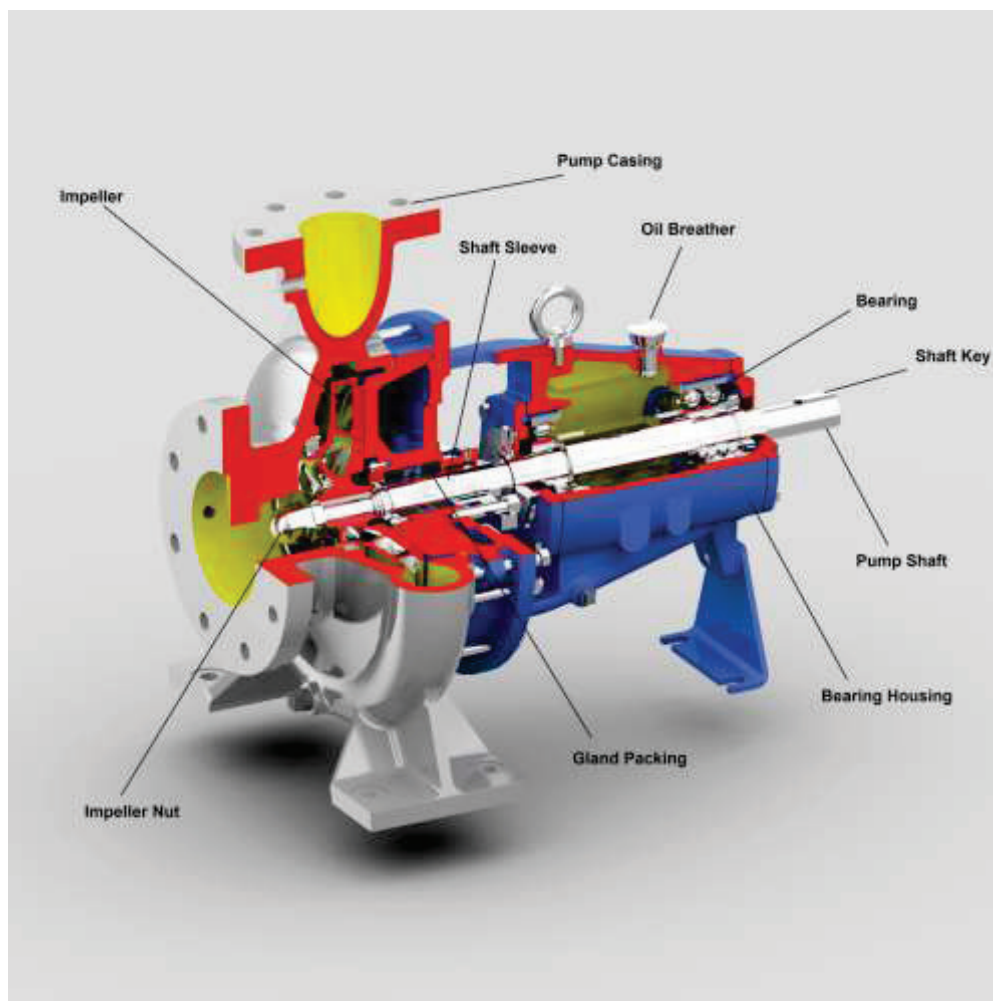




END SUCTION PUMPS
TYPE - CNP+





PERFORMANCE RANGE:

Discharge capacity (Q)	:	Up to 500 m ³ /hr (at 1450 rpm)
Delivery head (H)	:	Up to 150 m
Available nominal speeds (n)	:	2900, 1450, 980 rpm at 50 Hz and 3500, 1750, 1150 rpm at 60 Hz
Max. operating pressure (P)	:	16 bar (Suction pressure 5 bar)
Temperature range (t)	:	-50 °C up to +350 °C
Pump Sizes (DN)	:	25 mm to 150 mm

APPLICATIONS:

- CNP+ pumps are used for handling various types of chemical liquids from various process industries.
- CNP+ pump is End suction centrifugal Process pump.
- Pump dimensions are fully confirming to ISO 2858/DIN EN 22858 and technically meeting requirements of ISO 5199

COMPONENTS:

Casing:

The casing has axial suction and top centre line delivery with self venting design. Smooth hydraulic passage ensures high efficiency. Delivery flanges and supporting feet are integrally cast with casting

Impeller:

The impellers are of enclosed type. Hydraulic balancing of impellers is achieved by balancing holes or back vanes depending upon magnitude of axial thrust. The impellers are statically and dynamically balanced.

Shaft:

Shaft is supported between antifriction ball bearings. The shaft is critically machined and ground to maintain geometrical accuracies.

Wear Rings:

Replaceable wear rings are provided on Casing and Impeller.

Impeller Nut:

Impeller nut is positively locked on shaft with the help of Helicoil insert.

Bearing Housing:

Bearing housing supports shaft. Antifriction Ball and Roller Bearings are used to support the shaft in bearing housing

Direction of Rotation:

Clockwise when viewed from driving end.

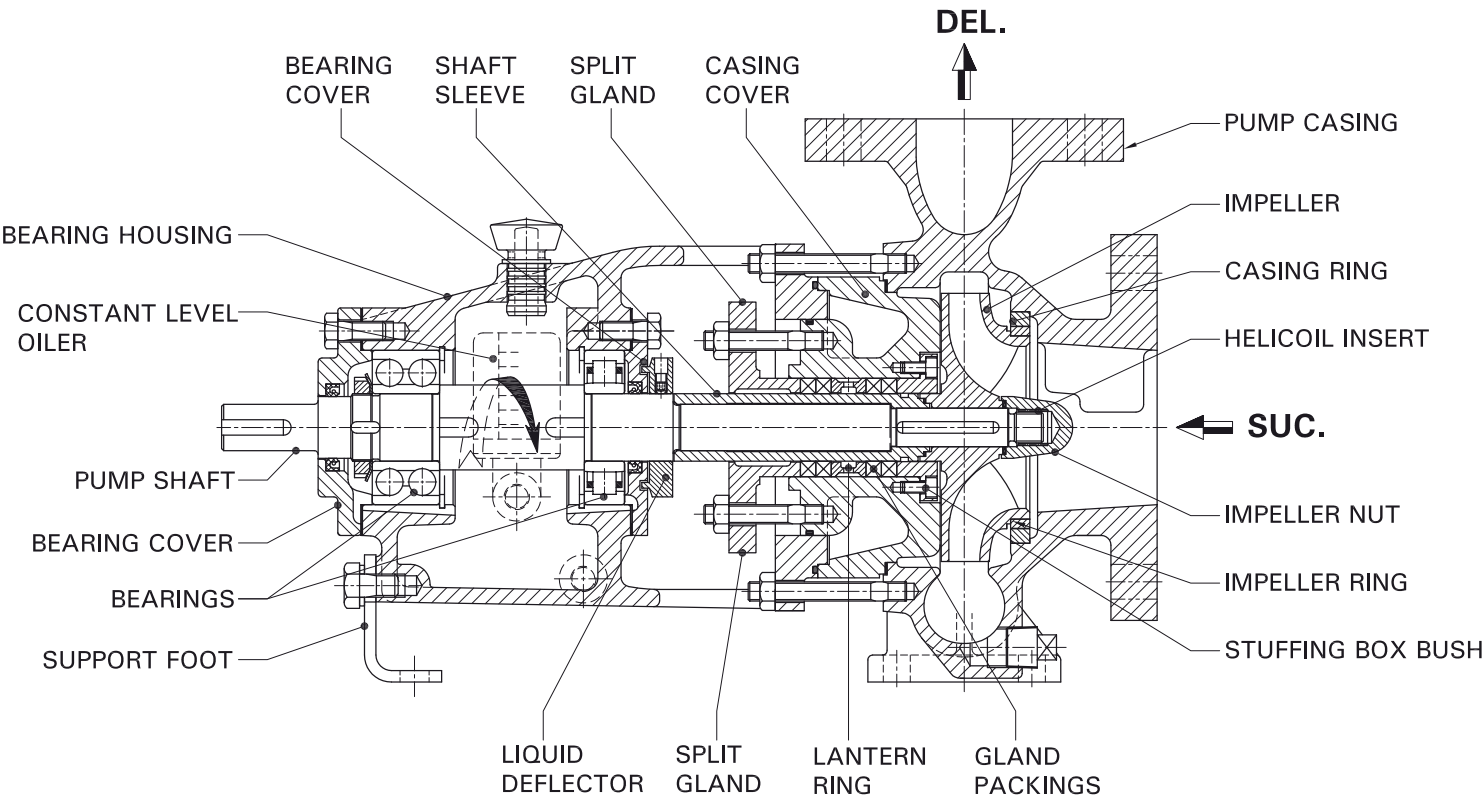
Drive:

Pumps can be driven by an electric motor or an engine.

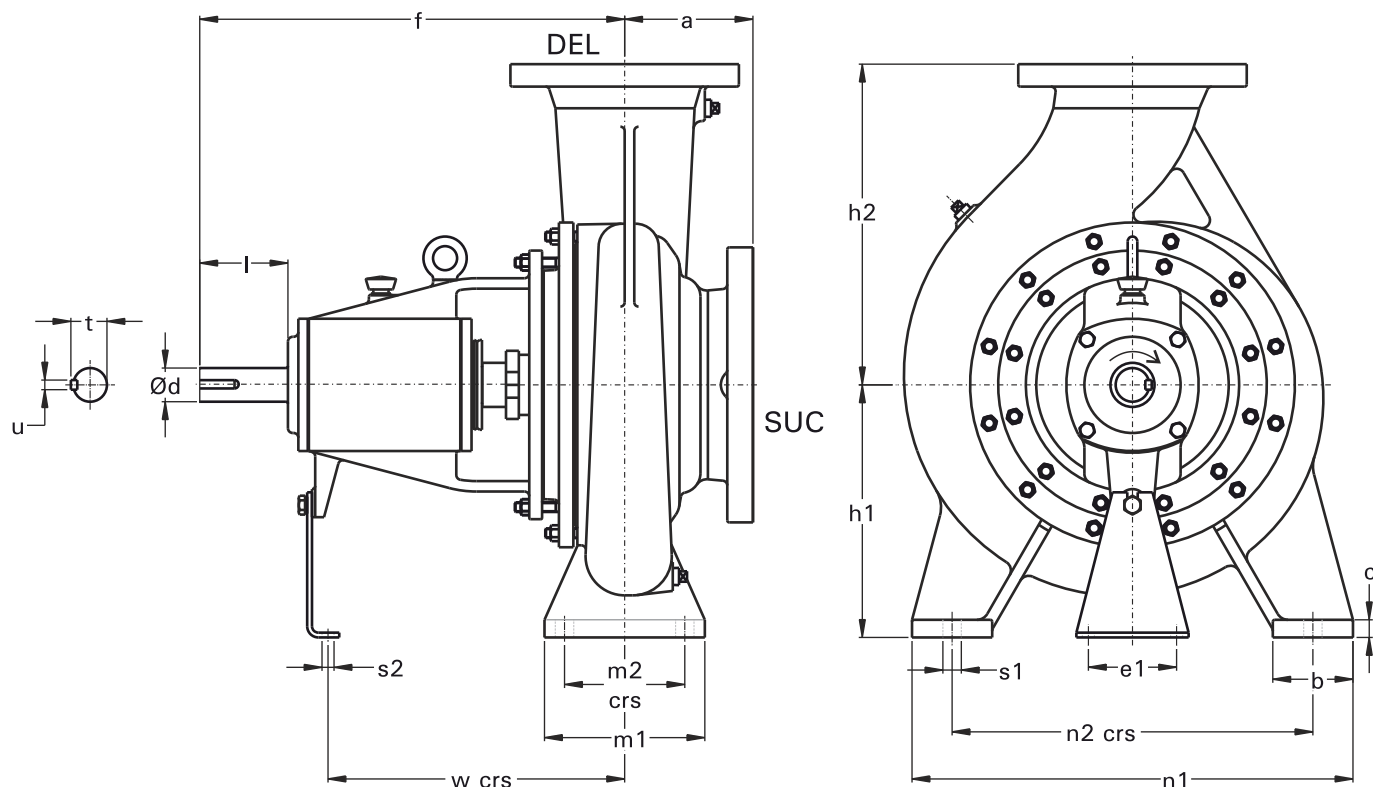
CONSTRUCTIONAL FEATURES:

- Design is in compliance to ISO 5199.
- Wide range of hydraulics to meet the customer's requirements
- Back pullout design for ease and quicker maintenance.
- Enclosed impeller having smooth hydraulic passages for better efficiency.
- Modular design concept for maximum interchangeability of components among different pump models.
- Heavy duty construction for continuous operation.
- Available in variety of material of constructions for the liquid to be pumped.
- Availability of cooling jackets to cool stuffing box for liquids having temperature more than 105°C.
- Angular contact ball bearings to take Axial thrust.
- Roller bearing to take care Radial load.
- Positive locking of impeller on shaft with the help of impeller nut and helicoil insert.
- Labyrinth type metallic liquid deflector to protect bearings from ingress of process liquid, dust at non-driving end.
- Optional provision of bearing isolators at driving end and non driving end bearings.
- Available in soft gland packing as well as mechanical seal version in standard stuffing box bore and optional taper (conical) bore construction.
- Top centerline discharge with foot mounted as well as centerline mounted volute casing.
- Pump can be offered with all API seal flushing plans of mechanical seal flushing and pump cooling water pipings
- Flange drilling : As per ASME B16.5 class 150 FF optional class 300 and PN 16 and PN 25 as per DIN standard (Optional).

CROSS-SECTION WITH MAJOR COMPONENTS:



GENERAL OUTLIVE DIMENSIONS OF CNP+ FOOT MOUNTED PUMPS:

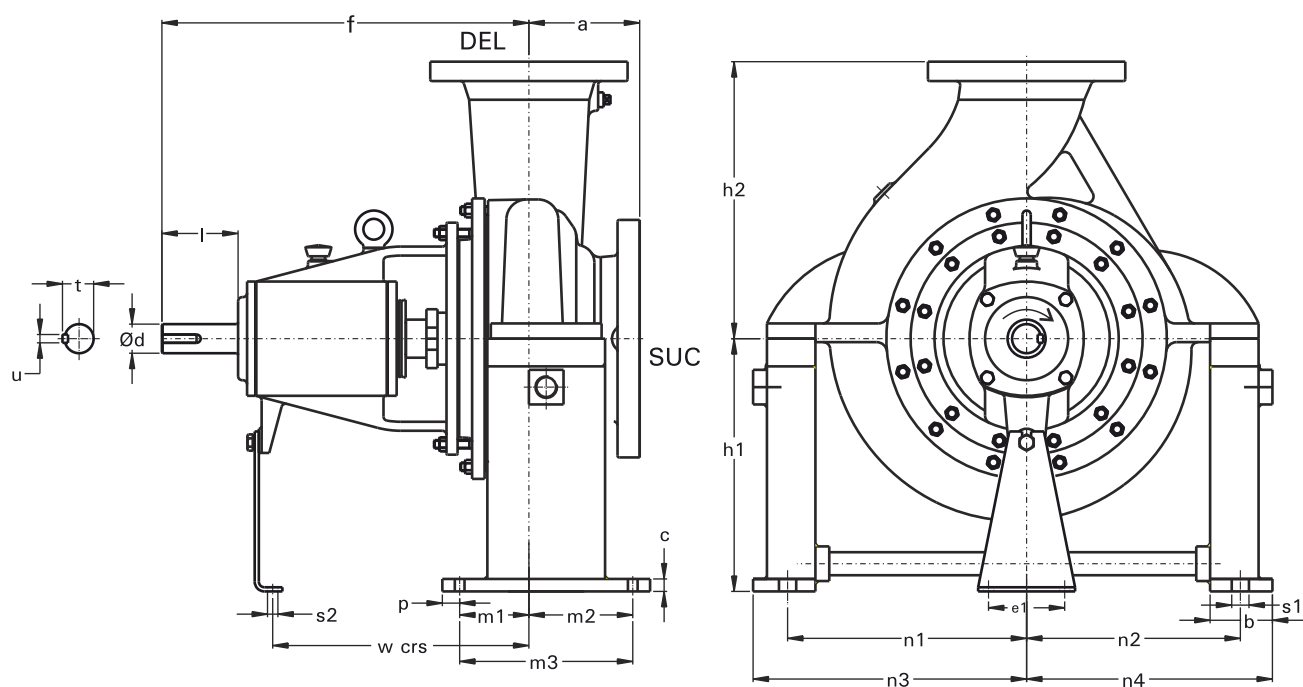


PUMP SIZE	DRIVING UNIT	PUMP DIMENSIONS						FOOT DIMENSIONS										SHAFT END									
		DEL	SUC	a	f	h1	h2	b	c	m1	m2	n1	n2	w	s1	s2	e1	Ød	l	t	u						
32/13	7	32	50	80	385	112	140	50	14	100	70	190	140	285	14	15	110	24	50	27	8						
32/16,32/16A						132	160					240	190														
32/20,32/20A						160	180					265	212														
40/13						112	140					210	160														
40/16		40	65	100		132	160					240	190														
40/20,40/20A						160	180					265	212														
50/13						132	160					240	190														
50/16,50/16A						160	180					265	212														
50/20	50	80	100	160	200	265	212																				
65/13	65	100	160	180	65	125	95	280	212																		
25/26A	7A	25	50	100	500	180	225	65	65	14	125	95	320	250	370	14	15	110	32	80	35	10					
32/26		32	50			180	225	320					250														
40/26		40	65			200	250	345					280														
40/32		40	65			125	180	225					320	250													
50/26	7A/10*	50	80	125		225	280	345	280	280	212	320	250														
50/32		50	80	125		160	200	180	225	320	250																
65/16		65	100	100		200	250	80	16	160	120	360	280	18													
65/20						180	225	250	65	14	125	95	320	250									345	280	14		
65/26,65/26N	80				125	125	225	280	80	16	160	120	400	315	18												
80/16							180	225	250	65	14	125	95	320	250	345	280	14									
80/20		225	280	80			16	160	120	400	315	18															
80/26		100	125	150			125	200	280	80	16	160	120	360	280	18											
100/16	12	100	125	125	530	225	280	80	16	160	120	400	315	370	18	15	110	42	110	45	12						
100/20		100	125	125		250	315					280	355									435	355				
65/32		80	125	125		280	355					435	355														
80/32						225	280					400	315														
80/40,80/40N						250	315					280	355									100	18	200	150	500	400
100/26						250	315					80	16									160	120	400	315		
100/32		100	125	140		280	355					100	18									200	150	500	400		
100/40						250	315					80	16									160	120	400	315		
125/26						280	355					100	18									200	150	500	400		
125/32						315	400					100	22									150	450				
125/40,125/40N		150	200	160		315	400					100	22									150	450				
150/32,150/32N	315				450	18	550	450																			
150/40	315				450	18	550	450																			

* REFER ENGINEERING

Note: These are tentative dimensions. Certified dimensions will be submitted against order.

GENERAL OUTLIVE DIMENSIONS OF CNP+ CENTER LINE MOUNTED PUMPS:



PUMP SIZE	DRIVING UNIT	PUMP DIMENSIONS						FOOT DIMENSIONS																SHAFT END																						
		DEL	SUC	a	f	h1	h2	b	c	m1	m2	m3	n1	n2	n3	n4	w	s1	s2	e1	p	Ød	l	t	u																					
32/13	7	32	50	80	385	200	140	64	15	72	88	190	125	125	157	157	285	14				24	50	27	8																					
32/16,32/16A							160						155	145	187	177																														
32/20,32/20A							180						170	165	202	197																														
40/13							140						135	125	167	157																														
40/16		40	65				160						170	165	202	197																														
40/20,40/20A							180																																							
50/13							160																																							
50/16,50/16A		50	80				180																																							
50/20							200																																							
65/13							180																																							
25/26A	7A	25	50				225						220	220	252	252	370																													
32/26		32					250																			225	257																			
40/26		40					65																						250																	
40/32																													225																	
50/26		50	80	125			225	90					89.5	110.5	230	260		240	305	285																										
50/32							280																					200	64	72	88	190	210	175	242	207										
65/16							65																					100	100			225	90					89.5	110.5	230	260	230	305	275		
65/20		250	225	64	72	88		190	210	175	242	207																																		
65/26,65/26N		250	225	64	72	88		190	210	175	242	207																																		
80/16		80	125				225																																							
80/20	250						280										89.5											110.5	230	260	230	305	275													
80/26	280						250										280											240	285																	
100/20	100	100				280																																								
65/32	65					280																				92.5	107.5	310	295	355	340															
80/32	80					125																				315	315	18	100	150	300	310	295	355	340											
80/40,80/40N																										365	355	15	92.5	107.5	230	260	230	305	275											
100/26	100	125	140			280	90																																							
100/32						315																				315	18	100	150	300	310	295	355	340												
100/40						365																				355	15	92.5	107.5	230	260	230	305	275												
125/26	125	150				315																																								
125/32						355																				18	100	150	300	310	295	355	340													
125/40,125/40N						365																				400	355	315	400	360																
150/32,150/32N	150	200	160			365																																								
150/40						450																				385	345	430	390																	

* REFER ENGINEERING

Note: These are tentative dimensions. Certified dimensions will be submitted against order.

MATERIAL OF CONSTRUCTION

Component Description	Standard MOC	Option 1	Option 2	Option 3	Option 4	Option 5
Pump Casing	Cast Iron - IS 210-FG 260	Duplex ASTM A240M -UNS S31803	ASTM-A890/890M-CE3MN-5A Super Duplex (UNS 32760)	Alloy 20 ASTM B473 UNS8020-ALLOY20	ASTM A494 - Hastelloy B	ASTM A494 - Hastelloy C
Casing Cover	Cast Iron - IS 210-FG 260					
Pump Shaft	Stainless Steel ASTM A276 Type 316 and 316L	Duplex ASTM A240M -UNS S31803	ASTM-A276 UNS 32760 (UNS 32760)	Alloy 20 ASTM B473 UNS8020-	MONEL BS3076-NA18 (K-Monel 500)	
Bearing Housing	Cast Iron - IS 210-FG 260					

MATERIAL STANDARDS - GENERAL INFORMATION

Material Type	Indian Standard (IS)	American standard (ASTM)	DIN
Cast Iron			
Cast Iron	IS 210 Gr. FG 260	ASTM A48 Class 40	(0.6025)DIN 1691 GG25
Spheroidal Graphite Cast Iron			
SG Iron (Ductile Iron)	IS 1865 Gr 400/15	A536, 60-40-18	(0.7040)DIN1693 GGG40
SG Iron (Ductile Iron)	IS 1865 Gr 500/7	A536, 65-45-12	(0.7050)DIN1693 GGG50
Carbon steel			
Carbon steel (Wrought)	IS 1570 (part II) Gr. 40C8	ASTM A107 Gr. 1040	(1.1186)C40E/CK40
Carbon steel (Wrought)	IS 1570 (part II) Gr. 20C8	ASTM A107 Gr. 1020	(1.0402)C22
MS Steel	MS IS 2062 - Fe 410 W A	ASTM-A283 GR.D	DIN 1700 GR ST4-2 FABRICATED STEEL44
Cast Steel Grades			
Cast steel		ASTMA 216 Gr. WCB	1.0619(GS-C25)
Cast Stainless Steel			
Stainless Steel CF8M	IS 3444 Gr. 4	ASTMA 351 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
Stainless Steel CF8M	IS 3444 Gr. 4	ASTMA 743 Gr. CF8M	1.4408(GX5CrNiMo19-11-2)
Stainless Steel CF3M	IS 3444 Gr. 16	ASTMA 351 Gr. CF3M	1.4409(GX2CrNiMo19-11-2)
Stainless Steel CF3M	IS 3444 Gr. 16	ASTMA 743 Gr. CF3M	1.4409(GX2CrNiMo19-11-2)
Stainless Steel CF8	IS 3444 Gr. 1	ASTMA 351 Gr. CF8	1.4301(X5CrNi18-10)
Stainless Steel CF3	IS 3444 Gr. 15	ASTMA 351 Gr. CF3	1.4306(X2CrNi19 11)
Cast Chromium StainlessSteel			
Stainless Steel CA15	IS 3444 Gr. 10	ASTMA 217 Gr. CA15	1.4106&1.448(DIN17445 GX12Cr14)
Stainless Steel CA15	IS 3444 Gr. 10	ASTMA 743 Gr. CA15	1.4106&1.448(DIN17445 GX12Cr14)
Stainless Steel CA6NM	IS 3444 Gr. 24	ASTMA 487 Gr. CA6NM	1.4313&1.4317(GX5CrNiMo13-4)
Stainless Steel CA6NM	IS 3444 Gr. 24	ASTMA 743 Gr. CA6NM	1.4313&1.4317(GX5CrNiMo13-4)
Chromium StainlessSteel Round Bar Material			
Stainless steel 410	IS 1570 (part V) Gr. X12Cr12	ASTMA 276 type 410	1.4006(X10Cr13)
Stainless steel 420	IS 1570 (part V) Gr. X20Cr13	ASTMA 276 type 420	1.4021(X20Cr13)
Stainless steel 431	IS 1570 (part V) Gr. X15Cr16Ni2	ASTMA 276 type 431	1.4057(X20CrNi17)
Stainless steel 316	IS 1570 (part V) Gr. X04Cr17Ni12Mo2	ASTMA 276 type 316	1.4401(X5CrNiMo17122)
Stainless steel 316L	IS 1570 (part V) Gr. X02Cr17Ni12Mo2	ASTMA 276 type316L	1.4404(X2CrNiMo1810)
Cast Duplex Steel			
Duplex Steel 1A		ASTMA 890 Gr. CD4MCu	25Cr-5Ni-Mo-Cu
Duplex Steel 2A		ASTMA 890 Gr. CE8MN	24Cr-10Ni-Mo-N
Duplex Steel 3A		ASTMA 890 Gr. CD6MN	25Cr-5Ni-Mo-N
Super Duplex steel 4A		ASTMA 890 Gr. CD3MN	25Cr-7Ni-Mo-N
Super Duplex steel 5A		ASTMA 890 Gr. CE3MN	24Cr-10Ni-Mo-N
Non Ferious Materials			
Bronze	IS 318 Gr. LTB2 (CuSn5Zn5Pb5C)	ASTMB 584 - C90500	DIN 1705 Rg 5
Phosphor Bronze	IS 28 Gr. 1 (CuSn11PC)		
Zinc Free Bornze	IS 28 Gr. 1 (CuSn10C)		

FAMILY CURVES :

