

# Vertical Sump Pump

## Type ETL

»dry running safe«



### Technical data

Flow rate Q	up to 220 m <sup>3</sup> /h
Head H	up to 55 m
Submersion depth	500 or 750 mm
Suction extension	up to 1800 mm
Materials limits of use	PP up to 90°C PVDF up to 110°C
Pressure socket nominal width	DN 20 ... DN 80
Drive capacity	up to 45 kW

### Design

- Vertical single-stage sump pump, dry running safe

### Sizes

- ETL 20-100 to ETL 80-200

### Technical design

- Immersion depth: 500 mm and 750 mm
- Materials: PP, PVDF
- Thermoplastic spiral casing flanged to the immersion tube with stainless steel or PVDF screws
- Closed impeller, fastened independent on the rotational direction.
- Stainless steel shaft separated from the fluid by a thick-walled thermoplastic protection tube
- Shaft lead-through at the mounting plate protected from fluid vapours by means of V-ring/SiC disc
- Radial and axial forces are absorbed by sealed roller bearings

- Corrosion protection by a 2C protection paint coat

### Drive

- Three-phase motor, from 0.25 kW to 45 kW
- Drive unit encapsulation to protect against aggressive surrounding atmosphere

### Options/Accessories:

- ASV pump monitor
- Suction basket
- Suction extension

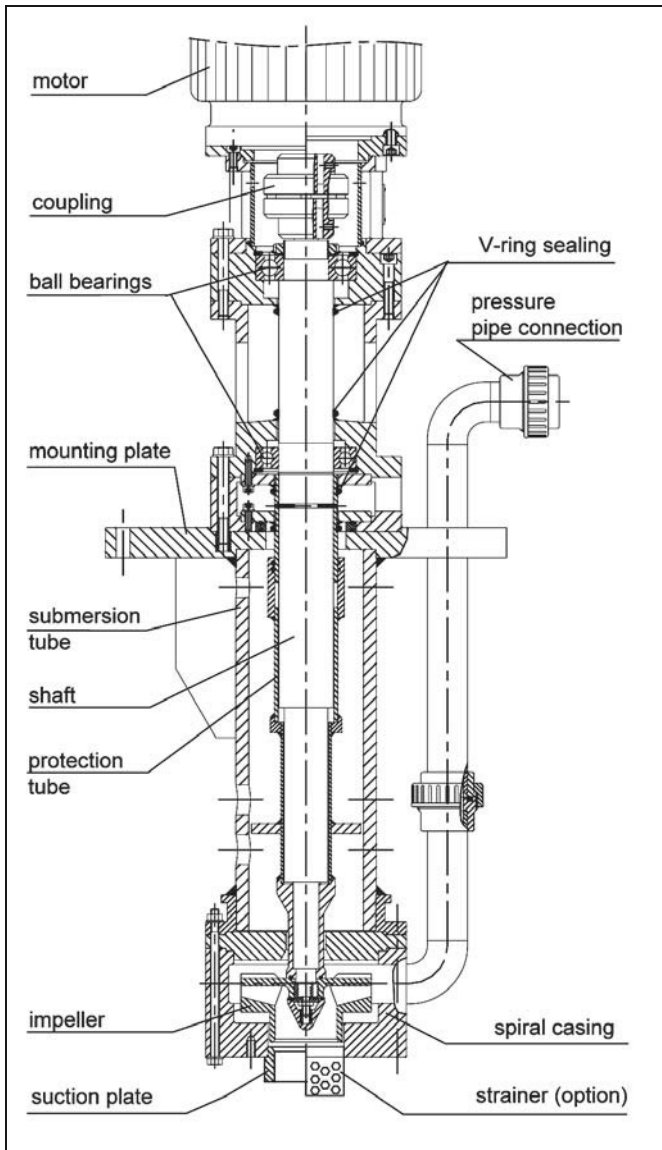
### Application

- Chemical plants
- Water treatment
- Process engineering

### Utilisation

- ASV vertical sump pumps are designed for operation

in open and closed, depressurized containers or pits, for simple draining and circulation of the fluid.



### Flow Media

- Neutral and aggressive fluids, provided that the pump components coming into contact with the fluid are resistant at the operating temperature in accordance with the ASV resistance guide.

### Viscosity

- up to appr. 160 mPas (160 cP)

### Examinations

- DIN EN ISO 9906

### Connections

Pressure connection horizontal, above the mounting plate as:

- Union socket or spigot ends (PE, PP or PVDF) for fusion welding
- BSP, ANSI, JIS on request
- Flange connection with GFR flanges or with PP/steel flanges according DIN 2501 (PN 10/16)
- Vertical pressure connection on request.

## Constructional features

### Pump housing and impeller

- The solid thermoplastic spiral casing is directly flanged at the submersion tube by means of stainless steel or PVDF screws.
- The closed impeller made of thermo-plastic material is fixed on the pump shaft independent of direction of rotation. Hydraulic efficiency is given by the fluidic shaped rotating blades and vanes on the back of the impeller as well as by the suction opening being positioned deep in the spiral casing.

### Suction connection

- The pump casing allows a variable suction connection. On emptying a container a quiet and vibration-low running of the pump is guaranteed due to the integrated suction plate.
- A strainer, optionnally available, protects the pump against larger solid particles or fibres and can prolong the lifetime.

### Shaft, submersion tube and pressure line

- The thick-walled submersion tube fixed on the mounting plate ensures a vibration-low operation of the pump and prevents the pump elements from getting into contact with the pump housing. Drain-holes for fluid drain off prevent admission of the pumping medium into the shaft exit.
- The stable shaft made of stainless steel is separated from the medium by a thick-walled thermoplastic protection tube due to suitable sealing technics. The construction adapted to thermoplastics ensures the necessary axial movability at higher operating temperatures.
- For a problem-free disassembling of the pump the separate pressure tube is equipped with an union above the spiral casing.

### Shaft exit

- The shaft exit at the mounting plate protects against medium vapours only. Special V-rings prevent vapour from escaping into the atmosphere. These sealings slide on a separation disc made of stainless or siliciumcarbide (SiC).

### Mounting on rolling bearings

- Radial and axial forces will be collected by sealed roller bearings with additional V-rings protecting against aggressive medium vapours. They are placed above the container in a separate bearing housing. Their wide axial bearing distance and the large shaft or bearing diameter guarantees the smooth running of the pump and a long operating time.

### Drive acc. IEC

- Design: IM V1<sup>1)</sup> or IM V18<sup>1)</sup> B5 or B14
- Voltage: 230/400 V, 50/60 Hz, from 3 kW up 400/690 V, 50/60 Hz
- Speeds: 1450 or 2900 rpm
- Protection: IP 55

1) without protection cap

2) with protection cap

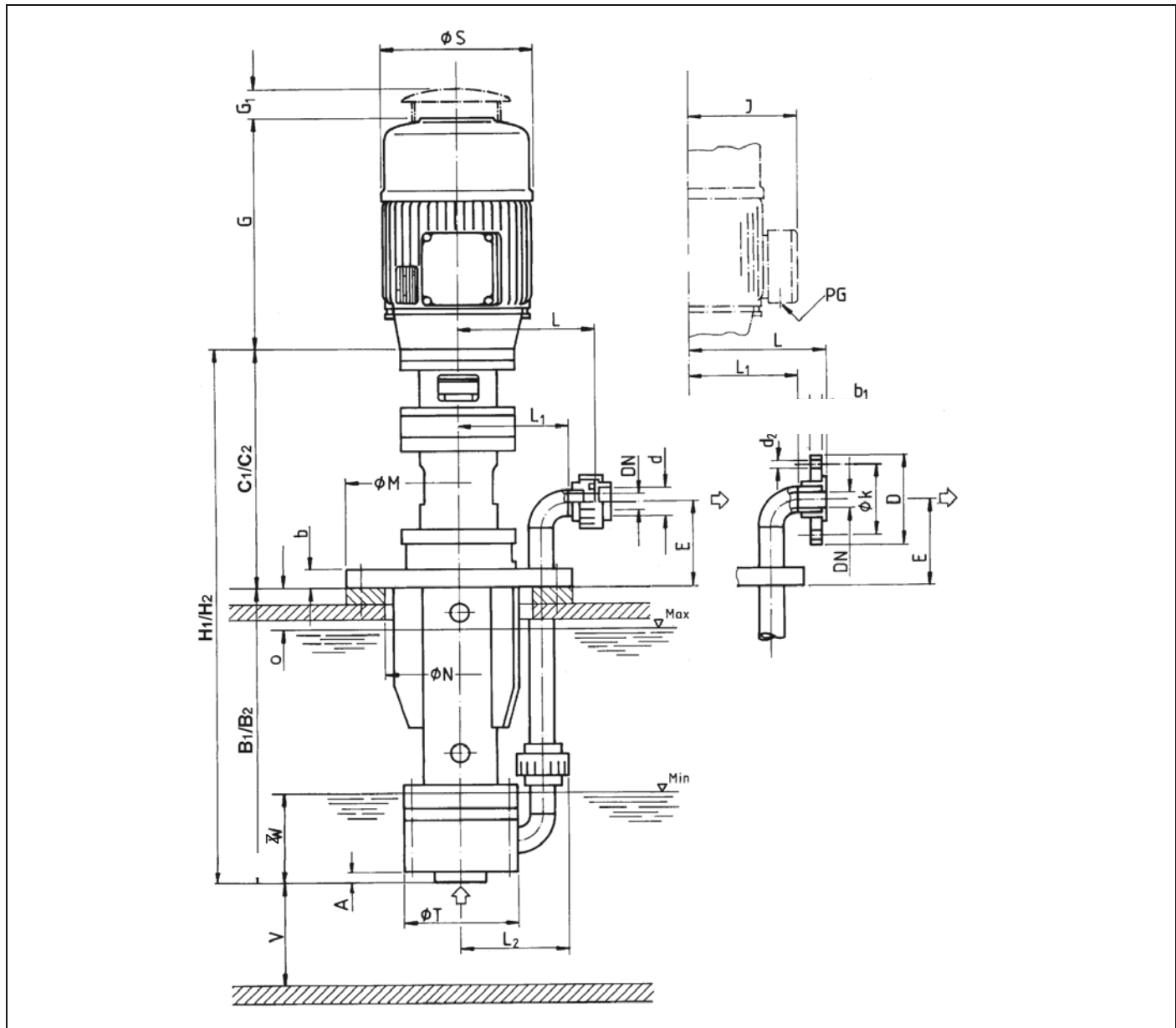
## Coordination of pump sizes and motor power

kW	1450 rpm									
0,18										
0,25	20-100									
0,37	20-125									
0,55		32-125								
0,75		40-125								
1,10			32-160							
1,50				32-200						
2,20				40-160						
3,00				50-125						
4,00					40-200					
5,50					50-160					
7,50						50-200				
11,00							65-200			
								80-200		

kW	2900 rpm									
0,18										
0,25	20-100									
0,37										
0,55										
0,75										
1,10										
1,50		25-125								
2,20			32-125							
3,00				32-160						
4,00				40-125						
5,50					40-160					
7,50					50-125					
11,00						50-160				
45,00										80-200

## Technical data and dimensions of drive motors

motor	n = 1450 rpm			n = 2900 rpm			dimensions (mm)				cable
	PM	IN1)	weight	PM	IN1)	weight	G	G1	S	J	connection
size	kW	A	kg	kW	A	kg					
71	0.25	0,81	6	0.37	0,94	6.0	210	28	145	111	1xM16x1,51xM25x1,5
71	0.37	1,04	7,2	0.55	1,42	7,2	210	28	145	111	1xM16x1,51xM25x1,5
71	-	-	-	0.75	1.65	7.4	210	28	145	111	1xM16x1,51xM25x1,5
80	0.55	1,32	9,8	0.75	1,71	9,8	268	26	163	120	1xM16x1,51xM25x1,5
80	0.75	1,81	12,3	1.10	2,25	12,3	268	26	163	120	1xM16x1,51xM25x1,5
90 S	1.10	2,55	15	1.50	3,05	15	281	51	180	128	1xM16x1,51xM25x1,5
90 L	1.50	3,4	18	2.20	4,40	18,6	308	51	180	128	1xM16x1,51xM25x1,5
100 L	2.20	4,65	21	3.00	6,10	21	335	33	198	166	2xM32x1,5
100 L	3.00	6,2	25	-	-	-	335	33	198	166	2xM32x1,5
112 M	4.00	8,2	29	4.00	7,8	27	329	33	222	177	2xM32x1,5
112 M	-	-	-	5.50	10,30	34	329	33	222	177	2xM32x1,5
132 S	5.50	11,4	42	5.50	10,40	39	385	35	262	202	2xM32x1,5
132 M	7.50	14,8	49	7.50	14,2	43	385	35	262	202	2xM32x1,5
160 M	11.00	21	71	11.00	20,5	67	494	34	314	236	2xM40x1,5
225 M				45,00	79	300	709	114	442	325	2xM50x1,5

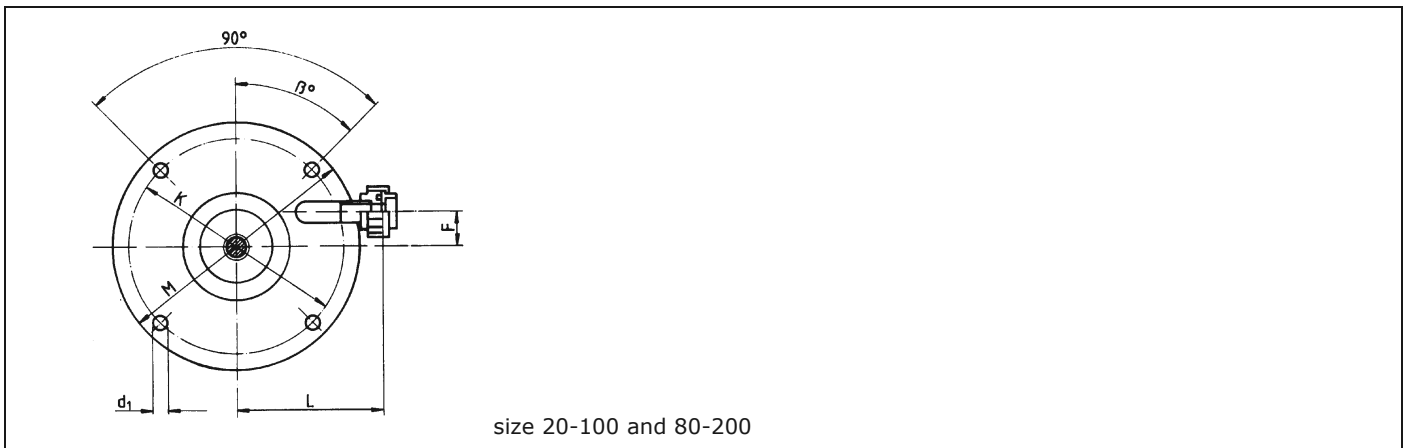
**Dimensions ETL ≤ 18 kW**

**Dimensions of the pump ≤ 18 kW**

size	pressure side		dimensions (mm)																	weight		
	DN	d	A	B1	B2	b1	C1	C2	D	d2	E	H1	H2	h	k	L	L1	L2	T		V	Z
ETL	DN	d	A	B1	B2	b1	C1	C2	D	d2	E	H1	H2	h	k	L	L1	L2	T	V	Z	kg
20-100	20	25	35	500	750	14	370	470	105	14	110	870	1220	9	75	180	133	141	140	110	170	21
25-125	25	32	35	500	750	15	370	501	115	14	110	870	1251	10	85	200	154	164	160	110	170	23
32-125	32	40	20	500	750	17	420	521	140	18	155	920	1271	11	100	220	173	172	200	140	170	32
32-160	32	40	25	540	790	17	450	626	140	18	165	990	1416	11	100	295	245	210	320	140	170	47
32-200	32	40	25	540	790	17	450	626	140	18	165	990	1416	11	100	310	260	210	320	140	170	59
40-125	40	50	20	500	750	17	420	521	150	18	155	920	1271	12	110	235	193	187	200	160	170	32
40-160	40	50	25	540	790	17	450	758	150	18	165	990	1548	12	110	300	255	220	320	160	170	47
40-200	40	50	25	540	790	17	450	758	150	18	165	990	1548	12	110	320	270	220	320	160	170	59
50-125	50	63	25	540	790	18	450	758	165	18	165	990	1298	14	125	320	270	258	350	160	170	53
50-160	50	63	25	540	790	18	450	758	165	18	165	990	1548	14	125	340	290	258	350	160	170	59
50-200	50	63	25	540	790	18	450	758	165	18	165	990	1548	14	125	360	315	258	350	160	170	63
65-200	65	75	25	540	790	18	450	758	185	18	165	990	1548	16	145	370	320	270	350	160	170	63
80-200	80	90	25	550	800	20	450	758	200	18	165	1000	1558	17	160	410	335	285	380	180	170	63

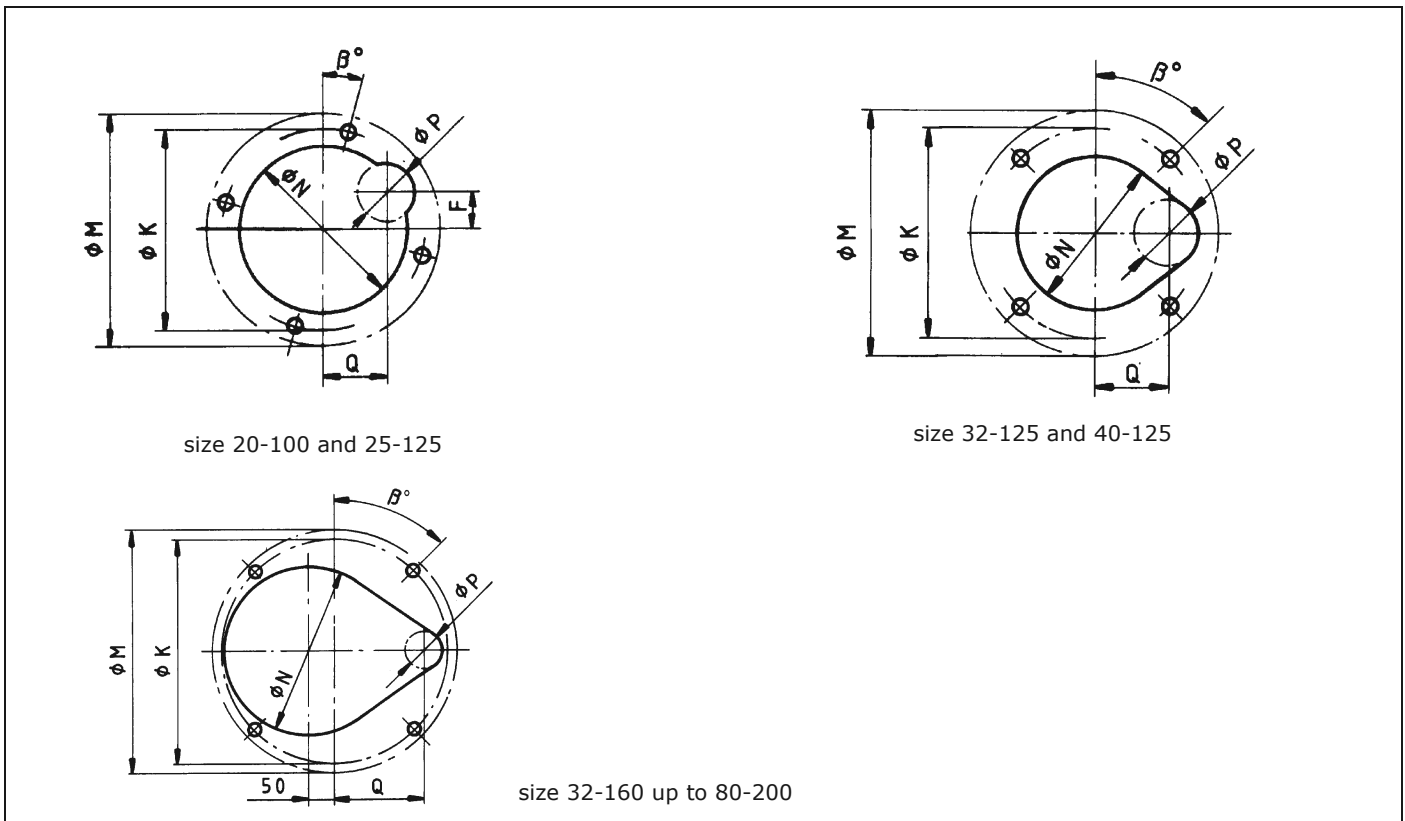
weight without motor

dimensions (G; G1; J; s) see page 7

### Dimensions of the mounting plate ≤ 18 kW

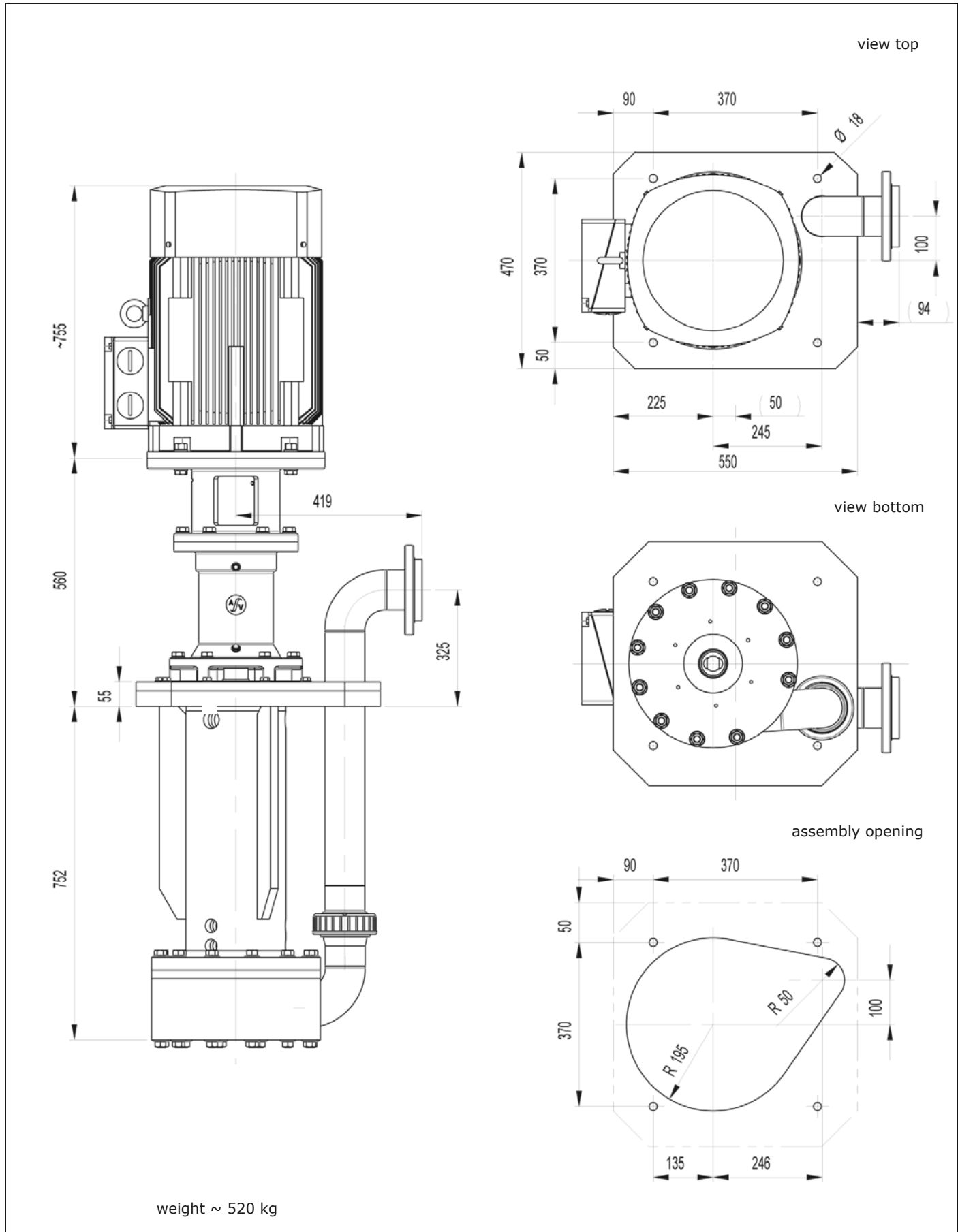


### Dimensions of the assembly opening ≤ 18 kW

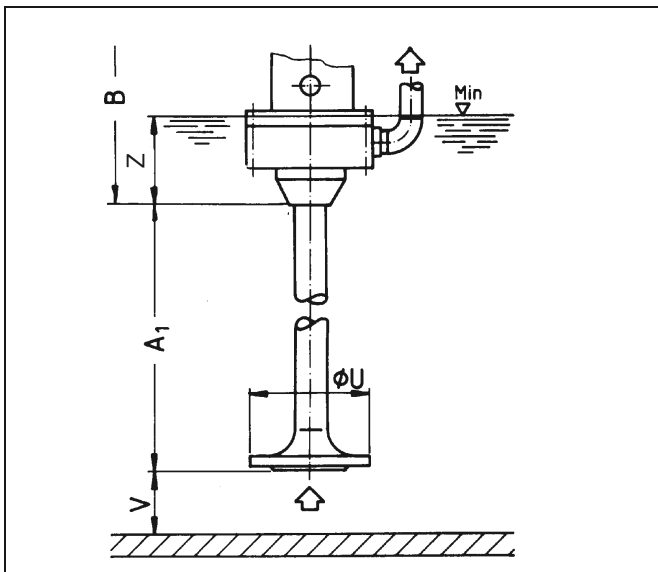


size	mounting plate						assembly opening			
ETL	F	M	K	b	d1	$\beta^\circ$	N	P	Q	o
20-100	50	270	230	30	14	15	205	70	85	80
25-125	58	320	270	30	14	15	245	80	100	80
32-125	-	400	365	30	18	54	240	95	130	80
32-160	-	520	488	40	18	45	370	90	195	80
32-200	-	520	488	30	18	45	370	90	195	80
40-125	-	400	365	30	18	54	240	95	130	80
40-160	-	520	488	40	18	45	370	90	195	80
40-200	-	520	488	30	18	45	370	90	195	80
50-125	-	520	488	40	18	45	370	90	195	80
50-160	-	520	488	40	18	45	370	90	195	80
50-200	-	520	488	30	18	45	370	90	195	80
65-200	-	520	488	30	18	45	370	90	195	80
80-200	-	520	488	30	18	45	390	100	195	80

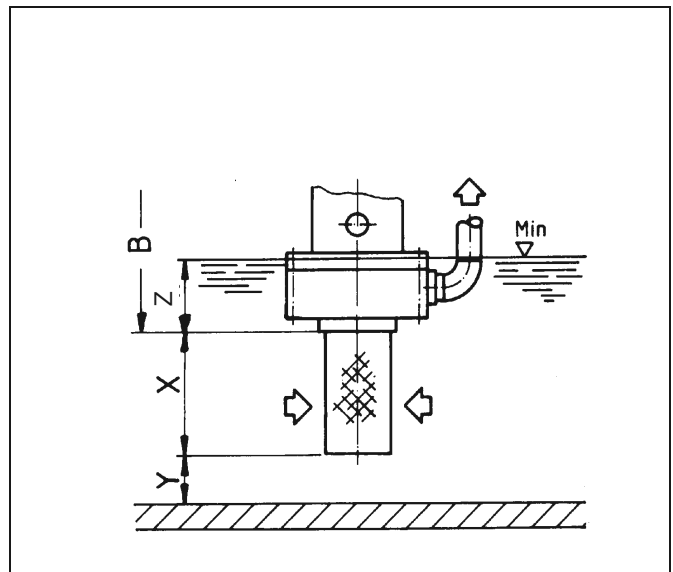
**Dimensions ETL 45 kW**



Pump with suction tube and suction plate



Pump with strainer



## Dimensions

size	suction tube with suction plate		strainer			
	A1	U	X	Y	V	
ETL	min	max				
20-100	100	1500	140	100	10	110
25-125	100	1500	160	100	10	110
32-125	200	1800	200	125	15	140
32-160	200	1800	200	125	15	140
32-200	200	1800	200	125	15	140
40-125	200	1800	200	150	10	160
40-160	200	1800	200	150	10	160
40-200	200	1800	200	150	10	160
50-125	200	1800	250	125	35	160
50-160	200	1800	250	125	35	160
50-200	200	1800	250	125	35	160
65-200	200	1800	250	150	35	160
80-200	200	1800	250	170	35	180

## Terminology definition

### Fluid level »max.«

- maximum admissible fluid level
- top switching point for level control

### Fluid level »min.«

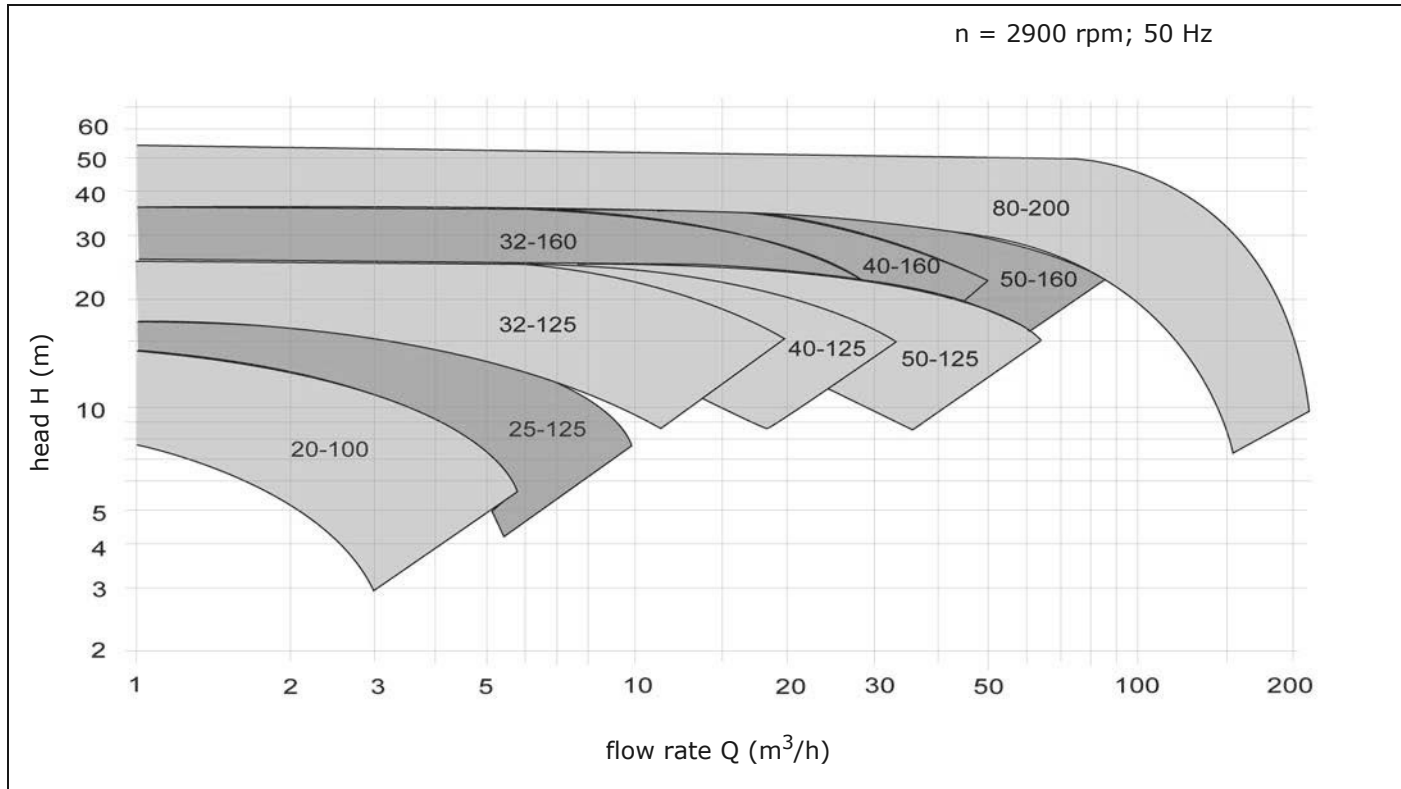
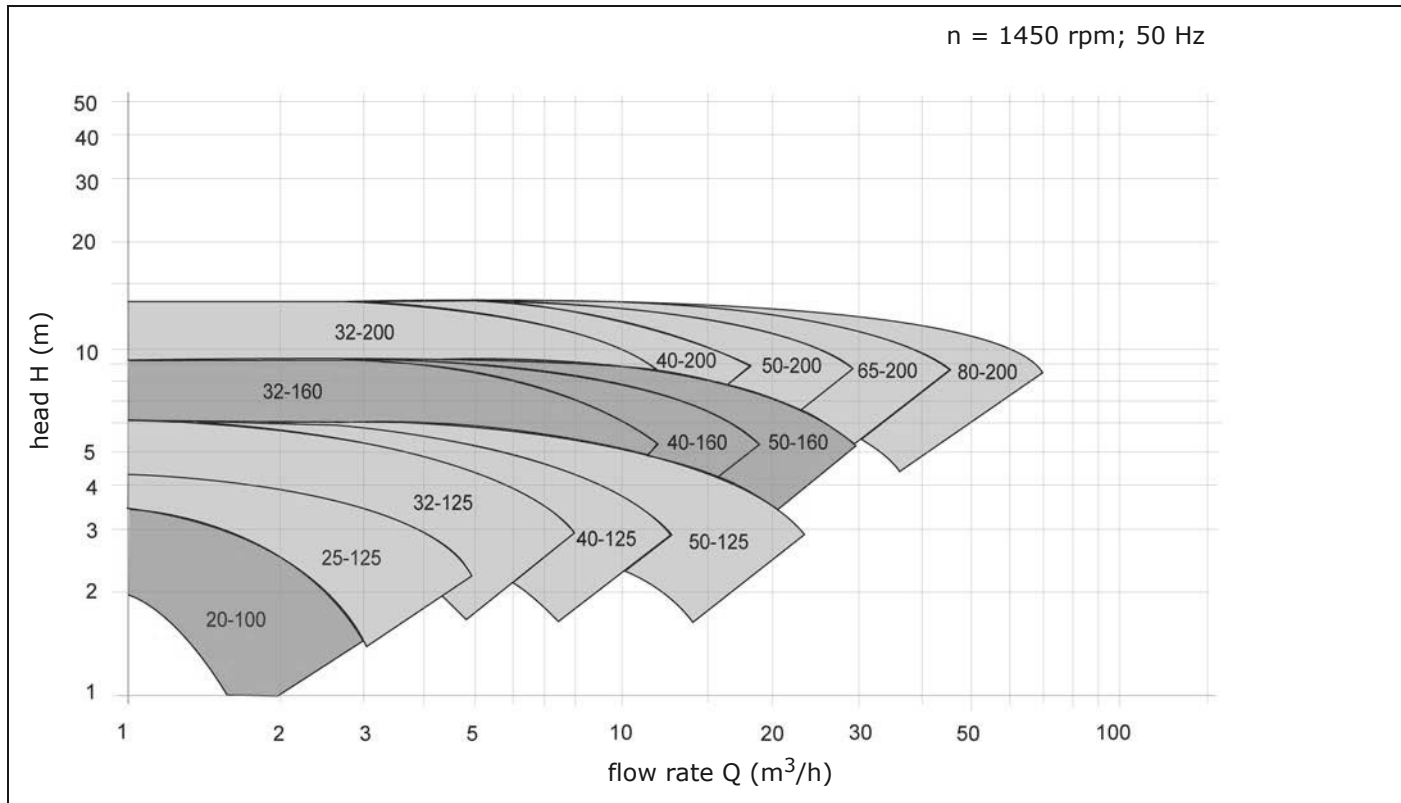
- lowest admissible fluid level each time the pump unit is started up
- bottom switching point for level control during commissioning/start-up of the pump unit

## Information

### Suction behaviour

- In order to insure malfunction free operation of the ASV vertical sump pumps observe the installation dimensions O, Z, V and Y in the dimensional table during the planning and assembly.
- Dimensions O, Z, V and Y are minimum dimensions. Dropping below these dimensions will result in reduced output, vibrations and/or pump damage.
- Each time a container is emptied, fill the container to above the minimum fluid level prior to restarting the pump unit. Always ensure the minimum covering dimension »Z« of the pump housing when starting the unit.
- For higher operating temperatures observe the steam pressure of the medium and if necessary increase »Z« appropriately.

**Caracteristic curves ETL**



Subject to technical modifications