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3127.180



# Technical specification



## 3127.180 Technical specification

The Flygt 3127.180 submersible pump with a capacity of up to 80 l/s covers a number of applications.

The electric motor and the pump are close coupled and provide a compact and robust unit which requires little space and is easy to handle.

The basic model is designed to pump liquid containing solid particles, such as waste water. It can also be used for pumping clean water or raw water.

The pump can be fitted with a cutter and open impeller and is then suitable for liquid containing long-fibred material, such as liquid manure.

## INSTALLATION ALTERNATIVES

The different models are available in one or more versions, depending on method of installation.

### Basic model

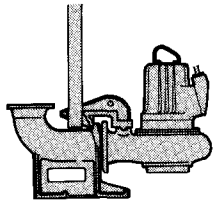
The pump casing and the one-, two- and three-vane impellers can pass solids with diameters up to 107 mm. Vortex impeller are also available.

### Cutter model

The pump housing and the cutting two-vane impeller can pass solids with diameter up to 60 mm.

The pump operates completely or partially submerged.

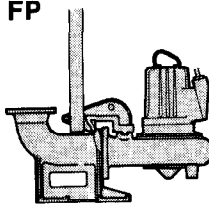
### CP/DP



This system with guide bar and discharge connection permits automatic connection of the pump to the discharge line. The unit can be removed for inspection without anyone having to enter the sump.

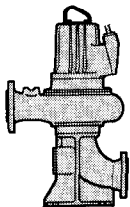
The pump works completely or partially submerged.

### FP



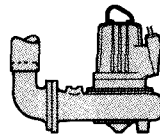
For permanent installation, a system with guide bar and discharge connection fixed to the sump floor or pump well is used. When the pump is lowered down the guide bars it engages automatically with the discharge connection — and automatically released when it is raised.

### CT



The pump is installed dry on a base stand and is connected directly to the inlet and outlet lines. The submersible design of the pump prevents damage in the event of flooding.

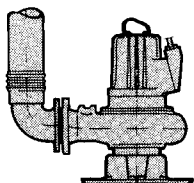
### FS



The pump, which is designed for hose connections alone, can be used for various of duties.

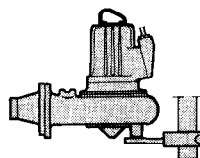
As a manure pump, it can also easily be used for emptying tanks and urine receptacles as well as for drainage pumping.

### CS/DS/HS



A portable pump intended for operating completely or partially submerged in the pumped liquid. It is equipped with base stand and hose connection.

### FJ

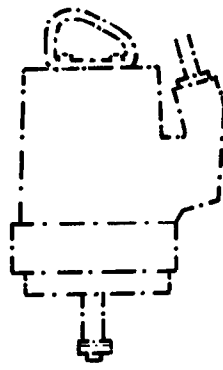


A flexible system consisting of discharge connection with guide bar combined with a jet nozzle for mixing. For simple handling, a lifting davit is mounted on the guide bar.

The jet nozzle is also designed as a hose connection (nominal diameter 100 mm).

## Different versions of the hydraulic section

Depending on desired performance, the pump is available for clean water, waste water and sludge in both low-head, medium-head and high-head versions. The motors are 4-pole, but there is also a 2-pole motor for the high-head version. A swirl-type impeller is available as an alternative to the vane-type impeller. A heavy duty version is available for highly abrasive media.



The cutter model for liquids containing long fibres and the lifting model for raw water are available in low-head versions.

### BASIC MODEL

		Impeller		
		Curve No.	Number of vanes	Flow passage, mm
LT low-head version for CP, CT and CS installation		410 (not CT)	2	Circular dia. 76
		411	2	dia. 76
		412	2	Elipsoidal 62 x 96
		441 (not CT)	1	107 x 117
		442	1	100 x 110
MT medium-head version for CP, CT and CS installation		430 (not CT)	1	Elipsoidal 100 x 110
		431	1	90 x 100
		432	1	87 x 100
		433	1	82 x 100
		434	1	80 x 100
		435 (not CT)	1	Circular dia. 100
HT high-head version for CP, CT and CS installation  SH super high-head version for CP and CS installation  * Impeller Neva Clog		480*	1	Circular dia. 76
		481*	1	dia. 76
		483*	1	dia. 76
		484*	1	dia. 76
		485*	1	dia. 76
		250 (not CT)	1	dia. 58
		255—259 (not CT)	1	40 x 40
Vortex impeller version for DP installation		470	—	Circular dia. 100
		471	—	dia. 100
Heavy-duty version for HS installation		466	1	Rectangular 51 x 58
		468	1	50 x 50

### CUTTER MODEL

		Impeller		
		Curve No.	Number of vanes	Flow passage, mm
LT low-head version with cutting device for FP, FS and FJ installation		490	2	Circular dia. 50
		491	2	dia. 50
		492	2	dia. 50

## TECHNICAL DATA

Pump type		Impeller Curve No.	Motor: Squirrel-cage, 3-phase AC motor Insulation class F, 50 Hz					
			Rated power	Speed	Rated current			
			kW	rpm	220V	380V	415V	500V
<b>CP/CS</b>	3127 LT 3127 MT 3127 HT	410, 441 430, 435 480, 481	5.9	1445	21 A	12 A	11 A	9.5 A
<b>DP</b>	3127	470						
<b>HS</b>	3127	466						
<b>FP/FS/FJ</b>	3127	490						
<b>CP/CS</b>	3127 LT 3127 MT	411, 412, 442 431, 432, 433, 434, 436	4.7	1445	17 A	10 A	9.1 A	7.7 A
	3127 HT	483—485						
<b>DP</b>	3127	471						
<b>HS</b>	3127	468						
<b>FP/FS/FJ</b>	3127	491, 492						
<b>CT*</b>	3127 LT 3127 HT	442 483	4.7	1450	17 A	11 A	9.1 A	7.9 A
<b>CT**</b>	3127 LT 3127 MT 3127 HT	411, 412 432, 433, 434, 436 484, 485	4.0	1455	15 A	8.7 A	9.5 A	6.7 A
<b>CP/CS</b>	3127 HT 3127 SH	250 255—259	7.4	2900	25 A	15 A	13 A	11 A

For details of cable requirements contact your local Flygt agent.

\* When the pump is installed dry (CT) its input must be limited to 5.6 kW.

\*\* When the pump is installed dry (CT) its input must be limited to 4.7 kW.

## Weights in kg

Pump type	Pump unit	Discharge connection
<b>Basic model</b>		
CP-3127 LT	154	64
CP-3127 MT	142	53
CP-3127 HT (curve 480—485)	136	35
CP-3127 SH (curve 250 and 255—259)	136	35
DP-3127	129	35
CT incl. inlet bend and base stand		
CT-3127 LT	221	—
CT-3127 MT	188	—
CT-3127 HT (curve 483—485)	156	—
CS incl. hose conn. and base stand		
CS-3127 LT	181	—
CS-3127 MT	158	—
CS-3127 HT (curve 480—485)	142	—
CS-3127 HT (curve 250 and 255—259)	142	—
HS-3127	152	—
<b>Cutter model</b>		
FP-3127	149	53
FS-3127, incl. hose conn.	151	—
FJ-3127	174	—

Access frame with cover: 29 kg — for CP/DP installation of base model

Multiple-port valve: 67 kg — for FP installation of cutter model

Lifting davit incl. accessories: 60 kg — for cutter model

- The 3127.180 is also available in 60 Hz.
- Liquid temperature: max 40°C (104°F). The pump is also available in a version (W3127.180) for liquid temperature up to 90°C (194°F)
- The pump can be submerged down to 20 m below the surface.
- The motors are designed to supply their rated outputs at deviations of up to ±5 % of the rated frequency and voltage. Voltage variations of up to ±10 % are possible without overheating.
- The 3127.180 can be started up to 15 times per hour.
- Starting methods: Direct on-line start or star-delta start.

## Materials

	BS	DIN
Cast parts in all versions, except for impeller in FP/FS/FJ and HS versions	Cast iron	1452 1691 GG 25 G Grade 260
Lower bearing housing	Aluminium	LM 25 1725 G-AlSi7Mg wa
Shaft	Stainless steel	970 17440 1431S29 X20CrNi 172
Studs, nuts, screw and washers	Stainless steel	304S15 17440 X5CrNi 18/9
Lifting handle	Galvanized steel	970 En3 17100 St 37
Impeller for HS version	Chromium-alloyed cast iron (HRC 60)	
Impeller for FP/FS/FJ version	Spheroidal graphite iron with hardfacing where wear is greatest	SNG 27/12 1693 GGG42
Lower diffuser for FP/FS/FJ versions	Chromium-alloyed cast iron (HRC 60)	
O-rings	Nitrile rubber (70° IRH)	
Stationary wear ring	Brass or nitrile-rubber-clad steel	1400 LG 2 1705 Rg 5
Wear parts for HS	Nitrile-rubber-clad steel (40° IRH)	
Wear parts for FP/FS/FJ	Chromium-alloyed cast iron (HRC 60)	
Mechanical shaft seals		
— inner:	Ceramic/Graphite or Tungsten carbide/Tungsten carbide	
— outer:	Tungsten carbide/Tungsten carbide or corrosion-resistant tungsten carbide or Siliconized carbon/Siliconized carbon	

## Surface treatment

Impeller for FP/FS/FJ, DP and HS versions	Sprayed with primer
Impeller for curve 255—259 and 436	Sprayed with primer
Impeller for curve 441, 442, 430—434, 480—485 and 250	Coated with amide plastic, RILSAN
Outer casing	After priming the outer casing is coated with black chlorinated rubber paint.

## DESIGN

### 1. Junction box

The junction box is completely sealed off from the surrounding liquid.

### 2. Cooling

The pump is cooled by the surrounding liquid and/or the air. The motor is hermetically sealed in air.

### 3. Motor

Flygt motors are tested according to IEC 34-1.

Motor insulation to Class F means a maximum working temperature of 155°C (310°F) and permits a temperature rise of 100°C (210°F).

The temperature rise in Flygt motors does not normally exceed 80°C (175°F). The insulation material is chosen with the greatest care, and most materials are classified as Class H 180°C (355°F) materials or very close to Class H. This means an expected service life far beyond what is required for Class F.

### 4. Bearings

Support bearing: single-row ball bearing.

Main bearing: two-row angular contact ball bearing.

The bearings are greased sufficiently for three years of continuous operation.

### 5. Shaft seals

Two mechanical face seals operating independently of each other seal off the motor from the pump section. The two seal rings in the outer seal are made of tungsten carbide for long life. The inner seal, which rotates in an oil bath, has a stationary ring of tungsten carbide, and a rotating ring of carbon.

### 6. Wear ring

The pump casing bottom is equipped with an easily replaceable wear ring.

The heavy duty version of the base model has replaceable lower diffuser and impeller made of abrasion-resistant material.

The cutter model has no wear ring.

### 7. Pump section for cutter model

The cutter model's impeller is the open type, consequently it has no cover discs. (Other vane-type impellers, except for the heavy-duty version of the basic model, are of the closed type). It consists of an S-shaped vane on a short hub.

In order to prevent long fibres from snagging and instead guide them towards the cutting edges on the periphery of the pump casing inlet, the vane is extended to a screw-shaped tip beyond the pump casing. Similarly, in order to prevent long fibres from being wound up around the open part of the impeller, there are three scrapers both in the upper part of the pump casing, just above the impeller, and on the lower diffuser.

Both pump casing bottom and impeller are made of a special wear-resistant material. No wear rings are needed.

### Monitoring equipment

The stator incorporates two thermal switches connected in series.

The thermal sensors open at 125°C

The pump is available with leakage sensors for sensing the presence of any water in the oil and/or stator housing.

### Optionals

On request the pump will be equipped with the following optional items:

— leakage detector in the lower stator housing

— both sealings in the lower seal made of silicon carbide

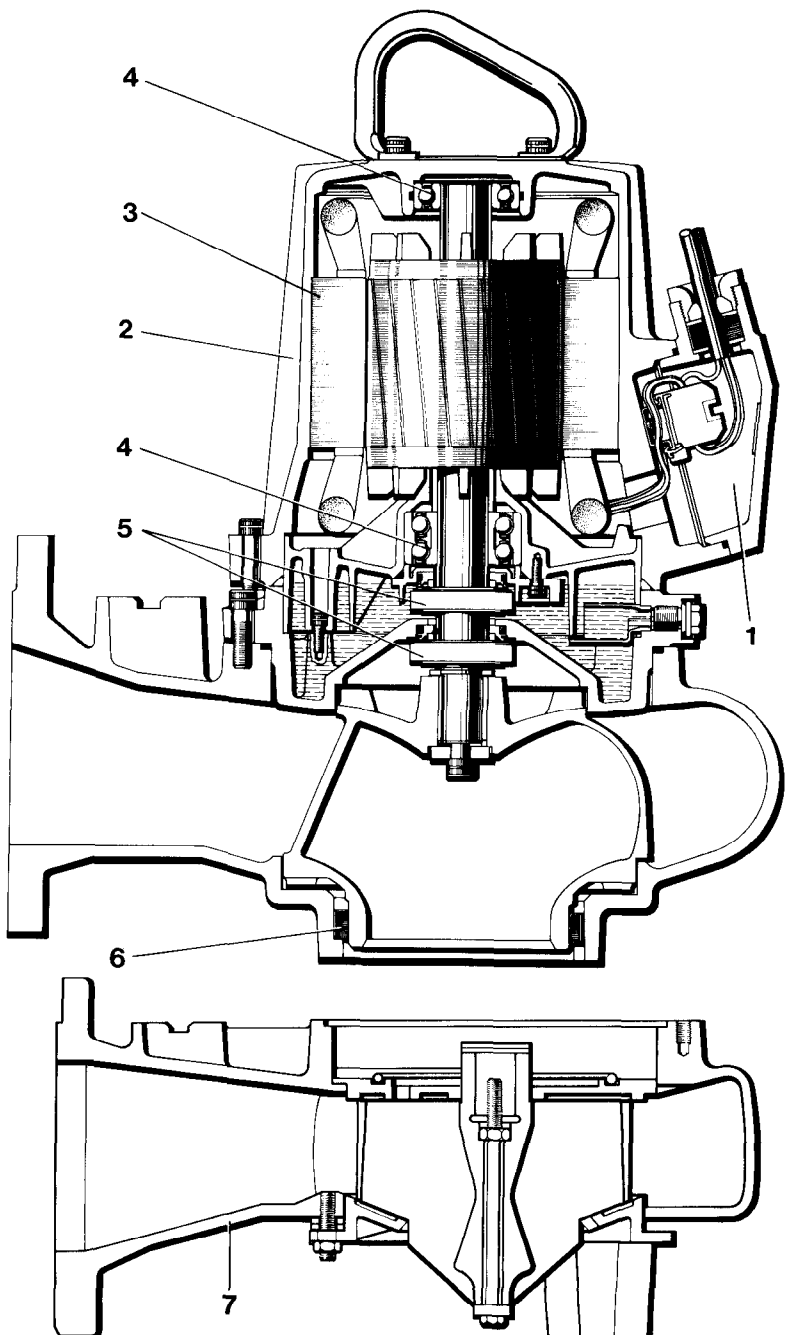
### Special executions

The pump is available in special executions for:

— explosive environments approved according to EN or NEC by FM certified (3127.180 in its standard version is CSA approved).

— warm liquids

Contact your local Flygt representative.

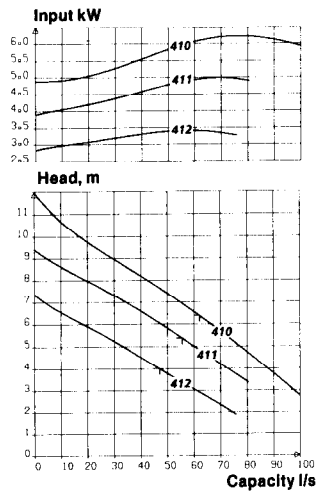


# PERFORMANCE CURVES

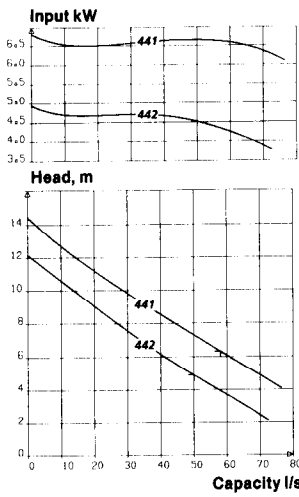
Each pump is tested in accordance with ISO 2548 class C.

└ = Optimum operating point.

**CP/CT/CS**  
LT Curve No. 410\*, 411, 412

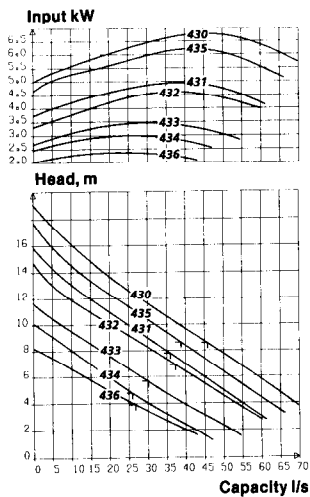


**CP/CT/CS**  
LT Curve No. 441\*, 442

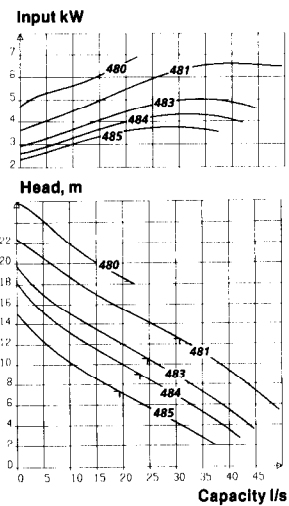


\* Due to power limitation when the pump is installed dry, the following impellers are not available for CT versions: Curves 410, 430, 435, 441, 480 and 481.

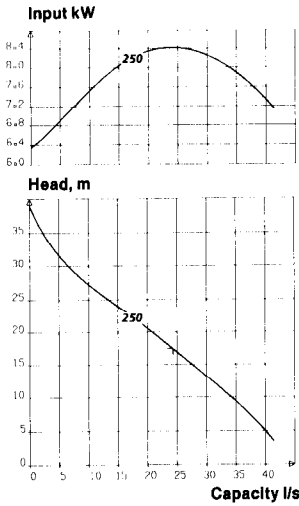
**CP/CT/CS**  
MT Curve No. 430\*, 431, 432  
433, 434, 435\*, 436  
Pump casing outlet  
dia. 100 mm or 150 mm



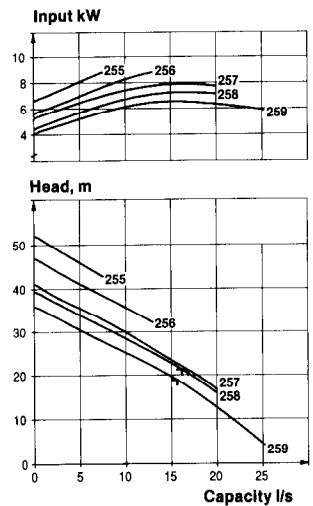
**CP/CT/CS**  
HT Curve No. 480\*, 481\*, 483, 484, 485



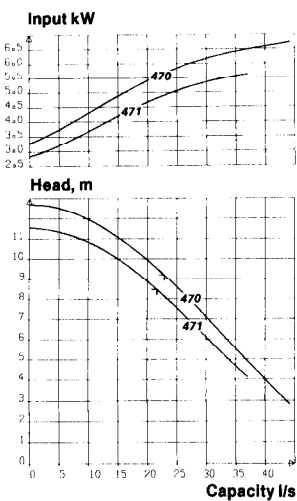
**CP/CS**  
HT Curve No. 250\*



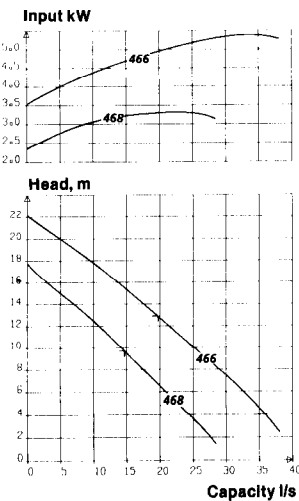
**CP/CS**  
SH Curve No 255\*, 256\*, 257\*, 258\*, 259\*



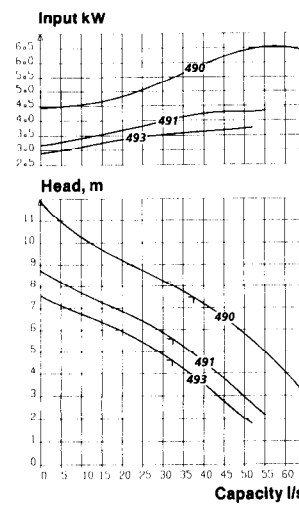
**DP**  
Curve No. 470, 471



**HS**  
Curve No. 466, 468



**FP/FS/FJ**  
Curve No. 490, 491, 493

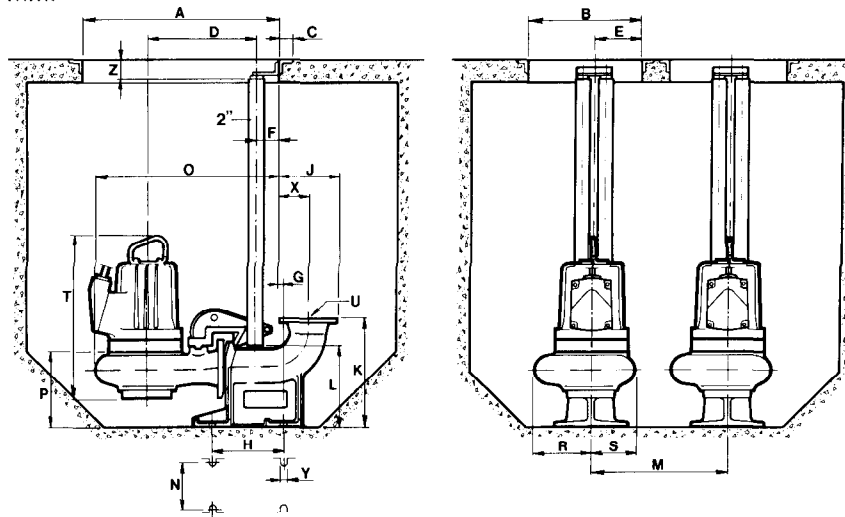




# Dimensions

All dimensions in mm.

## CP/DP

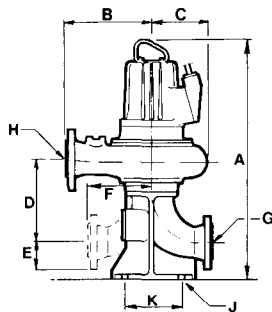


CP version	A	B	C	D	E	F	G	H	J	K	L	M <sup>Dim. min.</sup>
LT	780	570	50	466	262	85	139	280	396.5	450	381	670
MT Ø 100	780	570	50	426	262	85	69	250	274	400	258	670
MT Ø 150	780	570	50	426	262	85	109	280	339	450	367	670
HT (curve 480—485)	780	570	50	426	262	85	69	250	274	400	258	670
HT (curve 250 and 255—259)	780	570	50	426	262	85	59	250	255	400	258	670
<b>DP version</b>	780	570	50	386	262	85	69	250	274	400	258	670

CP version	N	O	P	R	S	T	U	X	Y	Z
LT	250	768	335	251	177	673	dia. 200**	224	23	70
MT Ø 100	200	713	291	216	184	658	dia. 100*	164	23	70
MT Ø 150	250	725	321	242	190	658	dia. 150*	194	23	70
HT (curve 480—485)	200	713	256	230	195	621	dia. 100*	164	23	70
HT (curve 250 and 255—259)	200	679	256	182	155	613	dia. 80*	154	23	70
<b>DP version</b>	200	676	317	205	205	689	dia. 100*	164	23	70

## CT

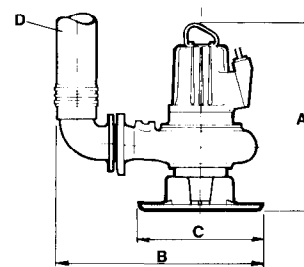


CT version	A	B	C	D	E	F
LT	1177	350	217	450	171.5	300
MT Ø 100	1058	310	214	354	142.5	250
MT Ø 150	1058	310	214	372	142.5	250
HT (curve 483—485)	912	310	202	264	115	200

CT version	G	H	J	K
LT	dia. 200**	dia. 150*	dia. 23	360
MT Ø 100	dia. 150*	dia. 100*	dia. 23	300
MT Ø 150	dia. 150*	dia. 150*	dia. 23	300
HT (curve 483—485)	dia. 100*	dia. 100*	dia. 23	220

## CS/HS



CS version	A	B	C	D
LT	776	dia. 870	dia. 439	dia. 200
MT Ø 100	761	dia. 780	dia. 430	dia. 150
MT Ø 150	761	dia. 700	dia. 406	dia. 100
HT (curve 480—485)	722	dia. 700	dia. 407	dia. 100
HT (curve 250 and 255—259)	714	dia. 700	dia. 380	dia. 80
<b>HS version</b>	692	dia. 550	dia. 407	dia. 100

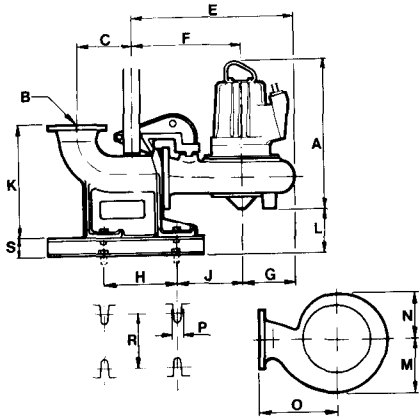
\* Flange as per SMS 342, DIN 2533 or BS 4622:1970 table 11.

\*\* Flange as per SMS 342, DIN 2532 or BS 4622:1970 table 11.

## Dimensions

All dimensions in mm.

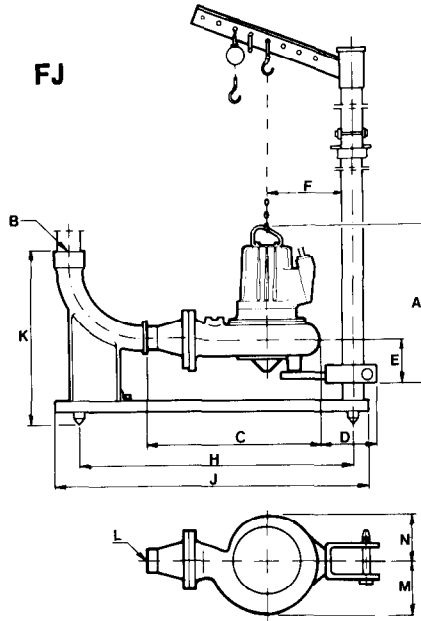
**FP**



### FP version

A	693
B	∅150
C	280
E	750
F	465
G	210
H	280
J	380
K	450
L	260
M	235
N	180
O	350
P	23
R	250
S	160

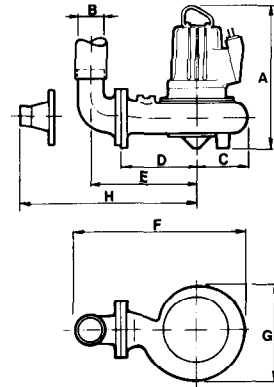
**FJ**



### FJ version

A	659	H	1110
B	∅R4"	J	1205
C	730	K	805
D	190	L	∅100
E	170	M	235
F	310	N	180
G	120		

**FS**



### FS version

A	693
B	∅100
C	210
D	350
E	465
F	∅750
G	415
H	520

The manufacturers reserve the right to alter performance, specification or design without notice.

