

SUBMERSIBLE SEWAGE PUMPS TYPE : NS



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Range :

Delivery size upto 300 mm

Capacity up to 1800 m³/hr (Max.)

Head up to 90 m (Max.)

Max. permissible solid size up to 300 mm

Applications :

Screened sewage

Raw sewage

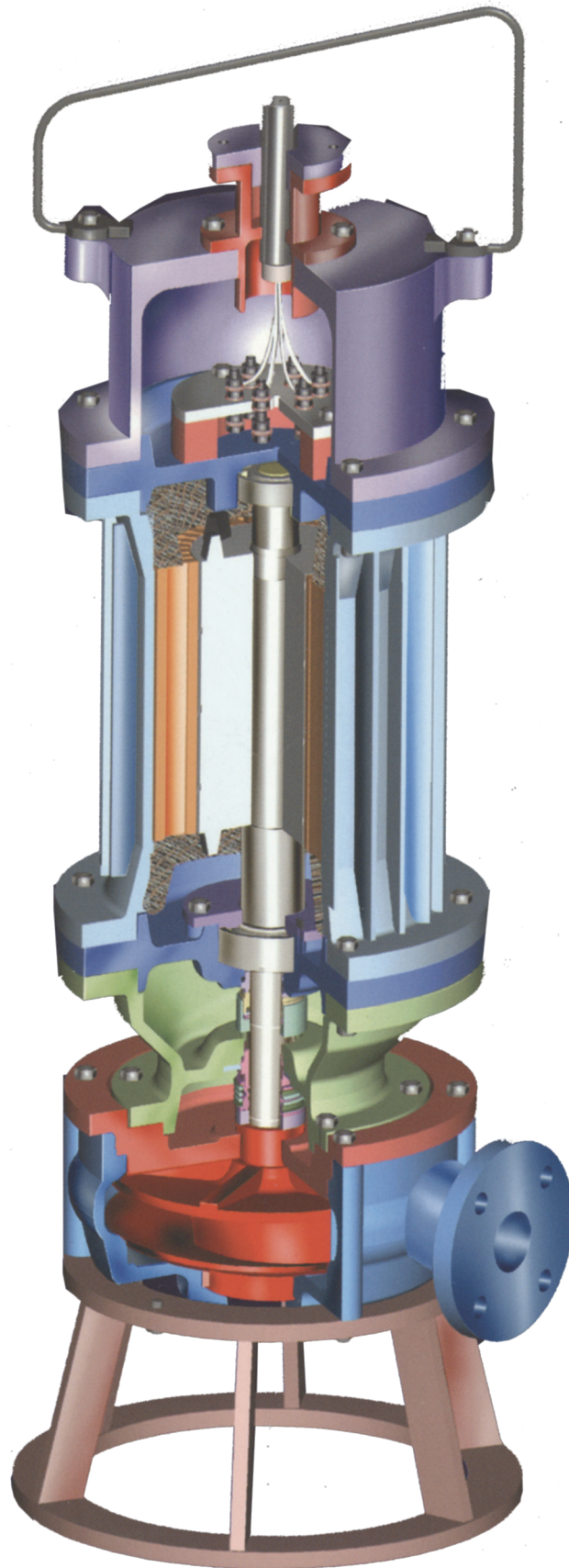
Contaminated effluents

Industrial waste waer

Storm water

Trench and Tunnel water

Drain water, Mine water etc.,



Constructional Features :

These are single stage, single suction pumps with overhung non-clogging impeller, Pumps can be offered in stationary as well as transportable arrangements. The stationary arrangement is supplied with pump connector unit and the connector unit is connected to pump support bracket with rubber diaphragm to make it leak proof joint.

Pump casing

The radially split casing is provided with delivery nozzle cast integral with it. Suction is axial and delivery nozzle is central and horizontal. Specially designed semi-concentric casing results in reduced radial thrust and ensures vibration-free performance. Wide volute passage ensures non - clogging operation of the pump.

Impeller

Impeller are of non - clog type which allow smooth passage of solids.

Impellers are with single or multi vanes in semi-open, enclosed, or free flow designs to cater to wide applications.

Shaft

The high tensile steel shaft accurately machined and ground is supported by two ball bearings in the motor above the impeller, Shaft is designed to transmit the power without undue vibrations and deflections. The shaft is common for pump and motor of monoblock design.

Mechanical Seals

Two mechanical seals in tandem arrangement are provided to ensure no ingress of water or sewage in motor.

Optional Features

- a. Pumps can be supplied with "Cutter Fan" arrangement at suction to agitate the liquid.
- b. Semi-open impellers can be provided with specially designed wear plate for cutting and tearing of soft, long fibrous material.

Bearings

Bearings are grease lubricated and sealed for life, hence maintenance free.

Direction of Rotation.

Clockwise when viewed from motor top.

Drive

Motor is dry type submersible and cooled by liquid being handled. Motors are air tested leakfree operation.

Degree of protection for motor for is IP68 as per IS:2147

Class of insulation : F

Voltage : 415V \pm 10%

Frequency : 50 Hz. \pm 5%

Type of starting : As per requirement (DOL/Star Delta / ATS)

Cable

A specially designed cable, 1.1 kV grade having annealed tinned copper conductor, insulated with Electron Beam Irradiated cross linked elastomeric compound (compatible for continuous operation at 120° C) cores laid up with a proof cotton binder tape and sheathed overall with Electron Beam Irradiated Cross-linked HD HOFER elastomeric compound and generally conforming to IS 9968 Part I. The cable with this unique combination of insulating and sheathing material offers best resistance to acidic or alkaline sewage medium and to the effluent gases coming out of the sump. The cable is more flexible than PVC cable making coiling and handling easier and light in weight compared to PVC cable of the same size.

Control Panel

Control panel consists of starter, switch, fuse and safety features.

Safety features are :

Single phasing prevention

Overload relays

Moisture sensing unit for detecting ingress of moisture or water into oil chamber.

Liquid level controllers to avoid dry running.

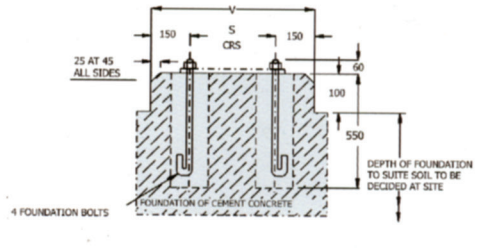
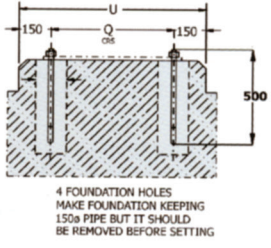
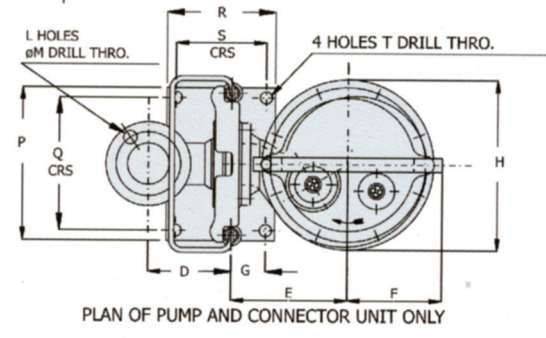
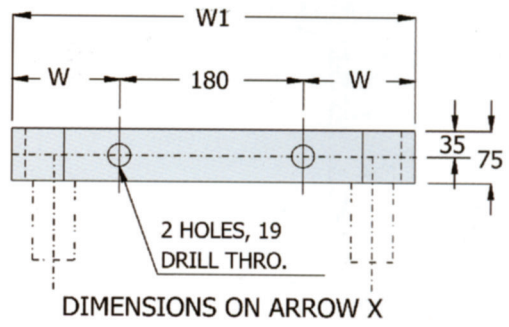
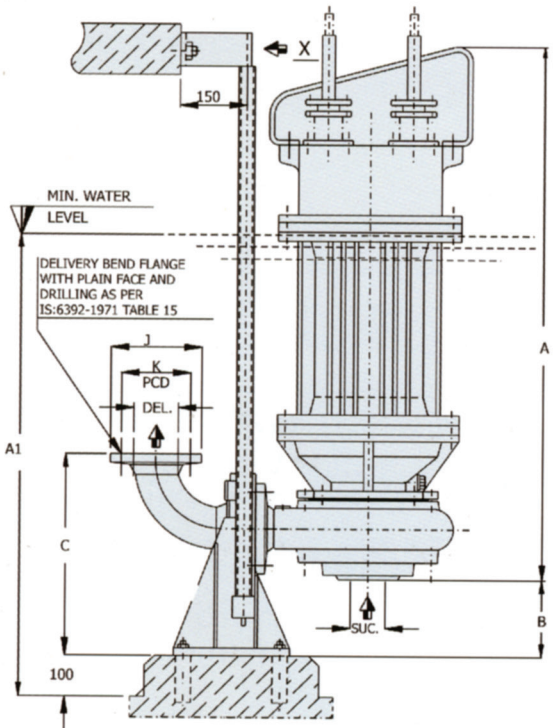
Under voltage / Reverse phasing

Flanges

Standard drilling to IS 6392 table 15.



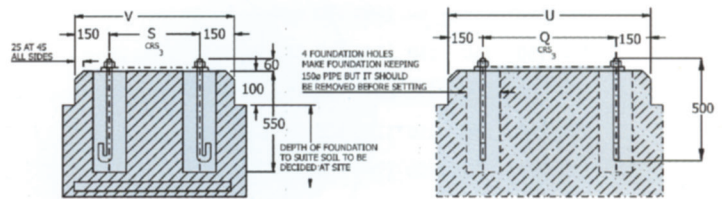
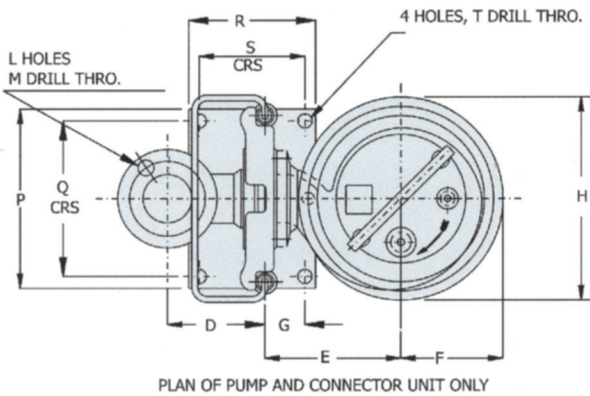
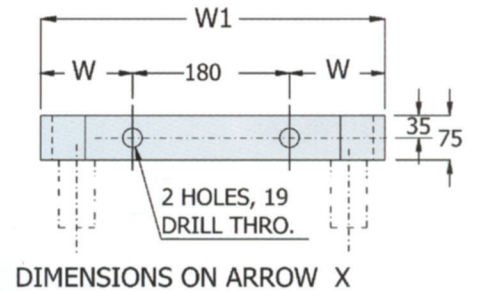
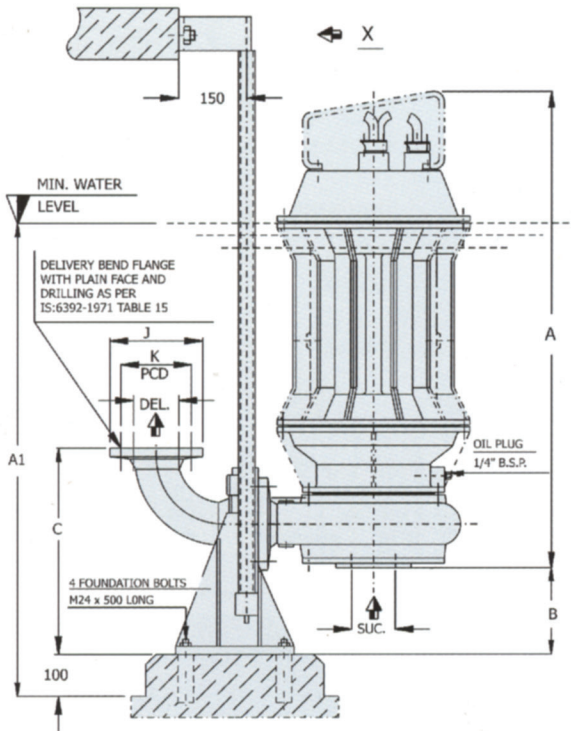
STATIONARY INSTALLATION I & II



PUMP TYPE	MOTOR UNIT	SUC. & DEL. SIZE				A	B	C	D	E	F	G	H	J	K	L/M	P	Q	R	S	T	U	V	W	W1	A1	GUIDE PIPE I.D./O.D.	FOUNDATION BOLT SIZE
		NOMINAL SIZE		OPENING SIZE																								
		NWS	NWD	NWS	NWD																							
NS 50/20	I	80	50	82	50	985	173	491	256	239	225	55	460	165	125	4/18	320	260	200	150	24	560	450	70	320	900	32/43	M20 X 500 L
NS 50/20	II	80	50	82	50	1085	173	491	256	239	225	55	460	165	125	4/18	320	260	200	150	24	560	450	70	320	900		
NS 50/26	I	65	50	75	50	1020	150	491	256	284	225	55	460	165	125	4/18	320	260	200	150	24	560	450	70	320	900		
NS 50/32	II	65	50	65	50	1030	135	491	256	309	225	55	460	165	125	4/18	320	260	200	150	24	550	450	70	320	900		
NS 65/32	I	80	65	84	65	1030	140	542	312	309	225	55	460	185	145	4/18	330	270	225	175	24	570	475	80	340	900		
NS 65/32	II	80	65	84	65	1130	140	542	312	309	225	55	460	185	145	4/18	330	270	225	175	24	570	475	80	340	900	51/61	M20 X 500 L
NS 80/26	I	100	80	105	80	1035	150	595	350	279	225	60	460	200	160	8/18	360	300	250	200	24	600	500	110	400	900		
NS 80/26	II	100	80	105	80	1135	150	595	350	279	225	60	460	200	160	8/18	360	300	250	200	2	600	500	110	400	900		
NS 100/26	I	125	100	130	100	1050	170	468	198	309	225	80	460	220	180	8/18	385	325	280	230	24	625	530	130	440	900		
NS 100/26	II	125	100	130	100	1150	170	468	198	309	225	80	460	220	180	8/18	385	325	280	230	24	625	530	130	440	1000		
NS 100/32	II	125	100	130	100	1150	170	468	198	344	225	80	460	220	180	8/18	385	325	280	230	24	625	530	130	440	1000	66/77	N24 X 599K
NS 150/26	II	150	150	165	150	1180	185	553	248	390	245	100	510	285	240	8/23	500	420	355	280	30	720	580	205	590	1000		
NS 150/32	II	150	150	165	150	1180	190	553	248	435	245	100	510	285	240	8/23	500	420	355	280	30	720	580	205	590	1000		

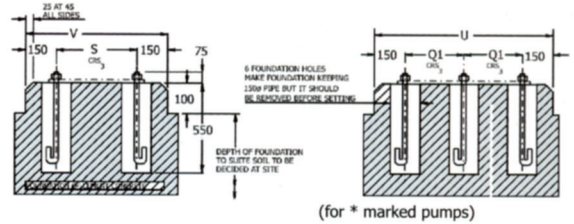
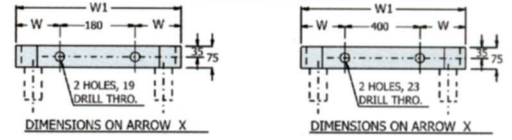
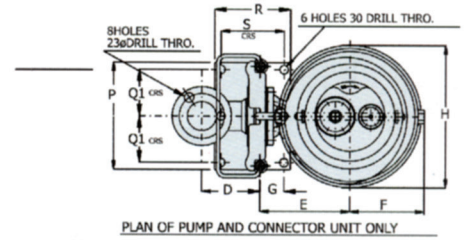
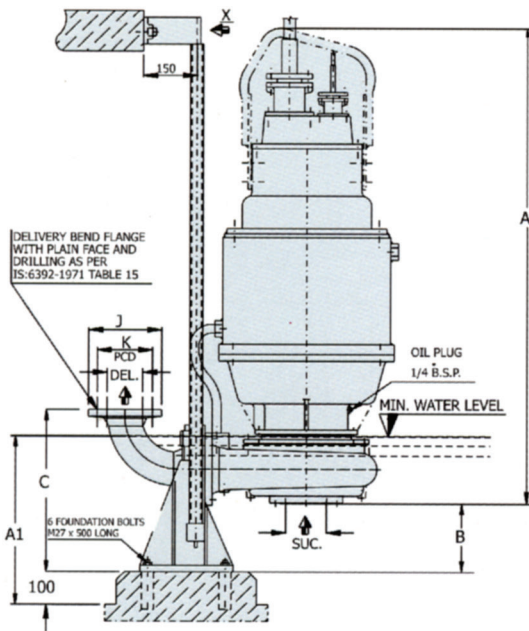


STATIONARY INSTALLATION III



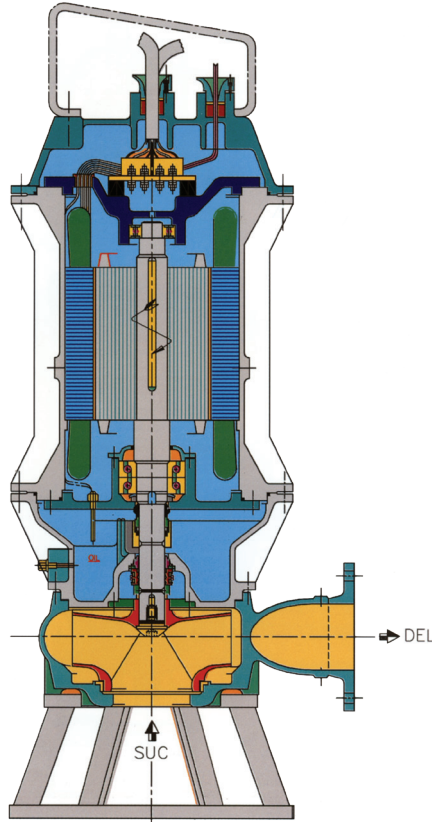
PUMP TYPE	SUC. & DEL. SIZE				A	B	C	D	E	F	G	H	J	K	L/M	P	Q	R	S	T	U	V	W	W1	A1	GUIDE PIPE I.D./O.D.	FOUNDATION BOLT SIZE
	NOMINAL SIZE		OPENING SIZE																								
	NWS	NWD	NWS	NWD																							
NS 80/40	100	80	100	80	1305	165	595	350	384	265	60	530	200	160	8/18	360	300	250	200	24	600	500	110	400	1200	51/61	M20X M20X500 M24X 500L 500L 500L
NS 100/32	125	100	130	100	1325	170	468	198	344	265	80	530	220	180	8/18	385	325	280	230	24	625	530	130	440	1225		
NS 100/40	125	100	125	100	1335	170	468	198	384	265	80	530	220	180	8/18	385	325	280	230	24	625	530	130	440	1235		
NS 150/26	150	150	165	150	1355	185	553	248	390	265	100	530	285	240	8/23	500	420	355	280	30	720	580	205	590	1270	66/77	M24X M24X M24X M24X 500L 500L 500L 500L
NS 150/32	150	150	165	150	1350	190	553	248	435	265	100	530	285	240	8/23	500	420	355	280	30	720	580	205	590	1270		
NS 150/40	150	150	160	150	1350	190	553	248	435	285	100	560	285	240	8/23	500	420	355	280	30	720	580	205	590	1270		
NS 200/32	200	200	202	200	1360	215	640	300	435	280	110	550	340	295	12/23	560	480	380	300	30	780	600	225	630	1300	66/77	M24X M24X M24X M24X 500L 500L 500L 500L
NS 200/40	200	200	185	200	1370	210	640	300	435	285	110	560	340	295	12/23	560	480	380	300	30	780	600	225	630	1300		

STATIONARY INSTALLATION III



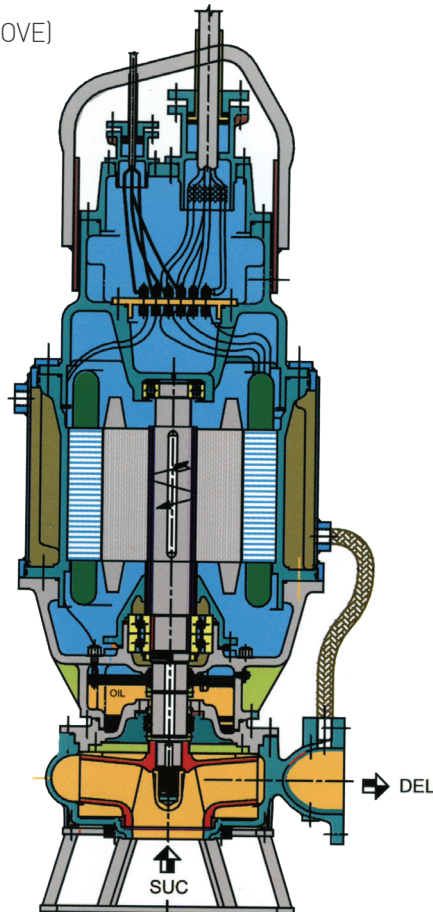
PUMP TYPE	MOTOR UNIT	SUC. & DEL. SIZE				A	B	C	D	E	F	G	H	J	K	L/M	P	Q	R	S	T	U	V	W	W1	A1	GUIDE PIPE I.D./O.D.	FOUNDATION BOLT SIZE
		NOMINAL SIZE		OPENING SIZE																								
		NWS	NWD	NWS	NWD																							
NS 100/40	IV	125	100	125	100	1670	170	468	198	384	350	80	650	220	180	8/18	550	225	360	280	30	750	580	130	440	500	51/61	
NS 100/40	IVA	125	100	125	100	1745	170	468	198	384	350	80	650	220	180	8/18	550	225	360	280	30	750	580	130	440	500		
NS 150/34	IV	150	150	160	150	1799	175	553	248	435	350	135	650	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 150/40	IV	150	150	160	150	1680	190	553	248	435	350	135	650	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 150/40	IVA	150	150	160	150	1745	190	553	248	435	350	135	650	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 150/40	V	150	150	160	150	1875	190	553	248	435	370	135	670	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 150/50	IV	150	150	160	150	1700	170	553	248	490	350	135	650	285	240	8/23	650	275	450	350	30	850	650	205	590	600	66/77	M27X500L
NS 150/50	IVA	150	150	160	150	1765	170	553	248	490	350	135	650	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 150/50	V	150	150	160	150	1900	170	553	248	490	370	135	670	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 150/50	VA	150	150	160	150	2075	170	553	248	290	370	135	670	285	240	8/23	650	275	450	350	30	850	650	205	590	600		
NS 200/40	IV	200	200	185	200	1705	210	640	300	435	350	110	650	340	295	12/23	650	285	430	350	30	850	650	225	630	600		
NS 200/40	V	200	200	185	200	1900	210	640	300	435	370	110	670	340	295	12/23	650	285	430	350	30	850	650	225	630	600		
NS 200/40	VA	200	200	185	200	2075	210	640	300	435	370	110	670	340	295	12/23	650	295	430	350	30	850	650	225	630	600		
* NS 250/40	IV	250	250	230	250	1800	345	900	375	555	350	135	670	405	355	12/26	800	350	500	400	33	1000	700	210	820	800	78/89	M30X500L
* NS 250/40	IVA	250	250	230	250	1860	345	900	375	555	350	135	670	405	355	12/26	800	350	500	400	33	1000	700	210	820	800		
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* NS 300/55	VIA	300	300	275	300	2450	370	981	406	655	415	175	810	460	410	12/26	850	375	650	550	33	1050	850	250	900	800		
* NS 300/55	VIB	300	300	275	300	2450	370	981	406	655	415	175	810	460	410	12/26	850	375	650	550	33	1050	850	250	900	800		

TYPICAL CROSS SECTION VIEW



TYPICAL CROSS SECTION VIEW

WITH COOLING JACKET (FOR 55 KW AND ABOVE)



INTERCHANGEABILITY OF COMPONENTS

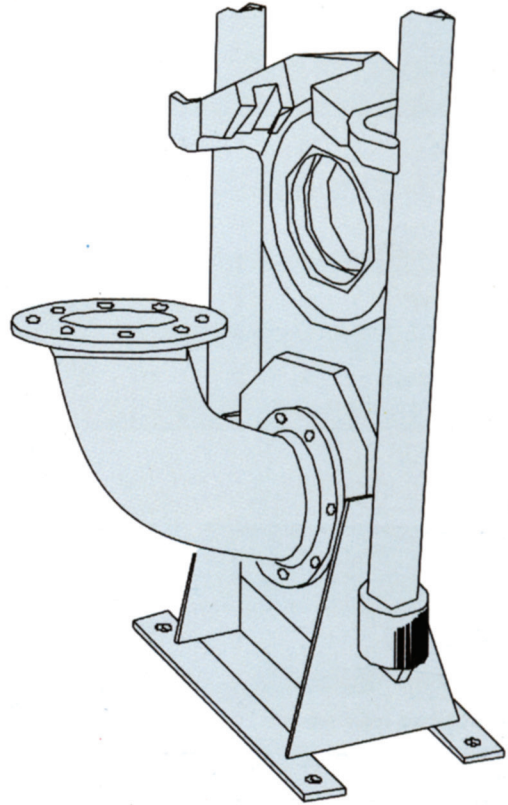
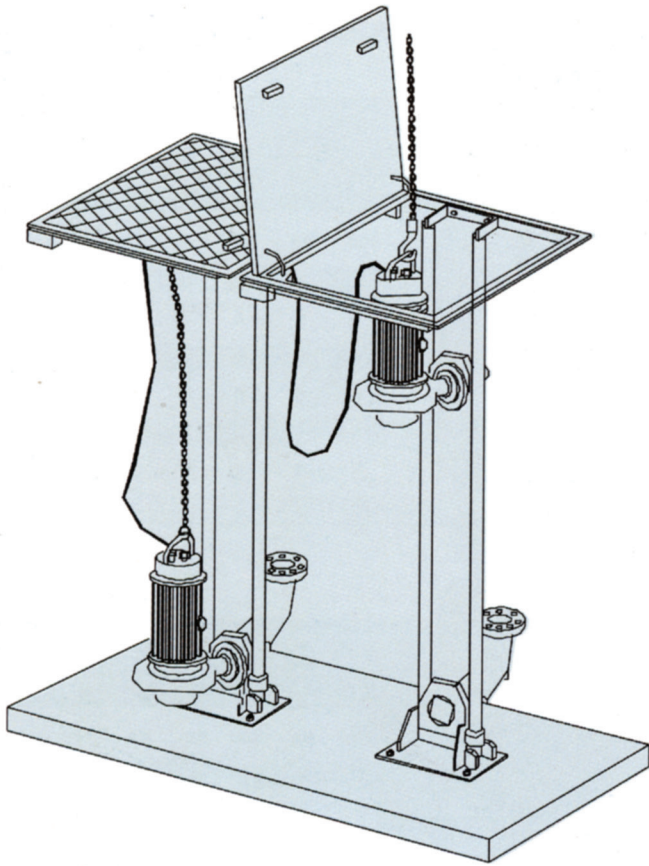
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			40/20Q	50/20Q	50/26	50/32	65/32	80/26	80/40	100/26	100/32	100/40	150/26	150/32	150/34	150/40	150/50	200/32	200/40	250/40	250/50	300/55
105	Pump casing	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
151	Impeller	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
190	Casing Ring	11	NA	NA	1	1	2	3	3	4	4	4	5	5	5	5	6	7	8	9	10	11
280	Bend	9	1	2	2	2	3	4	4	5	5	5	6	6	6	6	6	7	7	8	8	9
917	Support bracket	9	1	2	2	2	3	4	4	5	5	5	6	6	6	6	6	7	7	8	8	9
918	Guide Shoe	9	1	2	2	2	3	4	4	5	5	5	6	6	6	6	6	7	7	8	8	9
919	Rubber diaphragm	9	1	2	2	2	3	4	4	5	5	5	6	6	6	6	6	7	7	8	8	9
941	Guide pipe	5	1	1	1	1	1	2	2	2	2	2	3	3	3	3	3	3	3	4	4	5

PART	NAME OF THE PART	TOTAL NO. OF PARTS	I			II		III			IV			V			VI		
			20	26	32	26	32	26	32	40	40	34	50	55	40	50	55	50	55
220.0	Cashing Cover	5	NA	NA	NA	NA	NA	1	2	3	NA	NA	NA	NA	NA	NA	NA	4	5
230.1	Mechanical Seal Inboard	5	1	1	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5
230.1	Mechanical Seal Overboard	5	1	1	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5
233.0	Holding Plate	5	1	1	1	1	1	2	2	2	3	3	3	3	4	4	4	5	5
461.0	Adaptor plate	7	1	2	3	2	3	NA	NA	NA	4	5	6	7	4	6	7	NA	NA
350.0	Stuffing box	6	NA	NA	NA	NA	NA	1	2	2	3	4	3	5	3	6	5	6	5

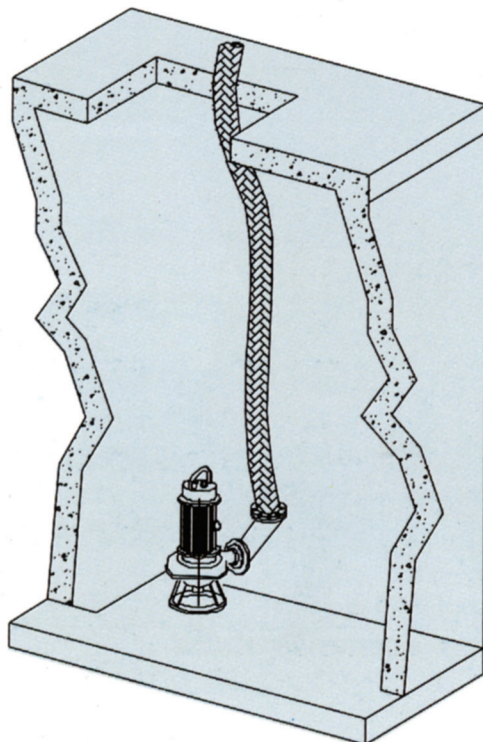
Part No.	Name of The Part	Total No. of Parts	I	II	III	IV	IV-A	V	VI
			2.2 KW TO 7.5 KW	9.3 KW TO 22 KW	25 KW TO 45 KW	55 KW	75 KW	90 KW TO 110 KW TO 125 KW	110/6 KW TO 1/6 P
130	Stator housing	6	1	2	3	4	4	5	6
189	Rotor shaft	6	1	2	3	4	4	5	6
256	Lower bearing holder	6	1	1	2	3	4	5	6
257	Upper bearing holder	6	1	1	2	3	4	5	6
260.1	Ball bearing holder	5	1	1	2	3	3	4	5
260.2	Ball bearing upper	5	1	1	2	3	3	4	5
271	Bearing cover	4	1	1	2	3	3	4	5
486	External circlip	1	1	1	NA	NA	NA	NA	NA
523.1	'O' Ring for stator housing and casing cover	6	1	1	2	3	4	5	6
523.2	'O' Ring for stator housing and lower bearing holder	6	1	1	2	3	4	5	6
669	Impeller Screw	3	1	1	2	2	3	NA	NA
909	Motor end cover	3	1	1	2	3	3	3	3
932	Moisture sensor	1	1	1	1	1	1	1	1



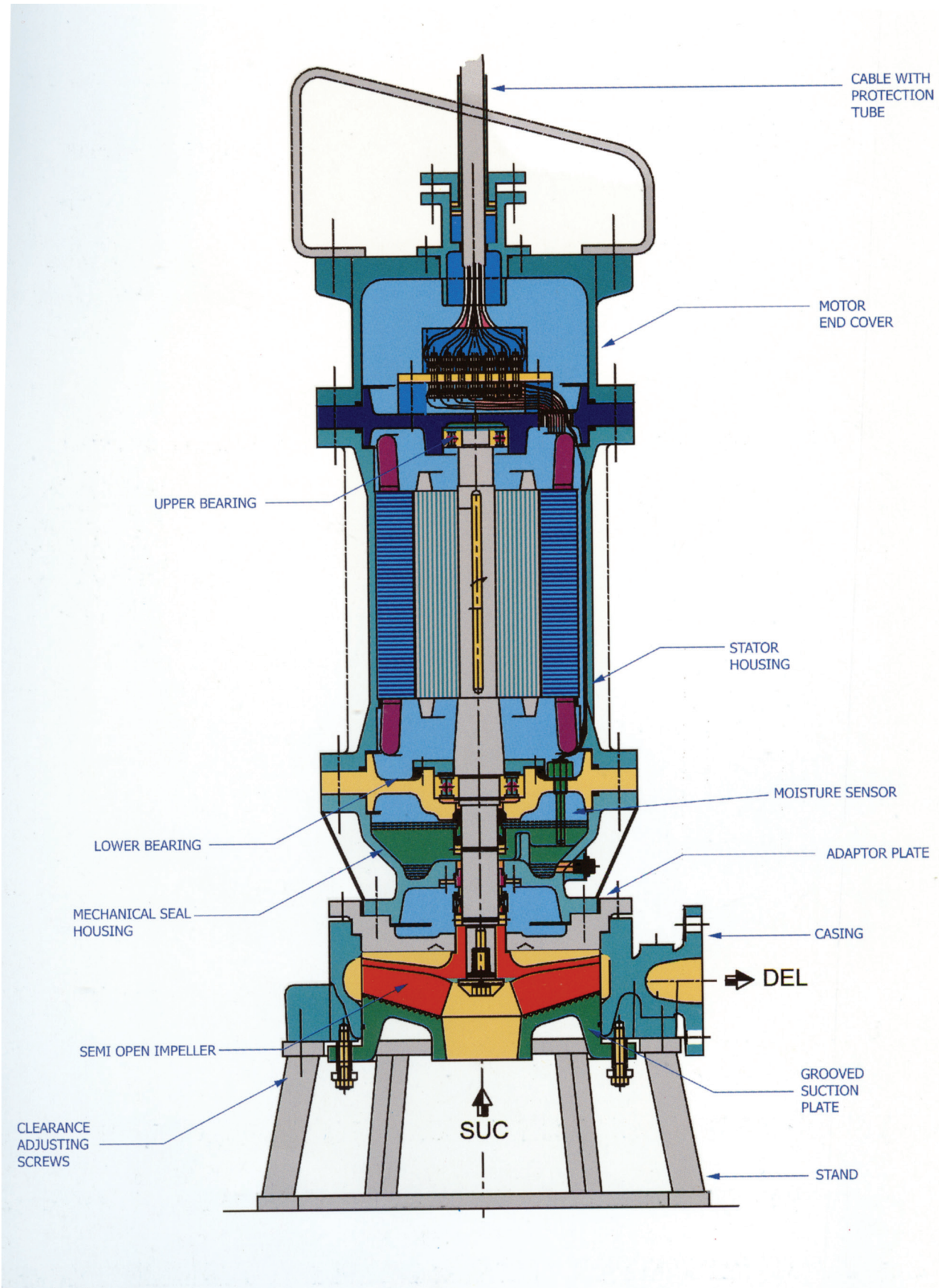
STATIONARY INSTALLATION



TRANSPORTABLE INSTALLATION



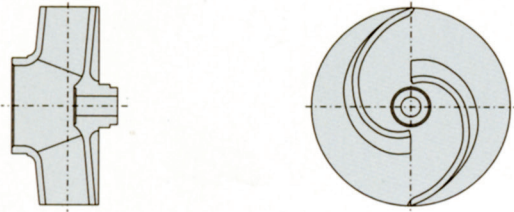
WITH CUTTING AND TEARING ARRANGEMENT



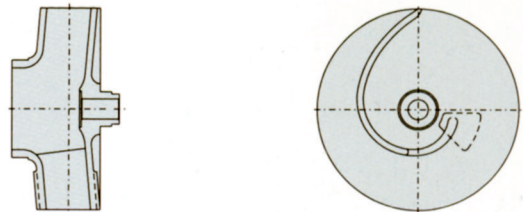
ALTERNATIVES AVAILABLE

TYPES OF IMPELLERS :

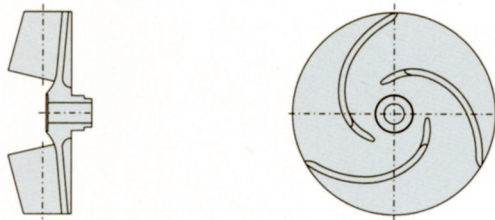
N - TWO VANES ENCLOSED IMPELLER



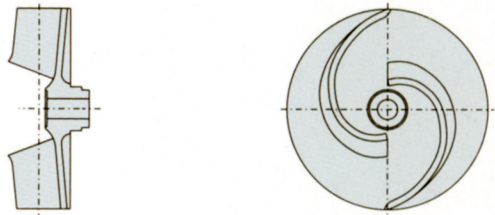
P - SINGLE VANE ENCLOSED IMPELLER



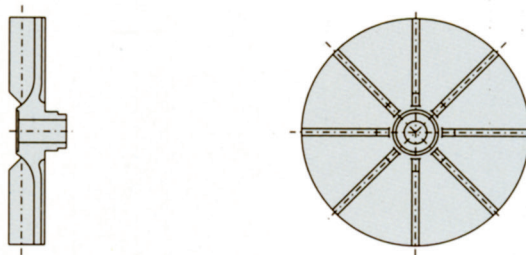
Q/QT - THREE VANES SEMI - OPEN IMPELLER



QM - TWO VANES SEMI - OPEN IMPELLER



R - EIGHT VANES FREE FLOW IMPELLER



MATERIAL OF CONSTRUCTIONS

Pump Casing	C.I	C.I	C.I	C.I
Impeller	C.I	CF8M	CF12M	CA15
Shaft	SS 410	SS410	S 410	S410
Casing Ring	C.I	CF8M	CF8M	CA 15
Impeller Screw	SS 410	SS 316	SS 316	SS 410

MATERIAL STANDARDS

MATERIAL	IS	EQUIVALANT INTERNATIONAL STANDARDS	
		BS	ASTM
Cast Iron	IS 210 Gr. FG 260	B.S.E.N. 1516 EN GJL 250	ASTM - A 48 CL 35
Austenitic Cast Iron (ACI)	IS 2749 Gr. AFG Ni 15	B.S. 3468 AUS 101 Gr. B	ASTM - A 436 TIPE 1
	Cu 6 Cr3		
CF8M	IS 3444 Gr. 9	B.S. 1632 Gr. B	ASTM - A351 Gr. CF8M
CF12M			ASTM - A351 Gr. CF12M
CA 15		B.S. 3100 410 C21	ASTM - A217 Gr. Ca 15
SS 316	IS 1570 Gr. 05 Cr 18	B.S. 970 316 S 16	ASTM - A276 Type 316
	Ni 11 Mo 3		
SS 410		B.S. 970 410 S21	ASTM - A276 Type 410
Bronze (Br.)	IS 318 Gr. LTB 2	B.S.E.N 1982 - CC 491 K	ASTM - B62, B145 Alloy 4A
Phosphor Bronze (Ph. Br)	IS 28 Gr. 1		
Zinc Free Bronze		B.S.E.N. 1982 - CC480 K	
Cast Steel		B.S. 1504 101 A	ASTM - A216 Gr. WCB

