

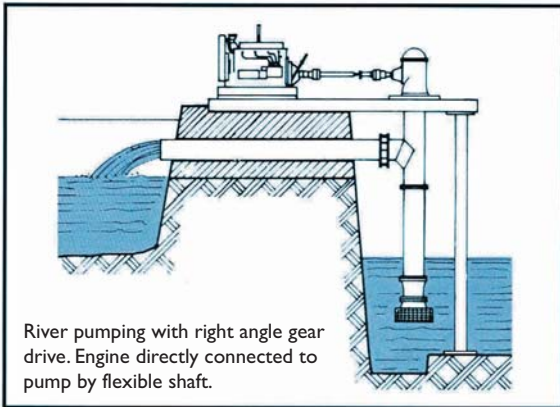


**VMF series**  
Vertical Mixed Flow Pumps

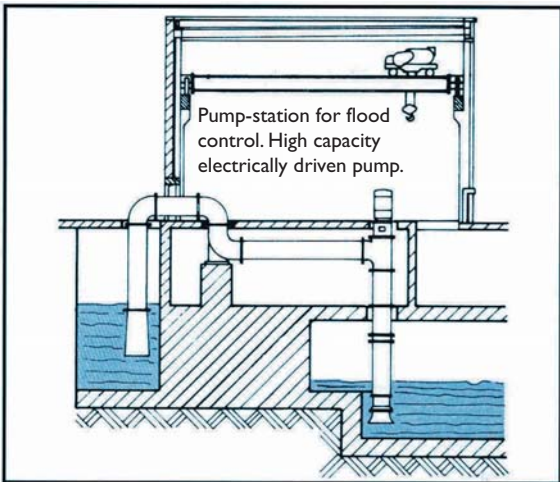


# VMF series

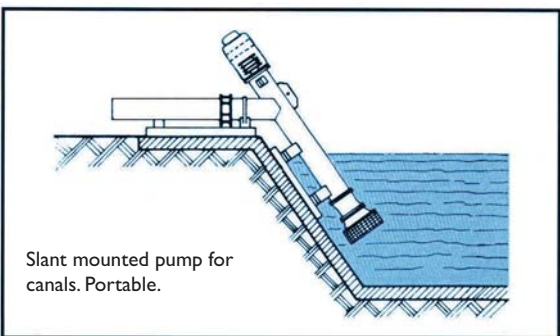




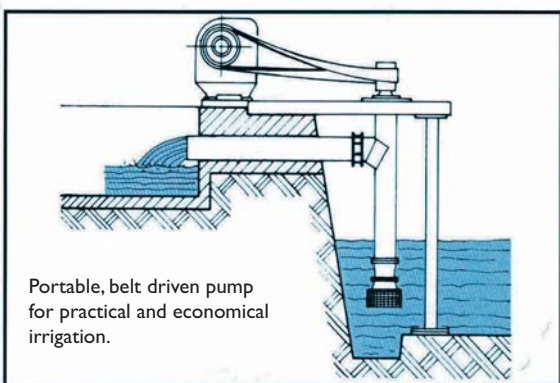
River pumping with right angle gear drive. Engine directly connected to pump by flexible shaft.



Pump-station for flood control. High capacity electrically driven pump.



Slant mounted pump for canals. Portable.



Portable, belt driven pump for practical and economical irrigation.

The VMF type pumps are mixed flow pumps of single or multi-stage design. Standardized assembly groups: bowl, column, discharge head and driver. Capacity appr. 130 to 23000 m<sup>3</sup> / h. Total head up to 250 m. Discharge branch sizes NW 200 to 1600 mm. For larger capacities refer to the factory. Usually the mixed flow pumps are installed in a vertical position taking suction from an open sump and discharging through a 90 degree elbow. They can be mounted, if necessary, horizontally. It is also quite common to lay the pump at an angle on a level or ditch bank. This reduces the cost of the supporting structure.

## DESIGN FEATURES

### Space Saving

Vertical arrangement saves valuable floor space.

### Self Priming

Submerged impellers allow pump to be started without priming. Low initial and operating cost.

### Low Operating Cost

High efficiency pump design and high reliability result in lower operating cost.

### Long Life – Low Maintenance

Flanged bowls and column pipes for easier assembly – disassembly and perfect alignment.

### Design Flexibility

Single or multistage construction with enclosed or semi-open impellers of different design and sizes. Oil, grease, clean or pumped water lubrication. Height adjustable with standard column parts. Four types of discharge heads to meet specific requirements. Discharge elbow under or over floor.

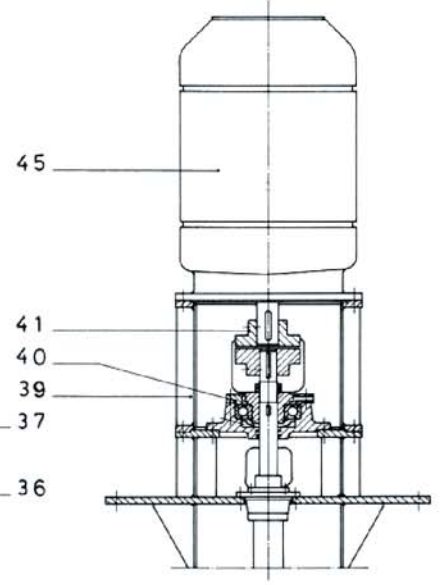
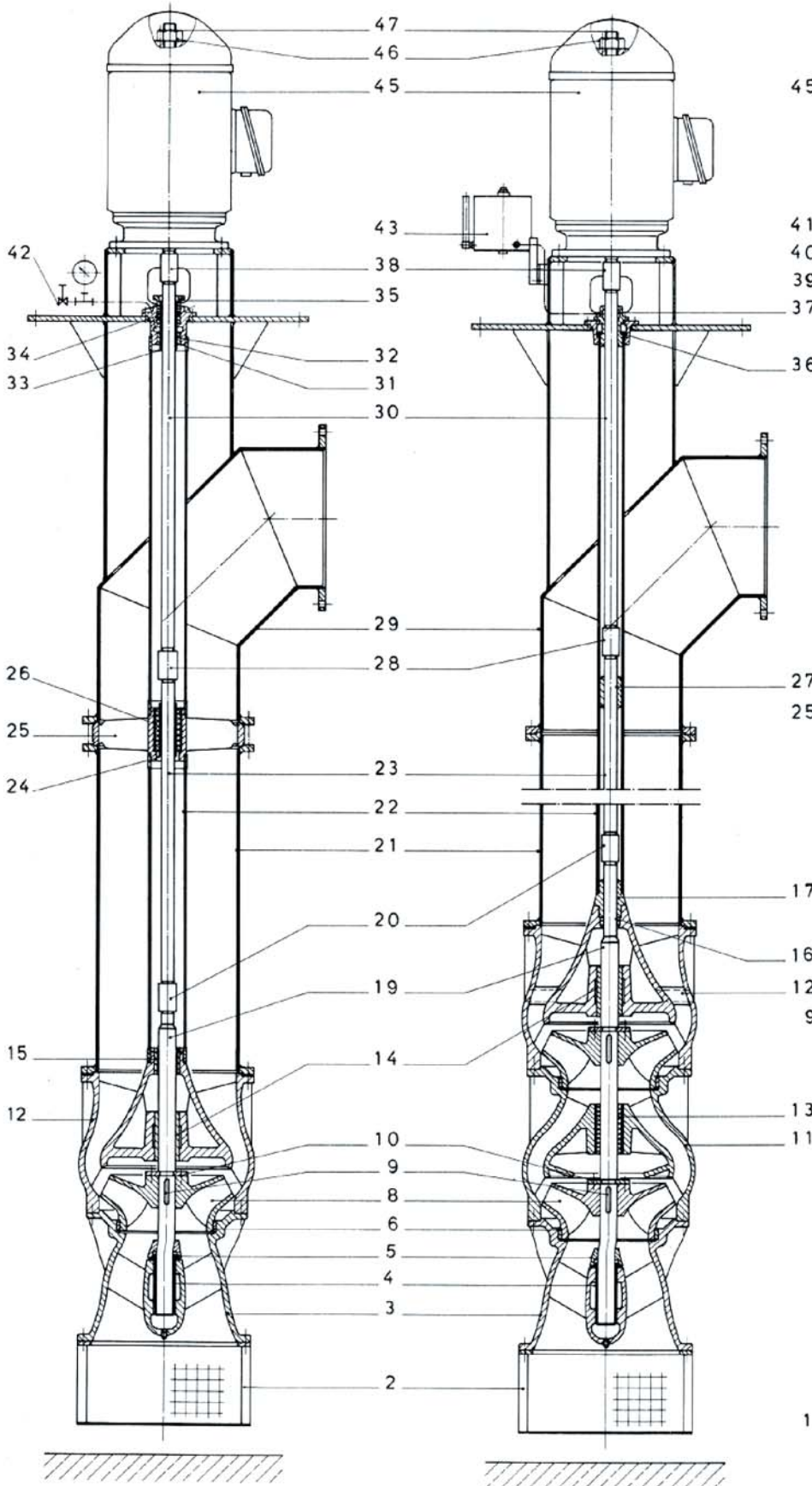
Driven by electric motor, diesel engine, directly or through a right angle gear drive or belt.

## ENCLOSED LINE SHAFT

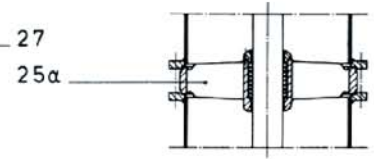
## SECTIONAL VIEWS

CLEAN WATER LUBRICATION

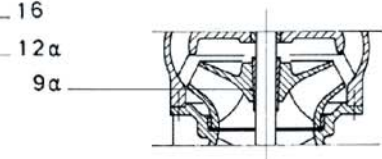
OIL LUBRICATION



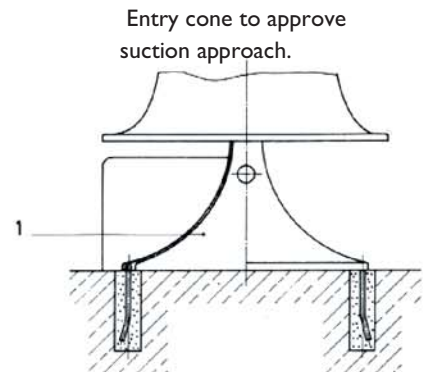
Solid shaft motor.  
Flexible coupling.  
Separate axial  
Thrust bearing



Tube stabilizer.



Impeller with  
taper collet.

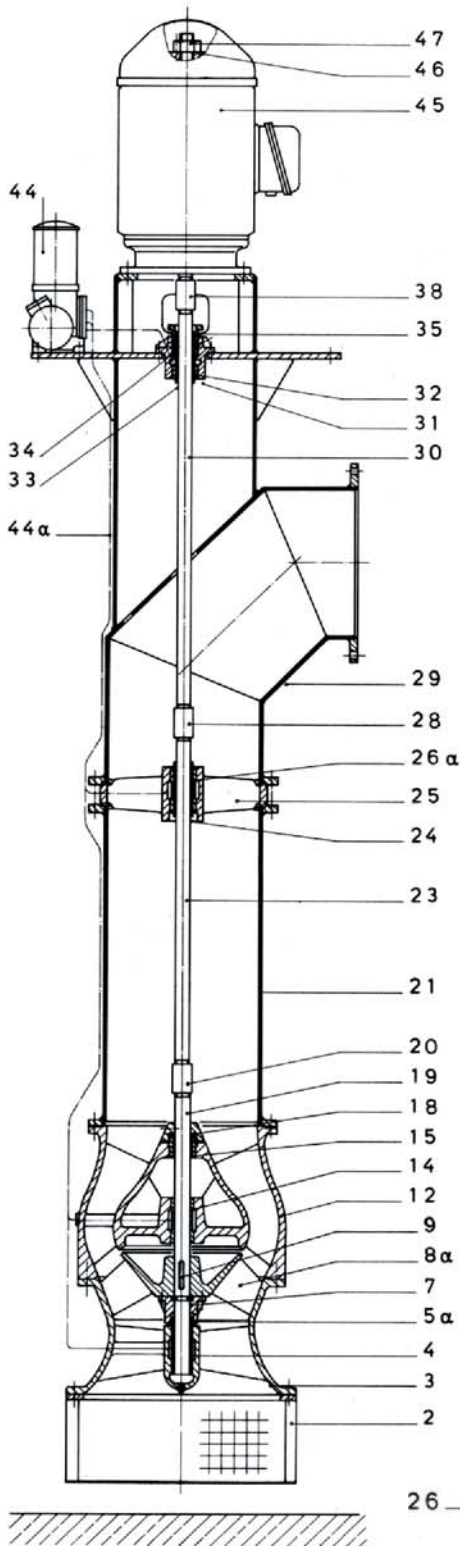


Entry cone to approve  
suction approach.

## PART LIST

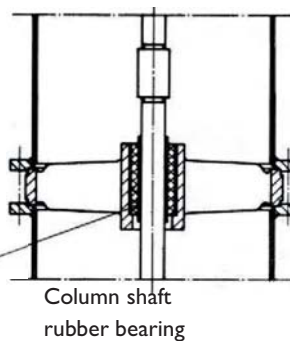
### OPEN LINE SHAFT

Grease or Pumped Water Lubrication



ITEM NUMBER	CODE NUMBER	PART NAME	STANDARD MATERIAL OF CONSTRUCTION
1	50	Entry Cone	Cast Iron GG - 20
2	155	Strainer	Galvanize steel
3	138	Suction Bell	Cast Iron GG - 20
4	545.1	Suction Bell Bearing	Bronze Rg 7
5	271.1	Sand Collar	Bronze Rg 5
5a	271.2	Sand Collar for semi -open Impeller	Bronze Rg 5
6	502	Bowl Wear Ring	Cast Iron GG - 20
7	501.1	Split Ring for Axial Thrust	Stainless steel X20Cr13
8	230.1	Impeller (enclosed)	Bronze Rg 5
8a	230.2	Impeller (semi - open)	Bronze Rg 5
9	940	Impeller Key	Stainless steel X20Cr13
9a	943	Impeller Taper Collet	Stainless steel X20Cr13
10	501.2	Split Ring	Stainless steel X20Cr13
11	112	Intermediate Bowl	Cast Iron GG - 20
12	112.1	Discharge Bowl	Cast Iron GG - 20
12a	112.2	Discharge Bowl for O.L.	Cast Iron GG - 20
13	545.2	Intermediate Bowl Bearing	Rubber 45-55 shore
14	545.3	Discharge Bowl Bearing	Bronze Rg 7
15	545.4	Discharge Bowl Bearing	Bronze Rg 7
16	421	Sealing Rings for O.L.	
17	544	Tube Adaptor Bearing	Bronze Rg 7
18	271.3	Sand Collar	Bronze Rg 5
19	211	Pump Shaft	Stainless steel X20Cr13
20	852.1	Pump Shaft Coupling	Steel St 70-2
21	711	Column Pipe	Steel St 37-2
22	714	Shaft Enclosing Tube	Steel St 35
23	212	Column Shaft	Steel Ck 45 or Stainless steel X20Cr13
24	524.1	Column Shaft Sleeve	Stainless steel X20Cr13
25	383	Bearing Retainer for G.L., C.W.L. & P.L.	Cast Iron GG - 20
25a	717	Tube Stabilizer	Cast Iron GG - 20
26	545.5	Column Shaft Bearing for C.W.L. & P.L.	Rubber 45-55 shore
26a	545.6	Column Shaft Bearing for G.L.	Bronze Rg 7
27	544.1	Tube Shaft Bearing for O.L.	Bronze Rg 7
28	852.2	Column Shaft Coupling	Steel St 70-2
29	115.1	Discharge Head type A (BBE)	Steel USt 37-2
29a	115.2	Discharge Head type A (ABE)	Steel USt 37-2
29b	115.3	Discharge Head type B	Steel USt 37-2
29c	115.4	Discharge Head type C	Steel USt 37-2
29d	115.5	Discharge Head type D	Steel USt 37-2
30	213.1	Headshaft	Steel Ck 45 or Stainless steel X20Cr13
31	451	Stuffing Box Casing	Cast Iron GG - 20
32	545.7	Stuffing Box Bearing	Bronze Rg 7
33	524.2	Headshaft Sleeve	Stainless steel X20Cr13
34	461	Stuffing Box Packing	Graphitized Asbestos
35	452	Stuffing Box Gland	Cast Iron GG - 20
36	465	Tension Nut Body for O.L.	Cast Iron GG - 20
37	466	Tension Nut for O.L.	Bronze Rg 7
38	852.3	Headshaft Coupling	Steel St 70-2
39	341	Drive Adaptor	Steel USt 37-2
40	303	Thrust Bearing Assembly	
41	943	Flexible Coupling	
42		Clean Water Supply Device for C.W.L.	
43	633	Oilier for O.L.	
44	634	Grease Pump for G.L.	
44a	707	Grease Tubes	Copper
45	800	Electric Motor ( or Right Angle Gear Drive or Pulley Drive)	
46	921	Adjusting Nut	Steel Ck 35
47	213.2	Drive Shaft	Steel Ck 45 or Stainless Steel X20Cr13

### Pumped Water Lubrication



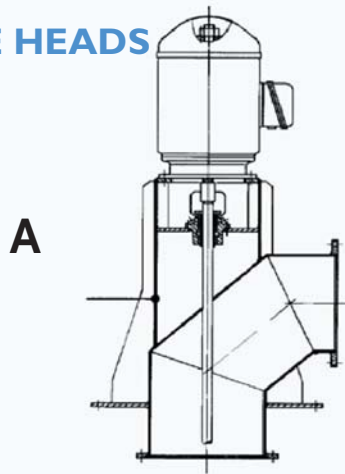
### MATERIAL CROSS REFERENCE

DIN Designation	DIN Number	USA Designation
GG - 20	0.6020	A48 Class 30
X20Cr13	1.4021	AISI 420
Ck35	1.1181	AISI 1035
Ck45	1.1191	AISI 1045
St 35	1.0308	
St 60-2	1.0543	
St 70-2	1.0633	
St 37-2	1.0112	
USt 37-2	1.0036	A 570 Gr 33.36
Rg 5 (CuSn5 ZnPb)	2.1096.01	SAE 40
Rg 7 (CuSn7 ZnPb)	2.1090.01	SAE 660

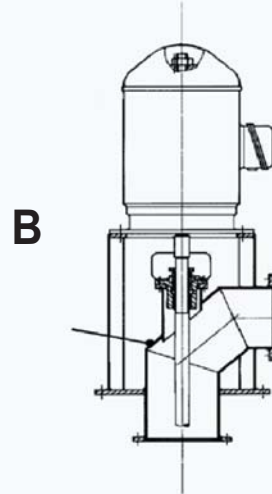
## AVAILABLE CASTINGS MATERIAL & SPECIFICATIONS

	TYPE	DESCRIPTION	DIN Designation	DIN Number	EN Designation	USA Designation
Castings	Cast Iron	Grey Cast Iron	GG-20	0.6020	EN-JL1030	A48 Class 30
		Grey Cast Iron	GG-25	0.6025	EN-JL1040	A48 Class 40
		Ductile Iron	GGG40.3	0.7043	EN-JS1025	A536 60-40-18
		Ni-Resist	GGG-NiCrNb 20 2	0.7661	EN-GJS-AXNiCrNb20-2	A571 D-2
	Bronze	Tin-Lead Bronze	G-CuSn5Zn5Pb5	2.1096	EN-1982-G-CuSn5Zn5Pb5	B62 C83600
		Zinc-Free Bronze	G-CuSn10	2.1050	EN-1982-G-CuSn10	
		Ni-Al Bronze	G-CuAl10Ni5Fe4		EN-1982-G-CuAl10Ni5Fe4	
	Cast Steel	Non alloy steel	GS-45	1.0446	EN-10293-GE240	A 27 (65-35)
		Non alloy steel	GS-52	1.0552	EN-10293-GE260	A 27 (70-40)
		Structural Steel	GP240GH	1.0619	EN 10213-2-GP240GH	A216 (WCB)
	Stainless Steel	Austenitic (316)	GX5CrNiMo19-11-2	1.4408	EN-10283-GX5CrNiMo19-11-2	A351 (CF8M)
		Austenitic (316L)	GX2CrNiMo19-11-2	1.4409	EN-10283-GX2CrNiMo19-11-2	A351 (CF3M)
		Full Austenitic (904L)	GX2NiCrMoCu25-20-5	1.4584	EN-10283GX2NiCrMoCu25-20-5	~AISI-904L
		Duplex	GX2CrNiMoCuN25-6-3-3	1.4517	EN-10283-GX2CrNiMoCuN25-6-3-3	A890 (CD4MCuN)
		Super Duplex	GX2CrNiMoN26-7-4	1.4469	EN-10283-GX2CrNiMoN26-7-4	A890 (CE3MN)

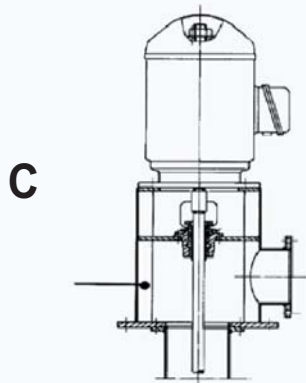
### DISCHARGE HEADS



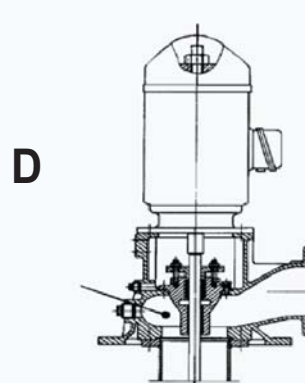
FABRICATED TYPE "A"



FABRICATED TYPE "B"

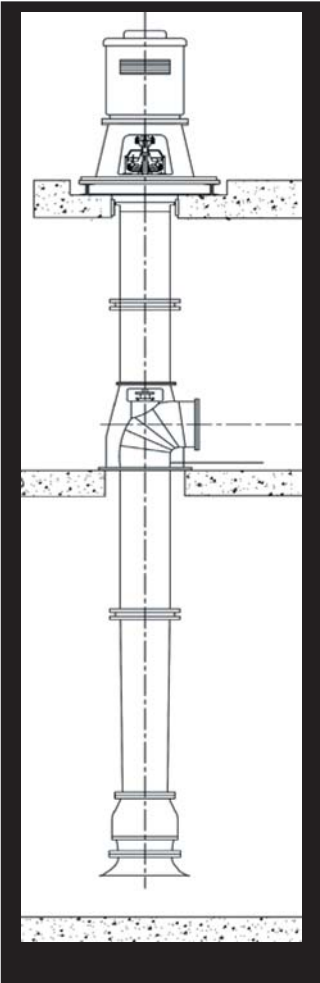


FABRICATED TYPE "C"

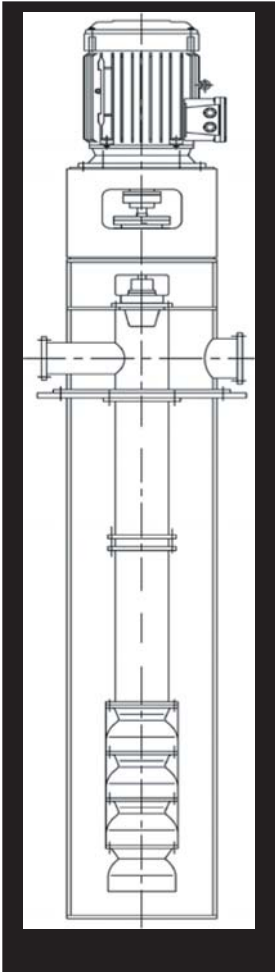


CAST IRON TYPE "D"

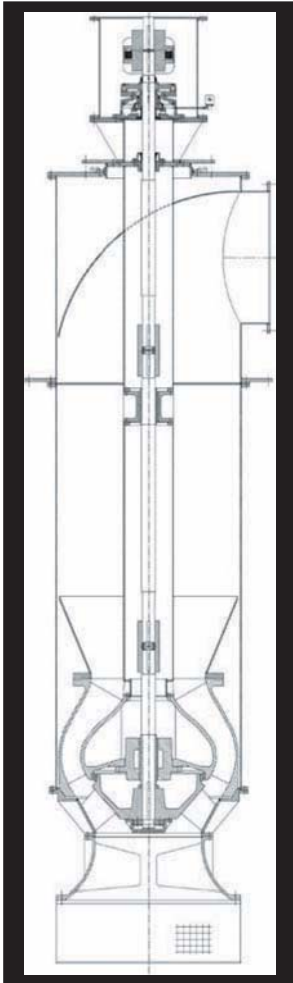
**SPECIAL ARRANGEMENTS**



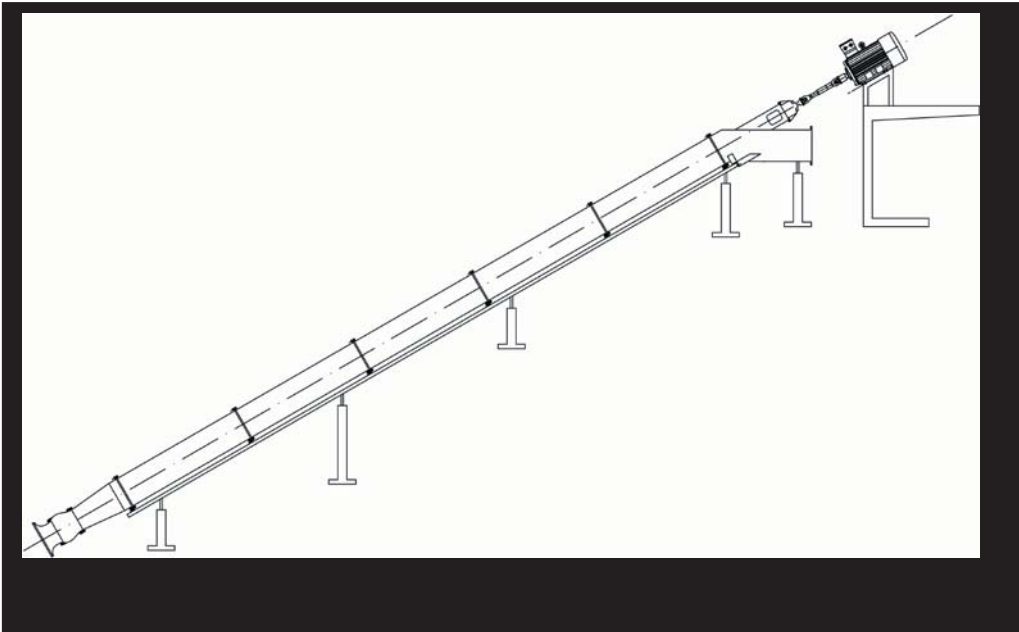
**2 -Floor Arrangement**



**Can-Type Arrangement**



**Pull-Out Arrangement**



**Inclined Arrangement**