

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, separations, swimming pools
- Agricultural irrigation: sprinkler irrigation, drip-feed irrigation
- Food & beverage industry
- Fire-fighting system

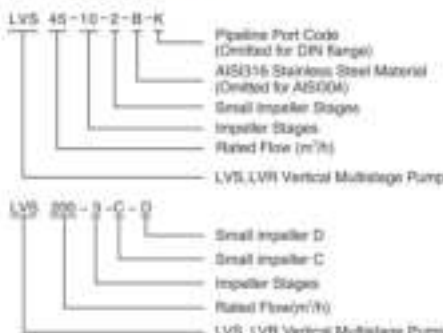
Operating Conditions

- 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 shall be used.
- Liquid temperature: -20°C ~ +120°C
- Flow range: 0.7-240 m³/h
- Liquid pH value: 4 ~ 10
- Max. ambient temperature: +40°C
- Max. operation pressure: 30 bar
- Altitude: up to 1000 m

Motor

- IE 2 motor (IE 3 motor optional)
- Totally enclosed & fan-cooled
- Protection class: IP55
- Standard voltage: 50/60 Hz 1 ~ 220V/3 ~ 380V

Identification Codes



LVS: Stainless steel wetted parts

LVR: Cast iron base & pump cover

Identifications codes of flange structure

A: Dual flange K: Clamp connector

G: Threaded connector

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:

$$H = P_b - 10.2 \cdot \text{NPSH} - H_f - H_v$$

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.)

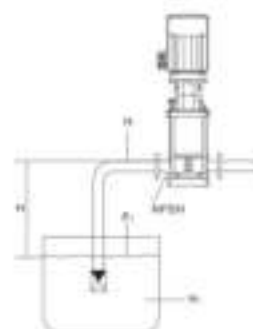
H_f = Friction loss in suction pipe in meters head. (At the highest flow the pump will be delivering.)

H_v = Vapor pressure in meters head. (To be read from the vapor pressure scale, "Hv" 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.

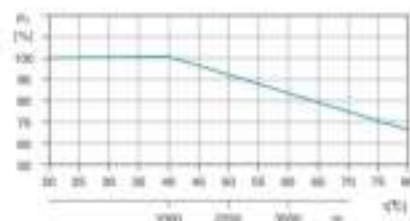
If the maximum permissible operating pressure is exceeded, the bearing in the motor may be damaged and the life of the shaft seal reduced.

Model	Maximum Inlet Pressure [bar]
LVS/LVR	
1-2 — 1-36	10
LVR/LVR	
2-2 — 2-12	8
2-3 — 2-26	10
2-13 — 2-26	15
LVR/LVR	
3-2 — 3-29	10
3-11 — 3-26	15
LVR/LVR	
4-2 — 4-11	8
4-3 — 4-11	10
4-12 — 4-22	15
LVR/LVR	
5-2 — 5-16	10
5-18 — 5-29	15
LVR/LVR	
10-1 — 10-6	8
10-7 — 10-22	10
LVR/LVR	
15-1 — 15-3	8
15-4 — 15-17	10
LVR/LVR	
20-1 — 20-3	8
20-4 — 20-17	10
LVR/LVR	
32-1-1 — 32-4	4
32-5-2 — 32-10	10
32-11 — 32-14	15
LVR/LVR	
45-1-1 — 45-2	4
45-3-2 — 45-6	10
45-6-2 — 45-13-2	15
LVR/LVR	
64-1-1 — 64-2-2	4
64-2-1 — 64-4-2	10
64-4-1 — 64-8-1	15
LVR/LVR	
90-1-1 — 90-1	4
90-2-2 — 90-3-2	10
90-3 — 90-6	15
LVR/LVR	
120-1 — 120-2-1	10
120-2 — 120-5-1	15
120-6 — 120-7	20
LVR/LVR	
150-1-1 — 150-2-2	10
150-2-1 — 150-4-1	15
150-4 — 150-6	20
LVR/LVR	
200-1-D	10
200-1-C — 200-2-2C	15
200-2-C — 200-4	20

Ambient Temperature

Max. ambient temperature: +40°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.

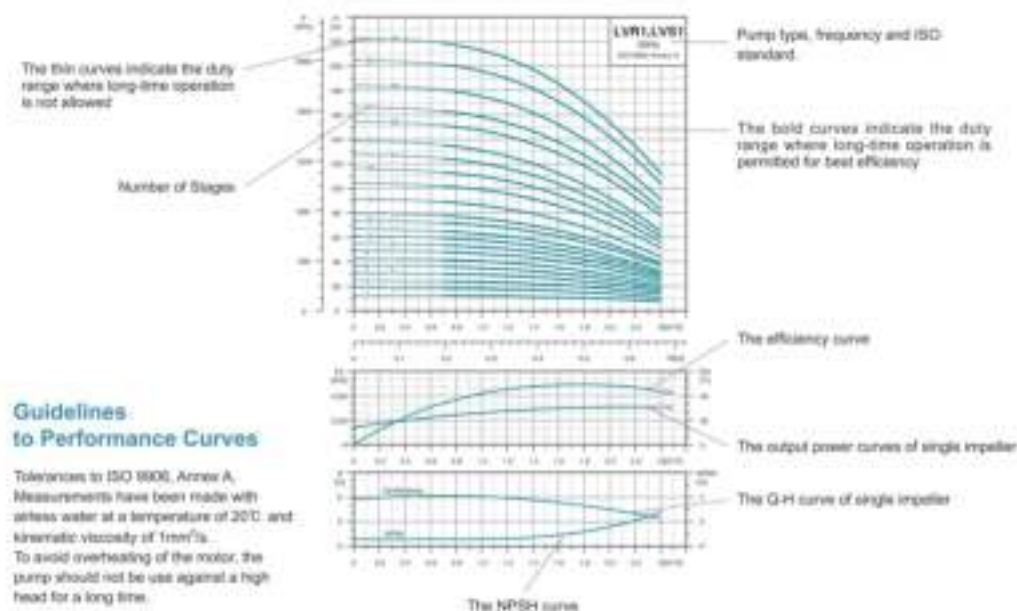


For example, when the pump is installed at altitude of more than 3500 meters above sea level, P_2 will be decreased to 88%. When the ambient temperature is 70°C, P_2 will be decreased to 78%.

LV5/LVR

Stainless Steel Vertical
Multistage Pump

How to Read The Curve Charts



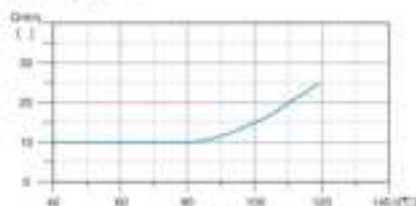
Guidelines to Performance Curves

Tolerances to ISO 9906, Annex A.
Measurements have been made with
clean water at a temperature of 20°C and
kinematic viscosity of 1mm²/s.
To avoid overheating of the motor, the
pump should not be used 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.

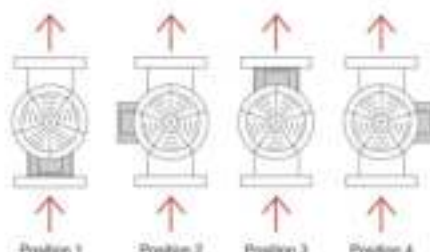
Air cooling apparatus



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

Terminal Box Positions

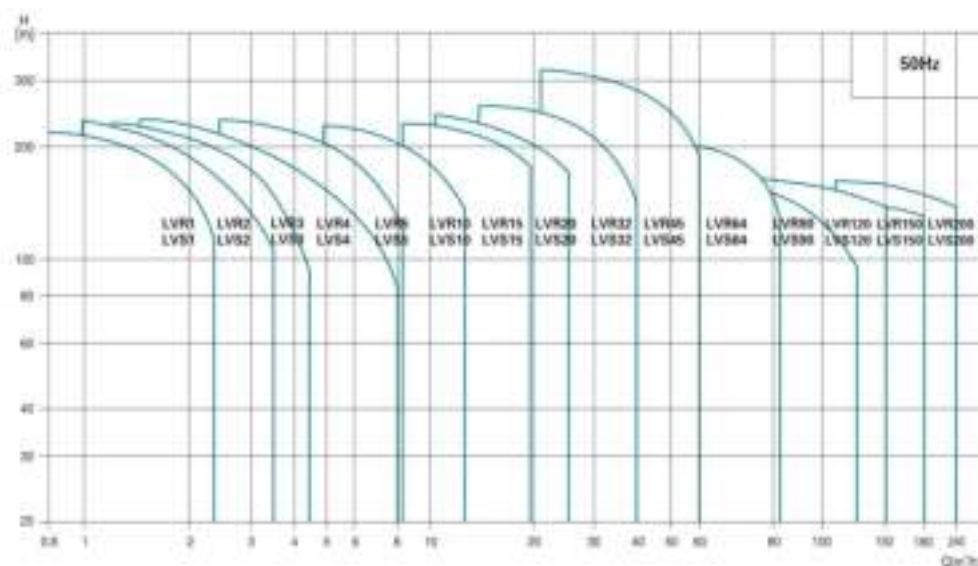
(Note: set to position 1 before delivery)



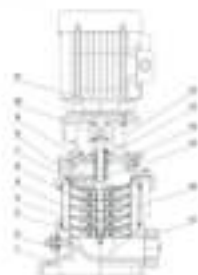
Product Range

MODEL	LV5R1	LV5R2	LV5R3	LV5R4	LV5R5	LV5R10	LV5R15	LV5R20	LV5R32	LV5R45	LV5R64	LV5R90	LV5R130	LV5R150	LV5R200
Rated flow (m ³ /h)	1	2	3	4	5	10	15	20	32	45	64	90	130	150	200
Flow range (m ³ /h)	0.7-2.4	1.0-3.5	1.2-4.5	1.5-6	2.0-8.5	3-15	5-25	7.5-35	15-45	22-65	30-85	45-125	65-150	80-180	100-240
Max. pressure (bar)	20	20	20	21	24	30	35	35	35	35	35	35	35	35	35
Motor power (kW)	0.37-0.2	0.2-0.2	0.2-0.2	0.2-0.4	0.2-0.4	1.1-2.5	1.1-10	1.1-15.5	1.5-30	2-45	4-65	5.5-85	11-125	11-125	18.5-150
Temperature range (°C)	-20°C to +125°C (Note: Both the Max. permissible pressure and liquid temperature range refer to the pump capacity)														
Max. pump efficiency (%)	45	48	50	50	50	50	70	72	75	75	80	81	75	75	75
Pipe connection (VRS)															
Flange	G1	G1	G1	G1 1/4	G1 1/4	-	-	-	-	-	-	-	-	-	-
Flange	DN25	DN25	DN25	DN25	DN25	DN40	DN50	DN50	DN65	DN65	DN65	DN65	DN100	DN100	DN150
Pipe connection (VRS)															
Flange	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flange	DN25	DN25	DN25	DN25	DN25	DN40	DN50	DN50	DN65	DN65	DN65	DN65	DN100	DN100	DN150
Clamp connector	40	40	40	40	40	-	-	-	-	-	-	-	-	-	-
Threaded connector	G1 1/4	G1 1/4	G1 1/4	G1 1/4	G1 1/4	-	-	-	-	-	-	-	-	-	-

Scope of Performance-LVR, LV5

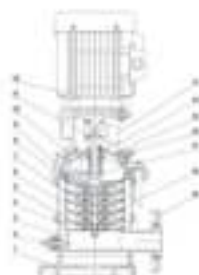


Cross Section



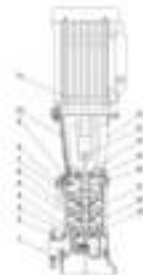
MODEL: LVR 10 24 B

Part	Material
1 Base plate	HT200
2 Overhang plug assembly	AISI304
3 Primary effluent	AISI304
4 Diffuser with bearing	AISI304
5 Medium effluent	AISI304
6 Impeller	AISI304
7 Pinion shaft	AISI304
8 Motor base	HT200
9 Filling plug	AISI304
10 Coupling	See latest product handbook
11 Motor	
12 Guarding plate	AISI304
13 Cartridge seal	
14 Vee plug assembly	AISI304
15 Pump shaft	AISI304
16 Pump barrel	AISI304
17 Seal flange	HT200



MODEL: LVR 15 24 B

Part	Material	Optional Material
1 Base plate	HT200	AISI316
2 Overhang plug assembly	AISI304	70270
3 Primary effluent	AISI304	AISI316
4 Diffuser with bearing	AISI304	AISI316
5 Medium effluent	AISI304	AISI316
6 Impeller	AISI304	AISI316
7 Pinion shaft	AISI304	AISI316
8 Motor base	HT200	AISI316
9 Filling plug	AISI304	AISI316
10 Coupling	See latest product handbook	
11 Motor		
12 Guarding plate	AISI304	
13 Cartridge seal		
14 Vee plug assembly	AISI304	70270
15 Pump shaft	AISI304	AISI316
16 Pump barrel	AISI304	AISI316
17 Seal flange	AISI304	AISI316



MODEL: LVR 20 24 B

Part	Material
1 Base plate	HT200
2 Overhang plug assembly	AISI304
3 Primary effluent	AISI304
4 Diffuser with bearing	AISI304
5 Medium effluent	AISI304
6 Impeller	AISI304
7 Pinion shaft	AISI304
8 Motor base	HT200
9 Filling plug	AISI304
10 Coupling	See latest product handbook
11 Motor	
12 Guarding plate	AISI304
13 Cartridge seal	
14 Vee plug assembly	AISI304
15 Pump shaft	AISI304
16 Pump barrel	AISI304
17 Seal flange	AISI304



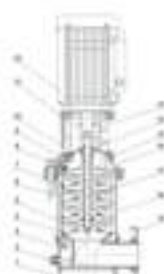
MODEL: LVR 30 24 B

Part	Material	Optional Material
1 Base plate	HT200	
2 Overhang plug assembly	AISI304	AISI316
3 Primary effluent	AISI304	AISI316
4 Diffuser with bearing	AISI304	AISI316
5 Medium effluent	AISI304	AISI316
6 Impeller	AISI304	AISI316
7 Pinion shaft	AISI304	AISI316
8 Motor base	HT200	AISI316
9 Filling plug	AISI304	AISI316
10 Coupling	See latest product handbook	
11 Motor		
12 Guarding plate	AISI304	
13 Cartridge seal		
14 Vee plug assembly	AISI304	70270
15 Pump shaft	AISI304	AISI316
16 Pump barrel	AISI304	AISI316
17 Seal flange	AISI304	AISI316
18 Pump shaft	AISI304	AISI316



MODEL: LVR 40 24 B

Part	Material
1 Base plate	HT200
2 Overhang plug assembly	AISI304
3 Primary effluent	AISI304
4 Diffuser with bearing	AISI304
5 Medium effluent	AISI304
6 Impeller	AISI304
7 Pinion shaft	AISI304
8 Motor base	HT200
9 Filling plug	AISI304
10 Coupling	See latest product handbook
11 Motor	
12 Guarding plate	AISI304
13 Cartridge seal	
14 Vee plug assembly	AISI304
15 Pump shaft	AISI304
16 Pump barrel	AISI304



MODEL: LVR 50 24 B

Part	Material	Optional Material
1 Base plate	HT200	AISI316
2 Overhang plug assembly	AISI304	70270
3 Primary effluent	AISI304	AISI316
4 Diffuser with bearing	AISI304	AISI316
5 Medium effluent	AISI304	AISI316
6 Impeller	AISI304	AISI316
7 Pinion shaft	AISI304	AISI316
8 Motor base	HT200	AISI316
9 Filling plug	AISI304	AISI316
10 Coupling	See latest product handbook	
11 Motor		
12 Guarding plate	AISI304	
13 Cartridge seal		
14 Vee plug assembly	AISI304	AISI316
15 Pump shaft	AISI304	AISI316
16 Pump barrel	AISI304	AISI316
17 Seal flange	AISI304	AISI316



MODEL: LVR 60 24 B

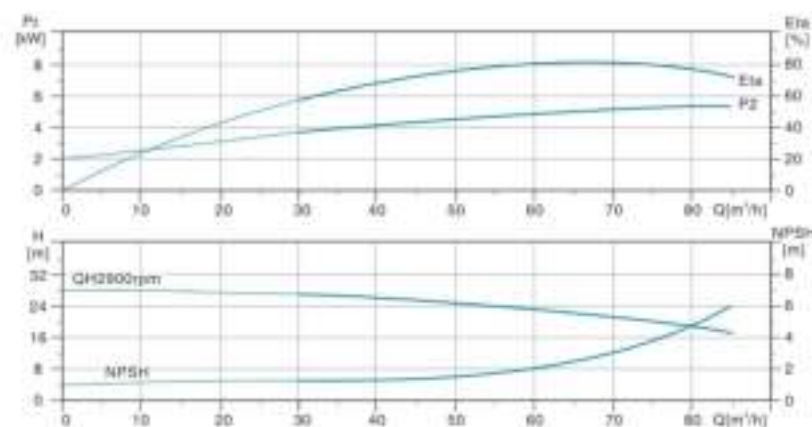
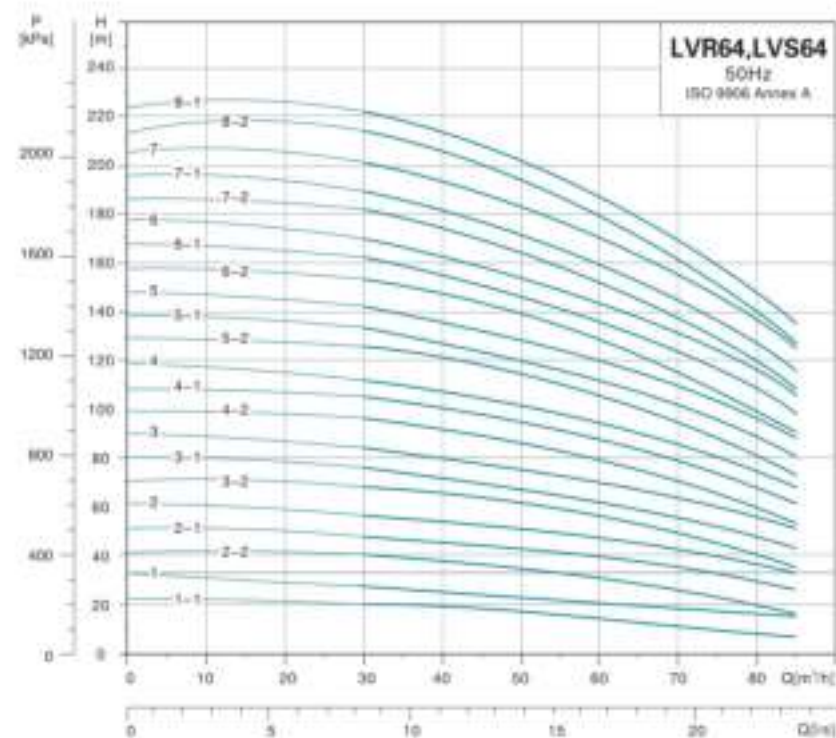
Part	Material
1 Base plate	HT200
2 Overhang plug assembly	AISI304
3 Primary effluent	AISI304
4 Diffuser with bearing	AISI304
5 Medium effluent	AISI304
6 Impeller	AISI304
7 Pinion shaft	AISI304
8 Motor base	HT200
9 Filling plug	AISI304
10 Coupling	See latest product handbook
11 Motor	
12 Guarding plate	AISI304
13 Cartridge seal	
14 Vee plug assembly	AISI304
15 Pump shaft	AISI304
16 Pump barrel	AISI304
17 Seal flange	AISI304



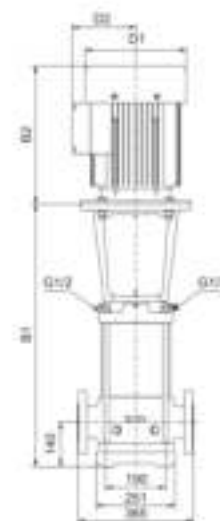
MODEL: LVR 80 24 B

Part	Material	Optional Material
1 Base plate	HT200	
2 Overhang plug assembly	AISI304	AISI316
3 Primary effluent	AISI304	AISI316
4 Diffuser with bearing	AISI304	AISI316
5 Medium effluent	AISI304	AISI316
6 Impeller	AISI304	AISI316
7 Pinion shaft	AISI304	AISI316
8 Motor base	HT200	AISI316
9 Filling plug	AISI304	AISI316
10 Coupling	See latest product handbook	
11 Motor		
12 Guarding plate	AISI304	
13 Cartridge seal		
14 Vee plug assembly	AISI304	70270
15 Pump shaft	AISI304	AISI316
16 Pump barrel	AISI304	AISI316
17 Seal flange	AISI304	AISI316
18 Pump shaft	AISI304	AISI316

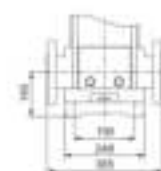
Hydraulic Performance Curves



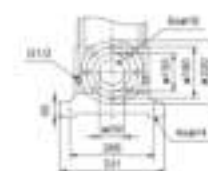
Dimension Drawing



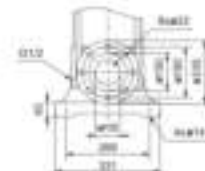
DIN FLANGE(LVS)/F



DIN FLANGE(LVR)/F



PS 10/20 100



PS 50-10/20 100

MODEL	DIN FLANGE(LVS, LVR)		H1	D1
	G1	G1+G2		
64-1-1	561	833	220	134
64-1	561	952	220	134
64-2-2	644	1000	220	134
64-2-1	754	1252	304	263
64-2	754	1262	304	263
64-3-2	838	1354	334	263
64-3-1	838	1354	334	263
64-3	838	1354	334	263
64-4-2	919	1417	334	263
64-4-1	919	1481	382	305
64-4	919	1481	382	305
64-5-2	1001	1661	420	372
64-5-1	1001	1661	420	372
64-5	1001	1661	420	372
64-6-2	1084	1744	420	372
64-6-1	1084	1744	420	372
64-6	1084	1744	420	372
64-7-2	1166	1826	420	372
64-7-1	1166	1826	420	372
64-7	1166	1842	458	427
64-8-2	1249	1905	458	427
64-8-1	1249	1905	458	427

MODEL	POWER(kW)	Q(m³/h)	38	40	50	64	75	80
64-1-1	4	20	19	17.5	15.5	12	8.5	
64-1	5.5	27	25.5	23.5	21.5	20	17	
64-2-2	7.3	40	38	35.5	31	25.5	19	
64-2-1	11	48	45.5	42.5	38	34.5	29	
64-2	11	55	52.5	49.5	44.5	41.5	36	
64-3-2	15	68	65.5	60	54	48.5	40	
64-3-1	15	78.5	72	67.5	60	55.5	47	
64-3	18.5	83.5	80	76	68.5	64	56	
64-4-2	18.5	96	92.5	87	76	70	59	
64-4-1	22	104	100	94.5	82.5	78.5	67.5	
64-4	22	112	107	103	89	85.5	74.5	
64-5-2	30	128	122	115	100	94	80.5	
64-5-1	30	134	129	122	106	102	88	
64-5	30	141	136	129	113	108	96	
64-6-2	35	154	148	140	122	115	99	
64-6-1	37	162	156	148	129	124	108	
64-6	37	170	163	155	135	131	116	
64-7-2	37	182	178	168	145	138	119	
64-7-1	37	190	183	173	151	145	126	
64-7	45	202	194	184	163	155	136	
64-8-2	45	214	207	196	172	163	140	
64-8-1	45	222	214	203	180	170	148	