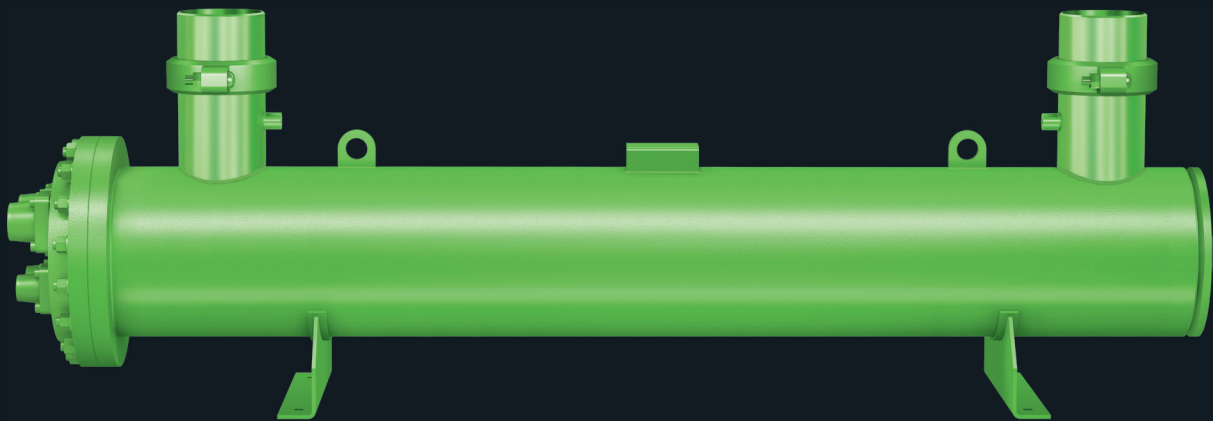




DAS HERZ DER FRISCHE

DRY-EXPANSION EVAPORATORS

DP-273-2 EN



DH SERIES



HEAT
EXCHANGERS



HFO
READY



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Shell-and-tube dry expansion evaporators: DH Series

Performance and features

DH series of dry-expansion evaporators represents a standard in the industry for refrigeration, process cooling, air-conditioning and marine refrigeration applications. Thanks to the flexibility in terms of possible configurations and the robust design, these evaporators can fit almost all duties.

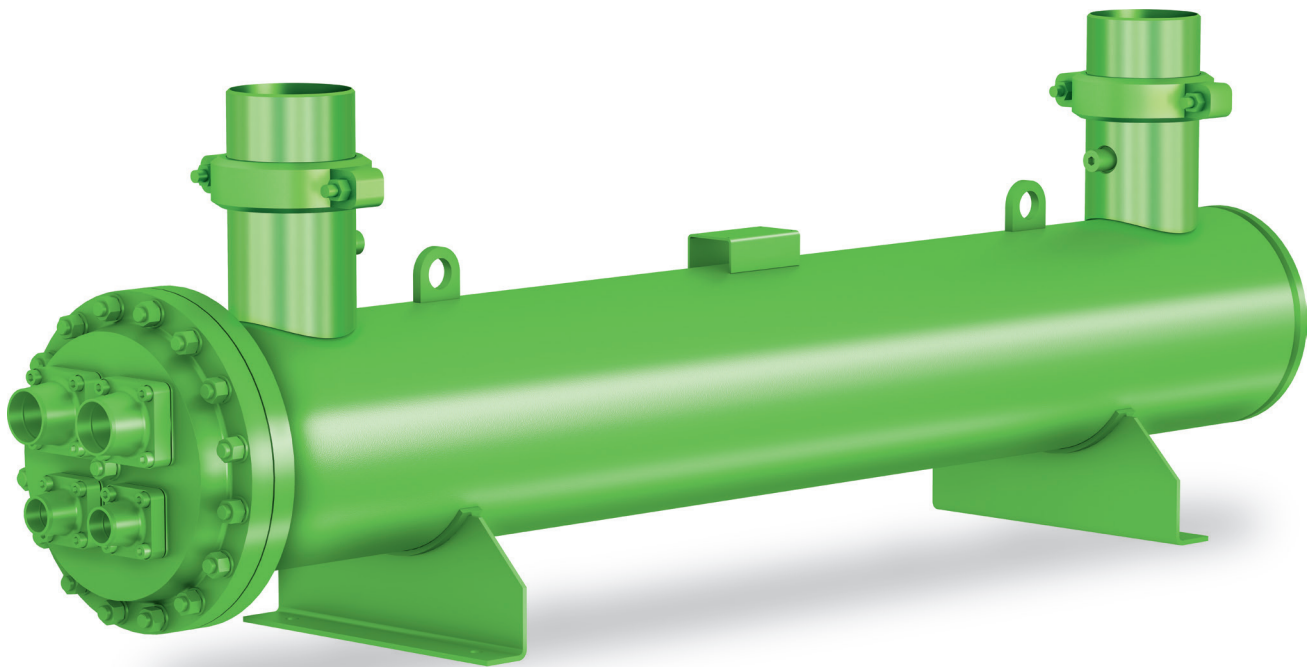
The DH design has been developed for medium pressure refrigerants such as R407F, R448A and R449A, but it can be operated as well with high pressure refrigerants (R410A, R32), low pressure refrigerants (R134a, R1234ze, R513A) and hydrocarbons (R290, R1270). Thanks to its innovative and patented refrigerant distribution system, tubes are always fed with an optimized amount of refrigerant at full and part load. The new baffle design, on the water/brine side, is ensuring maximum heat transfer performances.

As flexibility is the keyword for this universal evaporator series, many different versions are available:

- // Standard temperature (down to -10°C design temperature) and low temperature (down to -40°C d.t.)
- // Standard pressure (30 bar), high pressure (45 bar) and extra-high pressure (50 bar) design pressure on the refrigerant side, in order to fulfil also the operation in reversible heat pump systems
- // Standard tube version (high efficiency inner grooved copper tubes), AISI316L stainless steel, copper-nickel 90/10, carbon steel

Starting with DH..16 models, all evaporators have a design which allows the complete extraction of the tube bundle for inspection, maintenance and cleaning purposes.

A wide range of stationary and marine pressure vessel approvals is available.





Design data

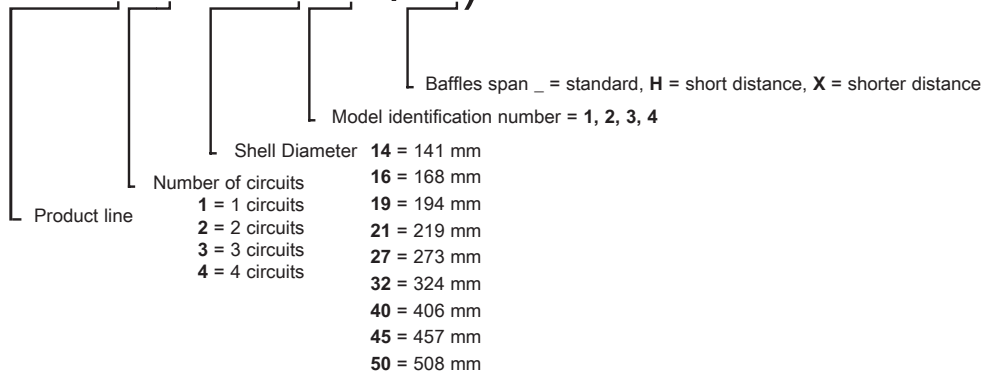
CE approval according Directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014

Series	Version	Tube (refrigerant) side			Shell (brine) side		
		Design pressure bar	Design temp. min. °C	Design temp. max. °C	Design pressure bar	Design temp. min. °C	Design temp. max. °C
DH	Standard	-1/30.5	-10	90	-1/16	-10	90
	LT	-1/30.5	-40	90	-1/16	-40	90
	HPR	-1/45	-10	120	-1/10	-10	90
	HPW	-1/30.5	-10	90	-1/16	-10	90
	HP	-1/45	-10	120	-1/16	-10	90
	XP	-1/50	-10	150	-1/16	-10	90

The intended use of DH evaporators with HC refrigerants (R290, R1290, R600, R600a etc.), has to be clearly mentioned in the order, as a dedicate material version needs to be supplied.

Denomination

DH2-323 (H)



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).

Materials

The materials used for standard version of DH are the following:

Tubes: copper

Baffles: plastic

Tubes sheet: carbon steel

Shell and water connections: carbon steel

Header and refrigerant connections: carbon steel

Different materials are available on request, according to the following list.

Please refer to BITZER for more information.

Tubes: copper-nickel 90/10 alloy, stainless steel AISI316L, carbon steel

Baffles: carbon steel, stainless steel AISI316L

Tubes sheet: stainless steel AISI316L

Shell and water connections: stainless steel AISI316L



Capacity and maximum allowable water flow chart

	R454B			R448A			R290			W _{max} (standard version)	W _{max} (H version)	W _{max} (X version)
	Q _{nom}	W _{nom}	DP _{nom}	Q _{nom}	W _{nom}	DP _{nom}	Q _{nom}	W _{nom}	DP _{nom}			
	kW	3	kPa	kW	3	kPa	kW	m ³ /h	kPa	m ³ /h	m ³ /h	m ³ /h
DH..141	10,9	1,9	4	12,6	2,2	5	13,8	2,4	6	6,2		
DH..142	16,4	2,8	7	19,5	3,3	9	19,8	3,4	10	7,7		
DH..143	26,8	4,6	16	32,5	5,6	23	31,3	5,4	22	9,6		
DH..144	36,2	6,2	25	43,9	7,5	36	40,8	7,0	32	11,1		
DH..161	47,2	8,1	25	52,3	9,0	31	56,3	9,7	35	11,6	9,2	
DH..162	52,6	9,0	25	58,9	10,1	31	61,5	10,6	34	14,5	11,3	
DH..163	65,1	11,2	28	73,9	12,7	36	73,4	12,6	35	19,0	14,5	
DH..164	76,7	13,2	30	87,8	15,1	39	84,1	14,4	36	22,2	17,5	
DH..191	81,5	14,0	18	98,4	16,9	26	116,8	20,0	36	35,0	35,0	35,0
DH..192	96,9	16,6	22	118,2	20,3	33	133,6	22,9	42	35,0	35,0	35,0
DH..193	110,3	18,9	17	137,3	23,6	26	145,3	24,9	29	35,0	35,0	35,0
DH..211	136	23,3	16	165	28,3	23	184	31,6	29	55,0	55,0	55,0
DH..212	168	28,8	21	197	33,8	29	207	35,5	32	55,0	55,0	55,0
DH..271	224	38,4	22	262	45,0	30	299	51,3	39	80,0	80,0	80,0
DH..272	263	45,1	17	302	51,8	22	316	54,2	24	80,0	80,0	80,0
DH..273	292	50,1	22	332	57,0	29	350	60,1	32	80,0	80,0	80,0
DH..321	312	53,5	24	354	60,8	30	401	68,8	38	110,0	110,0	110,0
DH..322	385	66,1	23	416	71,4	27	454	77,9	32	110,0	110,0	110,0
DH..323	445	76,4	33	483	82,9	39	519	89,1	45	110,0	110,0	110,0
DH..401	398	68,3	23	474	81,4	33	658	112,9	60	180,0	180,0	180,0
DH..402	514	88,2	26	576	98,9	32	726	124,6	49	180,0	180,0	180,0
DH..403	662	113,6	43	711	122,0	49	860	147,6	70	180,0	180,0	180,0
DH..404	872	149,7	79	875	150,2	79	931	159,8	89	200,0	200,0	200,0
DH..451	865	148,5	49	877	150,5	50	1072	184,0	72	240,0	240,0	240,0
DH..452	1034	177,5	66	1039	178,3	67	1195	205,1	86	240,0	240,0	240,0
DH..501	1104	189,5	66	1110	190,5	66	1320	226,6	91	300,0	300,0	300,0
DH..502	1487	255,2	98	1365	234,3	84	1470	252,3	96	320,0	320,0	320,0

Nominal capacities, brine flow rate and brine-side pressure drop are rated at the following conditions:

Evaporation temperature (dew): 3.5°C for R454B and R290; 2.5°C for R448A

Condensing temperature (bubble): 45°C

Superheating: 5K

Subcooling: 3K

Brine: water

Brine inlet/outlet temperatures: 12/7°C

Brine-side fouling factor: 0.000043 m²K/W

Q_{nom}: Nominal cooling capacity

W_{nom}: Nominal brine flow rate

DP_{nom}: Brine-side pressure drop at nominal flow rate

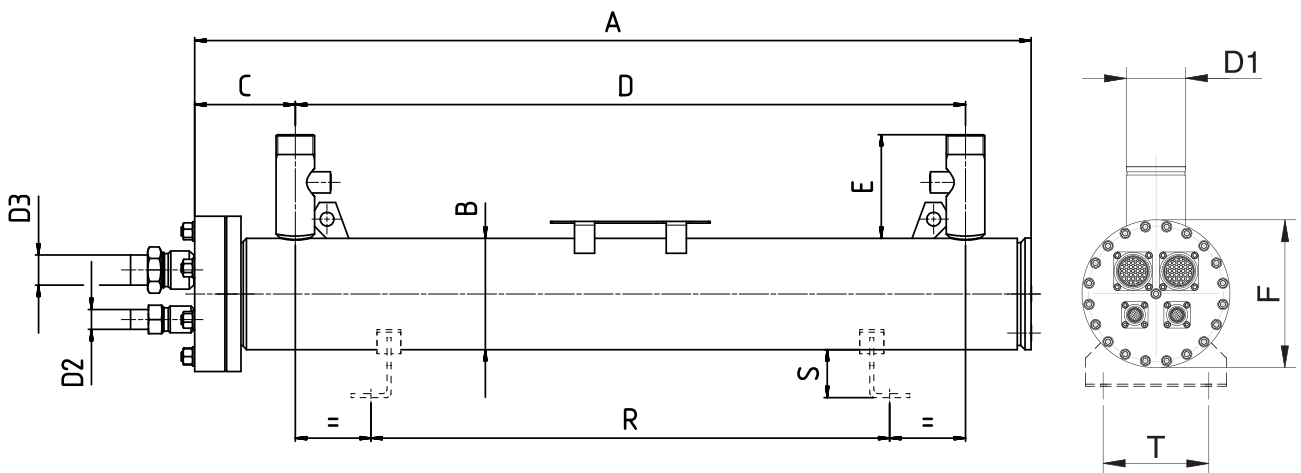
W_{max}: Maximum allowable brine flow rate

General dimensions

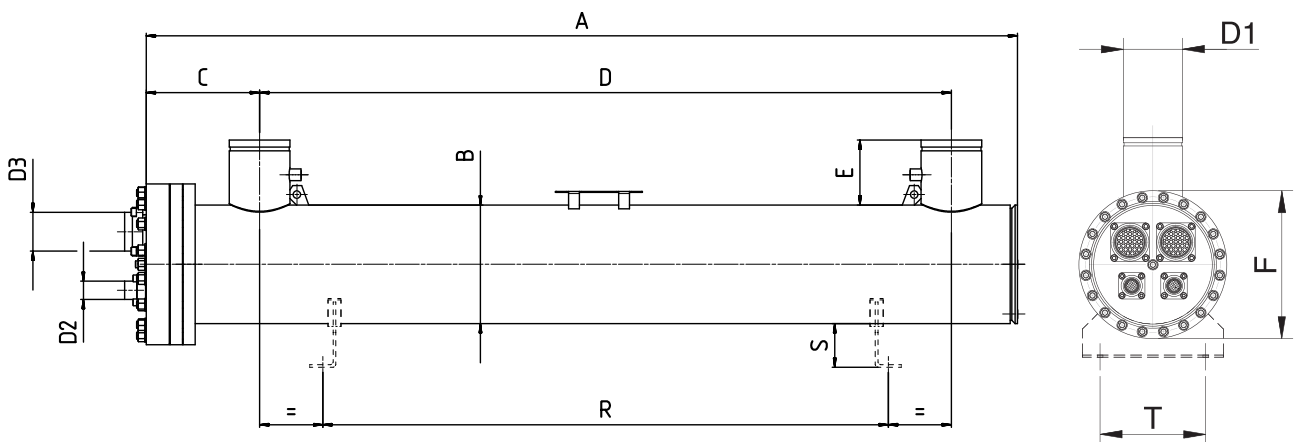
DH standard version is the “extractable tube bundle” one. This means that unbolting the refrigerant header, the complete tube bundle can be pulled out and extracted from the shell.

This is valid for all the models with the exception of size DH..14 models, which are only available in the “not extractable” version (tube bundle welded to the shell).

DH not extractable version

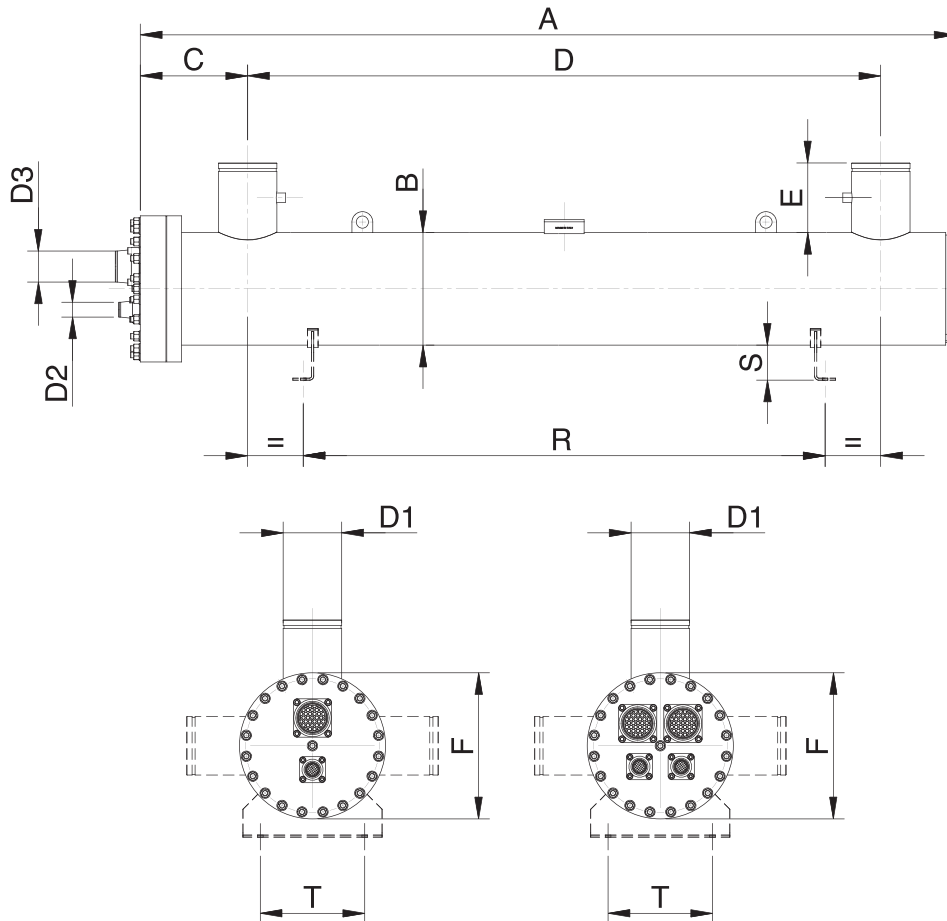


DH extractable version



Shell diameter = 141 mm

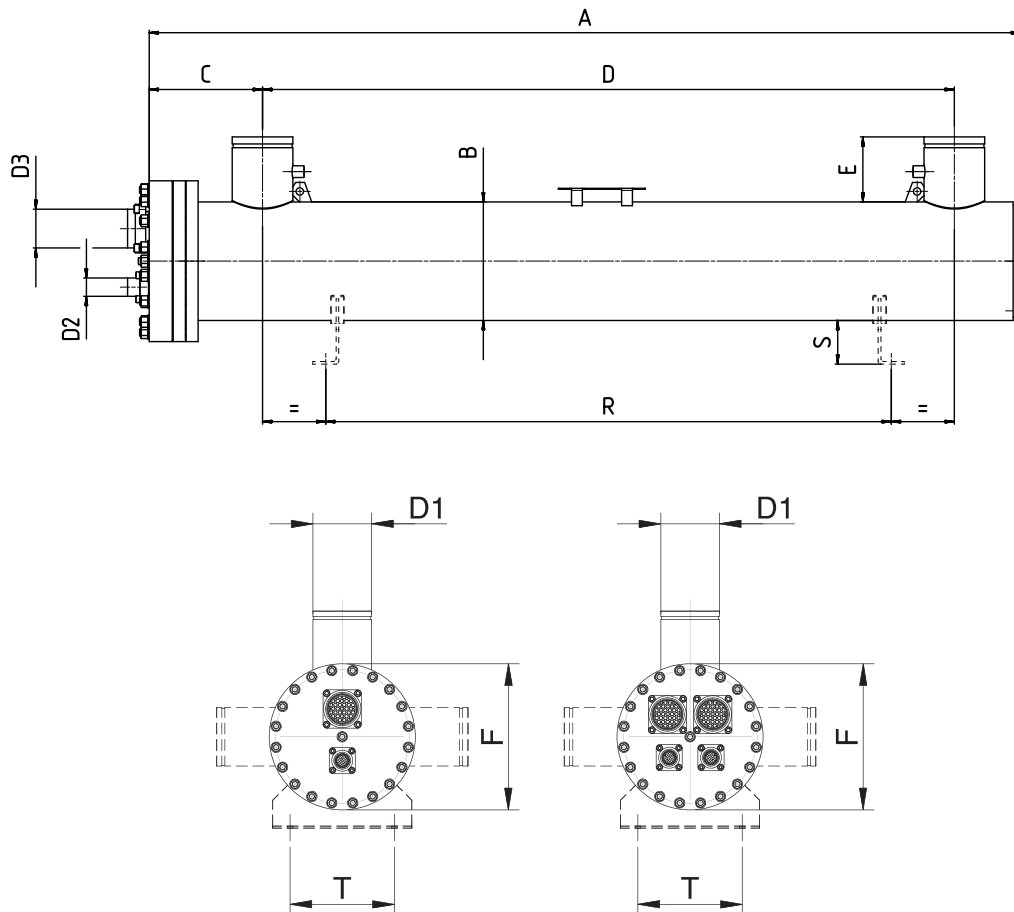
General dimensions



DH Model	Dimensions*						Supports			Connections**					Volumes - weights						
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight***	Refrigerant (tube) side volume	Brine (shell) side volume	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				kg	dm ³	dm ³
DH1-141	898	139,7	126	690	130	195	550	160	60	RT	ODS22	RT	ODS35	T	DN40	34	4,0	6,7	I	I	II
DH1-142	1048	139,7	126	840	130	195	650	160	60	RT	ODS22	RT	ODS35	T	DN40	38	4,0	7,9	I	I	II
DH1-143	1248	139,7	132	1040	130	195	800	160	60	RT	ODS22	RT	ODS35	T	DN50	43	5,0	9,5	I	II	II
DH2-143	1248	139,7	132	1040	130	195	800	160	60	RT	ODS16	RT	ODS28	T	DN50	43	5,0	9,5	I	II	II
DH1-144	1398	139,7	132	1190	130	195	950	160	60	RT	ODS22	RT	ODS35	T	DN50	47	6,0	11,0	I	II	II
DH2-144	1398	139,7	132	1190	130	195	950	160	60	RT	ODS16	RT	ODS28	T	DN50	47	6,0	11,0	I	II	II

Shell diameter = 168 mm

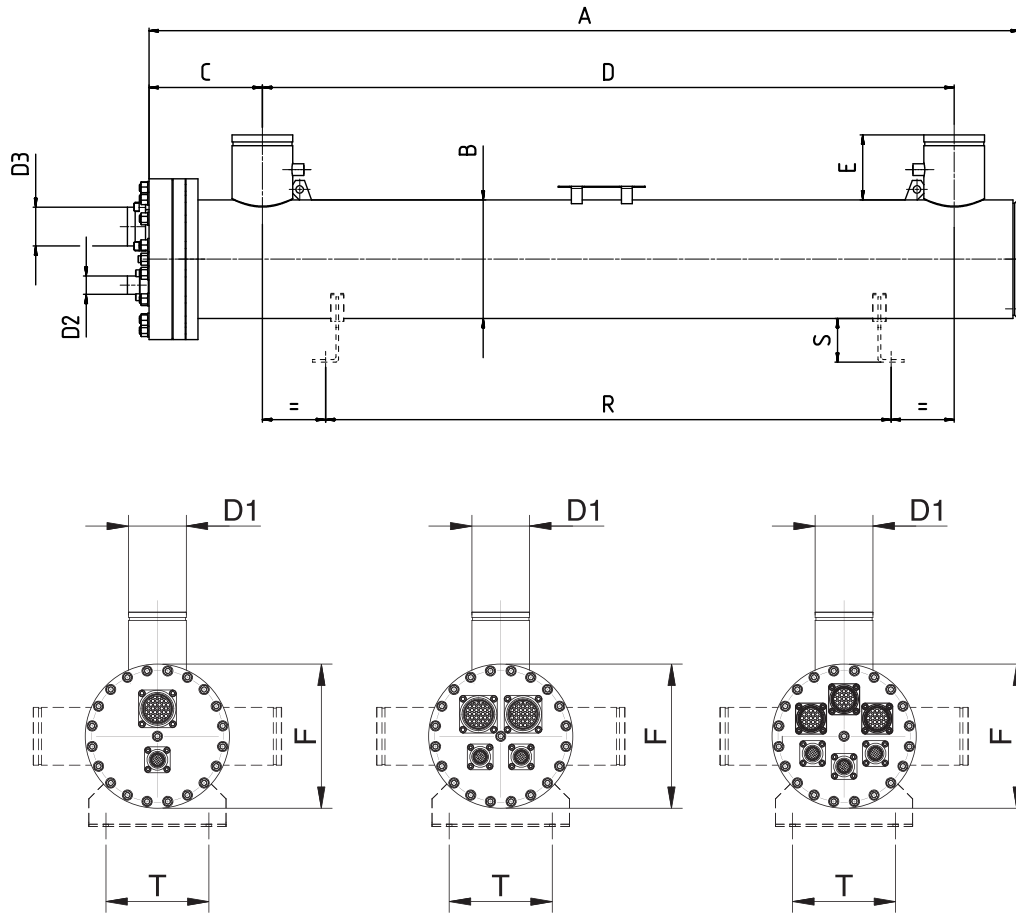
General dimensions



DH Model	Dimensions*						Supports			Connections**						Volumes - weights					
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight***	Refrigerant (tube) side volume	Brine (shell) side volume	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				kg	dm ³	dm ³
DH1-161	1276	168,3	154	1030	130	245	800	160	60	RT	ODS22	FL70	ODS54	T	DN65	58	7,0	15,3	II	II	II
DH2-161	1276	168,3	154	1030	130	245	800	160	60	RT	ODS22	RT	ODS35	T	DN65	58	7,0	15,3	II	II	II
DH1-162	1426	168,3	154	1180	130	245	950	160	60	RT	ODS22	FL70	ODS54	T	DN65	62	8,0	17,2	II	II	II
DH2-162	1426	168,3	154	1180	130	245	950	160	60	RT	ODS22	RT	ODS35	T	DN65	62	8,0	17,2	II	II	II
DH1-163	1626	168,3	154	1380	130	245	1100	160	60	RT	ODS22	FL70	ODS54	T	DN65	69	9,0	19,8	II	II	II
DH2-163	1626	168,3	154	1380	130	245	1100	160	60	RT	ODS22	RT	ODS35	T	DN65	69	9,0	19,8	II	II	II
DH1-164	1776	168,3	154	1530	130	245	1200	160	60	RT	ODS22	FL70	ODS54	T	DN65	73	10,0	21,7	II	II	II
DH2-164	1776	168,3	154	1530	130	245	1200	160	60	RT	ODS22	RT	ODS35	T	DN65	74	10,0	21,7	II	II	II

Shell diameter = 194 mm

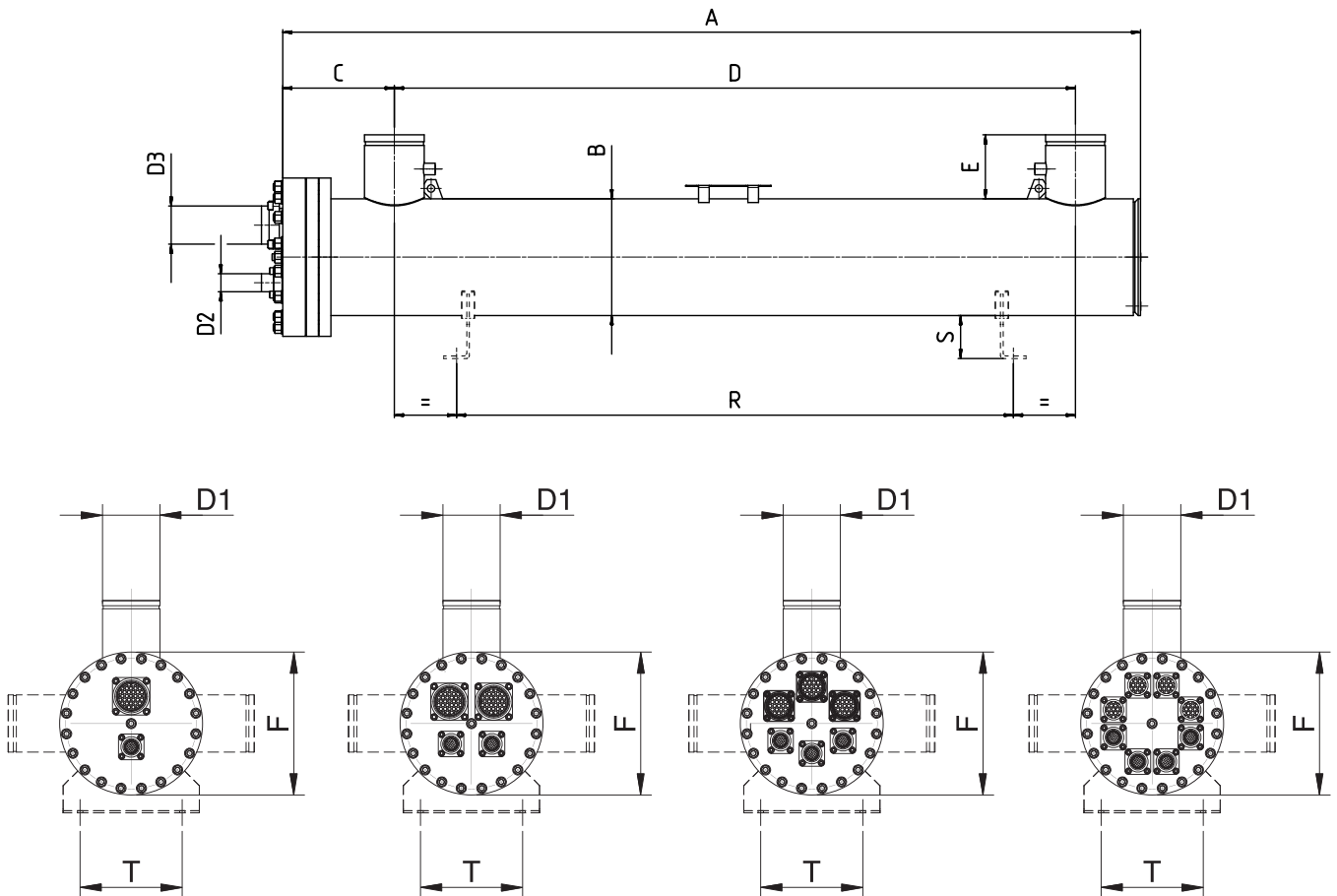
General dimensions



DH Model	Dimensions*						Supports			Connections**					Volumes - weights						
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight*** kg	Refrigerant (tube) side volume dm ³	Brine (shell) side volume dm ³	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				ST	HP	XP
DH1-191	1478	193,7	212	1160	130	270	800	160	60	FL55	ODS35	FL70	ODS67	J	DN80	79	11,0	26,5	II	II	II
DH2-191	1478	193,7	212	1160	130	270	800	160	60	RT	ODS22	FL55	ODS42	J	DN80	79	11,0	26,5	II	II	II
DH3-191	1478	193,7	212	1160	130	270	800	160	60	WA	ODS22	WA	ODS35	J	DN80	79	11,0	26,5	II	II	II
DH1-192	1608	193,7	212	1290	130	270	1000	160	60	FL55	ODS35	FL70	ODS67	J	DN80	84	12,0	28,9	II	II	II
DH2-192	1608	193,7	212	1290	130	270	1000	160	60	RT	ODS22	FL55	ODS42	J	DN80	84	12,0	28,9	II	II	II
DH3-192	1608	193,7	212	1290	130	270	1000	160	60	WA	ODS22	WA	ODS35	J	DN80	84	12,0	28,9	II	II	II
DH1-193	1778	193,7	212	1460	130	270	1200	160	60	FL55	ODS35	FL70	ODS67	J	DN80	90	13,0	31,9	II	II	II
DH2-193	1778	193,7	212	1460	130	270	1200	160	60	RT	ODS22	FL55	ODS42	J	DN80	90	13,0	31,9	II	II	II
DH3-193	1778	193,7	212	1460	130	270	1200	160	60	WA	ODS22	WA	ODS35	J	DN80	90	13,0	31,9	II	II	II

Shell diameter = 219 mm

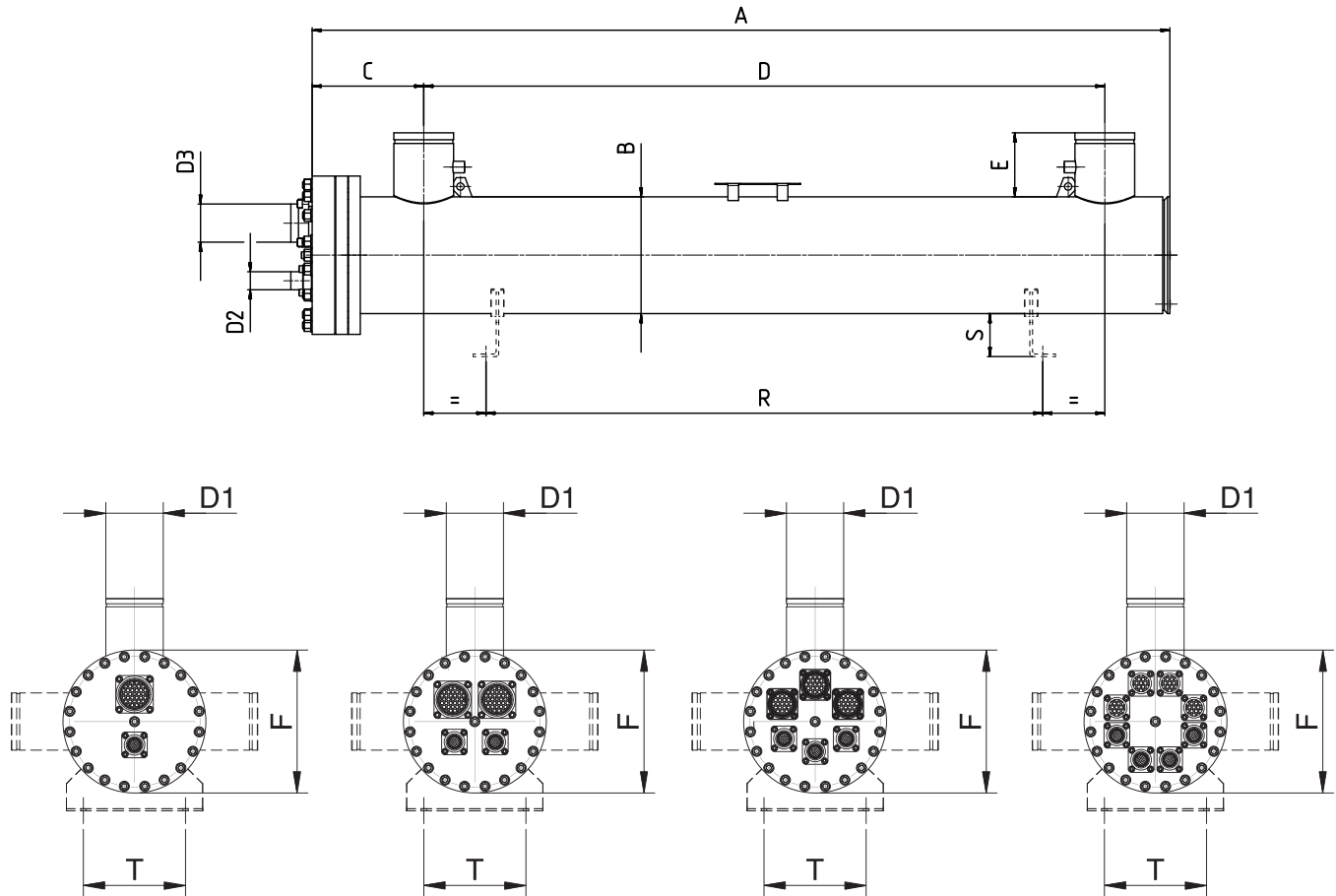
General dimensions



DH Model	Dimensions*						Supports			Connections**						Volumes - weights					
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight***	Refrigerant (tube) side volume	Brine (shell) side volume	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				kg	dm ³	dm ³
DH1-211	1820	219,1	234	1460	150	310	1200	260	80	FL55	ODS35	FL70	ODS67	J	DN100	113	18,0	43,1	II	II	II
DH2-211	1820	219,1	234	1460	150	310	1200	260	80	RT	ODS35	FL55	ODS54	J	DN100	113	18,0	43,1	II	II	II
DH3-211	1820	219,1	234	1460	150	310	1200	260	80	WA	ODS22	WA	ODS42	J	DN100	113	18,0	43,1	II	II	II
DH4-211	1820	219,1	234	1460	150	310	1200	260	80	WA	ODS22	WA	ODS35	J	DN100	113	18,0	43,1	II	II	II
DH1-212	2030	219,1	234	1670	150	310	1400	260	80	FL55	ODS35	FL70	ODS67	J	DN100	123	20,0	47,7	II	II	III
DH2-212	2030	219,1	234	1670	150	310	1400	260	80	RT	ODS35	FL55	ODS54	J	DN100	123	20,0	47,7	II	II	III
DH3-212	2030	219,1	234	1670	150	310	1400	260	80	WA	ODS22	WA	ODS42	J	DN100	123	20,0	47,7	II	II	III
DH4-212	2030	219,1	234	1670	150	310	1400	260	80	WA	ODS22	WA	ODS35	J	DN100	123	20,0	47,7	II	II	III

Shell diameter = 273 mm

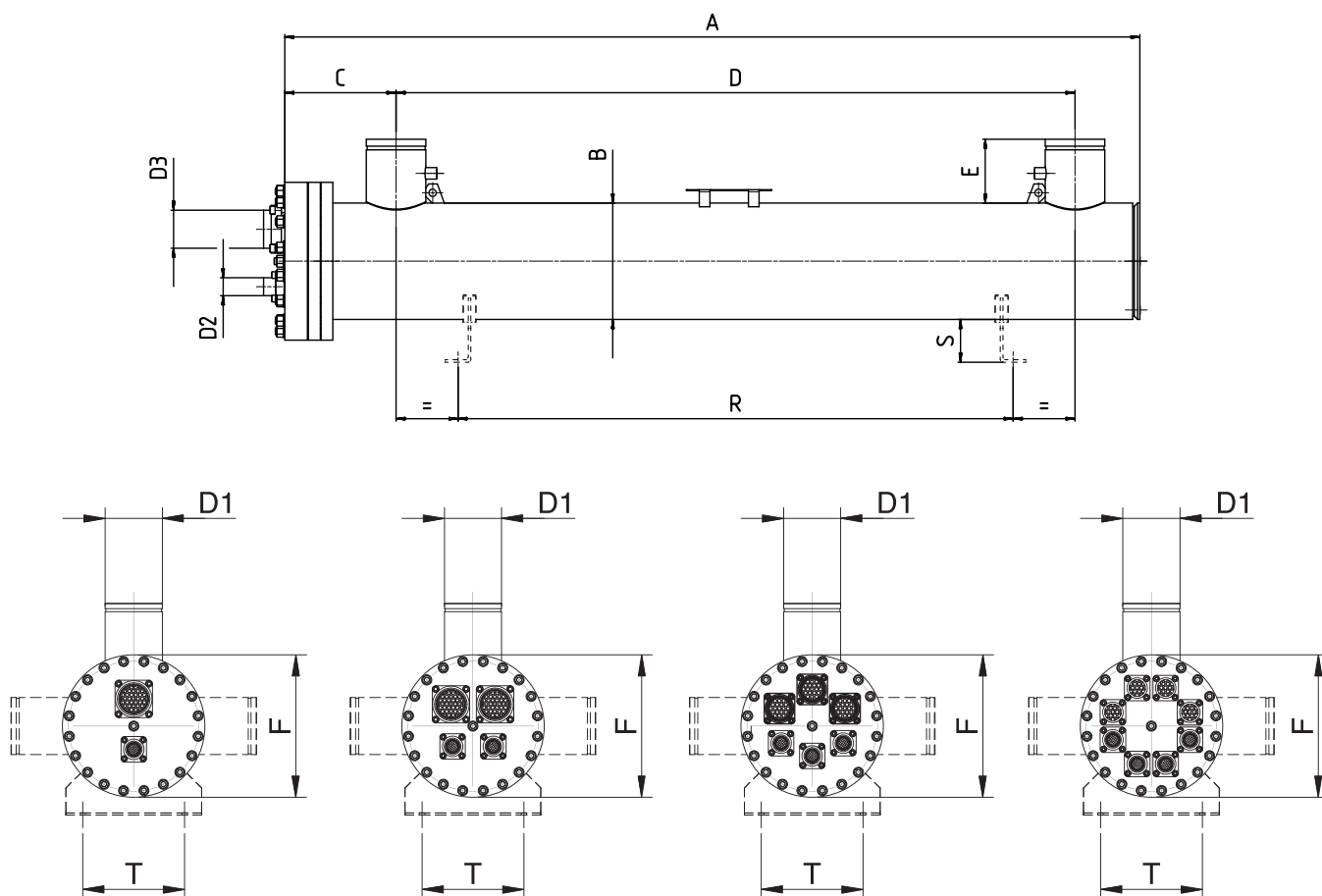
General dimensions



DH Model	Dimensions*					Supports			Connections**					Volumes - weights							
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight*** kg	Refrigerant (tube) side volume dm ³	Brine (shell) side volume dm ³	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				ST	HP	XP
DH1-271	2002	273	260	1590	150	370	1300	300	100	FL55	ODS35	FL90	ODS80	J	DN125	188	26,0	77,4	II	III	III
DH2-271	2002	273	260	1590	150	370	1300	300	100	FL55	ODS35	FL70	ODS54	J	DN125	188	26,0	77,4	II	III	III
DH3-271	2002	273	260	1590	150	370	1300	300	100	WA	ODS35	WA	ODS54	J	DN125	188	26,0	77,4	II	III	III
DH4-271	2002	273	260	1590	150	370	1300	300	100	WA	ODS22	WA	ODS42	J	DN125	189	26,0	77,4	II	III	III
DH1-272	2002	273	260	1590	150	370	1300	300	100	FL55	ODS35	FL90	ODS80	J	DN125	196	29,0	73,4	II	III	III
DH2-272	2002	273	260	1590	150	370	1300	300	100	FL55	ODS35	FL70	ODS54	J	DN125	196	29,0	73,4	II	III	III
DH3-272	2002	273	260	1590	150	370	1300	300	100	WA	ODS35	WA	ODS54	J	DN125	196	29,0	73,4	II	III	III
DH4-272	2002	273	260	1590	150	370	1300	300	100	WA	ODS22	WA	ODS42	J	DN125	196	29,0	73,4	II	III	III
DH1-273	2002	273	260	1590	150	370	1300	300	100	FL55	ODS35	FL90	ODS80	J	DN125	204	33,0	68,8	III	III	III
DH2-273	2002	273	260	1590	150	370	1300	300	100	FL55	ODS35	FL70	ODS54	J	DN125	204	33,0	68,8	III	III	III
DH3-273	2002	273	260	1590	150	370	1300	300	100	WA	ODS35	WA	ODS54	J	DN125	204	33,0	68,8	III	III	III
DH4-273	2002	273	260	1590	150	370	1300	300	100	WA	ODS22	WA	ODS42	J	DN125	204	33,0	68,8	III	III	III

Shell diameter = 324 mm

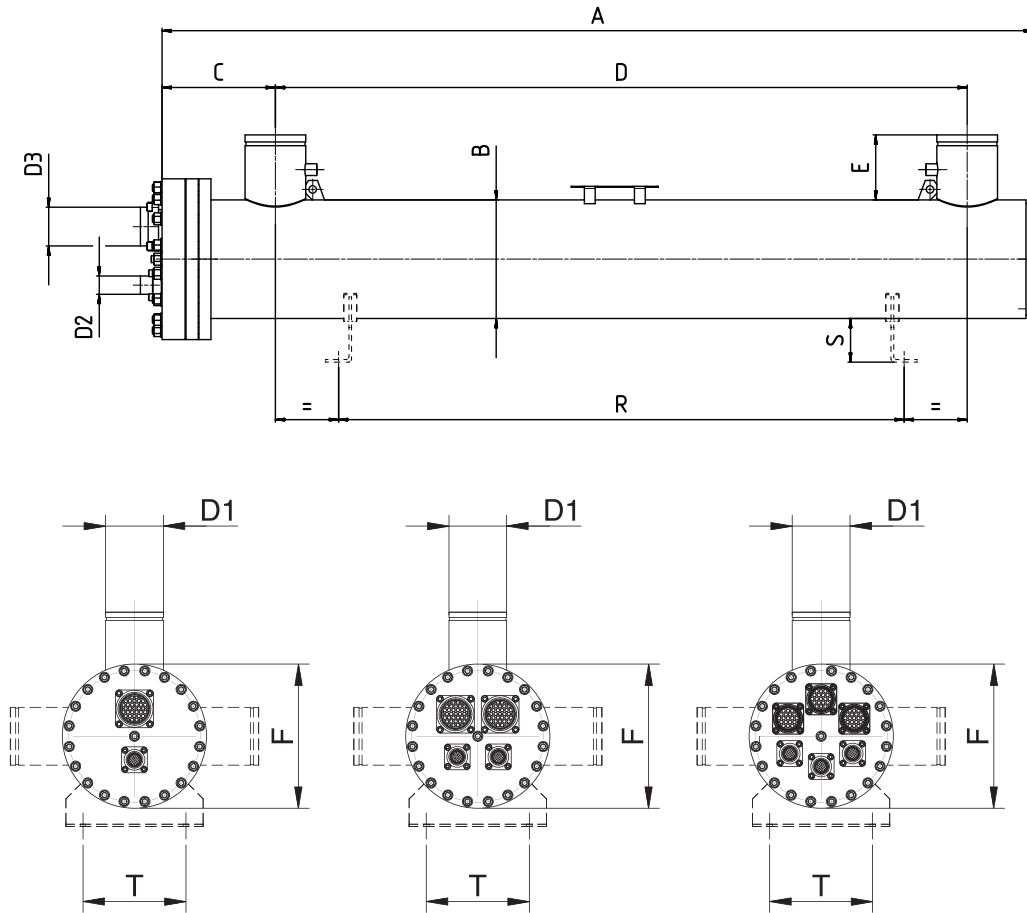
General dimensions



DH Model	Dimensions*						Supports			Connections**						Volumes - weights					
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight***	Refrigerant (tube) side volume	Brine (shell) side volume	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				kg	dm ³	dm ³
DH1-321	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL90	ODS80	J	DN150	285	44,0	127,6	III	III	III
DH2-321	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL90	ODS80	J	DN150	285	44,0	127,6	III	III	III
DH3-321	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL70	ODS67	J	DN150	285	44,0	127,6	III	III	III
DH4-321	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL55	ODS54	J	DN150	285	44,0	127,6	III	III	III
DH1-322	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL90	ODS80	J	DN150	292	49,0	121,5	III	III	III
DH2-322	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL90	ODS80	J	DN150	292	49,0	121,5	III	III	III
DH3-322	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL70	ODS67	J	DN150	292	49,0	121,5	III	III	III
DH4-322	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL55	ODS54	J	DN150	292	49,0	121,5	III	III	III
DH1-323	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL90	ODS80	J	DN150	315	57,0	111,0	III	III	III
DH2-323	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL90	ODS80	J	DN150	315	57,0	111,0	III	III	III
DH3-323	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL70	ODS67	J	DN150	315	57,0	111,0	III	III	III
DH4-323	2316	323,9	292	1820	200	420	1500	300	100	FL55	ODS35	FL55	ODS54	J	DN150	315	57,0	111,0	III	III	III

Shell diameter = 406 mm

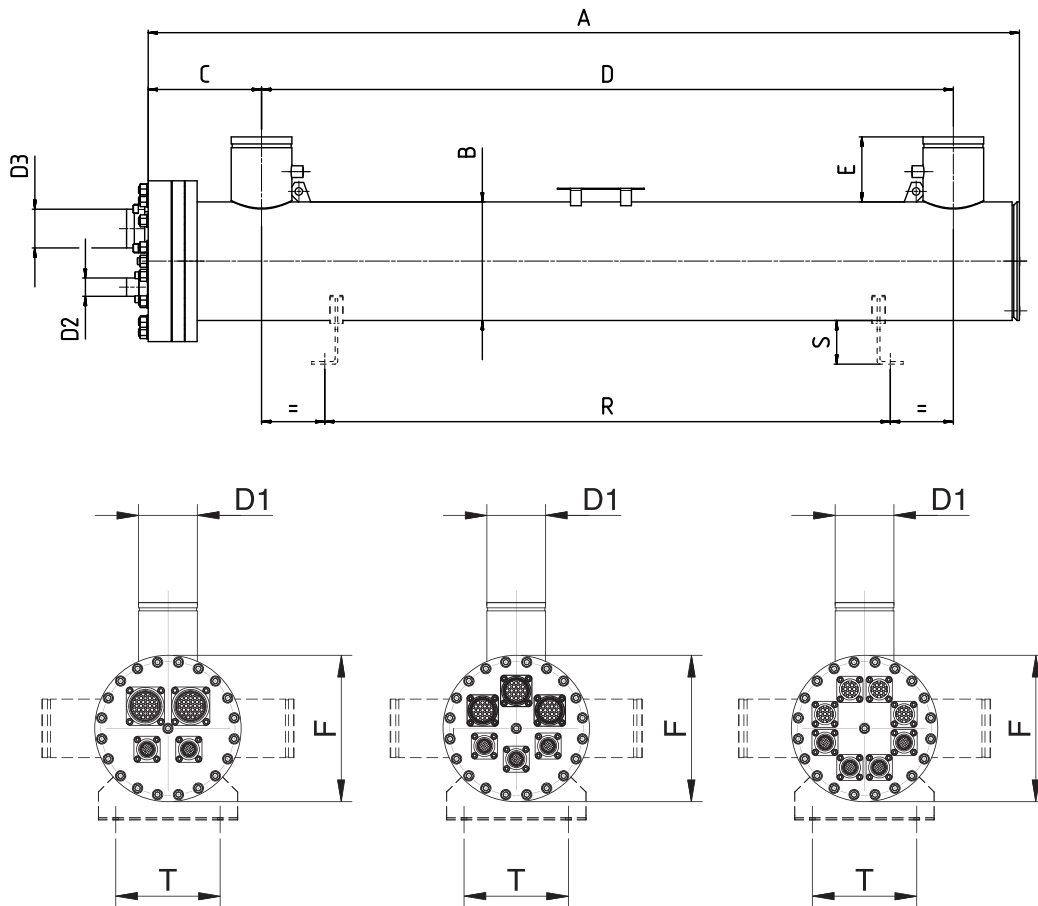
General dimensions



DH Model	Dimensions*					Supports			Connections**					Volumes - weights							
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight*** kg	Refrigerant (tube) side volume dm ³	Brine (shell) side volume dm ³	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				ST	HP	XP
DH2-401	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL90	ODS80	J	DN200	415	66,0	195,6	III	III	IV
DH3-401	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL90	ODS80	J	DN200	415	66,0	195,6	III	III	IV
DH4-401	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL70	ODS67	J	DN200	415	66,0	195,6	III	III	IV
DH2-402	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL90	ODS80	J	DN200	433	74,0	185,7	III	IV	IV
DH3-402	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL90	ODS80	J	DN200	433	74,0	185,7	III	IV	IV
DH4-402	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL70	ODS67	J	DN200	433	74,0	185,7	III	IV	IV
DH2-403	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL90	ODS80	J	DN200	462	88,0	168,8	III	IV	IV
DH3-403	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL90	ODS80	J	DN200	462	88,0	168,8	III	IV	IV
DH4-403	2232	406,4	336	1660	200	510	1400	400	120	FL55	ODS35	FL70	ODS67	J	DN200	462	88,0	168,8	III	IV	IV
DH2-404	2752	406,4	336	2180	200	510	1800	400	120	FL55	ODS35	FL90	ODS80	J	DN200	544	110,0	214,4	IV	IV	IV
DH3-404	2752	406,4	336	2180	200	510	1800	400	120	FL55	ODS35	FL90	ODS80	J	DN200	544	110,0	214,4	IV	IV	IV
DH4-404	2752	406,4	336	2180	200	510	1800	400	120	FL55	ODS35	FL70	ODS67	J	DN200	544	110,0	214,4	IV	IV	IV

Shell diameter = 457 mm

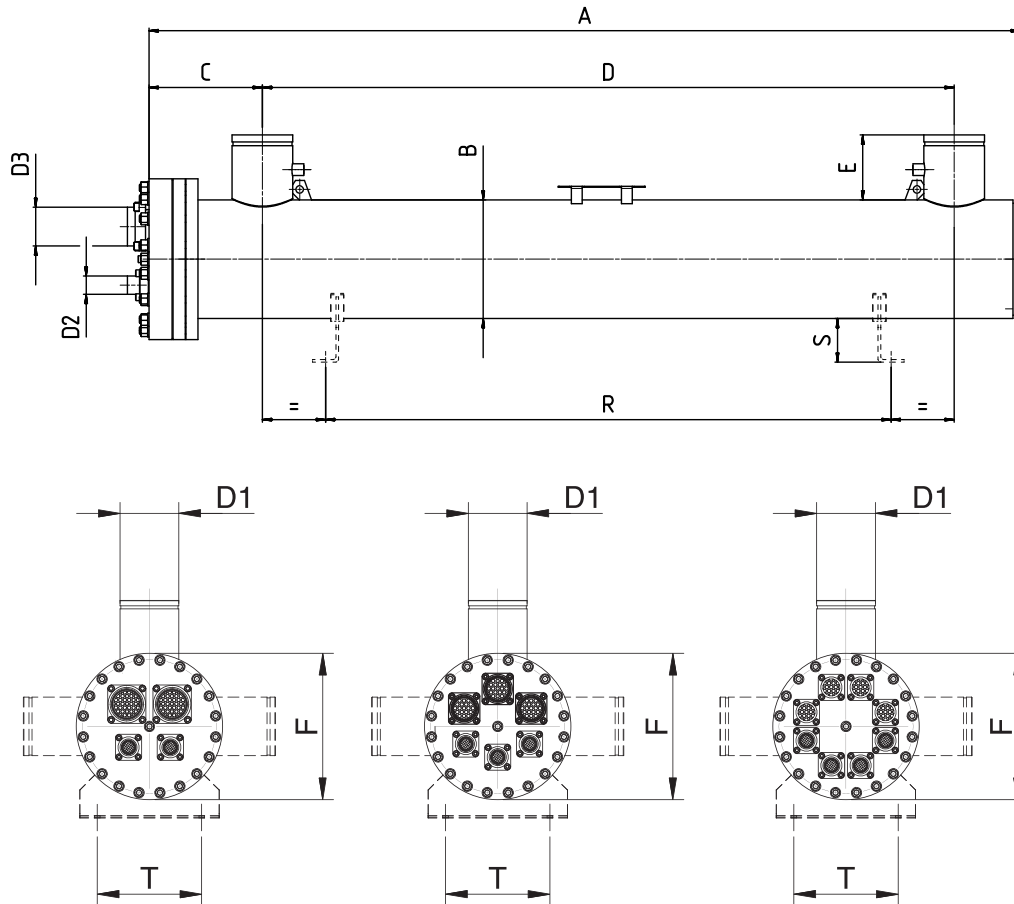
General dimensions



DH Model	Dimensions*						Supports			Connections**					Volumes - weights						
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight*** kg	Refrigerant (tube) side volume dm ³	Brine (shell) side volume dm ³	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				ST	HP	XP
DH2-451	2382	457	366	1760	200	570	1500	310	121	FL55	ODS35	FL90	ODS80	J	DN200	602	111,0	304,9	IV	IV	IV
DH3-451	2382	457	366	1760	200	570	1500	310	121	FL55	ODS35	FL90	ODS80	J	DN200	602	111,0	304,9	IV	IV	IV
DH4-451	2382	457	366	1760	200	570	1500	310	121	FL55	ODS35	FL70	ODS67	J	DN200	602	111,0	304,9	IV	IV	IV
DH2-452	2382	457	366	1760	200	570	1500	310	121	FL55	ODS35	FL90	ODS80	J	DN200	632	124,0	288,0	IV	IV	IV
DH3-452	2382	457	366	1760	200	570	1500	310	121	FL55	ODS35	FL90	ODS80	J	DN200	632	124,0	288,0	IV	IV	IV
DH4-452	2382	457	366	1760	200	570	1500	310	121	FL55	ODS35	FL70	ODS67	J	DN200	632	124,0	288,0	IV	IV	IV

Shell diameter = 508 mm

General dimensions



DH Model	Dimensions*					Supports			Connections**					Volumes - weights							
	A	B	C	D	E	F	R	T	S	Ref-IN conn.		Ref-OUT conn.		Brine conn.		Weight***	Refrigerant (tube) side volume	Brine (shell) side volume	PED category****		
	mm	mm	mm	mm	mm	mm	mm	mm	mm	Type	D2	Type	D3	Type	D1				kg	dm ³	dm ³
DH2-501	2812	508	390	2140	250	640	1800	350	120	FL55	ODS42	FL90	ODS80	J	DN250	777	142,0	382,6	IV	IV	IV
DH3-501	2812	508	390	2140	250	640	1800	350	120	FL55	ODS35	FL90	ODS80	J	DN250	777	142,0	382,6	IV	IV	IV
DH4-501	2812	508	390	2140	250	640	1800	350	120	FL55	ODS35	FL70	ODS67	J	DN250	777	142,0	382,6	IV	IV	IV
DH2-502	2812	508	390	2140	250	640	1800	350	120	FL55	ODS42	FL90	ODS80	J	DN250	832	166,0	352,3	IV	IV	IV
DH3-502	2812	508	390	2140	250	640	1800	350	120	FL55	ODS35	FL90	ODS80	J	DN250	832	166,0	352,3	IV	IV	IV
DH4-502	2812	508	390	2140	250	640	1800	350	120	FL55	ODS35	FL70	ODS67	J	DN250	832	166,0	352,3	IV	IV	IV

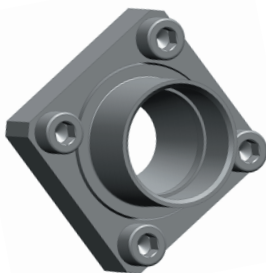
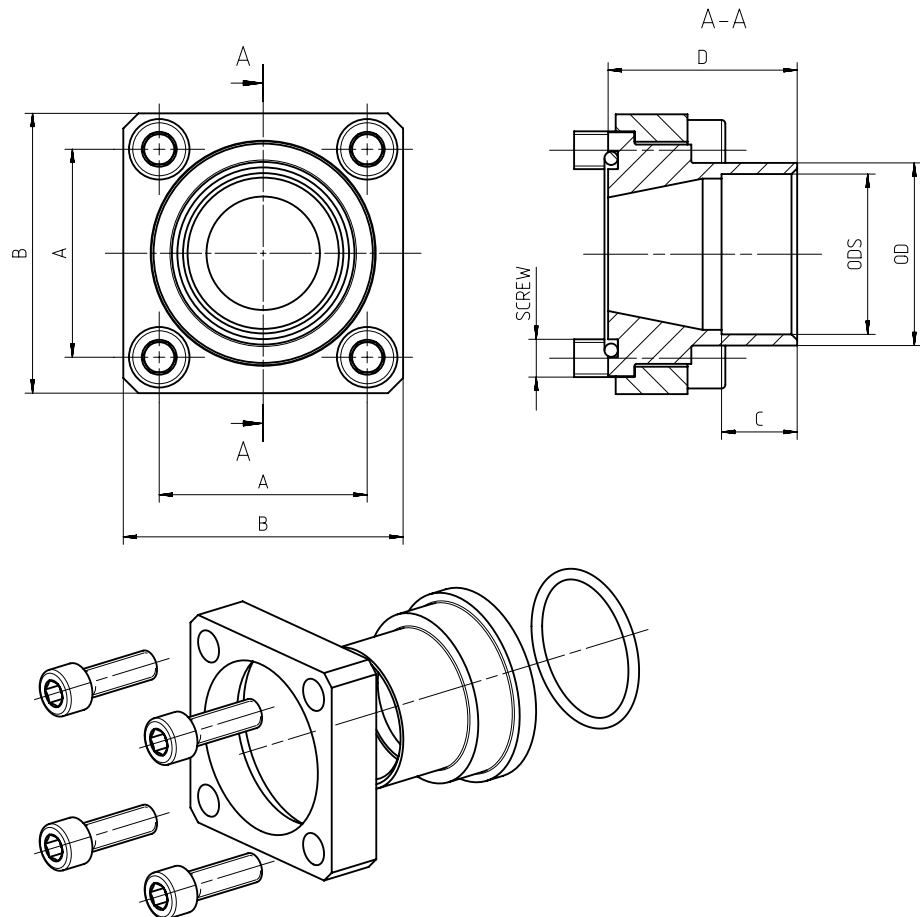
* Overall length refer to the evaporator not including refrigerant connections
 ** Standard refrigerant and brine connections; different connections type and sizes are available
 *** Considering the evaporator empty and not including packaging
 **** According to table 2, Annex II of the directive 2014/68/EU of the European Parliament and of the Council of 15 May 2014 - For refrigerants classified as fluids in Group 2

- RT Rotalock
- FL.. Flange (55, 70, 90 are the sizes of the flange block)
- WA Brazing/welding
- T Threaded (ISO 7/1-R)
- J Flexible joint (Victaulic)

Refrigerant connections

The connection between the evaporator and the refrigerant circuit is made, depending on the evaporator size, with flange connections, welding connections or Rotalock connections.

General dimensions – Flange connections

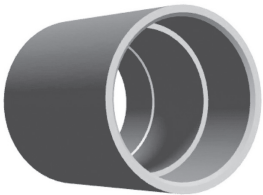
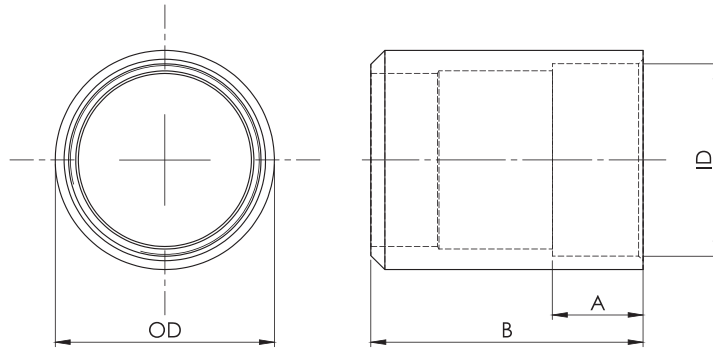


Flange connections									
Type	A mm	B mm	Screw	ODS		Hole diam. mm	OD mm	C mm	D mm
				Copper pipe					
FL55	55	74	M10	35	1 3/8"	35,3	42,2	20	50
	55	74	M10	42	1 5/8"	42,4	48,3	20	50
	55	74	M10	54	2 1/8"	54,4	58	20	50
FL70	70	88	M10	54	2 1/8"	54,4	60,3	20	50
	70	88	M10	67	2 5/8"	67,2	72	20	50
FL90	90	112	M12	80	3 1/8"	80,4	88,9	20	50

Refrigerant connections

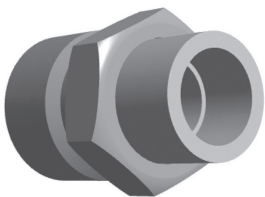
The connection between the evaporator and the refrigerant circuit is made, depending on the evaporator size, with flange connections, welding connections or Rotalock connections.

General dimensions – Welding connections



Welding connections						
Type	A mm	B mm	Name	Connection		
				ODS (mm)	ID (mm)	OD (mm)
A	20	60	WA22	22	23	26,7
	20	60	WA35	35	35,3	42,4
	20	60	WA42	42	42	48,3
	20	60	WA54	54	54,5	60,3

General dimensions – Rotalock connections



Rotalock connections								
Type	A mm	B mm	C mm	RT	Name	Connection		
						ODS (mm)	ODS (Inch)	ID (mm)
A	20	80	30	1" - 14UNF	RA16	16	5/8"	16,3
B	20	80	36	1 1/4" - 12UNF	RB22	22	7/8"	22,5
C	20	80	50	1 3/4" - 12UNF	RC28	28	-	28,3
	20	80	50	1 3/4" - 12UNF	RC35	35	1 3/8"	35,3

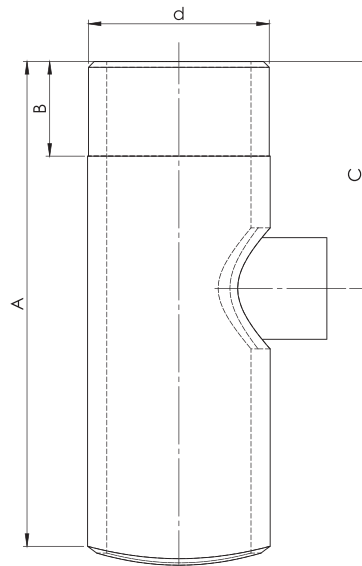
Brine connections

Different connections are available, depending on the evaporator size:

- // with UNI/ISO 7/1 R thread up to 2 1/2"
- // with Victaulic flexible joint starting with 3" (DN 80)
- // with Vic-Flange water connections starting with 3" (DN 80)
- // with welded flange according to EN 1092-1

The flexible joint gasket are compatible with liquids normally used in refrigeration and air conditioning applications and are suitable to be used within -40°C and +90°C. The joints are supplied with flexible joint and a slot end with groove.

General dimensions

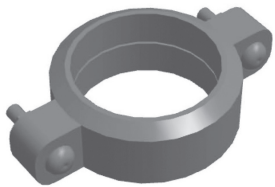
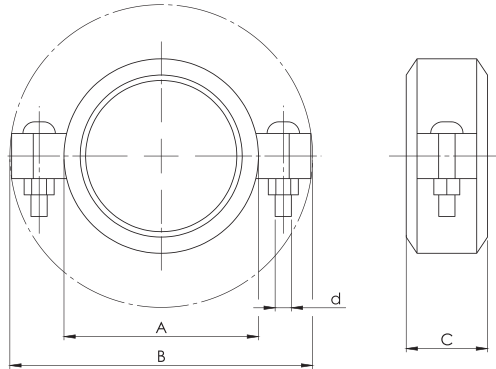


Threaded water connections					
Type	A mm	B mm	C mm	Name	d inch
DH 141-142	130	25	60	T11	1 1/2"
DH 143-144	130	25	60	T2	2"
DH 161-162-163-164	130	35	60	T21	2 1/2"

Brine connections

General dimensions

Flexible joint

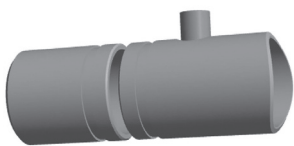
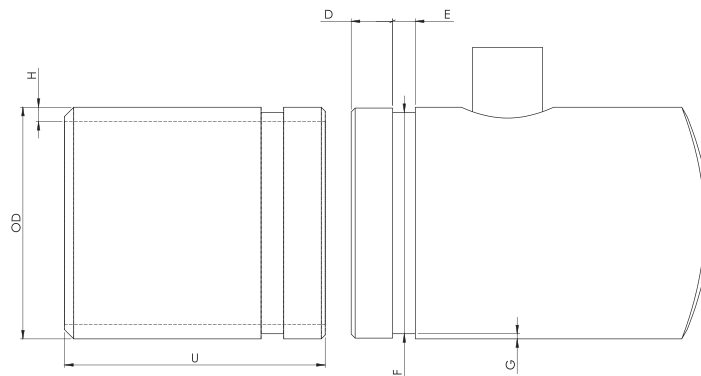


Victaulic flexible joint water connections

Type	A mm	B mm	C mm	Name	OD mm	DN
DH 191-192-193	127	181	48	J3	88,9	80 (3")
DH 211-212	149,2	212,8	50,8	J4	114,3	100 (4")
DH 271-272-273	177,8	250,8	50,8	J5	141,3	125 (5")
DH 321-322-323	203,2	285,8	50,8	J6	168,3	150 (6")
DH 401-402-403-404-451-452	263,5	349,3	60,3	J8	219,1	200 (8")
DH 501-502	346	435	67	J10	273	250 (10")

General dimensions

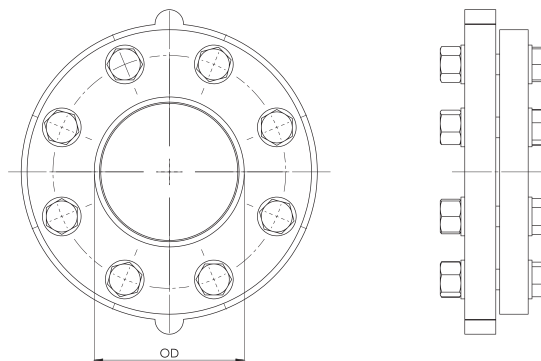
Connection pipe



Victaulic flexible joint water connections

Type	DN	D mm	E mm	F mm	G mm
DH 191-192-193	80 (3")	15,9	7,95	84,9	2
DH 211-212	100 (4")	15,9	9,5	110,1	2,1
DH 271-272-273	125 (5")	15,9	9,51	35,5	2,9
DH 321-322-323	150 (6")	19	9,5	163,9	2,2
DH 401-402-403-404-451-452	200 (8")	19	11,1	214,4	2,3
DH 501-502	250 (10")	19	12,7	268,3	2,4

General dimensions



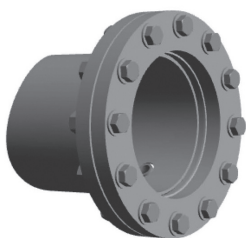
Vic-Flange water connections

On request Vic-flanges can be supplied for water side connections.
The Vic-Flange kit contains:

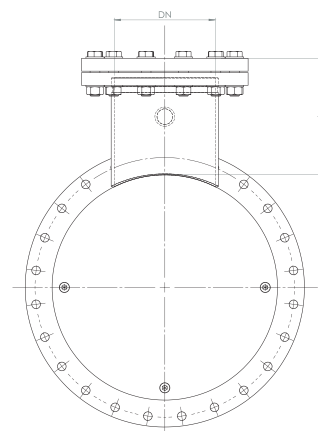
- // Vic-Flange adapter (see picture below) with gasket
- // Carbon steel counter flange according to EN 1092-1

General dimensions

Only for extractable tube bundle version, the DH can also be supplied with welded flange according to EN 1092-1.

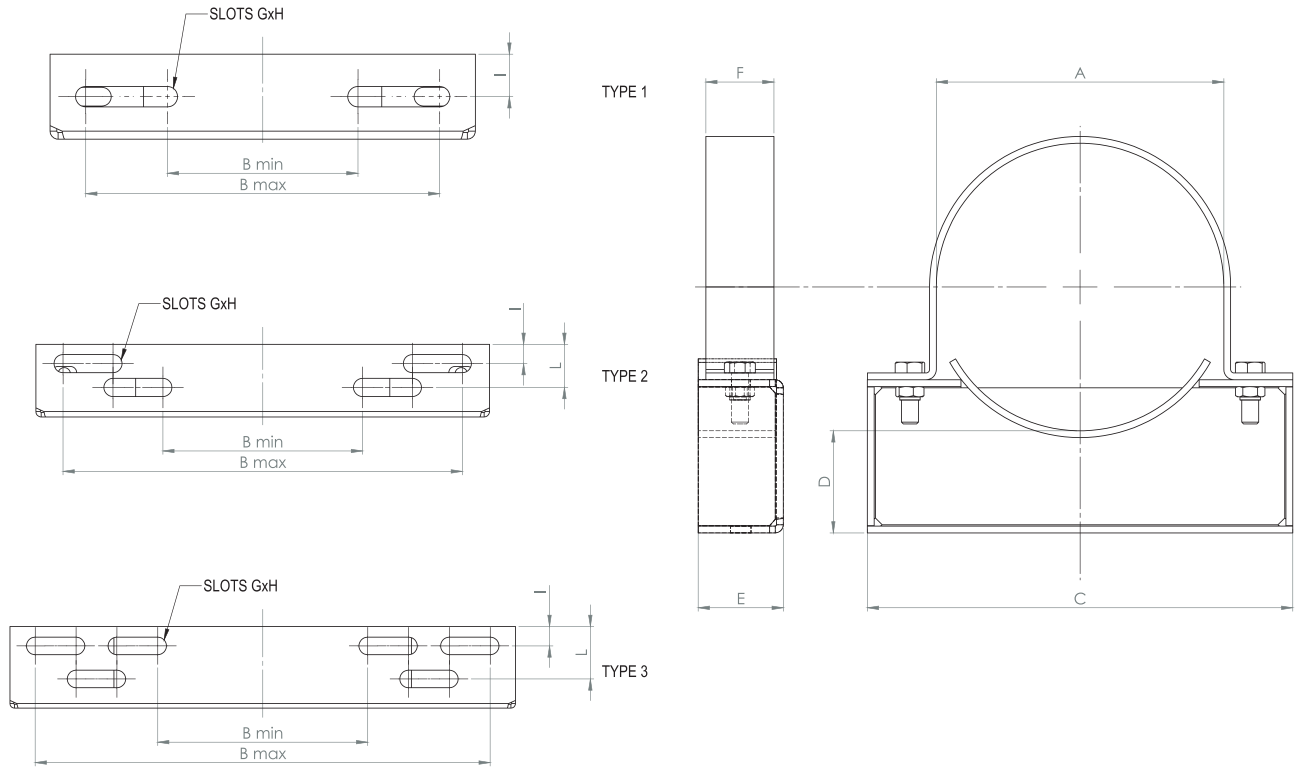


Welded flange water connections		
Type	DN mm	A
DH 141-142	40	130
DH 143-144	50	130
DH 161-162-163-164	65	130
DH 191-192-193	80	165
DH 211-212	100	165
DH 271-272-273	125	165
DH 321-322-323	150	215
DH 401-402-403-404-451-452	200	215
DH 501-502	250	265



Options

General dimensions



Options

The following options are available for DH evaporator:

- // Vic-flanges water connections (see 'Brine connections' section for more details)
- // Insulation (thickness $\frac{3}{4}$ ") made of close cell elastomer layer (glued) to the evaporator surface with textile covering. The thickness of the insulation is 19 mm.
- // Welded supports (see 'General dimension' section more informations)
- // Brackets supports: The DH can be equipped with supports welded to the shell (illustrated in the 'General dimension' section) or with universal brackets which are positioned in the installation phase and allows therefore the maximum flexibility (available up to shell diameter 406 mm). See table below for brackets dimensions. All dimensions are in mm.



Universal brackets											
A	B		C	D	E	F	G	Slots		i	L
	min	max						H	Type		
140	82	178	220	60	50	40	12	60	1	25	-
168	112	208	250	60	50	40	12	60	1	25	-
194	46	238	280	60	50	40	12	60	2	15	32
219	82	276	320	80	50	40	12	60	2	15	32
273	176	352	400	100	60	50	16	60	2	17	38
324	108	372	420	100	60	50	16	60	3	17	38
406	216	468	520	120	60	50	16	60	3	20	54



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