Vertical Multistage Centrifugal Pumps

APPLICATIONS

LVR(S) series, vertical multistage centrifugal pump, is suitable for transferring liquids of low viscosity, non-inflammable and non-explosive, not containing solid particles or fibers.

- Water supply: water supply & drainage for high-rise buildings, filtration and transfer at waterworks, pressure boosting in main pipe
- Industry: Washing and cleaning systems, boiler feeding, cooling water circulation, water treatment systems, auxiliary system, support equipment
- Water treatment: ultra-filtration systems, reverse-osmosis systems, distillation systems, separators, swimming pools
- Agricultural irrigation: sprinkler irrigation, drip-feed irrigation
- Food & beverage industry
- Fire-fighting system

FEATURES

- Compact, nice appearance, efficient, low noise, reliable seal, easy to use and maintain

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 shall be used.

- Liquid temperature: -15℃+120℃
- Flow ranges: 0.7-85m³/h
- pH: 3~9
- Max. ambient temperature: +40℃
- Max. operation pressure: 33bar
- Altitude: up to 1000m

MOTOR

- Totally enclosed & fan-cooled motor
- Protection class: IP 55
- Standard voltage: 50Hz 1×220V/3×380V

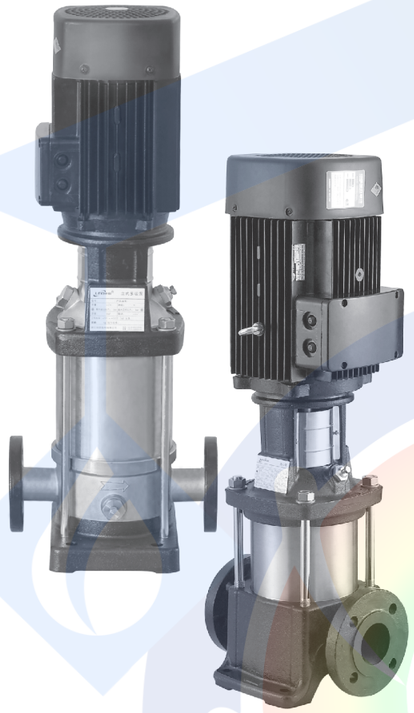
IDENTIFICATION CODES

LVS 45-10-2-B-F

- F: Pipeline port code (Omitted for DIN flange)
- B: AISI316 stainless steel material (Omitted for AISI304)
- 2: Small impeller stages
- 10: Impeller stage
- 45: Rated flow(m³/h)
- LVS: LVS,LVR Vertical multistage pump series

LVS: Stainless steel wetted parts
LVR: Cast iron base & pump cover

Identifications codes of flange structure
F: DIN flange : A: Oval flange
K: Clamp connector : G: Threaded connector



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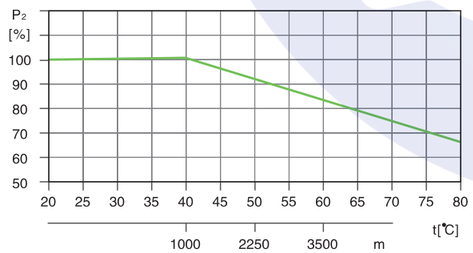
AMBIENT TEMPERATURE

Max. ambient temperature: + 40℃. Ambient temperature above 40 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℃, P_2 will be decreased to 78%.

MINIMUM INLET PRESSURE-NPSH

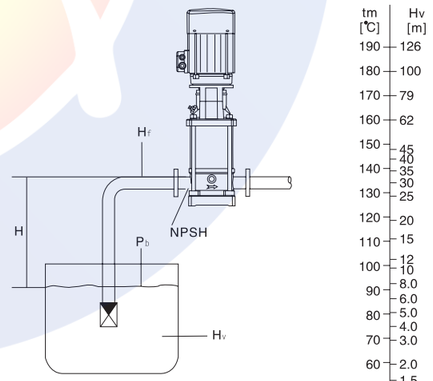
Calculation of the inlet pressure “H” is recommended in these situations:

- 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 “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.



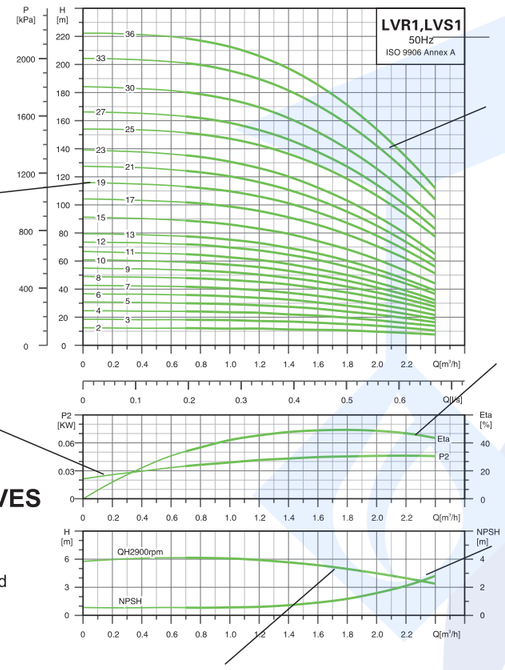
Note: To avoid cavitation, never select a pump with a duty point too far to the right on the NPSH curve.
Always check the NPSH value of the pump at the highest possible flow.

MAXIMUM INLET 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.

Pump Type	Maximum Inlet Pressure [bar]
LVR1,LVS1	
1–2 — 1–36	10
LVR2,LVS2	
2–2	6
2–3 — 2–11	10
2–13 — 2–26	15
LVR3,LVS3	
3–2 — 3–29	10
3–31 — 3–26	15
LVR4,LVS4	
4–2	6
4–3 — 4–10	10
4–12 — 4–22	15
LVR5,LVS5	
5–2 — 5–16	10
5–18 — 5–29	15
LVR10,LVS10	
10–1 — 10–6	8
10–7 — 10–22	10
LVR15,LVS15	
15–1 — 15–3	8
15–4 — 15–17	10
LVR20,LVS20	
20–1 — 20–3	8
20–4 — 20–17	10
LVR32,LVS32	
32–1–1 — 32–4	4
32–5–2 — 32–10	10
32–11 — 32–14	15
LVR45,LVS45	
45–1–1 — 45–2	4
45–3–2 — 45–5	10
45–6–2 — 45–13–2	15
LVR64,LVS64	
64–1–1 — 64–2–2	4
64–2–1 — 64–4–2	10
64–4–1 — 64–8–1	15

HOW TO READ THE CURVE CHARTS



- Pump type, frequency and ISO standard.
- QH curve for the individual pump. The bold curves indicate the recommended duty range for best efficiency.
- Number of Stages
- The power curves indicate pump input per stage.
- The eta curve shows the efficiency of the pump. The eta curve is an average curve of all the pump types shown in the chart.
- The NPSH curve is an average curve for all the variants shown. When choosing the pump, add a safety margin of at least 0.5m.
- QH curve for each individual impeller. Curves for standard impellers are shown.

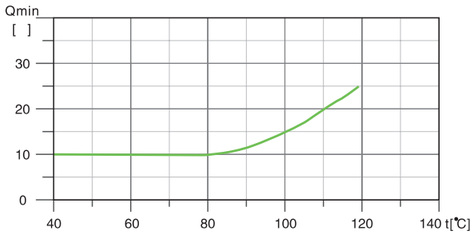
GUIDELINES TO PERFORMANCE CURVES

- Tolerances to ISO 9906, Annex A.
- Measurements have been made with airless water at a temperature of 20℃and kinematic viscosity of 1mm²/s.
- To avoid overheating of the motor, the pump should not be use against a high head for a long time.

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.

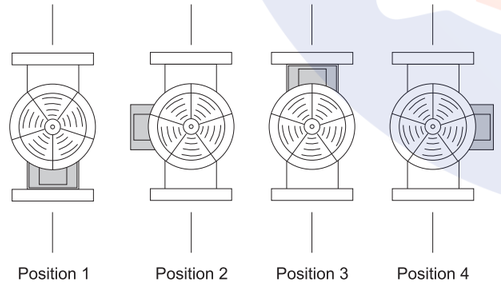
Air cooling apparatus



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

TERMINAL BOX POSITIONS

(Note: set to position 1 before delivery)



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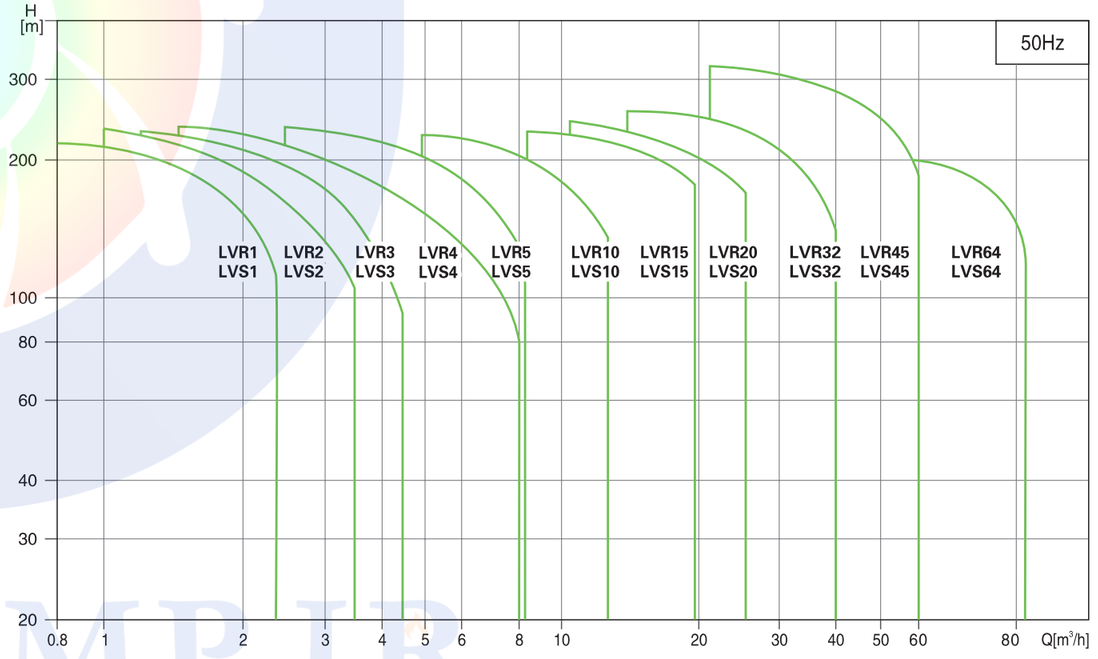
PRODUCT RANGE

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
Rated flow [m³/h]	1	2	3	4	5	10	15	20	32	45	64
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
Max. pressure [bar]	22	23	24	21	24	22	23	25	28	33	22
Motor power [kW]	0.37–2.2	0.37–3	0.37–3	0.37–4	0.37–4	0.37–7.5	1.1–15	1.1–18.5	1.5–30	3–45	4–45
Temperature Range [℃]	–20℃~+120℃ (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
Pipe connection-LVR											
Oval flange	G1	G1	G1	G1 1/4	G1 1/4	–	–	–	–	–	–
DIN flange	–	–	–	–	–	DN 42	DN 50	DN 50	DN65	DN80	DN100
Flange structure	○	○	○	○	○	○	○	○	●	●	●
Pipe connection-LVS											
Oval flange	–	–	–	–	–	–	–	–	–	–	–
DIN flange	DN 32	DN 32	DN 32	DN 32	DN 32	DN 42	DN 50	DN 50	DN65	DN80	DN100
Clamp connector	ϕ42	ϕ42	ϕ42	ϕ42	ϕ42	–	–	–	–	–	–
Threaded connector	G1 1/4	G1 1/4	G1 1/4	G1 1/4	G1 1/4	–	–	–	–	–	–
Flange structure	●	●	●	●	●	●	●	●	●	●	●

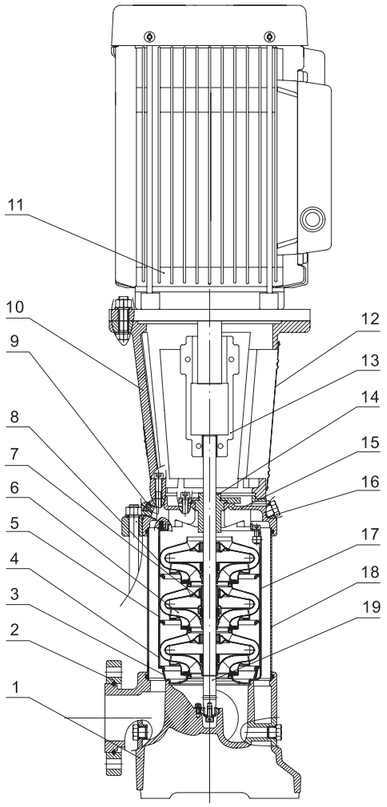
Note: ○ It means stationary flange structure , ● It means dynamic flange structure

SCOPE OF PERFORMANCE-LVR,LVS



Vertical Multistage Centrifugal Pumps

CROSS SECTION



MODEL：LVR32(45,64)

	Part	Material
1	Base	HT200
2	Drainage plug assembly	ZG35
3	Primary diffuser	AISI304
4	Medium diffuser	AISI304
5	Diffuser with bearing	AISI304
6	Impeller	AISI304
7	Actuator	
8	Final diffuser	AISI304
9	Vent plug assembly	AISI304
10	Motor base	HT200
11	Motor	
12	Guarding plate	AISI304
13	Coupling	QT400
14	Catridge seal	
15	Pump cover	ZG304
16	Filling plug	AISI304
17	Tension plate	AISI304
18	Pump barrel	AISI304
19	Pump shaft	AISI304

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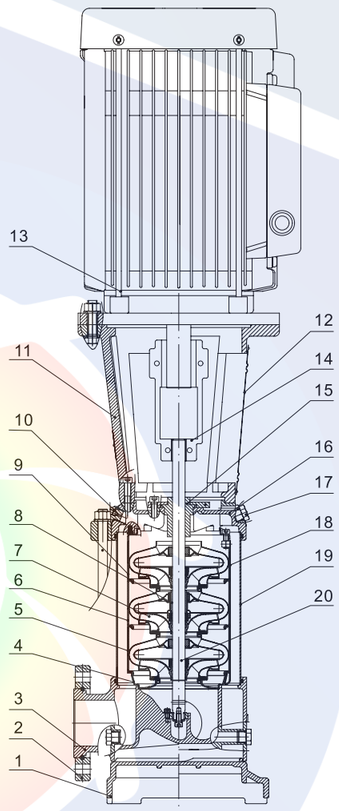
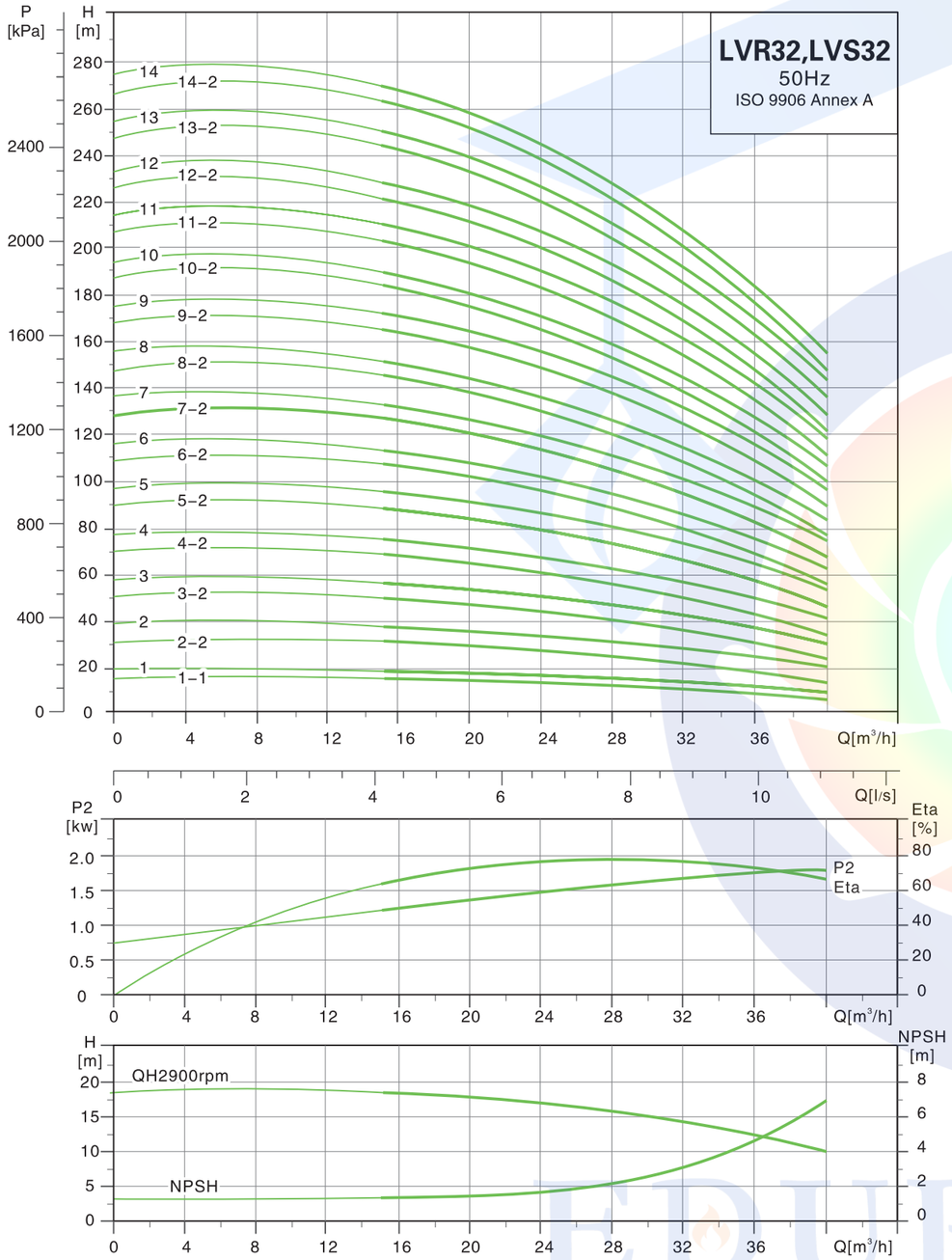


MODEL：LVS32(45,64)

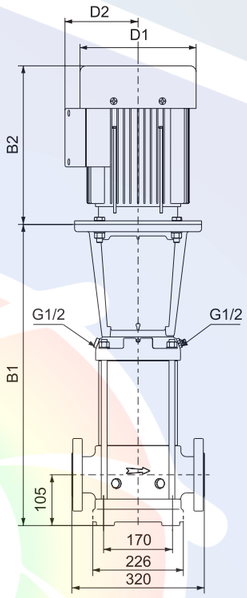
	Part	Material	Optional Material
1	Base plate	HT200	
2	Flange	ZG35	
3	Chasis	ZG304	ZG316
4	Primary diffuser	AISI304	AISI316
5	Medium diffuser	AISI304	AISI316
6	Diffuser with bearing	AISI304	AISI316
7	Impeller	AISI304	AISI316
8	Actuator		
9	Final diffuser	AISI304	AISI316
10	Vent plug assembly	AISI304	AISI316
11	Motor base	HT200	
12	Motor		
13	Guarding plate	AISI304	
14	Coupling	QT400	
15	Catridge seal		
16	Pump cover	ZG304	ZG316
17	Filling plug	AISI304	AISI316
18	Tension plate	AISI304	AISI316
19	Pump barrel	AISI304	AISI316
20	Pump shaft	AISI304	AISI316

Vertical Multistage Centrifugal Pumps

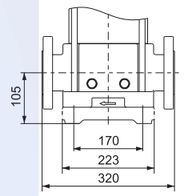
HYDRAULIC PERFORMANCE CURVES



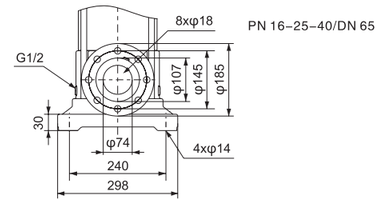
DIMENSION DRAWING



DIN FLANGE(LVS)/F



DIN FLANGE(LVR)/F



PN 16-25-40/DN 65

MODEL	DIN FLANGE(LVR、LVS)		D1	D2
	B1	B1+B2		
32-1-1	505	786	178	110
32-1	505	826	178	110
32-2-2	575	910	198	120
32-2	575	947	220	134
32-3-2	645	1036	220	134
32-3	645	1036	220	134
32-4-2	715	1106	220	134
32-4	715	1106	220	134
32-5-2	895	1393	334	263
32-5	895	1393	334	263
32-6-2	965	1463	334	263
32-6	965	1463	334	263
32-7-2	1035	1533	334	263
32-7	1035	1533	334	263
32-8-2	1105	1603	334	263
32-8	1105	1603	334	263
32-9-2	1175	1673	334	263
32-9	1175	1673	334	263
32-10-2	1245	1743	334	263
32-10	1245	1743	334	263
32-11-2	1315	1877	382	305
32-11	1315	1877	382	305
32-12-2	1385	1947	382	305
32-12	1385	1947	382	305
32-13-2	1455	2115	420	372
32-13	1455	2115	420	372
32-14-2	1525	2185	420	372
32-14	1525	2185	420	372

MODEL	POWER[kW]	Q[m³/h]	15	20	25	32	35	40
32-1-1	1.5	H(m)	15	14	13	10.5	8	5
32-1	2.2		18	17	16	15	11.5	9
32-2-2	3		31	29.5	26.5	21	17.5	12
32-2	4		37	35.5	32.5	29.5	25	19.5
32-3-2	5.5		50	47	43.5	36	31	22.5
32-3	5.5		55.5	53	49	44	37.5	29.5
32-4-2	7.5		68.5	65	60	51	44	32.5
32-4	7.5		74.5	70.5	66	59	50.5	40
32-5-2	11		88.5	84.5	78	67.5	58.5	45
32-5	11		94.5	90	84	76	65	52
32-6-2	11		107	102	94.5	82.5	71	55
32-6	11		113	108	100	91	77.5	61.5
32-7-2	15		127	121	112	97.5	85	66.5
32-7	15		133	126	118	106	92	73.5
32-8-2	15		145	138	128	113	98	76.5
32-8	15		151	144	134	122	104	83
32-9-2	18.5		165	158	147	128	112	88.5
32-9	18.5		171	163	152	137	119	95.5
32-10-2	18.5		184	175	163	143	125	98.5
32-10	18.5		190	181	169	152	133	106
32-11-2	22		203	194	181	159	140	111
32-11	22		209	200	187	167	147	118
32-12-2	22		222	212	197	174	152	121
32-12	22		227	217	203	182	160	128
32-13-2	30		244	233	218	189	169	136
32-13	30		250	239	224	200	177	145
32-14-2	30		263	251	234	207	183	146
32-14	30		269	258	241	216	188	156

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با امکان محاسبه آنلاین و انتخاب پمپ

اولین سایت مرجع انتخاب آنلاین پمپ

در حوزه‌های :

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استخر
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مورد تایید سازمان آتش‌نشانی تهران

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تهویه و تخلیه دود
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آمـــــوزش

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استخر، سونا و جکوزی
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تهـــران، سعـدی شمـالـی، خیـابان مـرادی نور، پـلاک ۳۱
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