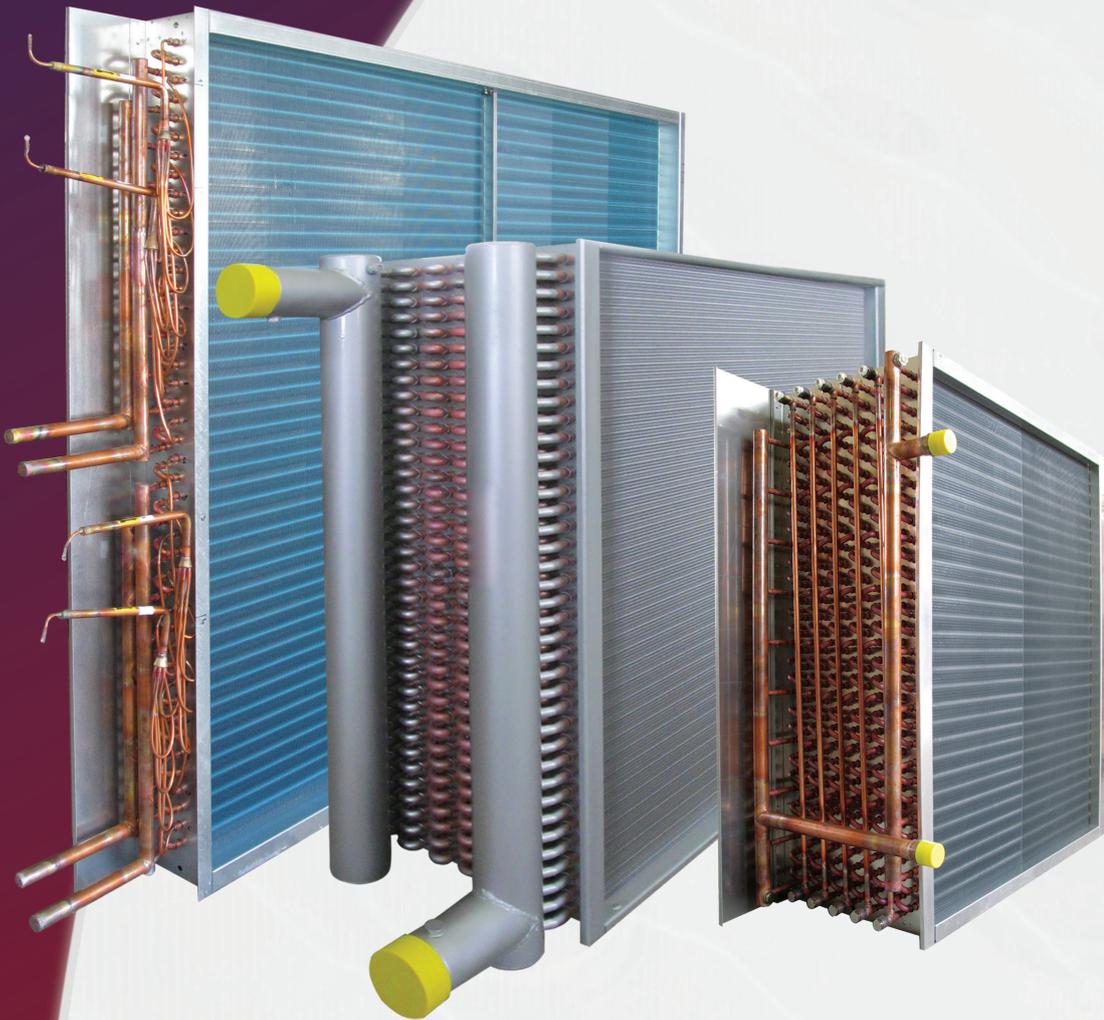


quality · expertise · experience



Heat exchangers

Finned heat exchangers

Fins

- The types of fins:
 - Al 0,12; 0,15; 0,20; 0,25 mm
 - AEpoxy 0,12; 0,15; 0,20 mm
 - AHydro 0,15 mm
 - Copper (Cu) 0,12; 0,18 mm
- Fin form:
 - smooth
 - corrugated

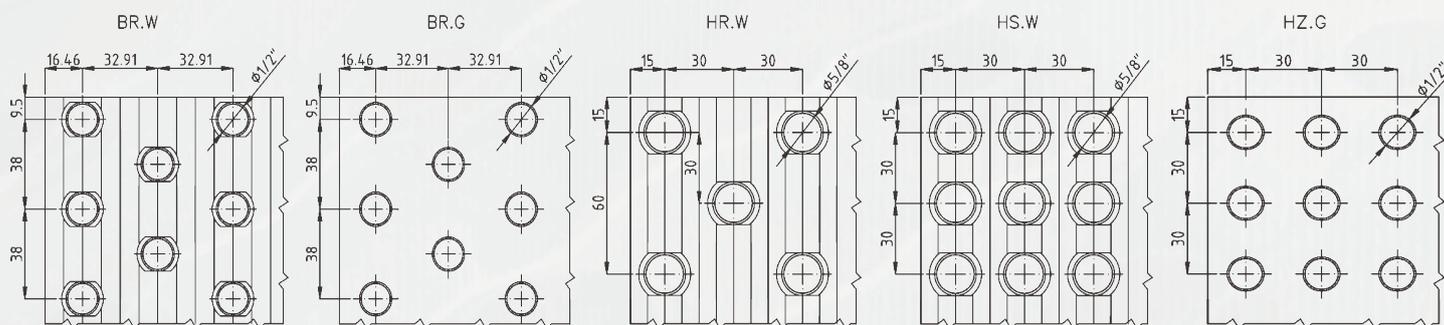
Tubes

- Smooth (material):**
 - Cu 1/2" (12,7 mm); 1/2" x 0,35; 0,7 mm
 - Cu 5/8" (15,875 mm); 5/8" x 0,4; 0,8 mm
- Internally grooved (material):**
 - Cu 1/2" x 0,36 mm
 - Cu 5/8" x 0,4 mm
- Connected with fins by mechanical expansion

Headers (inlet/outlet)

- Stainless steel and copper tubes are processed
- Header connections are terminated by thread (Ms, Fe), flange or ready for soldering
- Venturi distributors with capillary tubes \varnothing 4,5,6,8 a 10 mm are used for evaporators

Geometries



Fins systems

Type	Cu tubes		Geometry		Fin spacing /mm/	Fin form	No. of tubes		No. of rows		Finned length /mm/	
	/zoll/	/mm/	height	depth			min.	max.	min.	max.	min.	max.
BR.W	1/2"	12,70	38	32,91	1,6 - 6,5	corrugated	2	70	1	24	300	3800
BR.G	1/2"	12,70	38	32,91	1,6 - 6,5	smooth	2	70	1	24	300	3800
HR.W	5/8"	15,875	60	30	1,6 - 6,5	corrugated	2	44	1	24	300	3800
HS.W	5/8"	15,875	30	30	1,6 - 5,0	corrugated	2	88	1	24	300	3800
HZ.G	1/2"	12,70	30	30	1,6 - 4,0	smooth	2	88	1	24	300	3800

Note: Other materials are available on request.



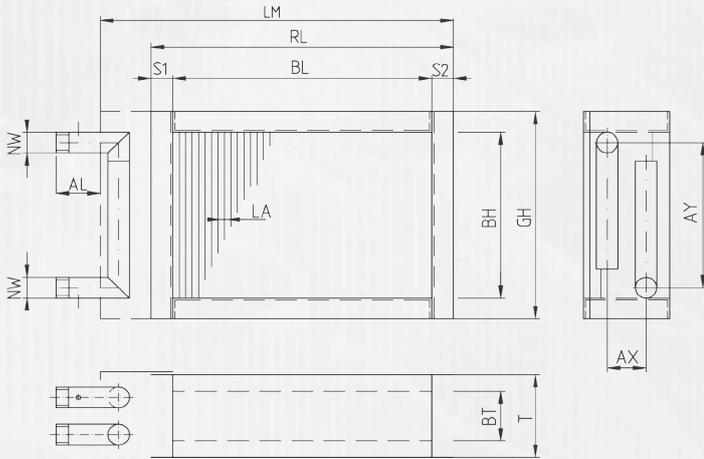
Frames

	Codes	1	2	3	4	/mm/
1	Aluminium	-	1,6	2	3	
2	Galvanised	1	1,5	2	3	
3	Stainless	1	1,5	2	3	
4	Copper	-	1,5	2	-	
5	Brass	-	-	2	-	

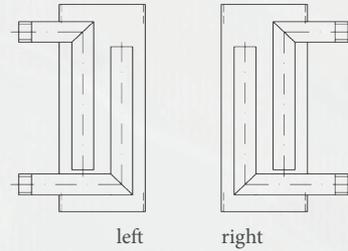
Final inspection

As well as the normal dimensional and visual inspection, all heat exchangers are tested for leaks in water (20°C) using dry air with a pressure up to 25 bar (water exchangers) or nitrogen up to 31 bar (freon exchangers). Other inspection activities, ranging from incoming material inspection and inspection at each processing stage up to final output inspection are carried out according to STN EN ISO 9001:2009/EN ISO 9001:2008.

Standard design



Side headers



- LM - frame + header
- BL - finned length
- BH - finned height
- BT - finned depth
- RL - frame length
- GH - frame height
- T - frame depth
- NW - header diameter
- AL - terminal length
- LA - fin spacing
- AX - header pitch horizontal
- AY - header pitch vertical

Working position

			1	2
Vertical airflow	HW CW SW	V		
	CD	V		
	DX	V		
	ST	V		
Horizontal airflow	HW CW SW	H		
	CD	H		
	DX	H		
	ST	H		

Additional possibilities include:

- heat exchangers with PVC and Al eliminators
- tanks with outlet (galvanised, Al, stainless) and others.

Dimensions of headers

Code	Steel		Code	Copper	
	/inch/			/inch/ /mm/	
1	DN15	1/2"	10	1/2"	15 x 1
2	DN20	3/4"	11	3/4"	22 x 1
3	DN25	1"	12	1"	28 x 1,5
4	DN32	5/4"	13	5/4"	35 x 1,5
5	DN40	6/4"	14	6/4"	42 x 1,5
6	DN50	2"	15	2"	54 x 2
7	DN65	2 1/2"	16	2 1/2"	76,1 x 2
8	DN80	3"	17	3"	88,9 x 2
9	DN100	4"	18	4"	108 x 2,5

Operating values

Type of heat exchanger	Max. pressure /bar/	Temperature /°C/
HW	16	100
SW	16	150
ST	4	150
CW	16	acc. medium **
CD	25	acc. coolant*
DX	acc. coolant *	acc. coolant*

* The most used coolants: R507A , R410A ,R407C, R134A, R22

** Anti-freeze mixtures allowing temperature of -50°C (Et. glycol, Pr. Glycol, Pekasol, Temper,...)

Surface finish:

Nitro-aluminium color is spray-coated only on steel headers, flanges and weld points. Other types of finish, e.g. by epoxy colors and varnishes, powder colors, etc. upon special request.

Highly efficient heat recovery systems (HKVS)

Traditional circuit heat recovery systems achieve a lower rate of efficiency (45 - 60%). Our engineers are able to design systems with heat recovery efficiency of 70 - 75% thanks to the use of top-class software and special circulation designs.

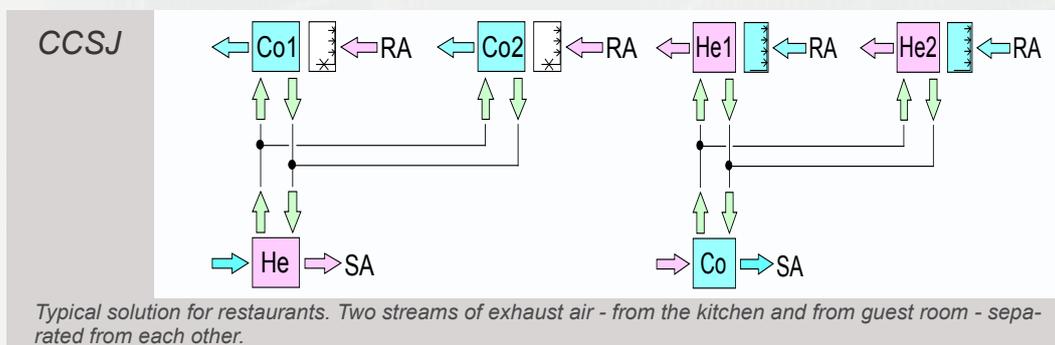
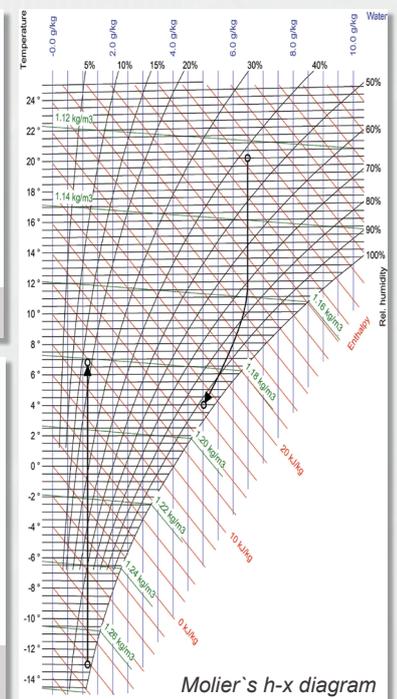
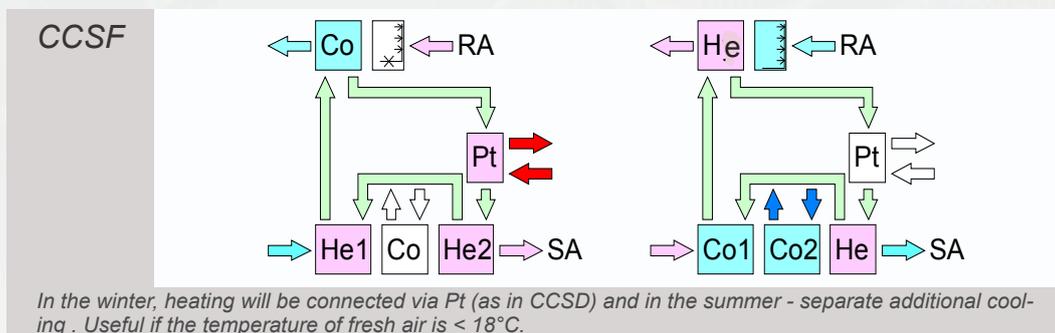
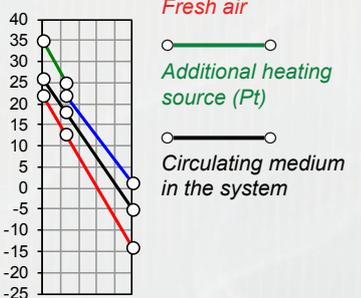
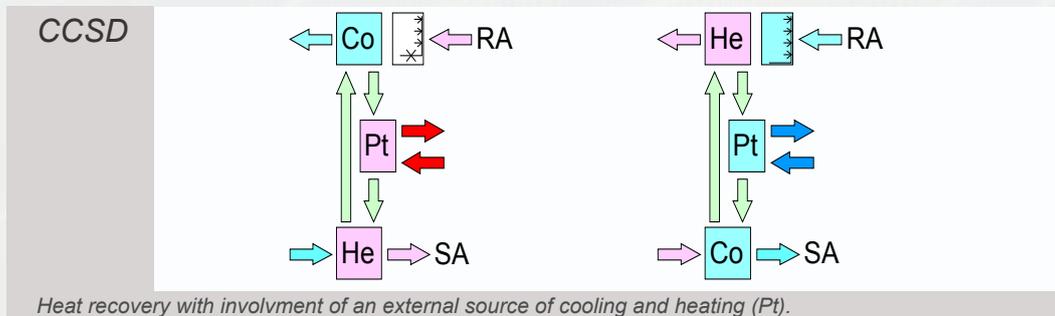
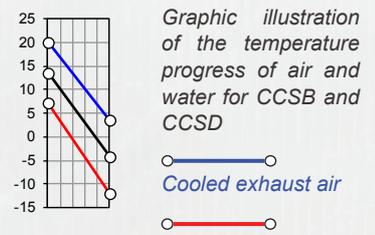
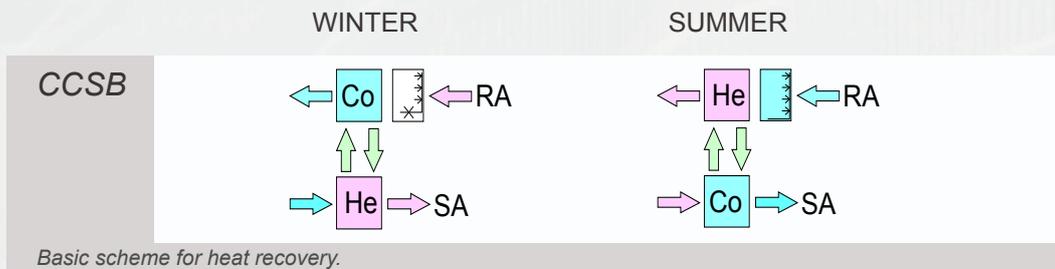
The main advantage of HKVS is that exhaust and supply air can be spatially separated, so there is no mixing of those two air streams.

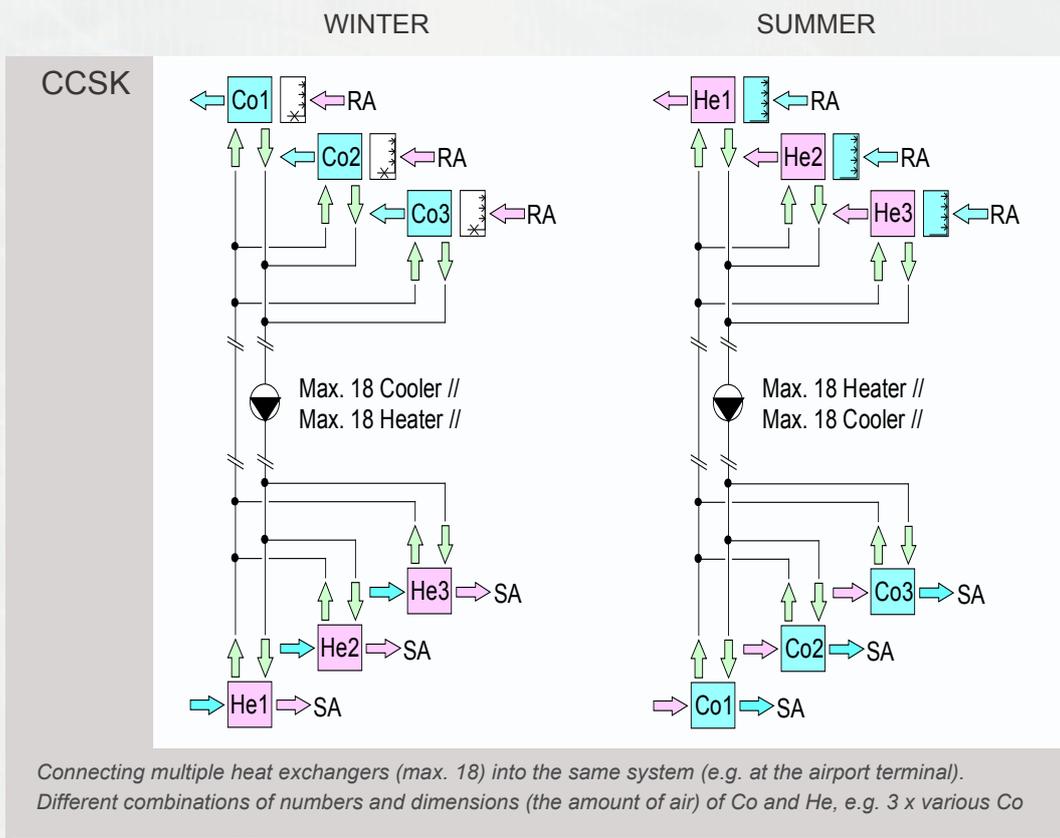
Other advantages:

- high efficiency (70 - 75 %)
- advantageous for the use of alternative energy sources and low-potential waste heat (e.g. solar collectors, heat pumps, waste water from other technological equipment and other resources).
- usable for various forms of polluted air, e.g. from the kitchen, hospitals, laboratories, etc.

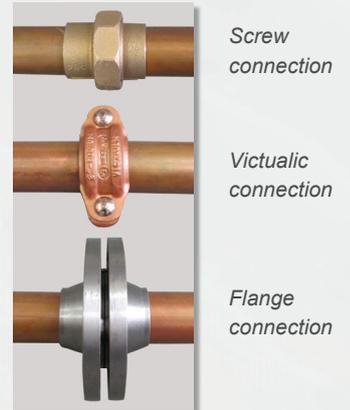


Schemes for heat recovery systems applications

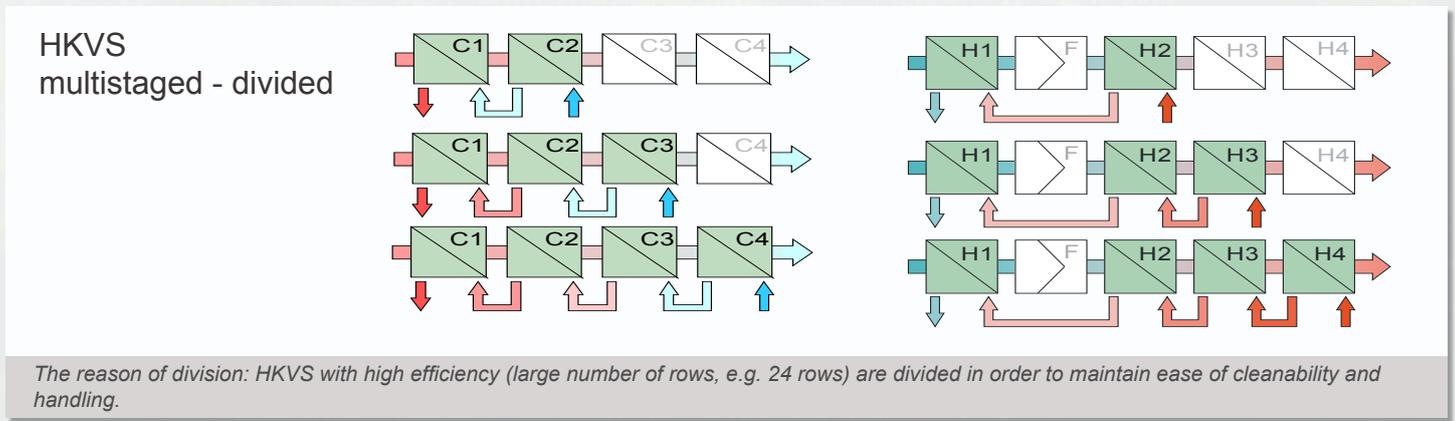




Possibilities for connecting heat exchangers:

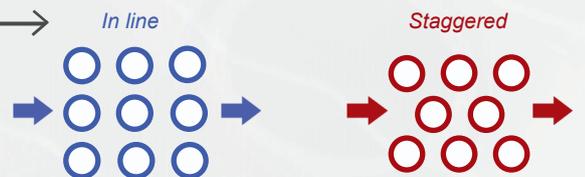


- RA - return air
- Co - heat exchanger - cooler
- Pt - plate heat exchanger /fluid/
- SA - supply air
- He - heat exchanger - heater
- adiabatic humidification passive
- adiabatic humidification active



For the above described applications, we can offer highly efficient heat exchangers. Our design takes into consideration:

- total energy efficiency
- importance of low air pressure loss
- high efficiency of heat exchange surface area (usually heat exchangers with 12 - 24 rows)
- In line or staggered geometries
 - fins Al, AEpoxy, Cu; thickness: 0,15; 0,2 a 0,25 mm
 - fin form: smooth corrugated
 - special interconnection of water circuits
 - elimination of co-current connection



As an important part of HKVS, we recommend to apply a compact hydraulic system with frequency converter.



Heat exchangers code:

HW - BR.G - 2,1 - 1000 - 988 - 12R - 13 - Cu 0,35 - Al 0,15 - V2A - 1 - Cu 2" - E2 - VL

HW - Type of heat exch.

HW - water heater
 SW - hot water heater
 CW - water cooler
 ST - steam heater
 CD - condenser
 DX - evaporator

BR - Geometry

BR - 38 x 33
 HZ - 30 x 30
 HS - 30 x 30
 HR - 60 x 30

G - Fin form

W - corrugated
 G - smooth

2,1 - Fin spacing

1000 - Finned length

988 - Finned height

12R - No. of rows

13 - No. of circuits

Cu 0,35 - Al 0,15

Finned thickness - 0,12; 0,15; 0,20; 0,25 mm

Al - Standard Al foil
 AE - Al-Epoxid lacquered foil
 AH - Hydrophilic foil
 Cu - Copper fin

Tube thickness - 0,35; 0,7; 0,4; 0,8 mm

Cu - smooth tube
 Cx - internally grooved

V2A - Frame

FeZn
 Alu
 V2A
 V4A
 Cu

1 - No. of external circuits

Cu 2" - Header

Header connections:

Brass nipple (MPT)
 Brass socket (FPT)
 Threaded flange (Fe)
 Welding flange (Fe)
 Victaulic

E2 - The way of bleeding

E0 - any E+E
 E1 - standard E+E
 E2 - internal E+E (HKVS)

VL - Position of headers

V - Vertical H - Horizontal
 L, R - direction of airflow:
 L - left, R - right

Note: Besides direct connection (see pic.), there is an alternative connection in direction, respectively against airflow direction.

