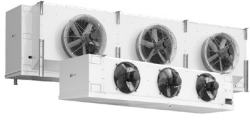




Industrial air coolers TYR

Standard coolers with stainless steel tubing

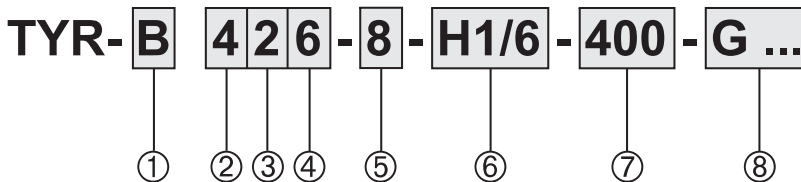




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Model indication



Pos.	Reference	Options
1	Air direction	B = Blow through Z = Draw through
2	Cooler module	1 - 7
3	Number of fans	1 - 7
4	Tube rows	4, 6 or 8 tube rows
5	Fin spacing	4, 6, 7, 8, 10 or 12 mm
6	Circuiting design	2H, H1, H2 ...
7	Current	400 = 230/400/50/3 230 = 230/50/1
8	Options	For a full survey of all available options see page 4

Eurovent

Within Europe, a wide variety of published data on capacities are in use, generally depending on national standards. Most in use by the leading manufacturers are national and international standards like DIN, ENV, NEN-EN and ASHRAE. Due to this, customers have not been able to make objective product comparisons, since data published on capacities were based on DT₁, DTM, dry or wet conditions, with or without certification, etc.



To meet the European requirements on EN standards, the European Refrigeration Industry embodied by Eurovent has set standards to guarantee an independent certification procedure for forced convection air cooled condensers based on NEN-EN 327 and unit air coolers based on NEN-EN 328. Being an active member of Eurovent, the capacities of the Alfa Laval commercial cooler programme, as given in the technical documentation, are based on NEN-EN 328 (evaporating temperature $t_0 = -8\text{ °C}$, 8 K temperature difference between air-on temperature and evaporating temperature (DT₁)).

In order to enable air cooler selection for operating conditions, technical documentation should also give capacities for humid/frosted conditions. According to Eurovent these 'frosted conditions' are to be calculated by multiplying 'dry capacities' with a factor 1.15. These data can be found in the capacity tables, in the columns marked "frosted".

Capacities

Frosted conditions

- Lightly frosted coil.
- Relative humidity 85 %.
- Suction gas superheating 62% of the temperature difference (DT₁), with a minimum of 3.5 K.
- Refrigerant liquid temperature 30 °C (for $t_0 = -20\text{ °C}$ and below: liquid temperature 10 °C).

Evaporating temperature t_0

Evaporating temperature t_0 is the saturated temperature according to the pressure at the suction outlet of the cooler.

Dry conditions

Cooling capacity where no condensation or ice build-up occurs on the coil (100% sensible cooling). This condition is used by Eurovent to standardise capacity ratings but should not be used when selecting coolers.

For cooler selection use the columns marked "frosted".



General Information

The TYR series is a wide and flexible range of industrial air coolers fitted with blow-through or draw-through fans.

Application area: evaporating temperatures of +5 down to -40 °C using either ammonia (R-717), halogen refrigerants, CO₂, or secondary refrigerants.

Capacities (Eurovent SC 2) 5 up to 116 kW.

Air flow 4000 up to 68100 m³/h.

These models have been highly standardised in construction and dimensions, while maintaining flexibility in fin spacings, coil construction and circuiting design.

Other TYR models

TYR-D

Low silhouette dual discharge air coolers.

TYR-F

Air cooler models TYR-F have been optimized for the refrigerated storage of agricultural products. These cooler models are characterised by an optimised capacity / air volume ratio and a relatively low profile.

TYR-A

For airsock application Alfa Laval has developed a special airsock cooler range. These TYR-A models are fitted with an airsock ring and fan motors capable of supplying the extra external pressure that is required for the proper functioning of airsocks.

All TYR, TYR-D, TYR-F and TYR-A models are also available with copper tubing (THOR range).

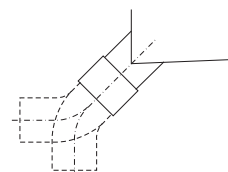
Two-Year Guarantee

Because Alfa Laval has the fullest confidence in the product quality, a two-year full guarantee is given.



Product Configuration

- Finned coil
 - 7 coil block modules
 - 4, 6 or 8 tube rows deep
 - Stainless steel tubing Ø 16 mm
 - Tube pitch 50 x 50 mm square
 - Corrugated Alu-fins
 - Fin spacings 4, 6, 7, 8, 10 and 12 mm.
- 1-7 Fans, blowing or drawing through the coil, available in a range of different executions. Diameters Ø 406 mm up to Ø 710 mm. Fan motors protection class IP55.
- Corrosion resistant casing material: Aluminium/Sendzimir, white epoxy coated (RAL 9003).
- Hinged, enclosed end covers (modules 1 - 4). Larger modules fitted with easily removable end covers.
- Hinged driptray.
 - Drain(s) 32 mm
 - PVC connection, freely adjustable into either horizontal or vertical position.
- Refrigerant distribution optimised to refrigerant applied.
- Refrigerant connections on right hand side (fan side view).
- Fitted with schröder valve on the suction connection for testing purposes (not for R-717).
- Sufficient room for fitting the expansion valve inside.
- Suitable for dry expansion or pumped system. DX-coolers for halogen refrigerants are fitted with Cu-distributor.
- Stickers indicate fan direction and refrigerant in/out.
- Delivery in mounting position. Coolers are mounted on wooden beams. Installation can take place with use of a forklift.
- Design pressure 33 bar (H(C)FC), 27 bar (ammonia) or 6 bar (brine). Higher design pressures on request. Each heat exchanger is leak tested with dry air and finally supplied with a nitrogen pre-charge.





Options

Defrost systems

- Hot gas coil in driptray
- Electric defrost
- Hot glycol defrost
- Water defrost

Electric defrost for air coolers with pumped refrigerant circulation or in glycol execution on special request only.

G1, G2
E1, E2, E4, E5
HW1, HW2
W

Fan ring heater

FRH

Driptray insulation

- Styropore 10 mm + cladding **I 2**
not in combination with electric defrost
- Foamglass 25 mm + cladding **I 3**

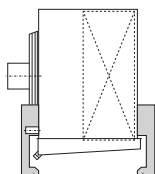
Refrigerant connections left
 (fan side view)

L


Mounting feet

MF

For floor mounting, TYR coolers can be equipped with hot dip galvanized steel mounting feet. The positioning of these is the same as the suspension brackets for ceiling mounting.

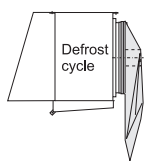
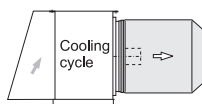

Isolating switch (mounted)

ISM

Shut up® system

S + SH

for TYR-Z only. The system comprises a shut up sock (S) and an inlet hood (SH) to enhance defrost efficiency.

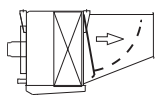


The use of a shut-up® system may lead to a decline in cooling capacity up to max. 5 percent. Please take this into account during selection. When working conditions are such that condensation would freeze during the derosting period, the inlet hood should be insulated.

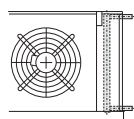
Diffuser + defrost damper

D/DO

Discharge diffuser to increase air throw (D), can also be fitted with a defrost damper valve (O) that closes automatically when the fans are stopped. TYR-B only.


Secondary refrigerant

Air coolers for secondary refrigerant application can be selected with our selection software. Extra information on request.


Stainless steel 304 casing

SSC

Fan motors 400/60/3 or 230/60/1

 Non-standard executions *(on request only)*
Special fan motors :

- Dual fan speed motors
- Variable fan speed motors
- EC fans
- Alternative electrical supply 460/60/3
- Fans for extra external pressure 125 Pa (modules 5,6 and 7)

P

Built in heater coil sections

Driptray Insulation (I)

For specific operational conditions TYR coolers can be fitted with driptray insulation.

Insulation of the driptray is recommended for air coolers with hot gas defrosting used at a room temperature below - 5 °C. For areas with high relative humidity it may also be necessary to insulate other parts of the casing. At extra cost this

Fan Ring Heater (FRH, 230 Volt)

incl. mounting gear

Cooler module	Fan diameter mm	Ring heater power W
1	406	400
2	457	450
3	508	500
4	560	500
5	560	500
6	630	325
7	710	350

driptray insulation can be combined with the usual epoxy coating.

Note : When selecting driptray insulation the overall height "B" of the coolers (see page 20 and 22) increases by the thickness of the insulation material applied.

Selection Example DT₁

Refrigerant	R 404A dx
Selected fin spacing	7 mm
Required cooling capacity	23 kW
Air-on temperature	+2 °C
Evaporating temperature	-5 °C

- 1) $DT_1 = +2 - (-5) = 7 \text{ K}$
- 2) Correction factor $DT_1 / R 404A : 1.15$
- 3) Multiply required capacity with correction factor : $23 \times 1.15 = 26.5 \text{ kW}$.
- 4) Cooler models can be selected in columns 'capacity / frosted' on pages 9 and 10 with a nominal capacity of 26.5 kW.

For the above mentioned conditions the following TYR models can be selected :

- TYR 238-7, nom. cap. 27.1 kW.
- TYR 254-7, nom. cap. 26.8 kW.
- TYR 336-7, nom. cap. 29.5 kW.
- TYR 344-7, nom. cap. 28.6 kW.
- TYR 434-7, nom. cap. 26.8 kW.

Depending on parameters such as *air flow*, *number of fans* and *cooler dimensions* (see tables) a final cooler model selection can take place.

Capacity values under 'Dry Conditions' are reference values for Eurovent conditions.

Standard condition SC	Air on temp. °C	Evaporating temperature °C	Factor dry frosted
SC1	10	0	1.35
SC2	0	-8	1.15
SC3	-18	-25	1.05
SC4	-25	-31	1.01

SC 2 : Nominal capacity for cooling design.

Air-on temperature is the air temperature at the intake side of the coil block.

Correction factors

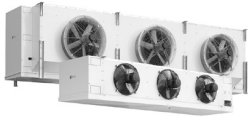
DT1 K	Evaporating temperature °C									
	+5	0	-5	-8	-10	-15	-20	-25	-30	-35
R-404A dx										
6	1.28	1.32	1.38		1.44	1.51	1.58	1.64	1.69	1.72
7	1.06	1.10	1.15		1.20	1.27	1.33	1.39	1.44	1.48
8	0.89	0.93	0.97	1.00	1.03	1.09	1.15	1.21	1.26	1.29
9	0.77	0.80	0.84		0.89	0.95	1.00	1.06	1.11	1.15
10	0.67	0.70	0.74		0.78	0.83	0.89	0.95	1.00	1.04
11	0.59	0.62	0.65		0.70	0.74	0.80	0.85	0.90	0.94
R-134a dx										
6	1.34	1.42	1.50		1.60	1.71	1.82	1.94		
7	1.11	1.17	1.25		1.34	1.43	1.54	1.64		
8	0.94	0.99	1.06		1.14	1.23	1.32	1.42		
9	0.81	0.86	0.92		0.99	1.07	1.16	1.25		
10	0.70	0.75	0.80		0.87	0.94	1.03	1.11		
11	0.62	0.66	0.71		0.77	0.84	0.92	1.00		
R-22 dx										
6	1.34	1.39	1.45		1.52	1.59	1.66	1.73	1.78	1.81
7	1.11	1.15	1.21		1.27	1.33	1.40	1.47	1.52	1.55
8	0.94	0.98	1.03		1.08	1.14	1.21	1.27	1.32	1.36
9	0.81	0.84	0.89		0.94	1.00	1.06	1.12	1.17	1.21
10	0.70	0.74	0.78		0.82	0.88	0.94	1.00	1.05	1.09
11	0.62	0.65	0.69		0.73	0.78	0.84	0.90	0.95	0.99
R-404A pumped system										
6	1.00	1.07	1.13		1.19	1.24	1.29	1.34	1.39	1.44
7	0.82	0.88	0.94		1.00	1.05	1.10	1.15	1.20	1.25
8	0.70	0.75	0.80		0.85	0.90	0.95	1.00	1.05	1.11
9	0.60	0.65	0.69		0.74	0.79	0.84	0.89	0.94	1.00
10	0.52	0.56	0.61		0.65	0.70	0.75	0.80	0.85	0.91
11	0.46	0.50	0.54		0.58	0.62	0.67	0.72	0.78	0.84
R-22 pumped system										
6	1.13	1.21	1.28		1.34	1.39	1.44	1.48	1.53	1.58
7	0.92	0.98	1.05		1.10	1.16	1.21	1.25	1.30	1.36
8	0.76	0.82	0.88		0.93	0.98	1.03	1.08	1.14	1.20
9	0.64	0.70	0.75		0.80	0.85	0.90	0.95	1.01	1.07
10	0.55	0.60	0.65		0.70	0.74	0.79	0.84	0.90	0.97
11	0.48	0.52	0.57		0.61	0.66	0.71	0.76	0.82	0.89
R-717 pumped system (ammonia)										
6	0.96	1.03	1.09	1.12	1.14	1.19	1.22	1.24	1.26	1.26
7	0.79	0.84	0.90	0.93	0.95	0.99	1.02	1.05	1.06	1.07
8	0.66	0.71	0.76	0.78	0.80	0.84	0.87	0.90	0.92	0.93
9	0.56	0.61	0.65	0.67	0.69	0.73	0.76	0.78	0.80	0.82
10	0.49	0.53	0.57	0.59	0.60	0.64	0.67	0.69	0.71	0.73
11	0.43	0.46	0.50	0.52	0.53	0.56	0.59	0.62	0.64	0.66

Correction factors for other refrigerants, alternative fin materials, coatings and optional coil block configurations on request.

Capacities R-404A

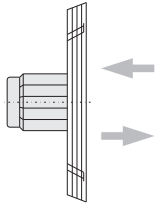
Fin spacing 7 mm

Cooler model TYR	Capacities kW		Air flow m ³ /h	Coil Surface m ²	Int. vol. dm ³	Weight kg	Dimensions		Fans		Air throw (m)		Sound press. dB(A)
	Frosted	Dry cond.					Length A mm	Height B mm	Cap. kW	Nr	Air throw (m)		
	$t_j = -8^\circ\text{C}$ $DT_j = 8\text{K}$	$t_j = -8^\circ\text{C}$ $DT_j = 8\text{K}$									TYR-B	TYR-Z	
414 - 7	8.9	7.8	8640	45.1	19	101	1520	880	0.75	1	29	35	64
416 - 7	12.3	10.7	8580	67.6	29	117	1520	880	0.75	1	28	34	64
418 - 7	15.1	13.1	8450	90.1	38	133	1520	880	0.75	1	28	34	64
424 - 7	17.8	15.5	17300	90.1	32	164	2520	880	0.75	2	29	35	67
426 - 7	24.6	21.4	17200	135.2	48	196	2520	880	0.75	2	28	34	67
428 - 7	30.1	26.2	16900	180.3	64	228	2520	880	0.75	2	28	34	67
434 - 7	26.8	23.3	25900	135.2	45	227	3520	880	0.75	3	29	35	69
436 - 7	36.9	32.1	24700	202.8	67	275	3520	880	0.75	3	28	34	69
438 - 7	45.2	39.3	25300	270.4	90	323	3520	880	0.75	3	28	34	69
444 - 7	35.7	31.0	34600	180.3	58	290	4520	880	0.75	4	29	35	70
446 - 7	49.2	42.8	34300	270.4	86	354	4520	880	0.75	4	28	34	70
448 - 7	60.2	52.4	33800	360.5	115	418	4520	880	0.75	4	28	34	70
454 - 7	44.6	38.8	43200	225.3	70	353	5520	880	0.75	5	29	35	71
456 - 7	61.5	53.5	42900	338.0	106	433	5520	880	0.75	5	28	34	71
458 - 7	75.3	65.4	42300	450.7	141	513	5520	880	0.75	5	28	34	71
464 - 7	53.5	46.6	51900	270.4	83	416	6520	880	0.75	6	29	35	72
466 - 7	73.8	64.2	51500	405.6	125	512	6520	880	0.75	6	28	34	72
468 - 7	90.3	78.5	50700	540.8	166	608	6520	880	0.75	6	28	34	72



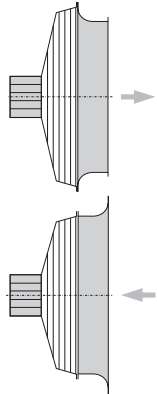
Fans

In view of its flexible construction, in principle TYR can be supplied with any desired fan. Depending on the application there is a standard series of fans which match TYR perfectly. These fans can be supplied in both blow-through and draw-through versions.



Execution

The fans are fitted with balanced aluminium or polyamide fan blades. Plate fans are fitted with robust electrolytically galvanized and epoxy coated fan guards according to DIN 31001 and are mounted in vibration dampers. Short case fans are fitted with stainless steel fan guards.



Enclosed design spray-tight motors, protection class IP-55.

All motors, with the exception of the 0.37 kW, 230/50/1 motor, are equipped with a thermal safety device built in the windings, connected to separate terminals in the box. This safety device can therefore be integrated into the control circuit. The electrical control should be arranged preferably with a manual reset device in order to prevent continuous on/off switching (tripping) of the motors. Cable inlet ranges from 7 up to 12 mm.

Air throw

Air throws as given in the tables are for ceiling mounted coolers at $t = 20\text{ °C}$, an unrestrained air flow in the cold room and a minimal air velocity of 0.25 m/s at air throw distance.

Sound pressure dB(A)

Sound pressure as given in the tables are sound pressure levels in dB(A) according to EN 13487 at 5 m distance in free field conditions. Values may deviate depending on situations at site. The table below gives calculated sound pressure corrections at various distances.

Distance m	Correction dB(A)
1	+ 14
2	+ 8
3	+ 4
4	+ 2
5	0
10	- 6
20	-12
50	-20

Fans 50 Hz / 1500 rpm

Fan motor W	Motor voltage* V	Electric capacity		Adj. values overload relays A			Cable inlet
		nom. kW	abs. kW***	0°C	-20°C	-40°C	
250	230/400/3	0.25	0.37	1.1	1.1	1.2	2 x M20 x 1.5
220	230/1	0.22	0.37	2.6	2.8	2.9	2 x M20 x 1.5
370	230/400/3	0.37	0.50	1.4	1.4	1.5	2 x M20 x 1.5
370	230/1**	0.37	0.50	3.7	4.0	-	2 x M20 x 1.5
550	230/400/3	0.55	0.70	1.7	1.8	2.0	2 x M20 x 1.5
550	230/1	0.55	0.70	5.5	6.0	6.2	2 x M20 x 1.5
750	230/400/3	0.75	0.70	2.1	2.3	2.4	2 x M20 x 1.5
1200	230/400/3	1.20	1.20	3.0	3.2	3.4	2 x M20 x 1.5
2400	230/400/3	2.40	2.80	6.8	7.3	7.8	2 x M20 x 1.5

* Motor windings 230 Volt.

** These 230/50/1 motors are suitable for temperatures down to -20 °C and are not provided with a thermal safety device in the windings.

*** Absorbed fan motor energy is measured in under laboratory conditions at ambient temperature 20 °C. These values may vary depending on local conditions.



Defrost Systems

Several forced defrost systems are available. Each defrost system is optimised for specific applications and ambient conditions.

Recommended Defrost System

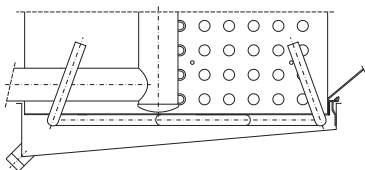
Air in Temperature °C	+5	0	-5	-15	-25	-35
Hotgas defrost G 1		■	■			
G 2 G 2 + I			■	■	■	■
Electric Defrost E1 E1 + I 3		■	■	■	■	■
E2 E2 + I 3		■	■	■	■	■
E4		■	■			

Temperatures may vary depending on operating conditions.

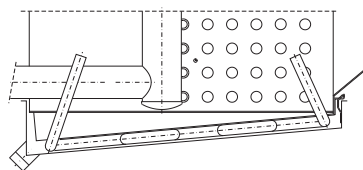
Hot Gas Defrost (G)

The driptray can be fitted with a defrost coil (G) to bring it rapidly up to temperature by means of hot gas. The following G-systems are available :

- G1** For modules 1, 2, 3 and 4 only :
Air on temperature down to - 5 °C.
Defrost coil under the coil block.
- G2** Air on temperature down to - 25 °C.
Defrost coil in the drip tray.
- G2 + I** Air on temperature down to - 35 °C.
G2, additionally equipped with an insulated double driptray.



Hot gas defrost G1
For modules 1, 2, 3 and 4 only.



Hot gas defrost G2

Electric Defrost (E)

Stainless steel heater elements placed in additional tubes between the evaporator tubes. The elements for the driptray are fitted to the bottom of the inner tray.

Both coil and driptray have the same elements. Standard voltage per element 230 V.

Connection to 230 V / 1 phase or 400 V / 3 phase, connected in star with Zero-Wire. Total defrost power is given for 400 V / 3 phase with Zero-Wire.

All elements can be withdrawn at the refrigerant connection side. The driptray elements can be taken out after removal of the outer tray.

The heater elements are pre-wired and are connected to one or more terminal boxes.

Depending on the ambient temperature and air humidity a number of E-executions are available.

- E1** Air on temperature down to - 25 °C.
Electric stainless steel defrost elements in the driptray. For use in combination with for example hot gas defrost in the coil block.
- E1 + I 3** Air on temperature down to - 35 °C.
E1, additionally equipped with an insulated double driptray. Recommended for general use in the low-temperature region.
- E2** Air on temperature down to - 25 °C.
Electric stainless steel defrost elements in the coil block and driptray. Recommended for general use.
- E2 + I 3** Air on temperature down to - 35 °C.
E2, additionally equipped with an insulated double driptray. Recommended for general use in the low-temperature region.
- E4** Air on temperature down to - 5 °C.
Electric stainless steel defrost elements in the coil block and driptray, low duty.
- E5** Electric defrost in diffuser for defrost damper (TYR-B only).

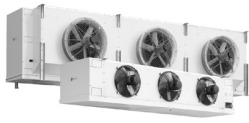
Hot Glycol Defrost (HW)

HW1 Hot glycol defrost in coil and driptray.
High temperatures.

HW2 Hot glycol defrost in coil and driptray.
Low temperatures.

Water Defrost (W)

W Water defrost system for defrosting in the temperature range to -20 °C.



Defrost power kW

8 tube rows deep

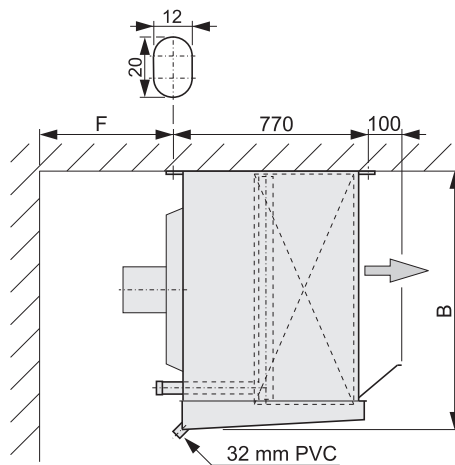
Cooler	Element	E1		E2		E4	
		number of elem.	cap. kW	number of elem.	cap. kW	number of elem.	cap. kW
118	33.03.21	2	2.1	6 + 2	8.5	4 + 1	6.4
128	33.03.31	2	4.0	6 + 2	16.2	4 + 1	12.1
138	33.03.39	2	6.0	6 + 2	23.8	4 + 1	17.9
148	33.03.45	2	7.9	6 + 2	31.5	4 + 1	19.7
158	33.03.52	4	9.8	12 + 4	39.2	8 + 2	29.4
168	33.03.58	4	11.7	12 + 4	46.9	8 + 2	35.2
178	33.03.63	4	13.6	12 + 4	54.6	8 + 2	40.9
218	33.03.21	2	2.1	7 + 2	9.5	5 + 2	7.4
228	33.03.31	2	4.0	7 + 2	18.2	5 + 2	14.1
238	33.03.39	2	6.0	7 + 2	26.8	5 + 2	20.9
248	33.03.45	2	7.9	7 + 2	35.5	5 + 2	27.6
258	33.03.52	4	9.8	14 + 4	44.1	10 + 4	34.3
268	33.03.58	4	11.7	14 + 4	52.7	10 + 4	41.0
278	33.03.63	4	13.6	14 + 4	61.4	10 + 4	47.7
318	33.03.21	2	2.1	10 + 2	12.7	7 + 2	9.5
328	33.03.31	2	4.0	10 + 2	24.2	7 + 2	18.2
338	33.03.39	2	6.0	10 + 2	35.8	7 + 2	26.8
348	33.03.45	2	7.9	10 + 2	47.3	7 + 2	35.5
358	33.03.52	4	9.8	20 + 4	58.8	14 + 4	44.1
368	33.03.58	4	11.7	20 + 4	70.3	14 + 4	52.7
418	33.03.24	2	2.4	10 + 2	14.6	7 + 2	11.0
428	33.03.36	2	4.9	10 + 2	29.5	7 + 2	22.1
438	33.03.43	2	7.4	10 + 2	44.4	7 + 2	33.3
448	33.03.52	4	9.8	20 + 4	58.8	14 + 4	44.1
458	33.03.60	4	12.2	20 + 4	73.2	14 + 4	54.9
468	33.03.64	4	14.6	20 + 4	87.6	14 + 4	65.7
518	33.03.24	2	2.4	13 + 2	18.3	8 + 2	12.2
528	33.03.36	2	4.9	13 + 2	36.9	8 + 2	24.6
538	33.03.43	2	7.4	13 + 2	55.5	8 + 2	37.0
548	33.03.52	4	9.8	26 + 4	73.5	16 + 4	49.0
558	33.03.60	4	12.2	26 + 4	91.5	16 + 4	61.0
618	33.03.27	2	3.1	13 + 2	23.1	8 + 2	15.4
628	33.03.39	2	6.0	13 + 2	44.7	8 + 2	29.8
638	33.03.48	2	8.8	13 + 2	66.3	8 + 2	44.2
648	33.03.58	4	11.7	24 + 4	82.0	16 + 4	58.6
658	33.03.64	4	14.6	24 + 4	102.2	16 + 4	73.0
718	33.03.31	2	4.0	15 + 2	34.3	10 + 2	24.2
728	33.03.45	2	7.9	15 + 2	67.0	10 + 2	47.3
738	33.03.58	4	11.7	30 + 4	99.6	20 + 4	70.3



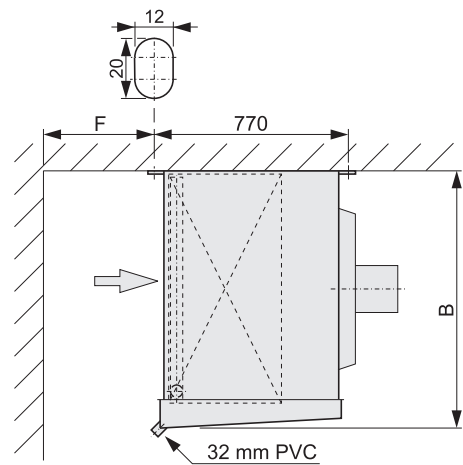
Dimensions

Modules 1-4

Cooler model TYR	Dimensions in mm							
	A	B	C1	C2	C3	D1	D2	F
11*	1320	580	800			660		450
12*	2120	580	1600			1060		450
13*	2920	580	2400			1460		450
14*	3720	580	1600	1600		1060	1600	450
15*	4520	580	2400	1600		1260	2000	450
16*	5320	580	2400	2400		1460	2400	450
17*	6120	580	1600	2400	1600	1660	2800	450
21*	1320	680	800			660		450
22*	2120	680	1600			1060		450
23*	2920	680	2400			1460		450
24*	3720	680	1600	1600		1060	1600	450
25*	4520	680	2400	1600		1260	2000	450
26*	5320	680	2400	2400		1460	2400	450
27*	6120	680	1600	2400	1600	1660	2800	450
31*	1320	880	800			660		500
32*	2120	880	1600			1060		500
33*	2920	880	2400			1460		500
34*	3720	880	1600	1600		1060	1600	500
35*	4520	880	2400	1600		1260	2000	500
36*	5320	880	2400	2400		1460	2400	500
41*	1520	880	1000			760		600
42*	2520	880	2000			1260		600
43*	3520	880	1000	2000		1010	1500	600
44*	4520	880	2000	2000		1260	2000	600
45*	5520	880	2000	1000	2000	1510	2500	600
46*	6520	880	2000	2000	2000	1760	3000	600

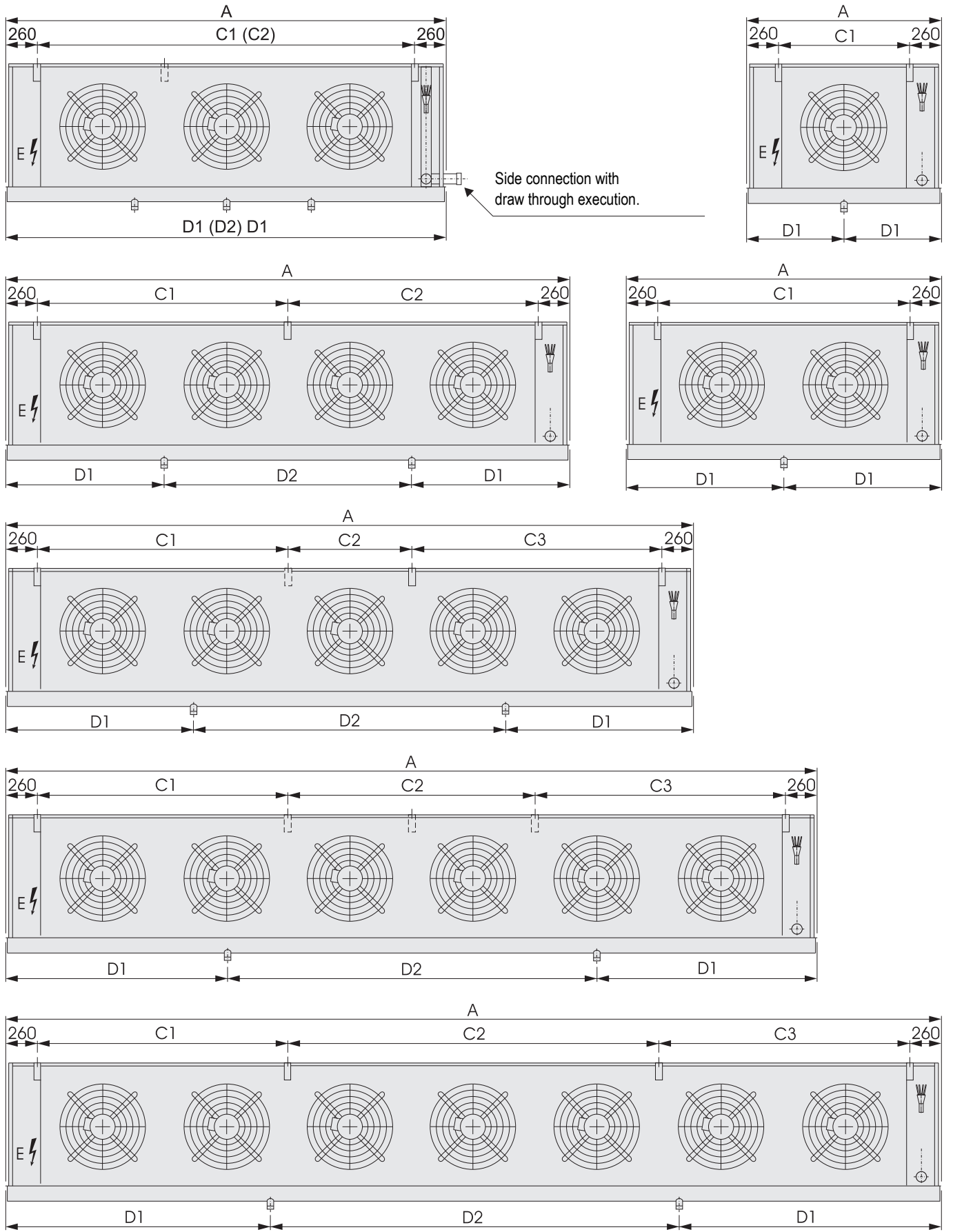


TYR-B module 1 - 4



TYR-Z module 1 - 4

Changes possible without prior notice



Changes possible without prior notice