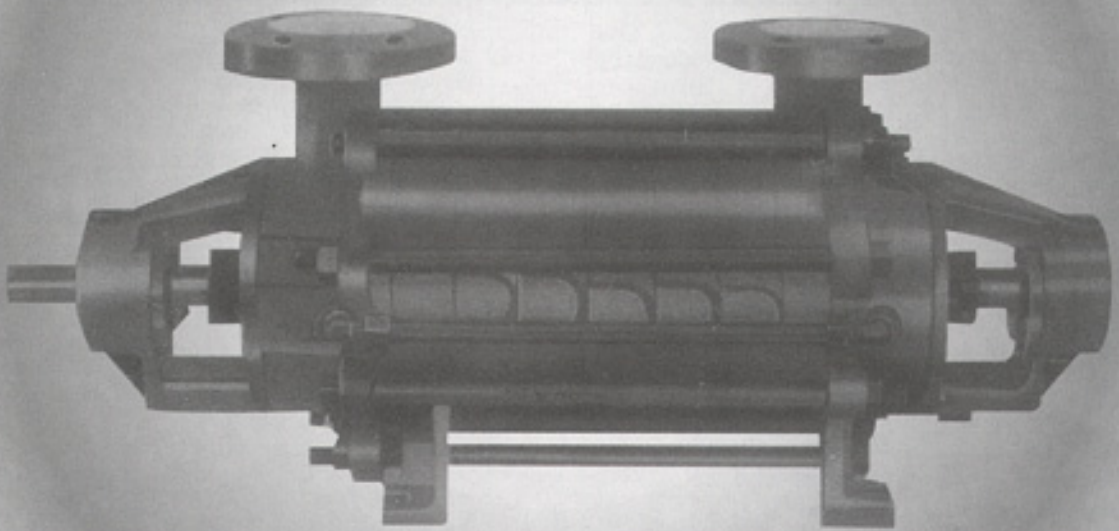
AURO



PN

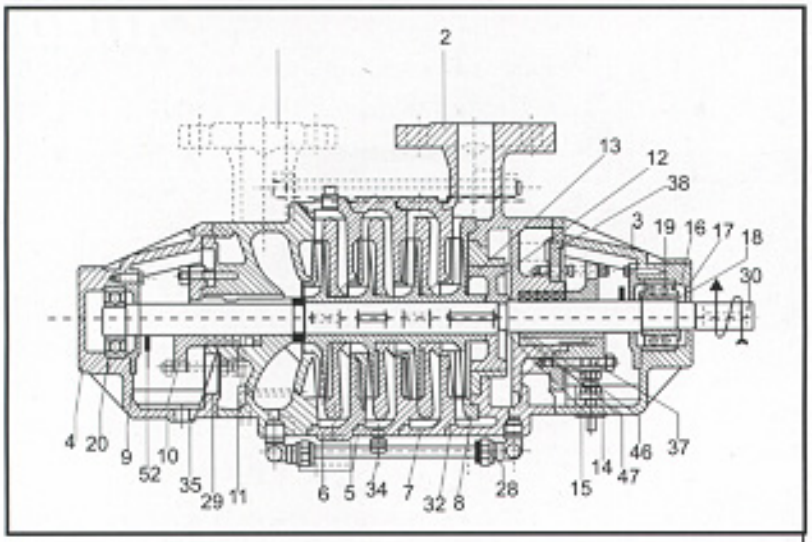
Multistage Boiler Feed Pumps

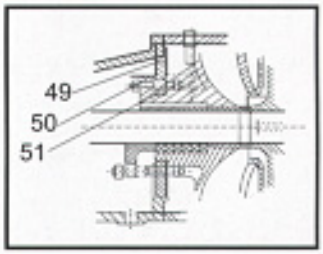
AURO PUMPS PVT. LTD.

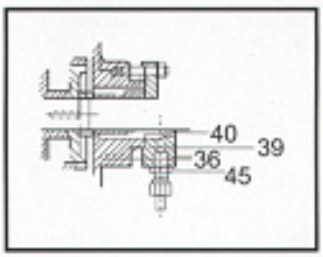
An ISO 9001-2000
(Establisged in 1984)

IN TECHNICAL COLLABORATION WITH POMPE VERGANI S.p.A. ITALY

PN Multistage Boiler Feed Pumps





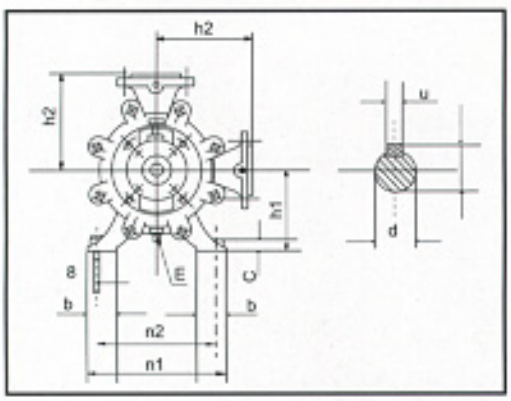


Capacity : upto 30m³/hr.
Total Head : upto 430 mtrs.
Max. Press. : upto 50 bars
Max. Temp. : upto 160°C

PART LIST

1. Suction Casing
2. Discharge Casing
3. Bearing Housing (Coupling Side)
4. Bearing Housing
5. Impeller
6. Diffuser Ring (with Foot)
7. Difuser Ring
8. Last vaned difuser ring
9. Support Cover
10. Packing Gland
11. Lantern Ring
12. Balancing Drum
13. Balancing Drum Housing
14. Split Locking Ring
15. Ring
16. Spacer Ring
17. Shoulder Ring
18. Safety Ring
19. Ball Bearing (Coupling Side)
20. Ball Bearing
28. End Connection
29. Gasket
30. Shaft
32. 'O' Ring
34. Balancing Pipe
35. Packing
36. Mechanical Seal Flange
37. Mechanical Seal Spacer
38. Cooling Flange
39. Gasket
40. Mechanical Seal
45. "L" Connection
46. 'O' Ring
47. ""VCE" Dowell
49. 'O' Ring
50. Gasket
51. Gasket
52. Water Shield

D - For pressure gauge
E- Z - For drain
P - For vacuum gauge
R - 4 nos. For Cooling connections
I - 6 nos. For cooling & balancing



DESCRIPTION

Pumps are horizontal, multistage, radially split, connected through spacers. All rotating parts are supported by ball bearings which are external to the casing of the pump - to ensure sound and reliable operations under heavy duty. Axial thrust is balanced by balancing drum device. Discharge nozzle is radial and upward oriented while suction nozzle can be placed radially or sideways. Flanges are according to UNI 2223 PN 25 or according to ANSI standards (on request).

M.O.C.

Available in CI, Bronze, CF-8M and CF-3M

APPLICATIONS

General purpose pumps for low capacities & high heads

Boiler feed for high and medium pressure boilers with both hot & superheated water (160°C)

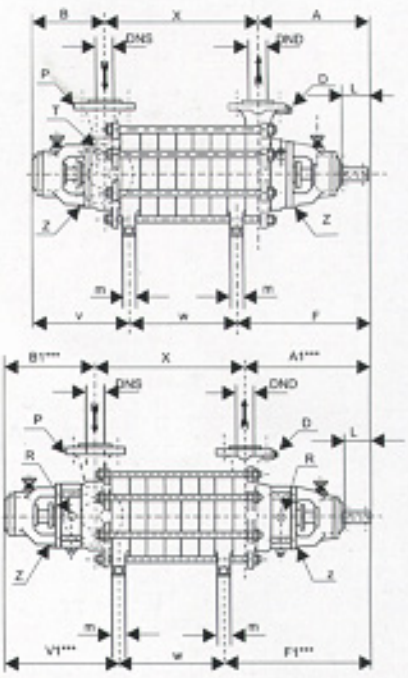
Water supply system

Booster service and fire fighting systems

Handling foamy liquids

Transfer of condensate

NO. OF STAGES	PN-32-12		PN-32-16		PN-40-16 **	
	X	W	X	W	X	W
2	104	93	106.5	106.5	-	-
3	144	133	141.5	158.5	175	-
4	184	173	176.5	193.5	225	100
5	224	213	211.5	228.5	275	150
6	264	253	246.5	263.5	325	200
7	304	293	281.5	298.5	375	250
8	344	333	316.5	333.5	425	300
9	384	373	351.5	368.5	475	350
10	424	413	386.5	403.5	525	400
11	464	453	-	-	575	450
12	504	493	-	-	625	500
13	544	533	-	-	675	550
14	584	573	-	-	725	600



PUMP TYPE	PUMP										FEET							SHAFT			FLANGE	
	A	B	V	F	A1	B1	V1	F1	h1	h2	b	m	n1	n2	c	s	ϕd	l	u	t	ϕ DNS	ϕ DND
PN 32-12	218	186.5	156.5	258.5	-	-	-	-	132	170	50	45	220	170	15	M12	24 K6	50	8	27	40	32
PN 32-16	222.5	151	141	215.5	-	-	-	-	150	180	50	55	250	205	15	M12	24 K6	50	8	27	40	32
PN 40-16	311.5	189	257.5	368	364	242	310.5	420.5	168	200	60	40	300	265	30	M12	30 J6	80	8	33	50	40

SELECTION CHARTS

PUMP TYPE	CAPACITY IN m^3 /hr.																			
	2		3		4		5		6		7		8		9		10		12	
	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP
PN 32-12/2	49	1.7	49	1.88	48.6	2.04	47.7	2.2	46.6	2.32	45.5	2.42	43.6	2.6	41.8	2.72	39.8	2.84	35.2	3.04
PN 32-12/3	73.5	2.55	73.5	2.82	72.9	3.06	71.55	3.3	69.9	3.5	68.1	3.63	65.4	3.9	62.7	4.1	59.7	4.26	52.8	4.6
PN 32-12/4	98	3.4	98	3.76	97.2	4.08	95.4	4.4	93.2	4.65	90.8	4.85	87.2	5.2	83.5	5.45	79.6	5.68	70	6.1
PN 32-12/5	122.5	4.25	122.5	4.7	121.5	5.1	119.25	5.5	116.5	5.8	113.5	6.05	109	6.5	104	6.9	99.5	7.1	87	7.9
ON 32-12/6	147	5.1	147	5.64	145.8	6.12	143.1	6.6	139.8	7	136.2	7.26	130.8	7.8	125	8.4	119.4	8.52	104	9.5
PN 32-12/7	171.5	5.95	171.5	6.58	170.1	7.14	166.95	7.7	163	8.1	158.9	8.47	152.6	9.1	146	9.9	139.3	9.94	122	11
PN 32-12/8	196	6.8	196	7.52	194.4	8.16	190.8	8.8	186.4	9.3	181.6	9.68	174.4	10.4	166.5	11.5	159.2	11.36	139	12.9
PN 32-12/9	220.5	7.65	220.5	8.46	218.7	9.18	214.65	9.9	200.7	10.5	204.3	10.89	196.2	11.7	187	12.8	179.1	12.78	157	14.2
PN 32-12/10	245	8.5	245	9.4	243	10.2	238.5	11	233	11.6	227	12.1	218	13	208	14	199	14.2	174	15.7
PN 32-12/11	269.5	9.35	269.5	10.34	267.3	11.22	262.25	12.1	256	12.8	249.7	13.31	239.8	14.3	228	15.5	218.9	15.62	191	17.5
PN 32-12/12	294	10.2	294	11.28	291.6	11.24	286.2	13.2	279.5	14	272.4	14.52	261.6	15.6	249	16.6	238.8	17.04	209	18.6
PN 32-12/13	318.5	11.05	318.5	12.22	315.9	13.26	310.05	14.3	305	15.1	295.1	15.73	283.4	16.9	269	18	258.7	18.46	226	20.2
PN 32-12/14	343	11.9	343	13.16	340.2	14.28	333.9	15.4	326	16.3	317.8	16.94	305.2	18.2	290	19.1	278.6	19.88	244	22

PUMP TYPE	CAPACITY IN m^3 /hr.															
	4		5		6		7		8		9		10		12	
	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP
PN 32-16/3	99.6	5.4	97.5	5.76	95.1	6	92.1	6.45	88.2	6.6	83.1	6.9	77.4	7.2	63	7.8
PN 32-16/4	132.8	7.2	130	7.68	126.8	8	122.8	8.6	117.6	8.8	110.8	9.2	103.2	9.6	84	10.4
PN 32-16/5	166	9	162.5	9.6	158.5	10	153.5	10.75	147	11	138.5	11.5	129	12	105	13
PN 32-16/6	199.2	10.8	195	11.52	190.2	12	184.2	12.9	176.4	13.2	166.2	13.8	154.8	14.4	126	15.6
ON 32-16/7	232.4	12.6	227.5	13.44	221.5	14	214.9	15.05	205.8	15.4	193.9	16.1	180.6	16.8	147	18.2
PN 32-16/8	265.6	14.4	260	15.36	253.6	16	245.6	17.2	235.2	17.6	221.6	18.4	206.4	19.2	168	20.8
PN 32-16/9	298.8	16.2	292.5	17.28	285.3	18	276.3	19.35	264.6	19.8	249.3	20.7	232.2	21.6	189	23.4
PN 32-16/10	332	18	325	19.2	317	20	307	21.5	294	22	277	23	258	24	210	26

PUMP TYPE	CAPACITY IN m^3 /hr.															
	9		12		15		18		21		24		27		30	
	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP
PN 40-16/3	105	8.1	102.5	8.7	98.4	9.45	93	10.2	86.4	10.8	79.2	11.7	70.8	12.3	61.8	13.2
PN 40-16/4	140	10.8	136.7	11.6	131.2	12.6	124	13.6	115.2	14.4	105.5	15.6	94.4	16.4	82.4	17.6
PN 40-16/5	175	13.5	171	14.5	165	15.8	155	17	144	18	132	19.5	118	20.5	103	22
PN 40-16/6	210	16.2	205	17.4	196.5	19	185.5	20.5	172.5	22	158	23.5	141.5	24.6	123	26.5
ON 40-16/7	245	19	239	20.3	229	22.1	216.5	24	201	26	184	27.5	165	29	144	31
PN 40-16/8	280	21.8	273	23.5	261.5	25.5	247	27.5	229.5	29.5	210	31.5	188.5	33	164.5	35.5
PN 40-16/9	315	24.5	307	26.5	294.5	28.7	278	31	258	33	236	35.5	212	37.5	185	40
PN 40-16/10	350	27.5	341	29.5	327	32	308.5	35	286	37	262	40	235.5	42	206	45
PN 40-16/11	385	30.2	376	32.5	360	35.2	339	38.5	314.5	40.5	288	44	259	46	226	49
PN 40-16/12	420	33	410	35.5	392	38.5	370	42	343	44.5	314	48	282	51	246	54

HP shows power input to pump, suitable motor to be selected

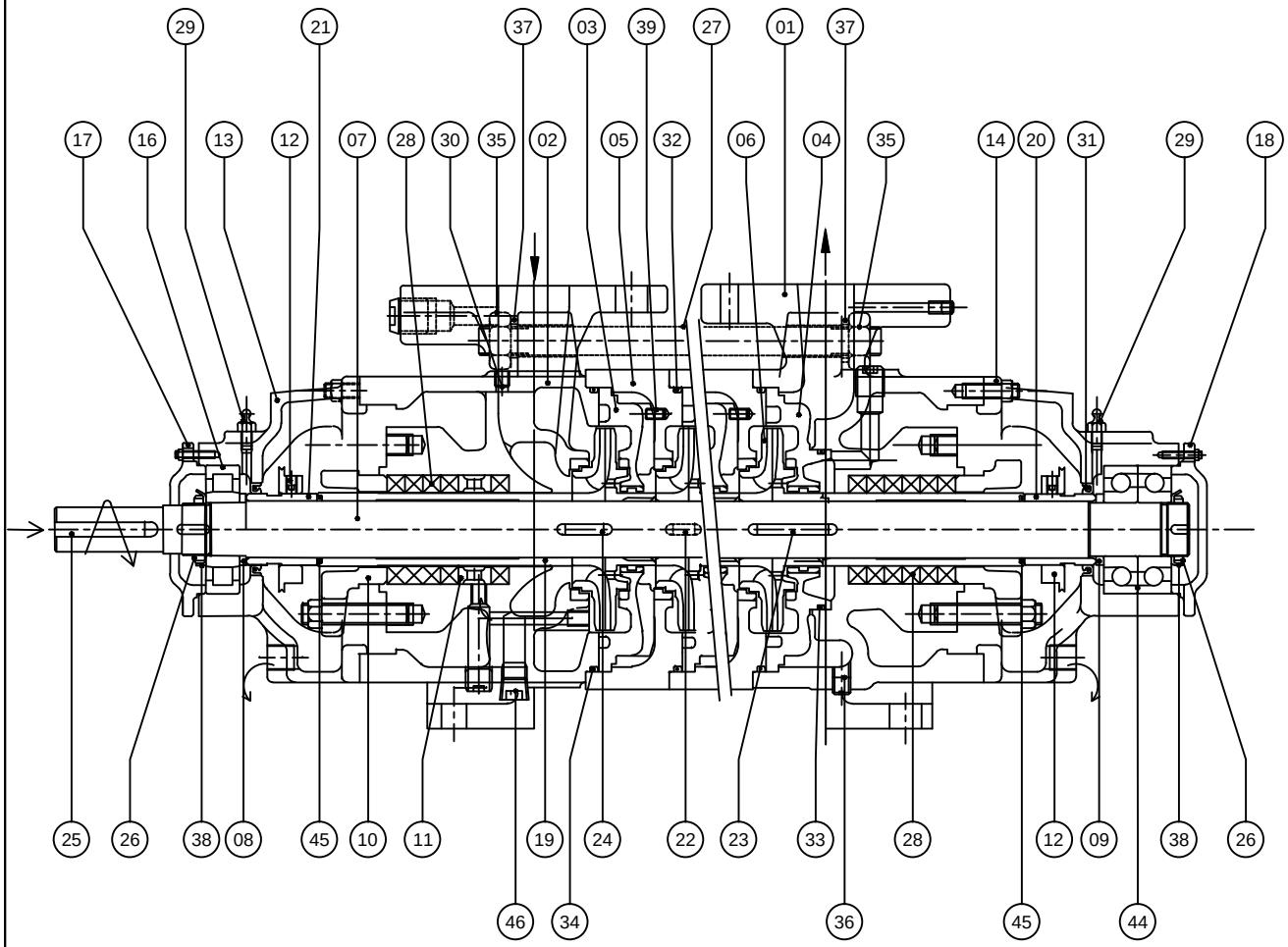
PN 65-20 MULTISTAGE PUMP SELECTION CHART

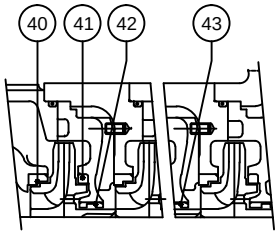
CAPACITY IN m3/hr

PUMP MODEL 1450 RPM	15		20		25		30		35		40		45			
	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP		
PN 65-20/3	36.7	3.3	36	3.4	34.5	3.6	33	3.6	31.5	4.1	30	4.6	27	4.8		
PN 65-20/4	49	4.4	48	4.5	46	4.6	44	4.8	42	5.46	40	6.2	36	6.1		
PN 65-20/5	61.2	5.5	60	5.7	57.5	5.7	55	6	52.5	6.8	50	7.7	45	7.6		
PN 65-20/6	73.5	6.6	72	6.8	69	6.9	66	7.2	63	8.1	60	9.3	54	9.2		
PN 65-20/7	85.7	7.7	84	7.9	80.5	8	77	8.4	73.5	9.5	70	10.8	63	10.7		
PN 65-20/8	98	8.8	96	9.1	92	9.2	88	9.6	84	10.9	80	12.4	72	12.2		
PN 65-20/9	110	9.9	108	10.2	103.5	10.3	99	10.8	94.5	12.2	90	13.9	81	13.7		
PN 65-20/10	122.5	11	120	11.4	115	11.5	110	12.1	105	13.6	100	15.5	90	15.3		
PN 65-20/11	134.7	12.1	132	12.5	126.5	12.6	121	13.3	115.5	15	110	17	99	16.8		
PN 65-20/12	147	13.2	144	13.6	138	13.8	132	14.5	126	16.3	120	18.6	108	19.3		

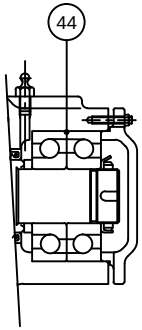
CAPACITY IN m3/hr

PUMP MODEL 2900 RPM	25		30		40		50		60		70		80		90	
	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP	H	HP
PN 65-20/2	100	16.1	96	16.2	94	25.5	92	18.4	90	20.3	85	21.5	80	23.1	72	24.4
PN 65-20/3	150	24	144	24.3	141	38.1	138	27.6	135	29.7	127.5	31.8	120	34.6	108	36.6
PN 65-20/4	200	32	198	33.4	188	50.7	184	36.8	180	40.7	170	42.5	160	46.2	144	48.8
PN 65-20/5	250	40	240	40.5	235	63.4	230	46	225	49.5	212.5	53.1	200	57.8	180	61
PN 65-20/6	300	48	288	48.6	282	76.1	276	55.2	270	59.4	255	63.7	240	69.3	216	73.2
PN 65-20/7	350	56	336	56.7	329	88.8	322	64.4	315	69.3	297.5	74.3	280	80.9	252	85.4
PN 65-20/8	400	64	384	64.9	376	101.5	368	73.6	360	79.2	340	85	320	92.4	288	97.6
PN 65-20/9	450	72	432	73	423	114.21	414	82.8	405	89.1	382.5	95.6	360	104.1	324	110





PARTIAL CROSS SECT ASSEMBLY OF
PUMP UNIT WITH RENE WABLE
WEAR PART ARRG
(AGAINST SPECIFIC ORDER ONLY)
PART Nos. 40,41,42 & 43



PARTIAL CROSS SECT ASSEMBLY OF
NON-DRIVING END WITH
ANGULAR CONTACT BALL BRG ARRGT

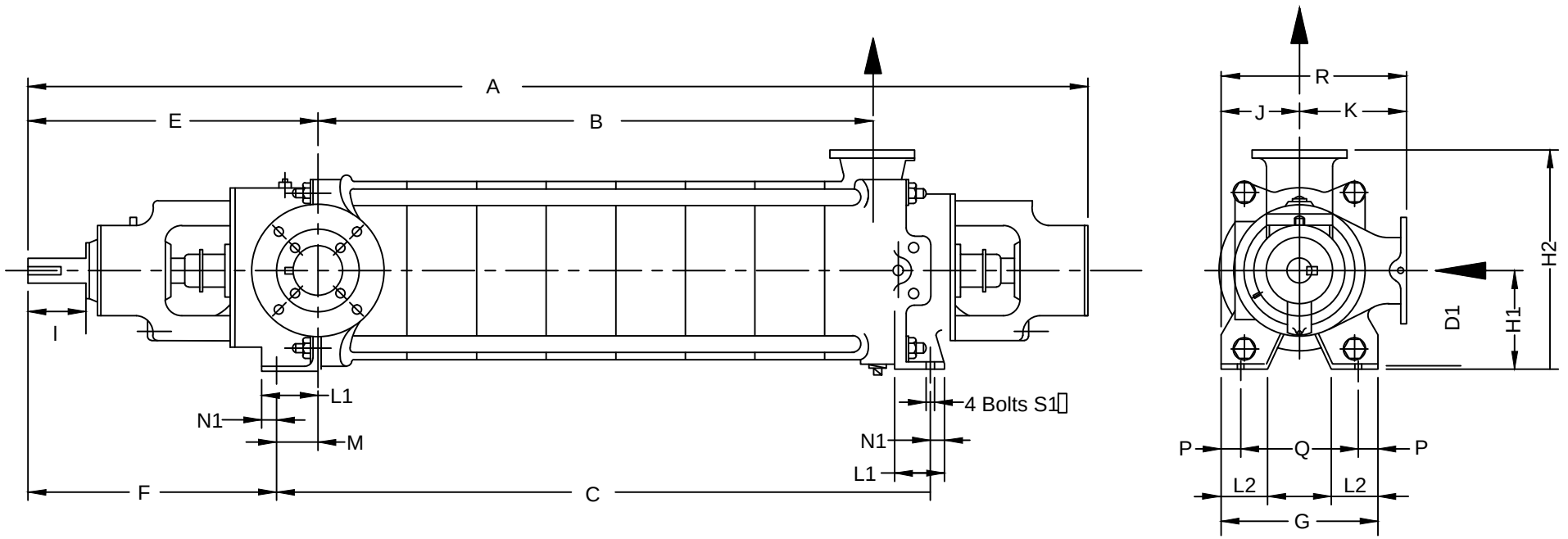
SR. NO.	DESCRIPTION	PART CODE NO.	QTY. PER UNIT
	MECHANICAL SEAL PARTS		
50	SHAFT SLEEVE FOR MECHANICAL SEAL (DELIVERY SIDE)		
49	SHAFT SLEEVE FOR MECHANICAL SEAL (SUCTION SIDE)		
48	'O' RING FOR MECHANICAL SEAL COVER		
47	MECHANICAL SEAL COVER		
46	DRAIN PLUG FOR SUCTION CASING		
45	'O' RING		
44	ANGULAR CONTACT BALL BEARING		
43	INTERSTAGE BUSH FOR DIFFUSER		
42	INTERSTAGE BUSH FOR DIFFUSER WITH GUIDE VANES (AGAINST SPECIFIC ORDER ONLY)		
41	WEAR RING (DEL. SIDE)		
40	WEAR RING (SUC. SIDE)		
39	GRUB SCREW		
38	WASHER FOR BEARING LOCK NUT		
37	WASHER FOR TIE-BAR		
36	DRAIN PLUG FOR DEL. CASING		
35	HEX. NUT FOR TIE-BAR		
34	'O' RING		
33	'O' RING		
32	'O' RING		
31	OIL SEAL (DE & NDE)		
30	VENT PLUG		
29	GREASE NIPPLE		
28	GLAND PACKING		
27	TIE-BAR		
26	BEARING LOCK NUT		
25	KEY FOR COUPLING		
24	KEY FOR FIRST IMPELLER		
23	KEY FOR LAST IMPELLER		
22	KEY FOR IMPELLER		
21	DISTANCE SLEEVE		
20	SHAFT SLEEVE (NON DRIVING SIDE) HARDENED TO 250 HBN MIN.		
19	SHAFT SLEEVE(DRIVING SIDE)		
18	BEARING COVER (NON DRIVING SIDE)		
17	BEARING COVER (DRIVING SIDE)		
16	ROLLER BEARING (DRIVING SIDE)		
15	DEEP GROOVE BALL BEARING (NON DRIVING SIDE)		
14	BEARING HOUSING (NON DIVING SIDE)		
13	BEARING HOUSING (DIVING SIDE)		
12	LIQUID DEFLECTOR		
11	LANTER RING		
10	GLAND		
9	ADJUSTABLE WASHER		
8	WASHER		
7	PUMP SHAFT		
6	ENCLOSED IMPELLER		
5	DIFFUSER WITH GUIDE VANES		
4	DIFFUSER		
3	STAGE CASING		
2	SUCTION CASING		
1	DELIVERY CASING		

CLIENT: M/S.
PO. NO : -
ITEM / TAG NO : PLANT :
Q in m^3/ hr : **H** in mtrs : Liquid : Temp. CÁ:
MOTOR KW : HP : RPM : FRAME : MAKE :
INDENT NO : - QTY :

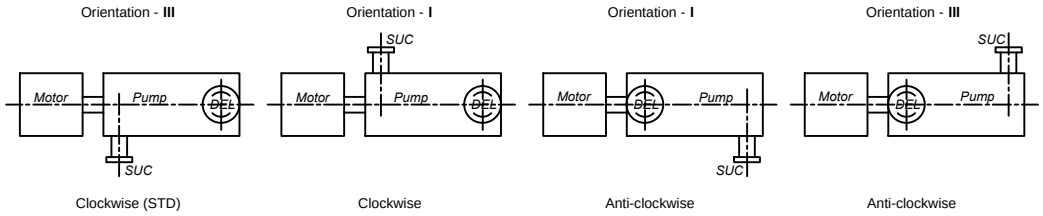
GENERAL CROSS SECTIONAL AND
OVERALL DIMENSIONAL ASSLY.DRG.
OF PN 65-20 PUMP.

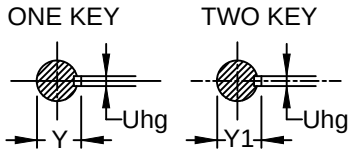
AURO PUMPS PVT. LTD
PALEJ- 392 220. DIST:- BHARUCH.

DRN.	FAH		Drg .NO
CHD.			



ORIENTATION/ROTATION





Pump Model -PN 65-19E/L															
	No.of Stages														
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
c/s.	50 & 60					50			50						
A	875	951	1027	1103	1179	1255	1331	1407	1483	1559	1635				
B	206	286	358	434	510	586	662	738	814	890	966				
C	341	417	493	569	645	721	797	873	949	1025	1101				
Wt.kg.	155	175	195	215	235	255	275	295	315	335	355				
P'															

	SUC. FLANGE	DEL. FLANGE
Ø NB	80	65
O.D.	200	215
P.C.D.	160	145
THK.	21	33
NO. OF HOLES	8	8
DIA. OF HOLES	18	18

PUMP DIMENSION

Sr. No.	Pump Type	SUC	DEL	E	F	N1	L1	H1	H2	T Thk	J	K	R	G	Q Crs	N2	L2	No.of holes S1	d10	Shaft Detail					SUC.Flanges					DEL.Flanges					
																				Do	U hg	I	t1	Y1	S	d0	F	T2	T1 Thk	S'	d0	F'	S'	d'0	F'
1	PN 65-20	80	65	393	326	20	70	180	380	15	180	200	380	360	315	20	70	4	19	40k6	12	110	43	46	8	18	160	21	33	8	18	145	8	22	160

CLIENT / CONSULTANT :- M/S. .....

P.O./ENQ NO : ..... DATE :- .....

ITEM/TAG NO :- – PROJECT / PLANT:- .....

PUMP TYPE :- PN 65-20 **H** in mtrs :- ..... **Q** in m^3/h :- .....

M.O.C. :- ..... Qty :- 01 INDENT NO :- .....

GENERAL ARRANGEMENT OF
BOILER FEED **' PN'** TYPE PUMP

AURO PUMPS PVT. LTD.
PALEJ - 392 220. DIST. BHARUCH

DRAWN	F.A.H.	
CHECKD	H.N.P	
APPROVED		
G.A.DRG.NO.		
REV.	0	