

Data sheet

Gasketed heat exchanger XG

Description / application



The XG is a heat exchanger with gaskets and it has been developed for use with district heating and cooling systems. The heat exchangers can be opened for cleaning and for replacement of plates and gaskets. The XG plate heat exchangers with gaskets are manufactured with different plate sizes.

Main data:

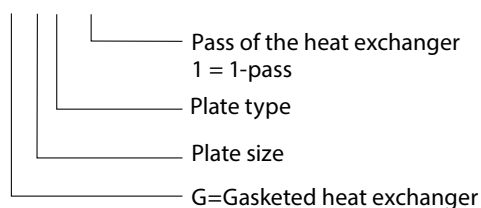
- Min. temperature -10 °C
- Max. temperature +150 °C
- Max. working pressure 16 bar
- Circulation water / glycolic water up to 50%
- Connection size DN (thread or flanged) 25...125

Approvals:

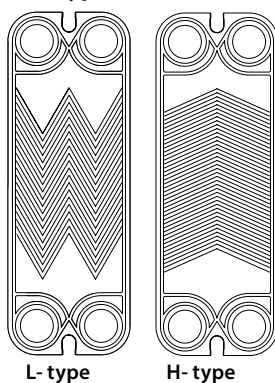
- Pressure Equipment Directive (PED) 97/23/EC
- GOST/Russia

Ordering

Explanation, XG types

XG 10L – 1 – 10 — Number of plates


Special versions for different mediums, connections / couplings, max. operating pressures, materials and capacities are available on request. Please contact the local sales representative for details.

Plate types L - H


The heat exchanger can consist of plates type L or plates type H.

The H- type plate has larger herring bone angle than the L- type plate. H- type plate fits better for certain temperatures than L- type. H- type heat exchangers have better heating capacity, but they also have higher pressure loss.

The same principal difference can be obtained with other plate patterns as well.

Gasketed heat exchangers type XG

Type	XG 10-1	XG 14H-1	XG18H-1	XG 20L-1	XG 20H-1	XG 31L-1	XG 31H-1	XG 40-1	XG 50-1	XG 60-1*	XG 70-1*
Connection	Thread	Thread	Thread	Thread	Thread	Flange	Flange	Place for flange	Place for flange	-	-
	G 1 A	G 1¼ A	G 1¼ A	G 2 A	G 2 A	DN 65	DN 65	DN 100/125 ¹⁾	DN 100/125 ¹⁾		
No of plates, n											
8	-	004B1260	004B1276	-	-	-	-	-	-	-	-
10	004B5005	004B1261	004B1277	004B2954	004B5205	004B1375	004B1389	-	-	-	-
20	004B5010	004B1262	004B1278	004B2955	004B5210	004B1376	004B1390	-	-	-	-
30	004B5015	004B1263	004B1279	004B2956	004B5215	004B1377	004B1391	-	-	-	-
40	004B5020	004B1264	004B1280	004B2957	004B5220	004B1378	004B1392	-	-	-	-
50	004B5025	004B1265	004B1281	004B2958	004B5225	004B379	004B1393	004B1045	004B1091	-	-
60	004B5030	004B1266	004B1282	004B2959	004B5230	004B1380	004B1394	004B1046	004B1092	-	-
70	004B5035	004B1267	004B1283	004B2960	004B5235	004B1381	004B1395	004B1047	004B1093	-	-
80	-	004B1268	004B1284	004B2961	004B5240	004B1382	004B1396	004B1049	004B1094	-	-
90	-	004B1269	004B1285	004B2962	004B5245	004B1383	004B1397	004B1083	004B1095	-	-
100	-	004B1270	004B1286	004B2963	004B5250	004B1384	004B1398	004B1084	004B1096	-	-
110	-	004B1271	004B1287	004B2964	004B5255	004B1385	004B1399	004B1085	004B1097	-	-
120	-	004B1272	004B1288	004B2965	004B5260	004B1386	004B1400	004B1086	004B1098	-	-
130	-	-	-	-	-	004B1387	004B1401	-	-	-	-
140	-	-	-	004B2966	004B5270	004B1388	004B1402	004B1087	004B1099	-	-
150	-	-	-	-	-	-	-	-	-	-	-
160	-	-	-	-	-	-	-	004B1088	004B1100	-	-
180	-	-	-	-	-	-	-	004B1089	004B1101	-	-
200	-	-	-	-	-	-	-	004B1090	004B1102	-	-

* Available on request

¹⁾ Primary / secondary

Accessories
Accessories for gasketed heat exchanger type XG

Type	Code No.			
	Gasket (set of 10) ⁶⁾	Plates (set of 10) ⁶⁾	Special plate set ¹⁾	Special plate set 2-pass ²⁾
XG 10	004B6931³⁾	004B6938	004B2930	004B2931
XG 14H	004B1301⁴⁾	004B1303	004B1309	004B1311
XG 18H	004B1302⁴⁾	004B1304	004B1310	004B1312
XG 20L	004B6932⁴⁾	004B2967	004B2968	004B2969
XG 20H		004B6939	004B2932	004B2933
XG 31L	004B1367⁴⁾	004B1368	004B1403	004B1406
XG 31H		004B1370	004B1404	004B1407
XG 40	004B6934⁴⁾	004B6941	004B2936	004B2937
XG 50	004B6935⁴⁾	004B6942	004B2938	004B2939
XG 60	004B6936⁵⁾	004B6943	004B2940	004B2941
XG 70	004B6937⁵⁾	004B6944	004B2942	004B2943

¹⁾ The set contains front plate, end plate and matching gaskets for 1-pass versions

²⁾ The set contains front plate, end plate, middle plate and matching gaskets for 2-pass versions

³⁾ Non-glued gasket

⁴⁾ Clip-on gasket

⁵⁾ Glued gasket

⁶⁾ Min. order size 10 pieces = 1 set (l-pack). Sets of 250 pieces available on inquiry.

Tailpieces for gasketed heat exchanger type XG

	Description	Suitable for	Connection	Code No. ¹⁾
	Solder tailpieces	XG10	G 1 A / 15 mm	004B2904
			G 1 A / 18 mm	004B2905
			G 1 A / 22 mm	004B2906
		XG14, XG18	G 1 ¼ A / 22mm, 28 mm	004B1358
			XG20	G 2 A / 28 mm
		G 2 A / 35 mm		004B2911
G 2 A / 42 mm	004B2912			
	Weld-on tailpieces	XG10	G 1 A / DN 15	004B2901
			G 1 A / DN 20	003H6909
			G 1 A / DN 25	004B2903
		XG14, XG18	G 1 ¼ A / DN 25	003H6910
			G 1 ¼ A / DN 32	004B1343
		XG20	G 2 A / DN 32	004B2907
			G 2 A / DN 40	004B2908
			G 2 A / DN 50	004B2909
	Threaded tailpieces	XG10	G 1 A / G 3/4 A	004B2913
			-	-

¹⁾ One set contains 2 tailpieces with unionnuts and gaskets

Accessories continued
Insulation for gasketed heat exchanger type XG

Type	XG 10-1	XG 14H-1	XG 18H-1	XG 20L-1 XG 20H-1	XG 31L-1 XG 31H-1	XG 40-1	XG 50-1
No of plates							
8	-			-	-	-	-
10	004B5115	004B1338	004B1318	004B5315	004B1361	-	-
20						-	-
30						-	-
40	004B5130	004B1314	004B1319	004B5330	004B1362	-	-
50						004B5730	004B5930
60							
70	004B5135	004B1315	004B1320	004B5345	004B1363	004B5745	004B5945
80	-						
90	-						
100	-	004B1316	004B1321	004B5360	004B1365	004B5760	004B5960
110	-						
120	-						
130	-	-	-	-	004B1366	-	-
140	-	-	-	004B5370		004B5790	004B5990
150	-	-	-	-	-	-	-
160	-	-	-	-	-	004B5790	004B5790
180	-	-	-	-	-		
200	-	-	-	-	-	004B5799	004B5999

Insulation properties

Type	Coated steel sheet and polyester insulation
Heatconductivity, λ [W/mK]	0.042
Max temperature, °C	
-Permanent, °C	150
-Short term peak, °C	180
Wall thickness, mm	30

Technical data

Type	XG 10-1	XG 14H-1	XG 18H-1	XG 20L-1 XG 20H-1	XG 31L-1 XG 31H-1	XG 40-1	XG 50-1
Max. working pressure (bar)	16 / (25) ¹⁾						
Max. operating temp. (°C)	150						
Min. operating temp. ²⁾ (°C)	-10						
Flow medium	Circulation water / glycolic water up to 50%						
Volume/channel (litres)	0.045	0.095	0.13	0.480	0.370	1.370	1.710
Heat surface, m ² /plate	0.021	0.049	0.074	0.122	0.141	0.288	0.383
Connection type	Thread ³⁾				Flange, DN	Place for flange ⁴⁾ , DN	
Connection size	G 1 A	G 1¼ A	G 1¼ A	G 2 A	DN 65	DN 100/125 ⁵⁾	
Plate material	Stainless steel, mat. no. EN 1.4404						
Gasket material, rubber	EPDM						

¹⁾ PN25 versions are available on inquiry. PN25 versions must be ordered separately using special codes, please contact your sales representative.

²⁾ At flow temp. below 2 °C glycolic water must be used

³⁾ Cylindrical external thread acc. to DIN ISO 228/1

⁴⁾ Flanges PN16, acc. to EN 1092, facing type B (B1)

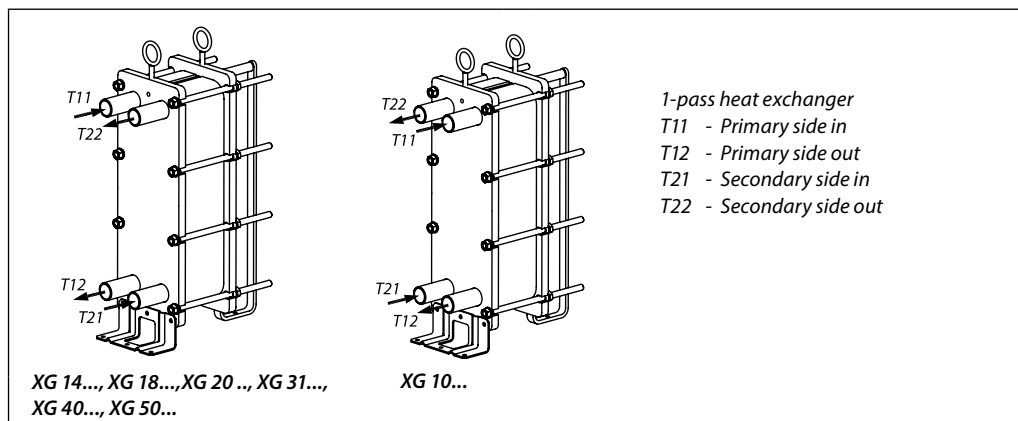
⁵⁾ Primary side / Secondary side

Technical data continued

Heat exchanger water volume	
Primary side	Secondary side
$(n/2-1) * \text{volume/channel}^{(1)}$	$n/2 * \text{volume/channel}^{(1)}$
n = number of plates	

Heat exchanger heat surface
$(n-2) * \text{heat surface/plate}$
n = number of plates

Design and function



The heat exchangers are made of shape-pressed heat plates between which the flow channels are created. Gaskets between the plates separate the flow channels from each other so that the flows do not mix. The heavy turbulence and counter-flow principle enables efficient heat transfer. The task of the heat exchanger is to transfer heat from the primary to secondary flow through a heat transfer plate thus preventing the flows from mixing with each other.

The plate heat exchanger with gaskets can be opened for cleaning and for replacement of plates and gaskets. A stepless output adjustment can be carried out by changing the number of plates.

The choice of heat exchanger is determined by the desired heat output, required temperatures and the permitted pressure losses.

Sizing

Dimensioning and selection of heat exchangers should be carried out with the support of the Danfoss dimensioning program for heat exchangers.

Mounting

The heat exchanger must be mounted in vertical position. Prepare the foundation for the heat exchanger if necessary, always according to local regulations. It is recommended that all pipes connected to the heat exchanger are equipped with shut-off valves for maintenance purposes.

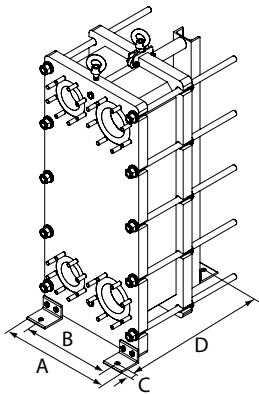
The pipes to be connected must be mounted so that the strain caused by the thermal expansion, for instance, does not harm the heat exchanger.

The pipes must be equipped with brackets to prevent any torsional stress concentration at the heat exchanger's pipe connections.

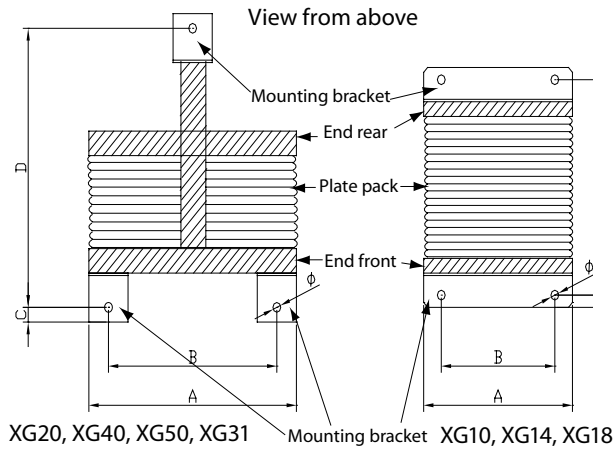
It is recommended that the heat exchanger is equipped with insulation.

A safety valve must be installed between the heat exchanger and the shut-off valves on the secondary side of the heat exchanger. If the safety valve is not installed, thermal expansion of fluid might destroy the heat exchanger when the shut-off valves are closed.

Assembly dimensions



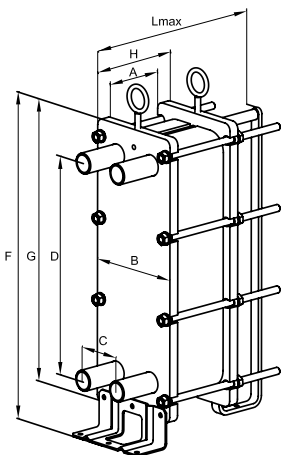
Example of XG40, XG50



Type	A	B	C	∅
XG10	158	100	15	9
XG14	200	92	12	10
XG18	200	92	12	10
XG20	300	234	20	13
XG31	360	234	20	13
XG40	540	430	30	20
XG50	540	430	30	20

Number of plates	Dimension-D mm						
	XG10	XG14	XG18	XG20	XG31	XG40	XG50
8	-	118	118	-	-	-	-
10	103,5	123	123	491	495	-	-
20	129	146	146	491	645	-	-
30	154,5	169	169	491	645	-	-
40	180	192	192	641	645	-	-
50	205,5	215	215	641	795	850	850
60	231	238	238	641	795	850	850
70	256,5	261	261	791	795	950	950
80	-	284	284	791	795	1150	1150
90	-	307	307	791	945	1150	1150
100	-	330	330	941	945	1150	1150
110	-	353	353	941	945	1150	1150
120	-	376	376	941	1095	1350	1350
130	-	-	-	-	1095	-	-
140	-	-	-	1091	1095	1350	1350
150	-	-	-	-	-	-	-
160	-	-	-	-	-	1650	1650
180	-	-	-	-	-	1650	1650
200	-	-	-	-	-	1650	1650

Dimensions



Type	Connection	External dimensions [mm]								Weight empty [kg]
		A	B	C	D	G	H	F	L _{max}	
XG 10-...	G 1 A ¹⁾	2.55*n	158	65	235	310	A+30	460	500	0.2*n+16
XG 14H-...	G 1 1/4 A ¹⁾	2.4*n	200	80	430	560	A+60	675	550	0.34*n+52
XG 18H-...	G 1 1/4 A ¹⁾	2.4*n	200	80	630	760	A+60	875	550	0.46*n+72
XG 20L-... XG 20H-...	G 2 A ¹⁾	3.5*n	300	140	640	835	A+60	910	1300	0.8*n+125
XG 31L-... XG 31H-...	DN 65 ²⁾	2.95*n	360	150	665	910	A+60	965	1600	1.22*n+170
XG 40-...	DN 100/125 ^{2) 3)}	4.25*n	540	240	856	1198	A+100	1238	2500	2.2*n+550
XG 50-...	DN 100/125 ^{2) 3)}	4.25*n	540	240	1096	1438	A+100	1478	2500	2.8*n+675

n = number of plates

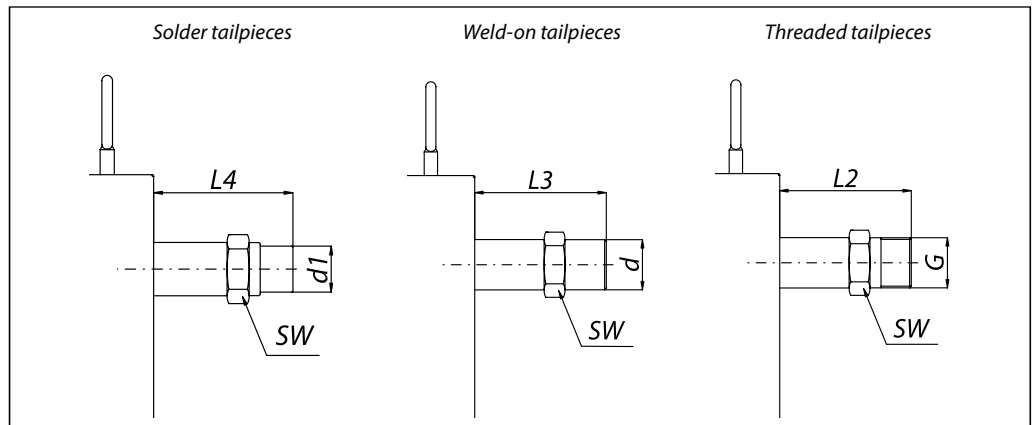
L_{max} = Length of a heat exchanger with maximum number of heat plates

¹⁾ Cylindrical external thread acc. to DIN ISO 228/1

²⁾ Flanges PN16, acc. to EN 1092, facing type B (B1)

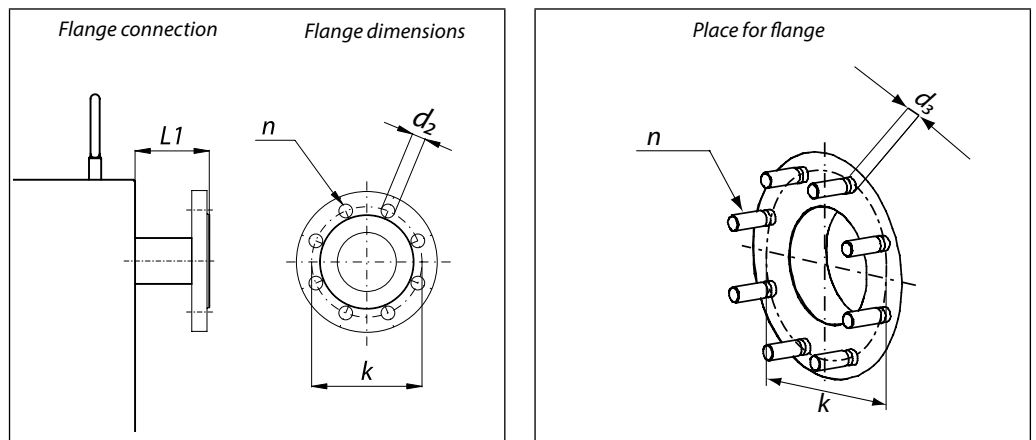
³⁾ Primary side / Secondary side

Dimensions continued



G		G 1 A			G 1 ¼ A		G 2 A		
SW	mm	41			47		71		
G ¹⁾	-	G ¾ A	-	-	-	-	-	-	-
d	mm	21,3 (DN 15)	26,9 (DN 20)	33,5 (DN 25)	33,5 (DN 25)	42,4 (DN 32)	42,4 (DN 32)	48,5 (DN 40)	60,3 (DN 50)
d ₁		15	18	22	22	28	28	35	42
L ₂		117	-	-	-	-	-	-	-
L ₃		117	117	117	90	90	175	175	175
L ₄		117	117	117	90	90	175	175	175

¹⁾ Cylindrical external thread acc. to DIN ISO 228/1

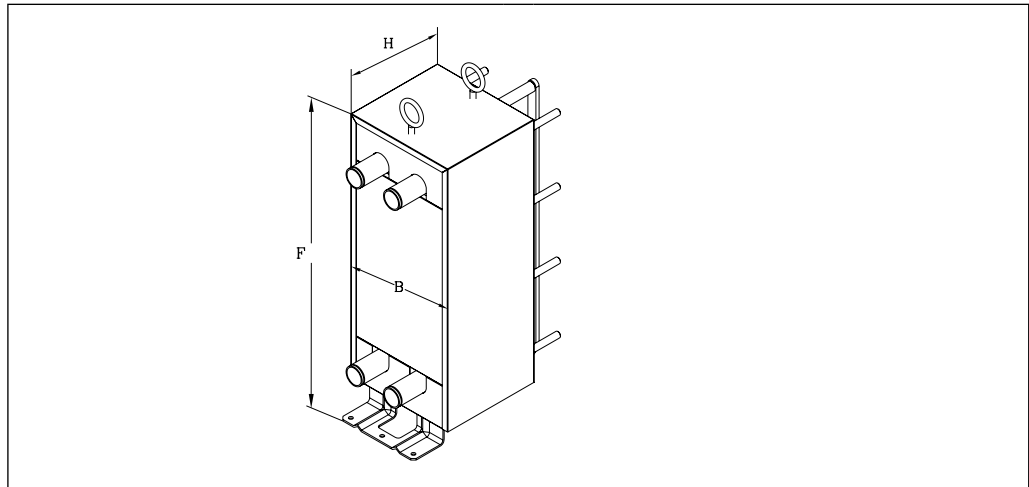


DN		65	100	125
L ₁ ¹⁾	mm	200/100 ²⁾	Place for flange	Place for flange
k		145	180	210
d ₂		18	18	18
n		4	8	8
d ₃				M16

¹⁾ Flanges PN16, acc. to EN 1092, facing type B (B1)

²⁾ Primary / secondary

Dimensions continued



Insulation for gasketed heat exchanger type XG

Type	XG 10-1	XG 14H-1	XG 18H-1	XG 20L-1 XG 20H-1	XG 31L-1 XG 31H-1	XG 40-1	XG 50-1
F (mm)	490	705	905	940	980	1248	1488
B (mm)	218	260	260	360	420	600	600
No of plates	H (mm)						
8	-	192		-	-	-	-
10	168			225	203	-	-
20						-	-
30		-	-				
40	246	264	330	285	415		
50							
60							
70	272	336		435	368	543	
80	-						
90	-						
100	-	408		540	450	670	
110	-						
120	-						
130	-	-	-	-	505	-	-
140	-	-	-	610		925	
150	-	-	-	-	-	-	-
160	-	-	-	-	-	925	
180	-	-	-	-	-		
200	-	-	-	-	-		

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