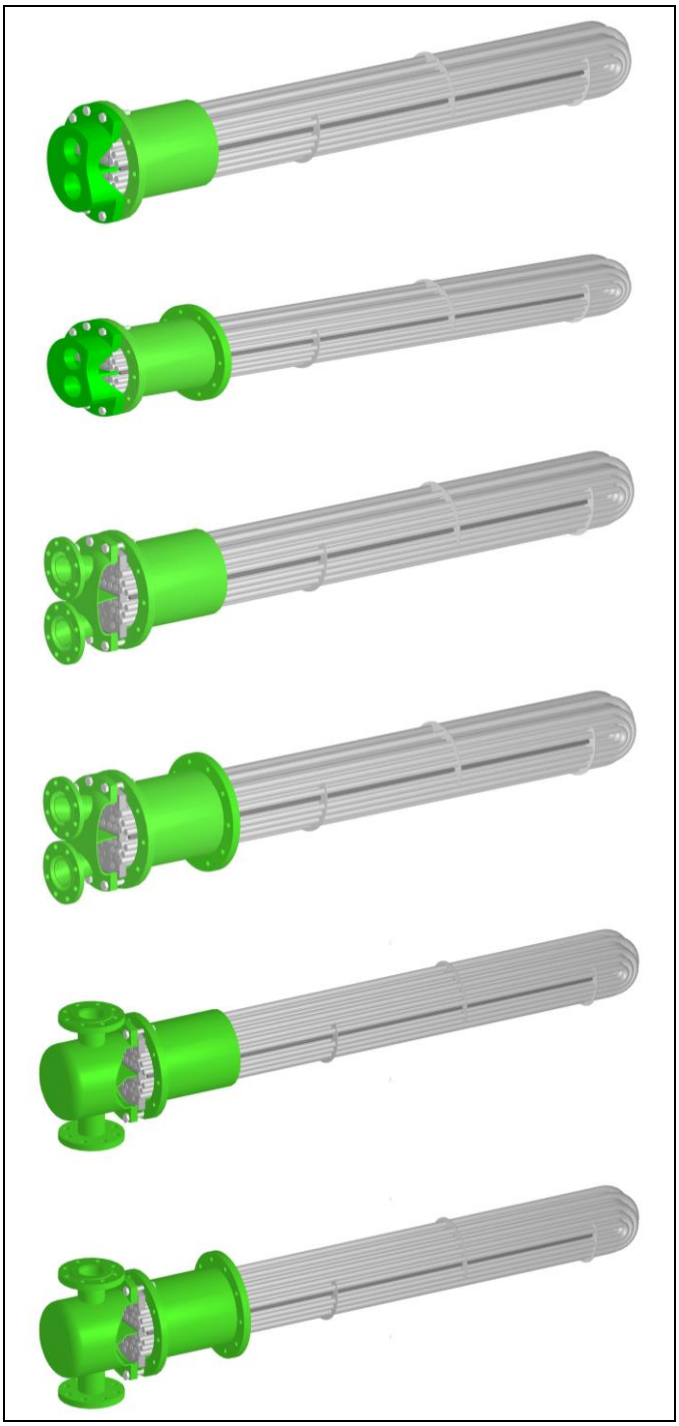
HEAT EXCHANGERS for TANKS – BEUV Series

GREEN line

BEUV/E	
02	2020



DESCRIPTION

The “BEUV” heat exchangers have been calculated and designed so that to obtain a large series of models that differ in size and surface exchange.
They are available with 2 or 4 steps to ensure the most of the heat transfer fluids used.

They are designed an built according to the following Directive:

PED 2014/68/UE with basic calculation code EN13445 Ed. 2014; on request can be designed with calculation according to ASME code VIII Div. 1 or AD2000 .
They are classified with different categories, depending on the design pressure, on the volumes of the circuits or compartments and on the fluid types.
The Directive provides for two groups:
Dangerous fluids Group 1 (gases or liquids with vapor pressure> 0.5 bar),
Non dangerous fluids Gruppo 2 (gases or liquids with vapor pressure< 0.5 bar).
The Directive is exempt for pressure ≤ 0.5 bar.
In the following tables are defined the categories as a function of the fluid groups.

ATEX 2014/34/UE
II 2G/D Exh IIB T6….T1 Gb – Exh IIIC T6….T1 Db
Non-electrical equipment for potentially explosive atmospheres.

They consist of a basic cylinder head 2 or 4 steps (or more on request) , lowered with front connections, or cylindrical with perpendicular connections, of a shell and of a removable “U” tube bundle made of by "U" tubes just rolled or welded and rolled on a single plate.
The typical configuration of the "U" tubes allows to absorb any thermal expansion that are created during the exchange process.

A proper configuration, grants a wide choice of materials including carbon steel and stainless steel; other materials are available on request.

The "BEUV" series is used for heat exchange in the tanks, the baffles only serve to maintain the compactness of the tube bundle.

There are two versions of the neck, one to be welded to the tank, the other to be flanged to a flange or to a further flanged stub pipe

There are two versions of the neck, one to be welded to the tank or to the tank, the other to be flanged to a flange or to a further flanged stub pipe (in this case we must consider the dead zone of the second socket and stretch accordingly the tube bundle).

The heat exchangers are specially designed for industrial heat transfer fluids such as steam, hot water, thermal oil, water and other fluids.



PED	***ATEX***
Various modules	***II 2 G/D Exh IIB T6….T1 Gb***
CE 1214	***Exh IIIC T6….T1 Db***
	CE 1370

CONFLOW s.p.a.

COMPANY WITH QUALITY SYSTEM CERTIFIED BY DNV GL = ISO 9001 =

Via Lecco, 69/71
20864 AGRATE BRIANZA (MB)
Tel. 039/651.705 - 650.397
Fax 039/654.018
www.conflow.it

CONFIGURATION - materials

Head	Carbon Steel
	Stainless steel AISI 304
	Stainless steel AISI 316
	Other materials on request
Gaskets	Tecnograph GR th. 3 mm
	Other materials on request
Bolts and nuts	A193B7 + A194 2H
	A193B8 + A194 Gr.8
	A193 B8M + A194 Gr.8M
Tubes plate	Carbon Steel
	Stainless steel AISI 304
	Stainless steel AISI 316
	Other materials on request
Tubes – pitch 24 **Rolled to the tubes plate**	Fe 35.2 Ø 18 x 1,5
	Stainless Steel AISI 304 A249 Ø 18 x 1 oppure 18 x 1,5
Thermal oil version **Rolled and welded to the tubes plate**	Stainless Steel AISI 316 A249 Ø 18 x 1 oppure 18 x 1,5
	Other materials and dimensions on request
Neck to be inserted in the tank	Carbon Steel
	Stainless steel AISI 304
	Stainless steel AISI 316
	Other materials on request
Baffles	Carbon Steel
	Stainless steel AISI 304
	Stainless steel AISI 316
	Other materials on request

Product codification system

Example code

VBEU	2	C	1	04	02	P12	18	C	X40	CS

Series identification		N° steps		Head type		Ø Heat exchanger		Heat exchanger lenght		N° baffles		Design pressure (bar)		Ø Tubes	
	2	2 steps	**F**	Screwed	**1**	Ø133	**04**	400	**02**	2	**P12**	12	**18**	18
	4	4 steps	**R**	Lowered	**2**	Ø168	**05**	500	**04**	4	**P16**	16	**19**	19
			C	Cylindrical	**3**	Ø219	**07**	700	**06**	6			**25**	25
					4	Ø273	**09**	900	**08**	8				
					5	Ø324	**11**	1100	**10**	10				
					6	Ø356	**13**	1300						
					7	Ø406	**15**	1500						
					8	Ø456	**16**	1600						
					9	Ø508	**18**	1800						
							19	1900						
							20	2000						
							22	2200						
							23	2300						
							24	2400						
							25	2500						
							27	2700						
							28	2800						
							29	2900						
							31	3100						
							32	3200						
							33	3300						
							35	3500						
							36	3600						
							39	3900						
							41	4100						
							47	4700						
							52	5200						

Follows at pag 4

Products identification system

Follows example code

VBEU	2	C	0	04	02	P12	18	C	X40	CS

Tube execution

C	Double undercuts
M	Expanded
S	Welded and expanded

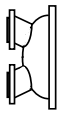
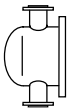
Material

X40	Stainless steel AISI304
X30	Tubes, plates, neck A304 other carbon steel
X20	Tubes, plates, head A304 Carbon steel neck
X10	Tubes, plates A304 resto in Acc. Carb.
X00	Tubi AISI304 other carbon steel
K40	Stainless steel AISI316
K30	Tubes, plates, neck A316 other carbon steel
K20	Tubes, plates, head A316 Carbon steel neck
K10	Tubes, plates A316 other carbon steel
K00	AISI316 tubes other carbon steel
F00	Iron tubes other carbon steel
C00	Copper tubes other carbon steel
Y00	Special materials

Tank side connections

CS	Welding neck
CF	Flanged neck

CONFIGURATION - PED – design pressure and categories (tables–groups)

Explanation drawings				
				
Front Head Screwed connections	Head with flanged front connections	Cylindrical head Flanged perpendicular connections	Neck to be welded To the tank	Flanged neck
			art.4 par.3	

Side	Design pressure		Misure 1								
			104	105	107	109	111	113	115	118	120
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C	Art.4 Par.3								
	Tab.4 Gr. 2	12 bar @ 110 °C (1)	Art.4 Par.3								
	Tab.2 Gr. 2	12 bar @ 191.7 °C (2)	Art. 4 Par.3							I°	
			Art. 4 Par.3						I°		
			Art. 4 Par.3					I°			
		16 bar @ 204.4 °C	I°								

Side	Design pressure		Misure 2						
			207	209	211	213	215	218	220
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C	Art.4 Par.3						
	Tab.4 Gr. 2	12 bar @ 110 °C (1)	Art.4 Par.3						
	Tab.2 Gr. 2	12 bar @ 191.7 °C (2)	Art. 4 Par.3	I°					
			I°						
			I°						
		16 bar @ 204.4 °C	I°				II°		

Note (1) The design pressure of 12 bar @ 110 °C is valid for all stainless steel AISI 304 – AISI 316 versions.

Note (2) The design pressure of 12 bar @ 191.7 °C is valid for all stainless steel AISI 304 – AISI 316 versions.

CONFIGURATION - PED – design pressure and categories (tables–groups)

Side		Design pressure		Misure 3					
				309	311	313	315	318	320
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		Art.4 Par.3					
	Tab.4 Gr. 2	12 bar @ 110 °C (1)		Art.4 Par.3					
	Tab.2 Gr. 2	12 bar @ 191.7°C (2)		I°				II°	
				I°	II°				
		16 bar @ 204.4 °C		II°					

Side		Design pressure		Misure 4						
				409	411	413	415	418	420	424
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		Art.4 Par.3					I°	
	Tab.4 Gr. 2	12 bar @ 110 °C		Art.4 Par.3						
	Tab.2 Gr. 2	12 bar @ 191.7°C (2)		II°						
				II°						
		16 bar @ 204.4 °C		II°						

Side		Design pressure		Misura 5						
				511	513	515	518	520	524	527
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		I°						
	Tab.4 Gr. 2	12 bar @ 110 °C (1)		Art.4 Par.3						
	Tab.2 Gr. 2	12 bar @ 191.7°C (2)		II°						
				II°						
		16 bar @ 204.4 °C		II°			III°			

Note (1) The design pressure of 12 bar @ 110 °C is valid for all stainless steel AISI 304 – AISI 316 versions.

Note (2) The design pressure of 12 bar @ 191.7 °C is valid for all stainless steel AISI 304 – AISI 316 versions.

CONFIGURATION - PED – design pressure and categories (tables–groups)

Side		Design pressure		Misure 6						
				615	616	619	622	625	628	631
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		I°						
	Tab.4 Gr. 2	12 bar @ 110 °C (1)		Art.4 Par.3						
	Tab.2 Gr. 2	12 bar @ 191.7°C (2)		II°				III°		
				II°	III°					
		16 bar @ 204.4 °C		III°						

Side		Design pressure		Misure 7					
				718	720	723	725	729	733
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		I°					
	Tab.2 Gr. 2	12 bar @ 110 °C (1)		Art.4 Par.3					
	Tab.2 Gr. 2	declassate 8 bar @ 175,4 °C (3)		II°			N.A.		
				II°		N.A.			
		16 bar @ 204.4 °C		III°					

Side		Design pressure		Misure 8						
				820	822	825	829	832	835	839
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		I°						
	Tab.4 Gr. 2	12 bar @ 110 °C (1)		Art. 4 Par.3						
	Tab.2 Gr. 2	16 bar @ 204.4 °C		IV						

Side		Design pressure		Misure 9								
				920	923	925	928	931	936	941	947	952
Tubes	Tab.3 Gr. 1	6 bar @ 350 °C		I°								
	Tab.4 Gr. 2	12 bar @ 110 °C (1)		Art. 4 Par.3								
	Tab.2 Gr. 2	16 bar @ 204.4 °C		IV								

N.A. = not applicable

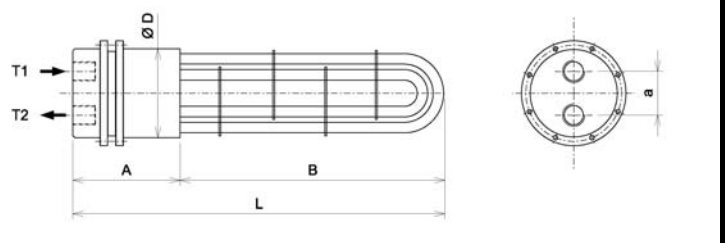
Note (1) The design pressure of 12 bar @ 110 °C is valid for all stainless steel AISI 304 – AISI 316 versions.

Note (2) The design pressure of 12 bar @ 191.7 °C is valid for all stainless steel AISI 304 – AISI 316 versions.

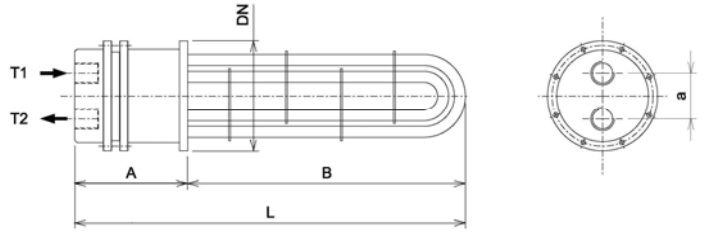
Nota (3) The design pressure of 8 bar @ 175,4 ° is valid for all stainless steel AISI 304 – AISI 316

Models - Dimensions in mm, Connections and Weights in Kg.

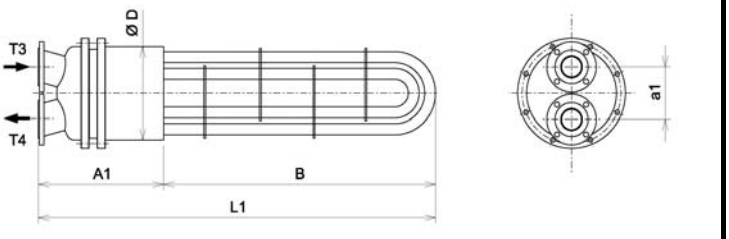
Models configuration Misure 1 – " P12 - P16 "



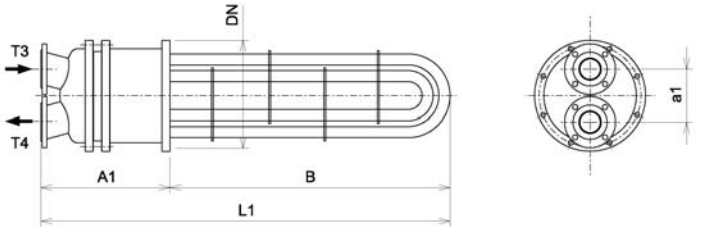
Mod.	104	105	107	109	111	113	115	118	120
Weight Kg	16	18	21	26	30	34	39	44	48



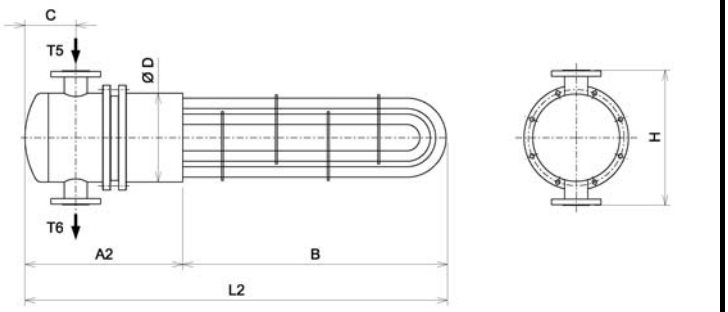
Mod.	104	105	107	109	111	113	115	118	120
Weight Kg	19	21	24	29	33	37	42	47	51



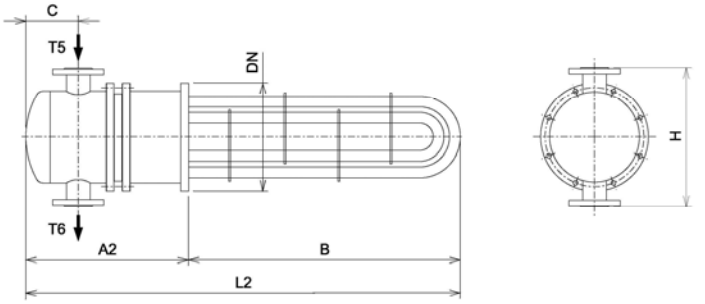
Mod.	104	105	107	109	111	113	115	118	120
Weight Kg	19	21	24	29	33	37	42	47	51



Mod.	104	105	107	109	111	113	115	118	120
Weight Kg	22	24	27	32	36	40	45	50	54

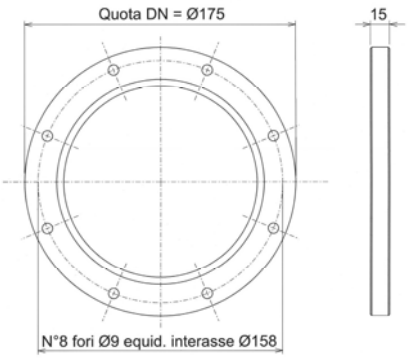


Mod.	104	105	107	109	111	113	115	118	120
Weight Kg	21	23	26	31	35	40	44	49	53



Mod.	104	105	107	109	111	113	115	118	120
Weight Kg	24	26	29	34	38	43	47	52	56

Gas Female threads According Rp ISO 7 – Flanges according to EN 1092-1 (Other executions on request)

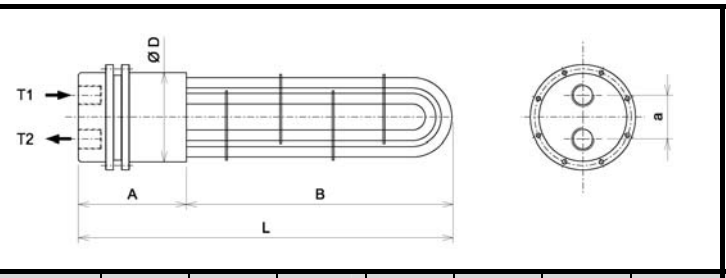
Misure	Mod.	ØD	Head connections				Neck connection	
			T1-T2		T3-T4	T5-T6	Smooth tube – Ø D	Flanged according to our std - DN
			2 steps	4 steps	2 - 4 steps			
1	104	133	Ø 1.1/2" Gas	Ø 1.1/4" Gas	DN 40 PN 16	DN 40 PN 40 (1)	Øe 133 x 4 Carbon steel Øe 133 x 3 St. steel	
	105							
	107							
	109							
	111							
	113							
	115							
	118							
	120							

(1) Thermal oil execution design pressure P06 – 6 bar @ 350 °C flanged PN 16

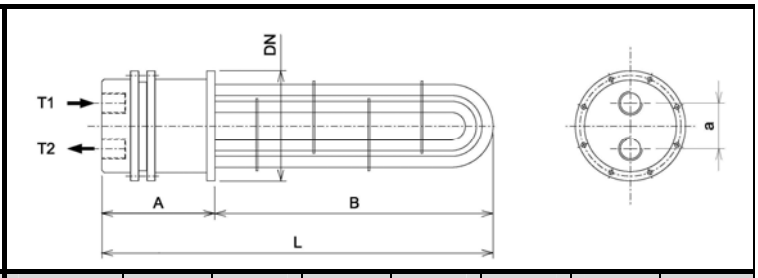
Misure	Mod.	A	A1	A2	B	C	a	a1	H	L	L1	L2
1	104	183	243	328	273	100	58	151	270	456	516	601
	105				373					556	616	701
	107				573					756	816	901
	109				773					956	1016	1101
	111				973					1156	1216	1301
	113				1173					1356	1416	1501
	115				1373					1556	1616	1701
	118				1673					1856	1916	2001
	120				1873					2056	2116	2201

Models - Dimensions in mm, Connections and Weights in Kg.

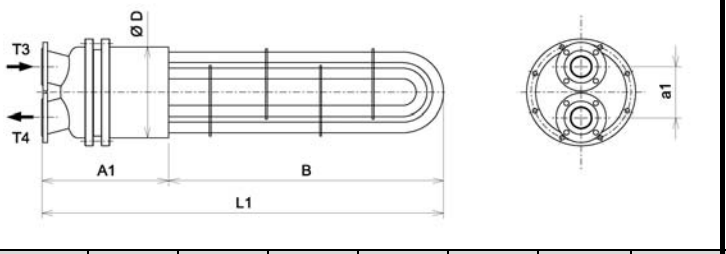
Models configuration Misure 2 – " P12 - P16 "



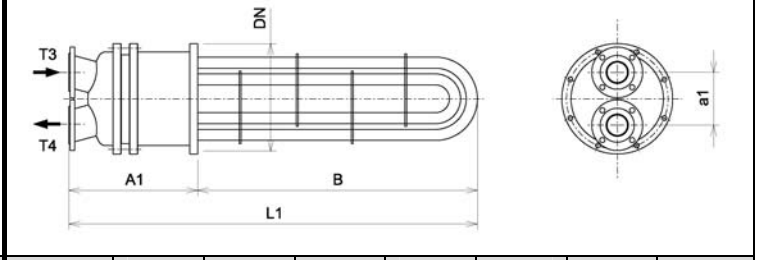
Mod.	207	209	211	213	215	218	220
Weight Kg	40	42	45	49	54	61	65



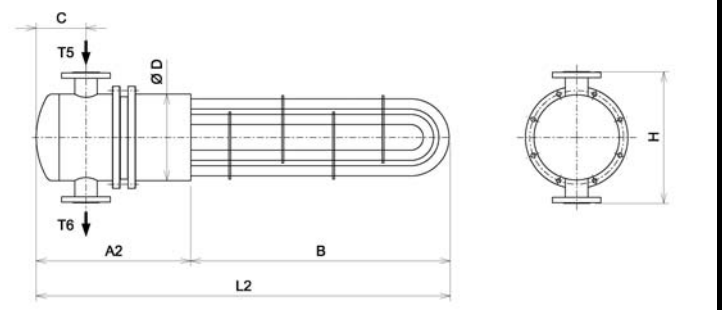
Mod.	207	209	211	213	215	218	220
Weight Kg	43	45	48	52	57	64	68



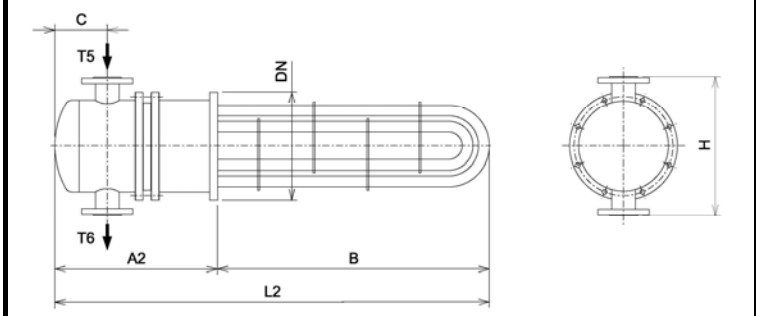
Mod.	207	209	211	213	215	218	220
Weight Kg	42	44	47	51	56	63	67



Mod.	207	209	211	213	215	218	220
Weight Kg	45	47	50	54	59	66	70



Mod.	207	209	211	213	215	218	220
Weight Kg	46	48	50	54	59	66	71



Mod.	207	209	211	213	215	218	220
Weight Kg	49	51	53	57	62	69	74

Gas Female threads According Rp ISO 7 – Flanges according to EN 1092-1 (Other executions on request)

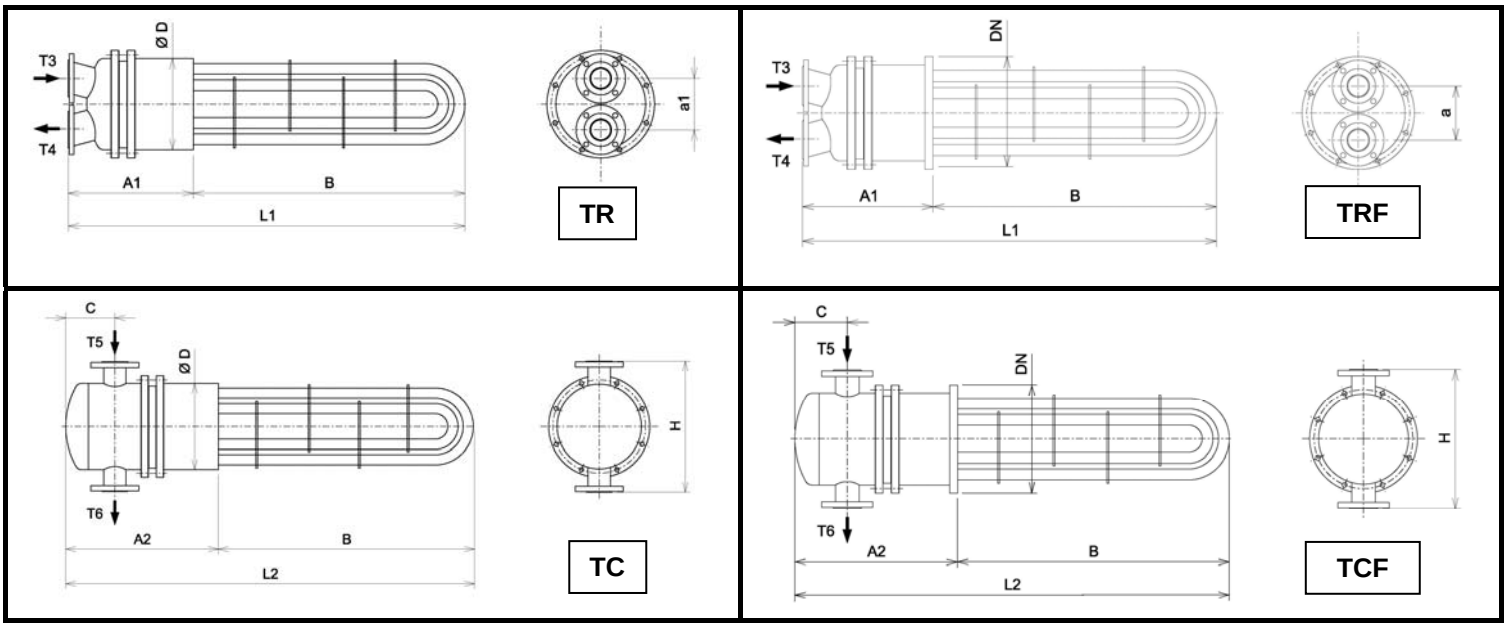
Misure	Mod.	ØD	Head connections				Neck connection	
			T1-T2		T3-T4	T5-T6	Smooth tube – Ø D	Flanged EN 1092 – 1 - DN
			2 steps	4 steps	2 - 4 steps			
2	207	133	Ø 1.1/2" Gas	Ø 1.1/4" Gas	DN 40 PN 16	DN 40 PN 40 (1)	Øe 168,3 x 4 carbon st. Øe 168,3 x 3 st. steel	DN 150 PN 16
	209							
	211							
	213							
	215							
	218							
	220							

(1) Thermal oil execution design pressure P06 – 6 bar @ 350 °C flanged PN 16

Misure	Mod.	A	A1	A2	B	C	a	a1	H	L	L1	L2
2	207	183	278	378	632	135	70	167	320	815	910	1010
	209				832					1015	1110	1210
	211				1032					1215	1310	1410
	213				1232					1415	1510	1610
	215				1432					1615	1710	1810
	218				1732					1915	2010	2110
	220				1932					2115	2210	2310

Models - Dimensions in mm, Connections and Weights in Kg.

Models configuration Misure 3 / 4 / 5 / 6 / 7 – " P12 - P16 "



Flanges according to EN 1092-1 (Other executions on request)

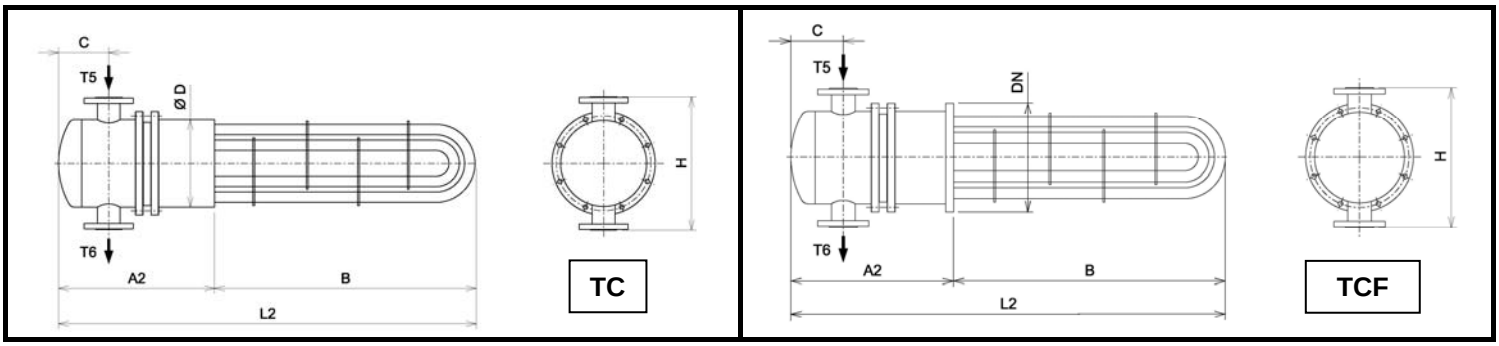
Misure	Model	Ø D	A1	A2	B	C	a1	H	L1	L2	Head connections T3-T4	Head connections T5-T6	Neck connections Smooth Ø D	Neck connections Flanged EN 1092-1 DN	Weight Kg TR	TRF	TC	TCF
											2-4 steps							
3	309	219	311	426	799	140	167	380	1110	1225	DN 65 PN 16	DN 65 PN 40 (1)	219,1x4.5 Carbon st. 219,1x4 St. steel	DN 200 PN 16	65	70	69	74
	311				999				1310	1425					71	76	76	81
	313				1199				1510	1625					78	83	82	87
	315				1399				1710	1825					84	89	90	95
	318				1699				2010	2125					96	101	101	106
	320				1899				2210	2325					103	108	108	112
4	409	273	347	486	835	164	210	460	1182	1321	DN 80 PN 16	DN 80 PN 40 (1)	273x3.96 Carbon st. 273x4 St. steel	DN 250 PN 16	83	93	92	102
	411				1035				1382	1521					92	102	101	111
	413				1235				1582	1721					101	111	110	120
	415				1435				1782	1921					111	121	120	130
	418				1735				2082	2221					125	135	134	144
	420				1935				2282	2421					135	145	144	154
	424				2335				2682	2821					154	164	163	173
5	511	324	369	544	1053	205	222	540	1422	1597	DN 100 PN 16	DN 100 PN 40 (1)	323,9x6.35 Carbon st. 323,9x4 St. steel	DN 300 PN 16	117	129	130	142
	513				1253				1622	1797					139	151	151	163
	515				1453				1822	1997					153	165	165	177
	518				1753				2122	2297					175	187	187	199
	520				1953				2322	2497					188	200	200	212
	524				2353				2722	2897					213	225	226	238
	527				2653				3022	3197					233	245	245	257
6	615	356	382	547	1473	225	252	580	1855	2020	DN 125 PN 16	DN 125 PN 40 (1)	355,6x6.35 Carbon st. 355,6x4 St. steel	DN 350 PN 16	214	229	228	243
	616				1573				1955	2120					222	237	236	251
	619				1873				2255	2420					248	263	262	277
	622				2173				2555	2720					274	289	288	303
	625				2473				2855	3020					300	315	314	329
	628				2773				3155	3320					326	341	340	355
	631				3073				3455	3620					352	367	366	381
7	718	406	524	606	1789	260	287	640	2313	2395	DN 150 PN 16	DN 150 PN 40 (1)	406.4x6.35 Carbon st. 406.4x4 St. steel	DN 400 PN 16	313	333	331	351
	720				1989				2513	2595					335	355	353	373
	723				2289				2813	2895					367	387	385	405
	725				2489				3013	3095					393	413	407	427
	729				2889				3413	3495					431	451	450	470
	733				3289				3813	3895					475	495	493	513

N.A. = not applicable

(1) Thermal oil execution design pressure P06 – 6 bar @ 350 °C flanged PN 16

Models - Dimensions in mm, Connections and Weights in Kg.

Models configuration Misure 8 / 9 – " P12 - P16 "



Flanges according to EN 1092-1 (Other executions on request)

Misure	Model	Ø D	A2	B	C	H	L2	Head connections	Neck connections		Weight Kg	
								T5 – T6 2 - 4 steps	Smooth ØD	Flanged EN 1092-1 - DN	TC	TCF
8	**820**	457	662	1984	290	690	2646	DN 200 PN 40 (1)	457.2 x 6.35 Carbon st. 457.2 x 4 St. steel	DN 450 PN 16	517	538
	822			2184			2846				550	571
	825			2484			3146				600	621
	829			2884			3546				666	687
	832			3184			3846				716	737
	835			3484			4146				765	786
	839			3884			4546				832	853
9	**920**	508	691	1984	310	760	2675	DN 200 PN 40 (1)	508 X 6.35 Carbon st. 508 X 4 St. steel	DN 500 PN 16	655	682
	923			2284			2975				760	787
	925			2484			3175				770	797
	928			2784			3475				839	866
	931			3084			3775				908	935
	936			3584			4275				1022	1049
	941			4084			4775				1138	1165
	947			4684			5375				1275	1302
	952			5184			5875				1390	1417

N.A. = not applicable

(1) Thermal oil execution design pressure P06 – 6 bar @ 350 °C flanged PN 16