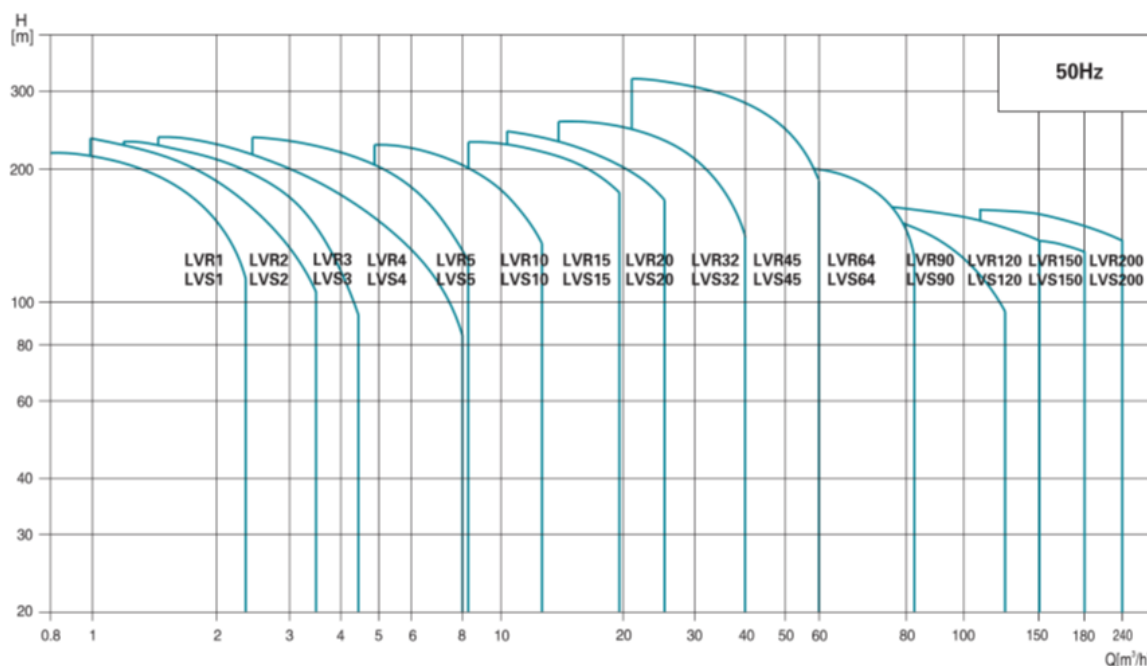


### Scope of Performance LVS (R)

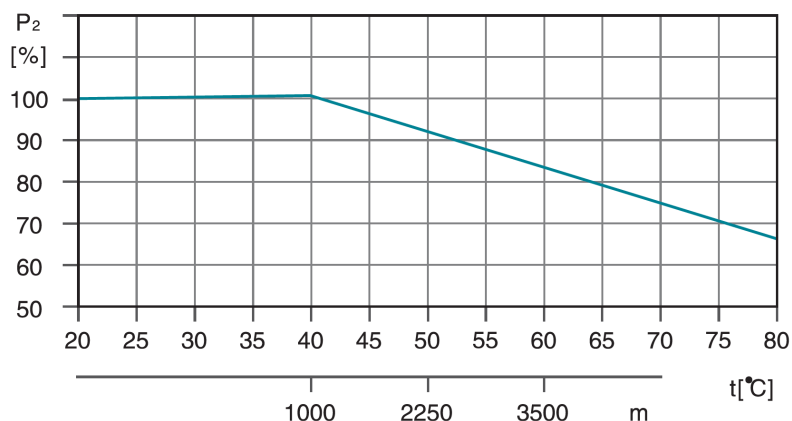


### Product Range

MODEL	LVR(S)1	LVR(S)2	LVR(S)3	LVR(S)4	LVR(S)5	LVR(S)10	LVR(S)15	LVR(S)20	LVR(S)32	LVR(S)45	LVR(S)64	LVR(S)90	LVR(S)120	LVR(S)150	LVR(S)200
DESCRIPTION	LVR(S)1	LVR(S)2	LVR(S)3	LVR(S)4	LVR(S)5	LVR(S)10	LVR(S)15	LVR(S)20	LVR(S)32	LVR(S)45	LVR(S)64	LVR(S)90	LVR(S)120	LVR(S)150	LVR(S)200
Rated flow [m³/h]	1	2	3	4	5	10	15	20	32	45	64	90	120	150	200
Flow range [m³/h]	0.7-2.4	1.0-3.5	1.2-4.5	1.5-8	2.5-8.5	5-13	8-23	10.5-29	15-40	22-58	30-85	45-120	60-150	80-180	100-240
Max. pressure [bar]	22	23	24	21	24	22	23	25	28	33	22	20	16	16	16
Motor power [kW]	0.37-2.2	0.37-3	0.37-3	0.37-4	0.37-4	1.1-7.5	1.1-15	1.1-18.5	1.5-30	3-45	4-45	5.5-45	11-75	11-75	18.5-110
Temperature Range [°C]	-20°C--+120°C ( Note: Both the Max. permissible pressure and liquid temperature range refer to the pump capacity.)														
Max. pump efficiency [%]	45	46	55	59	60	65	70	72	78	79	80	81	74	73	79
Pipe connection-LVR															
Oval flange	G1	G1	G1	G1 1/4	G1 1/4	-	-	-	-	-	-	-	-	-	-
DIN flange	DN25	DN25	DN25	DN32	DN32	DN40	DN50	DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150
Pipe connection-LVS															
Oval flange	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DIN flange	DN32	DN32	DN32	DN32	DN32	DN40	DN50	DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150
Clamp connector	φ42	φ42	φ42	φ42	φ42	-	-	-	-	-	-	-	-	-	-
Threaded connector	R <sub>2</sub> 1 1/4	R <sub>2</sub> 1 1/4	R <sub>2</sub> 1 1/4	R <sub>2</sub> 1 1/4	R <sub>2</sub> 1 1/4	-	-	-	-	-	-	-	-	-	-

## Ambient Temperature

An ambient temperature of over 40 ° C or an installation at an altitude above 1000 meters above sea level requires an oversized motor. Due to low air density and poor cooling, the output power  $P_2$  decreases, as shown in the table below:



For example, when the pump is installed at an altitude of 3500 meters,  $P_2$  will decrease by 88%. And when the ambient temperature is 70 ° C,  $P_2$  will decrease by 78%.

## Maximum Operation pressure (bar)

The table below shows the maximum discharge pressures of the various LVS (R) pumps. The suction pressure of the pump + the set pressure must always be lower than the maximum operating pressure of the pump. If the maximum working pressure is exceeded, it can damage the motor bearings and reduce the service life of the mechanical seal.

Model	LVR Max. Operation pressure [bar]		LVS Max. Operation pressure [bar]
	Oval Flange	DIN Flange	
LVR (S) 1	16	25	25
LVR (S) 2	16	25	25
LVR (S) 3	16	25	25
LVR (S) 4	16	25	25
LVR (S) 5	16	25	25
LVR (S) 10		25	25
LVR (S) 15		25	25
LVR (S) 20		25	25
LVR (S) 32-1-1 - 32-7	16		16
LVR (S) 32-8-2 - 32-14	30		30
LVR (S) 45-1-1 - 45-5	16		16
LVR (S) 45-6-2 - 45-11	30		30
LVR (S) 45-12-2 - 45-13-2	33		33
LVR (S) 64-1-1 - 64-5	16		16
LVR (S) 64-6-2 - 64-8-1	30		30
LVR (S) 90-1-1 - 90-4	16		16
LVR (S) 90-5-2 - 90-6	30		30
LVR (S) 120-1 - 120-7	20		20
LVR (S) 150-1-1 - 150-6	20		20
LVR (S) 200-1-D - 200-4	20		20

## NPSH

### Minimum Inlet Pressure–Npsh

Calculation of the inlet pressure “H” is recommended in these situations:

The liquid temperature is high.

The flow is significantly higher than the rated flow.

Water is drawn from depths.

Water is drawn through long pipes.

Inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift “H” in meters head can be calculated as follows:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

$P_b$  = Barometric pressure in bar. (Barometric pressure can be set to 1 bar). In closed systems,  $P_b$  indicates the system pressure in bar.

**NPSH** = Net Positive Suction Head in meters head. (To be read from the NPSH curve at the highest flow the pump will be delivering.)

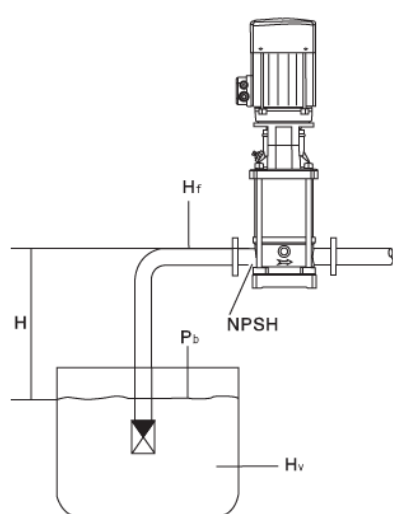
$H_f$  = Friction loss in suction pipe in meters head. (At the highest flow the pump will be delivering.)

$H_v$  = Vapor pressure in meters head. (To be read from the vapor pressure scale. “ $H_v$ ” depends on the liquid temperature “ $t_m$ ”)

$H_s$  = Safety margin=minimum 0.5 meters head.

If the “H” calculated is positive, the pump can operate at a suction lift of maximum “H” meters head.

If the “H” calculated is negative, an inlet pressure of minimum “H” meters head is required.



$t_m$ [°C]	$H_v$ [m]
190	126
180	100
170	79
160	62
150	45
140	40
140	35
130	30
130	25
120	20
110	15
100	12
100	10
90	8.0
90	6.0
80	5.0
80	4.0
70	3.0
60	2.0
50	1.5
50	1.0
40	0.8
40	0.6
30	0.4
30	0.3
20	0.2
10	0.1
0	0

**Note:** To avoid cavitation, never select a pump with a duty point too far to the right on the NPSH curve. Always check the NPSH value of the pump at the highest possible flow.

## LVS20 Vertical multicellular stainless steel in line pump



LVS

### Application

- Transfer of liquids with low viscosity, non-flammable and non-explosive, not containing solid particles or fibers. These liquids must not chemically attack the materials of the pump.
- Water supply for tall buildings, pumping stations, overpressure in drinking water
- Washing stations, heating water circulation, air conditioning water circulation, water treatment systems
- Ultrafiltration, reverse osmosis, distillation systems, municipal swimming pools
- Irrigation: sprinkling, drip
- Food industry
- Fire fighting systems

### Pompe

- Liquid temperature: from  $-20^{\circ}\text{C}$  to  $+120^{\circ}\text{C}$
- Nominal flow:  $20\text{ m}^3/\text{h}$
- maximum pressure: 25 bars
- pH between 4 and 10

### Moteur

- IE3 motor
- Protection class: IP55
- Maximum ambient temperature:  $+40^{\circ}$

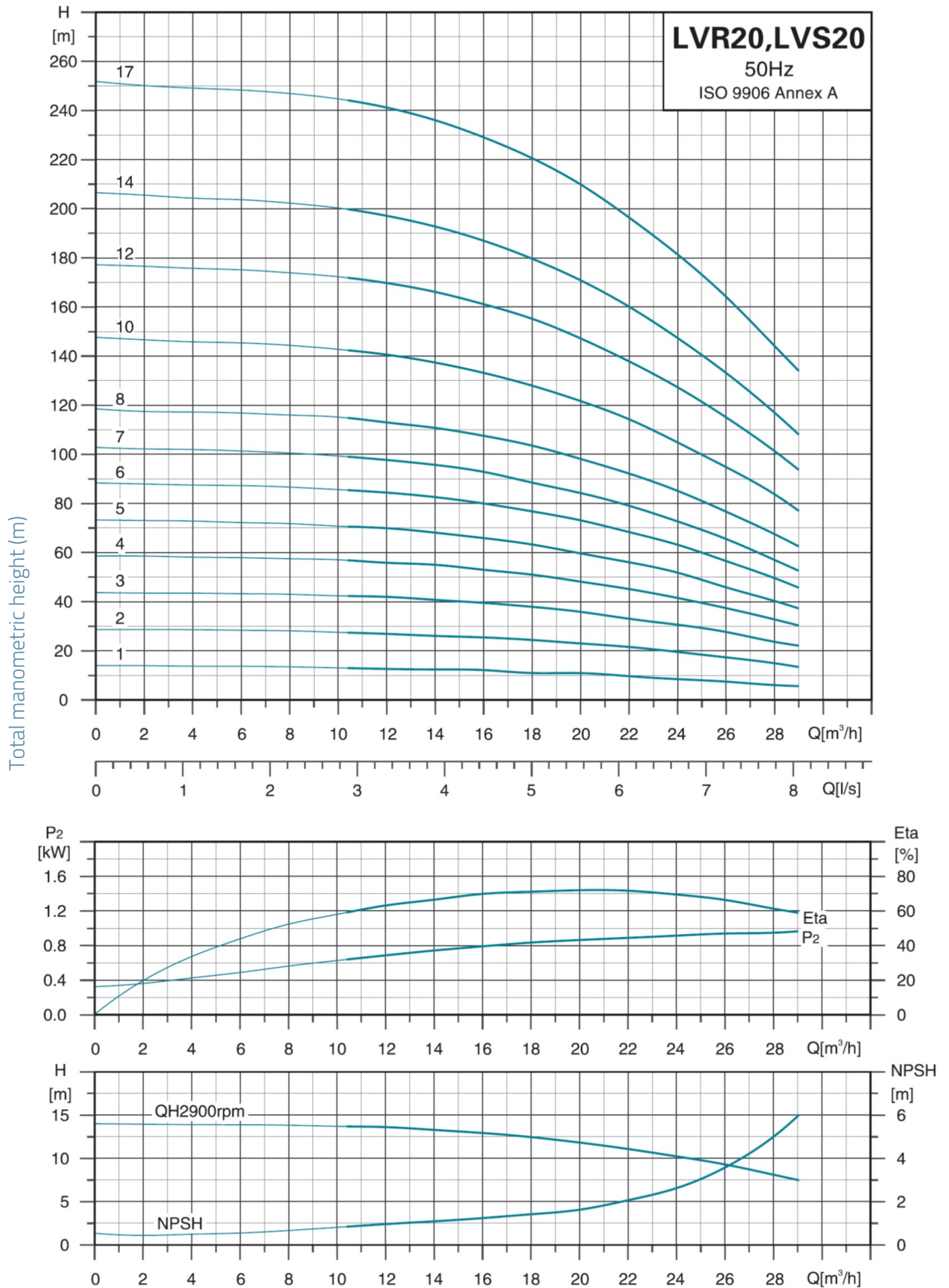
### Identification codes

LVS	m	20	-10	-B	/F	
						DIN flange
						inox 316 (by default, inox 304)
						number of impellers
						Nominal flow ( $\text{m}^3/\text{h}$ )
						Single-phase motor
						Vertical multistage stainless steel in line pump

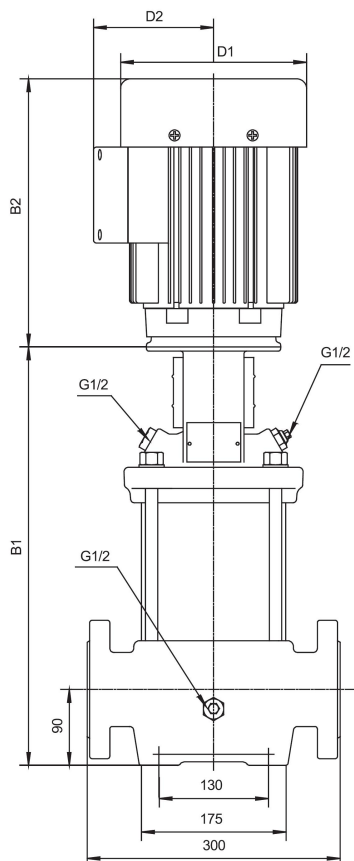
### Technical data

MODEL	kW	Q (m <sup>3</sup> /h)	4	8	12	16	20	24	28
		Q (l/min)	67	133	200	267	333	400	467
LVS <sub>m</sub> 20-1/F	1.1		13	13	13	12	10.5	9.5	6.5
LVS20-1/F	1.1		13	13	13	12	10.5	9.5	6.5
LVS <sub>m</sub> 20-2/F	2		28	28	27	25	22.5	19	15
LVS20-2/F	2		28	28	27	25	22.5	19	15
LVS20-3/F	4		43	43	42	39	36	30	23
LVS20-4/F	5.5		58	57	56	53	48	41	32
LVS20-5/F	5.5		73	72	70	66	60	52	40
LVS20-6/F	7.5		87	86	84	80	72	62	49
LVS20-7/F	7.5		102	100	97	93	84	72	57
LVS20-8/F	11		117	116	113	107	96	85	67
LVS20-10/F	11		146	144	140	132	120	105	83
LVS20-12/F	15		175	174	169	161	144	127	101
LVS20-14/F	15		204	202	197	187	168	147	117
LVS20-17/F	18.5		249	247	241	229	205	181	144

## Hydraulic performance



## Dimensions



MODEL	B1	B1+B2	D1	D2	poids
LVS <sub>m</sub> 20-1/F	354	622	150	125	44.9
LVS20-1/F	354	622	150	125	44.9
LVS <sub>m</sub> 20-2/F	415	733	164	127	52.4
LVS20-2/F	415	733	164	127	52.4
LVS20-3/F	465	805	186	120	59.3
LVS20-4/F	542	939	210	142	71.3
LVS20-5/F	587	984	210	142	73.9
LVS20-6/F	632	1029	210	142	81.3
LVS20-7/F	677	1074	210	142	82.1
LVS20-8/F	799	1298	254	175	125.2
LVS20-10/F	889	1388	254	175	133.2
LVS20-12/F	979	1478	254	175	146.9
LVS20-14/F	1069	1568	254	175	151.9
LVS20-17/F	1204	1764	330	250	208

## Exploded view

No.	Type	Materials
1	Base	cast iron HT200
2	Drain plug	AISI 304 stainless steel
3	Lower water box	ZG304
4	Diffuser	AISI 304 stainless steel
5	Diffuser with bearing	AISI 304 stainless steel
6	Intermediate diffuser	AISI 304 stainless steel
7	Impeller	stainless steel AISI 304 / cast iron HT200
8	Final scroll	AISI 304 stainless steel
9	Filling plug	cast iron HT200
10	Lantern	cast iron HT200
11	Coupling	
12	Engine	
13	Coupling protection housing	AISI 304 stainless steel
14	Cartridge mechanical seal	
15	Drain plug	AISI 304 stainless steel
16	Pump bottom	ZG304
17	Pump shaft	AISI 304 stainless steel
18	Jacket	AISI 304 stainless steel
19	Flange	ZG35 cast steel

