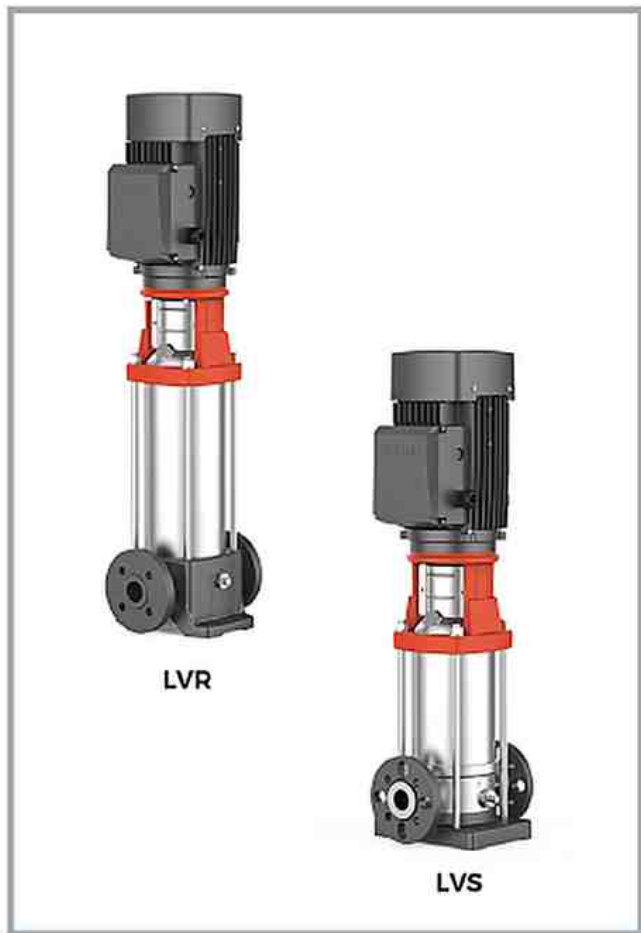


LVS/LVR

Stainless Steel Vertical Multistage Pump



Application

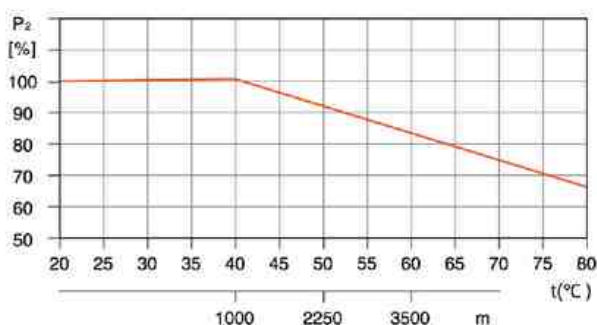
- Suitable for transferring liquids of low viscosity, non-inflammable and non-explosive, not containing solid particles or fibers
- Water supply & drainage for high-rise buildings, filtration and transfer at waterworks, pressure boosting in main pipe
- Washing and cleaning systems, boiler feeding, cooling water circulation, water treatment systems, auxiliary system, support equipment
- Ultra filtration systems, reverse-osmosis systems, distillation systems, separators, swimming pools
- Agricultural irrigation: sprinkler irrigation, drip-feed irrigation
- Food & beverage industry
- Fire-fighting system

Operating Conditions

- Low viscosity, non-inflammable and non-explosive liquids not containing solid particles or fibers. The liquids must not chemically attack the pump materials. When pumping liquids with a density or viscosity is higher than that of water, a motor with a higher output power rating should be used
- Liquid temperature: $-20^{\circ}\text{C} \sim +120^{\circ}\text{C}$
- Flow range: $0.7 - 120 \text{ m}^3/\text{h}$
- Liquid pH value: $4 - 10$
- Max. ambient temperature: $+40^{\circ}\text{C}$
- Max. operating pressure: 33 bar
- Altitude: up to 1000 m

Ambient Temperature

- Max. ambient temperature: $+40^{\circ}\text{C}$. Ambient temperature above 40°C or installation at altitude of more than 1000 meters above sea level require the use of an oversize motor. Because of low air density and poor cooling effects, the motor output power P_2 will be decreased. See the picture.
- In such cases, it may be necessary to use a motor with a higher output power rating.



For example, when the pump is installed at altitude of more than 3500 meters above sea level, P_2 will be decreased to 88%. When the ambient temperature is 70°C , P_2 will be decreased to 78%.

Motor

- IE 2 motor (IE 3 motor optional)
- Totally enclosed & fan-cooled
- Enclosures class: IP55
- Standard voltage: 60Hz 1x220V / 3x380V

Identification Codes

LVS 45 - 6 - 2 - B - K

—	Pipeline Port Code (Omitted for DIN flange)
—	AlS316 Stainless Steel Material (Omitted for AlS364)
—	Small Impeller Stages
—	Impeller Stages
—	Rated Flow (m^3/h)
—	LVS.VLR Vertical Multistage Pump

LVS: Stainless steel wetted parts

LVR: Cast iron base & pump cover

Identifications codes of flange structure

A: Oval flange K: Clamp connector

G: Threaded connector

LVS/LVR

Stainless Steel Vertical Multistage Pump

Minimum Outlet 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.)

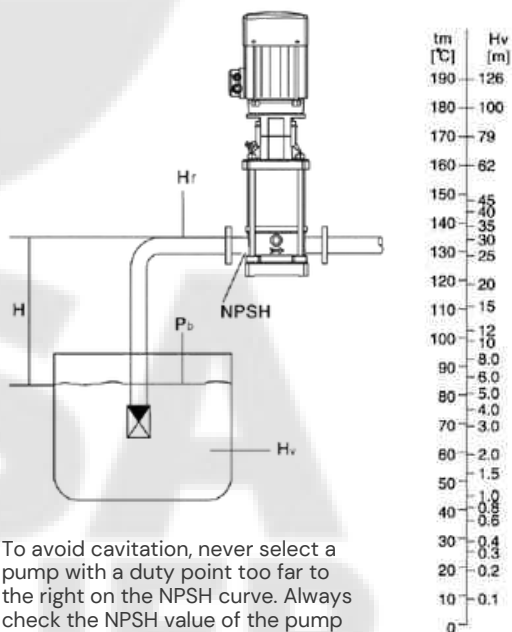
H_f = Friction loss in suction pipe in meters head. (At the highest flow the pump will be delivering.)

H_v = Vapor pressure in meters head. (To be read from the vapor pressure scale, "H_v" depends on the liquid temperature "tm")

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.



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.

Maximum Outlet Pressure

The following table shows the maximum permissible inlet pressure. However, the current inlet pressure + the pressure against a closed valve must always be lower than the Max. permissible operating pressure. If the maximum permissible operating pressure is exceeded, the bearing in the motor may be damaged and the life of the shaft seal reduced.

Model	Max. Inlet Pressure (bar)
LVR1, LVS1	
1-2 - 1-25	10
1-26 - 1-27	15
LVR2, LVS2	
2-2 - 2-12	10
2-13 - 2-18	15
LVR3, LVS3	
3-2 - 3-15	10
3-17 - 3-25	15
LVR4, LVS4	
4-2 - 4-7	10
4-8 - 4-12	15
LVR5, LVS5	
5-2 - 5-9	10
5-10 - 5-24	15
LVR10, LVS10	
10-1 - 10-5	8
10-6 - 10-17	10
LVR15, LVS15	
15-1 - 15-2	8
15-3 - 15-12	10
LVR20, LVS20	
20-1 - 20-10	8
20-2 - 20-10	10
LVR32, LVS32	
32-1-1 - 32-2	4
32-3-2 - 32-6	10
32-7-2 - 32-10-2	15
LVR45, LVS45	
45-1-1 - 45-1	4
45-2-2 - 45-3	10
45-4-2 - 45-7	15
LVR64, LVS64	
64-1-1 - 64-2-1	4
64-1 - 64-2-1	10
64-4-2 - 64-5-2	15
LVR90, LVS90	
90-1-1 - 90-2-2	10
90-2-1 - 90-4-2	15
LVR120, LVS120	
120-1-1 - 120-1	10
120-2-2 - 120-3-1	15
120-3 - 120-5-2	20
LVR150, LVS150	
150-1-1 - 150-1	10
150-1 - 150-2	15
150-3-2 - 150-4-2	20
LVR200, LVS200	
200-1-D - 200-1	15
200-2-2D - 200-3-2C	20

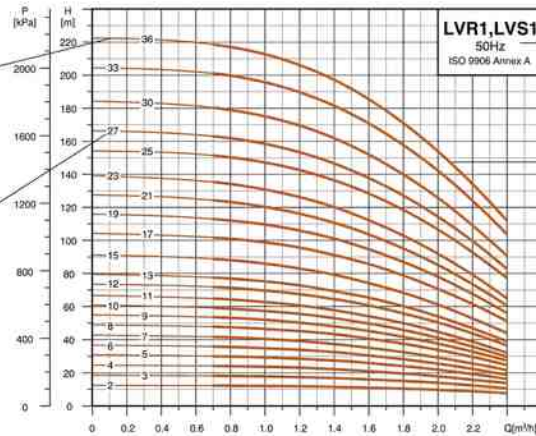
LVS/LVR

Stainless Steel Vertical Multistage Pump

How to Read the Curve Charts

The thin curves indicate the duty range where long-time operating is not allowed

Number of Stages



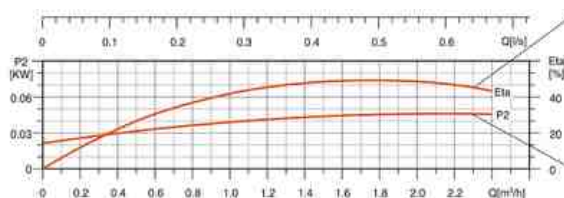
Pump type, frequency and ISO standard

The bold curves indicate the duty range where long-time operating is permitted for best efficiency

Guidelines to Performance Curves

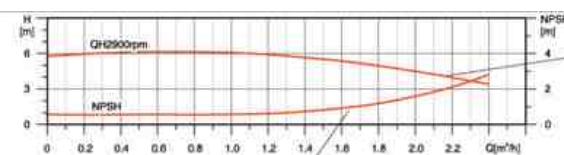
Tolerances to ISO 9906, Annex A. Measurements have been made with airless water at a temperature of 20°C and kinematic viscosity of 1 mm²/s.

To avoid overheating of the motor, the pump should not be used against a high head for a long time.



The efficiency curve

The output power curves of single impeller



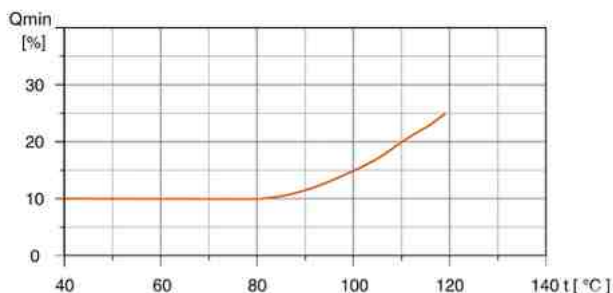
The Q-H curve of single impeller

The NPSH curve

Minimum Flow Rate

Due to the risk of overheating, the pump should not be used at a flow below the minimum flow rate. The curve below shows the minimum flow rate as a percentage of the nominal flow rate in relation to the liquid temperature.

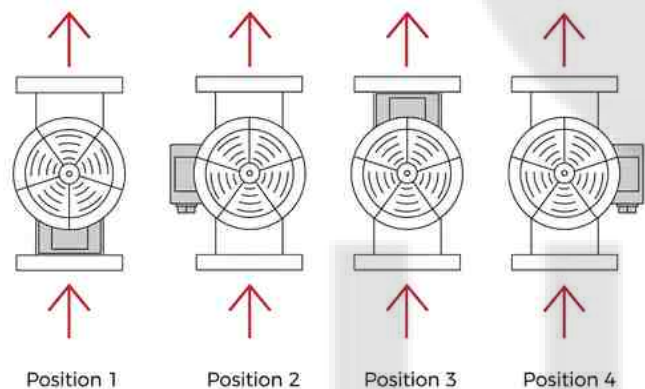
Aircooling apparatus



Note: The outlet valve must be opened when the pump is in operation.

Terminal Box Positions

(Note: set to position 1 before delivery)



LVS/LVR

Stainless Steel Vertical Multistage Pump

Product Range

Model 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(m ³ /h)	2.2	3	3.6	7	6.8	12	20	25	36	54	77	108	120	150	200
Flow range(m ³ /h)	0.8-2.9	1-4.5	1.4-5.4	2-9	3-10.2	6-16	10-29	13-35	18-48	26-70	36-102	54-146	60-160	80-180	100-240
Max.pressure(bar)	24	25	24	24	24	25	24	21	27	26	18	16			
Motor power(kW)	0.37-3	0.37-4	0.37-4	0.75-4	0.55-4	0.75-11	1.5-18.5	2.2-18.5	2.2-30	5.5-45	7.5-45	11-45	15-75	15-75	30-110
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(%)	49	48	59	59	67	70	72	72	76	78	79	80	74	73	78

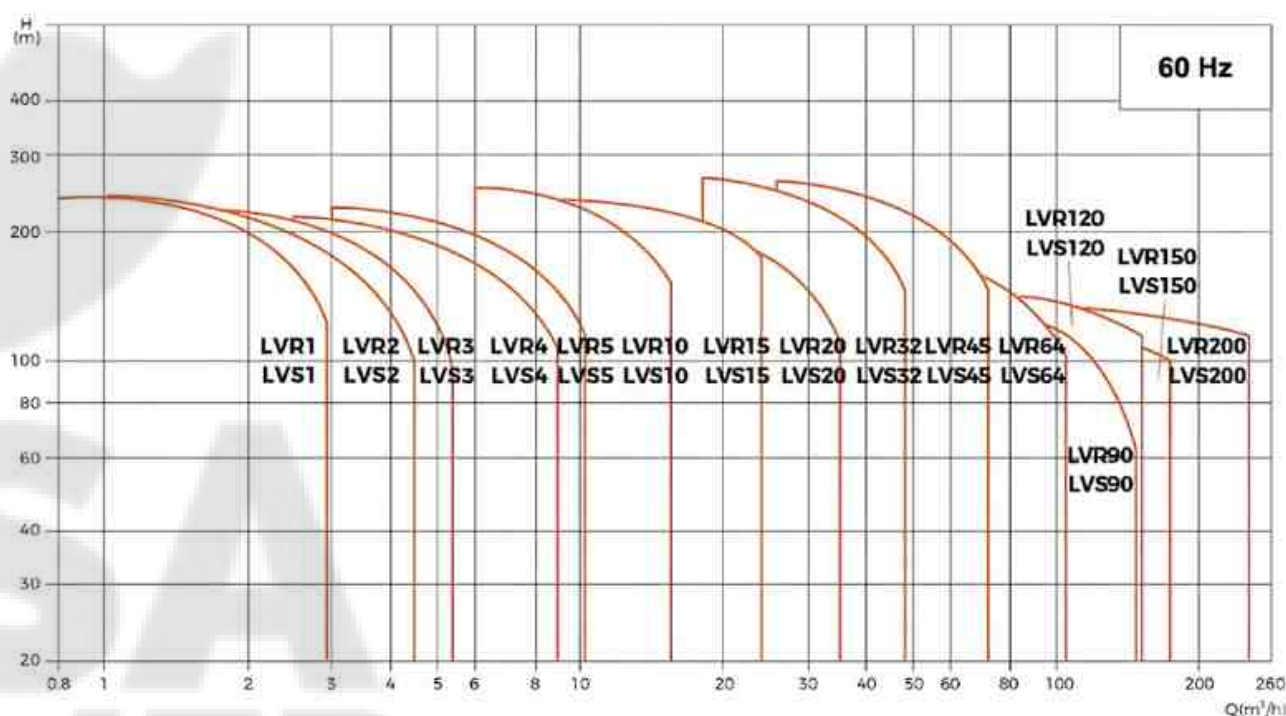
Pipe connection-LVR

Oval flange (Standard)	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 (Standard)	DN32	DN32	DN32	DN32	DN32	DN40	DN50	DN50	DN65	DN80	DN100	DN100	DN125	DN125	DN150
Clamp connector	Φ42	Φ42	Φ42	Φ42	Φ42	-	-	-	-	-	-	-	-	-	-
Threaded connector	G1 1/4	G1 1/4	G1 1/4	G1 1/4	G1 1/4	-	-	-	-	-	-	-	-	-	-

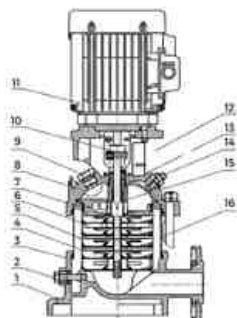
Scope of Performance-LVR, LVS



LVS/LVR

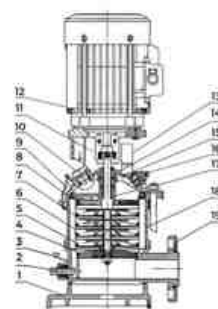
Stainless Steel Vertical Multistage Pump

Cross Section



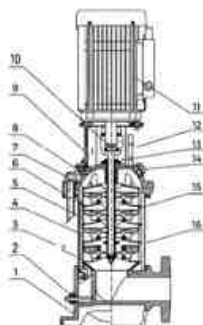
MODEL: LVR1 (2,3,4,5)

No.	Part	Material
1	Base	HT 200
2	Drain bolt assembly	AISI 304
3	Primary diffuser	AISI 304
4	Diffuser with bearing	AISI 704
5	Medium diffuser	AISI 304
6	Impeller	AISI 304
7	Final diffuser	AISI 304
8	Motor base	HT 200
9	Filling plug(optional)	AISI 304
10	Coupling	Iron based powder metallurgy
11	Motor	
12	Guard plate	AISI 304
13	Cartridge seal	
14	Vent valve assembly	AISI B9L
15	Pump shaft	AISI 316
16	Pump barrel	AISI 304



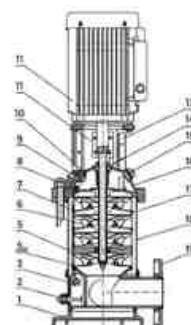
MODEL: LVS1 (2,3,4,5)

No.	Part	Material	Optional Material
1	Base plate	ADC 12	
2	Drain bolt assembly	AISI 304	AISI 316
3	Pedestal	AISI 304	AISI 316
4	Primary diffuser	AISI 304	AISI 316
5	Diffuser with bearing	AISI 304	AISI 316
6	Medium diffuser	AISI 304	AISI 316
7	Impeller	AISI 304	AISI 316
8	Final diffuser	AISI 304	AISI 316
9	Motor base	HT 200	
10	Filling plug(optional)	AISI 304	
11	Coupling	Iron based powder metallurgy	
12	Motor		
13	Guard plate	AISI 304	
14	Cartridge seal		
15	Pump cover	AISI 89L	AISI 316
16	Vent valve assembly	AISI 304	AISI 316
17	Pump shaft	AISI 316	
18	Pump barrel	AISI 304	AISI 316
19	Flange	ZG 35	



MODEL: LVR10 (15,20)

No.	Part	Material
1	Base	HT 200
2	Drain bolt assembly	AISI 304
3	Primary diffuser	AISI 304
4	Diffuser with bearing	AISI 304
5	Medium diffuser	AISI 304
6	Impeller	AISI 304
7	Final diffuser	AISI 304
8	Vent valve assembly	AISI 304
9	Motor base	HT 200
10	Coupling	Iron based powder metallurgy/QT400
11	Motor	
12	Guard plate	AISI 304
13	Cartridge seal	
14	Filling plug(optional)	AISI 304
15	Pump shaft	AISI 316
16	Pump barrel	AISI 304

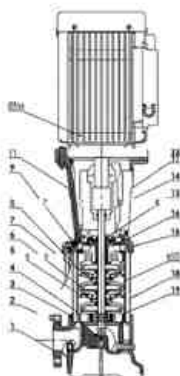


MODEL: LVS10 (15,20)

No.	Part	Material	Optional Material
1	Base plate	ADC 12	
2	Drain bolt assembly	AISI 304	AISI 316
3	Pedestal	AISI 304	AISI 316
4	Primary diffuser	AISI 304	AISI 316
5	Diffuser with bearing	AISI 304	AISI 316
6	Medium diffuser	AISI 304	AISI 316
7	Impeller	AISI 304	AISI 316
8	Final diffuser	AISI 304	AISI 316
9	Vent valve assembly	AISI 304	AISI 316
10	Motor base	HT 200	
11	Coupling	Iron based powder metallurgy/QT400	
12	Motor		
13	Guard plate	AISI 304	
14	Cartridge seal		
15	Vent valve assembly	AISI 304	AISI 316
16	Pump cover	AISI 304	AISI 316
17	Pump shaft	AISI 316	
18	Pump barrel	AISI 304	AISI 316
19	Flange	ZG 35	

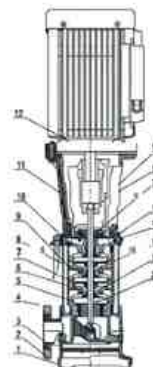
LVS/LVR

Stainless Steel Vertical Multistage Pump



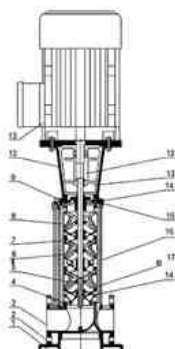
MODEL: LVR32 (45,64,90)

No.	Part	Material
1	Base	HT 200
2	Flange	ZG 35
3	Primary diffuser	AISI 304
4	Medium diffuser	AISI 304
5	Diffuser with bearing	AISI 304
6	Impeller	AISI 304
7	Driver	
8	Final diffuser	AISI 304
9	Vent valve assembly	AISI 304
10	Motor base	HT 200
11	Motor	
12	Guard plate	AISI 304
13	Coupling	QT 400
14	Cartridge seal	AISI B9L
15	Pump head	HT 200
16	Filling plug	AISI 304
17	Tension strip	AISI 304
18	Pump barrel	AISI 304
19	Pump shaft	AISI 316



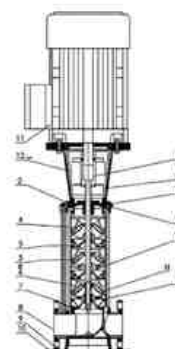
MODEL: LVS32 (45,64,90)

No.	Part	Material	Optional Material
1	Base plate	HT 200	
2	Flange	ZG35	
3	Pedestal	AISI 304	AISI 316
4	Primary diffuser	AISI 304	AISI 316
5	Medium diffuser	AISI 304	AISI 316
6	Diffuser with bearing	AISI 304	AISI 316
7	Impeller	AISI 304	AISI 316
8	Driver		
9	Final diffuser	AISI 304	AISI 316
10	Vent valve assembly	AISI 304	AISI 316
11	Motor base	HT 200	
12	Guard plate	AISI 304	
13	Motor		
14	Coupling	QT 400	
15	Cartridge seal		
16	Pump head	AISI 304	AISI 316
17	Filling plug	AISI 304	AISI 316
18	Tension strip	AISI 304	AISI 316
19	Pump barrel	AISI 304	AISI 316
20	Pump shaft	AISI 304	AISI 316



MODEL: LVR120 (150,200)

No.	Part	Material
1	Base plate	HT 200
2	Flange	ZG 35
3	Base	HT 200
4	Primary diffuser	AISI 304
5	Diffuser with bearing	AISI 304
6	Medium diffuser	AISI 304
7	Impeller	AISI 304
8	Final diffuser	AISI 304
9	Pump head	HT 200
10	Motor base	HT 200
11	Motor	
12	Coupling	QT 400
13	Guard plate	AISI 304
14	Cartridge seal	
15	Filling plug	AISI 304
16	Tension strip	AISI 304
17	Pump barrel	AISI 304
18	Pump shaft	AISI 304



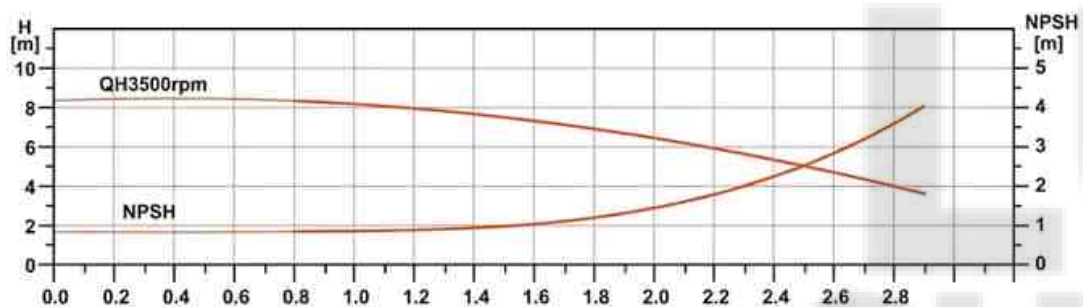
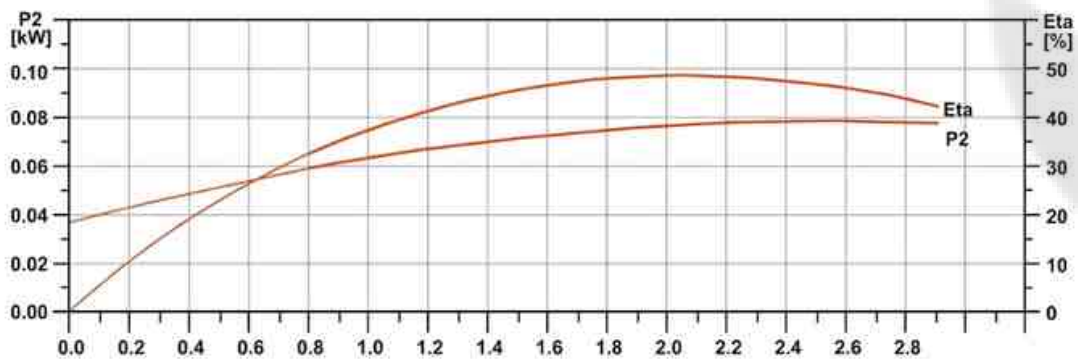
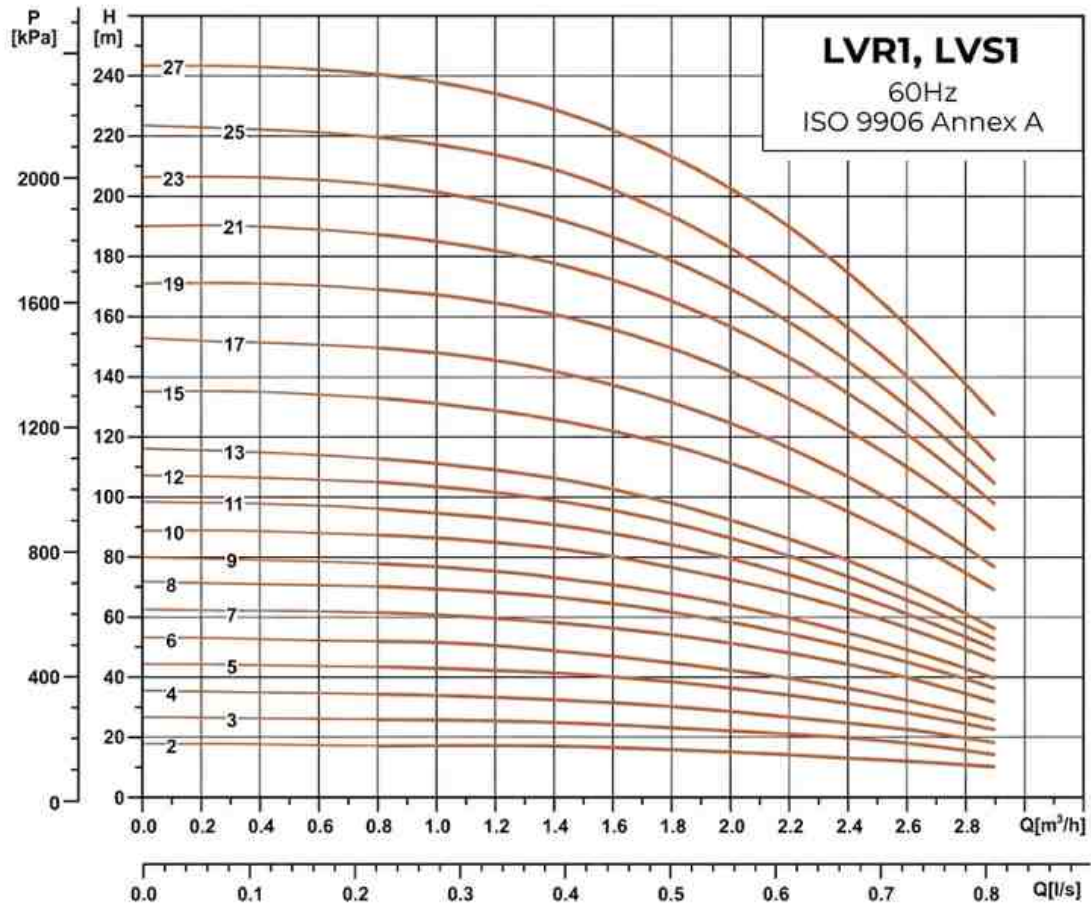
MODEL: LVS120 (150-200)

No.	Part	Material	Optional Material
1	Base plate	HT 200	
2	Flange	ZG 35	
3	Pedestal	AISI 304	AISI 316
4	Primary diffuser	AISI 304	AISI 316
5	Diffuser with bearing	AISI 304	AISI 316
6	Medium diffuser	AISI 304	AISI 316
7	Impeller	AISI 304	AISI 316
8	Final diffuser	AISI 304	AISI 316
9	Pump head	AISI 304	AISI 316
10	Motor base	HT 200	
11	Motor		
12	Coupling	QT 400	
13	Guard plate	AISI 304	
14	Cartridge seal		
15	Filling plug	AISI 304	AISI 310
16	Tension strip	AISI 304	AISI 316
17	Pump barrel	AISI 304	AISI 316
18	Pump shaft	AISI 304	AISI 316

LVS/LVR

Stainless Steel Vertical
Multistage Pump

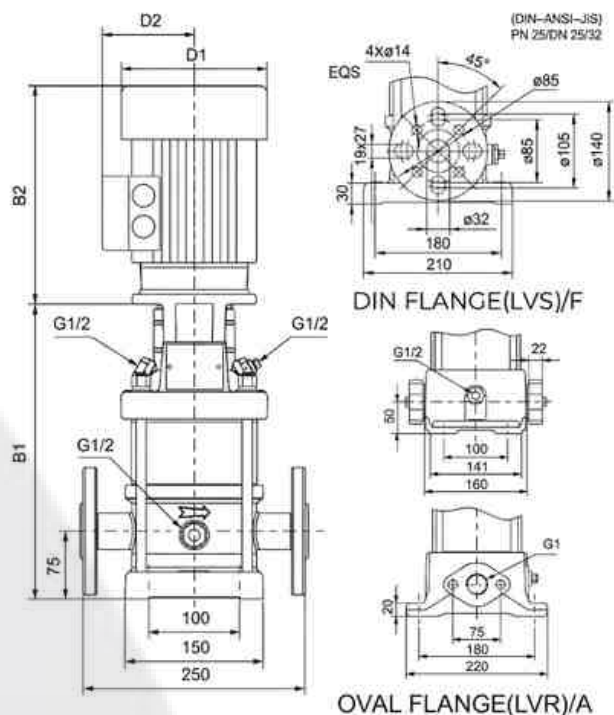
Hydraulic Performance Curves



LVS/LVR

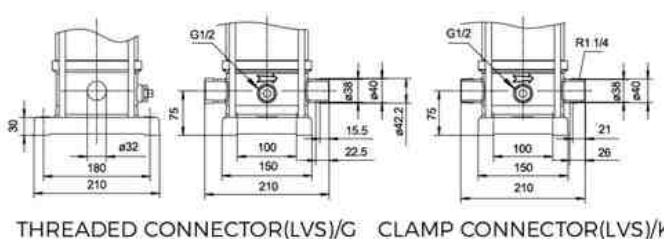
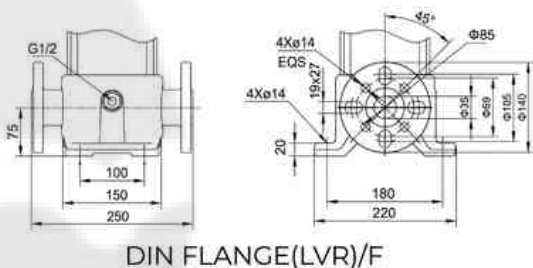
Stainless Steel Vertical Multistage Pump

Dimension



Model	OVAL FLANGE (LVR)		DIN FLANGE (LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
2-2	256.5	486.5	282	512	132	84	V18
2-3	256.5	486.5	282	512	132	84	
2-4	278.5	528.5	304	554	150	95	
2-5	296.5	546.5	322	572	150	95	
2-6	314.5	564.5	340	590	150	95	
2-7	348.5	658.5	374	684	168	112	
2-9	384.5	694.5	410	720	168	112	
2-11	420.5	730.5	446	756	168	112	
2-13	460.5	790.5	486	816	194	124	
2-15	496.5	826.5	522	852	194	124	
2-18	-	-	576	933	212	142	

Note: B1 and B1+B2 of clamp connector and threaded connector are in compliance with that of DIN flange.



THREADED CONNECTOR(LVS)/G CLAMP CONNECTOR(LVS)/K

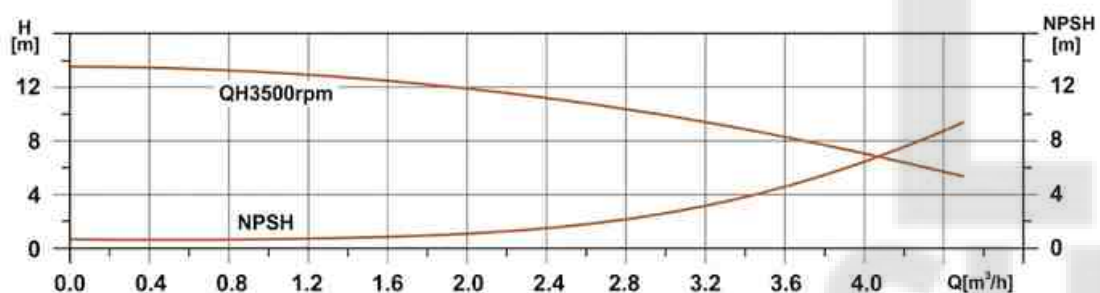
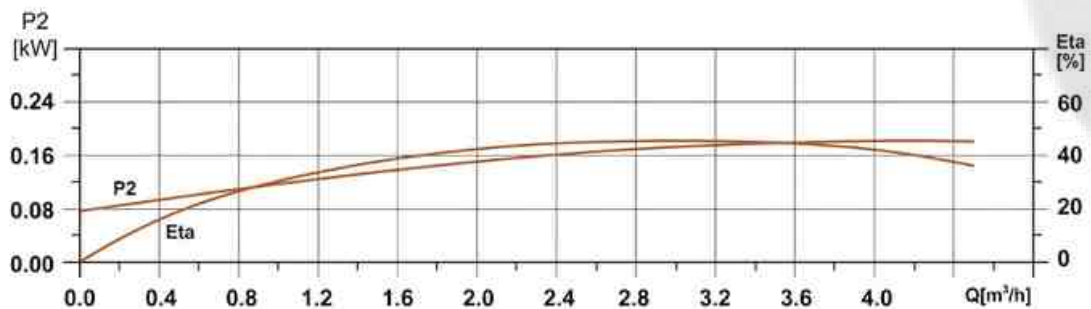
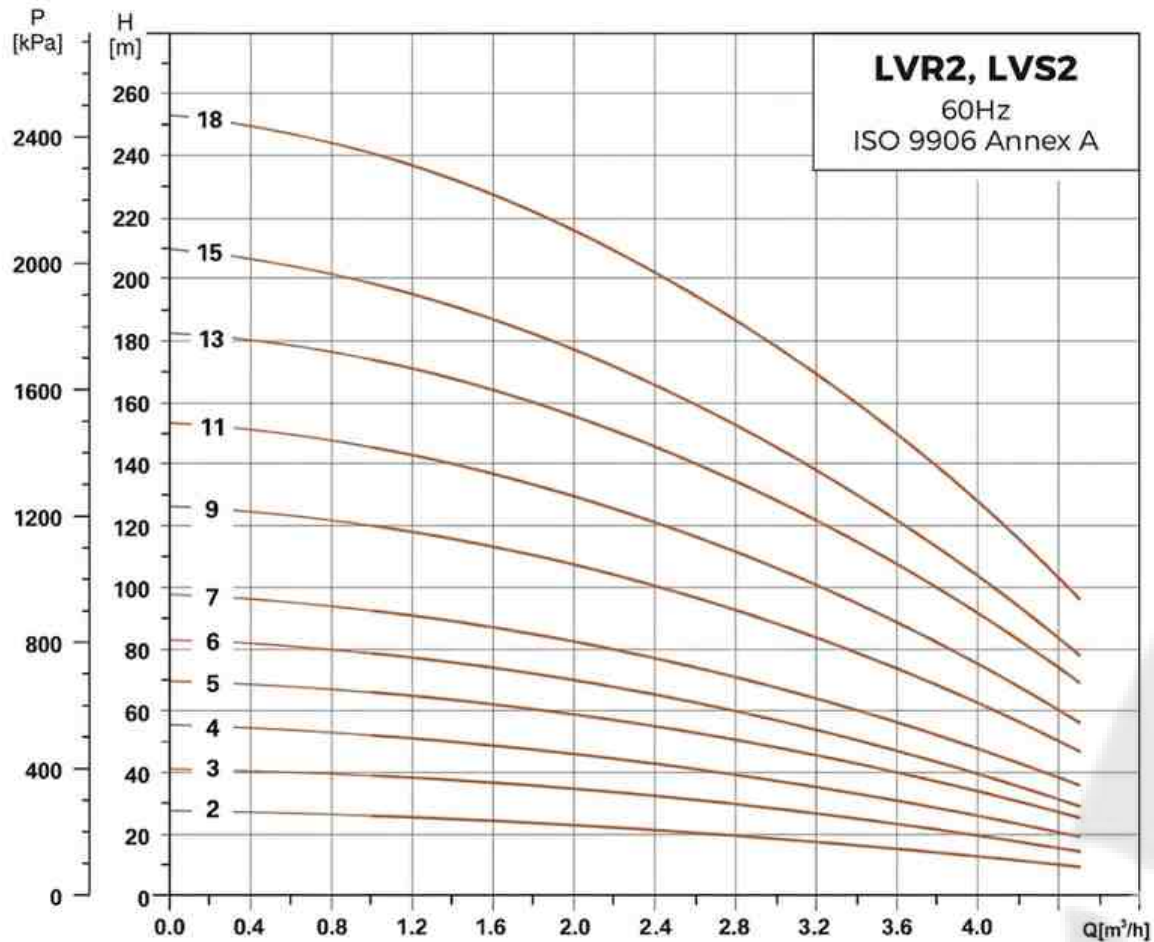
Technical Data

Model	Power(kW)	Q(m³/h)	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
LVR(S)2-2	0.37	H(m)	25	24	22	20	18.5	15	12	9
LVR(S)2-3	0.55		38	36	34	31	28	23	19	14
LVR(S)2-4	0.75		52	49	46	42	37.5	32	26	19
LVR(S)2-5	1.1		66	62	58	54	48	41	34	25
LVR(S)2-6	1.1		78	74	69	63	56.5	48	39	29
LVR(S)2-7	1.5		92	88	82	75	67.5	58	47	35
LVR(S)2-9	2.2		120	115	108	99	89	77	63	48
LVR(S)2-11	2.2		145	139	130	119	106	92	75	56
LVR(S)2-13	3		174	166	156	143	128	111	91	69
LVR(S)2-15	3		199	190	178	163	145	126	103	77
LVR(S)2-18	4		241	230	216	199	177	154	127	96

LVS/LVR

Stainless Steel Vertical
Multistage Pump

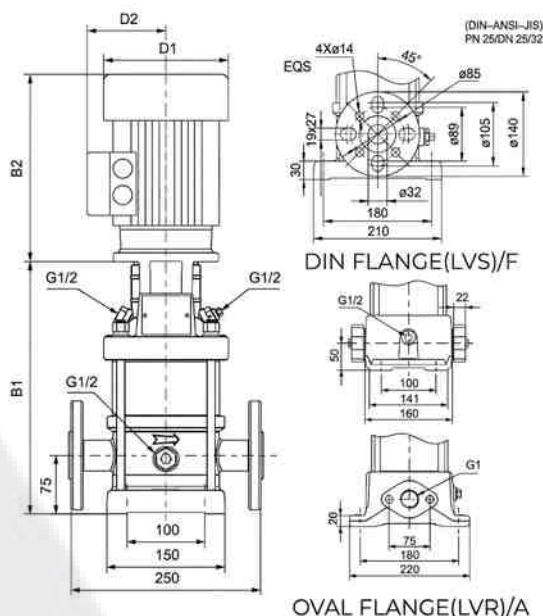
Hydraulic Performance Curves



LVS/LVR

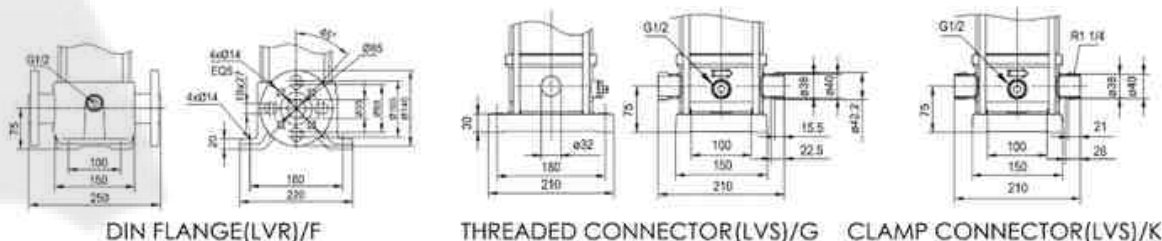
Stainless Steel Vertical Multistage Pump

Dimension



Model	OVAL FLANGE (LVR)		DIN FLANGE (LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
1-2	256.5	486.5	282	512	132	84	V18
1-3	256.5	486.5	282	512	132	84	
1-4	274.5	504.5	300	530	132	84	
1-5	292.5	522.5	318	548	132	84	
1-6	310.5	540.5	336	566	132	84	
1-7	332.5	582.5	358	608	150	95	
1-8	350.5	600.5	376	626	150	95	
1-9	368.5	618.5	394	644	150	95	
1-10	386.5	636.5	412	662	150	95	
1-11	404.5	654.5	430	680	150	95	
1-12	422.5	672.5	448	698	150	95	
1-13	440.5	690.5	466	716	150	95	
1-15	492.5	802.5	518	828	168	112	
1-17	528.5	838.5	554	864	168	112	
1-19	564.5	874.5	590	900	168	112	
1-21	600.5	910.5	626	936	168	112	
1-23	636.5	946.5	662	972	168	112	
1-25	-	-	698	1008	168	112	
1-27	-	-	738	1068	194	124	

Note: B1 and B1+B2 of clamp connector and threaded connector are in compliance with that of DIN flange.



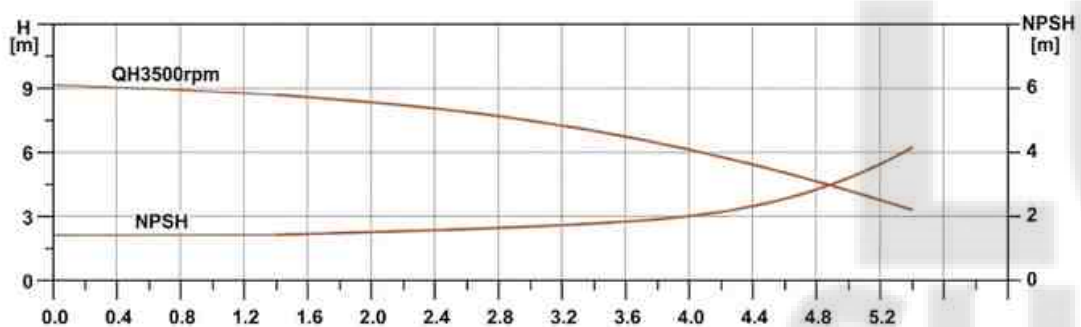
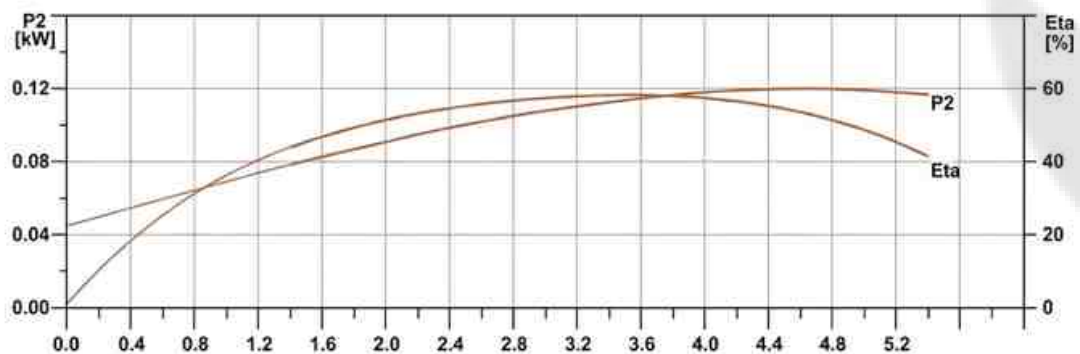
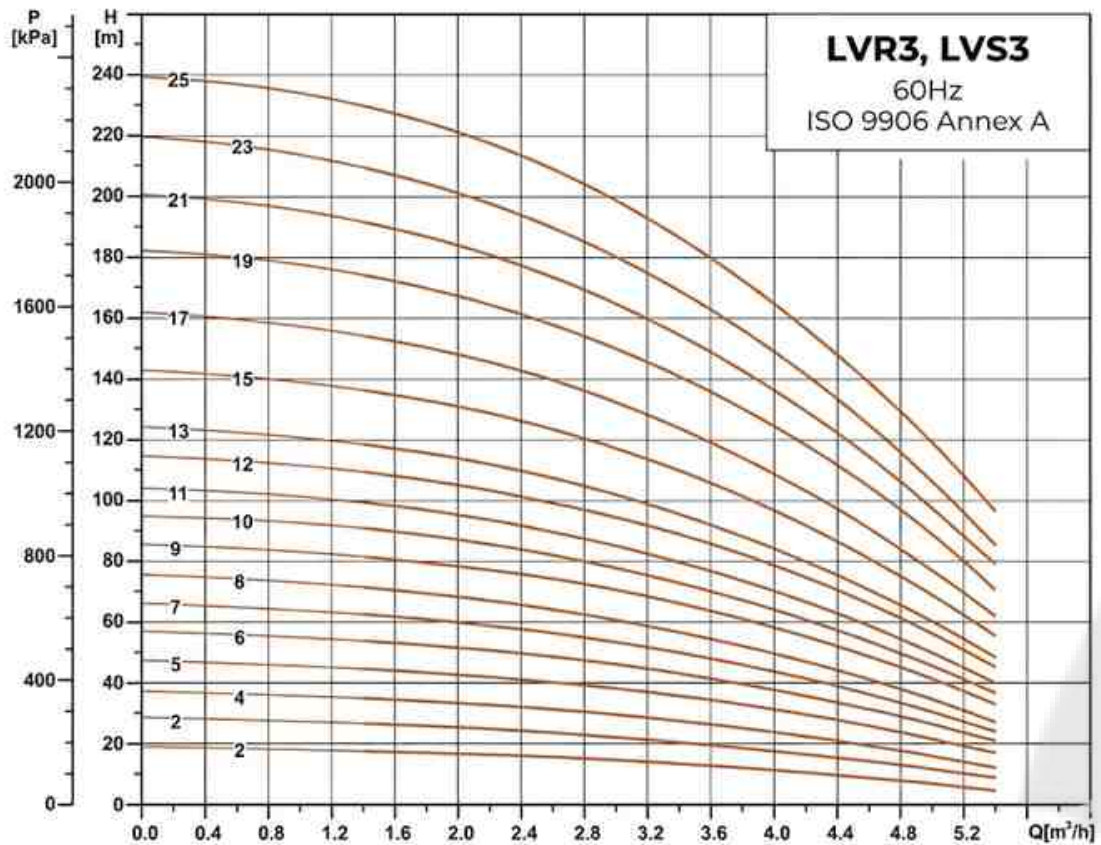
Technical Data

Model	Power(kW)	Q(m³/h)	0.8	1.0	1.5	2.0	2.2	2.5	2.9
LVR(S)1-2	0.37	H(m)	17	17	16	15	14	13	10
LVR(S)1-3	0.37		26	25	24	22	21	18	14
LVR(S)1-4	0.37		34	34	32	28	27	23	18
LVR(S)1-5	0.55		43	42	40	36	34	29	22
LVR(S)1-6	0.55		51	51	48	43	40	34	26
LVR(S)1-7	0.75		61	60	57	51	48	41	32
LVR(S)1-8	0.75		69	68	65	58	54	47	35
LVR(S)1-9	0.75		77	76	72	64	60	52	39
LVR(S)1-10	1.1		87	86	81	72	67	58	44
LVR(S)1-11	1.1		95	94	89	79	73	64	48
LVR(S)1-13	1.1		104	103	96	85	79	69	52
LVR(S)1-13	1.1		112	111	104	92	85	74	55
LVR(S)1-15	1.5		132	131	124	110	102	89	68
LVR(S)1-17	1.5		149	147	139	124	114	100	75
LVR(S)1-19	2.2		168	166	157	140	130	114	87
LVR(S)1-21	2.2		185	183	173	154	142	126	95
LVR(S)1-23	2.2		202	200	189	168	155	136	103
LVR(S)1-25	2.2		219	217	204	182	168	147	111
LVR(S)1-27	3		239	237	224	200	185	163	124

LVS/LVR

Stainless Steel Vertical
Multistage Pump

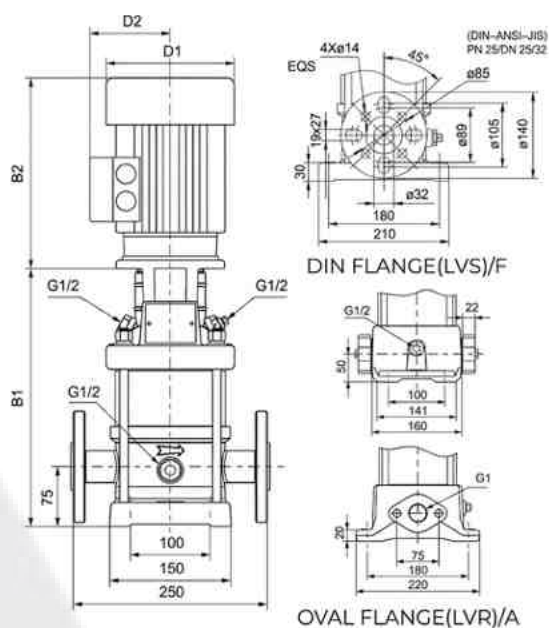
Hydraulic Performance Curves



LVS/LVR

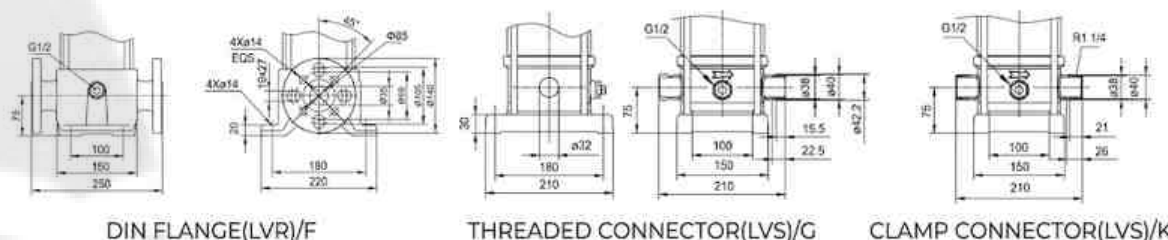
Stainless Steel Vertical Multistage Pump

Dimension



Model	OVAL FLANGE (LVR)		DIN FLANGE (LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
3-2	256.5	486.5	282	512	132	84	V18
3-3	256.5	486.5	282	512	132	84	
3-4	274.5	504.5	300	530	132	84	
3-5	296.5	546.5	322	572	150	95	
3-6	314.5	564.5	340	590	150	95	
3-7	332.5	582.5	358	608	150	95	
3-8	350.5	600.5	376	626	150	95	
3-9	384.5	694.5	410	720	168	112	
3-10	402.5	712.5	428	738	168	112	
3-11	420.5	730.5	446	756	168	112	
3-12	438.5	748.5	464	774	168	112	
3-13	456.5	766.5	482	792	168	112	
3-15	492.5	802.5	518	828	168	112	
3-17	528.5	838.5	554	864	168	112	
3-19	568.5	898.5	594	924	194	124	
3-21	604.5	934.5	630	960	194	124	
3-23	640.5	970.5	666	996	194	124	
3-25	-	-	702	1059	212	142	

Note: B1 and B1+B2 of clamp connector and threaded connector are in compliance with that of DIN flange



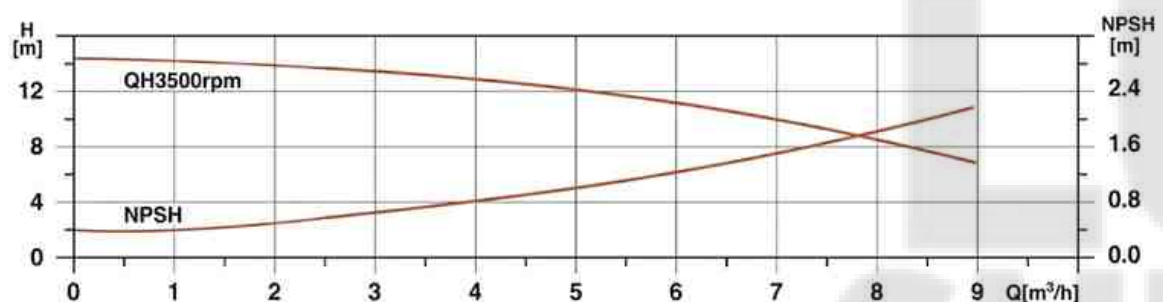
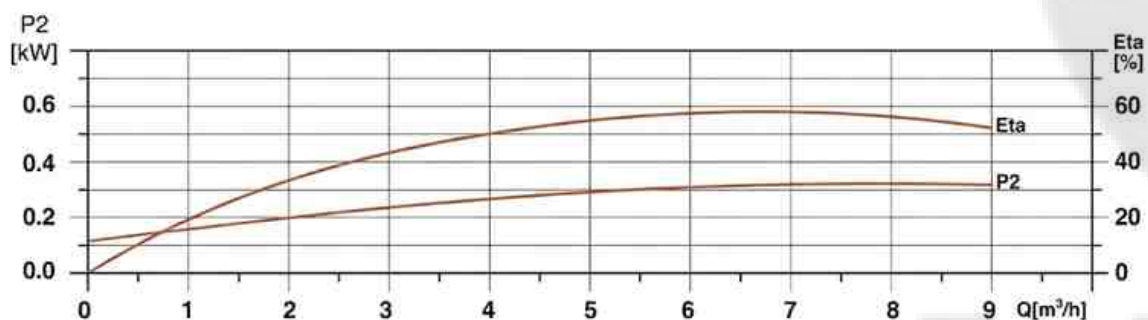
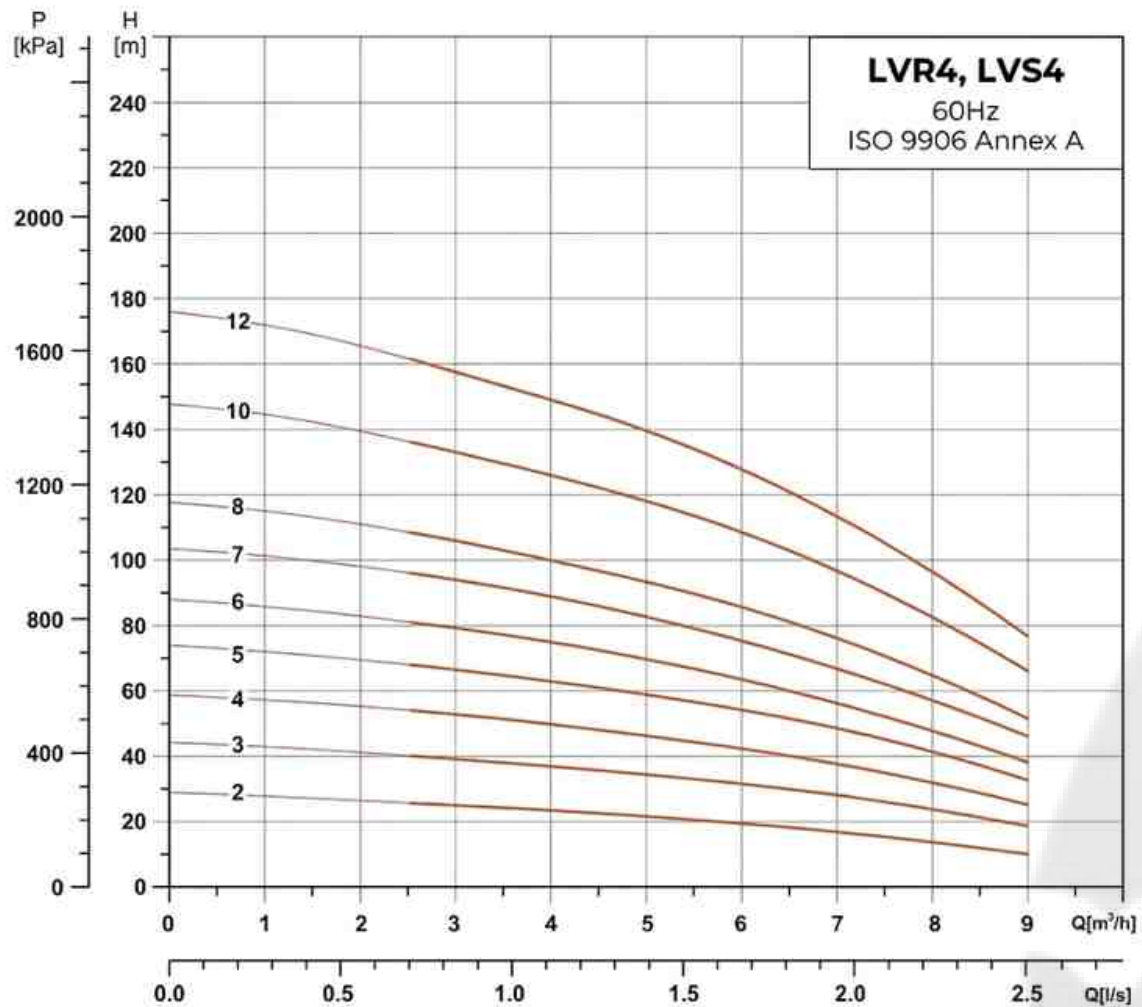
Technical Data

Model	Power(kW)	Q(m³/h)	1.5	2.0	2.5	3.0	3.6	4.0	4.5	5.0	5.4
LVR(S)3-2	0.37	H(m)	17	17	16	15	13	11	9	7	5
LVR(S)3-3	0.55		26	25	24	22	20	18	15	12	9
LVR(S)3-4	0.55		35	34	32	30	27	24	20	16	12
LVR(S)3-5	0.75		44	43	41	38	34	31	27	22	17
LVR(S)3-6	1.1		54	52	49	46	42	38	33	27	21
LVR(S)3-7	1.1		62	60	57	54	48	44	38	31	24
LVR(S)3-8	1.1		71	68	65	61	55	50	43	35	27
LVR(S)3-9	1.5		81	79	75	71	64	58	51	41	33
LVR(S)3-10	1.5		90	87	83	78	70	64	56	46	37
LVR(S)3-11	1.5		99	96	91	86	77	71	61	50	40
LVR(S)3-12	2.2		110	106	101	95	85	78	86	56	45
LVR(S)3-15	2.2		119	114	109	103	92	85	74	60	55
LVR(S)3-15	2.2		136	131	125	118	106	97	84	69	55
LVR(S)3-17	2.2		154	148	161	133	119	109	94	77	61
LVR(S)3-19	3		174	185	160	160	135	125	108	88	72
LVR(S)3-21	3		191	185	176	165	148	137	119	97	78
LVR(S)3-25	3		209	202	192	161	161	149	128	106	85
LVR(S)3-25	4		229	222	212	199	178	165	144	118	95

LVS/LVR

Stainless Steel Vertical
Multistage Pump

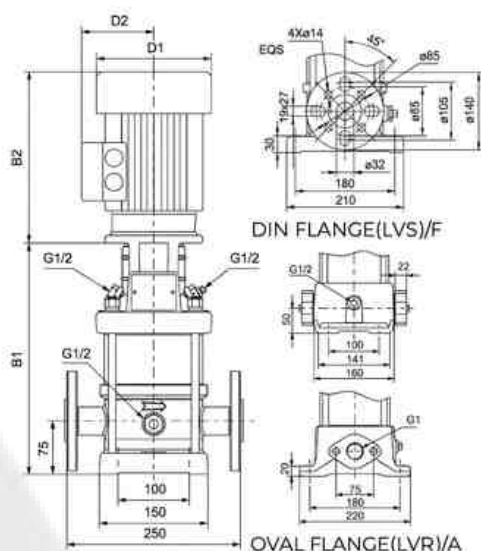
Hydraulic Performance Curves



LVS/LVR

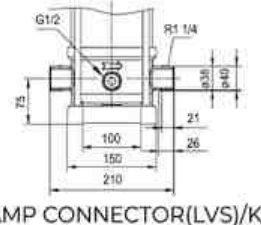
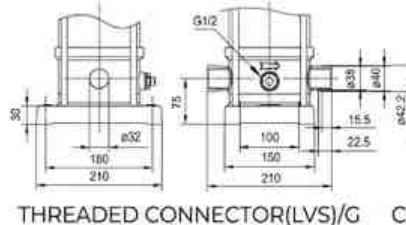
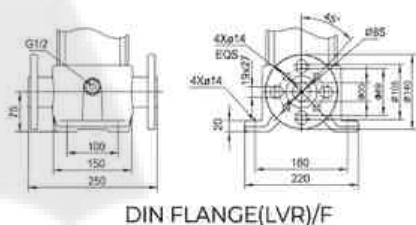
Stainless Steel Vertical Multistage Pump

Dimension



Model	OVAL FLANGE (LVR)		DIN FLANGE (LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
4-2	260.5	510.5	286	536	150	95	V18
4-3	287.5	537.5	313	563	150	95	
4-4	330.5	640.5	356	666	168	112	
4-5	357.5	667.5	383	693	168	112	
4-6	384.5	694.5	410	720	168	112	
4-7	415.5	745.5	441	771	194	124	
4-8	442.5	772.5	468	798	194	124	
4-10	496.5	853.5	522	879	212	142	
4-12	550.5	907.5	576	933	212	142	

Note: B1 and B1+B2 of clamp connector and threaded connector are in compliance with that of DIN flange.



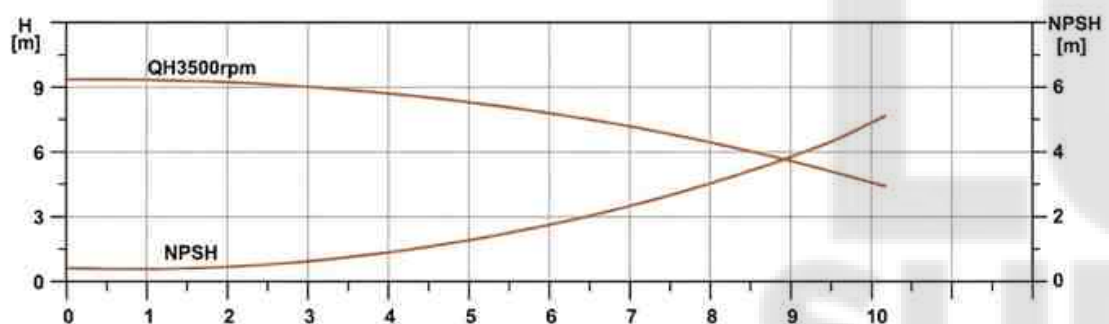
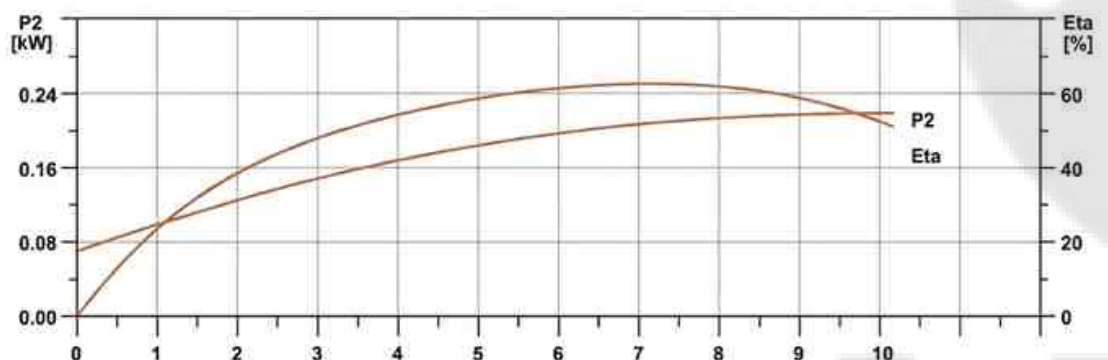
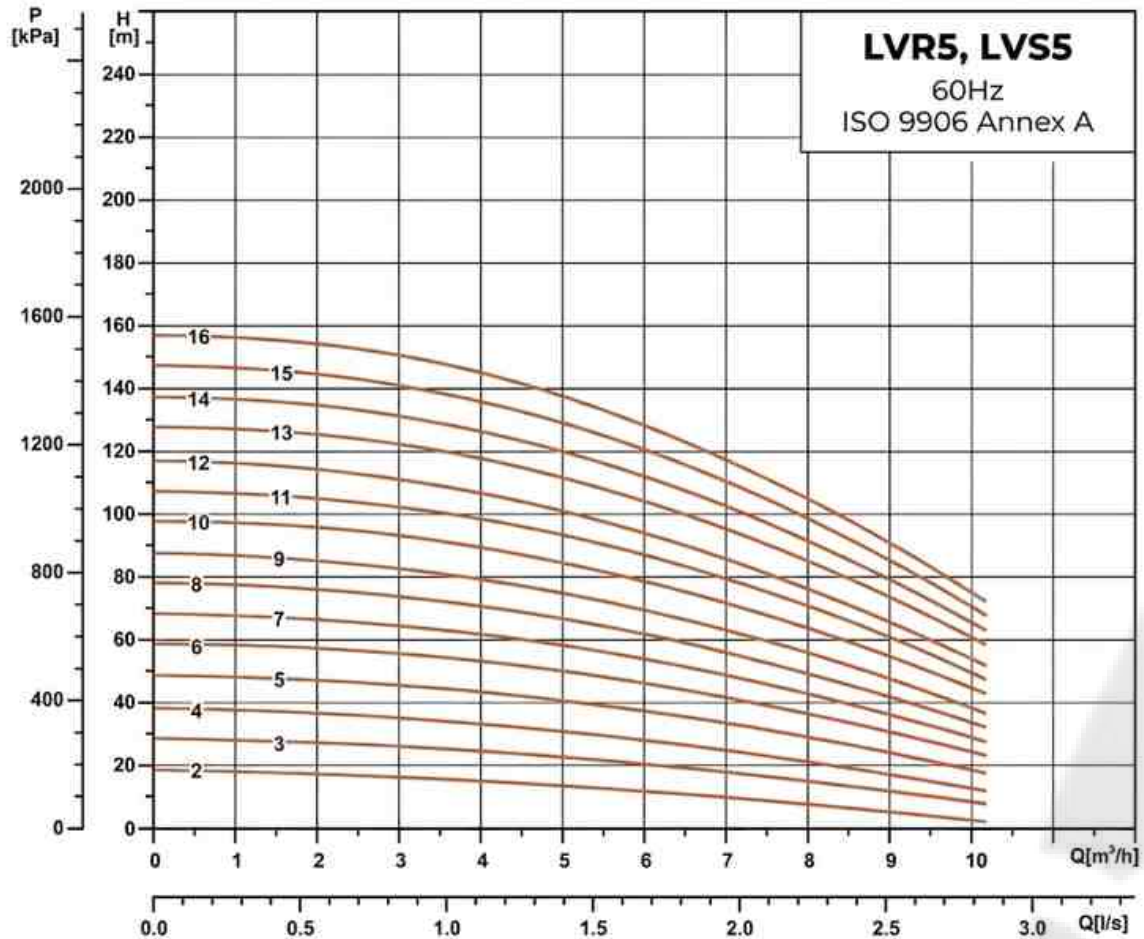
Technical Data

Model	Power(kW)	Q(m ³ /h)	2.5	3.0	4.0	5.0	6.0	7.0	8.0	9.0
LVR(S)4-2	0.75	H(m)	25	24	23	21	19	16.5	13	9
LVR(S)4-3	1.1		40	39	36	34	34	28	23	18
LVR(S)4-4	1.5		53	52	49	46	42	37.5	31	25
LVR(S)4-5	2.2		68	66	62	58	54	48	41	32
LVR(S)4-6	2.2		80	78	74	69	63	56.5	48	38
LVR(S)4-7	3		95	93	88	82	75	68	57	46
LVR(S)4-8	3		108	106	99	93	85	76.5	65	51
LVR(S)4-10	4		136	133	126	118	108	97	82	65
LVR(S)4-12	4		162	158	149	139	128	114	96	76

LVS/LVR

Stainless Steel Vertical
Multistage Pump

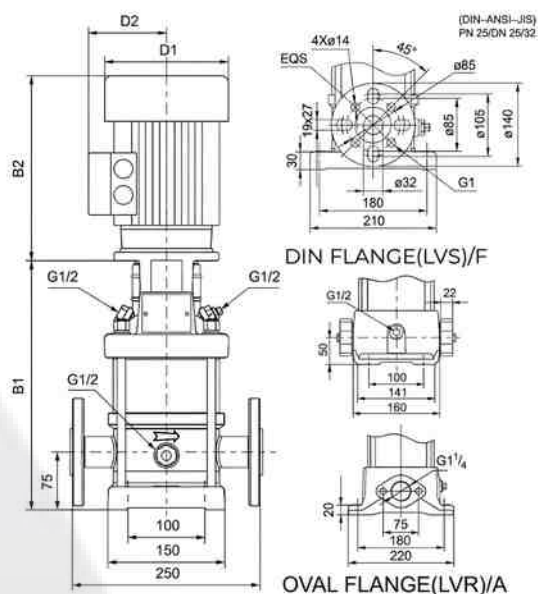
Hydraulic Performance Curves



LVS/LVR

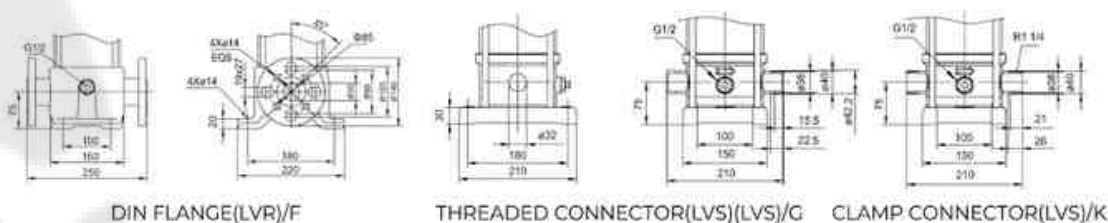
Stainless Steel Vertical Multistage Pump

Dimension



Model	OVAL FLANGE (LVR)		DIN FLANGE (LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
5-2	256.5	486.5	282	512	132	84	V18
5-3	287.5	537.5	313	563	150	95	
5-4	314.5	564.5	340	590	150	95	
5-5	357.5	667.5	383	693	168	112	
5-6	384.5	694.5	410	720	168	112	
5-7	411.5	721.5	437	747	168	112	
5-8	438.5	748.5	464	774	168	112	
5-9	465.5	775.5	491	801	168	112	
5-10	496.5	826.5	522	852	194	124	
5-11	523.5	853.5	549	879	194	124	
5-12	550.5	880.5	576	906	194	124	
5-13	577.5	934.5	603	960	212	142	
5-14	604.5	961.5	630	987	212	142	
5-15	631.5	988.5	657	1014	212	142	
5-16	658.5	1015.5	684	1041	212	142	

Note: B1 and B1+B2 of clamp connector and threaded connector are in compliance with that of DIN flange.



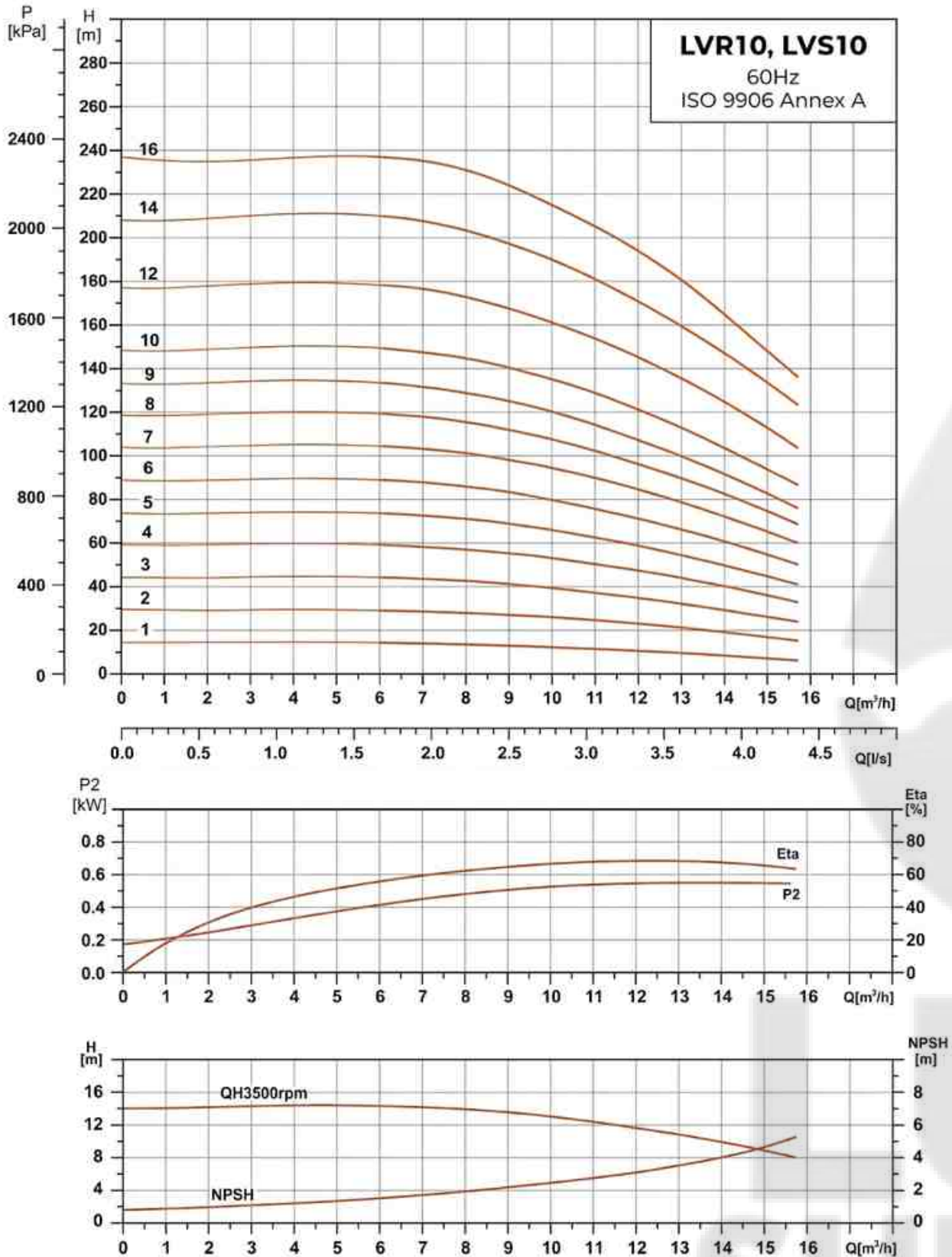
Technical Data

Model	Power(kW)	Q(m³/h)	3.0	4.0	5.0	6.0	6.8	8.0	9.0	10
LVR(S)5-2	0.55	H(m)	17	15	14	13	11	9	6	4
LVR(S)5-3	1.1		26	25	23	21	19	16	13	9
LVR(S)5-4	1.1		35	34	31	29	26	22	18	14
LVR(S)5-5	1.5		46	44	41	38	35	30	25	20
LVR(S)5-6	2.2		55	53	50	46	43	37	32	25
LVR(S)5-7	2.2		65	62	59	54	50	44	37	30
LVR(S)5-8	2.2		74	71	67	62	58	50	43	35
LVR(S)5-9	2.2		83	80	75	70	65	57	48	39
LVR(S)5-10	3		93	90	85	79	74	65	56	46
LVR(S)5-11	3		103	99	94	87	81	71	61	51
LVR(S)5-12	3		112	108	102	95	89	78	67	55
LVR(S)5-13	4		123	118	113	105	98	86	75	62
LVR(S)5-14	4		132	127	121	113	105	93	81	67
LVR(S)5-15	4		142	136	130	121	112	99	86	71
LVR(S)5-16	4		151	145	138	129	120	106	92	76

LVS/LVR

Stainless Steel Vertical
Multistage Pump

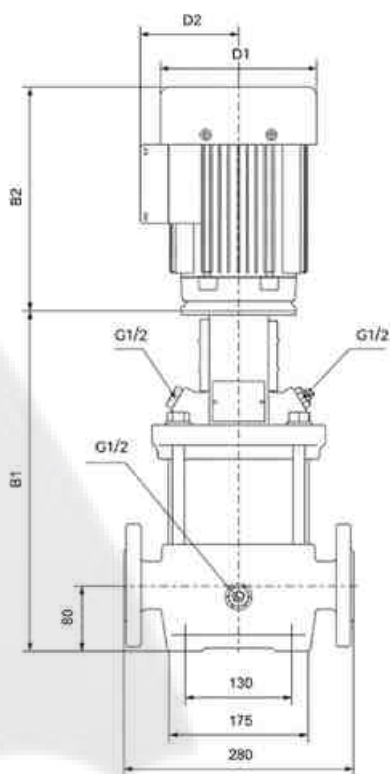
Hydraulic Performance Curves



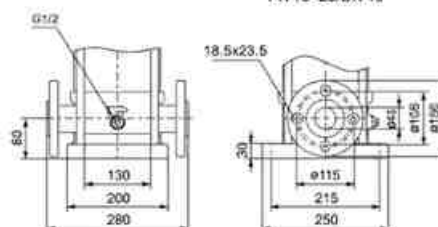
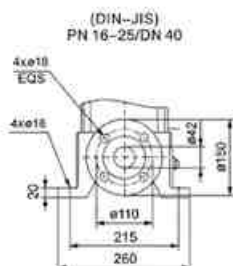
LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



DIN FLANGE(LVR)/F



DIN FLANGE(LVS)/F

Model	OVAL FLANGE (LVR)		DIN FLANGE (LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
10-1	367	617	353.5	603.5	150	95	V18
10-2	367	677	369.5	679.5	168	112	
10-3	397	707	399.5	709.5	168	112	
10-4	432	762	434.5	764.5	194	124	
10-5	462	792	464.5	794.5	194	124	
10-6	462	849	494.5	851.5	212	142	
10-7	554	952	556.5	954.5	259	164	
10-8	584	982	586.5	984.5	254	164	
10-9	614	1012	616.5	1014.5	254	164	
10-10	644	1042	646.5	1044.5	254	164	
10-12	704	1102	706.5	1104.5	254	164	
10-14	841	1346	843.5	1348.5	330	255	
10-16	901	1406	903.5	1408.5	330	255	

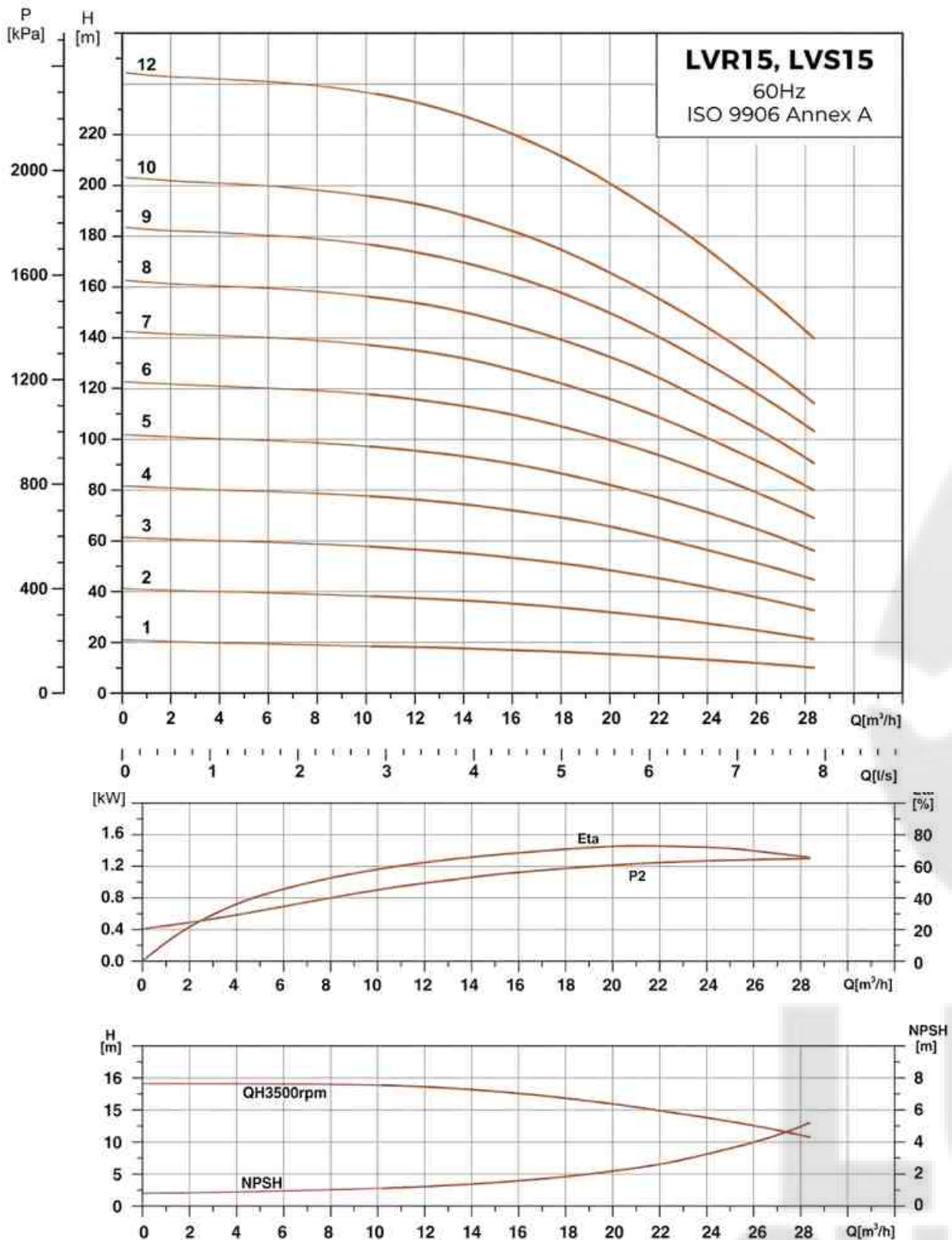
Technical Data

Model	Power(kW)	Q(m³/h)	6.0	8.0	10	12	14
LVR(S)10-1	0.75	H(m)	14	13	12	10.5	8
LVR(S)10-2	1.5		29	28	26	23	19
LVR(S)10-3	2.2		44	42	39	35	29
LVR(S)10-4	3		59	57	53	47	40
LVR(S)10-5	3		74	71	66	58	50
LVR(S)10-6	4		90	86	80	71	60
LVR(S)10-7	5.5		104	101	94	84	72
LVR(S)10-8	5.5		119	115	107	95	82
LVR(S)10-9	5.5		134	129	120	106	92
LVR(S)10-10	7.5		149	144	135	119	103
LVR(S)10-12	7.5		178	172	161	142	123
LVR(S)10-14	11		210	203	189	169	146
LVR(S)10-16	11		239	231	215	190	165

LVS/LVR

Stainless Steel Vertical
Multistage Pump

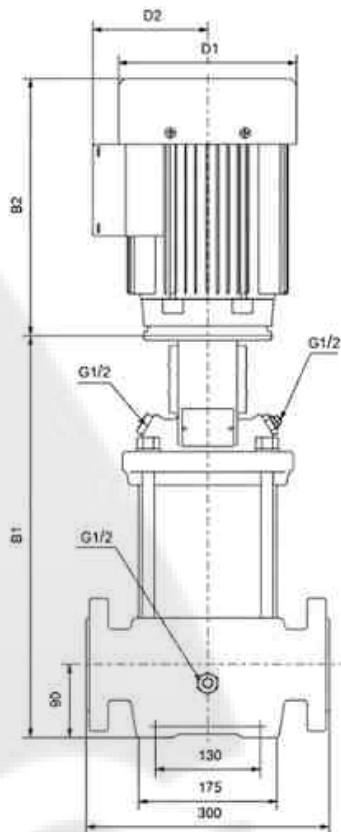
Hydraulic Performance Curves



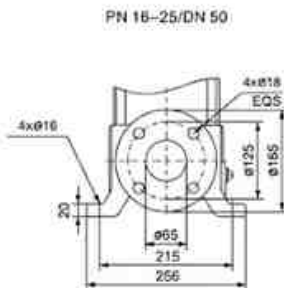
LVS/LVR

Stainless Steel Vertical Multistage Pump

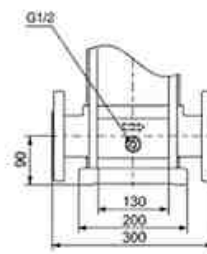
Dimension



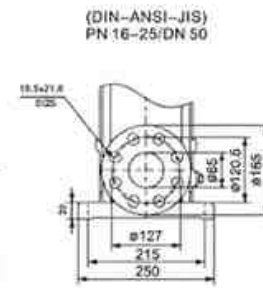
DIN FLANGE(LVR)/F



PN 16-25/DN 50



DIN FLANGE(LVS)/F



(DIN-ANSI-JIS)
PN 16-25/DN 50

Model	OVAL FLANGE (LVR)		DIN FLANGE (LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
15-1	415	725	413.5	723.5	168	112	V18
15-2	420	750	418.5	748.5	194	124	
15-3	465	822	463.5	820.5	212	142	
15-4	542	940	540.5	938.5	259	164	
15-5	587	985	585.5	983.5	259	164	
15-6	709	1214	707.5	1212.5	330	255	V1
15-7	754	1259	752.5	1257.5	330	255	
15-8	799	1304	797.5	1302.5	330	255	
15-9	844	1349	842.5	1347.5	330	255	
15-10	889	1394	847.5	1392.5	330	255	
15-12	979	1539	977.5	1337.5	330	255	

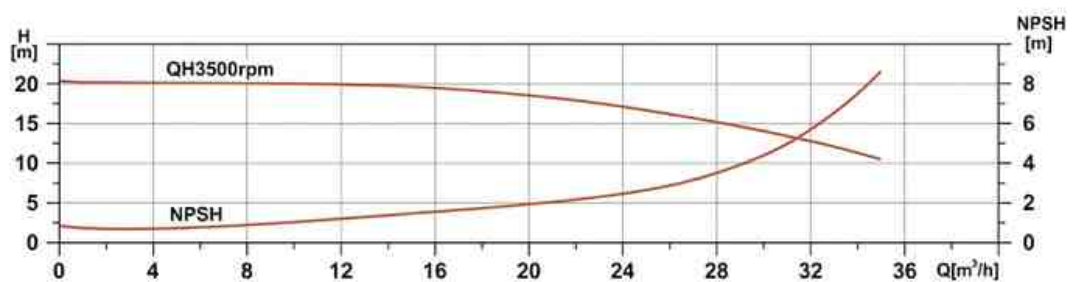
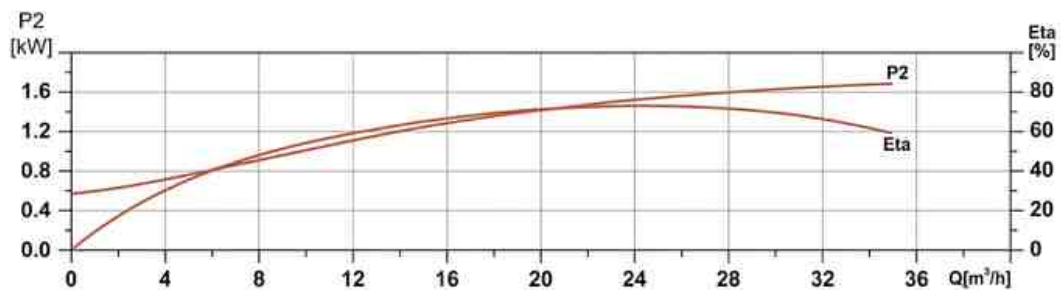
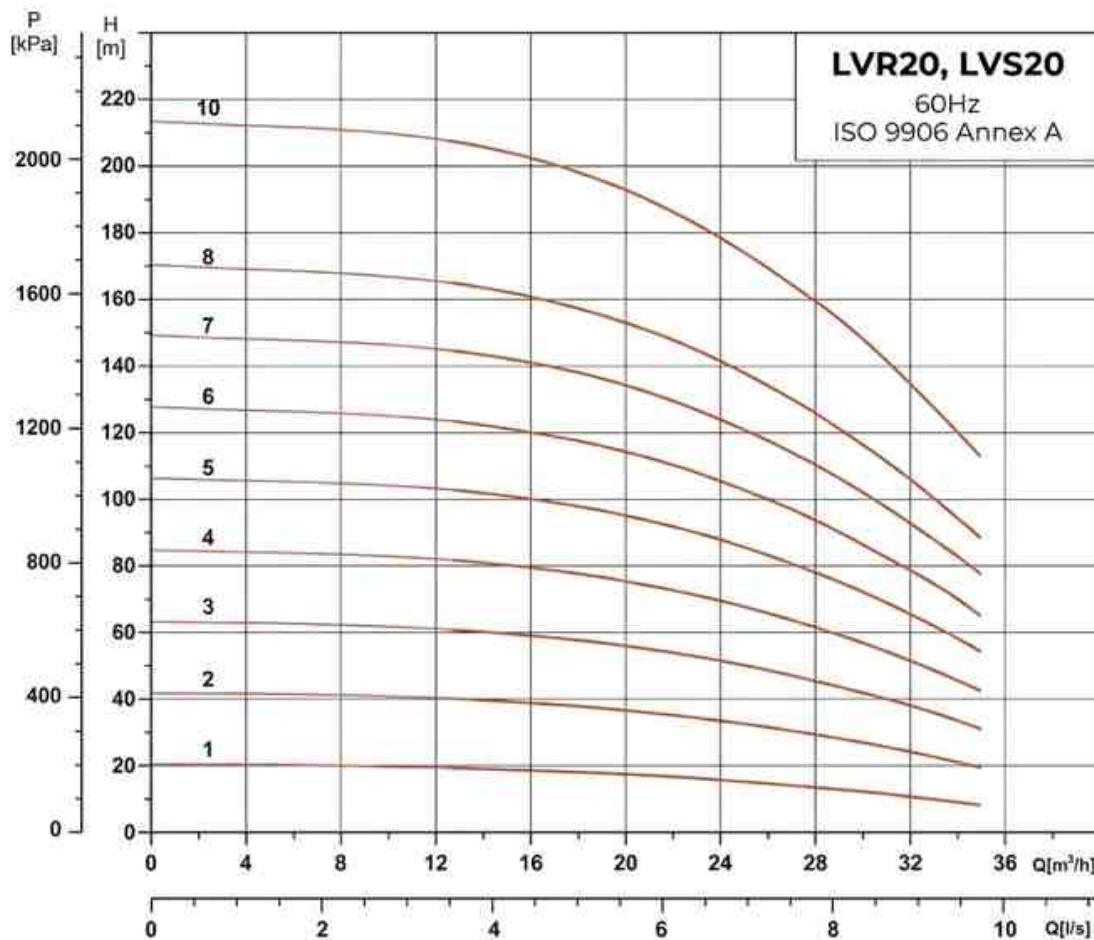
Technical Data

Model	Power(kW)	Q(m ³ /h)	12	16	20	24	28
LVR(S)15-1	1.5	H(m)	18	17	15	12	9
LVR(S)15-2	3		38	35	32	27	22
LVR(S)15-3	4		57	53	48	42	33
LVR(S)15-4	5.5		76	72	65	56	46
LVR(S)15-5	7.5		96	90	81	71	57
LVR(S)15-6	11		116	110	98	87	70
LVR(S)15-7	11		135	127	114	101	82
LVR(S)15-8	11		154	145	130	114	93
LVR(S)15-9	15		174	164	148	130	105
LVR(S)15-10	15		193	182	164	144	117
LVR(S)15-12	18.5		233	220	198	174	142

LVS/LVR

Stainless Steel Vertical
Multistage Pump

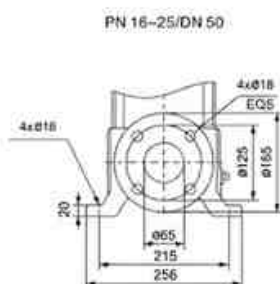
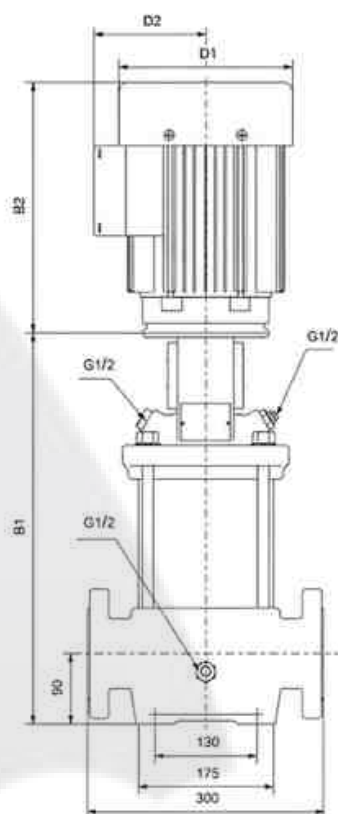
Hydraulic Performance Curves



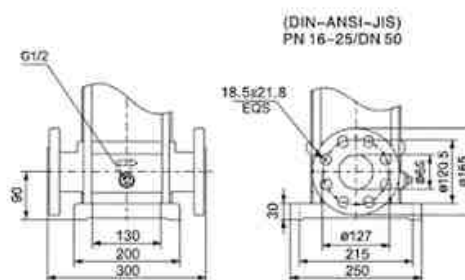
LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



DIN FLANGE(LVR)/F



DIN FLANGE(LVS)/F

Model	OVAL FLANGE (LVR)		DIN FLANGE (LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2	B1	B1+B2			
20-1	415	725	413.5	723.5	168	112	V18
20-2	420	777	418.5	775.5	212	142	
20-3	497	895	495.5	893.5	259	164	
20-4	542	940	540.5	938.5	259	164	
20-5	664	1169	662.5	1167.5	330	255	V1
20-6	709	1214	707.5	1212.5	330	255	
20-7	754	1259	752.5	1257.5	330	255	
20-8	799	1304	797.5	1302.5	330	255	
20-10	889	1449	887.5	1447.5	330	255	

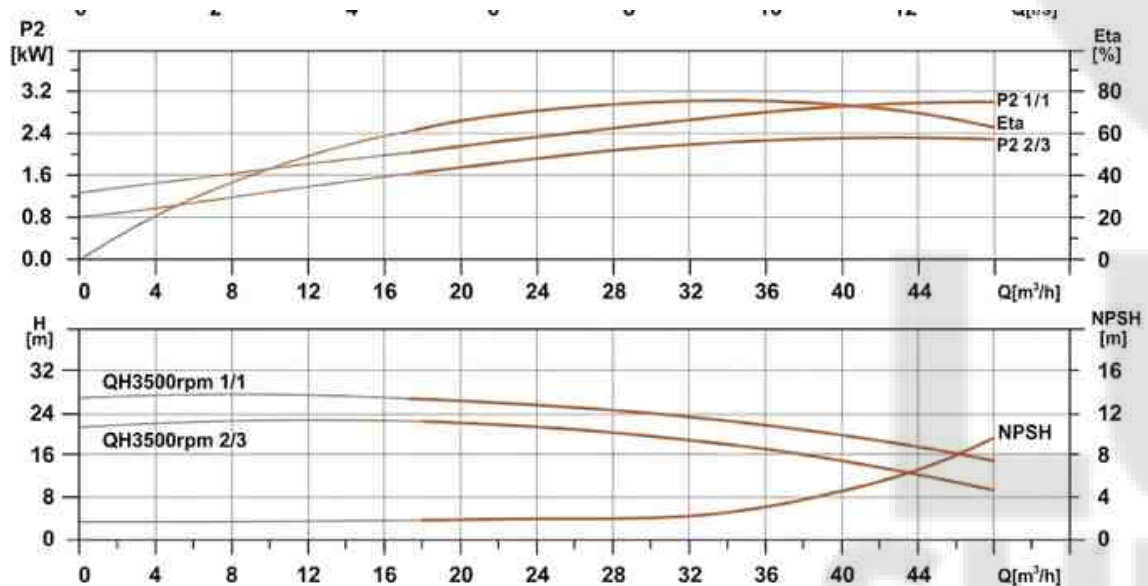
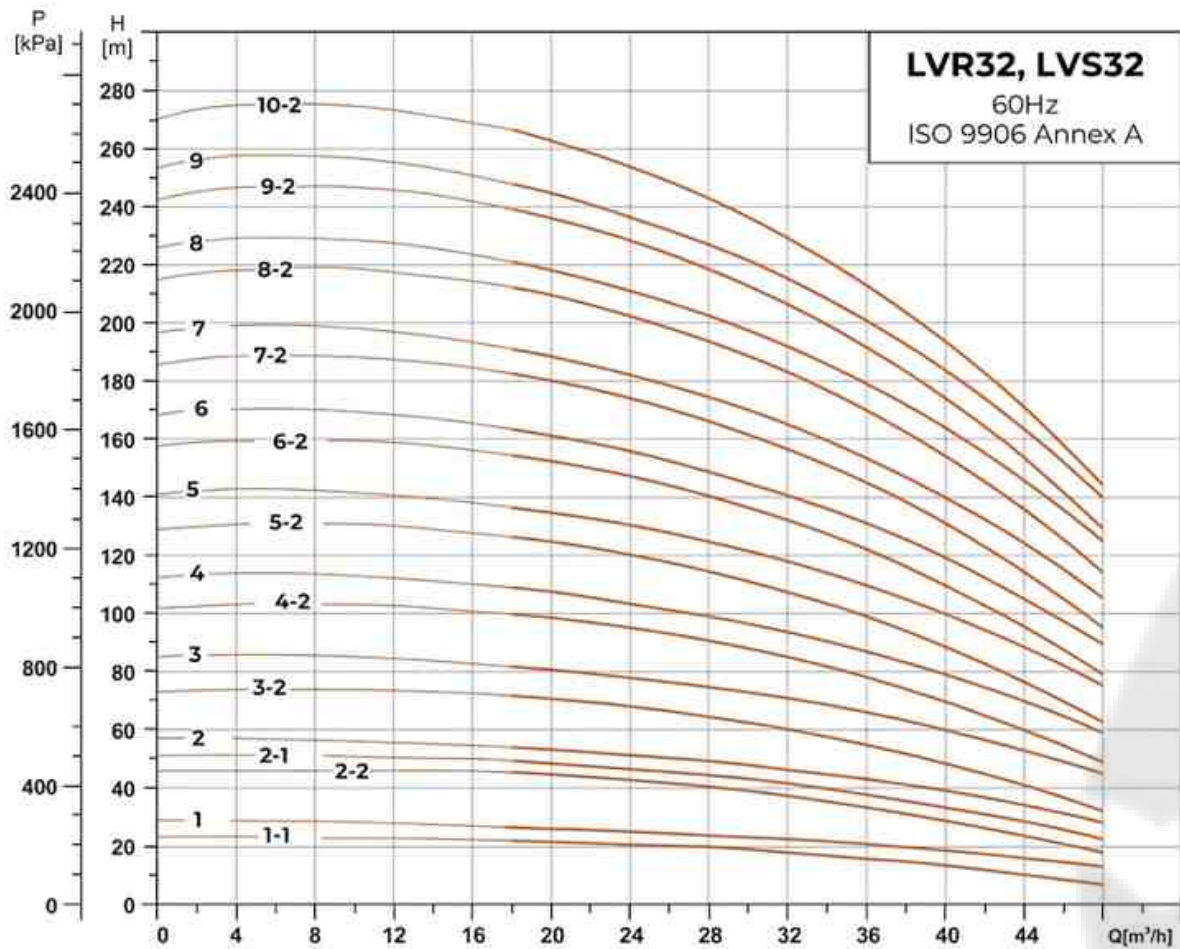
Technical Data

Model	Power(kW)	Q(m³/h)	13	17	21	25	29
LVR(S)20-1	2.2	H(m)	19	18	17	15	13
LVR(S)20-2	4		40	38	36	33	28
LVR(S)20-3	5.5		60	58	55	50	44
LVR(S)20-4	7.5		81	78	74	67	59
LVR(S)20-5	11		103	99	93	85	75
LVR(S)20-6	11		123	119	112	100	89
LVR(S)20-7	15		144	139	132	119	106
LVR(S)20-8	15		164	159	150	135	121
LVR(S)20-10	18.5		207	200	189	171	154

LVS/LVR

Stainless Steel Vertical
Multistage Pump

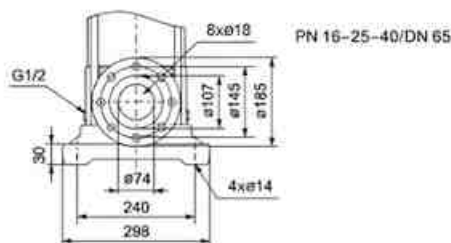
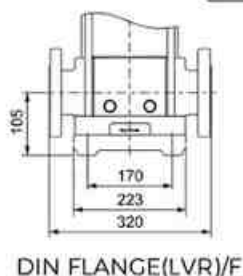
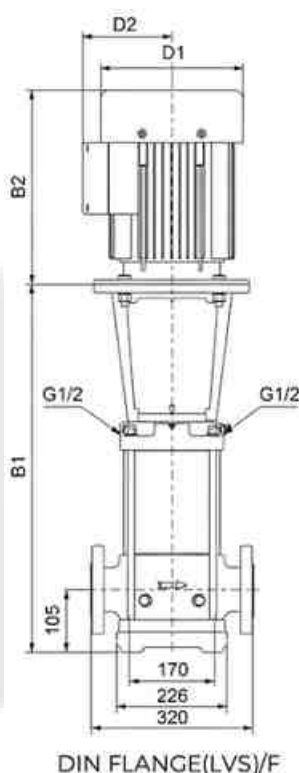
Hydraulic Performance Curves



LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



Model	DIN FLANGE(LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
32-1-1	455	765	168	112	V18
32-1	455	785	194	124	
32-2-2	575	973	275	210	
32-2-1	575	973	275	210	
32-2	575	973	275	210	
32-3-2	755	1260	330	255	
32-3	755	1260	330	255	
32-4-2	825	1330	330	255	
32-4	825	1330	330	255	
32-5-2	895	1400	330	255	
32-5	895	1455	330	255	V1
32-6-2	965	1525	330	255	
32-6	965	1525	330	255	
32-7-2	1035	1625	380	280	
32-7	1035	1625	380	280	
32-8-2	1105	1765	420	305	
32-8	1105	1765	420	305	
32-9-2	1175	1835	420	305	
32-9	1175	1835	420	305	
32-10-2	1245	1905	420	305	

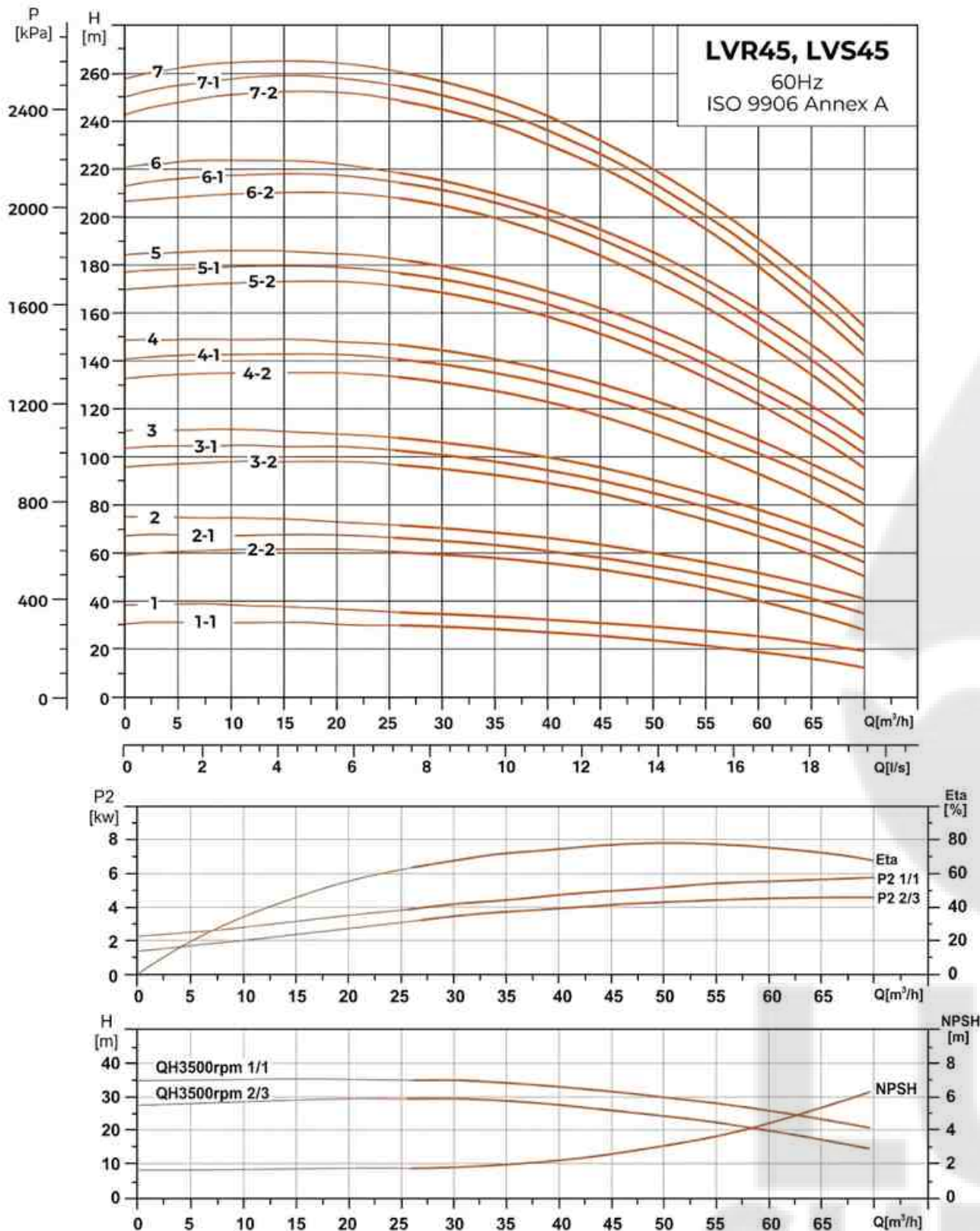
Technical Data

Model	Power(kW)	Q(m³/h)	20	25	30	36	40	48
LVR(S)32-1-1	2.2	H(m)	21	20	18	15.5	13	7
LVR(S)32-1	3		25	24	23	20.5	18	13
LVR(S)32-2-2	5.5		44	42	39	33	29	18
LVR(S)32-2-1	5.5		48	46	43	38	33	23
LVR(S)32-2	7.5		53	51	48	43	39	29
LVR(S)32-3-2	11		71	67	62	55	48	32
LVR(S)32-3	11		81	77	73	66	60	45
LVR(S)32-4-2	11		98	94	88	78	70	49
LVR(S)32-4	15		107	103	96	87	79	59
LVR(S)32-5-2	15		125	119	111	99	89	63
LVR(S)32-5	18.5		135	129	122	110	100	75
LVR(S)32-6-2	18.5		153	146	136	122	110	80
LVR(S)32-6	18.5		161	154	145	131	119	90
LVR(S)32-7-2	22		180	172	162	145	131	96
LVR(S)32-7	22		188	180	170	154	141	106
LVR(S)32-8-2	30		209	201	189	170	154	115
LVR(S)32-8	30		218	209	198	179	164	126
LVR(S)32-9-2	30		236	226	213	192	174	130
LVR(S)32-9	30		245	235	222	201	184	140
LVR(S)32-10-2	30		263	252	237	214	194	145

LVS/LVR

Stainless Steel Vertical
Multistage Pump

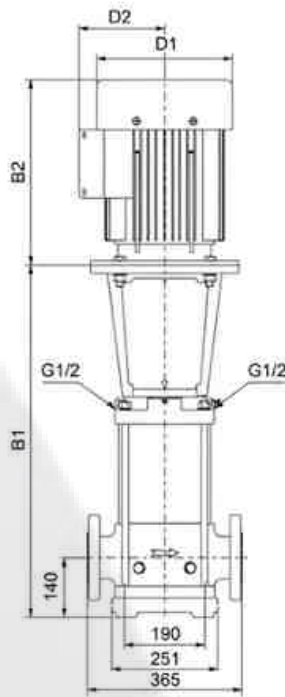
Hydraulic Performance Curves



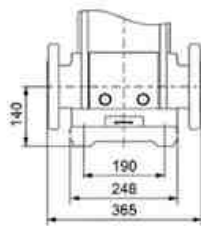
LVS/LVR

Stainless Steel Vertical Multistage Pump

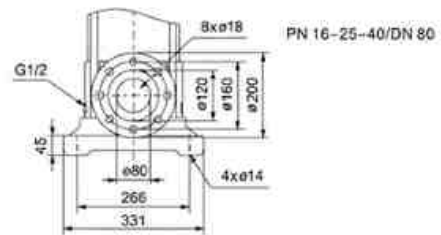
Dimension



DIN FLANGE(LVS)/F



DIN FLANGE(LVR)/F



Model	DIN FLANGE(LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
45-1-1	455	958.5	275	210	V1
45-1	455	958.5	275	210	
45-2-2	575	1256	330	255	
45-2-1	575	1256	330	255	
45-2	575	1256	330	255	
45-3-2	755	1391	330	255	
45-3-1	725	1391	330	255	
45-3	825	1501	330	255	
45-4-2	895	1571	380	280	
45-4-1	895	1571	420	305	
45-4	895	1571	420	305	
45-5-2	965	1651	420	305	
45-5-1	965	1651	420	305	
45-5	1035	1651	420	305	
45-6-2	1035	1731	420	305	
45-6-1	1105	1731	420	305	
45-6	1105	1731	420	305	
45-7-2	1175	1861	470	335	
45-7-1	1175	1861	470	335	
45-7	1245	1861	470	335	

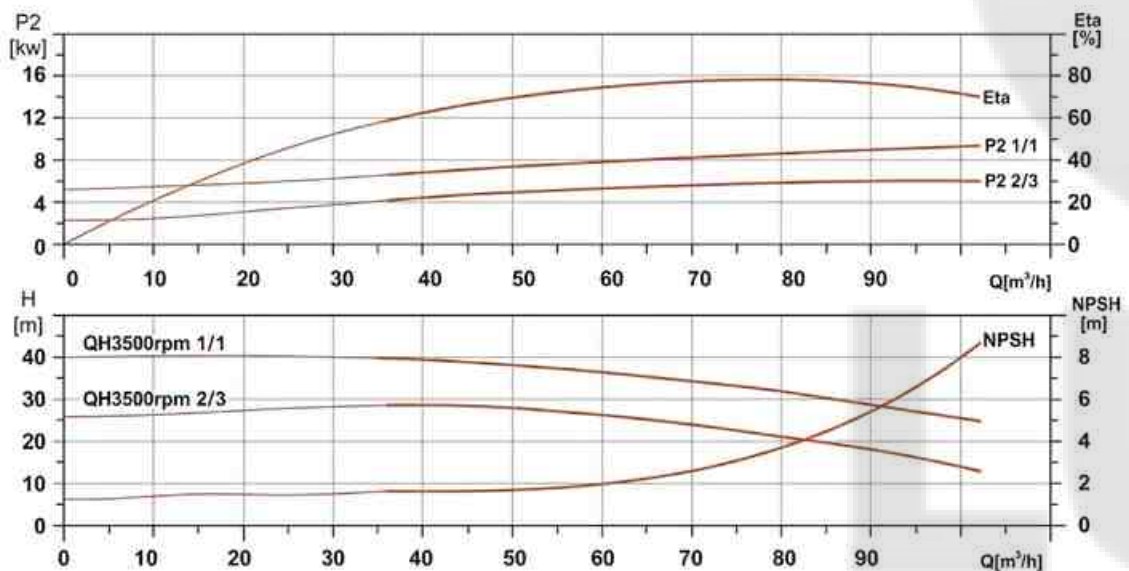
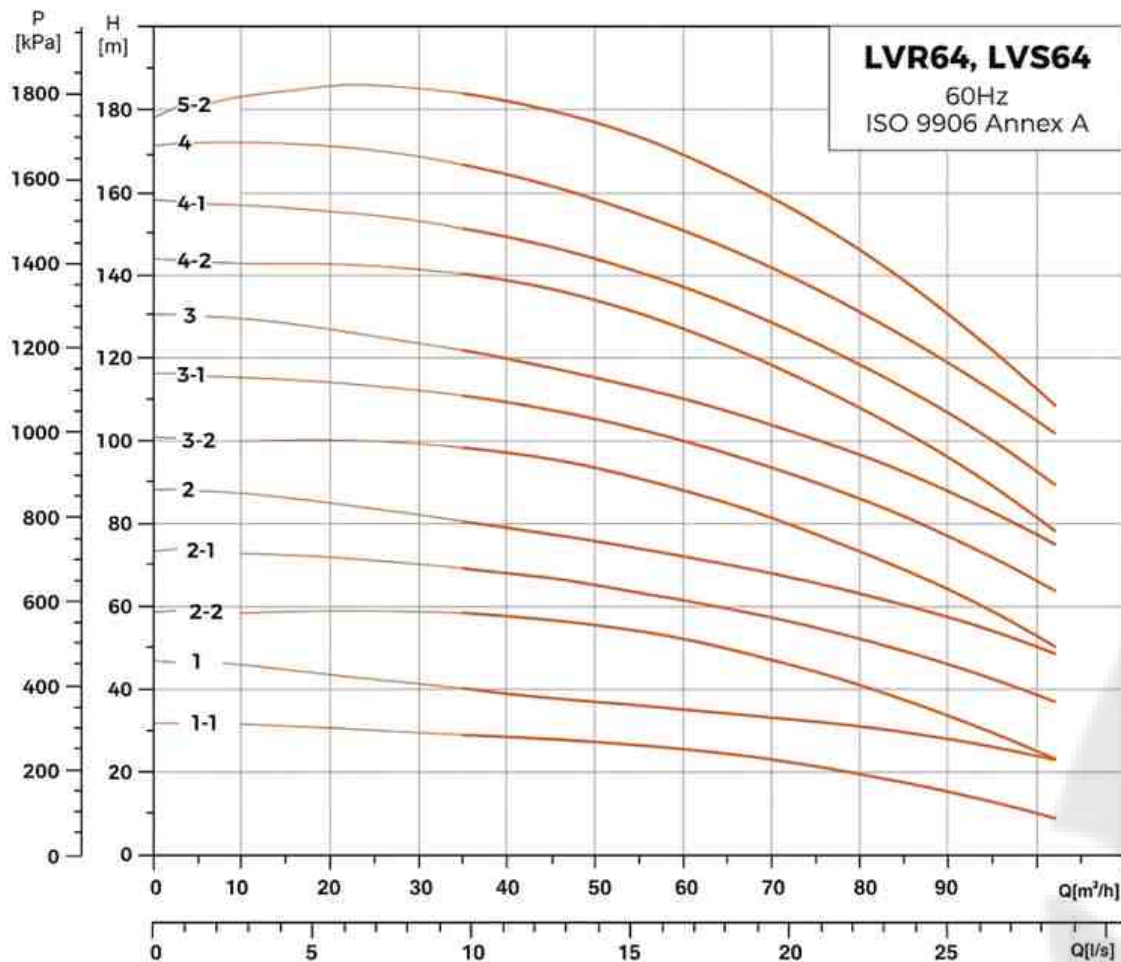
Technical Data

Model	Power(kW)	Q(m³/h)	30	40	50	54	60	70
LVR(S)45-1-1	5.5	H(m)	29	27	24	22	19	13
LVR(S)45-1	7.5		34	32	29	28	25	20
LVR(S)45-2-2	11		60	56	49	46.5	40	28
LVR(S)45-2-1	11		65	61	55	51.5	46	35
LVR(S)45-2	15		70	66	60	57	52	41
LVR(S)45-3-2	18.5		95	89	80	75.5	67	51
LVR(S)45-3-1	18.5		101	94	85	80.5	72	57
LVR(S)45-3	18.5		106	100	90	86	78	62
LVR(S)45-4-2	22		131	123	110	104	93	72
LVR(S)45-4-1	30		139	131	118	112	102	81
LVR(S)45-4	30		144	136	124	118	107	87
LVR(S)45-5-2	30		169	159	143	135	122	96
LVR(S)45-5-1	30		174	164	148	141	128	102
LVR(S)45-5	30		179	169	154	146	134	108
LVR(S)45-6-2	37		205	193	174	165	149	118
LVR(S)45-6-1	37		211	199	181	172	156	124
LVR(S)45-6	37		215	203	185	176	181	130
LVR(S)45-7-2	45		245	231	209	198	180	143
LVR(S)45-7-1	45		251	236	214	204	185	149
LVR(S)45-7	45		257	242	220	209	191	155

LVS/LVR

Stainless Steel Vertical
Multistage Pump

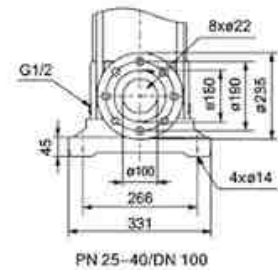
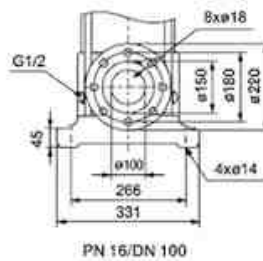
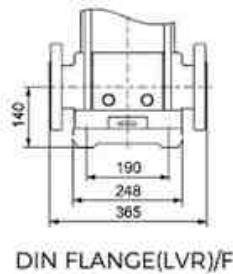
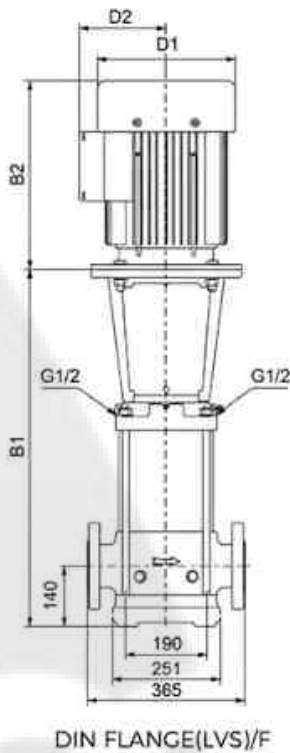
Hydraulic Performance Curves



LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



Model	DIN FLANGE(LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
64-1-1	563	961	275	210	V1
64-1	673	1178	330	255	
64-2-2	755.5	1261	330	255	
64-2-1	755.5	1316	330	255	
64-2	755.5	1346	380	280	
64-3-2	838	1428	380	280	
64-3-1	838	1498	420	305	
64-3	838	1498	420	305	
64-4-2	920.5	1581	420	305	
64-4-1	920.5	1581	420	305	
64-4	920.5	1631	470	335	
64-5-2	1003	1713	470	335	

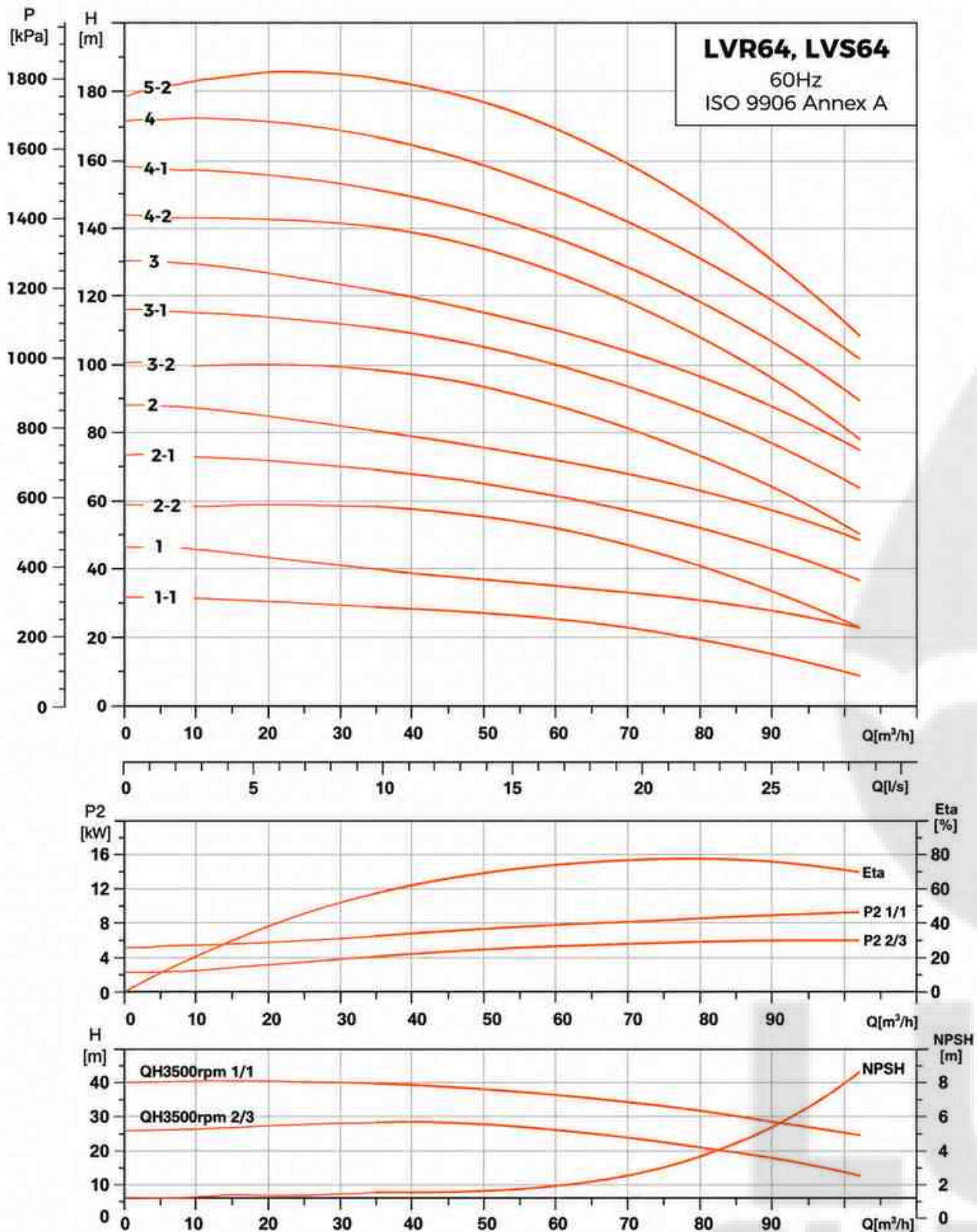
Technical Data

Model	Power(kW)	Q(m ³ /h)	40	60	70	77	90	100
LVR(S)64-1-1	7.5	H(m)	28	27	23	20.5	15	10
LVR(S)64-1	11		38	35	33	31	27	24
LVR(S)64-2-2	15		57	52	47	43	33	24
LVR(S)64-2-1	18.5		68	61	57	53.5	46	38
LVR(S)64-2	22		79	72	68	64.5	57	49
LVR(S)64-3-2	22		97	88	81	76	64	53
LVR(S)64-3-1	30		109	100	93	88	77	66
LVR(S)64-3	30		120	110	104	99	87	77
LVR(S)64-4-2	37		139	127	119	111	96	81
LVR(S)64-4-1	37		150	137	129	122	106	92
LVR(S)64-4	45		164	151	142	135	119	104
LVR(S)64-5-2	45		182	169	159	150	131	112

LVS/LVR

Stainless Steel Vertical
Multistage Pump

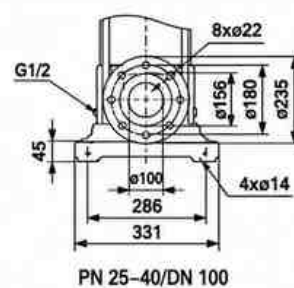
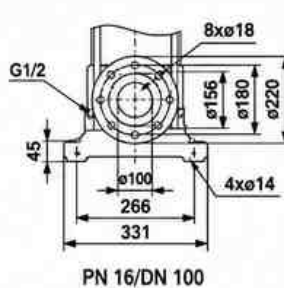
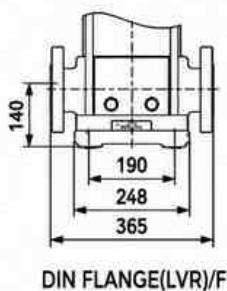
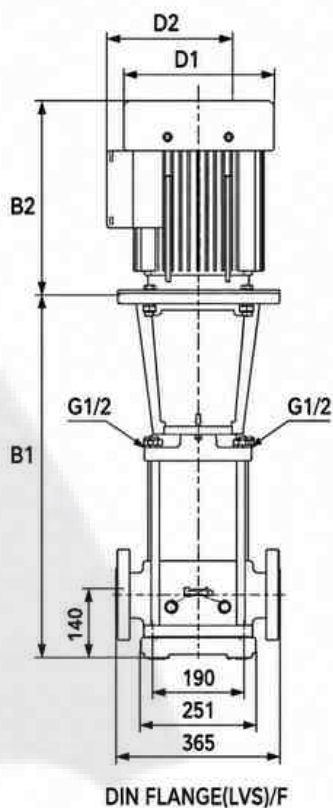
Hydraulic Performance Curves



LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



Model	DIN FLANGE(LVR. LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
64-1-1	563	961	275	210	V1
64-1	673	1178	330	255	
64-2-2	755.5	1261	330	255	
64-2-1	755.5	1316	330	255	
64-2	755.5	1346	380	280	
64-3-2	838	1428	380	280	
64-3-1	838	1498	420	305	
64-3	838	1498	420	305	
64-4-2	920.5	1581	420	305	
64-4-1	920.5	1581	420	305	
64-4	920.5	1631	470	335	
64-5-2	1003	1713	470	335	

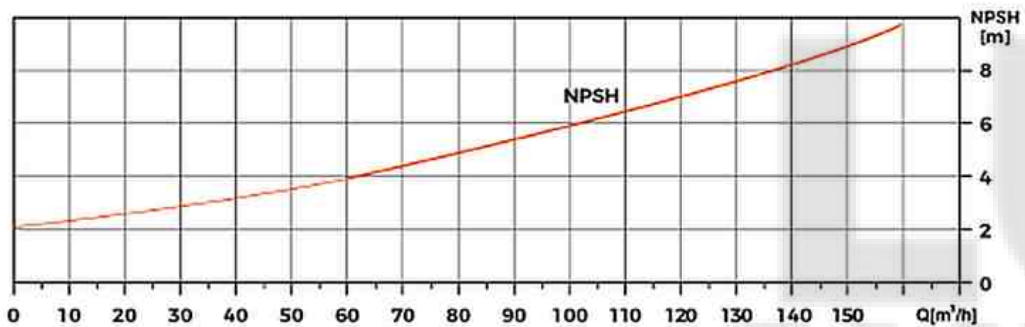
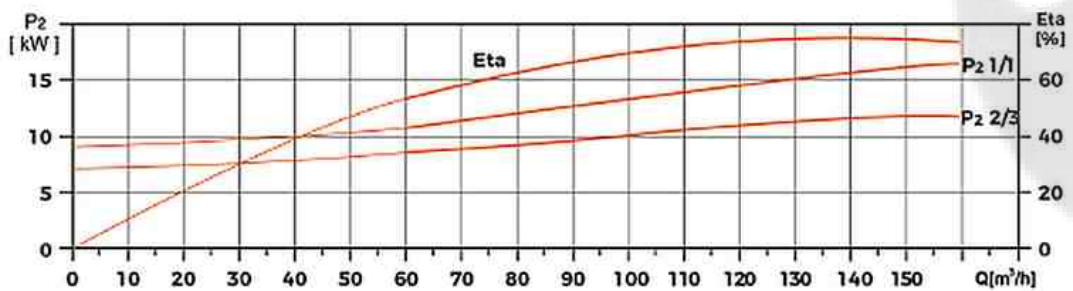
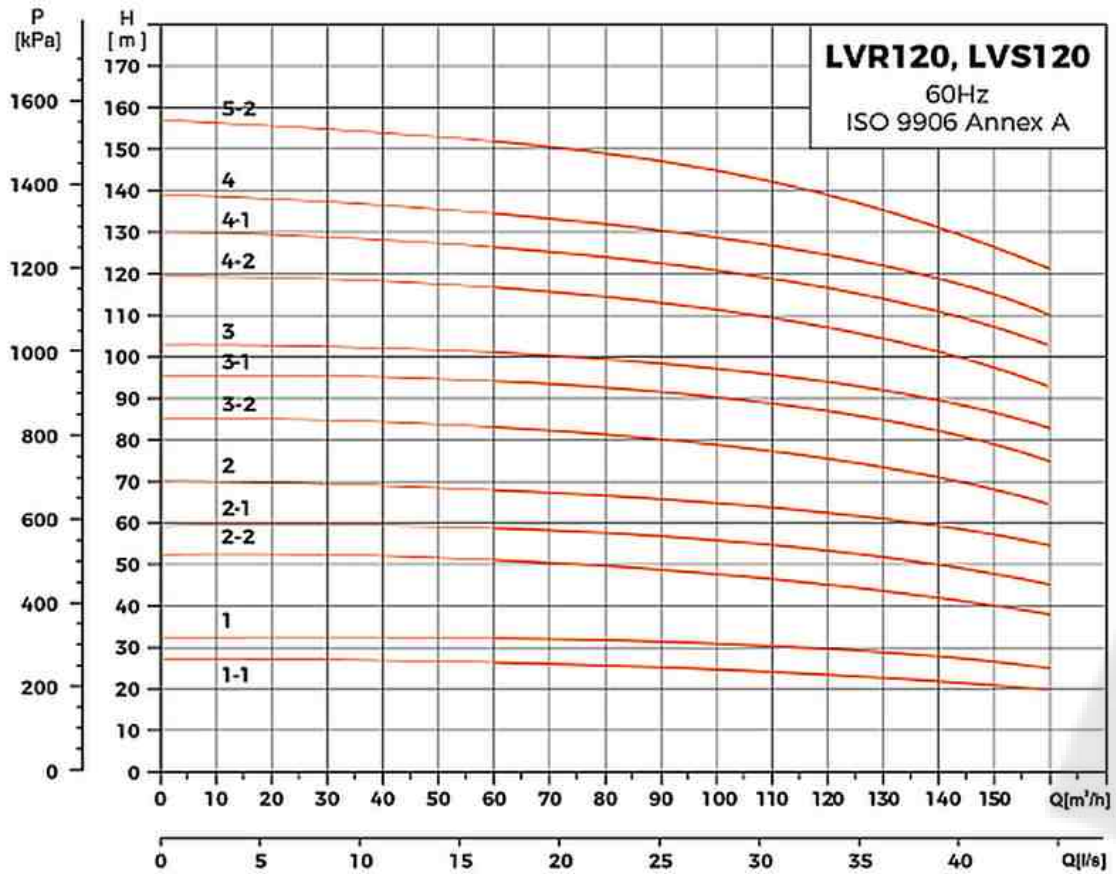
Technical Data

Model	Power(kW)	Q(m ³ /h)	40	60	70	77	90	100
LVR(S)64-1-1	7.5	H(m)	28	27	23	20.5	15	10
LVR(S)64-1	11		38	35	33	31	27	24
LVR(S)64-2-2	15		57	52	47	43	33	24
LVR(S)64-2-1	18.5		68	61	57	53.5	46	38
LVR(S)64-2	22		79	72	68	64.5	57	49
LVR(S)64-3-2	22		97	88	81	76	64	53
LVR(S)64-3-1	30		109	100	93	88	77	66
LVR(S)64-3	30		120	110	104	99	87	77
LVR(S)64-4-2	37		139	127	119	111	96	81
LVR(S)64-4-1	37		150	137	129	122	106	92
LVR(S)64-4	45		164	151	142	135	119	104
LVR(S)64-5-2	45		182	169	159	150	131	112

LVS/LVR

Stainless Steel Vertical
Multistage Pump

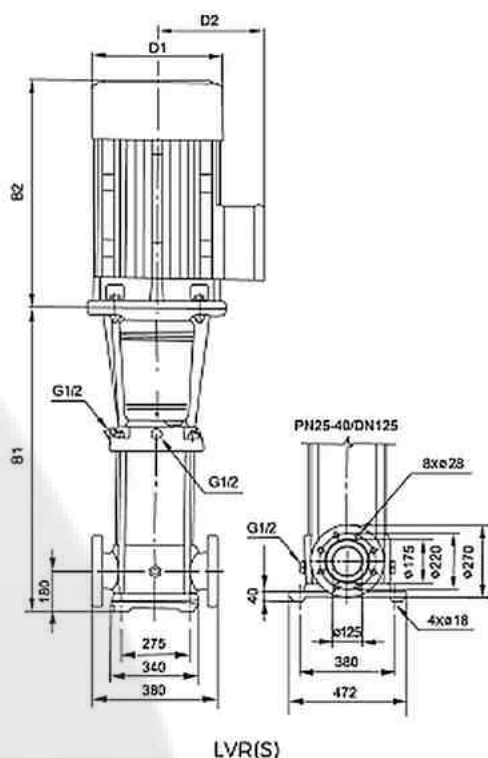
Hydraulic Performance Curves



LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



Model	DIN FLANGE(LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
120-1-1	840	1333	254	254	V1
120-1	840	1400	330	330	
120-2-2	1000	1680	420	420	
120-2-1	1000	1680	420	420	
120-2	1000	1680	420	420	
120-3-2	1160	1875	470	470	
120-3-1	1160	1875	470	470	
120-3	1190	1975	510	510	
120-4-2	1350	2195	580	580	
120-4-1	1350	2195	580	580	
120-4	1350	2195	580	580	
120-5-2	1510	2355	580	580	

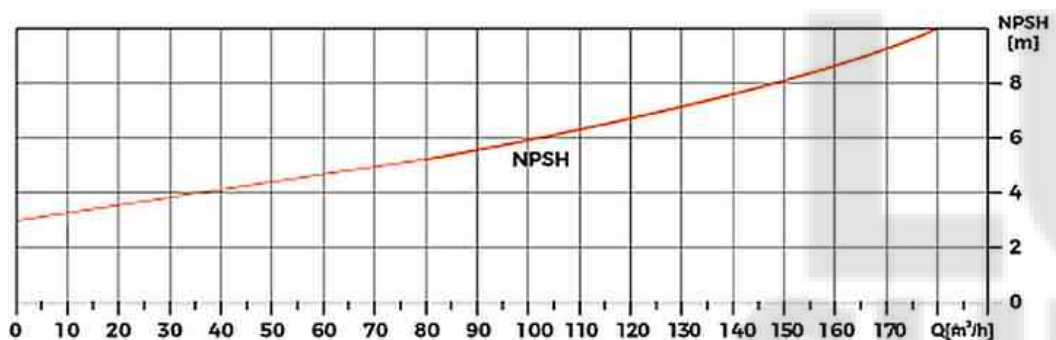
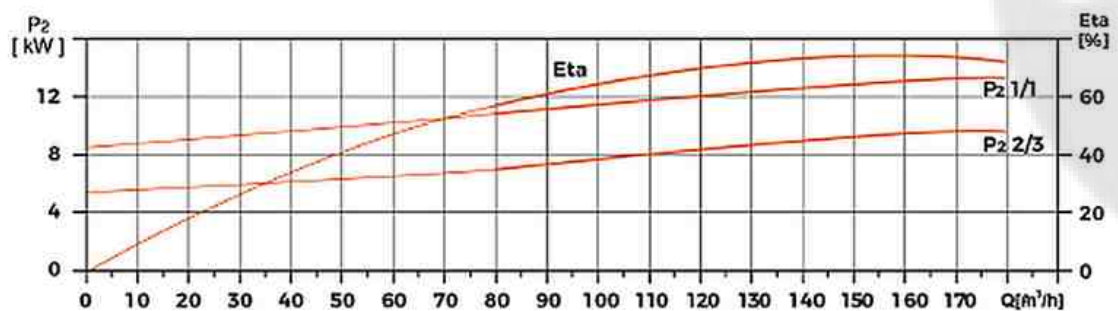
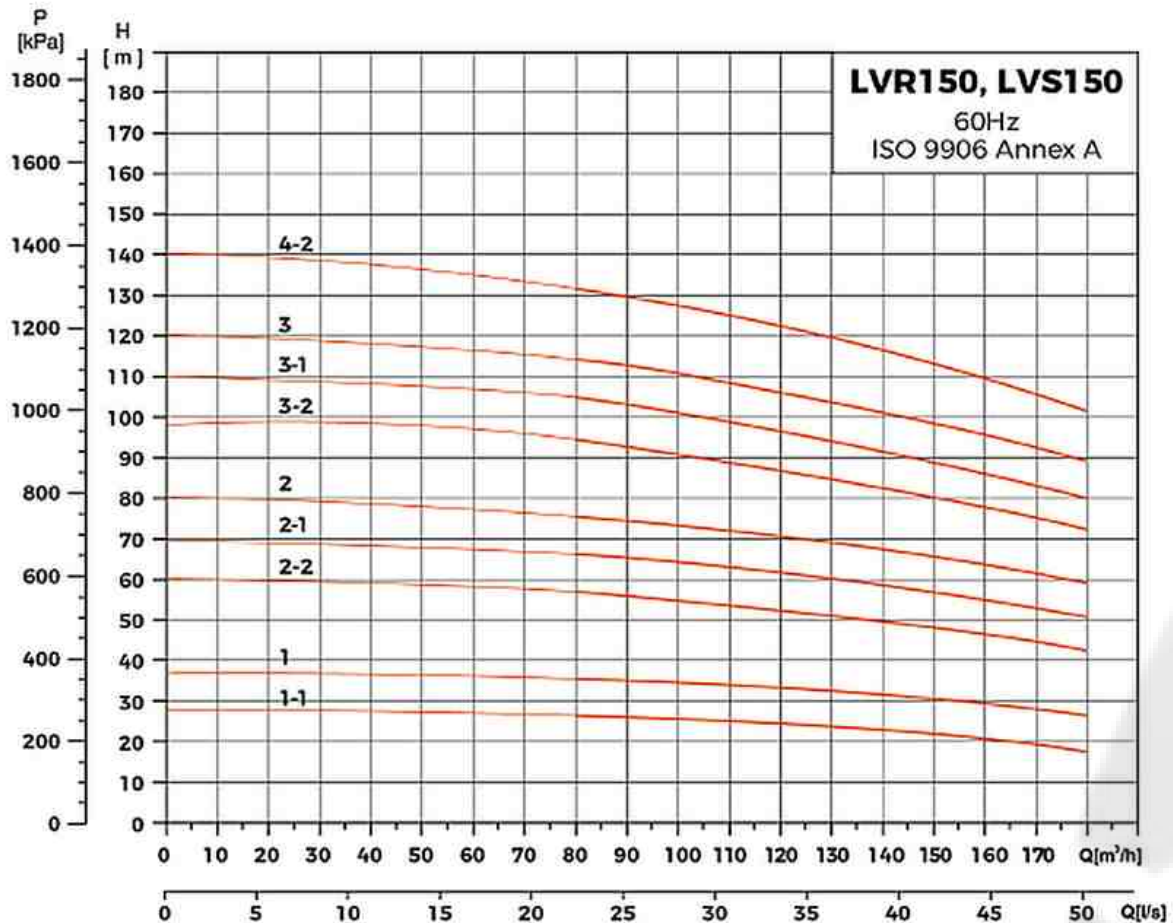
Technical Data

Model	Power(kW)	Q(m³/h)	60	70	80	90	100	110	120	130	140	150	160
LVR(S)120-1-1	15	H(m)	26.5	26	25	24.5	23.8	23	22.5	21.5	21.3	21	20
LVR(S)120-1	18.5		30.8	30.7	30.7	30.5	30.3	29.5	28.8	27.6	26.4	25.4	24.4
LVR(S)120-2-2	30		51.5	50.5	49.5	47.5	46	45.5	44.8	43	41	39.7	38.5
LVR(S)120-2-1	30		58.3	58	57.3	56	54.7	54	53	51.5	50	47.4	45
LVR(S)120-2	37		66.3	66	65.7	65	64.4	63	62	60.7	59.6	57	54.6
LVR(S)120-3-2	45		83	82	81	79.5	78	76	74.5	73.5	71	68.5	65
LVR(S)120-3-1	45		91.3	91	90.4	89	87.7	86	84.4	82	80	76.7	73.3
LVR(S)120-3	55		100.3	100	99.4	98.3	97.3	95.5	94	92	90	86.3	82.7
LVR(S)120-4-2	75		116	115.5	114	113	111	109	105.5	104	100	97	93
LVR(S)120-4-1	75		126	125.4	124.6	122.6	120.6	118.5	116.5	114	111.3	107	103
LVR(S)120-4	75		134	133	132	131	129.5	127.5	125	122	119	114.5	109.5
LVR(S)120-5-2	75		152	151	149.7	147	144	141.5	139	135.5	132	127	122

LVS/LVR

Stainless Steel Vertical
Multistage Pump

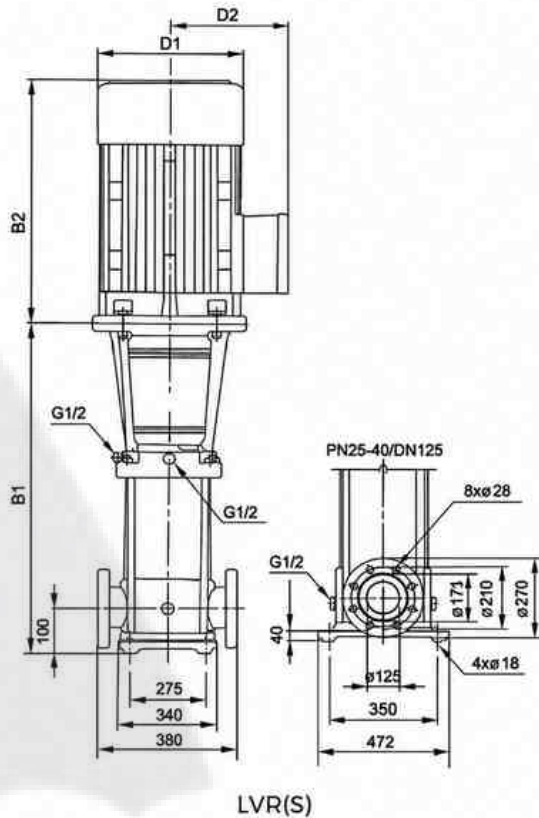
Hydraulic Performance Curves



LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



Model	DIN FLANGE(LVR. LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
150-1-1	840	1333	254	175	V1
150-1	840	1440	380	280	
150-2-2	1000	1680	420	305	
150-2-1	1000	1680	420	305	
150-2	1000	1715	470	335	
150-3-2	1190	1975	510	370	
150-3-1	1190	2035	580	410	
150-3	1190	2035	580	410	
150-4-2	1350	2195	580	410	

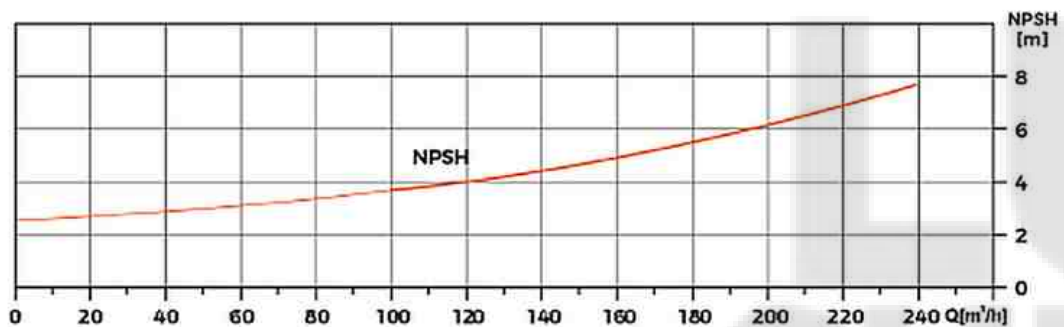
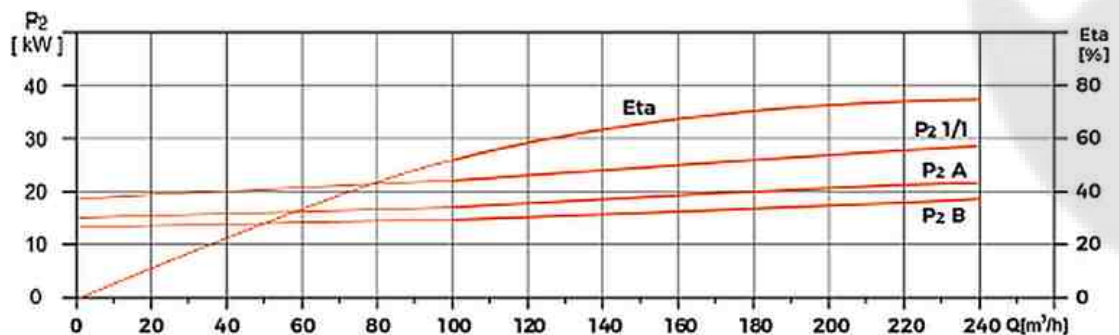
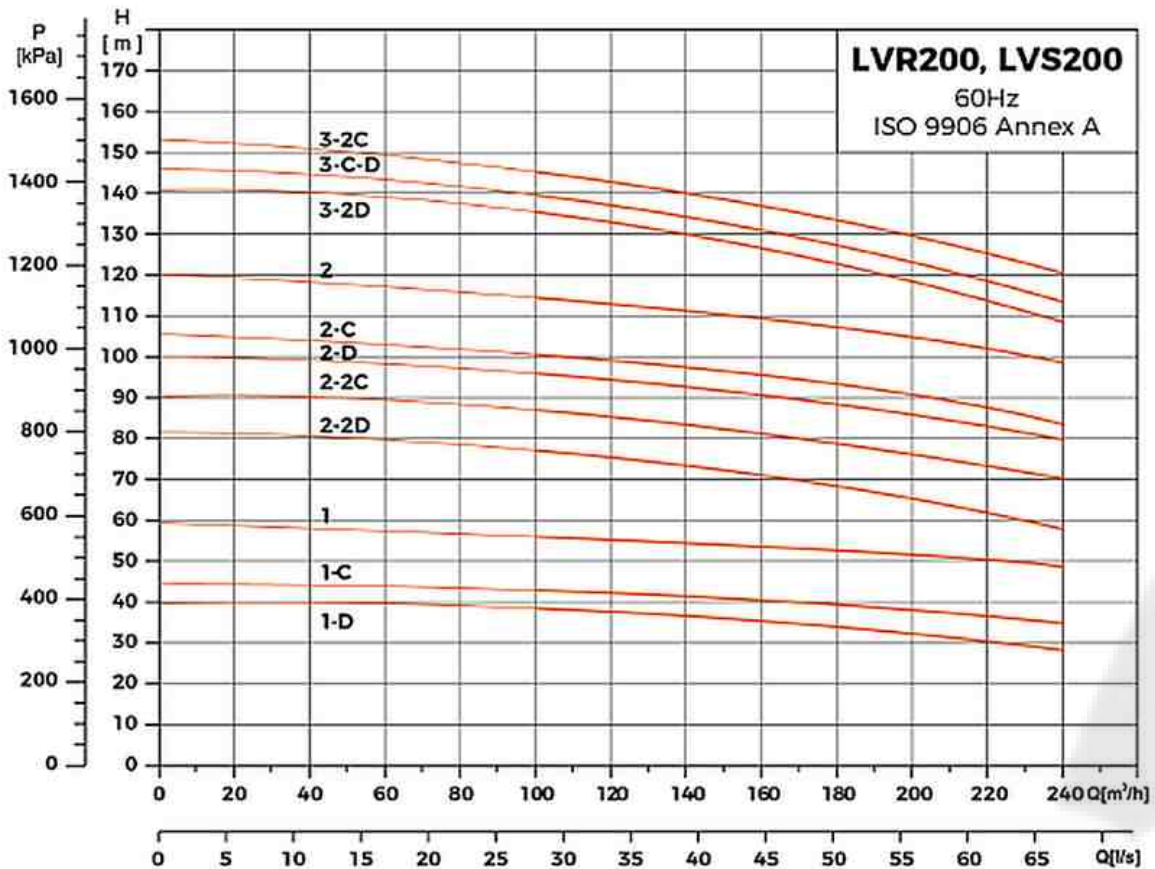
Technical Data

Model	Power(kW)	Q(m ³ /h)	80	90	100	110	120	130	140	150	160	170	180
LVR(S)150-1-1	15	H(m)	26.5	26	25.7	25	24.3	23.8	23.2	22.3	21.2	19.5	18
LVR(S)150-1	22		35	34.5	34	33.6	33	32.3	31.7	30.7	29.6	28	27
LVR(S)150-2-2	30		57	55.5	53	52	51.3	50	49	48	47	45	43
LVR(S)150-2-1	37		67	65	63.5	62	61	60	58.5	56	55	53	51
LVR(S)150-2	45		75.5	74.5	73.6	72	70.4	69	67.5	65.5	63.5	61	59
LVR(S)150-3-2	55		94	92	90.5	88.4	86.4	83.8	81	80	78	75.3	72.5
LVR(S)150-3-1	75		104	102.5	100	98	96	94	92	89	87	84	80
LVR(S)150-3	75		114.4	113	111.3	109	106.5	104	101.5	99	96	93	59.4
LVR(S)150-4-2	75		133	130.3	127.6	124.6	121.7	118.3	115	112.5	110	106.3	102.5

LVS/LVR

Stainless Steel Vertical
Multistage Pump

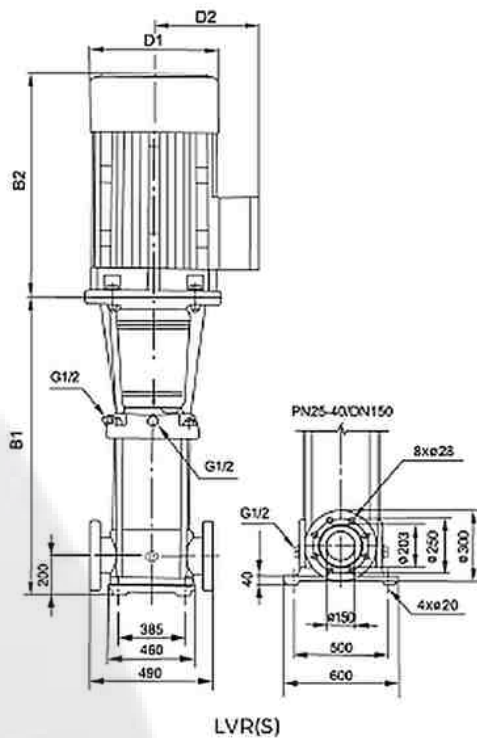
Hydraulic Performance Curves



LVS/LVR

Stainless Steel Vertical Multistage Pump

Dimension



Model	DIN FLANGE(LVR, LVS)		D1	D2	Motor Mounting Code
	B1	B1+B2			
200-1-D	907	1587	420	305	V1
200-1-C	907	1587	420	305	
200-1	907	1622	470	335	
200-2-2D	1131	1916	510	370	
200-2-2C	1131	1976	580	410	
200-2-D	1131	1976	580	410	
200-2-C	1131	2026	580	410	
200-2	1131	2026	580	410	
200-3-2D	1325	2425	645	530	
200-3-C-D	1325	2425	645	530	
200-3-2C	1325	2425	645	530	

Technical Data

Model	Power(kW)	Q(m³/h)	100	120	140	160	180	200	220	240
LVR(S)200-1-D	30	H(m)	38	37	36.5	35.5	34	33	31	29
LVR(S)200-1-C	37		43	42	41.5	40	39	38	36.5	34.5
LVR(S)200-1	45		56	55	54.5	53.5	53	52	50.5	48.5
LVR(S)200-2-2D	55		77.5	75.5	73.5	71	68.5	66	62	58.5
LVR(S)200-2-2C	75		87	85	83	81	79	77	74	70
LVR(S)200-2-D	75		95.5	93.5	92.5	90.5	88.5	86	82.5	79
LVR(S)200-2-C	90		100	98.5	97.5	95.5	93.5	91	88	84
LVR(S)200-2	90		114	112.5	111	109.5	107.5	105	101.5	98.5
LVR(S)200-3-2D	110		135	132.5	129.5	126	122.5	119	114	108.5
LVR(S)200-3-C-D	110		139	136.5	134	131	125	124	119	113.5
LVR(S)200-3-2C	110		145	142.5	140	137	133.5	130	125.5	120