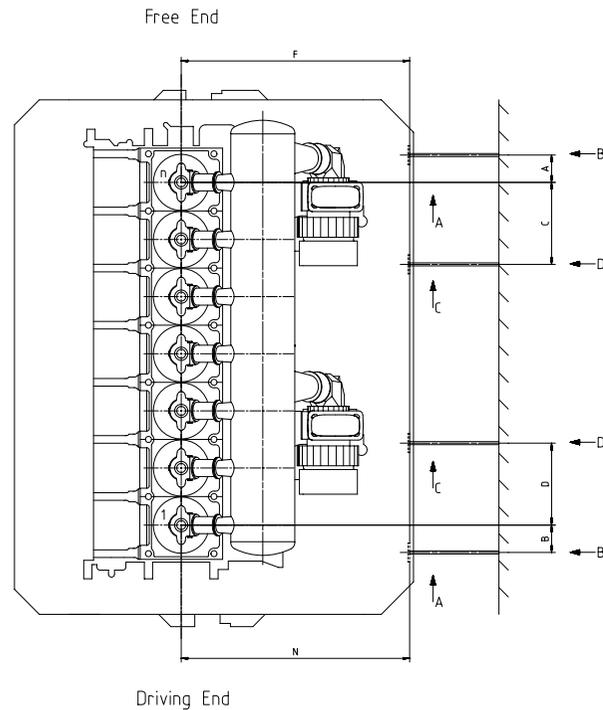


Position of stay attachment points on platform side

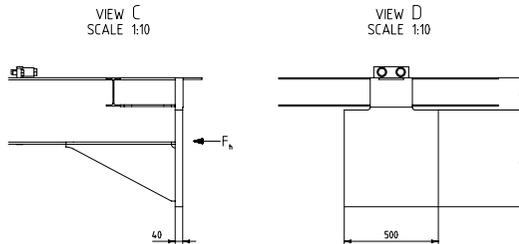
No. of Cyl.	Turbocharger type	A	B	C	D	F	N	H
6	ON REQUEST							
7	2 x A275-L	720	720	2160	2160	6068	6068	7335
	2 x MET71MB	720	720	2160	2160	6068	6068	7335
8	2 x MET83MB	720	720	2160	2160	6268	6268	7335
	ON REQUEST							
9	ON REQUEST							

Requirements for application of hydraulic stays on exhaust side

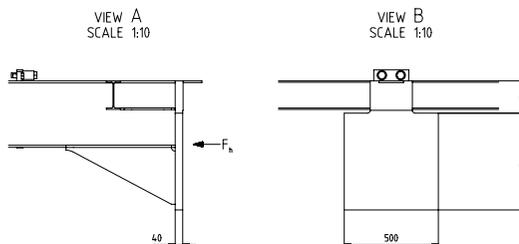
- The selected stays must have maker's acceptance for one side engine installation. WinGD approved supplier : Green & Clean Technology Co., Ltd (Korea)
Hammi Hydraulic Machinery Co., Ltd (Korea)
Nantong Navigation Machinery Group Co., Ltd (China)
- Installed on exhaust side (ES).
- The amount of stays must be determined based on the requirement and stays suppliers specification. The transferred forces must be taken into consideration. The engine forces and moments are defined in the relevant engine dynamic data sheet "Forces and Moments" which is linked in the Marine Installation Manual (MIM). Stay pre-tensioning forces (max. piston hydraulic force) must also be considered and are provided by the stays supplier.
- The stay attachment point requirements must be crosschecked with the specification. The maximum forces transferred by the selected stays type must be within the range as defined on this drawing for standard engine execution. If the total force per stay exceeds the permissible range, reinforcement of the platform attachment points can be requested from the engine builder.
- The stays must adapt to the ship hull deformation and reduce the static reaction force acting on the engine and ship hull attachment points.
- The stays must increase the total stiffness of the system to avoid harmful resonance conditions. The dynamic stiffness of the stays (dynamic spring rate) is provided by the stays supplier.
- The stays must dampen accordingly to ensure that the acceptable vibrations (RMS limits) for the WinGD 2-stroke engine are met.
- The performance of the stays must be checked during sea trial by vibration measurements.
- The installation and commissioning of the stays must be in accordance with the supplier's instructions.



Layout / specification of "inner" stay attachment points



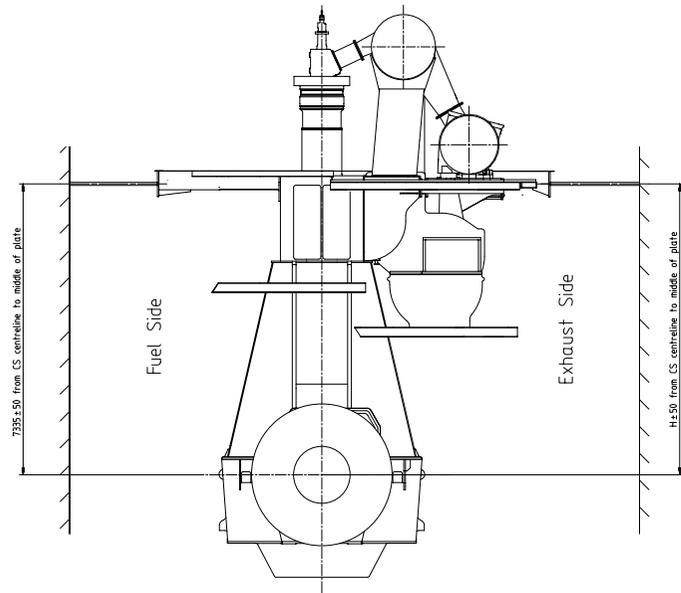
Layout / specification of "outer" stay attachment points



Max. permissible force in lateral direction	F_n	(kN)	± 200
Stiffness	k	(N/m)	0.6×10^9
Permissible vertical stays displacement	Def_v	(mm)	± 50
Permissible horizontal stays displacement	Def_h	(mm)	± 50
Permissible angular stays displacement	Def_a	(°)	2

Max. permissible force in lateral direction	F_n	(kN)	± 200
Stiffness	k	(N/m)	0.6×10^9
Permissible vertical stays displacement	Def_v	(mm)	± 50
Permissible horizontal stays displacement	Def_h	(mm)	± 50
Permissible angular stays displacement	Def_a	(°)	2

DWG No. 20.08.2019 DWG Date 23.08.2019 DWG No. 20.08.2019 DWG Date 23.08.2019		20.08.2019 20.08.2019 20.08.2019 20.08.2019		20.08.2019 20.08.2019 20.08.2019 20.08.2019		20.08.2019 20.08.2019 20.08.2019 20.08.2019		20.08.2019 20.08.2019 20.08.2019 20.08.2019	
WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD	
WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD	
WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD		WinGD WinGD WinGD WinGD	



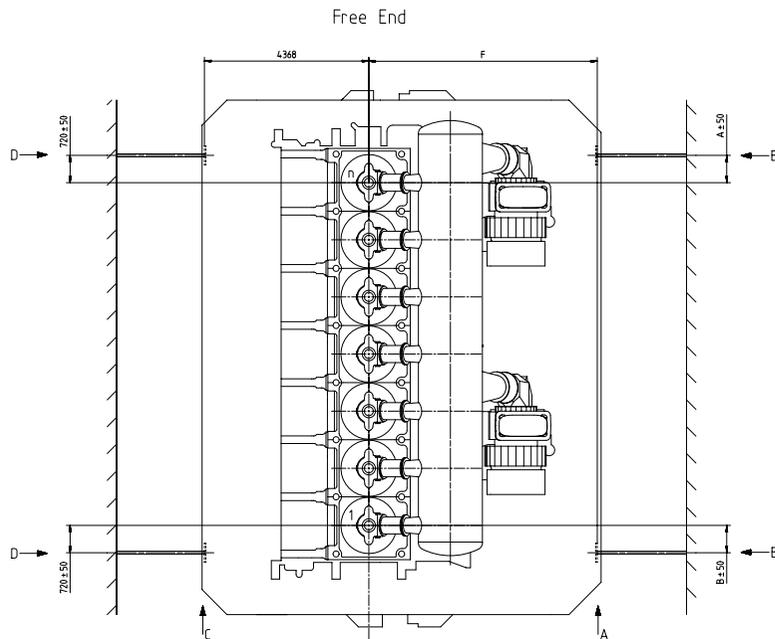
Position of stay attachment points on platform side

No. of Cyl.	Turbocharger type	A	B	F	H
6	ON REQUEST				
7	2 x A275-L	720	720	6068	7335
	2 x MET71MB	720	720	6068	7335
	2 x MET83MB	720	720	6268	7335
8	ON REQUEST				
9	ON REQUEST				

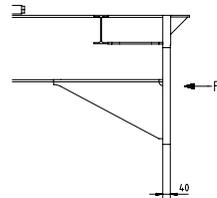
Requirements for application of hydraulic stays on fuel side AND exhaust side

- The selected stays must have maker's acceptance for both side engine installation. WinGD approved supplier : Green & Clean Technology Co., Ltd (Korea), Hanmi Hydraulic Machinery Co., Ltd (Korea), Nantong Navigation Machinery Group Co., Ltd (China)
- Installed on fuel side (FS) AND exhaust side (ES).
- The amount of stays must be determined based on the requirement and stays suppliers specification. The transferred forces must be taken into consideration. The engine forces and moments are defined in the relevant engine dynamic data sheet "Forces and Moments" which is linked in the Marine Installation Manual (MIM). Stay pre-tensioning forces (max. piston hydraulic force) must also be considered and are provided by the stays supplier.
- The stay attachment point requirements must be crosschecked with the specification. The maximum forces transferred by the selected stays type must be within the range as defined on this drawing for standard engine execution. If the total force per stay exceeds the permissible range, reinforcement of the platform attachment points can be requested from the engine builder.
- The stays must adapt to the ship hull deformation and reduce the static reaction force acting on the engine and ship hull attachment points.
- The stays must increase the total stiffness of the system to avoid harmful resonance conditions. The dynamic stiffness of the stays (dynamic spring rate) is provided by the stays supplier.
- The stays must dampen accordingly to ensure that the acceptable vibrations (RMS limits) for the WinGD 2-stroke engine are met.
- The performance of the stays must be checked during sea trial by vibration measurements.
- The installation and commissioning of the stays must be in accordance with the supplier's instructions.

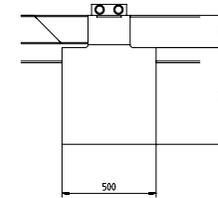
Layout / specification of stay attachment points on exhaust side



VIEW A SCALE 1:10



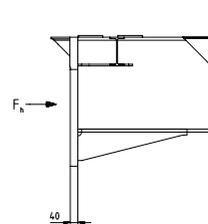
VIEW B SCALE 1:10



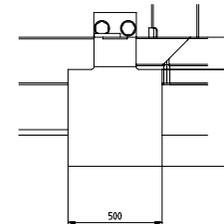
Max. permissible force in lateral direction	F_n (kN)	± 200
Stiffness	k (N/m)	0.6×10^4
Permissible vertical stays displacement	Def_v (mm)	± 50
Permissible horizontal stays displacement	Def_h (mm)	± 50
Permissible angular stays displacement	Def_a (°)	2

Layout / specification of stay attachment points on fuel side

VIEW C SCALE 1:10



VIEW D SCALE 1:10



Max. permissible force in lateral direction	F_n (kN)	± 200
Stiffness	k (N/m)	0.5×10^4
Permissible vertical stays displacement	Def_v (mm)	± 50
Permissible horizontal stays displacement	Def_h (mm)	± 50
Permissible angular stays displacement	Def_a (°)	2

Revision		Number		Date		Number		Date	
01	01	01	01	01	01	01	01	01	01

WINGD
 Marine Power & Diesel
 ENGINE SW'S
 Stays location BOTH SIDES
 Motorabstuetzung

Scale: 1:50
 Date: 20.08.2019
 Design Group: 9715
 Part Number: DAAD116741

MIDS - WinGD X82-2.0 – Engine Stays (DG9715)

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2019-08-23	DRAWING SET	First web upload

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.