- Solvents
- Volatile organic compounds
- Waste processing

STANDARDS COMPLIANCE

The NCM are CE marked and compliant with applicable European directives, such as ATEX.

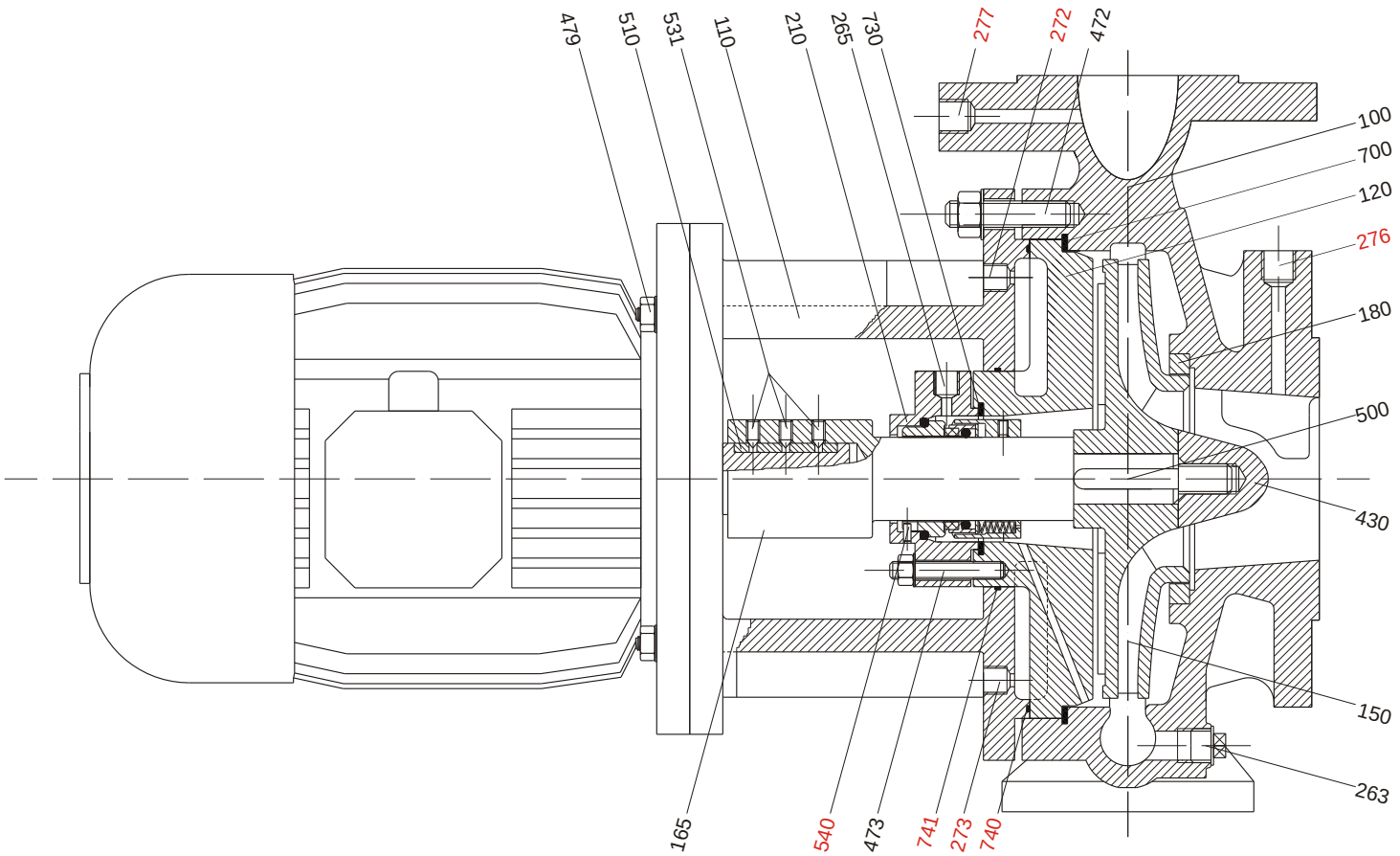
SCB LINE

Close coupled open impeller pump

SCBX LINE

Close coupled vortex impeller pump

SECTION - CLOSED COUPLED NCB LINE



ITEM	DESCRIPTION
100	casing
110	lantern
120	seal housing
150	impeller
165	conter-shaft
180	wear ring
210	mechanical seal flange
263	casing drain
265	flushing
272	connection
273	connection
276	connection
277	connection
430	impeller nut
470	screw
472	screw
473	screw
479	screw
500	impeller key
510	key
540	pin
700	casing gasket
710	gasket
730	gasket
741	gasket

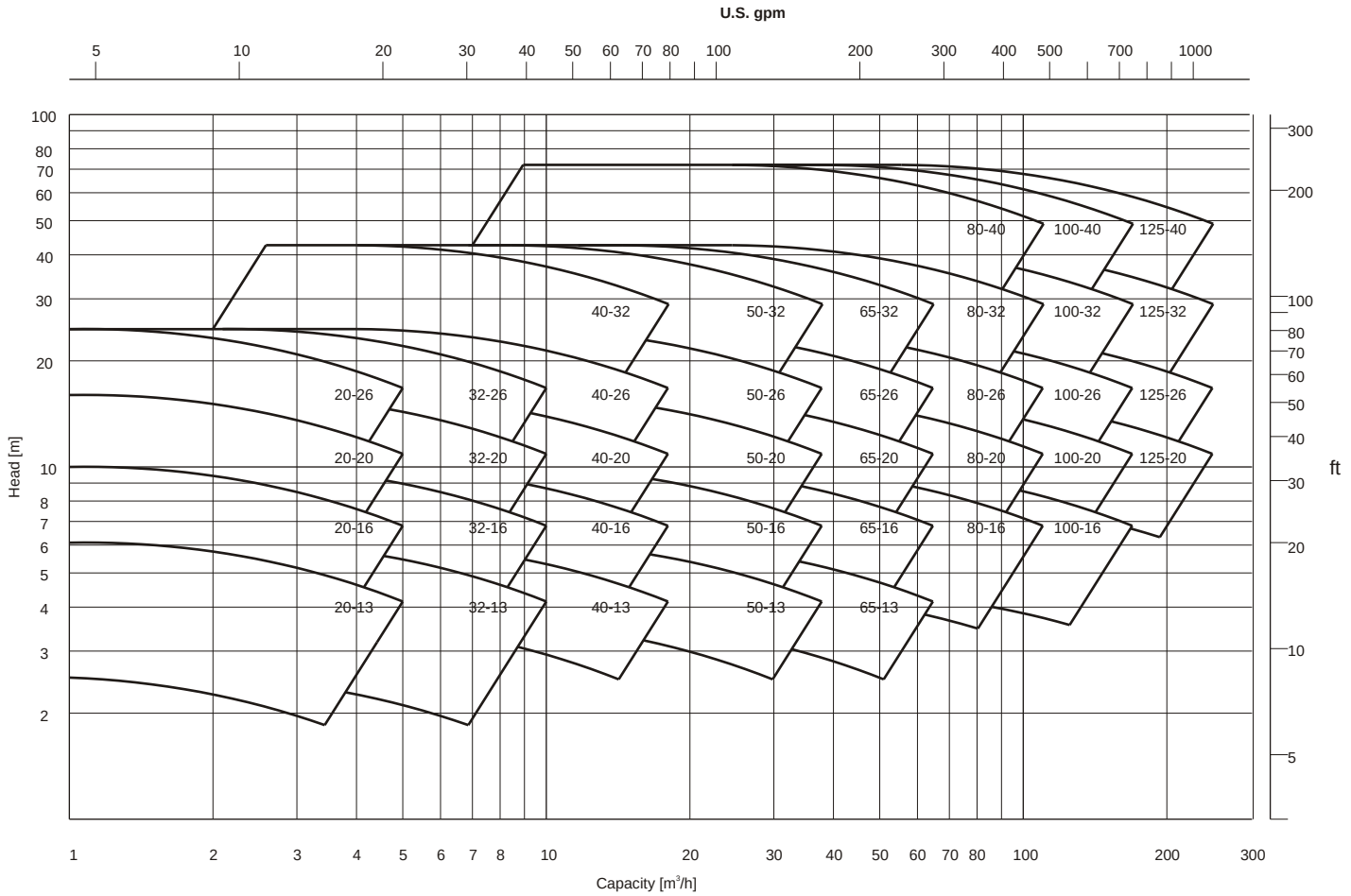
Driver torque is trasmitted to the impeller through a counter-shaft.
As standard conter-shaft is available in AISI 316 stainless steel.
To meet application requirements shaft can be provided with shaft sleeve. Shaft sleeve as well as shaft are available in a wide range of corrosion resistant alloys.

SEAL HOUSING

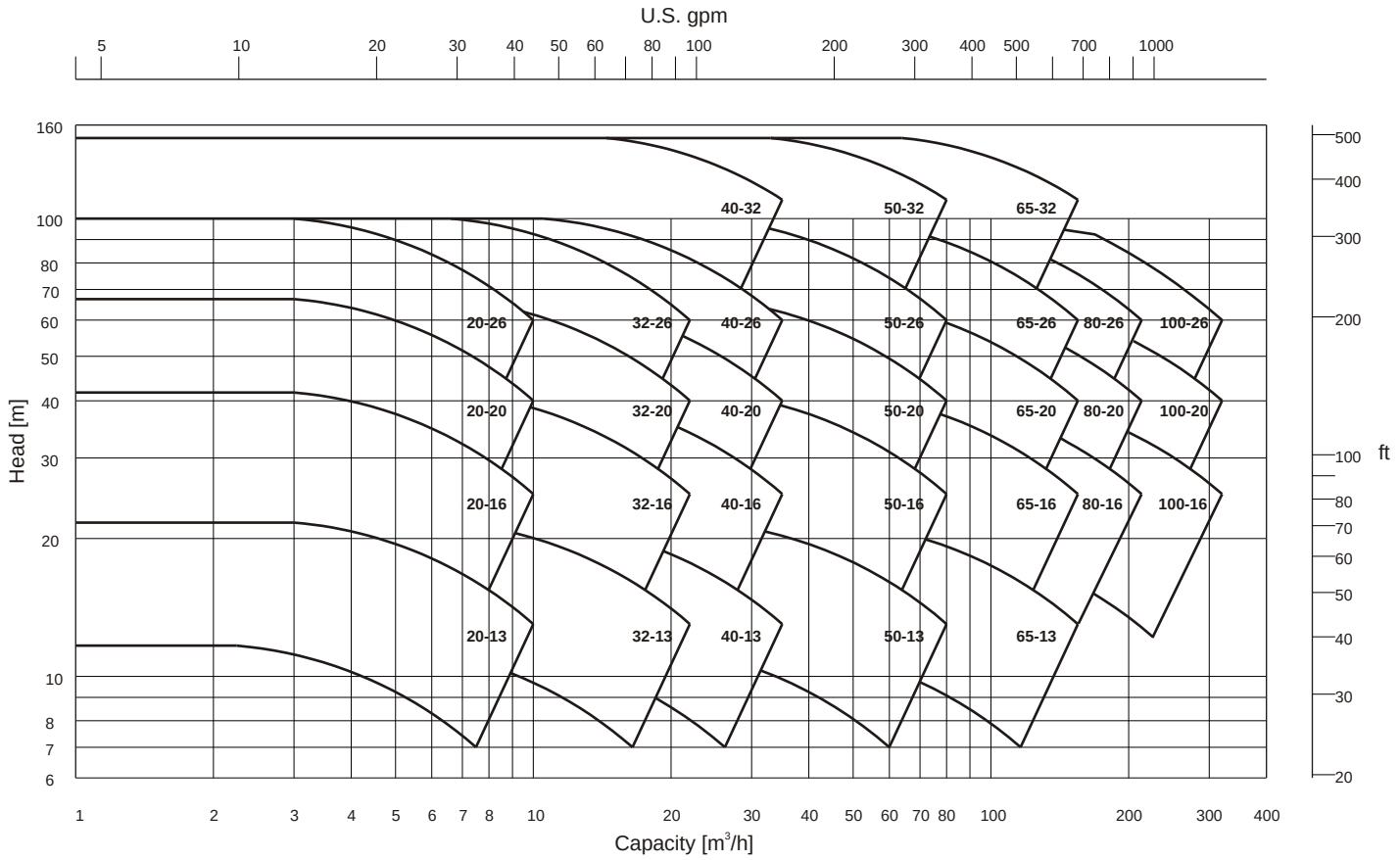
Seal chamber accommodates many seal types including single, double and tandem arrangements. The double and tandem seals are available for more severe and environmentally sensitive applications.
All seals can be backed up by a range of flush plans and auxiliary systems.
Conventional and double cartridge seals can be fitted in accordance with the manufacturer's standard or with those designed to meet the latest ISO or DIN standards.
External seals and gland packing are optional, as is the seal housing jacket which controls the seal environment.

COVERAGE CHART - closed impeller

n=1450rpm



n=2900rpm



VERTICAL NMV LINE

Centrifugal vertical single-stage pumps, directly derived from our series NCM (design according to ISO2858). Maximum length of shaft is 5m. Standardconstruction for rotational velocities up to 2900 rpm. The discharge pipe is always separated from the support one. Radial bearings are normally lubricated by pumped liquid, if it is completely free of suspended abrasive particles. Either a packing gland or a mechanical seal can be assembled on the shaft whenever dealing with special liquids or high pressures. In these cases seals are flushed with the handled liquid and forced lubrication is designed for radial bearings. If pumped liquid is slightly abrasive radial bearings can be lubricated through clear fluids from an external source.

CONSTRUCTION

Independent thrust bearing, sleeve bearings lubricated by pumped liquid, lateral discharge column.
Mechanical seal is generally not required.
Maximum shaft length 5000mm.

SMV Line

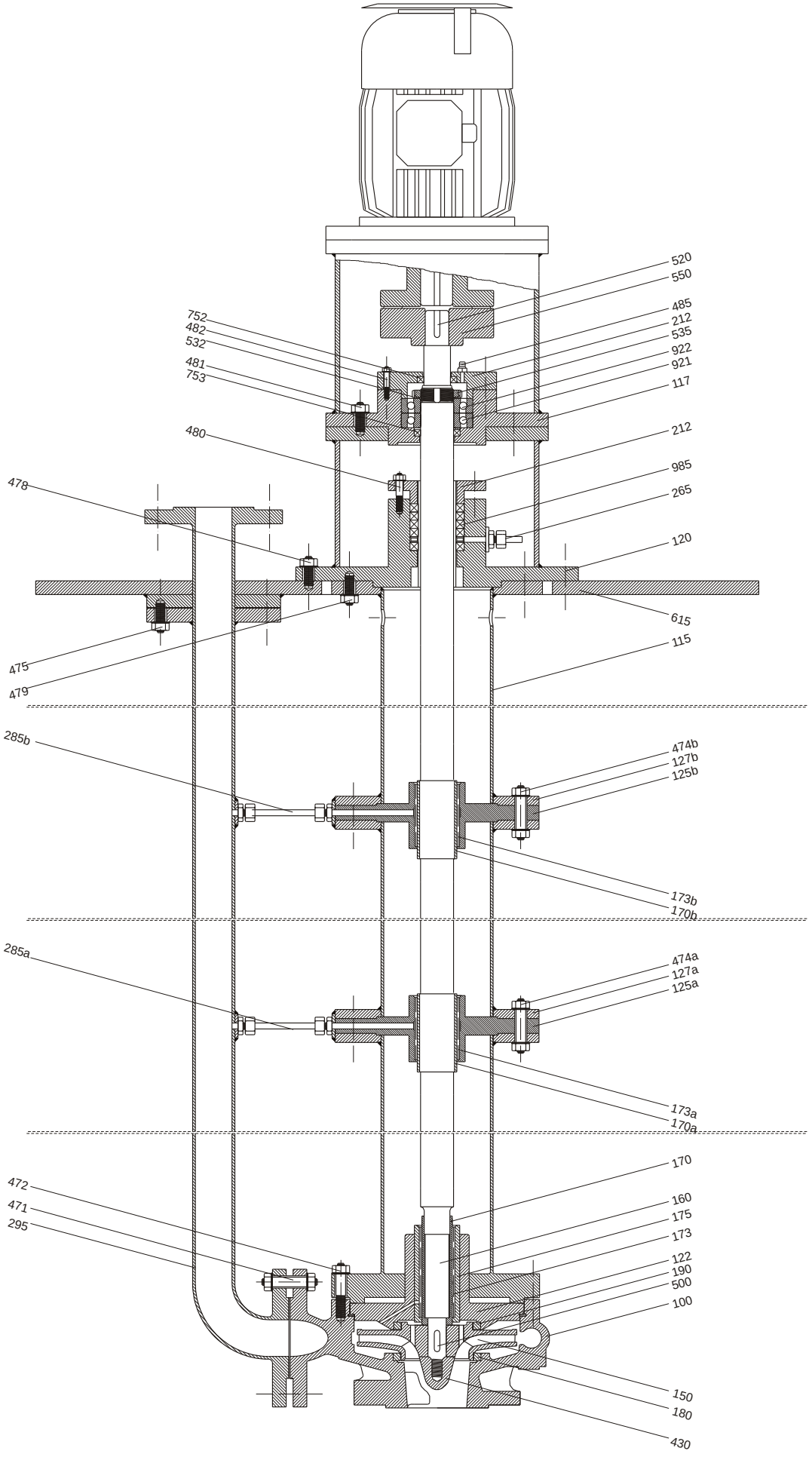
Open impeller suitable for liquids containing solid suspensions. Bearings are positioned into the motor support and they are not in contact with pumped liquid.
Shaft is designed for maximum length up to 1500mm at 1450rpm and up to 1200mm at 2900rpm.

SUPPORTING SCHEME

axis length [m]	top thrust ball bearing	bottom bushing	intermediate bushing	
			n O 1450 rpm	n up to 2900 rpm
1	1	1	0	0
1.5	1	1	0	1
2	1	1	1	1
2.5	1	1	1	2
3	1	1	1	2
3.5	1	1	2	3
4	1	1	2	3
4.5	1	1	2	-
5	1	1	3	-

SECTION - NMV LINE

ITEM	DESCRIPTION
100	casing
110	lantern
115	support pipe
117	bearing housing
120	stuffing box
122	cover
125	bearing housing
127	intermediate support
150	impeller nut
160	shaft
170	shaft sleeve
173	sleeve
175	end support
180	wear ring
190	wear ring
212	packing gland
212	bearing cover
265	flushing
285	lubrication pipes
285	delivery pipe
430	impeller nut
471	screw
472	screw
474	screw
475	screw
478	screw
479	screw
480	screw
481	screw
482	screw
485	greaser
500	impeller key
520	coupling key
532	washer
535	threaded ring
550	flexible coupling
615	base plate
752	lip seal
753	lip seal
921	angular contact thrust bearing
922	angular contact thrust bearing
985	packing seal

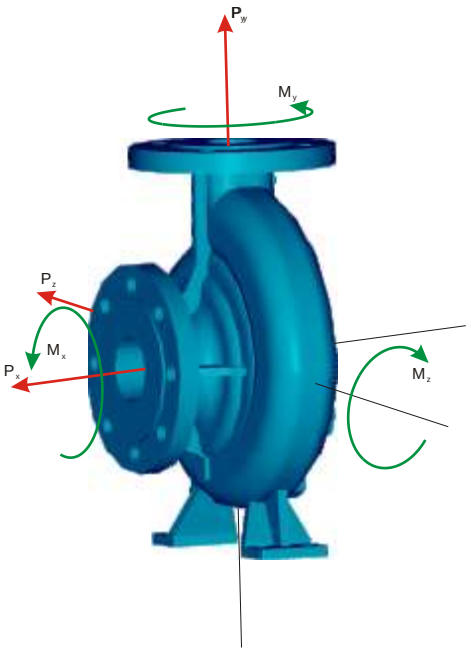


ALLOWABLE FORCES & MOMENTS

Forces and moments acting on the pump flanges due to pipe loads may induce misalignment of pump and driver shafts, deformation and over stressing of pump casing, or over stressing of the fixing bolts between pump and baseplate.
Following table value are referred to steel construction, for different materials than steel the corrective factor is given by:

$$K = \frac{E_m(T)}{200}$$

where $E_m(T)$ is Young modulus of the material in GPa at the considered temperature



pump type	forces [N]			moments [Nm]		
	P_x	P_y	P_z	M_x	M_y	M_z
32-13 32-16 32-20 32-26	920	1150	750	620	420	320
40-13 40-16 40-20 40-26 40-32	1140	1450	920	750	500	380
50-13 50-16 50-20 50-26 50-32	1420	1800	1150	820	550	420
65-13 65-16 65-20 65-26 65-32	1860	2350	1500	1000	680	500
80-16 80-20 80-26 80-32	2300	2860	1850	1180	780	600
100-20 100-26 100-32 100-40	2850	3600	2320	1480	1000	740
125-26 125-32 125-40	3580	4450	2920	1700	1150	860

IDROCHEMICAL

CENTRIFUGAL PUMPS AND MIXERS

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