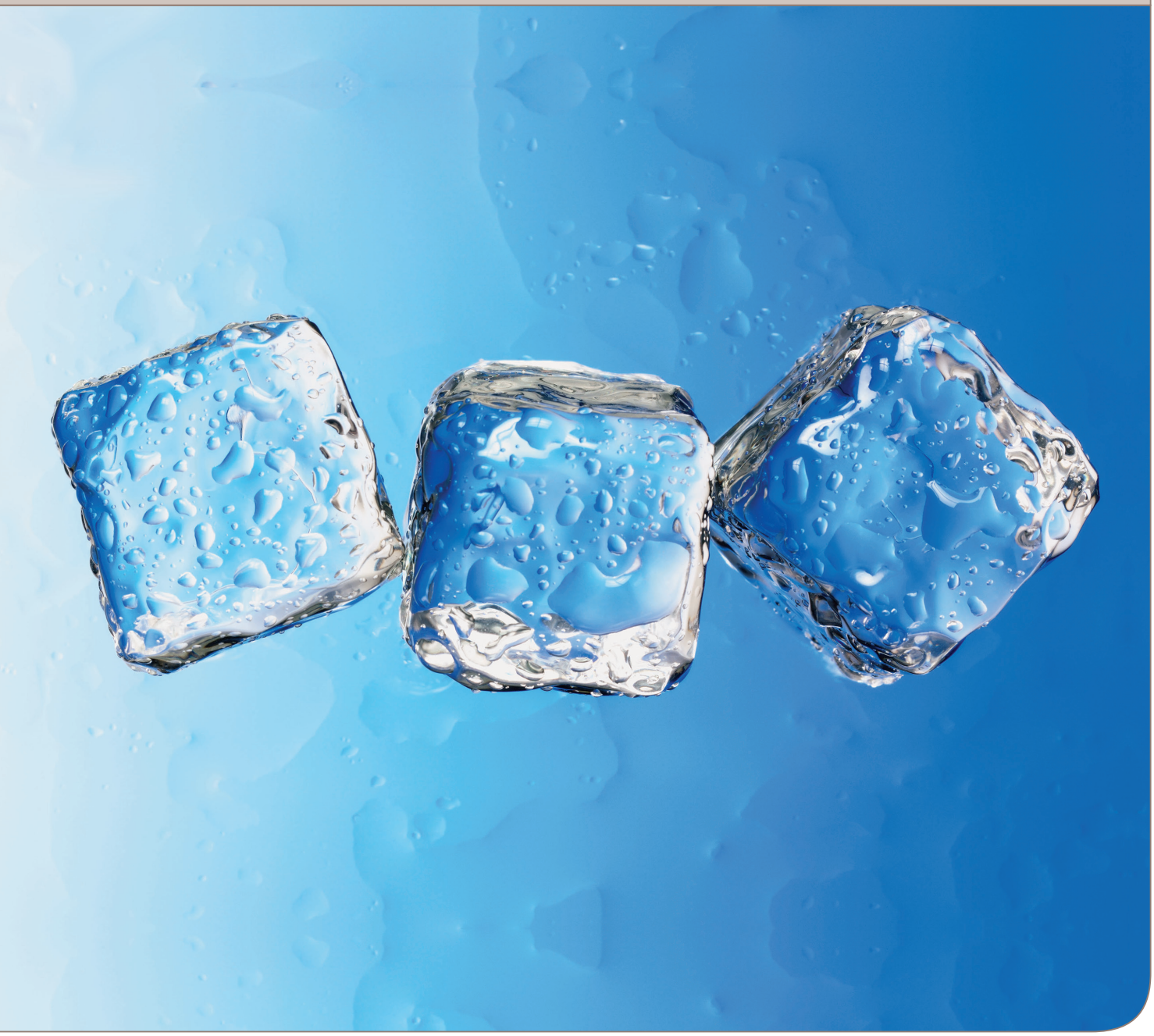
Shell-and-tube dry expansion evaporator Alfa Laval DM

A new series of shell-and-tube dry expansion evaporators for medium temperature applications



Shell-and-tube dry expansion evaporator Alfa Laval DM

Application
The new evaporator Alfa Laval DM has been developed for commercial and industrial refrigeration applications at medium temperature in the range of -10°C to -40°C depending on the system efficiency and brines such as propylene and ethylene glycols.

Technology
The Alfa Laval DM's design has been optimized for R407F and R134a refrige-rants but it can also be utilized with R404a and R507.

With its innovative refrigerant distribu-tor, single pass and counter-current design, Alfa Laval's new DM shell-and-tube evaporator series guarantees maximum efficiency, low cost and top performance.

Benefits
- A unique patented refrigerant distribution system which has been optimized for R407F and R134a.
- Very efficient single pass and counter-current design to provide the best possible performance.
- Metal baffles with an advanced design to improve the brine side performance.
- Exchange tubes with an inner grooved pattern to maximize the heat transfer coefficient and to limit the negative effects of pressure drop.

Design data

PED (CE) approval

Version	Tubes side				Shell side			
	DP (bar)	DT (°C)	Tmin (°C)	PT (bar)	DP (bar)	DT (°C)	Tmin (°C)	PT (bar)
STD	21.5	50	-40	30.7	10	50	-40	14.3

DP Design Pressure
DT Design Temperature
Tmin Minimum temperature
PT Test Pressure

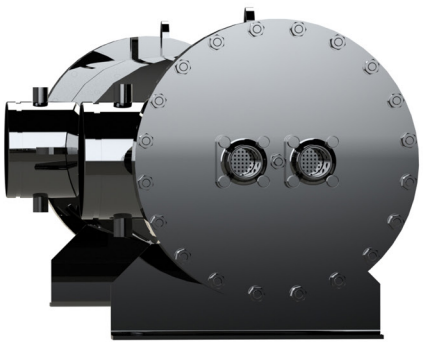
Denomination

DM2-416-2 (M or H)

- DM2-416-2 (M or H): Baffles number (M = -2, H = +2)
- DM2-416-2: Tube length (2 = 2750 mm, 3 = 3300 mm)
- DM2-416: Model identification number - 5 to 9
- DM2-4: Diameter (219, 273, 324, 406, 508 mm)
- DM2: Number of refrigerant circuits (1, 2, 3)
- DM: Medium temperature
- D: Dry expansion evaporator

In the description there may also be a letter indicating the water connections orientation. There are three available orientations: top (standard), left (L) and right (R).

Top

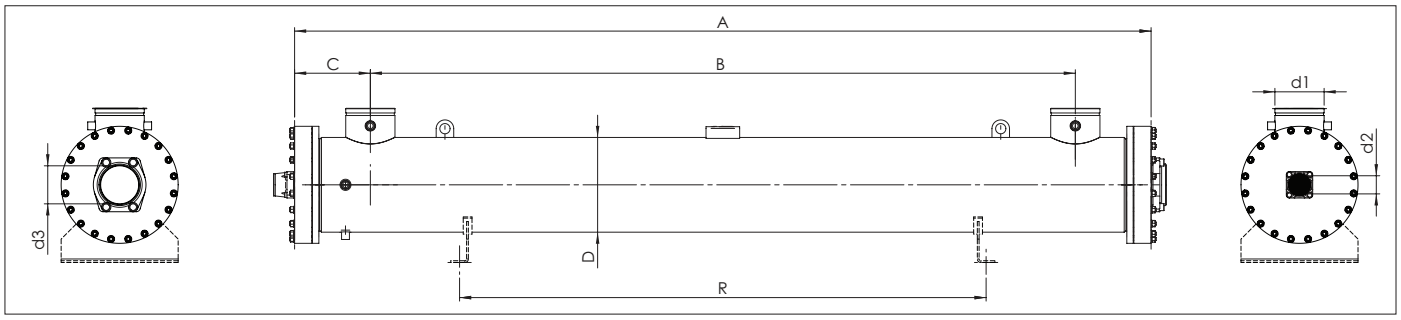


Left

Right

General dimensions

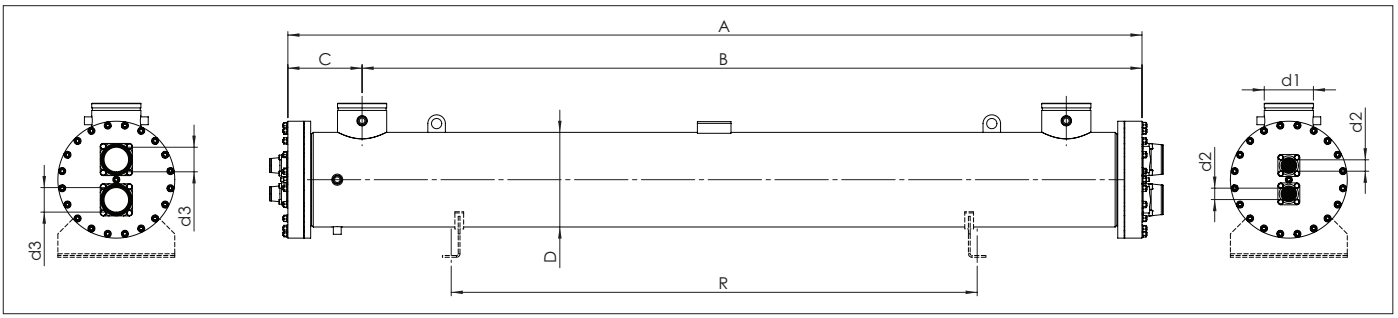
One (1) refrigerant circuit



DM Model	Refrigerant circuits	Dimensions				Supports	Connections			Volumes - Weights			PED category
		A	D	B	C	R	d1	d2	d3	Vr	V_{H2O}	Weight	Fluid group 1
		mm	mm	mm	mm	mm	DN	mm	mm	dm^3	dm^3	kg	
DM1-225-2	1	2893	219	2410	239	1800	4"	FC-A42	FC-C80	17.7	76.3	187	II
DM1-225-3	1	3463	219	2980	239	2200	4"	FC-A42	FC-C90	21.3	92.1	209	II
DM1-226-2	1	2893	219	2410	239	1800	4"	FC-A42	FC-C90	22.0	71.4	196	II
DM1-226-3	1	3463	219	2980	239	2200	4"	FC-A42	FC-C90	26.5	86.2	219	II
DM1-227-2	1	2893	219	2410	239	1800	4"	FC-A42	FC-C90	26.1	66.8	204	II
DM1-227-3	1	3463	219	2980	239	2200	4"	FC-A42	FC-C90	31.4	80.6	228	II
DM1-276-2	1	2903	273	2410	239	1800	5"	FC-B54	FC-SAE-105	33.3	110.5	316	II
DM1-276-3	1	3473	273	2980	239	2200	5"	FC-B54	FC-SAE-105	40.0	133.3	354	II
DM1-277-2	1	2903	273	2410	239	1800	5"	FC-B54	FC-SAE-105	38.5	104.5	326	II
DM1-277-3	1	3473	273	2980	239	2200	5"	FC-B54	FC-SAE-105	46.4	122.1	367	II
DM1-326-2	1	2928	324	2410	259	1800	6"	FC-B67	FC-SAE-105	47.6	156.5	440	III
DM1-326-3	1	3498	324	2980	259	2200	6"	FC-B67	FC-SAE-5	57.3	188.9	490	III
DM1-327-2	1	2928	324	2410	259	1800	6"	FC-B67	FC-SAE-5	54.1	149.2	452	III
DM1-327-3	1	3498	324	2980	259	2200	6"	FC-B67	FC-SAE-5	65.1	180.0	505	III
DM1-328-2	1	2928	324	2410	259	1800	6"	FC-B67	FC-SAE-5	60.3	142.1	464	III
DM1-328-3	1	3498	324	2980	259	2200	6"	FC-B67	FC-SAE-5	72.6	171.4	520	III

General dimensions

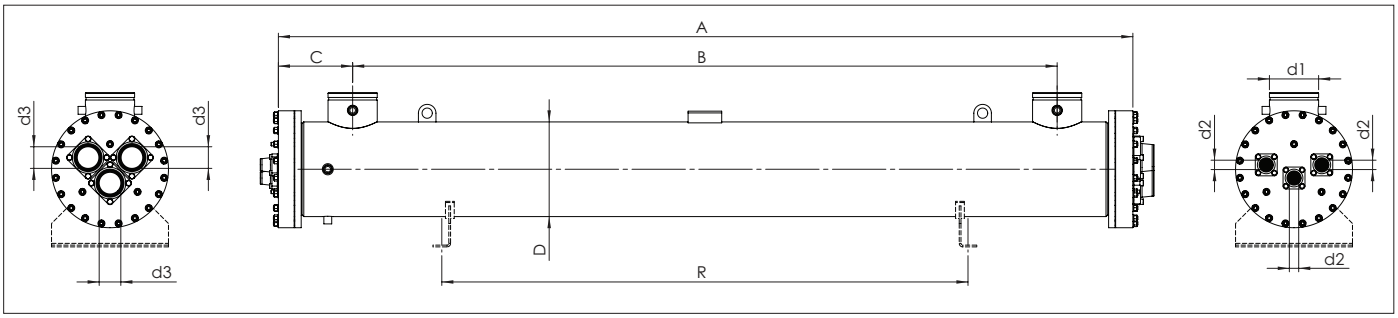
Two (2) refrigerant circuits



DM Model	Refrigerant circuits	Dimensions				Supports	Connections			Volumes - Weights			PED category
		A	D	B	C	R	d1	d2	d3	Vr	V_{H2O}	Weight	Fluid group 1
		mm	mm	mm	mm	mm	DN	mm	mm	dm^3	dm^3	kg	
DM2-225-2	2	2893	219	2410	239	1800	4"	FC-A28	FC-B67	17.7	76.3	187	II
DM2-225-3	2	3463	219	2980	239	2200	4"	FC-A28	FC-B67	21.3	92.1	209	II
DM2-226-2	2	2893	219	2410	239	1800	4"	FC-A28	FC-B67	22.0	71.4	196	II
DM2-226-3	2	3463	219	2980	239	2200	4"	FC-A28	FC-B67	26.5	86.2	219	II
DM2-227-2	2	2893	219	2410	239	1800	4"	FC-A35	FC-B67	26.1	66.8	204	II
DM2-227-3	2	3463	219	2980	239	2200	4"	FC-A35	FC-B67	31.4	80.6	228	II
DM2-276-2	2	2903	273	2410	239	1800	5"	FC-A35	FC-C80	33.3	110.5	316	II
DM2-276-3	2	3473	273	2980	239	2200	5"	FC-A35	FC-C80	40.0	133.3	354	II
DM2-277-2	2	2903	273	2410	239	1800	5"	FC-A35	FC-C80	38.5	104.5	326	II
DM2-277-3	2	3473	273	2980	239	2200	5"	FC-A35	FC-C80	46.4	122.1	367	II
DM2-326-2	2	2923	324	2410	254	1800	6"	FC-A42	FC-C90	47.6	156.5	440	III
DM2-326-3	2	3493	324	2980	254	2200	6"	FC-A42	FC-SAE-105	57.3	188.9	490	III
DM2-327-2	2	2923	324	2410	254	1800	6"	FC-A42	FC-C90	54.1	149.2	452	III
DM2-327-3	2	3493	324	2980	254	2200	6"	FC-A42	FC-SAE-105	65.1	180.0	505	III
DM2-328-2	2	2923	324	2410	254	1800	6"	FC-A42	FC-C90	60.3	142.1	464	III
DM2-328-3	2	3493	324	2980	254	2200	6"	FC-A42	FC-SAE-105	72.6	171.4	520	III
DM2-416-2	2	2938	406	2360	284	1800	8"	FC-B54	FC-SAE-105	70.1	255.2	690	III
DM2-416-3	2	3508	406	2860	319	2200	8"	FC-B54	FC-SAE-105	81.8	298.9	748	III
DM2-417-2	2	2938	406	2360	284	1800	8"	FC-B54	FC-SAE-105	78.3	246.0	706	III
DM2-417-3	2	3508	406	2860	319	2200	8"	FC-B54	FC-SAE-105	94.2	297.0	779	III
DM2-418-2	2	2938	406	2360	284	1800	8"	FC-B54	FC-SAE-105	86.2	237.1	721	III
DM2-418-3	2	3508	406	2860	319	2200	8"	FC-B54	FC-SAE-5	103.7	286.2	798	III
DM2-419-2	2	2938	406	2360	284	1800	8"	FC-B54	FC-SAE-105	93.9	228.4	736	III
DM2-419-3	2	3508	406	2860	319	2200	8"	FC-B54	FC-SAE-5	112.9	275.7	816	III
DM2-516-2	2	2977	508	2310	334	1800	10"	FC-B67	FC-SAE-5	121.2	390.3	1176	III
DM2-516-3	2	3543	508	2860	344	2200	10"	FC-B67	FC-SAE-5	145.7	471.8	1277	IV
DM2-517-2	2	2977	508	2310	334	1800	10"	FC-B67	FC-SAE-5	131.1	365.2	1196	III
DM2-517-3	2	3543	508	2860	344	2200	10"	FC-C80	FC-SAE-5	157.7	441.4	1301	IV
DM2-518-2	2	2977	508	2310	334	1800	10"	FC-B67	FC-SAE-5	141.7	367.5	1216	IV
DM2-518-3	2	3543	508	2860	344	2200	10"	FC-C80	FC-SAE-5	169.8	427.7	1325	IV
DM2-519-2	2	2977	508	2310	334	1800	10"	FC-B67	FC-SAE-5	151.0	342.8	1235	IV
DM2-519-3	2	3543	508	2860	344	2200	10"	FC-C80	FC-SAE-5	181.7	414.4	1348	IV

General dimensions

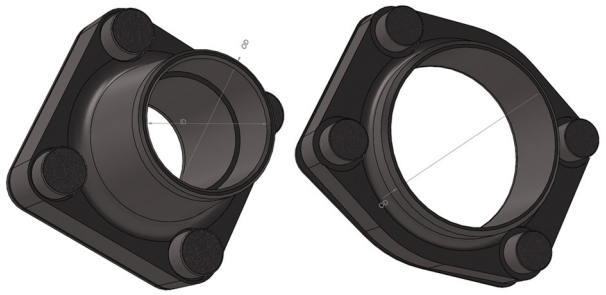
Three (3) refrigerant circuits



DM Model	Refrigerant circuits	Dimensions				Supports	Connections			Volumes - Weights			PED category
		A	D	B	C	R	d1	d2	d3	Vr	V_{H2O}	Weight	Fluid group 1
		mm	mm	mm	mm	mm	DN	mm	mm	dm^3	dm^3	kg	
DM3-226-2	3	2893	219	2410	239	1800	4"	FC-A28	FC-A54	22.0	71.4	196	II
DM3-226-3	3	3463	219	2980	239	2200	4"	FC-A28	FC-A54	26.5	86.2	219	II
DM3-227-2	3	2893	219	2410	239	1800	4"	FC-A35	FC-A54	25.2	67.7	202	II
DM3-227-3	3	3463	219	2980	239	2200	4"	FC-A35	FC-A54	30.4	81.7	227	II
DM3-276-2	3	2903	273	2410	239	1800	5"	FC-A35	FC-B67	33.5	110.2	316	II
DM3-276-3	3	3473	273	2980	239	2200	5"	FC-A35	FC-B67	40.3	133.0	355	II
DM3-277-2	3	2903	273	2410	239	1800	5"	FC-A35	FC-B67	38.3	104.8	326	II
DM3-277-3	3	3473	273	2980	239	2200	5"	FC-A35	FC-B67	46.1	126.4	366	II
DM3-326-2	3	2923	324	2410	254	1800	6"	FC-A35	FC-C80	53.7	149.6	452	III
DM3-326-3	3	3493	324	2980	254	2200	6"	FC-A35	FC-C80	64.7	180.5	505	III
DM3-327-2	3	2923	324	2410	254	1800	6"	FC-A35	FC-C80	59.0	143.6	462	III
DM3-327-3	3	3493	324	2980	254	2200	6"	FC-A35	FC-C80	71.0	173.2	517	III
DM3-416-2	3	2938	406	2360	284	1800	8"	FC-A42	FC-C80	70.7	254.6	691	III
DM3-416-3	3	3508	406	2860	319	2200	8"	FC-A42	FC-C90	85.1	307.4	762	III
DM3-417-2	3	2938	406	2360	284	1800	8"	FC-A42	FC-C90	78.4	245.9	706	III
DM3-417-3	3	3508	406	2860	319	2200	8"	FC-B54	FC-C90	94.3	296.9	780	III
DM3-418-2	3	2938	406	2360	284	1800	8"	FC-A42	FC-C90	85.8	237.5	721	III
DM3-418-3	3	3508	406	2860	319	2200	8"	FC-B54	FC-C90	103.3	286.7	787	III
DM3-419-2	3	2938	406	2360	284	1800	8"	FC-A42	FC-C90	93.0	229.3	735	III
DM3-419-3	3	3508	406	2860	319	2200	8"	FC-B54	FC-C90	111.9	276.9	814	III
DM3-516-2	3	2977	508	2310	334	1800	10"	FC-B54	FC-SAE-105	121.8	389.7	1177	III
DM3-516-3	3	3543	508	2860	344	2200	10"	FC-B54	FC-SAE-105	146.0	454.6	1278	IV
DM3-517-2	3	2977	508	2310	334	1800	10"	FC-B54	FC-SAE-105	131.2	365.0	1197	III
DM3-517-3	3	3543	508	2860	344	2200	10"	FC-B54	FC-SAE-4	157.8	441.2	1302	IV
DM3-518-2	3	2977	508	2310	334	1800	10"	FC-B54	FC-SAE-105	141.3	367.9	1215	IV
DM3-518-3	3	3543	508	2860	344	2200	10"	FC-B67	FC-SAE-4	169.4	428.2	1324	IV
DM3-518-2	3	2977	508	2310	334	1800	10"	FC-B67	FC-SAE-4	150.2	343.8	1233	IV
DM3-519-3	3	3543	508	2860	344	2200	10"	FC-B67	FC-SAE-4	180.7	415.5	1346	IV

Refrigerant connections

Flange connections (standard)



FC flange FC-SAE flange

Flange connections					
	Tube			Connection	
	ODS (mm)	ODS (Inch)	Material	OD	ID
FC-A28	28.00	-	Copper	33.7	28.2
FC-A42	42.00	-	Copper	48.3	42.4
FC-B54	54.00	2 ⅛	Copper	60.3	54.4
FC-B67	66.67	2 ⅝	Copper	76.1	67.2
FC-C80	79.37	3 ⅛	Copper	88.9	80.0
FC-C90	88.90	3 ½	Copper	101.6	89.5
FC-SAE-105	104.80	4 ⅛	Copper	114.3	105.4
FC-SAE-4	114.30	4	Carbon steel	114.3	-
FC-SAE-5	141.30	5	Carbon steel	141.3	-

Brine connections

Flexible joint water connections (standard)

Nozzles (designed for flexible joint)		
Nozzle	ΦV (mm)	Flexible joint adapter type
DN 4"	114.3	Victaulic style 75
DN 5"	139.7	
DN 6"	168.3	
DN 8"	219.1	
DN 10"	273.0	Victaulic style 77

Options

The following options are available for the DM evaporators.

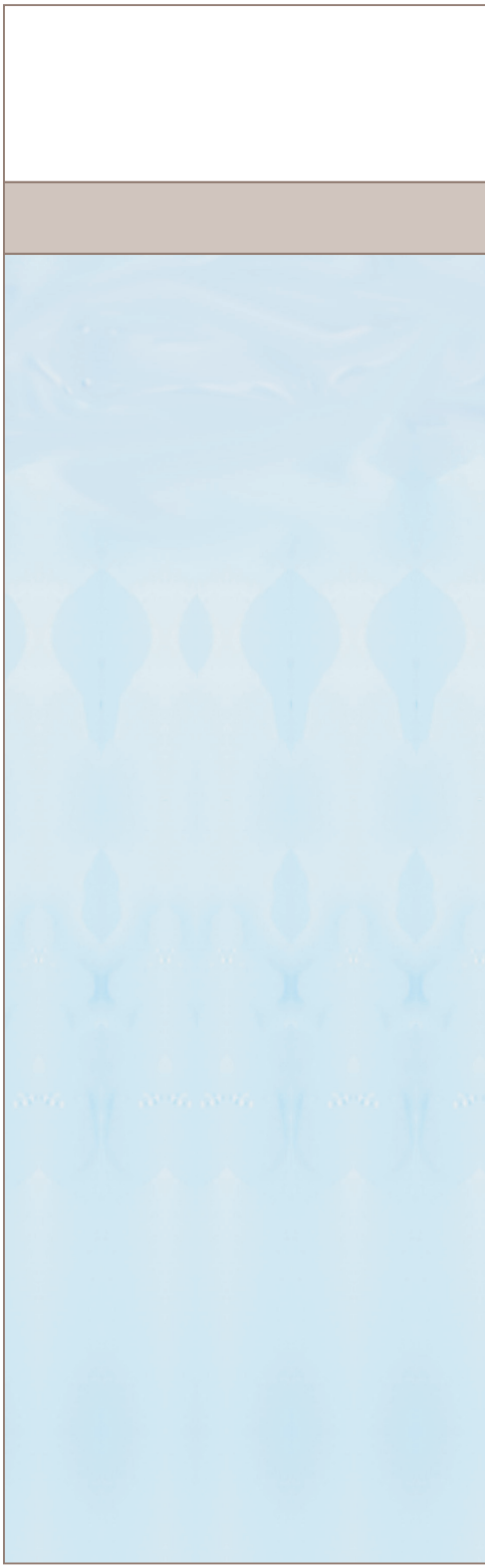
- Vic-flange water connections (according to EN 1092-1 or ANSI standard)
- Insulation
- Support feet

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 to 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, foodstuffs, 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 Alfa Laval contact details for all countries are always available on our website at www.alfalaval.com



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