

Unit Coolers

# MUC-LUC



1 kW

13,7 kW



EUROVENT  
CERTIFIED PERFORMANCE



CERTIFY ALL  
DX AIR COOLERS

**FRIGA-BOHN**



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# MUC-LUC

**MUC-LUC** cubic unit coolers are suitable for chilling or low temperature storage applications. 48 basic models with capacities ranging from 1 to 13,7 kW.

## NOMENCLATURE

**MUC 320 R** OPTIONAL FEATURES

Model

See "OPTIONAL FEATURES"

## DESCRIPTION

### • APPROVAL

The **MUC-LUC** unit cooler line is EUROVENT approved. The ratings indicated are certified compliant to European standard EN328.

### • CASING

Robust and attractive casing made of white enamelled steel, which enables easy cleaning of the unit.

### • DRAIN PAN

Drain pan with rounded corners eliminating retention zones in which pathogenic germs may develop and guaranteeing total safety by the absence of sharp edges and corners.

### • VENTILATION

**MUC-LUC** range is fitted with life lubricated, propeller motorfans, factory wired:

- Ø 300 mm: standard type, 230 V/1/ 50-60 Hz \*, enclosed frame motor, class B, overload protector included.

Fan guards are in conformity with safety regulations, fitted with air stream straighteners thus ensuring a long air throw.

- Ø 400 and 450 mm: standard type, 230-400 V/3/ 50-60 Hz \*, enclosed frame motor with drain holes, IP54, class F, including overload protector for field wiring.

Fans Ø 450 mm fitted with plastic guards, fans Ø 400 mm fitted with plastic coated steel wire guards. Guard design conform to safety regulations.

### • ACCESSIBILITY

Side panels and drain pan easily removed, facilitating a full access to all unit components (coil, motorfans, defrost heaters, connections...).

### • HIGH PERFORMANCE HEAT EXCHANGER

The highly efficient and compact **MUC-LUC** range finned coils are designed with corrugated surface aluminium fins (fin spacing 4.23 or 6.35 mm) and grooved internal structure copper tubes.

The refrigerant distributors are nozzle type (nozzle factory fitted).

### • DEFROST

Tubular electric heaters are inserted in slots both on the front and rear coil faces. No lateral space is required for heater removing, except for **MUC-R** and **MUC-L** equipped of kit **E1K** (see § OPTIONAL FEATURES). One of these heaters is located in the drain pan. Heaters are wired in our works, to a terminal block located in a sealed junction box.

- **LUC 155 E, 210 E, 295 E** and **150 C, 205 C** models are factory coupled for 230 V/1 supply.

- **LUC 350 E** to **1030 E** and **290 C** to **1025 C** models are factory coupled for 230-400 V/3 supply.

Defrost water is collected in the drain pan then drained through a large drain fitting (Ø 1" G).

\* See "OPTIONAL FEATURES"


## OPTIONAL FEATURES

- |                  |            |   |
|------------------|------------|---|
| • Coil:          | <b>BAE</b> | Coating of the fins.  |
| • Defrost:       | <b>2TH</b> | TH 5709L: defrost termination and fan delay thermostat with single-pole, reversing switch at +12 °C (±3 °C) and +2 °C (±3 °C).<br>THS 5708L: single-pole thermostat for overheating safety at +24 °C (±3°C). Recommended with electric defrost. |
|                  | <b>HG1</b> | Hot gas (LUC) (coil: hot gas, drain pan: electrical heaters).   |
| • Motorfans:     | <b>M60</b> | Special fans for 60 Hz application.   |
| • Kit :          | <b>E1K</b> | Electrical defrost <b>MUC-R</b> and <b>MUC-L</b> : heaters located in sleeves (required lateral space for fitting).   |
| • Other options: |            | Please consult us.  |



## MUC ... R

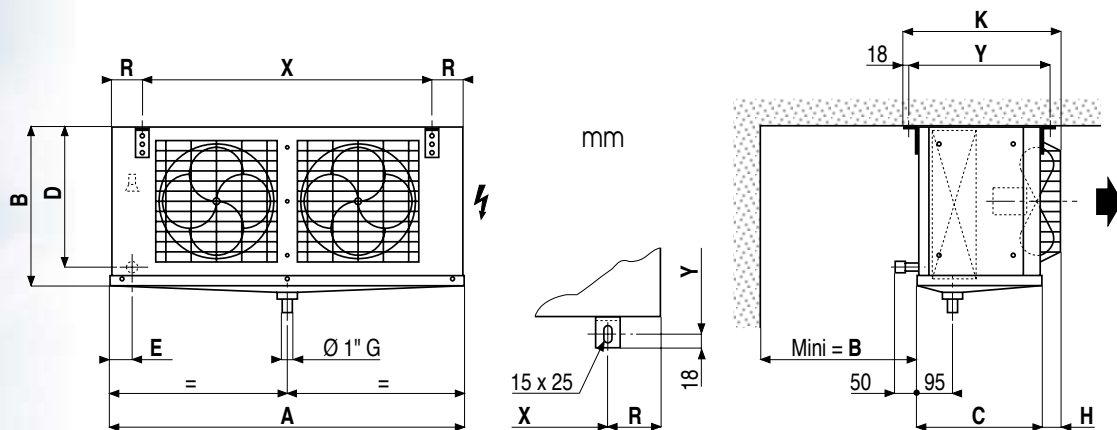
4,23 mm

Models	MUC ... R			145	200	285	320	420	520	620	640	660	670	780	960
Capacity $\dot{Q}_{0m}$	DT1 = 8 K SC2 (1)	R404A	kW	1,85	2,31	3,48	3,83	4,94	5,89	7,17	8,23	9,56	10,89	12,01	13,67
Surface			m <sup>2</sup>	5,5	8,7	10	13,4	18,2	21,4	25,8	40,2	48,7	48,7	32,3	38,6
Circuit vol.			dm <sup>3</sup>	1,1	1,8	1,9	2,6	3,5	4,0	4,8	6,9	8,3	8,3	6,0	7,2
Fan 1500 r.p.m.	Air flow		m <sup>3</sup> /h	1246	1239	2336	2076	2562	3252	3696	3264	3486	4168	7095	7895
	Air throw		m	12	12	12	12	12	12	12	12	12	12	28	45
	No x Ø mm			1 x 300	1 x 300	2 x 300	2 x 300	2 x 300	3 x 300	3 x 300	3 x 300	3 x 300	4 x 300	2 x 400	2 x 450
	230V/1/50Hz	Total	W A	145 0,65	145 0,65	290 1,30	290 1,30	290 1,30	435 1,95	435 1,95	435 1,95	435 1,95	580 2,60	- -	- -
	400V/3/50Hz	W max A max (2)		- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	2 x 360 2 x 1,0	2 x 360 2 x 1,0
	No			3	3	3	3	3	3	3	3	3	3	3	3/6
Electric defrost E1K (3)		Total	W	420	630	780	960	1320	1560	1860	2550	3150	3150	2340	1740/3480
	230V/1/50Hz	Total	A	1,8	2,8	3,4	4,2	5,8	6,8	8,1	-	-	-	-	-
	400V/3/50Hz	Total	A	-	-	-	-	-	-	-	3,7	4,6	4,6	3,4	2,5/5,0
Net weight			kg	17	19	23	28	33	44	45	58	70	72	65	75

(1) See pages "APPENDIX".

(2) Setting of overload protections. For room temperatures  $t_i$  other than +20 °C, multiply the given amperage by the ratio  $293/(273 + t_i)$  so as to obtain the approximate amperage after the room pull down.

(3) Electric defrost option.



Models	MUC ... R	145	200	285	320	420	520	620	640	660	670	780	960
A		568	568	974	974	1228	1355	1658	1998	2348	2348	1650	1650
B		400	464	400	400	400	464	400	400	400	400	495	590
C		365	365	365	365	365	365	365	365	365	365	482	482
D		355	419	355	355	355	419	352	350	350	350	447	543
E	mm	42	39	89	89	89	89	110	110	110	110	110	110
H		53	53	53	53	53	53	53	53	53	53	68	78
K		456	456	456	456	456	456	456	456	456	456	596	606
R		72	72	122	122	122	122	147	147	147	147	147	147
X		416	416	722	722	976	976	1356	1686	2036	2036	1356	1356
Y		412	412	412	412	412	412	412	412	412	412	536	536
Inlet	$\varnothing$ (1)	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 7/8"	D 7/8"	D 7/8"	D 1 1/8"
Outlet	$\varnothing$ ODF (2)	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	1 1/8"	1 3/8"


(1) Liquid distributor: male to be brazed

(2) ODF: female sweat type connection



## MUC ... L

6,35 mm

Models	MUC ... L			140	195	280	315	415	515	615	635	655	665	775	955	
Capacity	DT1 = 8 K	R404A	kW	1,70	2,07	3,17	3,46	4,52	5,49	6,42	6,89	7,41	9,00	10,61	12,20	
$Q_{0m}$	SC2 (1)	Glycol water	kW	1,62	-	3,33	-	4,53	-	6,88	-	-	-	-	-	
Surface			m <sup>2</sup>	5,17	7,54	9,33	11,66	15,98	18,64	22,43	27,80	33,70	33,70	28,04	33,65	
Circuit vol.			dm <sup>3</sup>	1,5	2,3	2,5	3,3	4,4	5,0	6,0	6,9	8,4	8,4	7,5	9,0	
Fan	Air flow			m <sup>3</sup> /h	1217	1239	2267	2075	2561	3250	3694	3435	3624	4436	7093	7893
	Air throw			m	12	12	12	12	12	12	12	12	12	12	28	45
1500 r.p.m.	No x Ø mm			1 x 300	1 x 300	2 x 300	2 x 300	2 x 300	3 x 300	3 x 300	3 x 300	3 x 300	4 x 300	2 x 400	2 x 450	
	230V/1/50Hz	Total	W A	145 0,65	145 0,65	290 1,30	290 1,30	290 1,30	435 1,95	435 1,95	435 1,95	435 1,95	580 2,60	- -	- -	
	400V/3/50Hz	W max A max (2)		-	-	-	-	-	-	-	-	-	-	2 x 360 2 x 1,0	2 x 360 2 x 1,0	
	No			3	3	3	3	3	3	3	3	3	3	3	3/6	
Electric defrost E1K (3)			Total	W	420	630	780	960	1320	1560	1860	2550	3150	3150	2340	1740/3480
	230V/1/50Hz	Total	A	1,8	2,8	3,4	4,2	5,8	6,8	8,1	-	-	-	-	-	
	400V/3/50Hz	Total	A	-	-	-	-	-	-	-	-	3,7	4,6	4,6	3,4	2,5/5,0
Net weight			kg	17	19	23	28	33	44	45	58	70	72	65	75	

(1) See pages "APPENDIX".

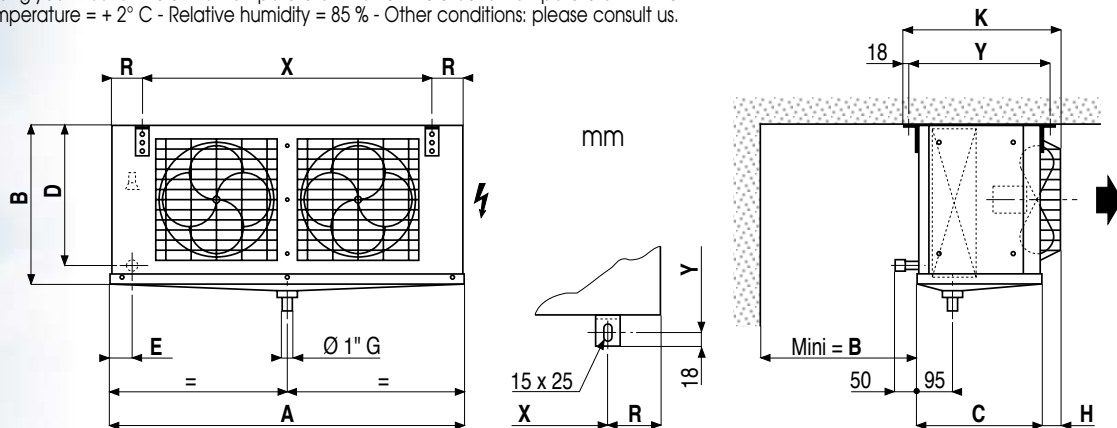
(2) Setting of overload protections. For room temperatures 't<sub>i</sub>' other than +20 °C, multiply the given amperage by the ratio 293/(273 + 't<sub>i</sub>') so as to obtain the approximate amperage after the room pull down.

(3) Electric defrost option.

### Glycol water:

Fluid: Percentage of glycol = 30 % - Fluid inlet temperature = - 8° C - Fluid outlet temperature = - 4° C

Air : Dry airinlet temperature = + 2° C - Relative humidity = 85 % - Other conditions: please consult us.

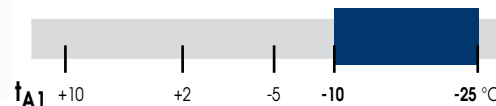


Models	MUC ... L	140	195	280	315	415	515	615	635	655	665	775	955
A		568	568	974	974	1228	1355	1658	1998	2348	2348	1650	1650
B		400	464	400	400	400	464	400	400	400	400	495	590
C		365	365	365	365	365	365	365	365	365	365	482	482
D		355	419	355	355	355	419	352	350	350	350	447	543
E	mm	42	39	89	89	89	89	110	110	110	110	110	110
H		53	53	53	53	53	53	53	53	53	53	68	78
K		456	456	456	456	456	456	456	456	456	456	596	606
R		72	72	122	122	122	122	147	147	147	147	147	147
X		416	416	722	722	976	976	1356	1686	2036	2036	1356	1356
Y		412	412	412	412	412	412	412	412	412	412	536	536
Inlet	Ø (1)	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 7/8"	D 7/8"	D 1 1/8"
Outlet	Ø ODF (2)	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"	7/8"	7/8"	7/8"	1 1/8"	1 3/8"

(1) Liquid distributor: male to be brazed


(2) ODF: female sweat type connection





## LUC ... E

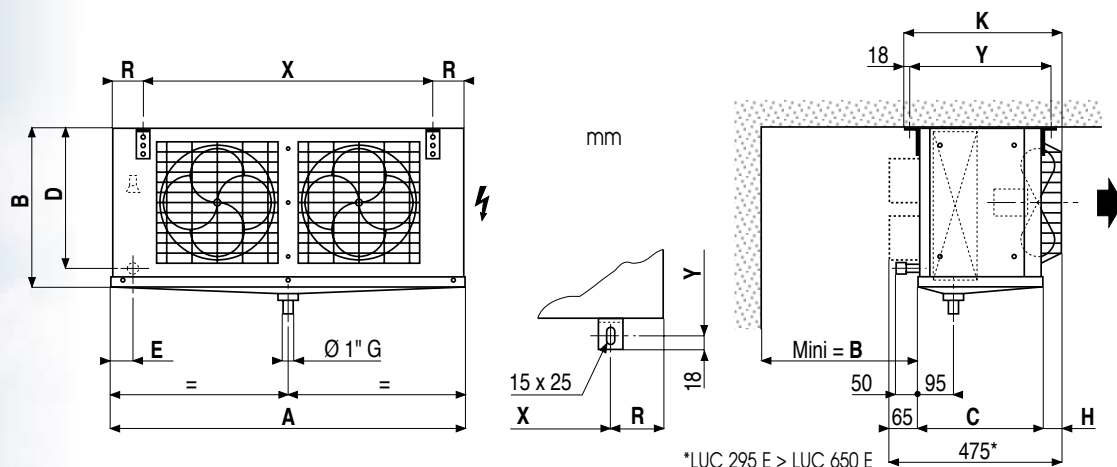
4,23 mm

Models		LUC ... E		155	210	295	350	440	550	650	700	710	720	840	1030
Capacity $\dot{Q}_{0m}$	DT1 = 7 K SC3 (1)	R404A	kW	1,42	1,84	2,69	3,03	3,96	4,86	5,68	6,92	7,51	8,47	9,24	10,60
Capacity $\dot{Q}_{0m}$	DT1 = 6 K SC4 (1)	R404A	kW	1,10	1,44	2,04	2,37	3,12	3,82	4,48	5,73	6,22	6,94	7,26	8,35
Surface			m <sup>2</sup>	5,5	8,7	10	13,4	18,2	21,4	25,8	40,2	48,7	48,7	32,3	38,6
Circuit vol.			dm <sup>3</sup>	1,1	1,8	1,9	2,6	3,5	4,0	4,8	6,9	8,4	8,4	6,0	7,2
Fan	Air flow		m <sup>3</sup> /h	1246	1239	2336	2076	2562	3252	3696	3264	3486	4168	7095	7895
	Air throw		m	12	12	12	12	12	12	12	12	12	12	28	45
	No x Ø mm			1 x 300	1 x 300	2 x 300	2 x 300	2 x 300	3 x 300	3 x 300	3 x 300	3 x 300	4 x 300	2 x 400	2 x 450
1500 r.p.m.	230V/1/50Hz	Total	W A	145 0,65	145 0,65	290 1,30	290 1,30	290 1,30	435 1,95	435 1,95	435 1,95	435 1,95	580 2,60	- -	- -
	400V/3/50Hz		W max A max (2)	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	2 x 360 2 x 1,0	2 x 360 2 x 1,0
No 	Coil Drain pan			1 1	2 1	3 1	5 1	5 1	5 1	5 1	5 1	5 1	5 1	5 1	8 1
Electric defrost		Total	W A	1300 5,7	2150 9,4	2000 8,7	3000	3600	3600	5640	6900	8400	8400	5640	8460
	230V/1/50Hz 400V/3/50Hz	Total	A	- -	- -	- -	4,4 5,2	5,2 5,2	5,2 8,2	9,9 12,1	12,1	12,1	12,1	8,2	12,2
Net weight			kg	17	19	23	28	33	44	45	59	71	73	65	75

(1) See pages "APPENDIX".

(2) Setting of overload protections. For room temperatures 't<sub>i</sub>' other than +20 °C, multiply the given amperage by the ratio 293/(273 + 't<sub>i</sub>') so as to obtain the approximate amperage after the room pull down.

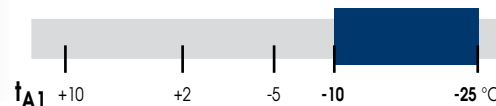
(3) Electric defrost option.



Models	LUC ... E	155	210	295	350	440	550	650	700	710	720	840	1030
A		560	560	966	966	1220	1347	1650	1990	2340	2340	1650	1650
B		400	464	400	400	400	464	400	400	400	400	495	590
C		365	365	365	365	365	365	365	365	365	365	482	482
D		355	419	355	355	355	419	352	350	350	350	447	543
E	mm	42	39	89	89	89	89	110	110	110	110	110	110
H		53	53	53	53	53	53	53	53	53	53	68	78
K		456	456	456	456	456	456	456	456	456	456	596	606
R		72	72	122	122	122	122	147	147	147	147	147	147
X		416	416	722	722	976	976	1356	1686	2036	2036	1356	1356
Y		412	412	412	412	412	412	412	412	412	412	536	536
Inlet	Ø (1)	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 7/8"	D 7/8"	D 7/8"	D 7/8"	D 1 1/8"
Outlet	Ø ODF (2)	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"


(1) Liquid distributor: male to be brazed

(2) ODF: female sweat type connection



## LUC ... C

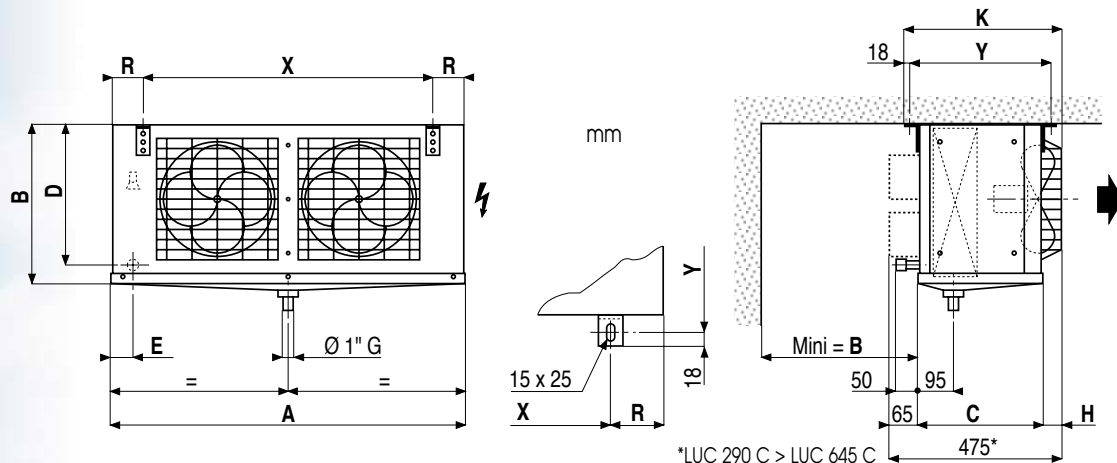
6,35 mm

Models	LUC ... C			150	205	290	345	435	545	645	695	705	715	835	1025
Capacity <b>Q<sub>0m</sub></b>	DT1 = 7 K SC3 (1)	R404A	kW	1,30	1,67	2,48	2,78	3,58	4,39	5,17	5,68	6,21	7,08	8,38	9,64
Capacity <b>Q<sub>0m</sub></b>	DT1 = 6 K SC4 (1)	R404A	kW	1,03	1,31	1,96	2,20	2,83	3,48	4,11	4,76	5,18	5,89	6,61	7,62
Surface			m <sup>2</sup>	5,17	7,54	9,33	11,66	15,98	18,64	22,43	27,80	33,70	33,70	28,04	33,65
Circuit vol.			dm <sup>3</sup>	1,5	2,3	2,5	3,3	4,4	5,0	6,0	6,9	8,4	8,4	7,5	9,0
Fan  1500 r.p.m.	Air flow		m <sup>3</sup> /h	1217	1239	2267	2075	2561	3250	3694	3435	3624	4436	7093	7893
	Air throw		m	12	12	12	12	12	12	12	12	12	28	45	
	No x Ø mm			1 x 300	1 x 300	2 x 300	2 x 300	2 x 300	3 x 300	3 x 300	3 x 300	3 x 300	4 x 300	2 x 400	2 x 450
	230V/1/50Hz	<b>Total</b>	<b>W A</b>	145 0,65	145 0,65	290 1,30	290 1,30	290 1,30	435 1,95	435 1,95	435 1,95	435 1,95	580 2,60	- -	- -
	400V/3/50Hz	<b>W max A max (2)</b>		- -	- -	- -	- -	- -	- -	- -	- -	- -	2 x 360 2 x 1,0	2 x 360 2 x 1,0	
No 	Coil Drain pan			2 1	2 1	5 1	5 1	5 1	5 1	5 1	5 1	5 1	5 1	5 1	8 1
Electric defrost		<b>Total</b>	<b>W A</b>	2150 5,7	2150 9,4	3000	3000	3600	3600	5640	6900	8400	8400	5640	8460
	230V/1/50Hz	<b>Total</b>	<b>A</b>	-	-	-	-	-	-	-	-	-	-	-	-
	400V/3/50Hz	<b>Total</b>	<b>A</b>	-	-	4,4	4,4	5,2	5,2	8,2	9,9	12,1	12,1	8,2	12,2
Net weight			kg	17	19	23	28	33	44	45	59	71	73	65	75

(1) See pages "APPENDIX".

(2) Setting of overload protections. For room temperatures 't<sub>i</sub>' other than +20 °C, multiply the given amperage by the ratio 293/(273 + 't<sub>i</sub>') so as to obtain the approximate amperage after the room pull down.

(3) Electric defrost option.



Models	LUC ... C	150	205	290	345	435	545	645	695	705	715	835	1025
A		560	560	966	966	1220	1347	1650	1990	2340	2340	1650	1650
B		400	464	400	400	400	464	400	400	400	400	495	590
C		365	365	365	365	365	365	365	365	365	365	482	482
D		355	419	355	355	355	419	352	350	350	350	447	543
E	mm	42	39	89	89	89	89	110	110	110	110	110	110
H		53	53	53	53	53	53	53	53	53	53	68	78
K		456	456	456	456	456	456	456	456	456	456	596	606
R		72	72	122	122	122	122	147	147	147	147	147	147
X		416	416	722	722	976	976	1356	1686	2036	2036	1356	1356
Y		412	412	412	412	412	412	412	412	412	412	536	536
Inlet	Ø (1)	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 1/2"	D 7/8"	D 7/8"	D 7/8"	D 7/8"	D 1 1/8"
Outlet	Ø ODF (2)	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"	1 1/8"	1 1/8"	1 1/8"	1 1/8"	1 3/8"

(1) Liquid distributor: male to be brazed

(2) ODF: female sweat type connection