

A

A

B

B

C

C

D

D

E

E

F

F

Available executions


Execution No.	Material ID	Attribute 1: HT_static-pressure	
		Buffer unit	Exp. tank
001	PAAD302611		X
002	PAAD361071	X	

NOTE

The above executions can be configured using the Engine Configurator.

Detailed guidance for the executions is provided within the Marine Installation Manual (MIM). If a specific execution of interest is not shown in the above table, then it may still be under development or not available. For further information or in case of a project-specific request, WinGD must be contacted directly.

This publication is designed to provide accurate and authoritative information with regard to the subject-matter covered as it was available at the time of printing. However, the publication deals with complicated technical matters suited only for specialists in the area, and the design of the subject-products is subject to regular improvements, modifications and changes. Consequently, the publisher and copyright owner of this publication cannot accept any responsibility or liability for any eventual errors or omissions in this document or for discrepancies arising from the features of any actual item in the respective product being different from those shown in this publication. The publisher and copyright owner shall under no circumstances be held liable for any financial consequential damages or other loss, or any other damage or injury, suffered by any party making use of this publication or the information contained herein.


Prod.	X92-B										
Change History											
	-	sna102				new Design					
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis			Activity Code	E	C
<div>WIN GD</div> <div>Winterthur Gas & Diesel</div>				CENTRAL COOLING WATER SYSTEM							
				MIDS master drawing							
separate BOM available				Dimension							
Scale	-		NX	Units [mm] [kg]	Basic Material			Net Weight 0.001			
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the drawing the recipient recognizes and honours these rights. Neither the whole nor any part of this drawing may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.				Main Design	Design Group	9721	Q-Code	XXXXX	Standard	WDS	
				Qty per	A4	Item ID	PTAA026403		Drawing Page/s	1/1	

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	1	PAAD302601	CENTRAL COOLING WATER SYSTEM				0.001
003	1	107.429.532.500	CONCEPT GUIDANCE				0.001
Prod.	6,7,8,9,10,11,12 X92-B						
Change History							
	A	sde101	mhu019	05.10.2020	EAAD092431	Legacy information. See corresponding ChangeNotice	4 3
	-	sde101	mhu019	21.03.2019	EAAD783943	-	- -
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code E C
<div>WIN GD</div> <div>Winterthur Gas & Diesel</div>			COOLING WATER SYSTEMS				
Bill Of Material			Dimension				
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the document the recipient recognizes and honours these rights. Neither the whole nor any part of this document may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.			Units	[m] [kg]	Basic Material		Net Weight 0.001
			Main Design	Yes	Design Group	9721 Q-Code XXXXX	Standard WDS
			Qty per	Engine	A4	Item ID PAAD302611	BOM Page/s 01/01

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
015	1	107.413.097.500	EXPANSION TANK			0.001
016	1	107.245.419.500	EXPANSION TANK			0.001

Prod.	X92-B							
-------	-------	--	--	--	--	--	--	--



	<h1 style="text-align: center;">CENTRAL COOLING WATER SYSTEM</h1> <h2 style="text-align: center;">HT-static-pressure: expansion tank</h2>				
Bill Of Material	Dimension HT-static-pressure: expansion tank				
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the document the recipient recognizes and honours these rights. Neither the whole nor any part of this document may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.	Units [m] [kg]		Basic Material		Net Weight 0.001
	Main Design		Design Group 9721		Q-Code X X M
	Qty per		A4 Item ID		Standard WDS
			PAAD302601		BOM Page/s 01/01



2	<p>INLET - Cylinder cooling water (HT water)</p> <ul style="list-style-type: none"> - Cooling water pressure: 2.0 - 4.0 bar - Cooling water volume flow: according to GTD specification - Cooling water (freshwater) must be treated according to WinGD's specification - Pre-heating: The engine must be warmed-up by heated HT water to min. 60 °C before engine start - HT cooling water amount on engine side: Given in table 1 on page 2
3	<p>OUTLET - Cylinder cooling water (HT water)</p> <ul style="list-style-type: none"> - Cooling water temperature - Controller set-point: 90 °C (controller type: PI) - Steady state condition: 90 ± 2 °C - Transient condition: 90 ± 4 °C
7	<p>INLET - Scavenge air cooler (SAC) cooling water (LT water)</p> <ul style="list-style-type: none"> - Cooling water pressure: 2.0 - 4.0 bar - Cooling water temperature set point: 10 °C, - 36 °C - Cooling water volume flow: according to GTD specification - Cooling water (freshwater) must be treated according to WinGD's specification - LT cooling water amount on engine side: Given in table 1 on page 2
8	<p>OUTLET - Scavenge air cooler (SAC) cooling water (LT water)</p> <ul style="list-style-type: none"> - Cooling water volume flow: according to GTD specification, adjusted by an orifice in the outlet pipe on shipside

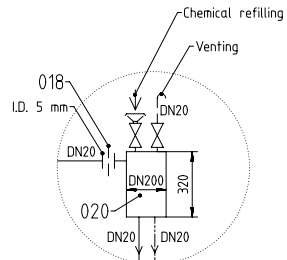
SURFACE PROTECTION SEE GROUP 0344
TOLERANCING PRINCIPLE ISO8015
GENERAL TOLERANCES ACCORDING TO ISO2768-mK

SYSTEM PROPOSAL

Pos.	ENGINE COMPONENTS *3)
EC01	Automatic venting unit
EC02	Manual vent valve, for each cylinder *15)
EC03	Scavenge air cooler (SAC)
EC04	Air separator

Pos.	ENGINE CONNECTIONS *2)
②	INLET - Cylinder cooling water (HT water)
③	OUTLET - Cylinder cooling water (HT water)
⑦	INLET - Scavenge air cooler (SAC) cooling water (LT water) *7)
⑧	OUTLET - Scavenge air cooler (SAC) cooling water (LT water) *7)

Pos.	SYSTEM COMPONENTS *1)
001	Low sea chest
002	High sea chest
003	Seawater strainer
004	Air vent (air vent pipe or equal venting system acc. to shipyard's design)



DETAIL "A"

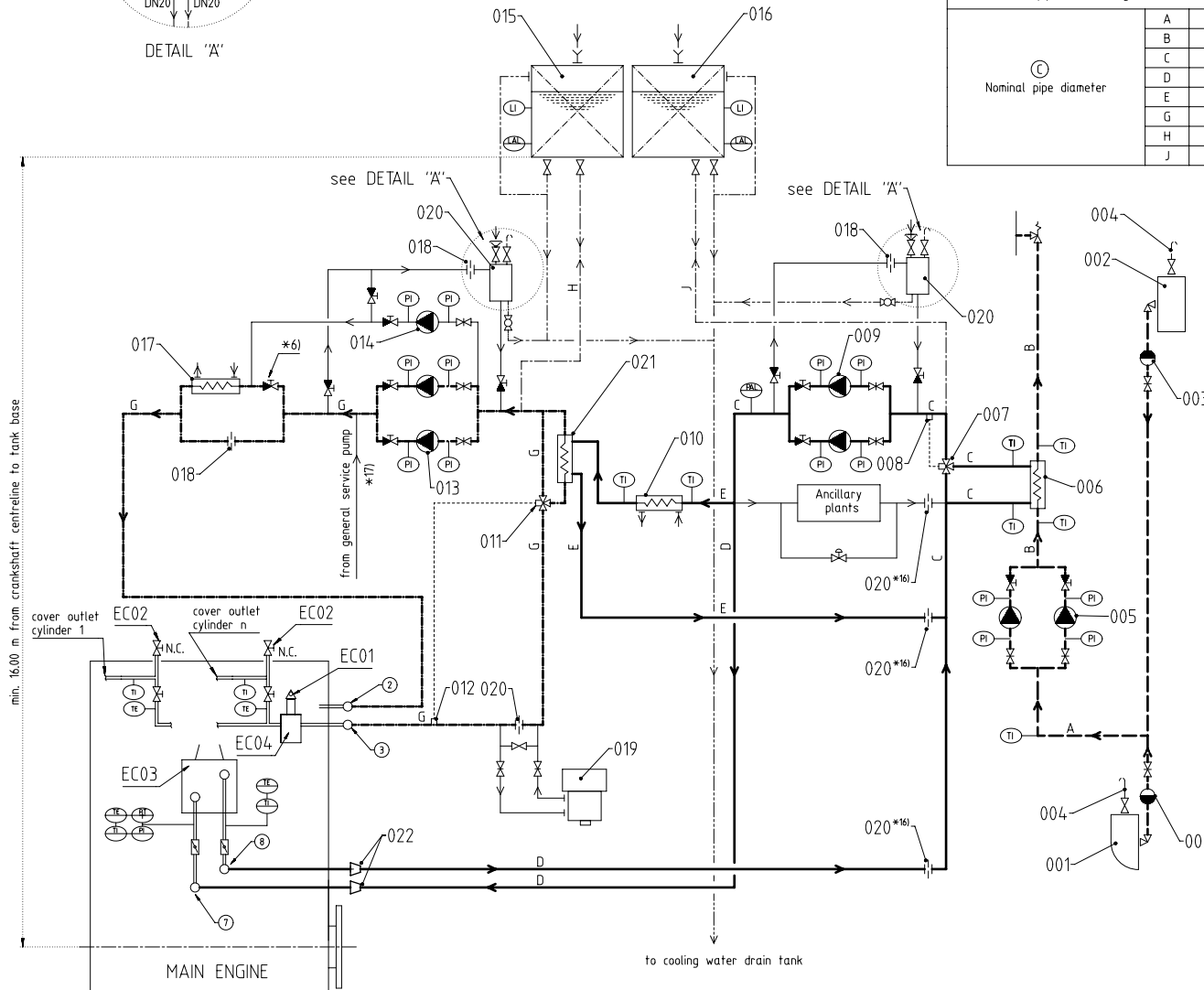


Table 1: Water content on engine side

Cylinder	HT circuit Cyl. C.W. Volume (l)	LT circuit SAC Volume (l)
6	4550 l	1700 l
7	5300 l	2150 l
8	6100 l	2050 l a) / 2350 l b)
9	6850 l	2450 l a) / 2550 l b)
10	7600 l	2400 l a) / 3100 l b)
11	8350 l	3000 l
12	9150 l	3150 l

a) Values for executions with 2 scavenge air coolers.
b) Values for executions with 3 scavenge air coolers.

Seawater pipes	---
freshwater pipes	—
freshwater pipes	---
Balance pipes	----
y equipment pipes	—
rain/overflow pipes	----
Air vent pipes	---
Control/feed back	----
Pipes on Engine	==
Pipe connections	○

Remarks:

- Air vent and drain pipes not shown on drawing.
Shall be installed where required.
- Air vent and drain pipes must be fully functional at all inclination angles of the ship at which the engine must be operational.

*1) To be delivered by external supplier and to be installed by the shipyard.

*2) Refer to the "Pipe Connection Plan" for the execution and location of the engine pipe connection.

*3) To be delivered by the engine manufacturer, i.e. already equipped on engine side.

*4) To be installed for cooling water after-treatment during regular engine operation. Convenient dimensions are provided in view "A". Other designs are possible.

*5) When using a valve, lock in proper position to avoid mishandling.

*7) The inlet and outlet pipes to SAC must be designed to allow engine thermal expansion, or be fitted with expansion pieces.

*8) For guidance only, final layout according to actual engine pre-heating requirements.

*9) Installed as required (check with "Pipe Connection Plan")

*11) All given diameters are valid for the mentioned rating and serve just as an example. To make the layout for the project specific rating

please refer to DG9730 "Fluid velocities and flow rates, recommended values for pipework of diesel plants" for selecting the appropriate pipe

*13) A constant temperature at engine inlet must be maintained.

Temperature set-point can be selected between 10 - 36 °C. WinGD recommends a set-point of 25 °C. A lower LT water temperature assists

the main engine to reach lower BSFC. If the ancillary plants require a temperature lower or greater than the LT water set-point, a separate

temperature lower or greater than the 60 °C water set-point, a separate water supply system with different temperature set-point has to be installed (please refer to the system proposal in MIM)

*14) A constant temperature at engine outlet must be maintained.
Required controller set-point for main engine operation is 90 °C.

*15) Only to be used for manual venting of isolated cylinders after maintenance.
To be kept close during engine operation.

*17) Optional connection. To be installed if requested by class rules for

*17) Optional connection, to be installed if requested by class rules for emergency engine cooling.

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
002	1	PAAD360910	CENTRAL COOLING WATER SYSTEM				0.001
003	1	107.429.532.500	CONCEPT GUIDANCE				0.001
Prod.	6,7,8,9,10,11,12 X92-B						
Change History							
	-	sde101	mhu019	05.10.2020	EAAD092431	Legacy information. See corresponding ChangeNotice	4 3
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code E C
<div>WIN GD</div> <div>Winterthur Gas & Diesel</div>			COOLING WATER SYSTEMS				
Bill Of Material			Dimension				
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the document the recipient recognizes and honours these rights. Neither the whole nor any part of this document may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.			Units	[m] [kg]	Basic Material		Net Weight 0.001
			Main Design	Yes	Design Group	9721 Q-Code XXXXX	Standard WDS
			Qty per	Engine	A4	Item ID PAAD361071	BOM Page/s 01/01



- [illegible]

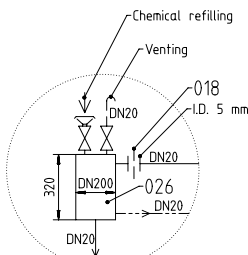
GENERAL TOLERANCES ACCORDING TO ISO2768-mk

Main Design	Design Group		9721	Q-Code	X	X	M	Standard	WDS
Qty per	A2	Item ID	PAAD360910				Drawing Page/s	1/2	

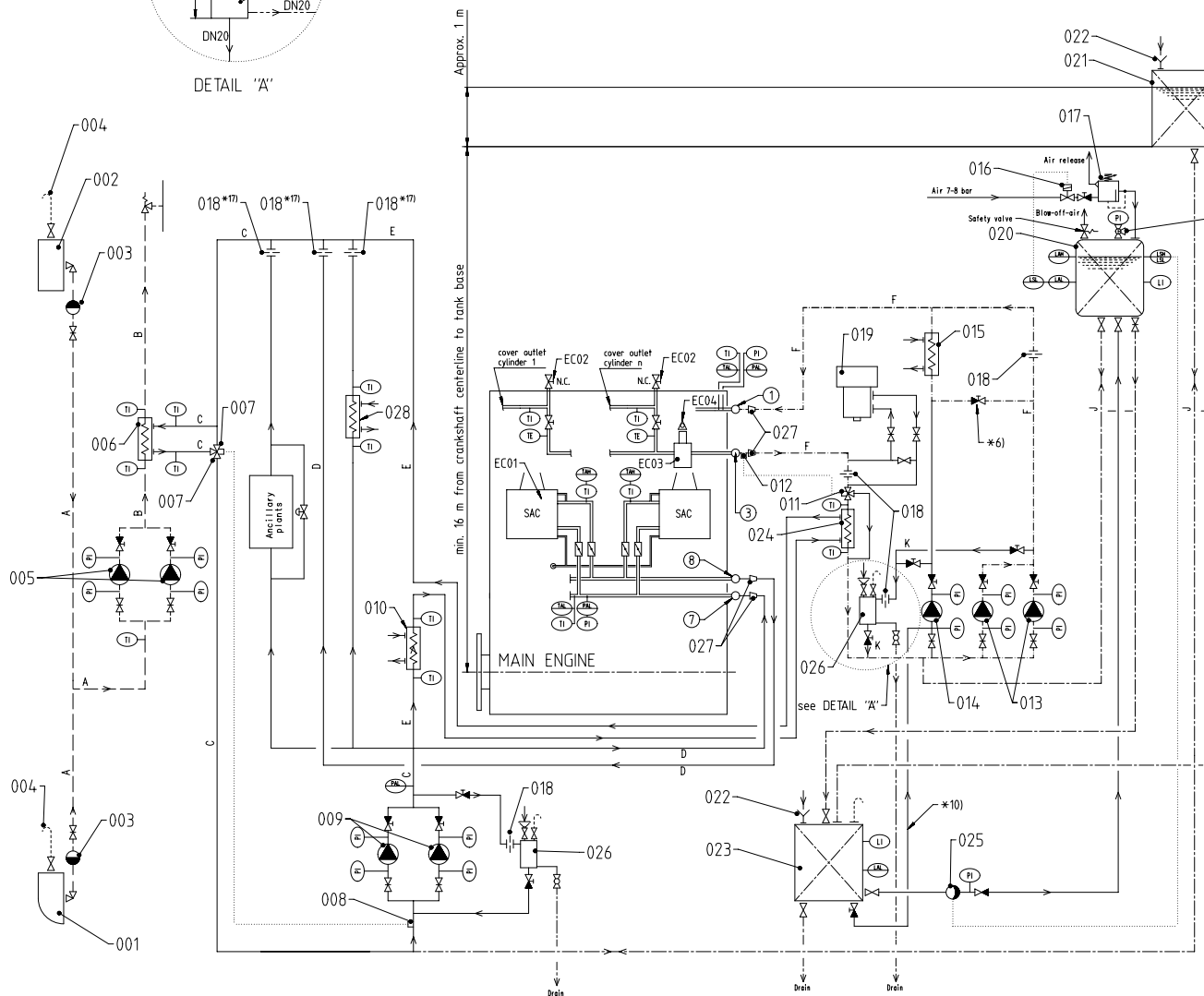
SYSTEM PROPOSAL

Pos.	ENGINE CONNECTIONS *2)
①	INLET - Cylinder cooling water (HT water)
③	OUTLET - Cylinder cooling water (HT water)
⑦	INLET - Scavenge air cooler (SAC) cooling water (LT water) *7)
⑧	OUTLET - Scavenge air cooler (SAC) cooling water (LT water) *7)

Pos.	ENGINE COMPONENTS *3)
EC01	Scavenge air cooler (SAC)
EC02	Manual vent valve, for each cylinder *16)
EC03	Air separator
EC04	Automatic venting unit



DETAIL "A"



Number of cylinders	6	7	8	9	10	11	12
Main engine X92-B (R1 rated)	38700	45150	51600	58050	64500	70950	77400
Buffer unit for HT circuit	Cap. (m³)	1.2	1.2	1.2	1.2	1.2	1.2
Cylinder cooling water feed tank only min.	Cap. (m³)	2.5	2.5	2.5	2.5	2.5	2.5
CCW feed and drain tank (combined) min.	Cap. (m³)	8	8	9	10	11	12
Cooling water expansion tank (LT)	Cap. (m³)	Depending on ancillary plants					

PROPOSAL for pipe dimensioning *11)

	A	DN	Yard determination, suitable for main engine and ancillary plants					
B	DN							
C	DN							
D	DN	250	300	300	300	350	350	350
E	DN	200	200	250	250	250	250	250
F	DN	200	200	250	250	250	250	300
I	DN	100	100	100	100	100	100	100
J	DN	100	100	100	100	100	100	100
K	DN	20	20	20	20	20	20	20

Ⓐ
Nominal pipe diameter

Table 1: Water content on engine side

Cylinder	HT circuit Cyl. C.W. Volume (l)	LT circuit SAC Volume (l)
6	4550 l	1700 l
7	5300 l	2150 l
8	6100 l	2050 l a) / 2350 l b)
9	6850 l	2450 l a) / 2550 l b)
10	7600 l	2400 l a) / 3100 l b)
11	8350 l	3000 l
12	9150 l	3150 l

a) Values for executions with 2 scavenge air coolers.
b) Values for executions with 3 scavenge air coolers.

- Seawater pipes ---
- LT freshwater pipes —
- HT freshwater pipes ---
- Balance pipes ---
- Ancillary equipment pipes —
- Drain/overflow pipes ----
- Air vent pipes ----
- Control/feed back
- Pipes on Engine ==
- Pipe connections ○

Pos.	SYSTEM COMPONENTS *1)
001	Low sea chest
002	High sea chest
003	Seawater strainer
004	Air vent (air vent pipe or equal venting system acc. to shipyard's design)
005	Seawater circulating pump
006	Central cooler (LT cooling water)
007	Automatic temperature control valve for LT circuit *13)
008	LT water temperature sensor *13)
009	Cooling water pump for LT circuit
010	Lubricating oil cooler
011	Automatic temperature control valve for HT circuit *14)
012	HT water temperature sensor *14)
013	Cylinder cooling water pump for HT circuit
014	Pre-heating circulating pump (optional), cap. 10% from cylinder cooling pump *8)
015	Pre-heater for main engine (HT circuit)
016	Solenoid valve (air inlet to be interlocked with min. water level)
017	Control air valve with air release function *15) (to be adjusted to ensure CW pressure at ME inlet 4 - 5 bar(g))
018	Throttling disc *5)
019	Freshwater generator
020	Buffer unit for HT circuit (link to detail drawing on page 1)
021	LT water expansion tank (link to detail drawing on page 1) *18)
022	Filling pipe / inlet chemical treatment
023	Cylinder cooling water feed & drain tank (or feed tank only)
024	Cylinder cooling water cooler
025	Supply pump, automatic level control (0.5 m³/h at 4 bar)
026	Chemical treatment refill unit *4)
027	Transition piece (adapter) *9)
028	MDO/MGO cooler

Remarks:

- Air vent and drain pipes not shown on drawing. Shall be installed where required.
- Air vent and drain pipes must be fully functional at all inclination angles of the ship at which the engine must be operational.
- *1) To be delivered by external supplier and to be installed by the shipyard.
- *2) Refer to the "Pipe Connection Plan" for the execution and location of the engine pipe connection.
- *3) To be delivered by the engine manufacturer, i.e. already equipped on engine side.
- *4) To be installed for cooling water after-treatment during regular engine operation. Convenient dimensions are provided in view "A". Other designs are possible.
- *5) When using a valve, lock in proper position to avoid mishandling.
- *6) Only when pos. 014 is installed.
- *7) The inlet and outlet pipes to SAC must be designed to allow engine thermal expansion, or be fitted with expansion pieces.
- *8) For guidance only, final layout according to actual engine pre-heating requirements.
- *9) Installed as required (check with "Pipe Connection Plan").
- *10) Optional filling line to enable fast system re-filling (e.g. after a complete system draining) by means of the pre-heating pumps.
- *11) All given diameters are valid for the mentioned rating and serve just as an example. To make the layout for the project specific rating please refer to DG9730 "Fluid velocities and flow rates, recommended values for pipework of diesel plants" for selecting the appropriate pipe diameter. Rating specific flow rates are provided by GTD.
- *13) A constant temperature at engine inlet must be maintained. Temperature set-point can be selected between 10 - 36 °C. WinGD recommends a set-point of 25 °C. A lower LT water temperature assists the main engine to reach lower BSFC. If the ancillary plants require a temperature lower or greater than the LT water set-point, a separate water supply system with different temperature set-point has to be installed (please refer to the system proposal in MIM).
- *14) A constant temperature at engine outlet must be maintained. Required controller set-point for main engine operation is 90 °C.
- *15) If the selected control air valve does not have the integrated air release functionality a separate air release valve can be installed as alternative on the top of the buffer unit.
- *16) Only to be used for manual venting of isolated cylinders after maintenance. To be kept close during engine operation.
- *17) Optional, only to be installed if needed for hydraulic balancing.
- *18) If gas driven auxiliaries are connected to the LT circuit, the LT expansion tank must be gas tight and has to be vented to a safe area outside of engine room.

12		13		14		15		16	
Pos.	SYSTEM COMPONENTS *1)								
020	Residue oil tank								
021	Suction strainer *16)								
022	Lubricating oil pump <div style="margin-left: 40px;">one for transfer and separator service</div> <div style="margin-left: 40px;">one for separator service</div>								
023	Lubricating oil heater with relief valve and temperature control								
024	Self-cleaning centrifugal separator								
025	Clean lubricating oil tank								
026	Dirty lubricating oil tank								
027	Deck connection								
028	Float non-return valve								
029	LO sampling cock *21)								

Remark:

- Air vents and drain valves where necessary
- Air vent and drain pipes must be fully functional at all inclination angles of the ship at which the engine must be operational (check class rules)
- Pipe diameters to be designed according to shipyards' practice and component suppliers' recommendations

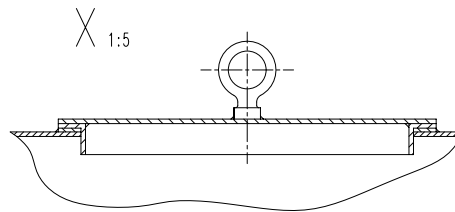
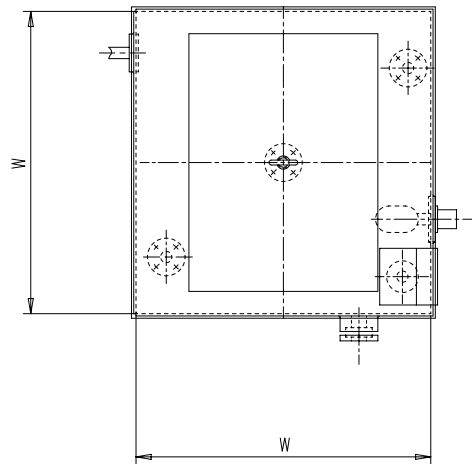
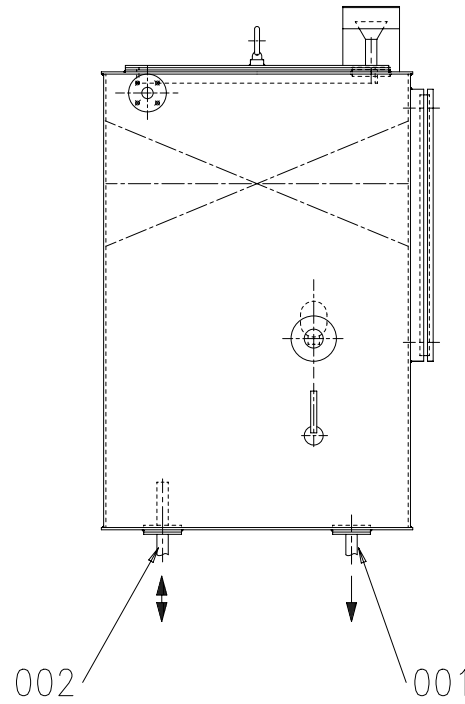
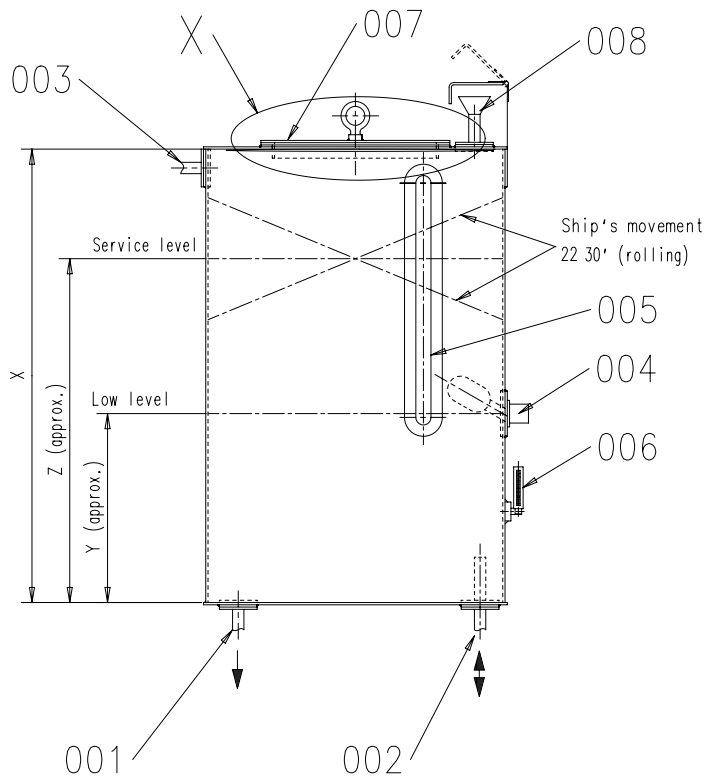
*) To be delivered by external supplier and to be installed by the shipyard

*) Mesh size according to pump suppliers recommendation.

*) Recommended position for LO sampling to check LO quality / treatment efficiency.

*) Based on the min. recommended tank filling level (h1) as mentioned in the "Filling Guideline" drawing. If a larger tank volume is applied, LO separators capacity needs to be increased accordingly (it is recommended that the oil is circulated at least two times per day).

[illegible]



drawing view shows dimensioning scale for 0.75 m³ capacity

Pos.	Description
001	Drain from HT circuit
002	Balance pipe from HT circuit
003	Overflow/air vent
004	Low level alarm
005	Level indicator *1)
006	Thermometer
007	Inspection cover *2)
008	Filling pipe/inlet chemical treatment *2)

Remarks:

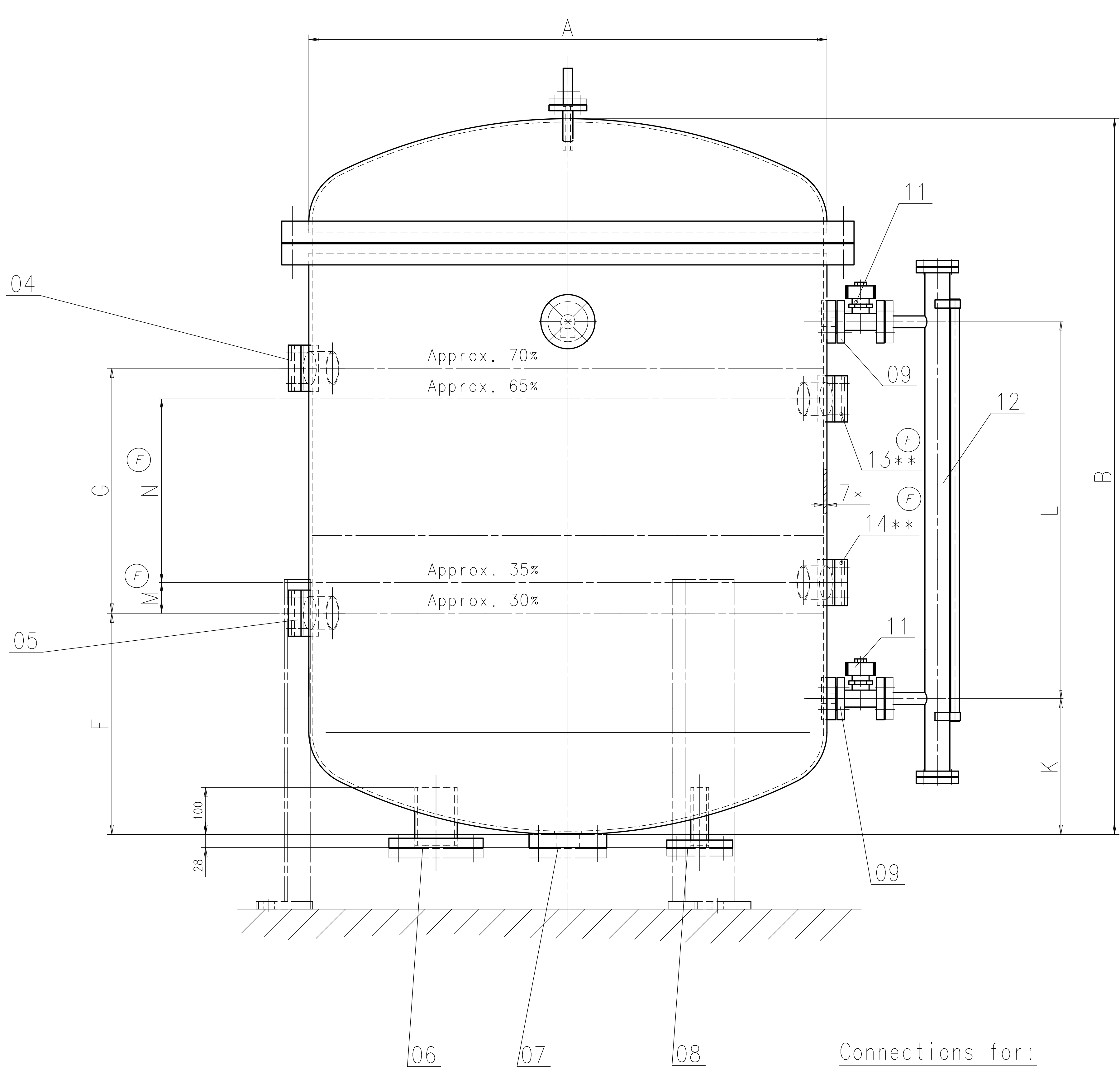
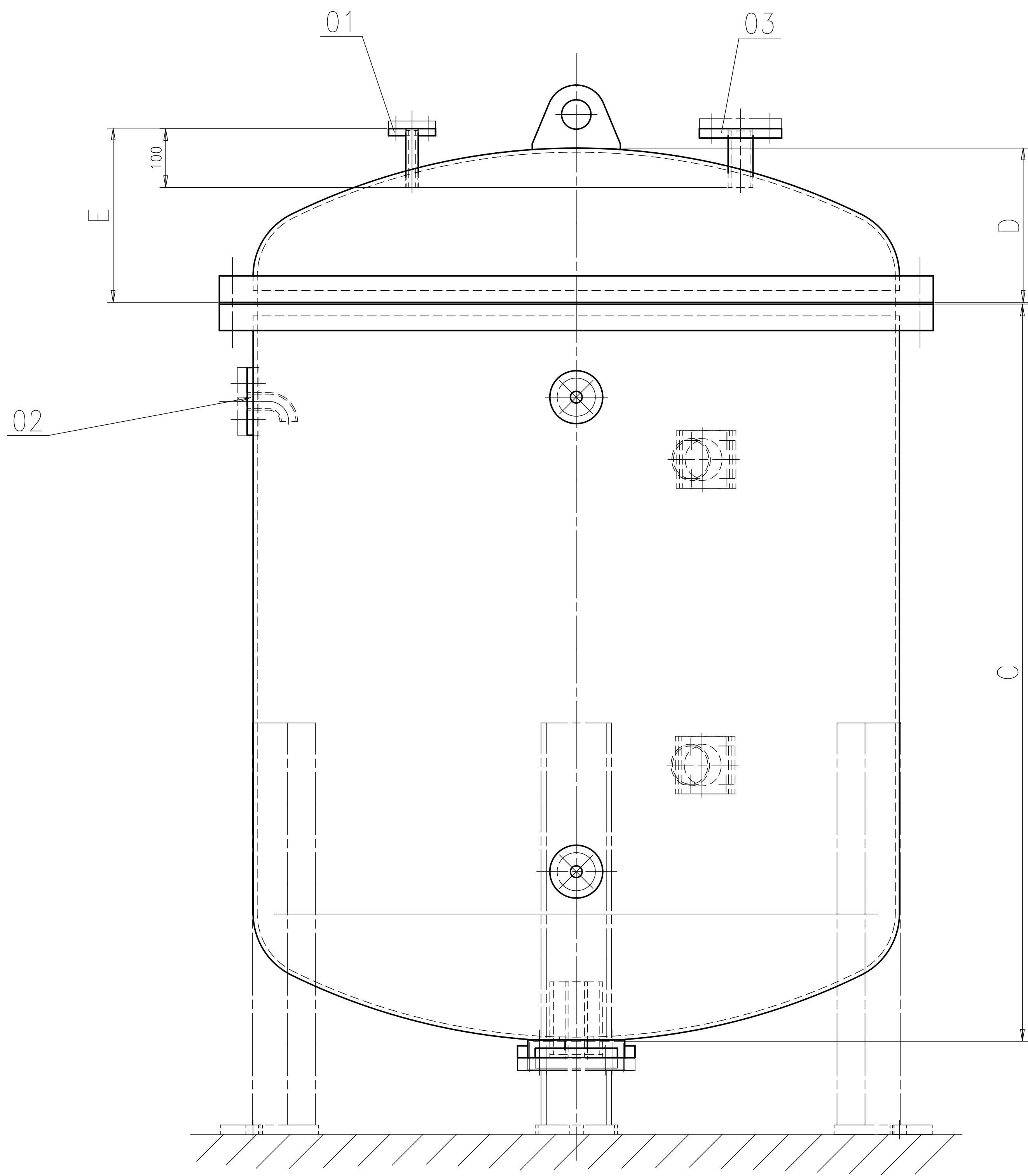
- *1) Level indicator can be omitted if an alternative is fitted.
*2) Other designs like hinged covers, etc. are also possible

- Tank dimensions are defined by the Tank capacity, as seen in Table 1.
For capacity and pipe diameter, refer to drawing 'Central cooling water system'.

Table 1: Tank dimensions

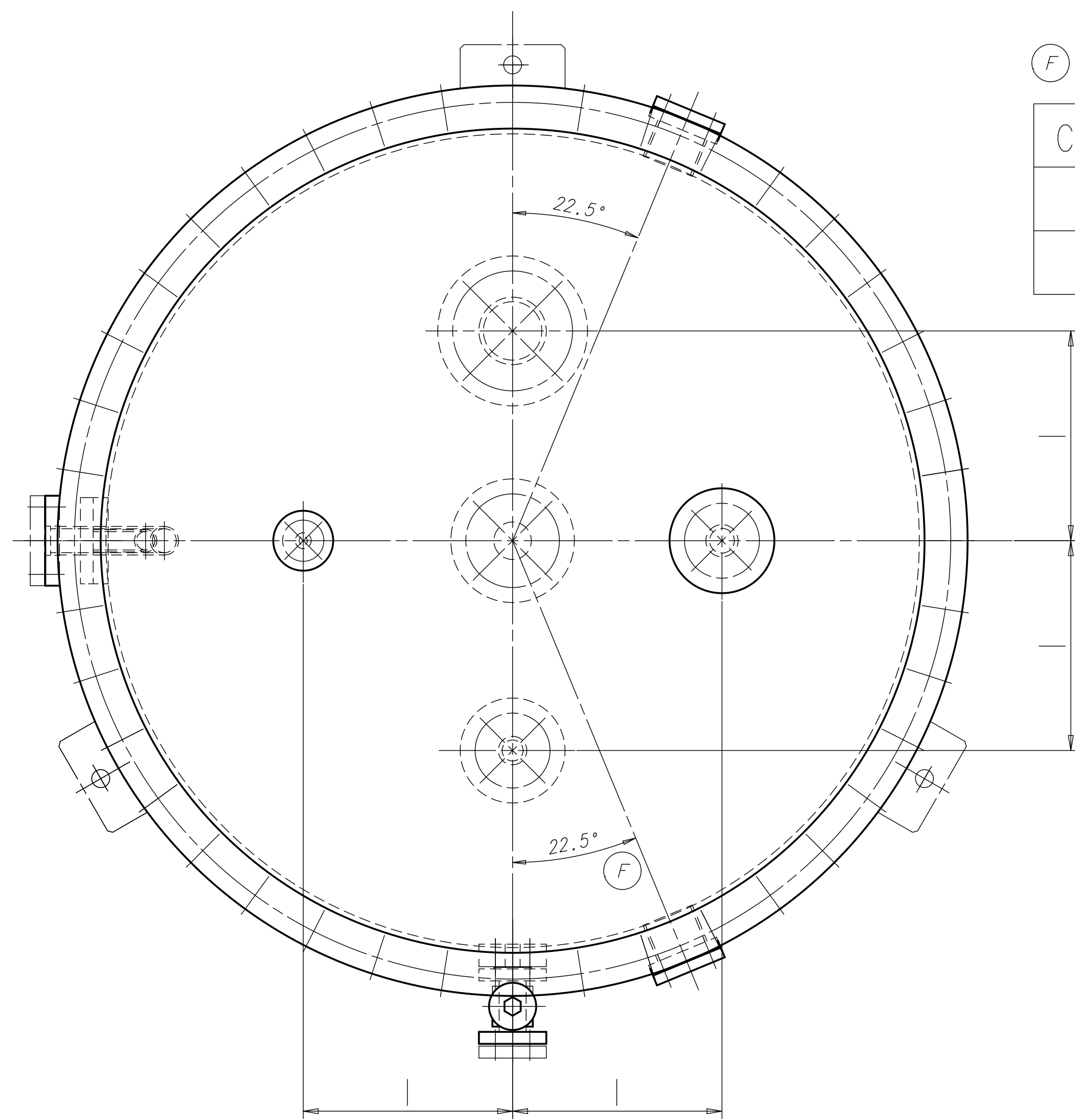
HT Tank capacity	W	X	Y	Z
(m ³)	(mm)	(mm)	(mm)	(mm)
0.5	800	800	330	640
0.75	800	1200	500	960
1.0	800	1600	670	1280
1.25	1000	1250	530	1000
1.5	1000	1500	630	1200
1.75	1000	1750	730	1400
2.0	1000	2000	830	1600

Free space for lic.	Q-Code XXXXXX Standard ISO; JIS				Main Drw.								
Modif.	A	EAAD091567	15.11.2019										
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date					
WIN GD Winterthur Gas & Diesel		Product W-25		EXPANSION TANK CENTRAL COOLING WATER HT CIRCUIT Ausgleichstank Zentralkuehlwassersystem HT circuit									
Units	mm kg	NX	Basic Material		Net Weight 0,001								
SURFACE PROTECTION SEE GROUP 0344		Made	16.04.2009 M.PRSTEC		Scale	1:10	Size	A2	Page	1/1	Material ID	107.413.097.500	
TOLERANCING PRINCIPLE ISO8015		Chkd			Design Group		9721		Drawing ID		107.413.097	Rev.	A
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	30.04.2009 MPR002 Prstec										



Connections for:

- 01 Compressed air supply from control air valve, DN15 with blank flange
- 02 Pressure indicator, DN25 with blank flange
- 03 Safety and relief valve adjustment 5,5 bar DN32 with blank flange
- 04 Level alarm high, with blank flange
- 05 Level alarm low, with blank flange
- 06 Compensation, DN80 with blank flange
- 07 Drain, DN32 with blank flange
- 08 Feed, DN32 with blank flange
- 09 Flanges for level indicator
- 11 Valve for level indicator, self-closing type
- 12 Level indicator
- 13 Level switch high, with blank flange **
- 14 Level switch low, with blank flange **

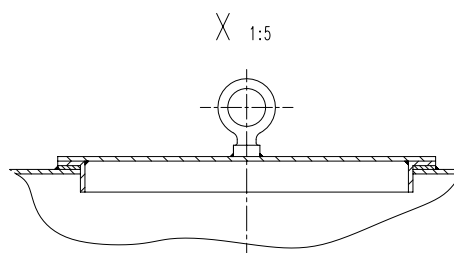
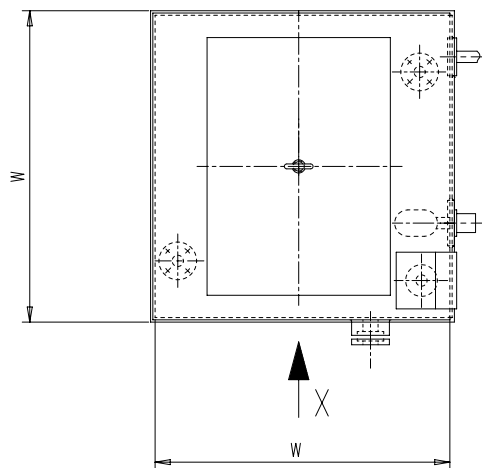
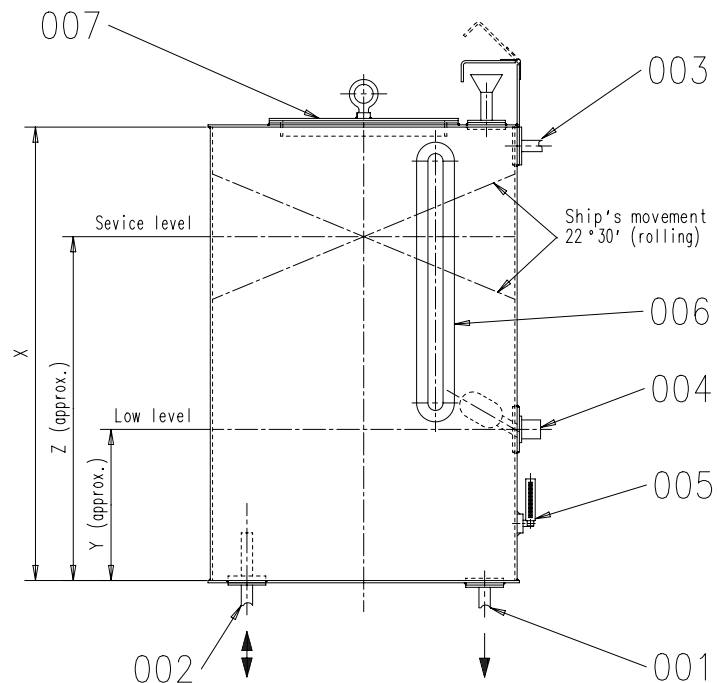


Capacity	A	B	C	D	E	F	G	H	I	K	L	M	N
800l	ø900	1430	1205	222	250	455	520	600	250	250	800	65	390
1200l	ø1100	1520	1255	262	300	470	520	650	280	290	800	65	390

Working pressure : 5 bar
* Wall thickness and test pressure : according to relevant classification society/rules
Service temperature : max. 95°C
** Tank volume between LSH and LSL shall be no less than 150 litres.

Drawn for 1200l capacity

Form 1000-01 Rev. 1.0		D-Code XXXXX Standard ISO		Mfr. No. 107.245.626	
Model	7-61.644	Date	05.03.2008	Product	W-2S
Number	05.03.2008	Drawn date	14.08.2012	Number	05.03.2008
Units	mm kg	IDE	1:5	Scale	1:5
Basic Material	107.245.626	Material	107.245.626	Net Weight	0.001
Surface Protection	SEE GROUP 0344	Scale	1:5	Size	A0
Chkd	22.09.2000	Design Group	9721	Page	1/1
GENERAL TOLERANCES ACCORDING TO ISO 2768-MK	22.09.2000	WCH001 Service Use	9721	Rev.	F



Drawn for 0.75 m³ capacity

Pos.	Description
001	Drain
002	Balance pipe from LT circuit
003	Overflow/air vent
004	Low level alarm
005	Thermometer
006	Level indicator *1)
007	Inspection cover *2)
008	Filling pipe/inlet chemical treatment *2)

Remarks:

- *1) Level indicator can be omitted if an alternative is fitted.
- *2) Other designs like hinged covers, etc. are also possible
- For required tank capacity and pipe diameters refer to drawing 'Central cooling water system'

Table 1: Tank dimensions

LT tank capacity	W	X	Y	Z
(m ³)	(mm)	(mm)	(mm)	(mm)
0.5	800	800	330	640
0.75	800	1200	500	960
1.0	800	1600	670	1280
1.25	1000	1250	530	1000
1.5	1000	1500	630	1200
1.75	1000	1750	730	1400
2.0	1000	2000	830	1600

Modif.	Free space for lic.						Q-Code XXXXX Standard ISO; JIS	Main Drw.			
	A	EAAD014356	16.06.1997	B	7-37.090	16.08.2007	C	EAAD083145	25.01.2012	D	EAAD091029
Number		Drawn date		Number		Drawn date		Number		Drawn date	
								Product W-2S		EXPANSION TANK CENTRAL COOLING WATER LT CIRCUIT Ausgleichstank Zentralkuehlwassersystem LT	
Units		mm kg		NX		Basic Material		Net Weight		0,001	
SURFACE PROTECTION SEE GROUP 0344		Made		11.06.1997		T.LANDERT		Scale		1:10	
TOLERANCING PRINCIPLE ISO8015		Chkd						Design Group		A2	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd		11.06.1997		WCH001 Service User		Drawing ID		107.245.419	
								Size		1/1	
								Material		107.245.419.500	
								Rev.		D	

MIDS – Cooling Water System (DG9721)

WinGD X92-B

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2019-03-22	DRAWING SET	First web upload
2020-06-19	DAAD104160 107.362.179 107.245.419	System drg – new revision HT expansion tank – new revision LT expansion tank – new revision
2020-09-03	107.413.097	System drg – new revision
2020-09-10	DAAD104166 DAAD104160 DAAD133068 107.245.626	Main and system drg – new revision
2023-11-08	PAAD302601 PAAD360910	new revision

DISCLAIMER

© Copyright by Winterthur Gas & Diesel Ltd.

All rights reserved. No part of this document may be reproduced or copied in any form or by any means (electronic, mechanical, graphic, photocopying, recording, taping or other information retrieval systems) without the prior written permission of the copyright owner.

THIS PUBLICATION IS DESIGNED TO PROVIDE AN ACCURATE AND AUTHORITATIVE INFORMATION WITH REGARD TO THE SUBJECT-MATTER COVERED AS WAS AVAILABLE AT THE TIME OF PRINTING. HOWEVER, THE PUBLICATION DEALS WITH COMPLICATED TECHNICAL MATTERS SUITED ONLY FOR SPECIALISTS IN THE AREA, AND THE DESIGN OF THE SUBJECT-PRODUCTS IS SUBJECT TO REGULAR IMPROVEMENTS, MODIFICATIONS AND CHANGES. CONSEQUENTLY, THE PUBLISHER AND COPYRIGHT OWNER OF THIS PUBLICATION CAN NOT ACCEPT ANY RESPONSIBILITY OR LIABILITY FOR ANY EVENTUAL ERRORS OR OMISSIONS IN THIS BOOKLET OR FOR DISCREPANCIES ARISING FROM THE FEATURES OF ANY ACTUAL ITEM IN THE RESPECTIVE PRODUCT BEING DIFFERENT FROM THOSE SHOWN IN THIS PUBLICATION. THE PUBLISHER AND COPYRIGHT OWNER SHALL UNDER NO CIRCUMSTANCES BE HELD LIABLE FOR ANY FINANCIAL CONSEQUENTIAL DAMAGES OR OTHER LOSS, OR ANY OTHER DAMAGE OR INJURY, SUFFERED BY ANY PARTY MAKING USE OF THIS PUBLICATION OR THE INFORMATION CONTAINED HEREIN.