

Sample Cooler

DHx Series



Sample Cooler

The Forbes Marshall DHx sample cooler has been designed to cater to sampling requirements of highly efficient high-pressure boilers and power plants. These are compact yet more effective in terms of heat extraction capacity.

Forbes Marshall, is one of the few sample cooler manufacturers in the world which has in-house test rigs for performance testing, and world class manufacturing and welding facilities. We offer one of the most trusted sample coolers in the power sector.

Features

Forbes Marshall sample coolers are double helical coil-in-shell-type contra-flow heat exchangers. The counter flow technique of the sample and the cooling water, ensures that the sample and cooling water flow in opposite directions, thus resulting in effective cooling of the sample.

DHx series sample coolers are designed in line with ASME PTC 19.11-2008 and ASME Section VIII standards. Both mechanical and thermal designs for these coolers are validated by a third party.

The design of these coolers is validated by Indian Institute of Technology, Bombay for required approach temperatures as per ASME PTC 19.11 standards.

Required Parameters for Sample Cooler Selection

Cooling water

Example

Inlet temperature	36 °C (max)
Inlet pressure	3.5 Kg/cm ²
Outlet pressure	Open to atmosphere
Quality/chloride content	Less than 35ppm

Note: If some other quality of cooling water is to be used, please check the chloride content in it. For chloride content special models are available on request.

Sample

Temperature	560 °C (working)
Pressure	250 Kg/cm ²
Quality	Turbine inlet steam

Note : Please consult Forbes Marshall for the sizing calculations for selecting the appropriate sample cooler for your applications.

Application Standards

American	ASTM section VII Div I and ASTM PTC 19.11-2008
British	CEGB standard (GDGD 163 & GDGD 234)
German	VGB codes

Ordering Information

For Forbes Marshall Double Helix Series

03 : 3m coil
06 : 6m coil
12 : 12m coil
18 : 18m coil

0 : 1/4" OD
1 : 3/8" OD

0 : SS 316 coil
1 : Monel 400 coil
2 : Inconel 625 coil
3 : SS 316L coil
4 : SS 310 coil
5 : SS 316H

0 : NIBR
1 : IBR
2 : Coil - ASME

0 : SS304-Shell
1 : SS316-Shell
2 : SS316L-Shell

0 : Std shell
1 : Teflon Coating
2 : ASME Shell

DHx

A

B

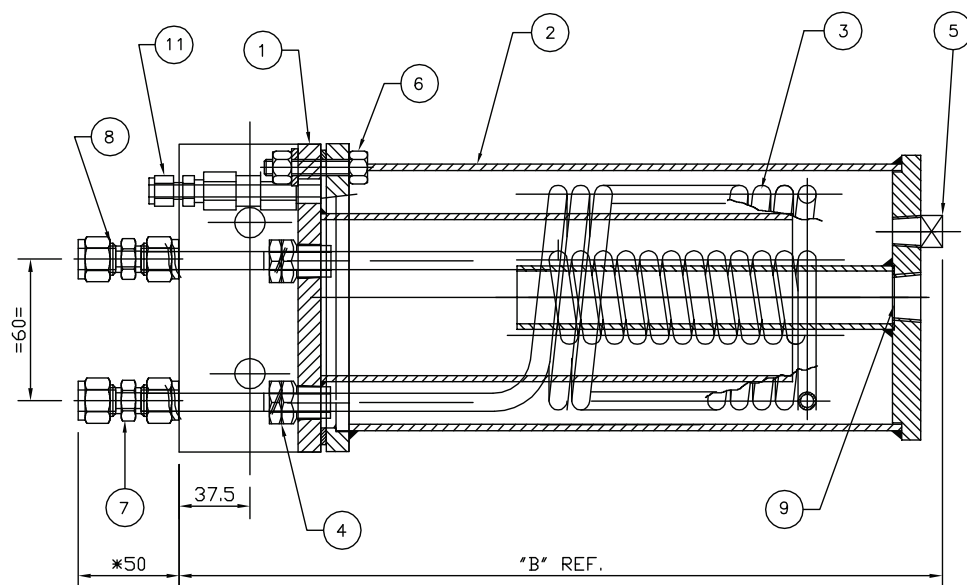
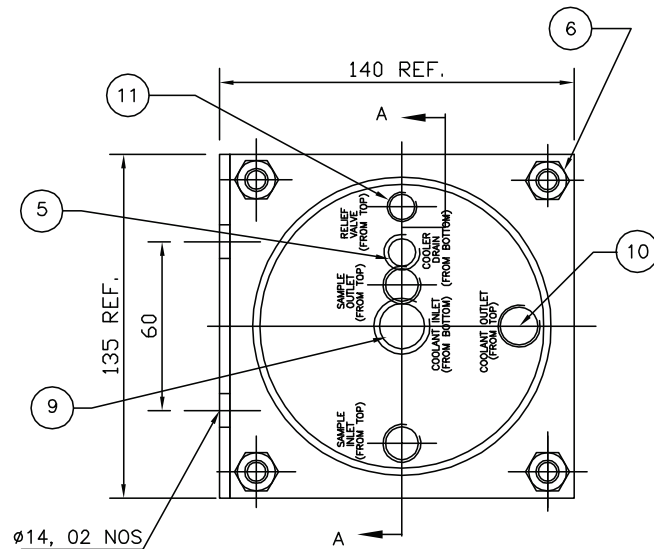
C

D

E

F

Mounting Detail for 1/4" OD Model



Bill of Material

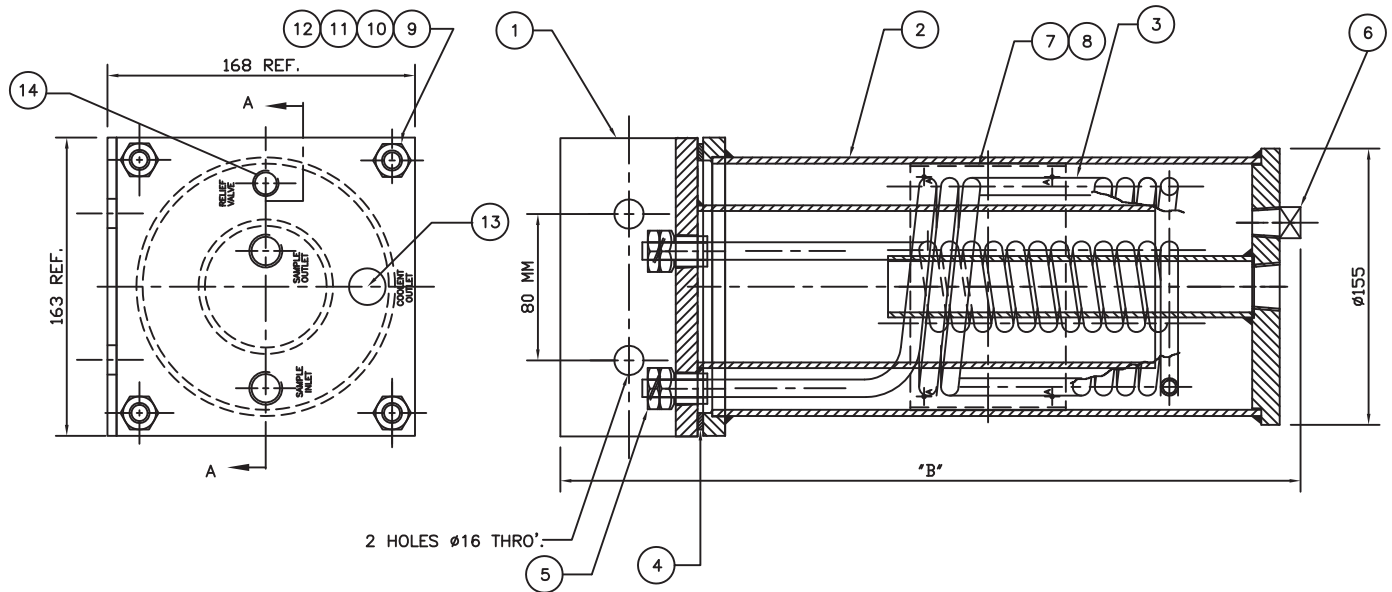
S.No.	Description	Qty.	S.No.	Sample Cooler Model	"B" mm
1	Top flange assembly	1	1	DHx-3-0-X-X-X-X	240 REF.
2	Shell assembly	1	2	DHx-6-0-X-X-X-X	410 REF.
3	Sample coil	1	3	DHx-12-0-X-X-X-X	410 REF.
4	Male connector 1/4" OD	1	3	DHx-18-0-X-X-X-X	560 REF.
5	1/4" NPT drain plug	2			
6	Nut, bolt and washer assembly	2			
7	Sample inlet: 1/4" ODX 1/4" OD	1			
8	Sample outlet: 1/4" ODX 1/4" OD	1			
9	C/W inlet: 3/4" NPT (F)	1			
10	C/W outlet: 3/4" NPT (F)	1			
11	Pressure relief valve	1			

Note : Cooler to be packed in polythene bag and sealed properly for spare order.

Shell Material

Material	Stainless Steel ASTM A240 TP304/316/316L
Cooling water inlet size	3/4" NPT(F) bottom
Cooling water outlet size	3/4" NPT(F) top
Design pressure (Kg/cm) ²	10
Hydro-test pressure (Kg/cm) ²	15
Shell relief valve (inbuilt) size	Double ferrule compression fitting for 1/4" OD tube

Mounting Detail for 3/8"OD Model



Bill of Material

S.No.	Description	Qty.
1	Top flange assembly	1
2	Shell assembly	1
3	Sample coil	1
4	Gasket	1
5	Connct. 3/8"OD X 3/ 8 NPT (M)	2
6	1/4" NPT plug	1
7	Specification label	1
8	Hammer drive rivet no.8	4
9	Bolt hex HD M10 X 35L	4
10	Nut hex HD M10	4
11	Plain washer M10	4
12	Spring washer M10	4
13	Socket 1" NPT(F)	1
14	Safety relief valve	1
15	Union 3/8"OD X 3/8"OD	2

S.No.	Sample Cooler Model	"B" mm
1	DHx-6-1-X-X-X-X	404 REF.
2	DHx-12-1-X-X-X-X	524 REF.
3	DHx-18-1-X-X-X-X	664 REF.

Note : Cooler to be packed in polythene bag and sealed properly for spare order.

Shell Material

Material	Stainless steel ASTM A240 TP304/316/316L
Cooling water inlet size	1" NPT(F) bottom
Cooling water outlet size	1" NPT(F) top
Design pressure (Kg/cm) ²	10
Hydro-test pressure (Kg/cm) ²	15
Shell relief valve (inbuilt) size	Double ferrule compression fitting for 1/4" OD tube



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