



Alfa Laval Optigo CS

Commercial air coolers - Slim line



Alfa Laval Optigo – Simply fresh, today and tomorrow

Optigo is the Alfa Laval platform for commercial air cooler ranges. Common distinctive features for all Optigo products are the newly developed and highly efficient cooler coil in combination with many other features, options and benefits.



Energy efficient



Expert reliability



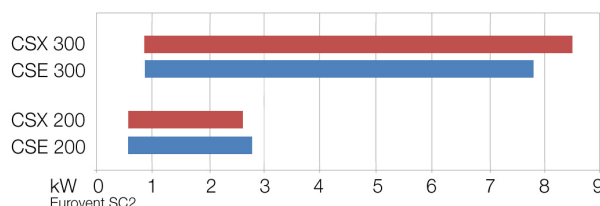
Simple and available

Optigo CS are commercial slim line air coolers for general application in small to medium-sized cooling and freezing rooms. CS200 are mini coolers with capacities up to 2.8 kW (SC2), whereas the CS300 line has a different casing geometry and offers cooling capacities up to 7.8 kW (SC2). All CS models are characterised by a low silhouette (only 15 cm for CS200) for the efficient use of cold room space. Optigo CS coolers are available from stock.



Benefits Optigo CS

- Available from stock.
- Low silhouette for efficient use of cold room space.
- Sufficient space for expansion valve inside casing.
- Eurovent certified performance (CSE models only).
- T-connection for hotgas in coil.
- Energy efficient EC plug-in fans
- Fans pre-wired to the connection box.
- Two-year product guarantee.
- Easy access to on-line product information.



Other Optigo products

In addition to Optigo CS slim line coolers, the Alfa Laval Optigo platform also offers Optigo CC single discharge unit coolers and Optigo CD dual discharge coolers.



Optigo CC



Optigo CD

Alfa Laval Optigo CS at a glance

- Suitable for all HFC DX (CSE), CO₂ DX (CSX) and brine refrigerants (CSW).
- Triangular (staggered) coil pitch.
- Fin spacings 4 & 7 mm.
- 1 to 3 fans (CS200) or 1 to 5 (CS300), blowing through the coil.
- Room temperatures +10 to -30 °C.
- Capacity range 550 up to 7810 W (SC2).
- Air volumes 380 up to 3800 m³/h.

Standard features

Coil

Innovative coil manufactured from internally grooved Cu tubes and aluminium fins, smooth tubing for brine applications and dedicated thicker tubes for CO₂ application. Tube pitch is 30x26 mm staggered, standard fin spacings 4 and 7 mm. All models fitted with a T-connection for better refrigerant distribution. This T-connection is also suitable as a hot gas defrost connection.



Casing

Durable aluminium alloy casing, white epoxy coated RAL 9002. Hinged drip tray construction, inspection panel for CS200 and removable side panels for CS300. Sufficient room for mounting of expansion valve inside casing. Pre-cut passages for multiple choice connections on both sides and top. CS200 models are also available with an optional drip tray for wall mounting.

Packing

All Optigo CS models are packed in wood-reinforced cardboard boxes, suitable for safe stacking.



Design pressure

Each heat exchanger is leak tested with dry air and finally supplied with a nitrogen pre-charge.

Model	Refrigerant	Design pressure	Test pressure
CSE	HFC	40 bar	57 bar
CSX	CO ₂	80 bar	114 bar
CSW	Brine	6 bar	9 bar

Fan motors

Standard fitted with plug-in dual fan speed EC motors in two diameters (200 & 300 mm). Power supply 230/50-60/1. Detailed fan data on page 4.

Optional features

Electric defrost **E**

For cold rooms with room temperatures below 4 °C and frost build-up is likely, the application of a defrosting system is advised. For Optigo CS, Alfa Laval supplies stainless steel heater elements mounted against the bottom plate of the coil. The defrost element can be accessed after opening the drip-tray. The defrost element is connected to separate terminals in the terminal box. Electric defrost is mounted as default for 7 mm models, optional as a separate kit for 4 mm models.

Optigo Model	E kit code	Watt	Power supply
CS201	10999866	410	230/50-60/1
CS202	10999867	890	230/50-60/1
CS203	10999868	1360	230/50-60/1
CS301	10999869	580	230/50-60/1
CS302	10999870	1110	230/50-60/1
CS303	10999871	1640	230/50-60/1
CS304	10999872	2170	230/50-60/1
CS305	10999873	2700	230/50-60/1

Fin protection **EP** **CA**

Fin protection is available for more aggressive climate conditions. The following fin protection types are available:

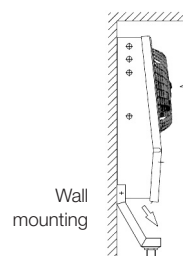
- Epoxy coated aluminium fins (EP)
- Cataphoresis treatment (CA)

Cataphoresis ('cathodic electro-deposition') is a process of coating by immersion, based on the movement of charged particles in an electric field (coating) towards an oppositely charged pole that is to be painted (coil).

The complete coil is sunk into the coating basin.

Wall mounting drip tray **WM**

Available for CS200 only



Code description

CS	E	H	30	2B	S	230V	BO	AL	E	CB	-	AL	7.0	CU
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

- Commercial air cooler - slim line
- Refrigerant system (E=H(C)FC DX, W=brine, X=CO₂)
- Fan speed (H=high speed, L=low fan speed)
- Fan diameter (20=200, 30=300 mm)
- Number of fans (1 to 5)
- Coil size code (B, C)
- No. of phases (S=single)
- Motor voltage
- Packing (BO=box)
- Casing material (AL= epoxy coated aluminium)
- Defrost system (E=electric defrost)
- Terminal box (CB)
- Coil protection (AL=aluminium, EP=epoxy coated aluminium, CA=cataphoresis)
- Fin spacing (4.0 and 7.0 mm)
- Tube material (CU=copper)



Fan specifications

All Optigo SC models are fitted with dual fan speed EC motors, pre-wired to the connection box. Power supply 230/50-60/1 or 115/50-60/1. Enclosed design spray-tight fan motors.

EC fans ø 200 & 300 mm	
Fan blade material	Plastic PA, fibre glass reinforced
Fan guard material	Plastic PP
Air direction	Blowing through the coil
Protection class	IP44
Insulation class	B
Condensate discharge	None
Bearings	Maintenance-free ball bearings
Motor protection	Electronics and thermal overload protector
Fan speed	Dual fan speed high (H) and low (L)

Fan specifications

Model	Fan diam. mm	Power supply V	Fan speed H/L RPM	Nom. power H/L W	Max. current* H/L A
CS200	200	230	2000/1500	33/19	0.30/0.19
CS300	300	230	1300/900	35/17	0.34/0.18

* At t = -30 °C.

Quality and certifications

All Alfa Laval Optigo production sites are certified according to ISO 9001 (Quality) and ISO 14001 (Environment). Alfa Laval Optigo units are built according to the strictest international standards in terms of safety, energy efficiency and environmental sustainability. All units are given a 2-year guarantee. Alfa Laval is participant in the Eurovent Certify All programme for air-cooled condensers, dry coolers and DX air coolers. All Optigo products are manufactured according to CE and PED regulations.



Product selection and information

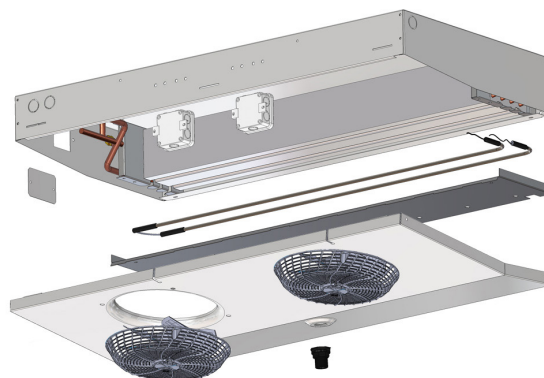
Our easy-to-use selection software AlfaSelect Air helps you select the most suitable air cooler solution for your specific application. The software provides separate modules for thermal and mechanical design. The data sheet printout provides all relevant technical specifications for the selected cooler model, including detailed dimensional drawings. Additional product information like user manuals, CAD drawings and electrical connections is available for download on the Optigo CS product page on our website www.alfalaval.com.

Worldwide support

Alfa Laval offers worldwide support from product and application specialists via 103 sales offices in 53 countries. Alfa Laval 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.

Spare parts

Spare parts Optigo CS	Article number
Fan motors	
EC 1ph/230V/50-60Hz CS200	41101427SP
EC 1ph/230V/50-60Hz CS300	41101428SP
Electric defrost heater KIT	
KIT electrical heaters CS201	10999866SP
KIT electrical heaters CS202	10999867SP
KIT electrical heaters CS203	10999868SP
KIT electrical heaters CS301	10999869SP
KIT electrical heaters CS302	10999870SP
KIT electrical heaters CS303	10999871SP
KIT electrical heaters CS304	10999872SP
KIT electrical heaters CS305	10999873SP
Drip tray drain	
Drip tray drain CS200 & CS300	60716004SP
Drip tray for wall mounting CS200	
Wall mounting kit CS201	11100101SP
Wall mounting kit CS202	11100102SP
Wall mounting kit CS203	11100103SP



Definitions

Cooling capacities

Cooling capacities as given in the tables are nominal capacities for frosted conditions (Q_n) in compliance with Eurovent regulations and EN328. These nominal values have been calculated from the standard (dry) condition Q_{st} with the following formula: $Q_n = Q_{st} \times \text{correction factor}$.

Standard Condition	Air inlet temp. (°C)	Evaporating temp. (°C)	Relative humidity	Correction factor
SC1	10	0	85%	1.35
SC2	0	-8	85%	1.15
SC3	-18	-25	95%	1.05
SC4	-25	-31	95%	1.01

Nominal capacities are calculated with refrigerant R404A. For other refrigerants the following correction factors should be applied:

Refrigerant	SC1	SC2	SC3	SC4
R134a	0.93	0.91	0.85	-
R507	0.97	0.97	0.97	0.97
R407F	1.19	1.24	1.29	1.35
R407A	1.19	1.24	1.28	1.32

Eurovent certified

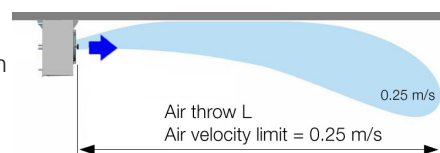
The Eurovent Certify All program does not cover air cooler models for CO₂ and brine refrigerant applications. Only models for HFC refrigerants in DX execution are Eurovent certified.

Dimensions

model	Dimensions				Connections		Weight	
	Length	Height	Depth	Shipp. volume	OD in/out		Fin spacing	
	mm	mm	mm		CSE	CSX	4 mm	7 mm
	mm	mm	mm	m ³	mm	mm	kg	kg
201B	566	173	506	0.04	12/12	12/12	7	7
202B	1016	173	506	0.12	12/12	12/12	14	14
203B	1466	173	506	0.21	12/14	12/12	21	21
301B	865	283	565	0.26	12/12	12/12	12	11
301C	865	283	565	0.26	12/12	12/12	12	12
302B	1365	283	565	0.39	12/14	12/14	17	16
302C	1365	283	565	0.39	16/16	12/14	18	18
303B	1865	283	565	0.51	16/16	12/14	22	21
303C	1865	283	565	0.51	16/18	12/14	24	24
304B	2365	283	565	0.64	16/18	12/14	28	27
304C	2365	283	565	0.64	16/20	12/14	30	29
305B	2865	283	565	0.76	16/20	12/14	33	32
305C	2865	283	565	0.76	16/22	12/14	36	35

Air throw

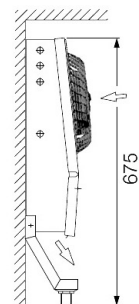
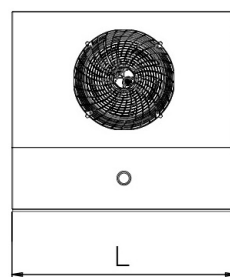
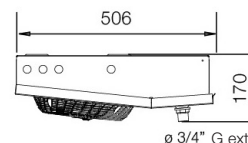
The values given in the tables are for ceiling mounted coolers at $t=20^{\circ}\text{C}$, an unrestrained air flow in the cold room and a minimal air velocity of 0.25 m/s at the given air throw distance. The height and air circulation of the room may influence the air throw.



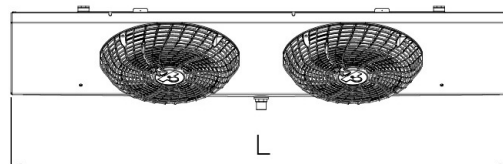
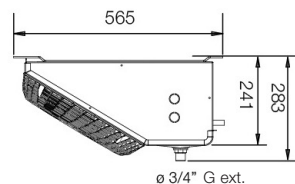
Sound pressure dB(A)

Sound pressure as given in the tables are sound pressure levels in dB(A) at 3 m distance in free field conditions according to EN13487. Values may deviate depending on situations at site.

CS200



CS300



Model	Nominal capacities HFC DX				EC Fans							Stock article number
	SC1 kW	SC2 kW	SC3 kW	SC4 kW	nr.	fan power W	air throw m	sound pressure dB(A)	air flow m³/h	coil surface m²	Int. volume dm³	
CSE												
Fin spacing 4 mm, fan speed H												
CSEH201 B 4	1.3	0.9			1	33	5.7	43	517	2.8	0.4	3289052250
CSEH202 B 4	2.6	1.8			2	66	8.0	46	1034	5.6	0.8	3289052252
CSEH203 B 4	4.0	2.8			3	99	9.8	48	1551	8.4	1.1	3289052254
CSEH301 B 4	2.1	1.4			1	35	6.5	42	767	4.7	0.7	3289052255
CSEH301 C 4	2.5	1.7			1	35	5.7	42	671	7.0	1.1	3289052256
CSEH302 B 4	3.9	2.7			2	70	9.2	45	1533	9.4	1.3	3289052257
CSEH302 C 4	5.0	3.4			2	70	8.1	45	1343	14.0	1.9	3289052258
CSEH303 B 4	6.2	4.3			3	105	11.3	47	2300	14.0	1.8	3289052259
CSEH303 C 4	7.0	4.8			3	105	9.9	47	2014	21.1	2.7	3289052260
CSEH304 B 4	7.9	5.4			4	140	13.1	48	3066	18.7	2.4	3289052261
CSEH304 C 4	9.6	6.6			4	140	11.4	48	2686	28.1	3.5	3289052262
CSEH305 B 4	9.0	6.2			5	175	14.6	49	3833	23.4	2.9	3289052263
CSEH305 C 4	11.3	7.8			5	175	12.8	49	3357	35.1	4.4	3289052264
Fin spacing 4 mm, fan speed L												
CSEL201 B 4	1.1	0.8			1	19	4.2	37	379	2.8	0.4	-
CSEL202 B 4	2.2	1.5			2	38	5.9	40	758	5.6	0.8	-
CSEL203 B 4	3.4	2.3			3	57	7.2	42	1138	8.4	1.1	-
CSEL301 B 4	1.7	1.2			1	17	4.5	33	533	4.7	0.7	-
CSEL301 C 4	2.0	1.3			1	17	4.0	33	471	7.0	1.1	-
CSEL302 B 4	3.2	2.2			2	34	6.4	36	1066	9.4	1.3	-
CSEL302 C 4	3.9	2.7			2	34	5.7	36	942	14.0	1.9	-
CSEL303 B 4	5.1	3.5			3	51	7.9	38	1599	14.0	1.8	-
CSEL303 C 4	5.7	3.9			3	51	7.0	38	1413	21.1	2.7	-
CSEL304 B 4	6.5	4.5			4	68	9.1	39	2133	18.7	2.4	-
CSEL304 C 4	7.7	5.3			4	68	8.0	39	1885	28.1	3.5	-
CSEL305 B 4	7.7	5.3			5	85	10.2	40	2666	23.4	2.9	-
CSEL305 C 4	9.2	6.4			5	85	9.0	40	2356	35.1	4.4	-
Fin spacing 7mm, fan speed H												
CSEH201 B 7	1.0	0.7	0.5	0.4	1	33	6.2	43	562	1.7	0.4	3289052265
CSEH202 B 7	1.9	1.3	1.0	0.8	2	66	8.7	46	1123	3.4	0.8	3289052266
CSEH203 B 7	2.9	2.0	1.5	1.2	3	99	10.7	48	1685	5.1	1.1	3289052267
CSEH301 B 7	1.5	1.0	0.8	0.6	1	35	7.3	42	852	2.8	0.7	3289052268
CSEH301 C 7	2.0	1.3	1.0	0.8	1	35	6.5	42	767	4.2	1.1	3289052269
CSEH302 B 7	3.0	2.0	1.5	1.2	2	70	10.3	45	1705	5.6	1.3	3289052270
CSEH302 C 7	4.0	2.7	2.0	1.6	2	70	9.2	45	1533	8.5	1.9	3289052271
CSEH303 B 7	4.6	3.1	2.3	1.9	3	105	12.6	47	2557	8.5	1.8	3289052273
CSEH303 C 7	5.8	3.9	2.9	2.3	3	105	11.3	47	2300	12.7	2.7	3289052272
CSEH304 B 7	6.0	4.1	3.0	2.4	4	140	14.5	48	3410	11.3	2.4	3289052274
CSEH304 C 7	7.8	5.3	3.9	3.2	4	140	13.1	48	3067	16.9	3.5	3289052275
CSEH305 B 7	7.2	4.9	3.6	2.9	5	175	16.2	49	4262	14.1	2.9	3289052276
CSEH305 C 7	9.4	6.4	4.7	3.8	5	175	14.6	49	3833	21.1	4.4	3289052277
Fin spacing 7 mm, fan speed L												
CSEL201 B 7	0.8	0.6	0.4	0.3	1	19	4.6	37	414	1.7	0.4	-
CSEL202 B 7	1.6	1.1	0.8	0.7	2	38	6.4	40	829	3.4	0.8	-
CSEL203 B 7	2.5	1.7	1.2	1.0	3	57	7.9	42	1243	5.1	1.1	-
CSEL301 B 7	1.2	0.9	0.6	0.5	1	17	5.0	33	590	2.8	0.7	-
CSEL301 C 7	1.6	1.1	0.8	0.7	1	17	4.6	33	537	4.2	1.1	-
CSEL302 B 7	2.5	1.7	1.2	1.0	2	34	7.1	36	1180	5.6	1.3	-
CSEL302 C 7	3.2	2.2	1.6	1.3	2	34	6.5	36	1073	8.5	1.9	-
CSEL303 B 7	3.7	2.6	1.9	1.5	3	51	8.7	38	1770	8.5	1.8	-
CSEL303 C 7	4.7	3.2	2.3	1.9	3	51	7.9	38	1610	12.7	2.7	-
CSEL304 B 7	4.9	3.4	2.5	2.0	4	68	10.1	39	2360	11.3	2.4	-
CSEL304 C 7	6.3	4.3	3.2	2.6	4	68	9.1	39	2146	16.9	3.5	-
CSEL305 B 7	6.0	4.1	3.0	2.4	5	85	11.2	40	2951	14.1	2.9	-
CSEL305 C 7	7.7	5.3	3.8	3.1	5	85	10.2	40	2683	21.1	4.4	-

Model	Nominal capacities CO ₂ DX*				EC Fans							Stock article number
	SC1	SC2	SC3	SC4	nr.	fan power W	air throw m	sound pressure dB(A)	air flow m ³ /h	coil surface m ²	Int. volume dm ³	
CSE	kW	kW	kW	kW								
Fin spacing 4 mm, fan speed H												
CSXH201 B 4	1.3	0.9			1	33	5.7	43	517	2.8	0.4	3289058934
CSXH202 B 4	2.6	1.8			2	66	8.0	46	1034	5.6	0.8	3289054095
CSXH203 B 4	3.8	2.6			3	99	9.8	48	1551	8.4	1.1	3289065983
CSXH301 B 4	2.1	1.4			1	35	6.5	42	767	4.7	0.7	3289054503
CSXH301 C 4	2.5	1.7			1	35	5.7	42	671	7.0	1.1	3289054505
CSXH302 B 4	4.2	2.8			2	70	9.2	45	1533	9.4	1.3	3289054105
CSXH302 C 4	4.9	3.4			2	70	8.1	45	1343	14.0	1.9	3289054501
CSXH303 B 4	6.1	4.2			3	105	11.3	47	2300	14.0	1.8	3289053650
CSXH303 C 4	7.4	5.1			3	105	9.9	47	2014	21.1	2.7	3289065403
CSXH304 B 4	8.2	5.6			4	140	13.1	48	3066	18.7	2.4	3289065984
CSXH304 C 4	10.0	6.9			4	140	11.4	48	2686	28.1	3.5	3289065985
CSXH305 B 4	10.4	7.1			5	175	14.6	49	3833	23.4	2.9	3289058936
CSXH305 C 4	12.4	8.5			5	175	12.8	49	3357	35.1	4.4	3289057356
Fin spacing 4 mm, fan speed L												
CSXL201 B 4	1.1	0.8			1	19	4.2	37	379	2.8	0.4	-
CSXL202 B 4	2.2	1.5			2	38	5.9	40	758	5.6	0.8	-
CSXL203 B 4	3.2	2.2			3	57	7.2	42	1138	8.4	1.1	-
CSXL301 B 4	1.7	1.2			1	17	4.5	33	533	4.7	0.7	-
CSXL301 C 4	2.0	1.4			1	17	4.0	33	471	7.0	1.1	-
CSXL302 B 4	3.4	2.3			2	34	6.4	36	1066	9.4	1.3	-
CSXL302 C 4	3.9	2.7			2	34	5.7	36	942	14.0	1.9	-
CSXL303 B 4	5.0	3.4			3	51	7.9	38	1599	14.0	1.8	-
CSXL303 C 4	5.8	4.0			3	51	7.0	38	1413	21.1	2.7	-
CSXL304 B 4	6.7	4.6			4	68	9.1	39	2133	18.7	2.4	-
CSXL304 C 4	7.9	5.4			4	68	8.0	39	1885	28.1	3.5	-
CSXL305 B 4	8.4	5.8			5	85	10.2	40	2666	23.4	2.9	-
CSXL305 C 4	9.8	6.7			5	85	9.0	40	2356	35.1	4.4	-
Fin spacing 7mm, fan speed H												
CSXH201 B 7	1.0	0.7	0.5	0.4	1	33	6.2	43	562	1.7	0.4	3289055465
CSXH202 B 7	1.9	1.3	1.0	0.8	2	66	8.7	46	1123	3.4	0.8	3289056195
CSXH203 B 7	2.9	1.9	1.4	1.2	3	99	10.7	48	1685	5.1	1.1	3289054150
CSXH301 B 7	1.5	1.0	0.8	0.6	1	35	7.3	42	852	2.8	0.7	3289057503
CSXH301 C 7	2.0	1.4	1.0	0.8	1	35	6.5	42	767	4.2	1.1	3289053728
CSXH302 B 7	3.1	2.1	1.5	1.3	2	70	10.3	45	1705	5.6	1.3	3289053807
CSXH302 C 7	3.9	2.7	2.0	1.6	2	70	9.2	45	1533	8.5	1.9	3289053754
CSXH303 B 7	4.6	3.1	2.3	1.9	3	105	12.6	47	2557	8.5	1.8	3289053664
CSXH303 C 7	5.9	4.0	3.0	2.4	3	105	11.3	47	2300	12.7	2.7	3289053757
CSXH304 B 7	6.2	4.2	3.1	2.5	4	140	14.5	48	3410	11.3	2.4	3289065986
CSXH304 C 7	8.0	5.4	4.0	3.3	4	140	13.1	48	3067	16.9	3.5	3289053758
CSXH305 B 7	7.8	5.2	3.9	3.2	5	175	16.2	49	4262	14.1	2.9	3289065987
CSXH305 C 7	9.9	6.7	5.0	4.1	5	175	14.6	49	3833	21.1	4.4	3289054215
Fin spacing 7 mm, fan speed L												
CSXL201 B 7	0.8	0.6	0.4	0.3	1	19	4.6	37	414	1.7	0.4	-
CSXL202 B 7	1.6	1.1	0.8	0.7	2	38	6.4	40	829	3.4	0.8	-
CSXL203 B 7	2.4	1.6	1.2	1.0	3	57	7.9	42	1243	5.1	1.1	-
CSXL301 B 7	1.3	0.9	0.6	0.5	1	17	5.0	33	590	2.8	0.7	-
CSXL301 C 7	1.6	1.1	0.8	0.7	1	17	4.6	33	537	4.2	1.1	-
CSXL302 B 7	2.5	1.7	1.3	1.0	2	34	7.1	36	1180	5.6	1.3	-
CSXL302 C 7	3.2	2.2	1.6	1.3	2	34	6.5	36	1073	8.5	1.9	-
CSXL303 B 7	3.7	2.5	1.9	1.5	3	51	8.7	38	1770	8.5	1.8	-
CSXL303 C 7	4.7	3.2	2.4	2.0	3	51	7.9	38	1610	12.7	2.7	-
CSXL304 B 7	5.0	3.4	2.5	2.1	4	68	10.1	39	2360	11.3	2.4	-
CSXL304 C 7	6.4	4.3	3.2	2.6	4	68	9.1	39	2146	16.9	3.5	-
CSXL305 B 7	6.3	4.3	3.1	2.6	5	85	11.2	40	2951	14.1	2.9	-
CSXL305 C 7	7.9	5.4	4.0	3.3	5	85	10.2	40	2683	21.1	4.4	-

* CO₂ refrigerant is not included in the Eurovent Certify All programme.

Alfa Laval in brief

Alfa Laval 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. Time and time again.

We help our customers to heat, cool, separate and transport products such as oil, water, chemicals, beverages, food-stuffs, starch and pharmaceuticals.

Our worldwide organization works closely with customers in almost 100 countries to help them stay ahead.

How to contact Alfa Laval

Up-to-date contact details for all countries are always available on our corporate website at www.alfalaval.com. You can also download product information and selection software.



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