

Arctigo LSV

Low Speed Ventilation™ data center air coolers

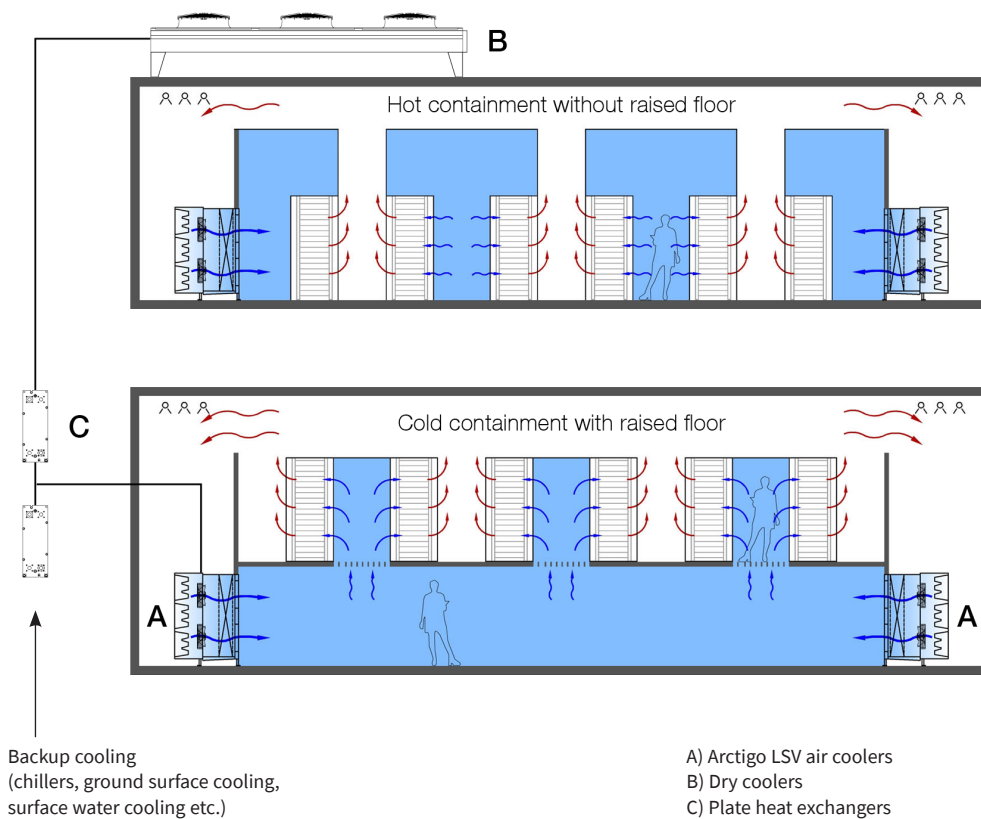


www.lowspeedventilation.com



Low Speed Ventilation™

The Datacenter industry is a big industry in full expansion. Required cooling capacities grow fast, especially driven by the latest trend in cloud computing. Typically, Datacenter owners and operators are looking for reliable, cost efficient equipment with long life-time, energy savings, elimination of hot spots in their servers and minimum maintenance. The Low Speed Ventilation datacenter cooling concept is a completely integrated building ventilation/recirculation system. It dissipates heat from the servers by means of low speed controlled air recirculation. As a result, hot spots are avoided at the lowest energy consumption possible.



Other Alfa LU-VE products used in the Low Speed Ventilation Datacenter concept:

- **Dry coolers (B)**
Dry coolers are mainly used for free cooling duties.

Low Speed Ventilation at a glance

- No hotspots
- Excellent solution in combination with free cooling
- Very low maintenance cost (OPEX)
- Maintenance happens outside the whitespace, avoiding unauthorized people entering this sensitive area
- Suitable for both cold and hot containment
- Optimal temperature and humidity conditions at any server position
- Possibility to re-use dissipated heat
- No dust accumulation

General information & application

Arctigo LSV air coolers are heavy duty industrial air coolers specifically designed for cooling down server heat production in data centers that have been built according to the “Low Speed Ventilation” concept.

LSV air coolers operate with low fan speed, low air velocities and minimal pressure differences along the route of the air flow, achieved by the building itself being part of the system. For this reason all Arctigo LSV air coolers have been designed with a very low air-sided pressure drop and a sensible heat factor of 1.0.

Refrigerant	Water
Nom. capacities	8.5 - 347 kW*
Air volume	1,955 - 77,760 m ³ /h
Cooler height	900 - 2700 mm
Cooler length	1100 - 6650 mm

* Models with higher/lower capacities available on request.

Standard configuration

- Finned coil
 - 4 coil block modules
 - 4 or 6 tube rows deep
 - Corrugated aluminium fins, fin spacing 4 or 4.5 mm.
- Design pressure 10 bar. Each heat exchanger is leak tested with dry air and finally supplied with a nitrogen pre-charge.
- 1 to 10 energy efficient EC fans, Ø 400 up to 710 mm; blowing through the coil. Fans with elevated external pressure. Fan current 230/50/1 or 400/50/3.
- Corrosion-resistant casing: aluminium/senzimir, white epoxy coated (RAL 9002)
- Flanged liquid connections on left or right side, fan/filter view (L/R) *Connections left = default.*
- Delivery in mounting position on a wooden pallet. Lifting and positioning can take place with a forklift using the integrated lifting fork slots.



Optional features

- Filter frame for mounting of compact air filters. Filter classification F7/F9.
- Flanged connections on top (FT)
- Modbus communication for precise fan control.
- Fin-sided safety grid for hot containment applications



Benefits

- Application-based air cooler design to ensure optimized operation in LSV cooling systems.
- Heavy duty coil and casing materials, resulting in a long operational product life.
- Operational fine tuning thanks to EC fans.
- Low total cost of ownership.
- Two-year product guarantee.
- On-line product information (QR code)



Arctigo LSV



Code description

Arctigo	LSV	3	4	4	-	5	-	230
1	2	3	4	5		6		7

- Industrial air cooler
- Low Speed Ventilation range
- Number of coil modules in height (1, 2, 3 or 4)
- Number of coil modules in length (1 to 10)
- Tube rows in air direction (4 or 6)
- Fin spacing (4=4 mm, 5=4.5 mm)
- Current (230=230/50/1, 400=400/50/3)

Fan specifications

All Arctigo LSV models are fitted with energy efficient EC motors, pre-wired to the connection box. Power supply 230/50-60/1 or 400/50-60/3. Enclosed design spray-tight fan motors.

EC fans ø 400, 450, 630 & 710 mm	
Fan blade material	Press fitted sheet steel
Fan guard material	Steel, coated black
Air direction	Blowing through the coil
Protection class	IP54
Insulation class	B
Condensate discharge	None
Bearings	Maintenance-free ball bearings
Motor protection	Electronic overload protection
Fan speed	Fully controllable 0-10 V

Detailed fan specifications can be found on page 7. Please note that all fan data are given per fan.

Quality and certifications

The Alfa LU-VE quality system is in accordance with ISO 9001 and ISO 14001. All products are manufactured according to PED regulations.



Air cooler selection & customization

The Arctigo LSV range offers 48 standard models. Quick selection tables for these standard models can be found on pages 5 to 7 in this publication. Capacity data in are based on the following conditions:

- $T_{\text{air in}} = 36.5 \text{ }^\circ\text{C}$, $T_{\text{air out}} = 24 \text{ }^\circ\text{C}$
- $T_{\text{water in}} = 17 \text{ }^\circ\text{C}$, $T_{\text{water out}} = 23 \text{ }^\circ\text{C}$
and
 $T_{\text{water in}} = 20.5 \text{ }^\circ\text{C}$, $T_{\text{water out}} = 26.5 \text{ }^\circ\text{C}$

In addition to the standard range, Arctigo LSV air coolers can be fully customized to meet any client specifications. Please contact our sales organization for selection assistance and full technical details. Additional product information is available on alfa.luvegroup.com.

Sound power calculation

The given sound data relate to sound power values per fan. Sound power for complete units can be calculated based on these data according to the following calculation example:

- LSV 114-5 = 1 fan = 62 dB(A) = table value
- LSV 124-5 = 2 fans = 62+3 = 65 dB(A)
- LSV 144-5 = 4 fans = 65+3 = 68 dB(A)
- LSV 164-5 = 6 fans = 68+1.8 = 69.8 dB(A)
- LSV 184-5 = 8 fans = 68+3 = 71 dB(A)
- LSV 1104-5 = 10 fans = 71+1.0 = 72 dB(A)

Worldwide support

Alfa LU-VE offers worldwide support from product and application specialists. Alfa LU-VE offers a comprehensive portfolio of parts and services including quality spare parts delivery via channel partners, reconditioning, on-site services, performance agreements, exclusive stock stored, upgrades, consulting services and training.

Model	Air volume m ³ /h	Cooling capacity T _{air-on} 36.5 °C kW	Air-off Temp. °C	Water flow m ³ /h	Pressure drop liquid side kPa	Internal coil volume dm ³	Coil surface m ²
Water temperatures T _{in} = 17 °C, T _{out} = 23 °C						4 tube rows deep, fin spacing 4.5 mm	
LSV 114-5	1944	8,48	23,9	1,2	20	8	30,5
LSV 124-5	3888	17,22	23,7	2,5	38	13	61,0
LSV 144-5	7776	34,4	23,7	4,9	40	26	122,1
LSV 164-5	11664	50,72	23,9	7,3	17	38	183,2
LSV 184-5	15552	68,77	23,7	9,9	36	48	244,3
LSV 1104-5	19440	86,72	23,6	12,5	63	60	305,3
LSV 214-5	3888	16,95	23,9	2,4	22	15	61,1
LSV 224-5	7776	34,43	23,7	4,9	44	26	122,1
LSV 244-5	15552	68,81	23,7	9,9	38	50	244,3
LSV 264-5	23328	103,69	23,6	14,9	47	72	366,4
LSV 284-5	31104	137,56	23,7	19,8	33	95	488,5
LSV 2104-5	38880	173,44	23,6	24,9	58	118	610,6
LSV 314-5	5832	25,41	23,9	3,7	25	24	91,6
LSV 324-5	11664	50,78	23,9	7,3	20	42	183,2
LSV 344-5	23328	103,21	23,7	14,8	37	78	366,4
LSV 364-5	34992	155,53	23,6	22,3	46	114	549,6
LSV 384-5	46656	206,31	23,7	29,6	37	150	732,7
LSV 3104-5	58320	260,16	23,6	37,4	65	186	915,9
LSV 414-5	7776	33,89	23,9	4,9	23	31	122,1
LSV 424-5	15552	68,86	23,7	9,9	42	54	244,2
LSV 444-5	31104	137,64	23,7	19,8	35	98	488,5
LSV 464-5	46656	207,37	23,6	29,8	49	148	732,8
LSV 484-5	62208	275,06	23,7	39,5	37	196	977,00
LSV 4104-5	77760	346,88	23,6	49,8	64	244	1221,3
Water temperatures T _{in} = 20.5 °C, T _{out} = 26.5 °C						6 tube rows deep, fin spacing 4 mm	
LSV 116-4	1944	8,68	23,6	1,2	30	11	51,2
LSV 126-4	3888	17,50	23,5	2,5	54	20	102,5
LSV 146-4	7776	34,98	23,5	5,0	54	38	204,9
LSV 166-4	11664	51,94	23,6	7,5	23	55	307,4
LSV 186-4	15552	69,94	23,5	10,1	49	72	409,9
LSV 1106-4	19440	86,89	23,6	12,5	29	90	512,3
LSV 216-4	3888	17,36	23,6	2,5	32	22	102,4
LSV 226-4	7776	34,67	23,6	5,0	26	40	204,9
LSV 246-4	15552	39,97	23,5	10,1	52	74	409,8
LSV 266-4	23328	103,87	23,6	14,9	22	108	614,8
LSV 286-4	31104	139,87	23,5	20,1	46	142	819,7
LSV 2106-4	38880	173,78	23,6	25,0	31	176	1024,7
LSV 316-4	5832	26,03	23,6	3,7	34	35	153,7
LSV 326-4	11664	52,00	23,6	7,5	27	63	307,4
LSV 346-4	23328	104,95	23,5	15,1	51	116	614,8
LSV 366-4	34992	155,81	23,6	22,4	24	170	922,2
LSV 386-4	46656	209,81	23,5	30,2	50	224	1229,6
LSV 3106-4	58320	260,66	23,6	37,5	32	277	1537,0
LSV 416-4	7776	34,71	23,6	5,0	32	46	204,9
LSV 426-4	15552	69,33	23,6	10,0	26	82	409,8
LSV 446-4	31104	139,94	23,5	20,1	49	148	819,7
LSV 466-4	46656	209,85	23,5	30,2	51	224	1229,6
LSV 486-4	62208	279,75	23,5	40,3	50	296	1639,4
LSV 4106-4	77760	347,55	23,6	50,0	29	365	2049,3

Model	Length mm	Height mm	Width without filters mm	Weight without filters kg	Liquid connections in & out
4 tube rows deep, fin spacing 4.5 mm					
LSV 114-5	1100	900	800	110	1"
LSV 124-5	1700	900	800	160	1"
LSV 144-5	2900	900	800	250	1½"
LSV 164-5	4100	900	800	320	DN 40
LSV 184-5	5300	900	800	420	DN 40
LSV 1104-5	6500	900	800	530	DN 50
LSV 214-5	1100	1500	800	180	1"
LSV 224-5	1700	1500	800	240	1½"
LSV 244-5	2900	1500	800	360	DN 40
LSV 264-5	4100	1500	800	540	DN 65
LSV 284-5	5300	1500	800	690	DN 65
LSV 2104-5	6500	1500	800	910	DN 65
LSV 314-5	1250	2100	800	260	1½"
LSV 324-5	1850	2100	800	380	DN 40
LSV 344-5	3050	2100	800	900	DN 50
LSV 364-5	4250	2100	800	1240	DN 80
LSV 384-5	5450	2100	800	1680	DN 80
LSV 3104-5	6650	2100	800	2060	DN 80
LSV 414-5	1250	2700	800	320	1" x 2
LSV 424-5	1850	2700	800	600	1½" x 2
LSV 444-5	3050	2700	800	1280	DN 50 x 2
LSV 464-5	4250	2700	800	1760	DN 65 x 2
LSV 484-5	5450	2700	800	2320	DN 65 x 2
LSV 4104-5	6650	2700	800	2900	DN 65 x 2
6 tube rows deep, fin spacing 4 mm					
LSV 116-4	1100	900	900	130	1"
LSV 126-4	1700	900	900	190	1"
LSV 146-4	2900	900	900	300	1½"
LSV 166-4	4100	900	900	380	DN 40
LSV 186-4	5300	900	900	500	DN 40
LSV 1106-4	6500	900	900	620	DN 50
LSV 216-4	1100	1500	900	210	1"
LSV 226-4	1700	1500	900	280	1½"
LSV 246-4	2900	1500	900	420	DN 40
LSV 266-4	4100	1500	900	620	DN 65
LSV 286-4	5300	1500	900	790	DN 65
LSV 2106-4	6500	1500	900	1060	DN 65
LSV 316-4	1250	2100	900	300	1 1/2"
LSV 326-4	1850	2100	900	460	DN 40
LSV 346-4	3050	2100	900	1060	DN 50
LSV 366-4	4250	2100	900	1500	DN 80
LSV 386-4	5450	2100	900	1990	DN 80
LSV 3106-4	6650	2100	900	2410	DN 80
LSV 416-4	1250	2700	900	380	1" x 2
LSV 426-4	1850	2700	900	700	1½" x 2
LSV 446-4	3050	2700	900	1490	DN 50 x 2
LSV 466-4	4250	2700	900	2070	DN 65 x 2
LSV 486-4	5450	2700	900	2730	DN 65 x 2
LSV 4106-4	6650	2700	900	3400	DN 65 x 2

Model	Nr. of fans	Fan ø mm	Without filters				With clean filters				Maximum speed		
			power	speed	sound	power	speed	sound	power	speed	sound		
			Pa	W	RPM	dB(A)	Pa	W	RPM	dB(A)	W	RPM	dB(A)
Fan data per fan and ± 10%													
LSV 114-5	1	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 124-5	2	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 144-5	4	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 164-5	6	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 184-5	8	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 1104-5	10	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 214-5	2	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 224-5	4	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 244-5	4	450	40	130	940	64	90	250	1150	74	530	1520	82
LSV 264-5	6	450	40	130	940	64	90	250	1150	74	530	1520	82
LSV 284-5	8	450	40	130	940	64	90	250	1150	74	530	1520	82
LSV 2104-5	10	450	40	130	940	64	90	250	1150	74	530	1520	82
LSV 314-5	3	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 324-5	2	630	40	190	655	67	90	370	810	72	1550	1300	84
LSV 344-5	4	630	40	190	655	67	90	370	810	72	1550	1300	84
LSV 364-5	6	630	40	190	655	67	90	370	810	72	1550	1300	84
LSV 384-5	8	630	40	190	655	67	90	370	810	72	1550	1300	84
LSV 3104-5	10	630	40	190	655	67	90	370	810	72	1550	1300	84
LSV 414-5	4	400	40	85	950	62	90	160	1200	70	400	1630	80
LSV 424-5	2	710	40	270	575	64	90	530	735	75	3500	1400	98
LSV 444-5	4	710	40	270	575	64	90	530	735	75	3500	1400	98
LSV 464-5	6	710	40	270	575	64	90	530	735	75	3500	1400	98
LSV 484-5	8	710	40	270	575	64	90	530	735	75	3500	1400	98
LSV 4104-5	10	710	40	270	575	64	90	530	735	75	3500	1400	98
Fan data per fan and ± 10%													
LSV 116-4	1	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 126-4	2	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 146-4	4	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 166-4	6	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 186-4	8	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 1106-4	10	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 216-4	2	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 226-4	4	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 246-4	4	450	55	150	975	69	105	300	1220	76	530	1520	82
LSV 266-4	6	450	55	150	975	69	105	300	1220	76	530	1520	82
LSV 286-4	8	450	55	150	975	69	105	300	1220	76	530	1520	82
LSV 2106-4	10	450	55	150	975	69	105	300	1220	76	530	1520	82
LSV 316-4	3	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 326-4	2	630	55	240	705	69	105	425	850	74	1550	1300	84
LSV 346-4	4	630	55	240	705	69	105	425	850	74	1550	1300	84
LSV 366-4	6	630	55	240	705	69	105	425	850	74	1550	1300	84
LSV 386-4	8	630	55	240	705	69	105	425	850	74	1550	1300	84
LSV 3106-4	10	630	55	240	705	69	105	425	850	74	1550	1300	84
LSV 416-4	4	400	55	95	1000	64	105	185	1250	72	400	1630	80
LSV 426-4	2	710	55	330	625	67	105	620	775	78	3500	1400	98
LSV 446-4	4	710	55	330	625	67	105	620	775	78	3500	1400	98
LSV 466-4	6	710	55	330	625	67	105	620	775	78	3500	1400	98
LSV 486-4	8	710	55	330	625	67	105	620	775	78	3500	1400	98
LSV 4106-4	10	710	55	330	625	67	105	620	775	78	3500	1400	98

Alfa LU-VE in brief

Alfa LU-VE is a leading global provider of specialized products and engineered solutions.

Our equipment, systems and services are dedicated to helping customers optimize the performance of their processes.

We help our customers to cool products such as water, foodstuffs, beverages, chemicals, pharmaceuticals and oil.

Our worldwide organization works closely with customers to help them stay ahead.

How to contact Alfa LU-VE

Up-to-date contact details are always available on our website at alfa.luvegroup.com



alfa.luvegroup.com



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