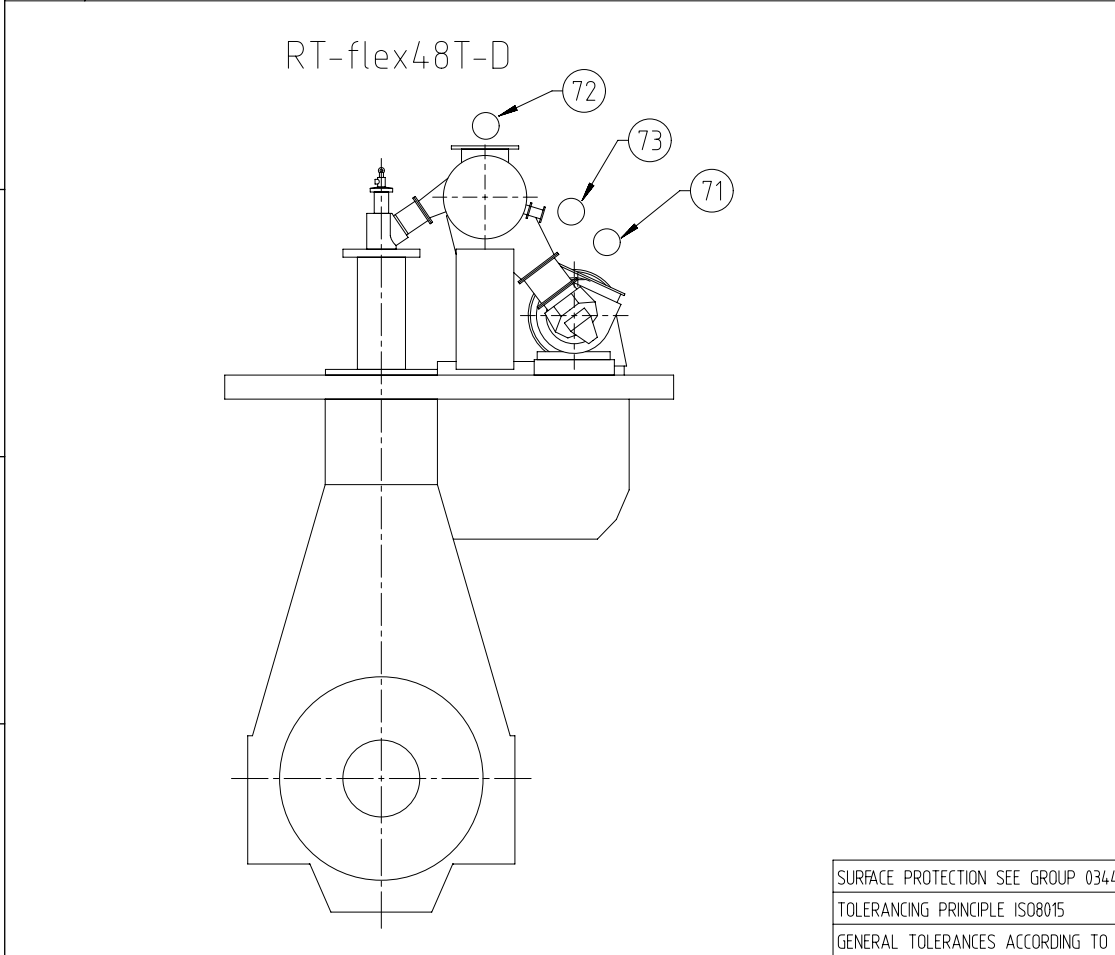




1	2	3	4	5	6	7	8
A							A
B							B
C							C
D							D
E							E
F							F

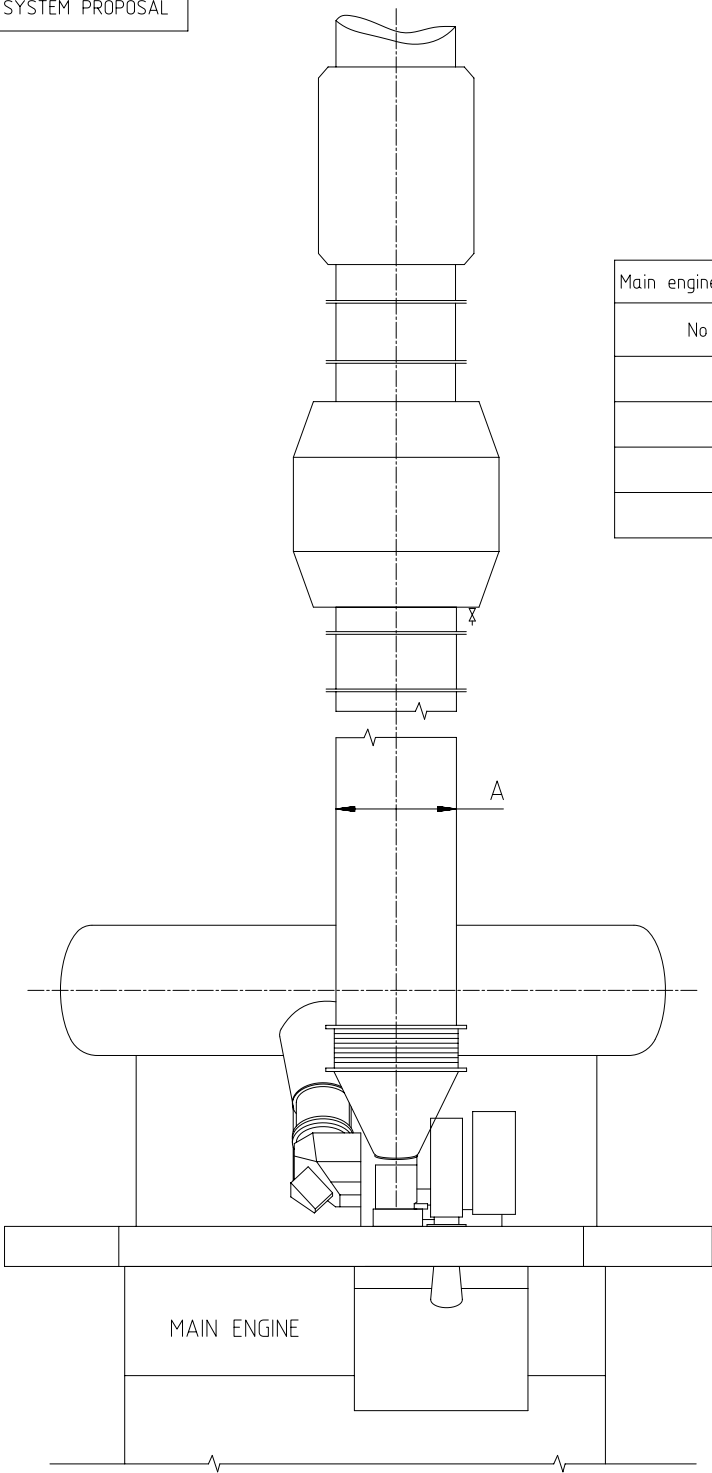
Specifications which must be met:

A	<p>72 OUTLET - Exhaust gas by-pass</p> <ul style="list-style-type: none"> - The installation of a by-pass line between exhaust gas manifold and turbocharger may be requested by owner and class if only one turbocharger is installed. Its purpose is to allow engine operation even after a turbocharger failure. - Blinded off during normal operation.
B	<p>73 OUTLET - Exhaust gas manifold waste gate</p> <ul style="list-style-type: none"> - Size and layout of connection flange is provided in the "Pipe Connection Plan" - Pipe diameter according to parameter "B" on page 2. - Waste gate connection pipe to main exhaust gas pipe must be kept as short as possible to avoid swirl and extensive back pressure.



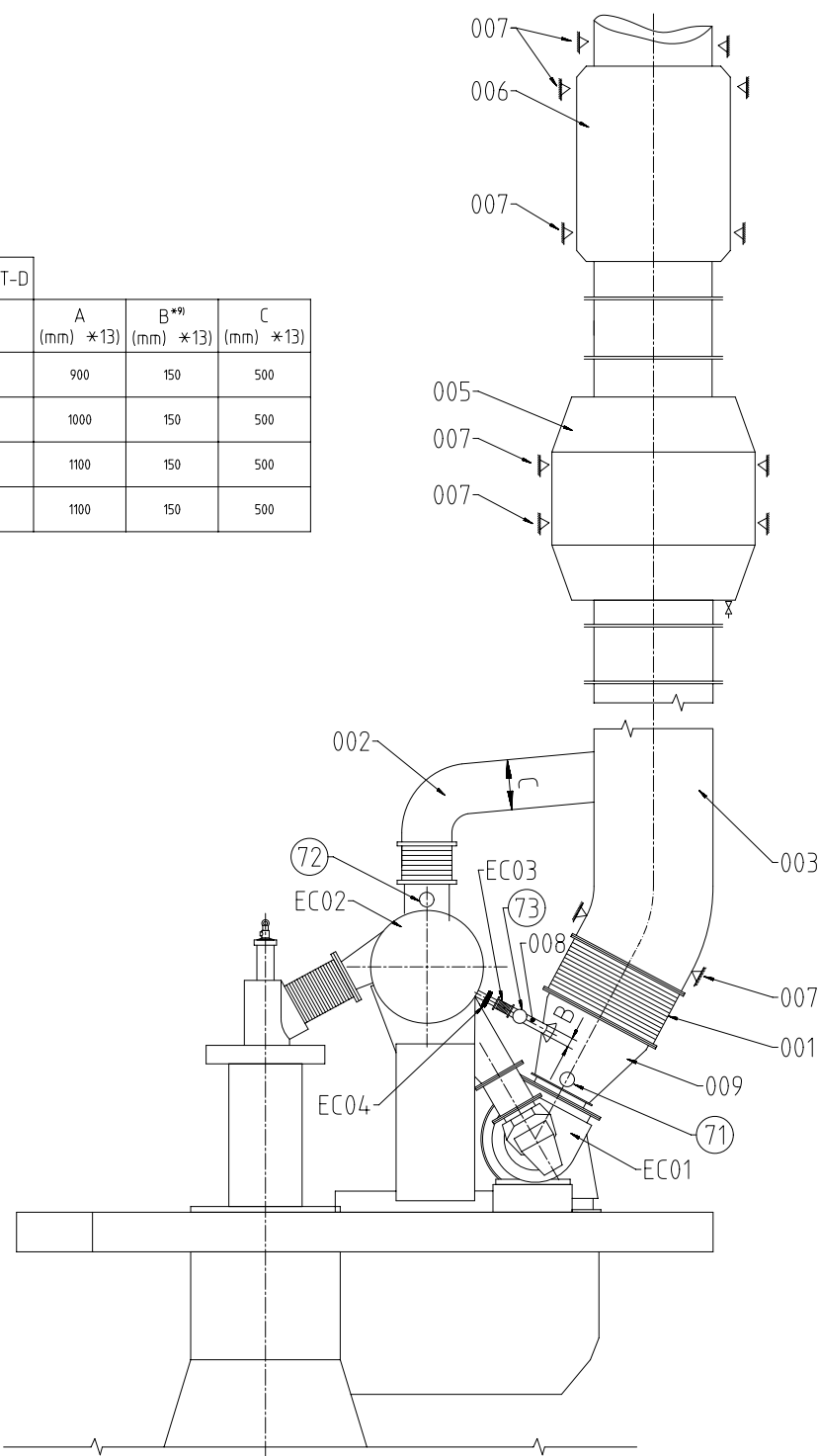
<p>71 OUTLET - Exhaust gas turbocharger</p> <ul style="list-style-type: none"> - Exhaust gas temperature and volume flow: according to GTD - The total back pressure of the exhaust gas system must be kept in the admissible range of: Design maximum (new condition) without exhaust gas treatment system: 30 mbar Design maximum (new condition) with exhaust gas treatment system: 60 mbar - Operational maximum (fouled condition) without exhaust gas treatment system: 50 mbar Operational maximum (fouled condition) with exhaust gas treatment system: 80 mbar - Pipe dimensions laid out according to the recommended gas velocities provided in the the Marine Installation Manual (MIM) and by GTD. - The exhaust piping must be arranged in a way to avoid gases from accumulating. - The piping layout must consider the thermal expansion and vibration from turbocharger (TC) and main engine (ME). Thermal expansion of the ME to be calculated according to the formula in MIM, TC specific thermal expansion are provided by the TC supplier. - Supports (fixation points) for carrying piping and exhaust gas system components deadweight must be installed in sufficient size and amount. Inadmissible tensions in the piping and forces acting on the turbocharger are not acceptable. - Exhaust gas pipes of several engines must not be connected. - Drains in adequate size and amount must be installed in the exhaust gas piping. - When the noise level on the bridge wing exceeds the class requirement (normally 60 - 70 dB(A)) a silencer must be applied.
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Free space for lic.							Q-Code XXXXX	Main Drw.						
							Standard ISO; JIS							
Modif.	A	EAAD089374	11.05.2018	B	EAAD090105	11.01.2019	C	EAAD090535	07.04.2019					
		Number	Drawn date		Number	Drawn date		Number	Drawn date		Drawn date			
		Product 5-8RT-flex48T-D		Exhaust System with one turbocharger										
Units	mm kg	NX				Basic Material			Net Weight 0,001					
SURFACE PROTECTION SEE GROUP 0344		Made	23.01.2018	dk1021	DH.Kim		Scale	1:1	Size	A3	Page	1/2	Material ID	PAAD283800
TOLERANCING PRINCIPLE ISO8015		Chkd	14.02.2018	www008 Wang			Design Group	9726		Drawing ID	DAAD096535		Rev.	C
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	28.02.2018	mhu019 Hug										










































































Ⓒ

Main engine RT-flex48T-D			
No of cyl.	A (mm) *13)	B*9) (mm) *13)	C (mm) *13)
5	900	150	500
6	1000	150	500
7	1100	150	500
8	1100	150	500



Pos.	SYSTEM COMPONENTS *1)	
001	Compensator *4)	
002	Exhaust gas by-pass line *8)	
003	Exhaust gas pipe *12)	
005	Boiler *11)	
006	Silencer (with spark arrester) *10)	
007	Support *6)	
008	Waste gate pipe	
009	Transition piece *7)	
Pos.	ENGINE CONNECTIONS *2)	
(71)	OUTLET - Exhaust gas turbocharger	
(72)	OUTLET - Exhaust gas by-pass	
(73)	OUTLET - Exhaust gas manifold waste gate	
Pos.	ENGINE COMPONENTS *3)	
EC01	Turbocharger	
EC02	Exhaust gas manifold	
EC03	Waste gate compensator *4) *9)	
EC04	Waste gate valve	
Remarks: Ⓒ		
- Drain plugs and drain cocks to be installed where necessary.		
*1) Refer to the "Pipe Connection Plan" for the execution and location of the engine pipe connections.		
*2) To be delivered by external supplier and to be installed by the shipyard.		
*3) To be delivered by the engine builder, i.e. already equipped on engine side		
*4) Dimension of expansion piece (compensator) must be defined by the shipyard taking into account the thermal growth of exhaust manifold and exhaust pipe. Vibrations of the pipe after the compensator must be lower than 45 mm/s RMS (root mean square).		
*6) Installed as fixed or sliding type in accordance with the requirements. Final amount and position have to be defined by the shipyard under consideration of system layout and requirements based on installation specific calculation.		
*7) Area ratio between outlet/inlet diameter = 1.1..1.6 Taper angle ≤ 40°		
*8) Optional, needs just to be installed if requested by owner and class to ensure engine operation even after a turbocharger failure.		
*9) Pipe dimension on engine side (before compensator) is DN100.		
*10) Optional, installed as required to meet noise requirements.		
*11) Optional.		
*12) The radius of pipe bends should be not smaller than 1.5 x DN.		
*13) The provided dimensions refer to an R1 rated engine and serve just as proposal. To make the project specific layout, data as provided by GTD and by the turbocharger supplier must be taken into account.		

Free space for file		G-Code XXXXXX Standard ISO: JIS				Main Dwg.				
Mod.	A	EAA0089374	11.05.2018	B	EAA0090905	11.01.2019	C	EAA0095535	07.04.2019	
	Number		Drawn date	Number		Drawn date	Number		Drawn date	
		Product 5-8RT-flex48T-D		Exhaust System with one turbocharger						
 WIN GD Wissenschaften aus & durch										
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
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Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX		Basic Material				Net weight, 0,001	
Units	mm	kg	NX							

MIDS WinGD RT-flex48T-D - EXHAUST SYSTEM (DG9726)

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2018-05-25	DRAWING SET	First web upload
2019-01-15	DAAD096535	System drg - new revision
2019-09-18	DAAD096535	System drg - new revision

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