Available executions

Execution No.	Material ID	Attribute 1: HT_static-pressure	
		Buffer unit	Exp. tank
001	PAAD376147		X
002	PAAD376148	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.

Prod. X62DF-S1.0

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
–	sna102	mhu019	17.01.2025	CNAA007375	New Master Design	Approved	-	-

CENTRAL COOLING WATER SYSTEM

MIDS master drawing

separate BOM available

Dimension

Scale	–	NX	Units [mm] [kg]	Basic Material	Net Weight	0.001
Main Design			Design Group	9721	Q-Code X X M	Standard WDS
Qty per			A4	Item ID PTAA026112	Drawing Page/s	1/1

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
001	1	PAAD366863	CENTRAL COOLING WATER SYSTEM SPECIFICATION			0.001
002	1	PTAA081051	CENTRAL COOLING WATER SYSTEM DESIGN GUIDANCE VALUES			0.001
003	1	DTAA001221	CENTRAL COOLING WATER SYSTEM PROPOSAL			
004	1	107.429.532	CONCEPT GUIDANCE			
005	1	DTAA002985	COOLING WATER AND ADDITIVES			

Prod.	5,6,7,8 X62DF-S1.0				

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
C	dki021	mhu019	25.07.2025	CNAA009807	A new document has been added to the material list		4	3
B	sjo101	mhu019	19.11.2024	CNAA007352	Main Drawing updated		4	3
A	sna102	mhu019	28.11.2022	CNAA002855	Main Design/Drawing Introduced		4	3
-	dki021	mhu019	26.02.2021	EAAD787123	-		-	-

WIN GD

CENTRAL COOLING WATER SYSTEM

Bill **O**f **M**aterial

Dimension

Units	[m] [kg]	Basic Material				Net Weight	0
Main Design	Yes	Design Group	9721	Q-Code	X X M	Standard	WDS
Qty per	Engine	A4	Item ID	PAAD376147		BOM Page/s	01/01

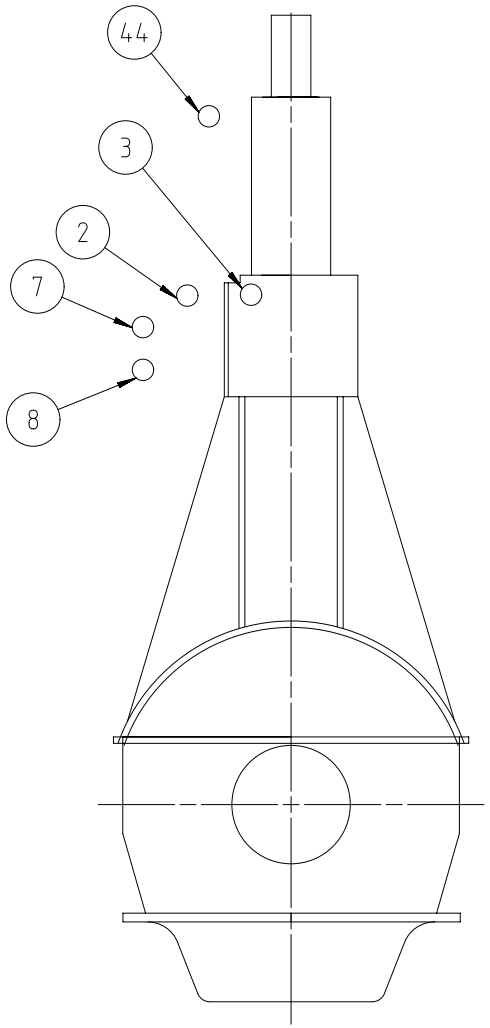
SPECIFICATION which must be met at the engine interface connections

(8) OUTLET - Scavenge air cooler cooling water (LT water)

- CW volume flow: according to GTD specification, adjusted by an orifice in the outlet pipe on shipside

(44) OUTLET - Cylinder cooling water air venting

- To be vented to a safe area outside the engine room



Used abbreviations:
CW: Cooling Water
CCW: Cylinder Cooling Water
CS: Crank Shaft
Cap. : Capacity
HT: High Temperature
LT: Low Temperature
SAC: Scavenge Air Cooler

(2) INLET - Cylinder cooling water (HT water)

- CCW supply pressure: 3.0 - 5.0 bar
- CCW volume flow: according to GTD specification
- CCW treatment: freshwater must be treated according to WinGD specification
- CCW static pressure: the static pressure must be adjusted with installation of an expansion tank
- The expansion tank must be installed at a height of min. 19 m ("Hmin_HT" in the "Installation Drawing") in relation to the CS centerline
- Pre-heating: the engine must be warmed-up with heated HT water to min. 60 °C before the engine start

(3) OUTLET - Cylinder cooling water (HT water)

- CW temperature:
  Controller set-point: 90 °C (controller type: PI)
  Steady state condition: 90 ± 2 °C
  Transient condition: 90 ± 4 °C

(7) INLET - Scavenge air cooler cooling water (LT water)

- CW supply pressure: 2.0 - 4.0 bar
- CW temperature:
  Controller set-point: 25 °C, max. 36 °C when seawater temperature at 32 °C
- CW volume flow: according to GTD specification
- CW treatment: freshwater must be treated according to WinGD specification
- The cooling water must be supplied by pipes which are not internally galvanised, because the nitrites of the cooling water treatment attack zinc lining of galvanised pipes and create sludge
- CW static pressure: the static pressure must be adjusted by the installation of an expansion tank
- The expansion tank must be installed at a height of min. 19 m ("Hmin_LT" in the "Installation Drawing") in relation to the CS centerline

Prod. X62DF-S1.0

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C
A	npa101	mhu019	15.11.2024	CNAA007343	Drawing Updated			4	3
-	sde101	mhu019	26.02.2021	EAAD787123	-			-	-

WIN GD Winterthur Gas & Diesel

CENTRAL COOLING WATER SYSTEM
SPECIFICATION

separate BOM available | Dimension: SPECIFICATION | Scale: - | NX | Units [mm] [kg] | Basic Material | Net Weight: 0.001

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

Main Design	Design Group: 9721	Q-Code: X X M	Standard: WDS
Qty per	A3	Item ID: PAAD366863	Drawing Page/s: 1/1

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.	X62DF-S1.0							

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis		Activity Code	E	C
A	sim101	dst009	24.10.2025	CNAA008857	Drawing updated			4	3
-	sjo101	mhu019	15.11.2024	CNAA007343	new Design			-	-

WIN GD

CENTRAL COOLING WATER SYSTEM

DESIGN GUIDANCE VALUES

Bill **O**f **M**aterial

Dimension					DESIGN GUIDANCE VALUES
Units [m] [kg]	Basic Material				Net Weight 0.001
Main Design	Design Group 9721		Q-Code X X M		Standard WDS
Qty per	A4	Item ID PTAA081051			BOM Page/s 01/01

Design guidance values for the system layout

All values in Table 1 below are based on an R1 rated engine. Based on the project-specific GTD data, layout optimisations are possible.

Table 1: Pipe and tank sizes *1)

Number of cylinders			5	6	7	8
Pressure drop across the engine	(bar)		1.3			
Cooling water expansion tank (HT)	Cap.	(m^3)	Depending on ancillary plants min. 10% of HT cooling water			
Cooling water expansion tank (LT)	Cap.	(m^3)	Depending on ancillary plants min. 10% of LT cooling water			
PROPOSAL for pipe dimensioning *2)						
Nominal pipe diameter	A	DN	Yard determination, suitable for main engine and ancillary plants			
	B	DN				
	C	DN				
	D	DN	250	250	250	350
	E	DN	125	125	125	150
	G	DN	125	150	150	200
	H	DN	65	65	65	65
	J	DN	50	50	50	50

Table 2: LT and HT water volumes on the engine side

Cylinder	HT circuit CCW Volume (l)	LT circuit SAC CW Volume (l)
5	600 l	575 l a)
6	700 l	575 l a) / 1450 l b)
7	825 l	575 l a) / 1650 l b)
8	950 l	575 l a) / 1900 l b)

a) Values for executions with 1 SAC.
b) Values for executions with 2 SAC.

Remarks:

*1) All dimensions refer to the piping and tanks as shown in the SYSTEM PROPOSAL.

*2) Guidance regarding the pipe size selection, in relation to the project-specific flow rates in GTD, is given by the drawing FLUID VELOCITIES AND FLOW RATES, as included in the MIDS "DG9730 Various Installation Items".

Prod. X62DF-S1.0

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
A	sim101	dst009	24.10.2025	CNAA008857	Drawing updated		4	3
–	sjo101	mhu019	15.11.2024	CNAA007343	new Design		–	–

Approved

WIN GD

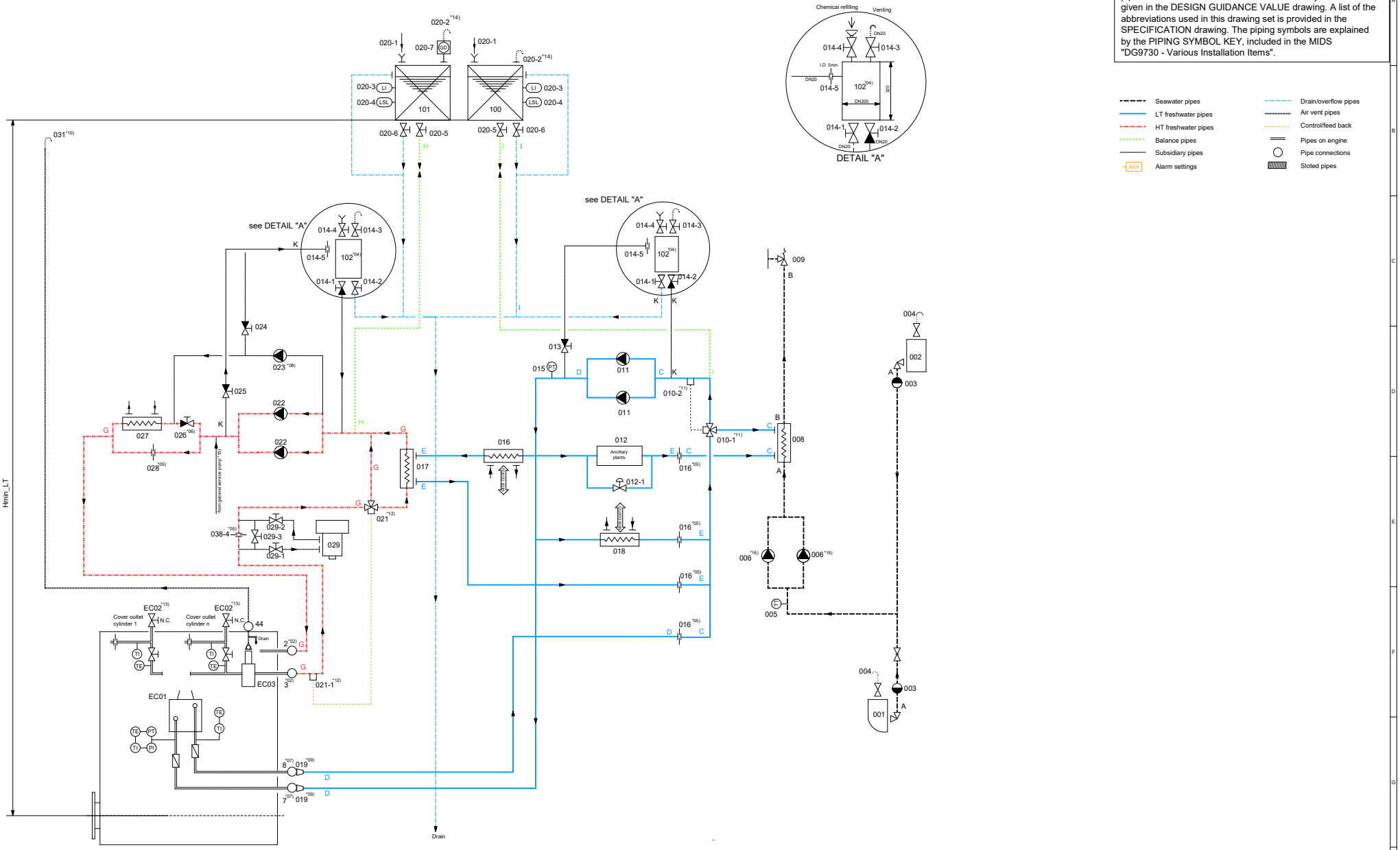
CENTRAL COOLING WATER SYSTEM
DESIGN GUIDANCE VALUES

separate BOM available | Dimension: DESIGN GUIDANCE VALUES
Scale – NX | Units [mm] [kg] | Basic Material | Net Weight 0.001

Main Design | Design Group 9721 | Q-Code X X M | Standard WDS
Qty per | A2 | Item ID PTAA081051 | Drawing Page/s 1/1

SYSTEM PROPOSAL

NOTE
Further installation details and variants can be found in the Marine Installation Manual (MIM). Design guidance regarding pipe and tank sizes and information about the system volumes is given in the DESIGN GUIDANCE VALUE drawing. A list of the abbreviations used in this drawing set is provided in the SPECIFICATION drawing. The piping symbols are explained by the PIPING SYMBOL KEY, included in the MIDS "DG9730 - Various Installation Items".



B	sde101	mhu019	2025-09-23	CNAA010322	Drawing Updated	4	
A	sde101	mhu019	2024-11-13	CNAA007268	Drawing Updated	4	
-	sde101	mhu019	2024-04-26	CNAA005711	Drawing New	4	

Product: XDF - engine

WIN GD

CENTRAL COOLING WATER SYSTEM
Proposal

COMOS	Unit	Size ID	Status
Design Group	mm/kg	A0	
9721	XXM	DTAA001221-B	Page No. 1/3

Pos.	ENGINE COMPONENTS	FUNCTIONAL DESCRIPTION
EC01	Scavenge air cooler (SAC)	Cooling of scavenge air
EC02	Manual vent valve, each cylinder	Release of air for maintenance
EC03	Air separator	Separation and release of air from the HT cooling water

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

Pos.	SYSTEM COMPONENTS	FUNCTIONAL DESCRIPTION
001	Low sea chest	Seawater inlet
002	High sea chest	Seawater inlet
003	Strainer	Protection of the seawater system by retention of contaminants
004	Vent pipe	Venting of seawater system (vent pipe or equal venting system acc. to the shipyard's design)
005	Temperature Transmitter (TT)	Monitoring and transmission of seawater temperature
006	Pump skid with centrifugal pump, pressure-regulating, safety and drain valves and pressure indicators	Circulation of seawater
008	Cooler skid with temperature indicators and shutt-off and drain valve	Central seawater cooling
009	Seawater discharge valve	Discharge of seawater overboard
010-1	Remote control 3-way valve	Regulating of the LT water flow through the cooler
010-2	Remote sensor	Transmission of LT water temperature to the remote control 3-way valve
011	Pump skid with centrifugal pump, pressure-regulating, safety and drain valves and pressure indicators	Circulation of LT water
012	Ancillary plants	Various sub-systems
012-1	Pressure regulating valve	Adjustment of design flow through the ancillaries
013	Manual 2-way non-return valve	Prevention of backflow to pump supply side and shut off
014-1	Manual 2-way valve	Draining of the chemical treatment refill unit
014-2	Manual 2-way non-return valve	Prevention of backflow to the dosing unit and shut-off of the dosing supply line
014-3	Manual 2-way valve with vent	Venting of the chemical treatment refill unit
014-4	Manual 2-way valve with filling funnel	Re-filling of cooling water additives
014-5	Orifice	Adjustment of the water flow trough the chemical treatment refill unit
015	Pressure transmitter	Tranmission of pump delivery pressure and alarm activation if the pressure is too low
016	Cooler skid with temperature indicators and shutt-off and drain valve	Cooling of lubricating oil
017	Cooler skid with temperature indicators and shutt-off and drain valve	Cooling of HT water by LT water
018	Cooler skid with temperature indicators and shutt-off and drain valve	Cooling of MDO/MGO
019	Transition piece (adapter)	Adaption of the pipe diameter ship side / engine side, if different
020-1	Filling pipe	Refilling of water additives for chemical water treatment
020-2	Vent	Venting of the LT water expansion tank
020-2	Vent	Venting of the LT water expansion tank
020-3	Level Indicator (LI)	Monitoring of the LT water expansion tank filling level
020-3	Level Indicator (LI)	Monitoring of the LT water expansion tank filling level
020-4	Level Switch Low (LSL)	Starting of the LT water expansion tank freshwater refilling, if the level is too low
020-4	Level Switch Low (LSL)	Starting of the LT water expansion tank freshwater refilling, if the level is too low
020-5	Manual 2-way valve	Isolation of the LT water expansion tank
020-6	Manual 2-way valve	Opening for drainage of the LT water expansion tank
020-7	Gas detector	Detection of accumulated gas
021	Remote control 3-way valve	Regulation of the HT water flow through the HT/LT cooler
021-1	Temperature transmitter	Tranmission of the HT temperature at engine outlet to the remote control 3-way valve
022	Pump skid with centrifugal pump, pressure regulating, shut-off and drain valve and pressure indicator	Circulation of HT water
023	Pump skid with centrifugal pump, pressure regulating, shut-off and drain valve and pressure indicator	Pre-heating water circulation (optional), cap. 10% from cylinder cooling pump
024	2-way non-return valve	Prevention of backflow and shut off
025	2-way non-return valve	Prevention of backflow and shut off
026	2-way non-return valve	Prevention of backflow and shut off
027	Pre-heater	Heating of HT water to pre-heat the main engine before start
028	Throttling disc	Regulating / balancing of water distribution
029	Fresh Water Generator (FWG)	Production of freshwater
029-1	Manual 2-way valve	Manual isolation of the FWG
029-2	Manual 2-way valve	Manual isolation of the FWG
029-3	Manual 2-way valve	Bypassing of the FWG with the same pressure drop
031	Air venting pipe	Venting of the HT cooling water system by air release to a safe outside area
100	LT water expansion tank (detail drawing linked in the partlist (BOM))	Static buffer for the LT water circuit
101	HT water expansion tank (detail drawing linked in the partlist (BOM))	Static buffer for the HT water circuit
102	Chemical treatment refill unit (tank)	Dosage of water additives to the LT circulation water

Chng	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code
	B	sde101	mhu019	2025-09-23	CNAA010322	Drawing Updated	4

COMOS

CENTRAL COOLING WATER SYSTEM

Partlist

Unit	Design Group	Q-Code	Size	Item ID	Page/s
mm/kg	9721	X X M	A0	**DTAA001221-B**	2/3

C000183

General remarks

- Air vent and drain pipes are not shown on this drawing. They must 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.

Specific remarks

*01)	To be installed by the shipyard.
*02)	Refer to the "Pipe Connection Plan" for the execution and location of the engine pipe connection.
*03)	To be delivered by the engine manufacturer, i.e. already equipped on the engine side.
*04)	To be installed for cooling water after treatment during regular engine operation. Appropriate dimensions are provided in view "A". Other designs are possible.
*05)	When using a valve, lock the disc in proper position to prevent incorrect use.
*06)	Only when pos. 014 is installed.
*07)	The inlet and outlet pipes to SAC must be designed to allow the engine thermal expansion or be fitted with expansion pieces.
*08)	For guidance only, the final layout according to the engine pre-heating requirements.
*09)	Installed as required (check the "Pipe Connection Plan").
*10)	To be vented to a safe area outside the engine room. In addition, depending on a flag state and/or a classification society requirement, the venting line must also be equipped with a gas detector.
*11)	A constant temperature at engine (SAC) inlet must be maintained. Recommended controller set-point for main engine operation is 25°C. If the ancillary plants require a temperature lower or greater than the LT water set-point, a separate water supply with different temperature set-point has to be installed (please refer to the system proposals in the MIM).
*12)	A constant temperature at the engine outlet must be maintained. The controller set-point for the main engine operation is 90°C.
*13)	Only to be used for manual venting of isolated cylinders after maintenance. To be kept closed during engine operation.
*14)	If gas-driven auxiliaries are connected to the LT circuit, the LT expansion tank must be gas-tight and must be vented to a safe area outside the engine room.
*15)	Optional connection to the general service pump. To be considered if requested by the classification society rules for emergency engine cooling.
*16)	Alternatively to the shown layout which uses only the common seawater pump(s), the EGC circulation water cooler can also be fed by separate seawater pump(s).

Chng	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code
	B	sde101	mhu019	2025-09-23	CNAA010322	Drawing Updated	4

COMOS

CENTRAL COOLING WATER SYSTEM

Remarks

Unit	Design Group	Q-Code	Size	Item ID	Page/s
mm/kg	9721	X X M	A0	**DTAA001221-B**	3/3

C000183

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
001	1	PAAD366860	CENTRAL COOLING WATER SYSTEM SPECIFICATION			0.001
002	1	PTAA081063	CENTRAL COOLING WATER SYSTEM DESIGN GUIDANCE VALUES			0.001
003	1	DTAA001219	CENTRAL COOLING WATER SYSTEM PROPOSAL			
004	1	107.429.532	CONCEPT GUIDANCE			
005	1	DTAA002985	COOLING WATER AND ADDITIVES			

Prod.								
	5,6,7,8 X62DF-S1.0							

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
C	dki021	mhu019	25.07.2025	CNAA009807	A new document has been added to the material list		4	3
B	sjo101	mhu019	19.11.2024	CNAA007352	Main Drawing updated		4	3
A	sna102	mhu019	28.11.2022	CNAA002855	Main Design/Drawing Introduced		4	3
-	dki021	mhu019	26.02.2021	EAAD787123	-		-	-

WIN GD

CENTRAL COOLING WATER SYSTEM

Bill **O**f **M**aterial

Dimension

Units	[m] [kg]	Basic Material				Net Weight	0
Main Design	Yes	Design Group	9721	Q-Code	X X M	Standard	WDS
Qty per	Engine	A4	Item ID	PAAD376148		BOM Page/s	01/01

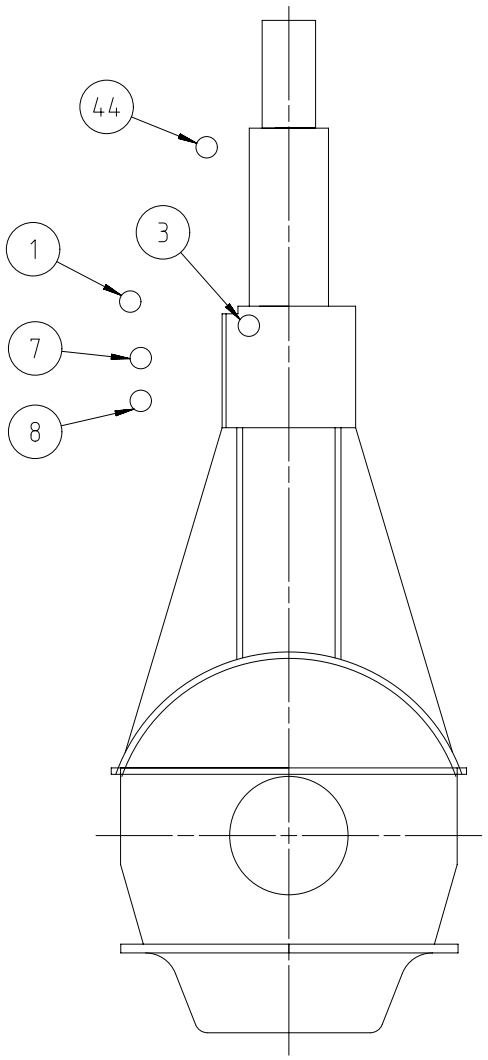
SPECIFICATION which must be met at the engine interface connections

(8) OUTLET - Scavenge air cooler cooling water (LT water)

- CW volume flow: according to GTD specification, adjusted by an orifice in the outlet pipe on shipside

(44) OUTLET - Cylinder cooling water air venting

- To be vented to a safe area outside the engine room



(1) INLET - Cylinder cooling water (HT water)

- CCW supply pressure: 3.0 - 5.0 bar
- CCW volume flow: according to GTD specification
- CCW treatment: freshwater must be treated according to WinGD specification
- CCW static pressure: a buffer unit must be installed. The static pressure must be adjusted by buffer unit pressure setting
- Pre-heating: the engine must be warmed-up with heated HT water to min. 60 °C before the engine start

(3) OUTLET - Cylinder cooling water (HT water)

- CW temperature:
  Controller set-point: 90 °C
  Steady state condition: 90 ± 2 °C
  Transient condition: 90 ± 4 °C

(7) INLET - Scavenge air cooler cooling water (LT water)

- CW supply pressure: 2.0 - 4.0 bar
- CW temperature:
  Controller set-point: 25 °C, max. 36 °C when seawater temperature at 32 °C
- CW volume flow: according to GTD specification
- CW treatment: freshwater must be treated according to WinGD specification
- The cooling water must be supplied by pipes which are not internally galvanised, because the nitrites of the cooling water treatment attack zinc lining of galvanised pipes and create sludge
- CW static pressure: the static pressure must be adjusted by the installation of an expansion tank
- The expansion tank must be installed at a height of min. 12 m (''Hmin_LT'' in the ''Installation Drawing'') in relation to the CS centerline

Used abbreviations:
CW: Cooling Water
CCW: Cylinder Cooling Water
CS: Crank Shaft
Cap. : Capacity
HT: High Temperature
LT: Low Temperature
SAC: Scavenge Air Cooler

Prod.	X62DF-S1.0							
Change History								
A	npa101	mhu019	15.11.2024	CNAA007343	Drawing Updated		4	3
-	sde101	mhu019	26.02.2021	EAAD787123	-		-	-
Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved / Activity Code	E	C

WIN GD
Winterthur Gas & Diesel

CENTRAL COOLING WATER SYSTEM
SPECIFICATION

separate BOM available	Dimension			SPECIFICATION
Scale - NX	Units [mm] [kg]	Basic Material		Net Weight 0.001
SURFACE PROTECTION SEE GROUP 0344	Main Design	Design Group 9721	Q-Code X X M	Standard WDS
TOLERANCING PRINCIPLE ISO8015	Qty per	A3	Item ID PAAD366860	Drawing Page/s 1/1
GENERAL TOLERANCES ACCORDING TO ISO2768-mK				

SEQ NO	QTY	Item ID	Item Name / Dimension	Standard-ID	Basic Material	Net Weight
15	1	107.245.626.500	BUFFER			0.001
16	1	107.245.419.500	EXPANSION TANK			0.001

Prod.	X62DF-S1.0							

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis		Activity Code	E	C
A	sim101	dst009	24.10.2025	CNAA008857	Drawing updated			4	3
-	sjo101	mhu019	15.11.2024	CNAA007343	new Design			-	-

WIN GD

CENTRAL COOLING WATER SYSTEM

DESIGN GUIDANCE VALUES

Bill **O**f **M**aterial

Dimension					DESIGN GUIDANCE VALUES
Units [m] [kg]	Basic Material				Net Weight 0.001
Main Design	Design Group 9721		Q-Code X X M		Standard WDS
Qty per	A4	Item ID PTAA081063			BOM Page/s 01/01

Design guidance values for the system layout

All values in Table 1 below are based on an R1 rated engine. Based on the project-specific GTD data, layout optimisations are possible.

Table 1: Pipe and tank sizes *1)

Number of cylinders			5	6	7	8
Buffer unit for HT circuit	Cap.	(m^3)	0.8	0.8	0.8	0.8
Cylinder cooling water feed tank only min.	Cap.	(m^3)	1.5	1.5	1.5	1.5
CCW feed and drain tank (combined) min.	Cap.	(m^3)	4	4	4	4
Cooling water expansion tank (LT)	Cap.	(m^3)	Depending on ancillary plants			
PROPOSAL for pipe dimensioning *2)						
Nominal pipe diameter	A	DN	Yard determination, suitable for main engine and ancillary plants			
	B	DN				
	C	DN				
	D	DN	250	250	250	350
	E	DN	125	125	125	150
	G	DN	125	150	150	200
	H	DN	65	65	65	65
	I	DN	32	32	32	32
	J	DN	50	50	50	50

Table 2: LT and HT water volumes on the engine side

Cylinder	HT circuit CCW Volume (l)	LT circuit SAC CW Volume (l)
5	600 l	575 l a)
6	700 l	575 l a) / 1450 l b)
7	825 l	575 l a) / 1650 l b)
8	950 l	575 l a) / 1900 l b)

a) Values for executions with 1 SAC.
b) Values for executions with 2 SAC.

Remarks:

*1) All dimensions refer to the piping and tanks as shown in the SYSTEM PROPOSAL.

*2) Guidance regarding the pipe size selection, in relation to the project-specific flow rates in GTD, is given by the drawing FLUID VELOCITIES AND FLOW RATES, as included in the MIDS "DG9730 Various Installation Items".

Prod. X62DF-S1.0

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
A	sim101	dst009	24.10.2025	CNAA008857	Drawing updated		4	3
–	sjo101	mhu019	15.11.2024	CNAA007343	new Design		–	–

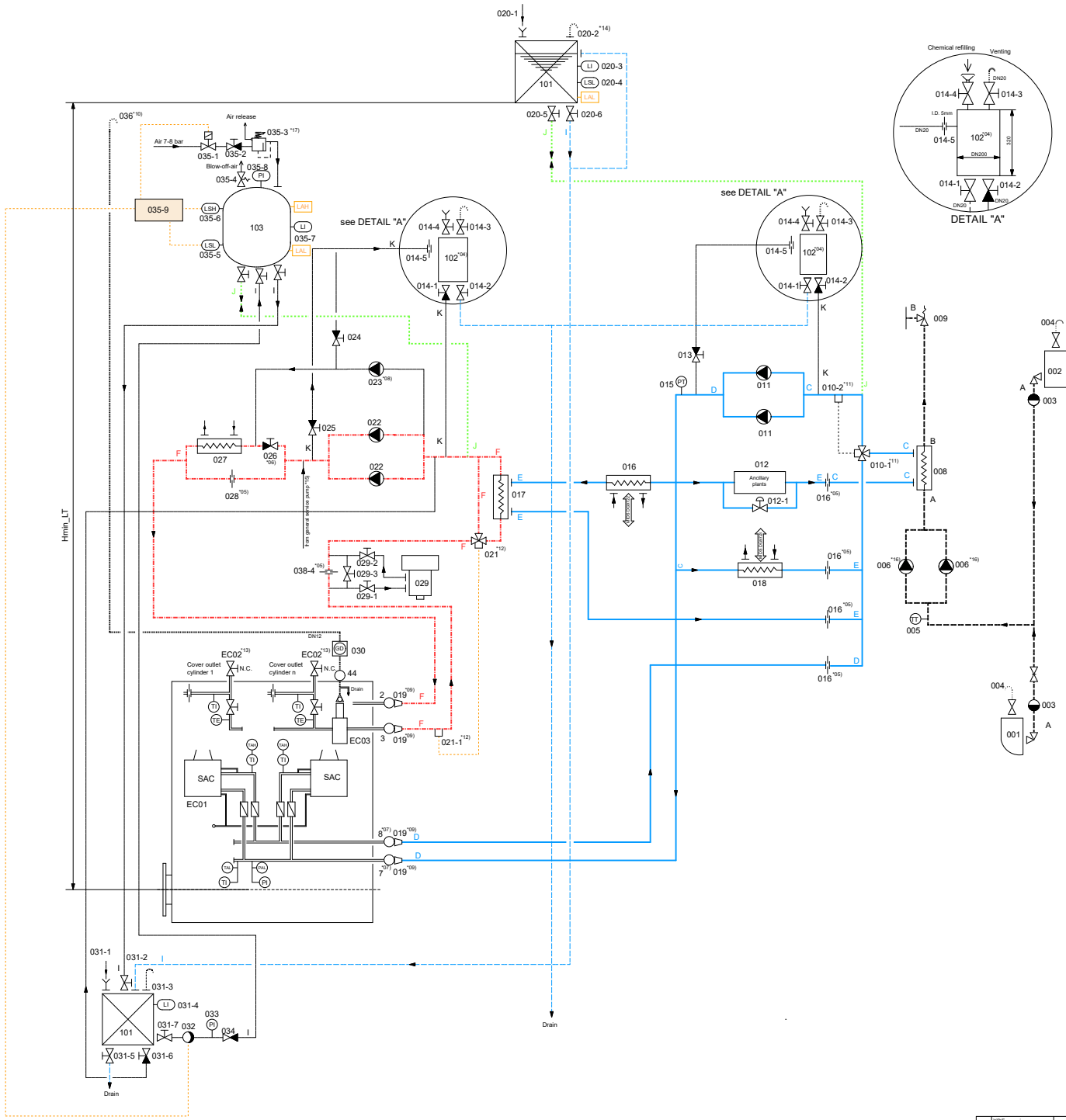
Approved

WIN GD

CENTRAL COOLING WATER SYSTEM
DESIGN GUIDANCE VALUES

separate BOM available | Dimension: DESIGN GUIDANCE VALUES
Scale – NX | Units [mm] [kg] | Basic Material | Net Weight 0.001

Main Design | Design Group 9721 | Q-Code X X M | Standard WDS
Qty per | A2 | Item ID PTAA081063 | Drawing Page/s 1/1



SYSTEM PROPOSAL

NOTE

Further installation details and variants can be found in the Marine Installation Manual (MIM). Design guidance regarding pipe and tank sizes and information about the system volumes is given in the DESIGN GUIDANCE VALUE drawing. A list of the abbreviations used in this drawing set is provided in the SPECIFICATION drawing. The piping symbols are explained by the PIPING SYMBOL KEY, included in the MIDS "DG9730 - Various Installation Items".

- Seawater pipes
- LT freshwater pipes
- HT freshwater pipes
- Balance pipes
- Subsidiary pipes
- XAX Alarm settings
- Drain/overflow pipes
- Air vent pipes
- Control/feed back
- Pipes on engine
- Pipe connections
- Sloted pipes

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	#
B	sde101	mhu019	2025-09-23	CNAA010322	Drawing Updated		4
A	sde101	mhu019	2024-11-13	CNAA007268	Drawing Updated		4
-	sde101	mhu019	2024-04-26	CNAA005711	Drawing New		4

Product: XDF - engine

WIN GD

CENTRAL COOLING WATER SYSTEM

Proposal

COMOS	Unit mm/kg	Size ID A0	
Design Owner 9721	ECOCO X X M	DTAA001219-B	Page No. 1/3

Pos.	ENGINE COMPONENTS	FUNCTIONAL DESCRIPTION
EC01	Scavenge air cooler (SAC)	Cooling of scavenge air
EC02	Manual vent valve, each cylinder	Release of air for maintenance
EC03	Air separator	Separation and release of air from the HT cooling water

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

Pos.	SYSTEM COMPONENTS	FUNCTIONAL DESCRIPTION
001	Low sea chest	Seawater inlet
002	High sea chest	Seawater inlet
003	Strainer	Protection of the seawater system by retention of contaminants
004	Vent pipe	Venting of seawater system (vent pipe or equal venting system acc. to the shipyard's design)
005	Temperature Transmitter (TT)	Monitoring and transmission of seawater temperature
006	Pump skid with centrifugal pump, pressure-regulating, safety and drain valves and pressure indicators	Circulation of seawater
008	Cooler skid with temperature indicators and shutt-off and drain valve	Central seawater cooling
009	Seawater discharge valve	Discharge of seawater overboard
010-2	Remote sensor	Transmission of LT water temperature to the remote control 3-way valve
010-1	Remote control 3-way valve	Regulating of the LT water flow through the cooler
011	Pump skid with centrifugal pump, pressure-regulating, safety and drain valves and pressure indicators	Circulation of LT water
012-1	Pressure regulating valve	Adjustment of design flow through the ancillaries
012	Ancillary plants	Various sub-systems
013	Manual 2-way non-return valve	Prevention of backflow to pump supply side and shut off
014-3	Manual 2-way valve with vent	Venting of the chemical treatment refill unit
014-1	Manual 2-way valve	Draining of the chemical treatment refill unit
014-4	Manual 2-way valve with filling funnel	Re-filling of cooling water additives
014-2	Manual 2-way non-return valve	Prevention of backflow to the dosing unit and shut-off of the dosing supply line
014-5	Orifice	Adjustment of the water flow trough the chemical treatment refill unit
015	Pressure transmitter	Tranmission of pump delivery pressure and alarm activation if the pressure is too low
016	Cooler skid with temperature indicators and shutt-off and drain valve	Cooling of lubricating oil
017	Cooler skid with temperature indicators and shutt-off and drain valve	Cooling of HT water by LT water
018	Cooler skid with temperature indicators and shutt-off and drain valve	Cooling of MDO/MGO
019	Transition piece (adapter)	Adaption of the pipe diameter ship side / engine side, if different
020-2	Vent	Venting of the LT water expansion tank
020-4	Level Switch Low (LSL)	Starting of the LT water expansion tank freshwater refilling, if the level is too low
020-6	Manual 2-way valve	Opening for drainainage of the LT water expansion tank
020-3	Level Indicator (LI)	Monitoring of the LT water expansion tank filling level
020-5	Manual 2-way valve	Isolation of the LT water expansion tank
020-1	Filling pipe	Refilling of water additives for chemical water treatment
021-1	Temperature transmitter	Tranmission of the HT temperature at engine outlet to the remote control 3-way valve
021	Remote control 3-way valve	Regulation of the HT water flow through the HT/LT cooler
022	Pump skid with centrifugal pump, pressure regulating, shut-off and drain valve and pressure indicator	Circulation of HT water
023	Pump skid with centrifugal pump, pressure regulating, shut-off and drain valve and pressure indicator	Pre-heating water circulation (optional), cap. 10% from cylinder cooling pump
024	2-way non-return valve	Prevention of backflow and shut off
025	2-way non-return valve	Prevention of backflow and shut off
026	2-way non-return valve	Prevention of backflow and shut off
027	Pre-heater	Heating of HT water to pre-heat the main engine before start
028	Throttling disc	Regulating / balancing of water distribution
029	Fresh Water Generator (FWG)	Production of freshwater
029-3	Manual 2-way valve	Bypassing of the FWG with the same pressure drop
029-1	Manual 2-way valve	Manual isolation of the FWG
029-2	Manual 2-way valve	Manual isolation of the FWG
030	Gas detector	Detection of accumulated gas
031-4	Level Indicator (LI)	Monitoring of the cooling water feed and drain tank filling level
031-3	Vent	Venting of the water feed and drain tank
031-1	Filling Pipe	Refilling of cooling water additives for water treatment
031-6	Manual 2-way non-return valve	Shut off / isolation of the water feed and drain tank from HT water pump suction and prevention of backflow
031-5	Manual 2-way valve	Drainange of the cooling water feed and drain tank
031-2	Manual 2-way valve	Shut off of the drain connection from buffer unit
031-7	Manual 2-way valve	Manual shut off of the water supply to the buffer unit
032	Pump, dosing type	Supply of water to the HT water buffer unit with automatic level control (0.5 m³/h at 4 bar)
033	Pressure Indicator	Monitoring of buffer unit water feed pressure
034	Non-return valve	Prevention of water backflow
035-3	Control air valve with air release	Pressure adjustment and air release. At engine inlet a CW pressure of 4-5 bar must be adjusted and maintained
035-1	Solenoid valve	Adjustment of air supply to the HT water buffer unit (air inlet to be interlocked with min. water level)
035-5	Level Switch Low (LSL)	Closing of the air supply valve and starting the water re-filling pump in case of low filling level
035-8	Pressure Indicator (PI)	Monitoring of HT water buffer unit pressure
035-9	Control box	Controling of water and air distribution to the HT buffer unit
035-6	Level Indicator (LI)	Monitoring of HT water buffer unit filling level
035-4	Safety valve	Release of pressure in case of overpressure
035-2	2-way non-return valve	Prevention of backflow and shut off
035-7	Level Switch Low (LSL)	Closing of the air supply valve and starting the water re-filling pump in case of low filling level
036	Air venting pipe	Venting of the HT cooling water system by air release to a safe outside area
100	LT water expansion tank (detail drawing linked in the partlist (BOM))	Static buffer for the LT water circuit
101	Cooling water feed and drain tank	Supply of system water and water drainage
102	Chemical treatment refill unit (tank)	Dosage of water additives to the LT circulation water
103	HT water buffer unit (detail drawing linked in the partlist (BOM))	Pressurized buffer for the HT water circuit

Chng	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code
	B	sde101	mhu019	2025-09-23	CNAA010322	Drawing Updated	4

CENTRAL COOLING WATER SYSTEM

Partlist

COMOS	Unit	Design Group	Q-Code	Size	Item ID	Page/s
	mm/kg	9721	X X M	A0	**DTAA001219-B**	2/3

C000183

General remarks

- Air vent and drain pipes are not shown on this drawing. They must 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.

Specific remarks

*01)	To be installed by the shipyard.
*02)	Refer to the "Pipe Connection Plan" for the execution and location of the engine pipe connection.
*03)	To be delivered by the engine manufacturer, i.e. already equipped on the engine side.
*04)	To be installed for cooling water after treatment during regular engine operation. Appropriate dimensions are provided in view "A". Other designs are possible.
*05)	When using a valve, lock the disc in proper position to prevent incorrect use.
*06)	Only when pos. 014 is installed.
*07)	The inlet and outlet pipes to SAC must be designed to allow the engine thermal expansion or be fitted with expansion pieces.
*08)	For guidance only, the final layout according to the engine pre-heating requirements.
*09)	Installed as required (check the "Pipe Connection Plan").
*10)	To be vented to a safe area outside the engine room. In addition, depending on a flag state and/or a classification society requirement, the venting line must also be equipped with a gas detector.
*11)	A constant temperature at engine (SAC) inlet must be maintained. Recommended controller set-point for main engine operation is 25°C. If the ancillary plants require a temperature lower or greater than the LT water set-point, a separate water supply with different temperature set-point has to be installed (please refer to the system proposals in the MIM).
*12)	A constant temperature at the engine outlet must be maintained. The controller set-point for the main engine operation is 90°C.
*13)	Only to be used for manual venting of isolated cylinders after maintenance. To be kept closed during engine operation.
*14)	If gas-driven auxiliaries are connected to the LT circuit, the LT expansion tank must be gas-tight and must be vented to a safe area outside the engine room.
*15)	Optional connection to the general service pump. To be considered if requested by the classification society rules for emergency engine cooling.
*16)	Alternatively to the shown layout which uses only the common seawater pump(s), the EGC circulation water cooler can also be fed by separate seawater pump(s).
*17)	If the selected control air valve does not have the integrated air release functionality, a separate air release valve can be installed as an alternative on the top of the buffer unit.

Chng	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code
	B	sde101	mhu019	2025-09-23	CNAA010322	Drawing Updated	4

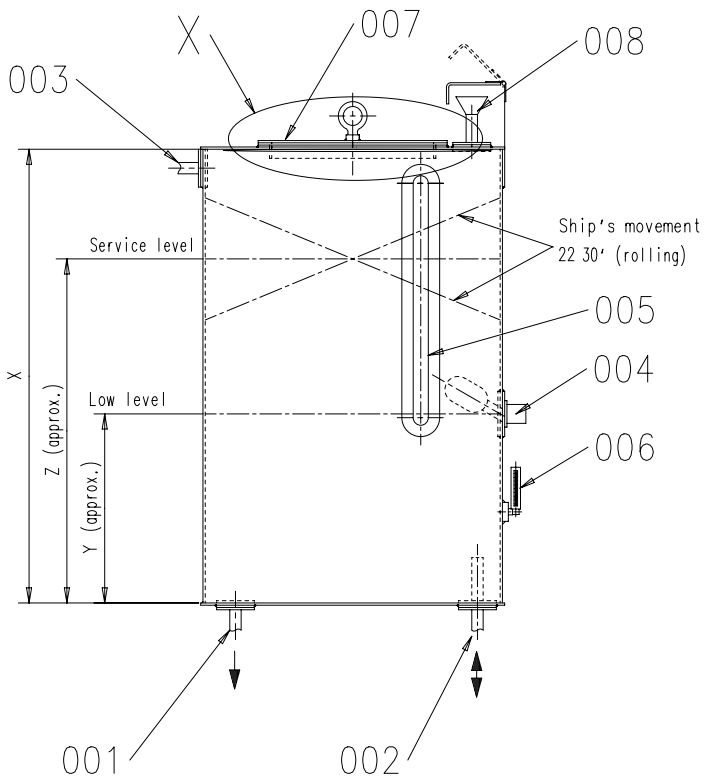
COMOS

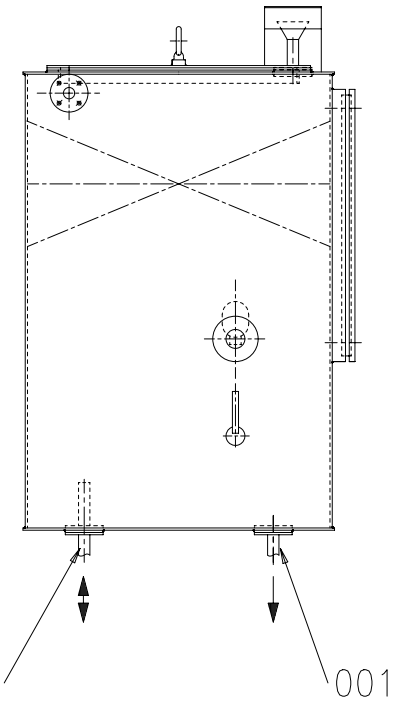
CENTRAL COOLING WATER SYSTEM

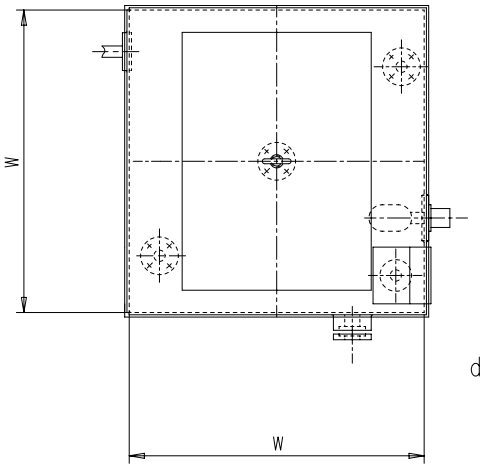
Remarks

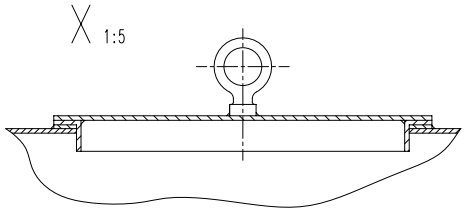
Unit	Design Group	Q-Code	Size	Item ID	Page/s
mm/kg	9721	X X M	A0	**DTAA001219-B**	3/3

C000183









Ⓐ 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 XXXXX

Standard ISO; JIS

Main Drw.

Modif. Ⓐ EAAD091567 15.11.2019

Number | Drawn date | Number | Drawn date | Number | Drawn date | Number | Drawn date

WIN GD Winterthur Gas & Diesel

Product W-2S

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

TOLERANCING PRINCIPLE ISO8015

GENERAL TOLERANCES ACCORDING TO ISO2768-mK

Made 16.04.2009 M.PRSTEC

Chkd

Appd 30.04.2009 MPR002 Prstec

Scale 1:10 | Size A2 | Page 1/1 | Material ID 107.413.097.500

Design Group 9721 | Drawing ID 107.413.097 | Rev. A

Approved

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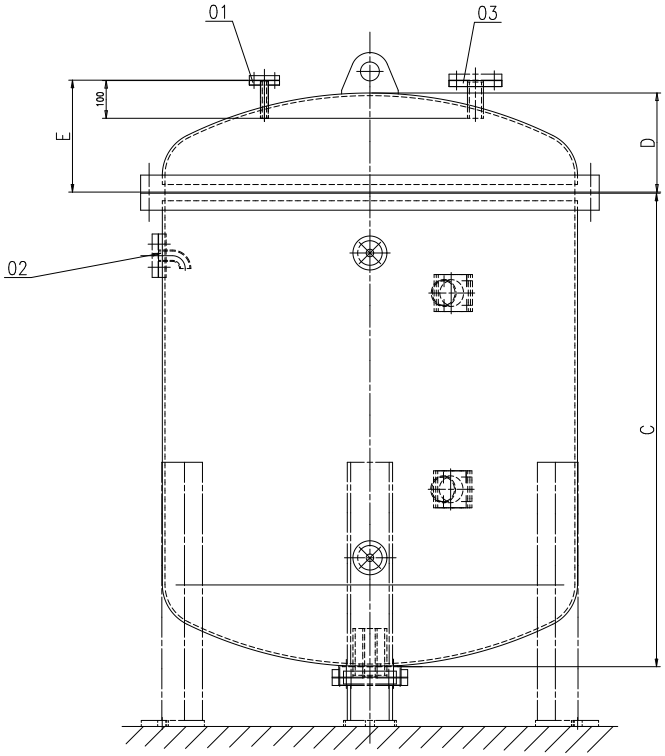
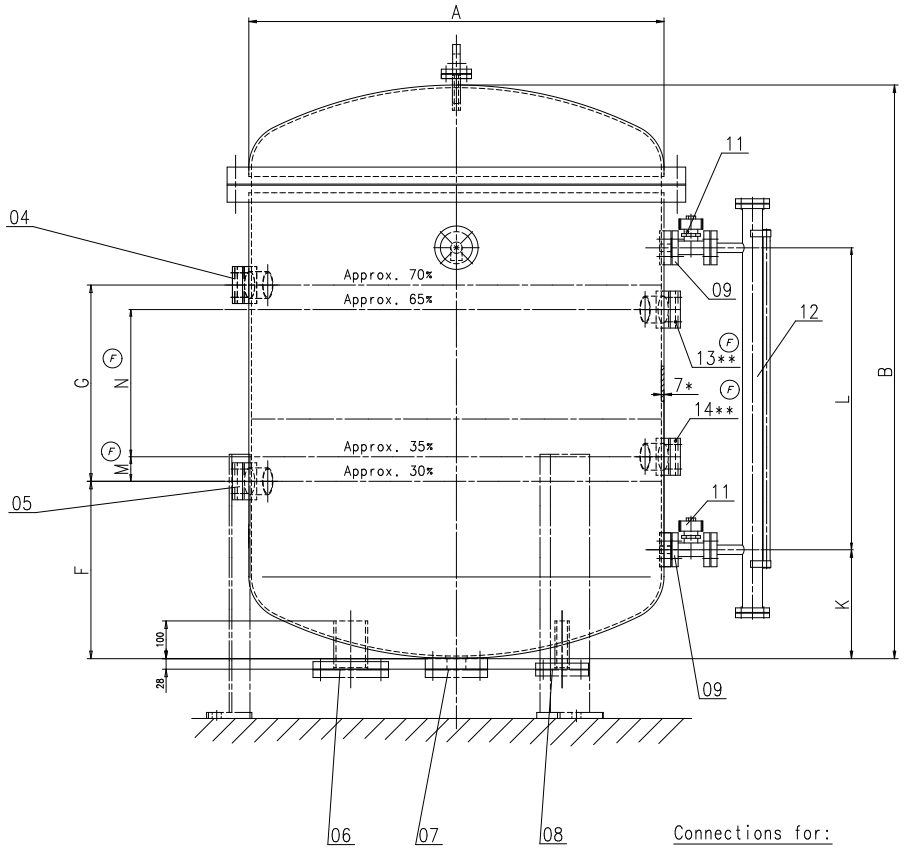
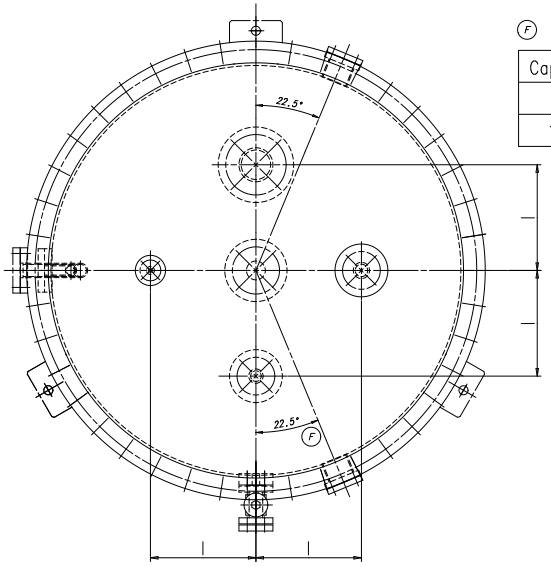
Tank Proposal (F)







(F)

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

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
- (F) 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 **

Working pressure : 5 bar

* Wall thickness and test pressure : according to relevant classification society/rules

Service temperature : max. 95°C

(F) ** Tank volume between LSH and LSL shall be no less than 150 litres.

Drawn for 1200l capacity

Q-Code	XXXXX	Mat'n Dwr.
Standard	ISO	

Status	For appr. for fin.	C	7-61.644	05.03.2008	D	EA0084051	14.08.2012	E	EA0085172	22.04.2014	F	EA0087035	17.10.2016
		Number	Drawn date		Number	Drawn date		Number	Drawn date		Number	Drawn date	

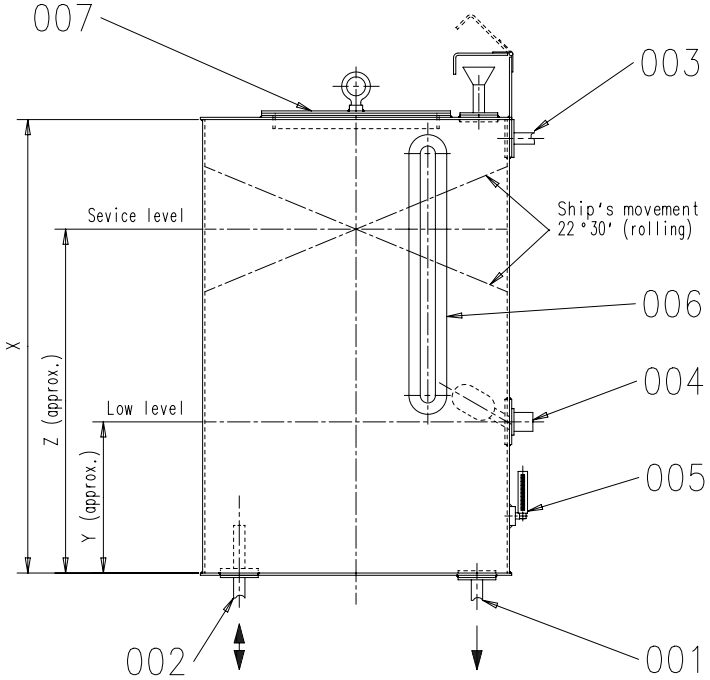
WIN GD Winterthur Gas & Diesel

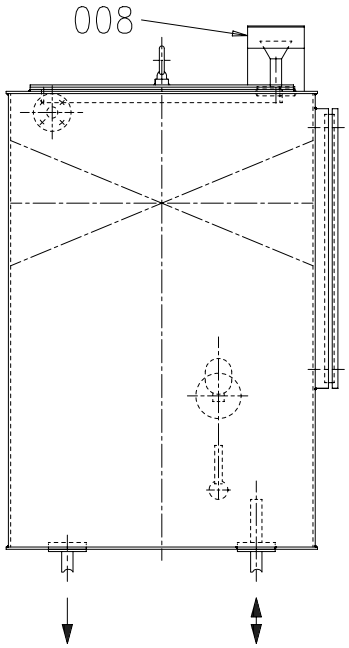
Product M-25

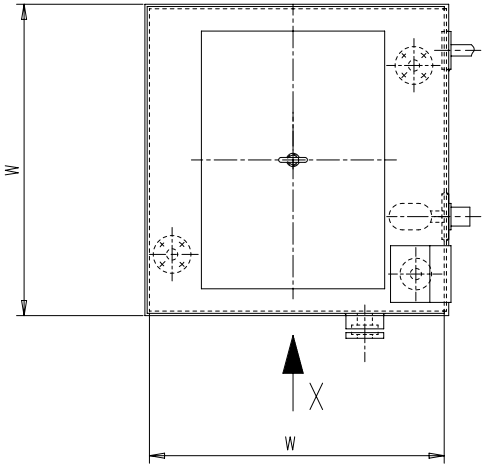
BUFFER
TO CYL.COOLING WATER SYS
Puffer

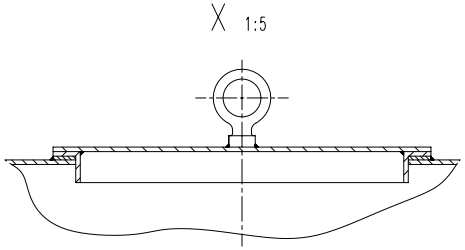
Units	mm kg	IDE	Basic Material	Net Weight 0.001
Made	22.08.07	S.STYLIANOU	Scale 1:5	Size A0 Page 1/1 Material No 107.245.626.500
Chkd			Design Group	
Appd			9721	Drawing No 107.245.626 Rev. F

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









Drawn for 0.75 m^3 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
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1.25	1000	1250	530	1000
1.5	1000	1500	630	1200
1.75	1000	1750	730	1400
2.0	1000	2000	830	1600

Approved

Free space for lic.

Q-Code XXXXX
Standard ISO; JIS
Main Drw.

Modif.	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
A	EAAD014356	16.06.1997	B 7-37.090	16.08.2007	C EAAD083145	25.01.2012	D EAAD091029	12.09.2019

WIN GD Winterthur Gas & Diesel

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	Size A2 / Page 1/1 / Material ID 107.245.419.500
TOLERANCING PRINCIPLE ISO8015	Chkd		Design Group 9721	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	11.06.1997 WCH001 Service User		Drawing ID 107.245.419 / Rev. D

DID - DIMENSIONAL DRAWING - Confidential

MIDS - Cooling Water System (DG9721)

WinGD X62DF-S1.0

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2021-03-01	DRAWING SET	First web upload
2025-11-21	PTAA026112-- PAAD376147-C PAAD366863-A PTAA081051-A DTAA001221-B PAAD376148-C PAAD366860-A PTAA081063-A DTAA001219-B 107.413.097-A	new revision

WinGD Ltd.
WinGD AG.
WinGD S.A.

Schützenstrasse 3
PO Box 414, CH-8401
Winterthur, Switzerland

Tel. +41 (0)52 264 8844
Fax +41 (0)52 264 8866

www.wingd.com