

1

2

3

4

Available executions

Execution No.	Material ID	Cylinder No.	Attribute 1: Bedplate parts		Attribute 2: Alignment tool type	
			1	2	SCREWS	WEDGES
001	PTAA010934	5	X		X	
002	PTAA011001	5	X			X
003	PTAA010902	6	X		X	
004	PTAA010919	6	X			X
005	PTAA011002	7	X		X	
006	PTAA011007	7	X			X
007	PAAD191650	8	X		X	
008	PAAD356276	8	X			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.	X72 X72-B	X72DF X72DF-1.1	X72DF-2.1 X72DF-A-1.0	X72DF-M-1.0							
Change History	A	npa101	mhu019	20.04.2023	CNAA003206	Drawing Updated			-	-	
	-	mhu019	dst009	12.11.2021	CNAA001002	new Design			-	-	
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C	
	WIN GD Winterthur Gas & Diesel		TOOL ENGINE ALIGNMENT MIDS master drawing								
separate BOM available				Dimension							
Scale	-		NX	Units [mm] [kg]	Basic Material			Net Weight	2126		
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Qty per		A4	Item ID	PTAA014113			Drawing Page/s	1/1			

1

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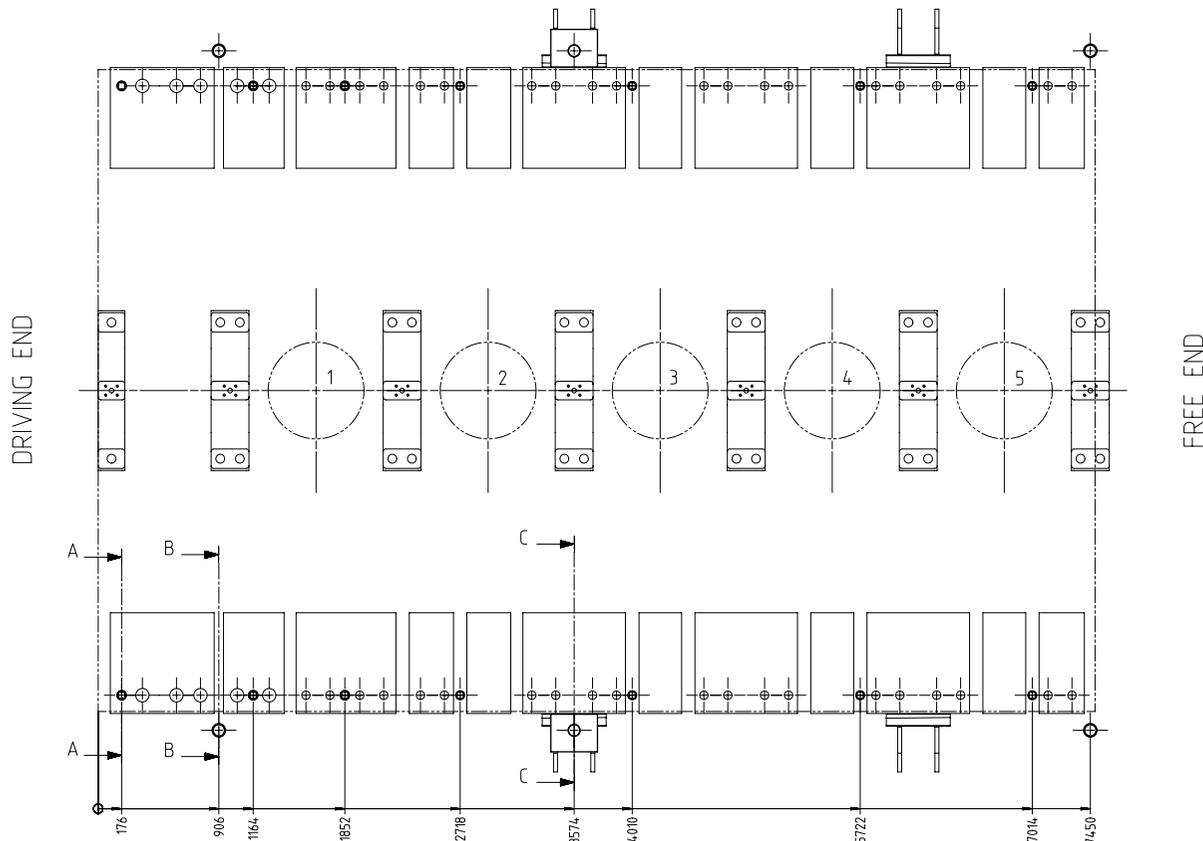
SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	14	PAAD109518	JACKING SCREW			W-FU-235-N-T	4.64
2	6	PTAA026527	SPONGE RUBBER RING				0.001
3	6	PAAD318478	HYDRAULIC JACK				
4	4	PAAD318480	SUPPORT BLOCK				
5	2	PAAD318479	SUPPORT PLATE				



Prod.	5 X72 5 X72-B		5 X72DF 5 X72DF-1.1		5 X72DF-2.1 5 X72DF-A-1.0		5 X72DF-M-1.0		
Change History	C	dkl021	mhu019	20.07.2023	CNAA004113	Drawing update		4	3
	B	dkl021	dst009	23.02.2022	CNAA001537	see ChangeNotice		-	-
	A	dkl021	mhu019	21.01.2022	CNAA001108	see ChangeNotice		-	-
	-	dkl021	dst009	08.11.2021	CNAA000571	new Document		-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E

 WIN GD <i>Winterthur Gas & Diesel</i>	<h2>TOOL ENGINE ALIGNMENT</h2> <p>Alignment with: Jacking screws</p>
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Bill Of Material		Dimension	
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	Main Design	Yes	Design Group 9710-01 Q-Code X X O Standard WDS
	Qty per	Engine A4	Item ID PTAA010934 BOM Page/s 01/01



CAUTION

Risk:
Tool and/or bedplate damage

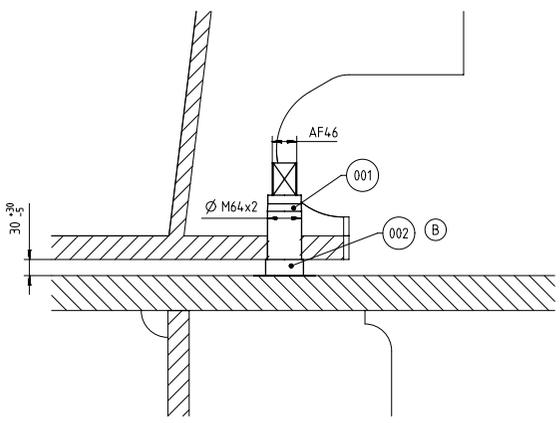
Countermeasure:
Avoid overloading of jacking screws and/or bedplate areas by observing the appropriate engine alignment/ assembly procedure as follows:

- Lift the engine into the engine room and place it on levelled , temporary blocks, underneath the bedplate beside the jacking screws.
- Screw in all jacking screws until touching the foundation top plate (the full number of jacking screws must be used)
- Apply hydraulic jacks to the protruding bedplate ribs nearby the jacking screws as indicated in the drawing.
- Remove the temporary blocks by slightly lifting the engine with the hydraulic jacks.
- Start with the engine alignment by means of jacking screws. Before turning a jacking screw, reduce its load by use of the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step (equals to 1/2 screw turn, based on 2 mm thread pitch). Changes in height larger than the maximum allowance (1 mm) require a gradual process where all jacking screws are successively adjusted in stages, to ensure the best possible load distribution.

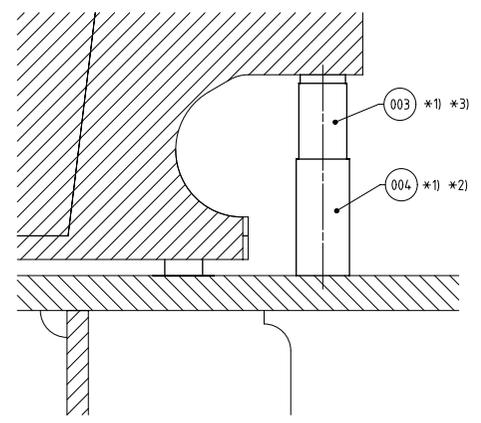
Remarks

- *1) To be provided by the shipyard.
- *2) Height depending on the requirement (chock thickness in correlation with maximum permissible extension of the hydraulic jack).
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 880 kN

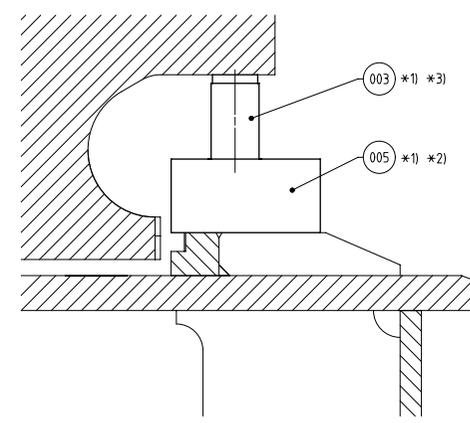
SECTION A-A $\varnothing 90^\circ$
SCALE 1:5



SECTION B-B $\varnothing 90^\circ$
SCALE 1:5



SECTION C-C $\varnothing 90^\circ$
SCALE 1:5



Rev	5X72	5X72D	5X72DF-2.1	5X72DF-AM-1.0			
C	dk0021	msu019	23.07.2023	CNA004103	Drawing update	4	3
B	dk0021	ds1009	23.02.2022	CNA001537	see ChangeNotice	-	-
A	dk0021	msu019	21.01.2022	CNA001108	see ChangeNotice	-	-
-	dk0021	ds1009	08.11.2021	CNA000571	new Document	-	-
Rev	Creator	Approved	Date	Change ID	Change Synopsis	Appr. name	Activity Code

WINGD
Winterthur Gas & Diesel

TOOL ENGINE ALIGNMENT
Alignment with: Jacking screws

separate BOM available		Dimension		Net Weight	64,96
Scale	1:20	Units [mm] [kg]	Basic Material		
SURFACE PROTECTION SEE GROUP 0344		Main Design		Yes	
TOLERANCING PRINCIPLE ISO8015		Design Group		9710-01	q-Code X X 0
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Engine		A1	
		Part ID		PTAA010934	
		Drawing Page		1/1	

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	12	107.245.895.200	WEDGE				8.51
2	6	PAAD318478	HYDRAULIC JACK				
3	4	PAAD318480	SUPPORT BLOCK				
4	2	PAAD318479	SUPPORT PLATE				

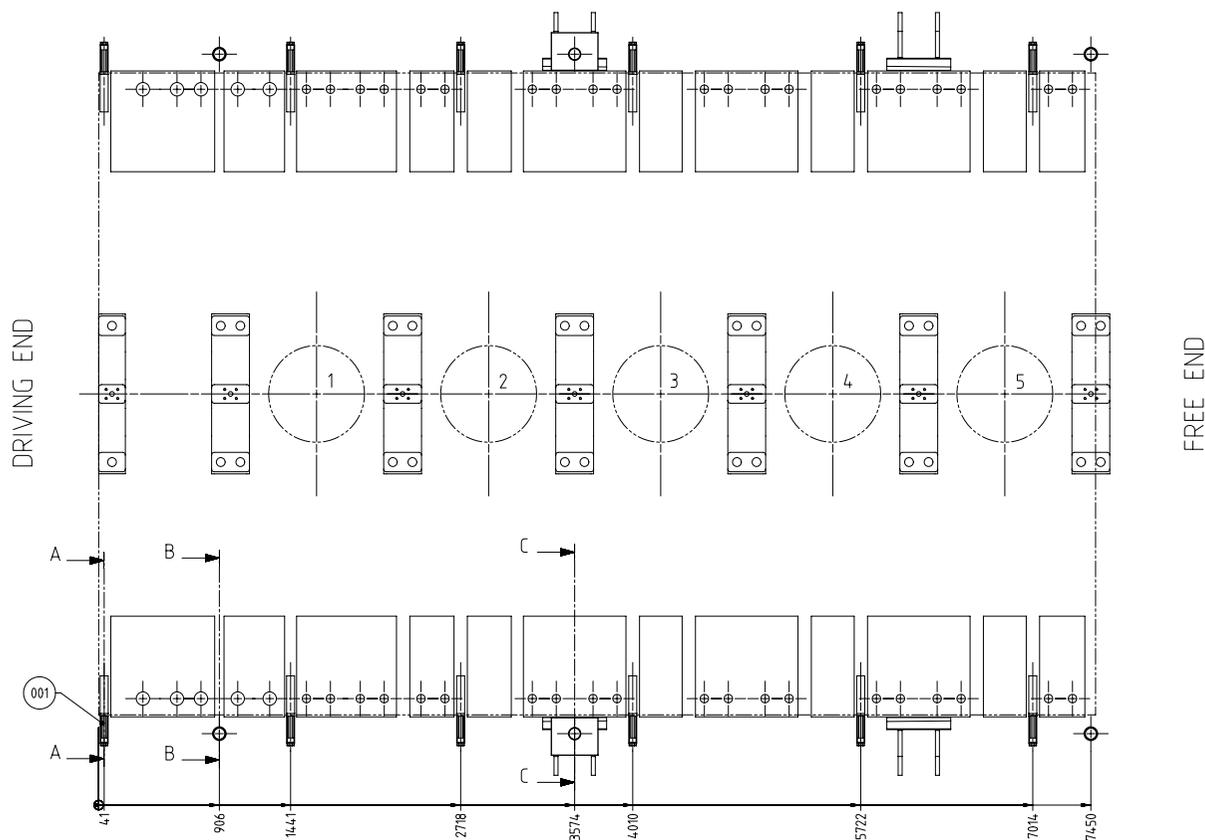
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Prod.	5 X72 5 X72-B	5 X72DF 5 X72DF-1.1	5 X72DF-2.1 5 X72DF-A-1.0	5 X72DF-M-1.0
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Change History	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C
	B	dki021	mhu019	20.07.2023	CNAA004113	Drawing update			4	3
	A	dki021	mhu019	21.01.2022	CNAA001108	see ChangeNotice			-	-
	-	dki021	dst009	08.11.2021	CNAA000571	new Document			-	-

	<h1>TOOL ENGINE ALIGNMENT</h1> <h2>Alignment with: Wedges</h2>
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Bill Of Material		Dimension						
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	Main Design	Yes	Design Group	9710-01	Q-Code X X O	Standard	WDS	
	Qty per	Engine	A4	Item ID	PTAA011001		BOM Page/s	01/01



CAUTION

Risk:
Tool and/or bedplate damage

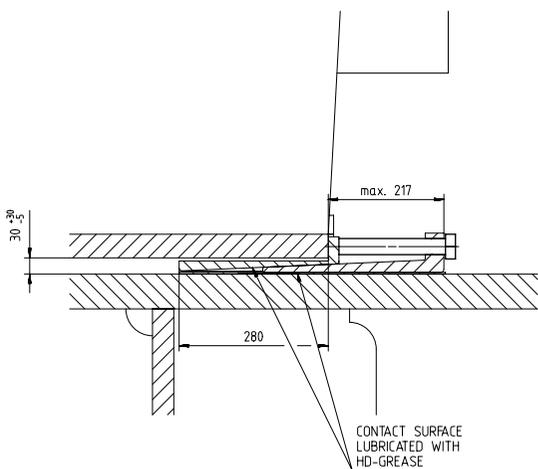
Countermeasure:
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- Insert wedges and/or shims in all indicated positions.
- Lift the engine into the engine room and place it on levelled wedges and/or shims (wedges or shims must be inserted as deep as possible below the bedplate to ensure that the support point is as close as possible at the engine monoblock column).
- Apply hydraulic jacks to the protruding bedplate ribs nearby the relevant wedge and/or shim as indicated in the drawing.
- Start with the engine alignment by means of wedges and/or shims. Before adjusting the height of wedges and/or shims lift the engine by the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step. Changes in height larger than the maximum allowance (1mm) require a gradual process where all wedges and/or shims are successively adjusted in stages, to ensure the best possible load distribution.

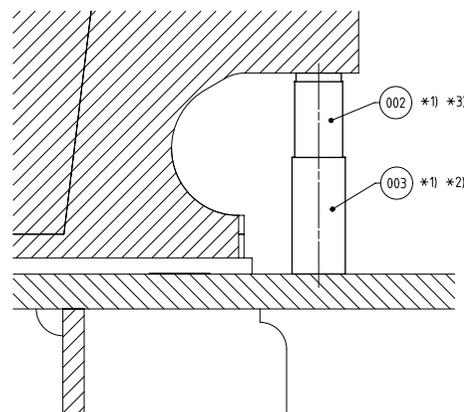
Remarks

- *1) To be provided by the shipyard.
- *2) Height depending on the requirement (chock thickness in correlation with maximum permissible extension of the hydraulic jack).
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 880 kN

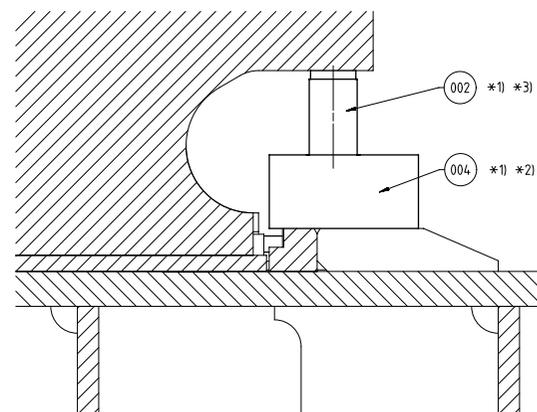
SECTION A-A $\odot 90^\circ$
SCALE 1:5



SECTION B-B $\odot 90^\circ$
SCALE 1:5



SECTION C-C $\odot 90^\circ$
SCALE 1:5



Rev	5X72	5X72DF	5X72DF-2.1	5X72DF-AM-1.0			
B	dk0021	mh019	20.07.2023	CNA004103	Drawing update	4	3
A	dk0021	mh019	21.01.2022	CNA001108	see ChangeNotice	-	-
-	dk0021	ds1009	08.11.2021	CNA000571	new Document	-	-
Rev	Creator	Approver	Approval Date	Change ID	Change Synopsis	Appr. name	Activity Code

WINGD Wärthner Gas & Diesel		TOOL ENGINE ALIGNMENT Alignment with: Wedges	
separate BOM available	Dimension	Scale 1:20	Units [mm] [kg]
Units [mm] [kg]	Basic Material	Yes	Design Group
9710-01	o-Code X X 0	Standard	WDS
Engine	A1	Item ID	P1AA011001
Page 6	1/1	Drawing	Page 6

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

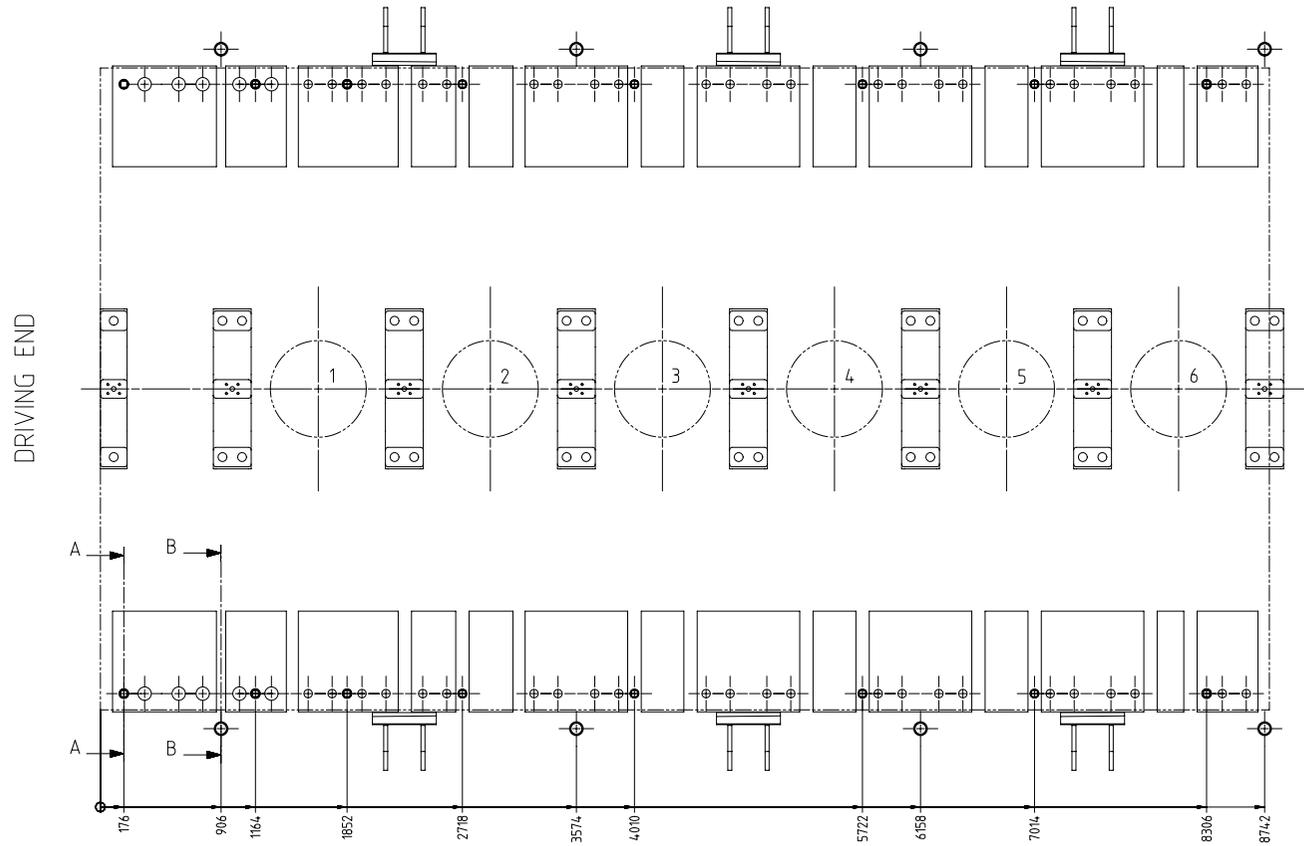
SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	16	PAAD109518	JACKING SCREW			W-FU-235-N-T	4.64
2	8	PTAA026527	SPONGE RUBBER RING				0.001
3	8	PAAD318478	HYDRAULIC JACK				
4	8	PAAD318480	SUPPORT BLOCK				

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Prod.	6 X72 6 X72-B		6 X72DF 6 X72DF-1.1		6 X72DF-2.1 6 X72DF-A-1.0		6 X72DF-M-1.0		
Change History	C	dki021	mhu019	20.07.2023	CNAA004113	Drawing update		4	3
	B	dki021	dst009	23.02.2022	CNAA001537	see ChangeNotice		-	-
	A	dki021	mhu019	21.01.2022	CNAA001108	see ChangeNotice		-	-
	-	dki021	dst009	08.11.2021	CNAA000571	new Document		-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E

	<h2>TOOL ENGINE ALIGNMENT</h2> <p>Alignment with: Jacking screws</p>
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Bill Of Material		Dimension	
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	Main Design	Yes	Design Group 9710-01 Q-Code X X O Standard WDS
	Qty per	Engine A4	Item ID PTAA010902 BOM Page/s 01/01
			Net Weight 0



CAUTION

Risk:
Tool and/or bedplate damage

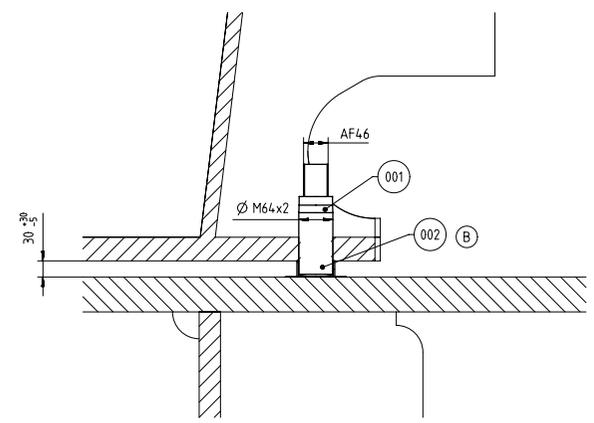
Countermeasure:
Avoid overloading of jacking screws and/or bedplate areas by observing the appropriate engine alignment/ assembly procedure as follows:

- Lift the engine into the engine room and place it on levelled, temporary blocks, underneath the bedplate beside the jacking screws.
- Screw in all jacking screws until touching the foundation top plate (the full number of jacking screws must be used)
- Apply hydraulic jacks to the protruding bedplate ribs nearby the jacking screws as indicated in the drawing.
- Remove the temporary blocks by slightly lifting the engine with the hydraulic jacks.
- Start with the engine alignment by means of jacking screws. Before turning a jacking screw, reduce its load by use of the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step (equals to 1/2 screw turn, based on 2 mm thread pitch). Changes in height larger than the maximum allowance (1 mm) require a gradual process where all jacking screws are successively adjusted in stages, to ensure the best possible load distribution.

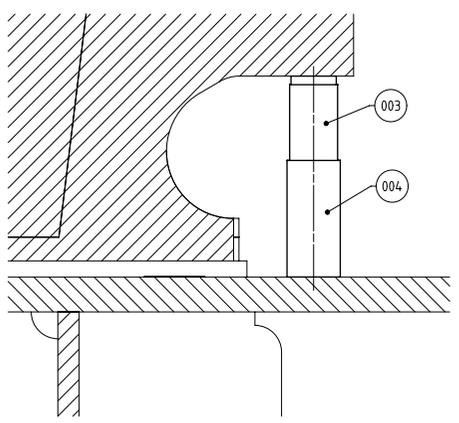
Remarks

- *1) To be provided by the shipyard.
- *2) Height depending on the requirement (chock thickness in correlation with maximum permissible extension of the hydraulic jack).
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 880 kN

SECTION A-A 90°
SCALE 1:5



SECTION B-B 90°
SCALE 1:5



Rev	6X72	6X72DF	6X72DF-2.1	6X72DF-AM-1.0			
C	dk0021	msu010	20.07.2023	CNA004103	Drawing update	4	3
B	dk0021	ds1009	23.02.2022	CNA001537	see ChangeNotice	-	-
A	dk0021	mhu019	21.01.2022	CNA001108	see ChangeNotice	-	-
-	dk0021	ds1009	08.11.2021	CNA000571	new Document	-	-
Rev	Creator	Approver	Approved Date	Change ID	Change Synopsis	Appr. code	Activity Code

WIN GD
Winterthur Gas & Diesel

TOOL ENGINE ALIGNMENT
Alignment with: Jacking screws

separate BOM available

Scale: 1:20

Units [mm] [kg]

Basic Material

Net Weight: 75

Design Group: 9710-01

Design Group: X X 0

Standard: WDS

Part ID: PTA010902

Page: 1/1

SURFACE PROTECTION SEE GROUP 0344

GENERAL TOLERANCES ACCORDING TO ISO2768-mK

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	14	107.245.895.200	WEDGE				8.51
2	8	PAAD318478	HYDRAULIC JACK				
3	8	PAAD318480	SUPPORT BLOCK				

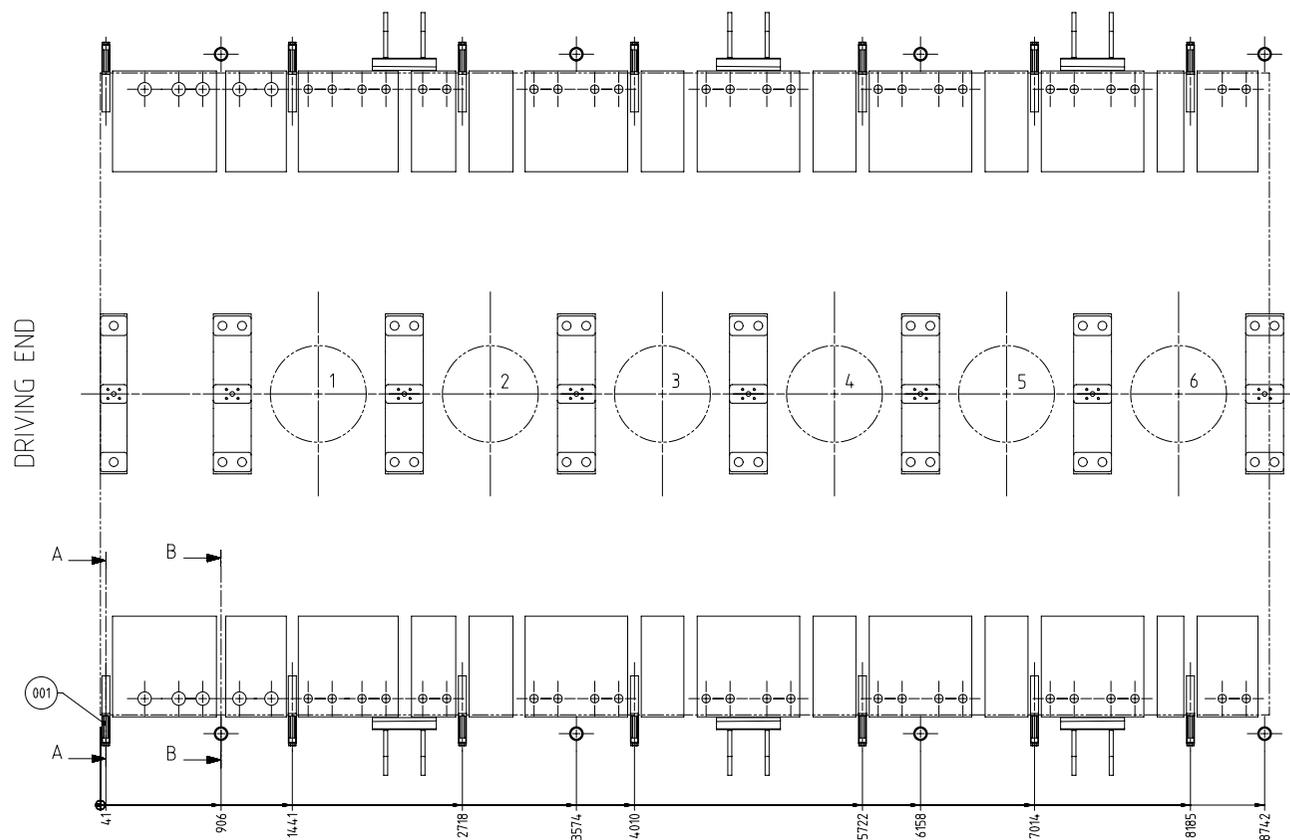


Prod.	6 X72 6 X72-B	6 X72DF 6 X72DF-1.1	6 X72DF-2.1 6 X72DF-A-1.0	6 X72DF-M-1.0
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Change History	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C
	B	dkl021	mhu019	20.07.2023	CNAA004113	Drawing update			4	3
	A	dkl021	mhu019	21.01.2022	CNAA001108	see ChangeNotice			-	-
	-	dkl021	dst009	08.11.2021	CNAA000571	new Document			-	-

	<h1>TOOL ENGINE ALIGNMENT</h1> <h2>Alignment with: Wedges</h2>
--	--

Bill Of Material		Dimension						
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	Main Design	Yes	Design Group	9710-01	Q-Code X X O	Standard	WDS	
	Qty per	Engine	A4	Item ID	PTAA010919		BOM Page/s	01/01



CAUTION

Risk:
Tool and/or bedplate damage

Countermeasure:
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

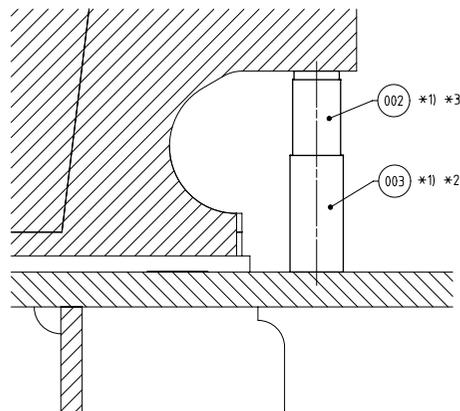
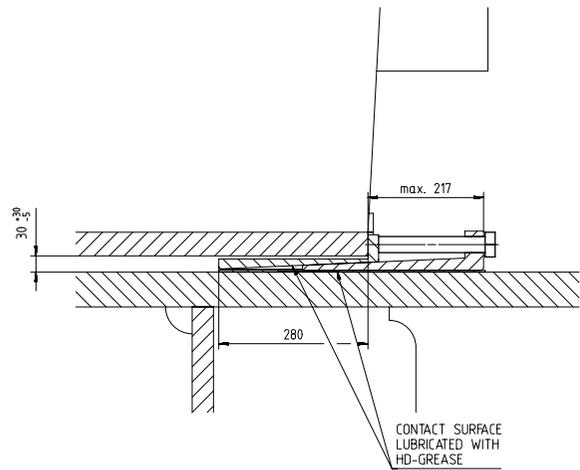
- Insert wedges and/or shims in all indicated positions.
- Lift the engine into the engine room and place it on levelled wedges and/or shims (wedges or shims must be inserted as deep as possible below the bedplate to ensure that the support point is as close as possible at the engine monoblock column).
- Apply hydraulic jacks to the protruding bedplate ribs nearby the relevant wedge and/or shim as indicated in the drawing.
- Start with the engine alignment by means of wedges and/or shims. Before adjusting the height of wedges and/or shims lift the engine by the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step. Changes in height larger than the maximum allowance (1mm) require a gradual process where all wedges and/or shims are successively adjusted in stages, to ensure the best possible load distribution.

Remarks

- *1) To be provided by the shipyard.
- *2) Height depending on the requirement (chock thickness in correlation with maximum permissible extension of the hydraulic jack).
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 880 kN

SECTION A-A $\odot 90^\circ$
SCALE 1:5

SECTION B-B $\odot 90^\circ$
SCALE 1:5



6X72		6X72DF		6X72DF-2.1		6X72DF-AM-1.0	
6X72AB		6X72DF-1.1		6X72DF-AM-1.0			
Rev	Change	Author	Approved	Change ID	Change Synopsi	Appr. name	Activity Code
B	dk0021	mh0109	08.11.2021	CNA0004103	new Document		
A	dk0021	mh0109	21.01.2022	CNA0001108	see ChangeNotice		
-	dk0021	ds1009	08.11.2021	CNA0005571	new Document		
TOOL ENGINE ALIGNMENT Alignment with: Wedges							
separate BOM available				Dimension			
Scale	1:20	Units	[mm] [kg]	Basic Material			Net Weight
NX				Design	Yes	Design Group	9710-01
SURFACE PROTECTION SEE GROUP 0344				Material			Standard
TOLERANCING PRINCIPLE ISO8015				Engine	A1	Item ID	PTAA010919
GENERAL TOLERANCES ACCORDING TO ISO2768-mK				per			Drawing Page/s
				1/1			

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	18	PAAD109518	JACKING SCREW			W-FU-235-N-T	4.64
3	10	PAAD318478	HYDRAULIC JACK				
4	10	PAAD318480	SUPPORT BLOCK				
5	8	PTAA026527	SPONGE RUBBER RING				0.001

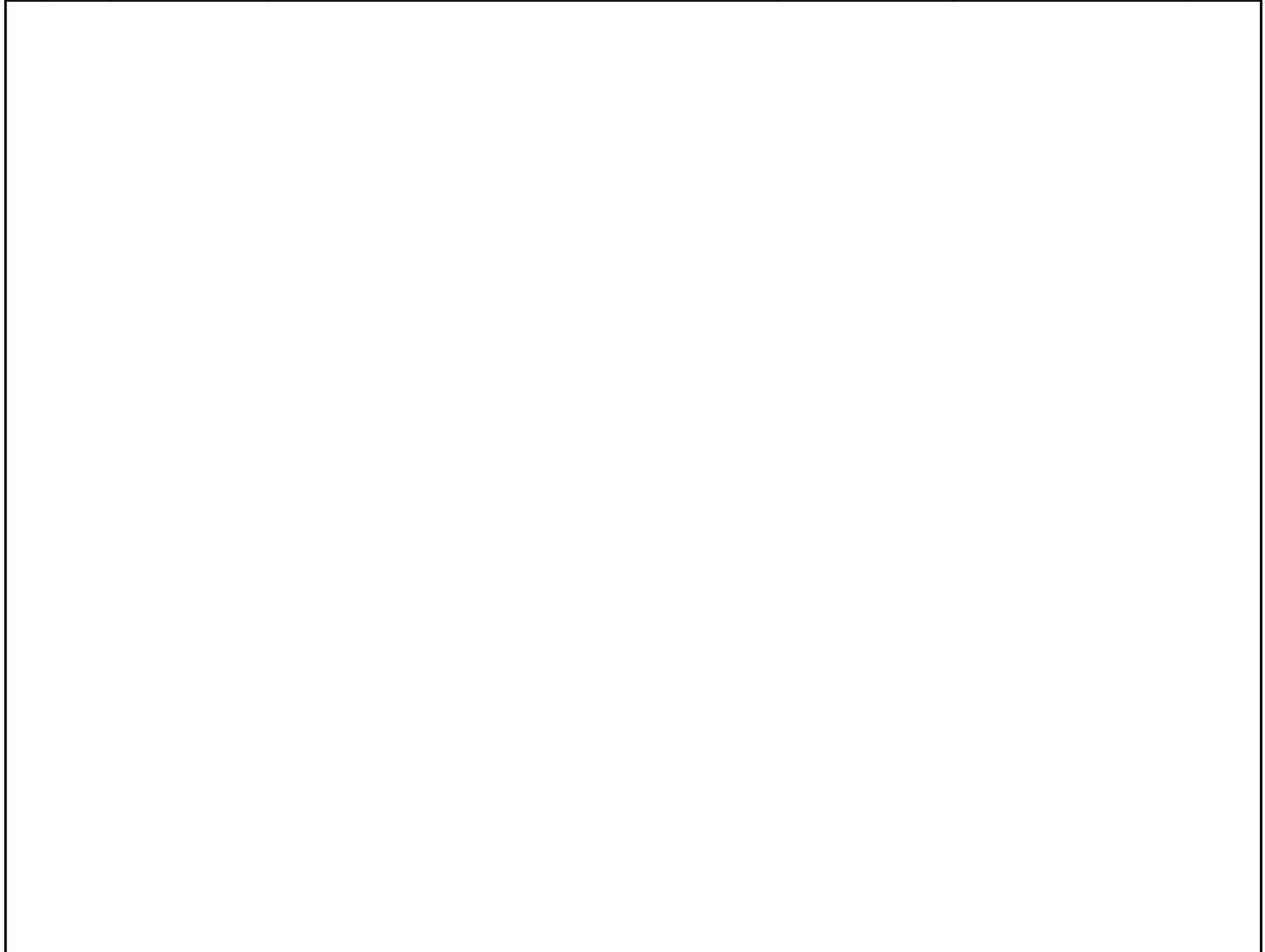


Prod.	7 X72 7 X72-B	7 X72DF 7 X72DF-1.1	7 X72DF-2.1 7 X72DF-A-1.0	7 X72DF-M-1.0				
Change History	C	dkl021	mhu019	20.07.2023	CNAA004113	Drawing update	4	3
	B	dkl021	dst009	23.02.2022	CNAA001537	see ChangeNotice	-	-
	A	dkl021	mhu019	21.01.2022	CNAA001108	see ChangeNotice	-	-
	-	dkl021	dst009	08.11.2021	CNAA000571	new Document	-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code

	<h1>TOOL ENGINE ALIGNMENT</h1> <p>Alignment with: Jacking screws</p>
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Bill Of Material		Dimension			
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Main Design	Yes	Design Group	9710-01	Q-Code	X X O
Qty per	Engine	A4	Item ID	PTAA011002	
				BOM Page/s	01/01
				Standard	WDS

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	16	107.245.895.200	WEDGE				8.51
2	10	PAAD318478	HYDRAULIC JACK				
3	10	PAAD318480	SUPPORT BLOCK				



Prod.	7 X72 7 X72-B	7 X72DF 7 X72DF-1.1	7 X72DF-2.1 7 X72DF-A-1.0	7 X72DF-M-1.0
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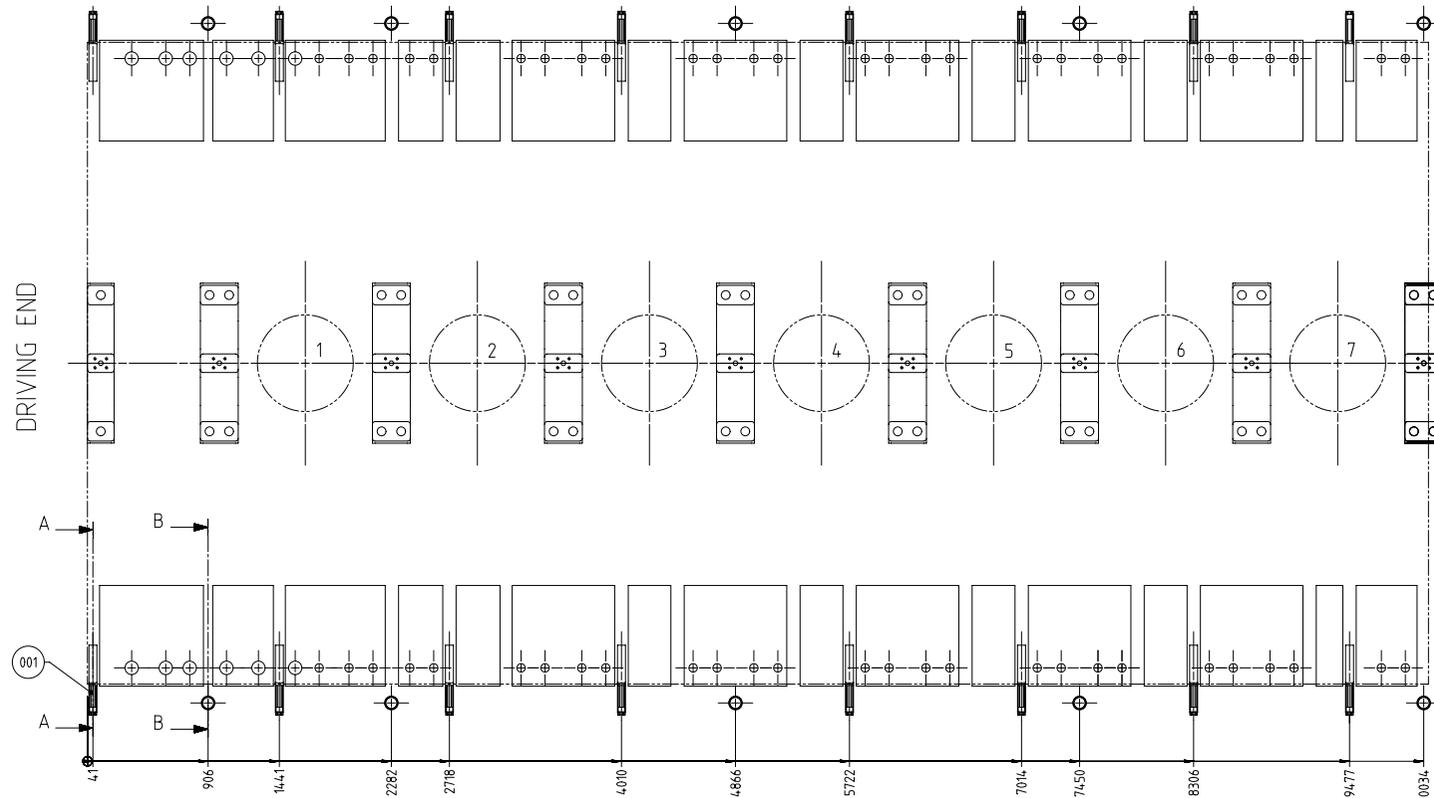
Change History	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C
	B	dkl021	mhu019	20.07.2023	CNAA004113	Drawing update			4	3
	A	dkl021	mhu019	21.01.2022	CNAA001108	see ChangeNotice			-	-
	-	dkl021	dst009	08.11.2021	CNAA000571	new Document			-	-

	<h1>TOOL ENGINE ALIGNMENT</h1> <h2>Alignment with: Wedges</h2>
--	--

Bill Of Material		Dimension			
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Main Design	Yes	Design Group	9710-01	Q-Code	X X O
Qty per	Engine	A4	Item ID	PTAA011007	
				BOM Page/s	01/01
				Standard	WDS

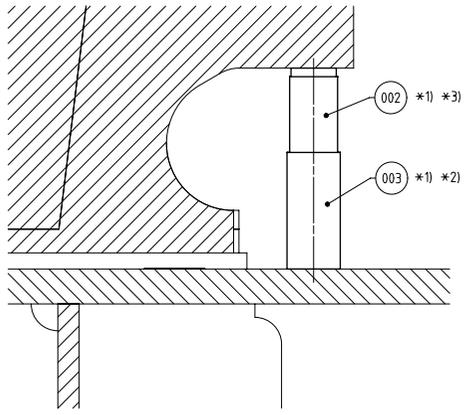
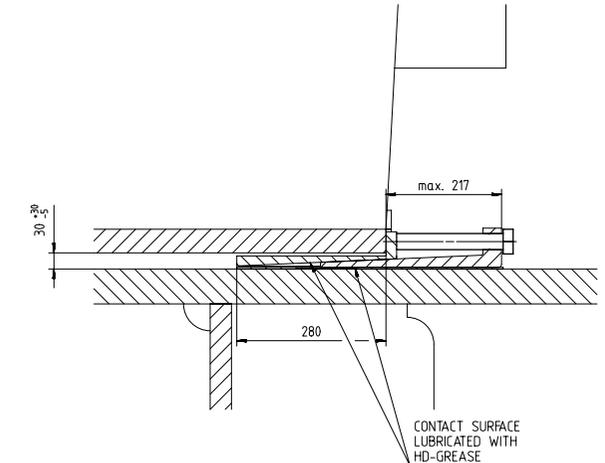
DRIVING END

FREE END



SECTION A-A 90°
SCALE 1:5

SECTION B-B 90°
SCALE 1:5



CAUTION

Risk:
Tool and/or bedplate damage

Countermeasure:
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- Insert wedges and/or shims in all indicated positions.
- Lift the engine into the engine room and place it on levelled wedges and/or shims (wedges or shims must be inserted as deep as possible below the bedplate to ensure that the support point is as close as possible at the engine monoblock column).
- Apply hydraulic jacks to the protruding bedplate ribs nearby the relevant wedge and/or shim as indicated in the drawing.
- Start with the engine alignment by means of wedges and/or shims. Before adjusting the height of wedges and/or shims lift the engine by the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step. Changes in height larger than the maximum allowance (1mm) require a gradual process where all wedges and/or shims are successively adjusted in stages, to ensure the best possible load distribution.

Remarks

- *1) To be provided by the shipyard.
- *2) Height depending on the requirement (chock thickness in correlation with maximum permissible extension of the hydraulic jack).
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 880 kN

7X72		7X72DF		7X72DF-2.1		7X72DF-AM-1.0	
7X72-04		7X72DF-1.1		7X72DF-AM-1.0			
Rev	Change History	Rev	Change History	Rev	Change History	Rev	Change History
B	dk0021	enhd019	20.07.2023	CNA004103	Drawing update	4	3
A	dk0021	mhu019	21.01.2022	CNA001108	see ChangeNotice	-	-
-	dk0021	dst1009	08.11.2021	CNA000571	new Document	-	-
Rev	Creator	Approver	Approval Date	Change ID	Change Synopsis	Appr. name	Activity Code
WINGD Wärthner Gas & Diesel		TOOL ENGINE ALIGNMENT Alignment with: Wedges					
separate BOM available		Dimension		Basic Material		Net Weight	
Scale	1:20	Units	[mm] [kg]	Design Group		136.2	
SURFACE PROTECTION SEE GROUP 0344		Copyright Wärthner Gas & Diesel 1974. All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written consent of Wärthner Gas & Diesel AG.		Main Design		Standard	
TOLERANCING PRINCIPLE ISO8015		GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Yes		WDS	
		Engine		A1		PTAA011007	
		per		15		1/1	

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	20	PAAD109518	JACKING SCREW			W-FU-235-N-T	4.64
002	10	PAAD318478	HYDRAULIC JACK				
003	10	PAAD318480	SUPPORT BLOCK				
004	14	PTAA026527	SPONGE RUBBER RING				0.001

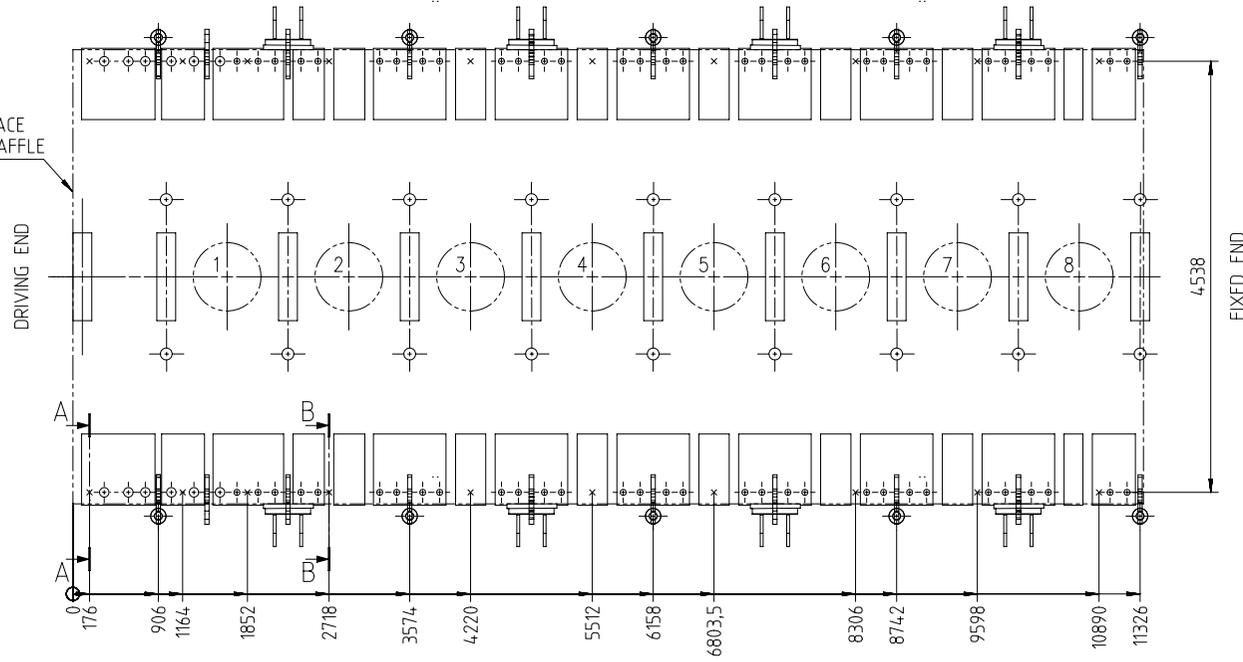
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Prod.	8 X72 8 X72-B		8 X72DF 8 X72DF-1.1		8 X72DF-2.1 8 X72DF-A-1.0		8 X72DF-M-1.0		
Change History	D	npa101	mhu019	22.06.2023	CNAA003991	New MainDesign		-	-
	C	npa101	mhu019	20.04.2023	CNAA003194	Main Design/Drawing Introduced		4	3
	B	sde101	mhu019	11.01.2023	CNAA003069	Main Design/Drawing Introduced		4	3
	-	dki021	bha009	21.05.2015	EAAD778529	-		-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E

	<h2>TOOL ENGINE ALIGNMENT</h2> <p>Alignment with: Jacking screws</p>
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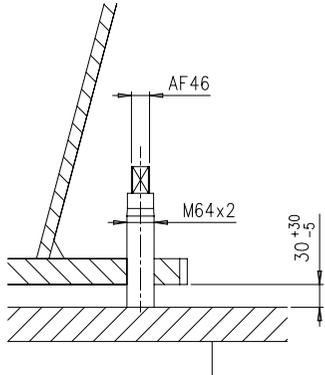
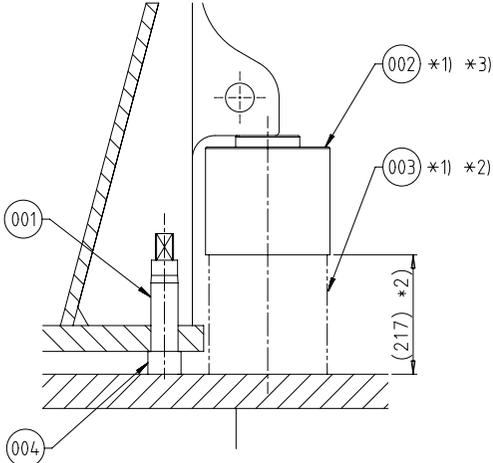
Bill Of Material		Dimension	
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	Main Design	Yes	Design Group 9710-01 Q-Code XXXXX
	Qty per	Engine A4	Item ID PAAD191650
			Net Weight 93 Standard WDS BOM Page/s 01/01

MACHINED SURFACE
COLLECTION OIL BAFFLE



SECTION A-A
SCALE 1:5

SECTION B-B
SCALE 1:5



CAUTION

Risk:
Tool and/or bedplate damage

Countermeasure:
Avoid overloading of jacking screws and/or bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- Lift the engine into the engine room and place it on levelled, temporary blocks, underneath the bedplate beside the jacking screws.
- Screw in all jacking screws until touching the foundation top plate (the full number of jacking screws must be used)
- Apply hydraulic jacks to the protruding bedplate ribs nearby the jacking screws as indicated in the drawing.
- Remove the temporary blocks by slightly lifting the engine with the hydraulic jacks.
- Start with the engine alignment by means of jacking screws. Before turning a jacking screw, reduce its load by use of the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step (equals to 1/2 screw turn, based on 2 mm thread pitch). Changes in height larger than the maximum allowance (1 mm) require a gradual process where all jacking screws are successively adjusted in stages, to ensure the best possible load distribution.

Remarks

- *1) To be provided by the shipyard
- *2) Height depending on the requirement (check thickness in correlation with maximum permissible extension of the hydraulic jack)
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 880 kN

Prod.	8X72 8X72-B	8X72DF 8X72DF-1,1	8X72DF-2,1 8X72DF-A-1,0	8X72DF-M-1,0					
Change History	D npa101 mhu019 22.06.2023 CNA003991 New MainDesign	C npa101 mhu019 20.04.2023 CNA003194 Main Design/Drawing Introduced	B sde101 mhu019 11.01.2023 CNA003069 Main Design/Drawing Introduced	- dk021 bha009 21.05.2015 EAAD778529 -					
Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C



TOOL ENGINE ALIGNMENT
Alignment with: Jacking screws

separate BOM available		Dimension		Units [mm] [kg]		Basic Material		Net Weight 93.00	
Scale 1:15		NX	Main Design	Yes	Design Group 9710-01	Q-Code XXXXX	Standard	WDS	
Qty per	Engine	A2	Item ID	PAAD191650		Drawing Page/s	1/1		

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

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SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	18	107.245.895.200	WEDGE				8.51
002	10	PAAD318478	HYDRAULIC JACK				
003	10	PAAD318480	SUPPORT BLOCK				

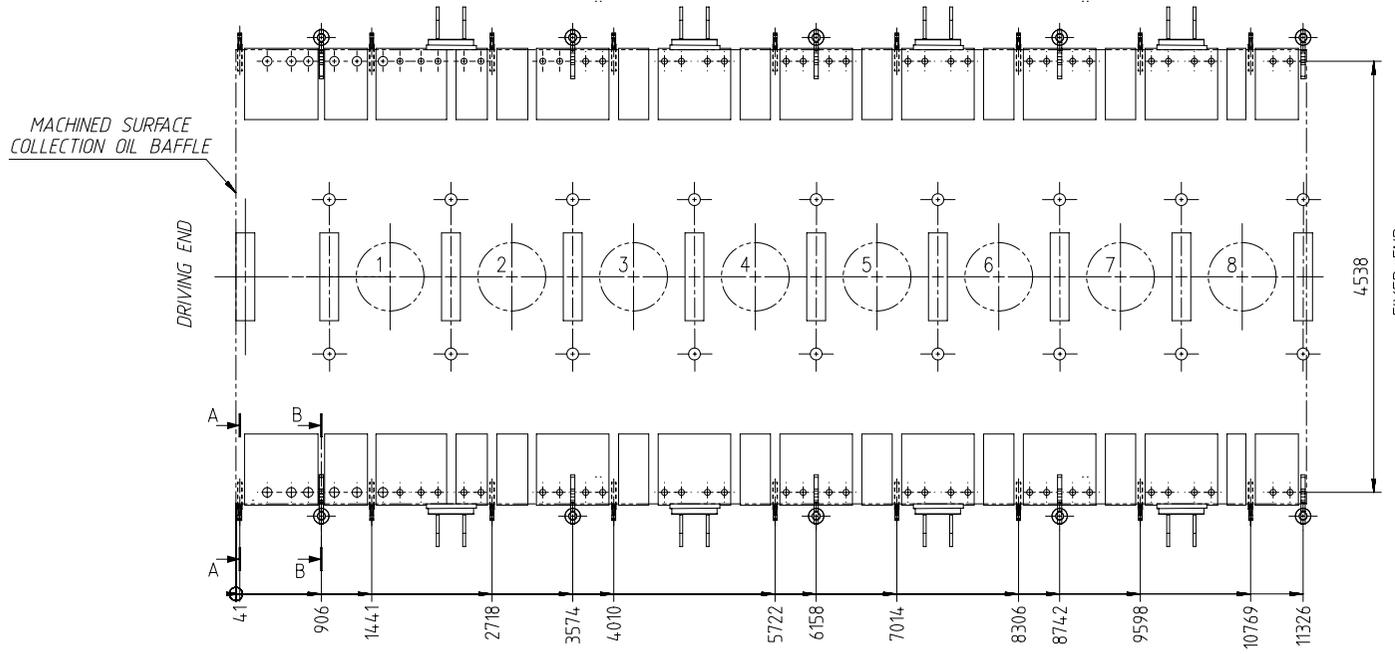


Prod.	8 X72 8 X72-B	8 X72DF 8 X72DF-1.1	8 X72DF-2.1 8 X72DF-A-1.0	8 X72DF-M-1.0
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Change History	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C
	B	npa101	mhu019	20.04.2023	CNA003194	Drawing update			4	3
	A	sde101	mhu019	11.01.2023	CNA003069	Main Design/Drawing Introduced			4	3
	-	sde101	mhu019	14.10.2020	EAAD786553	-			-	-

	<h1>TOOL ENGINE ALIGNMENT</h1> <h2>Alignment with: Wedges</h2>
--	--

Bill Of Material		Dimension	
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	Main Design	Yes	Design Group 9710-01 Q-Code XXXXX
	Qty per	Engine A4	Item ID PAAD356276
			Net Weight 153.2
			Standard WDS
			BOM Page/s 01/01



CAUTION

Risk:
Tool and/or bedplate damage

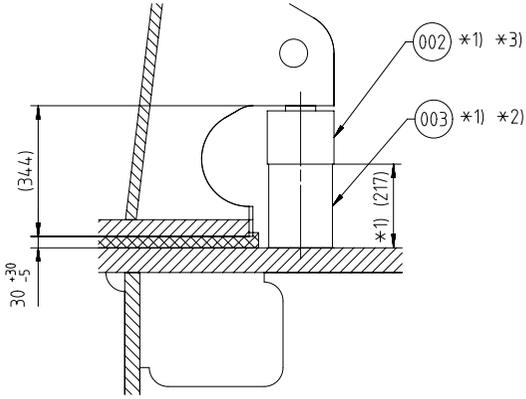
Countermeasure:
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- Insert wedges and/or shims in all indicated positions.
- Lift the engine into the engine room and place it on levelled wedges and/or shims (wedges or shims must be inserted as deep as possible below the bedplate to ensure that the support point is as close as possible at the engine monoblock column)
- Apply hydraulic jacks to the protruding bedplate ribs nearby the relevant wedge and/or shim as indicated in the drawing.
- Start with the engine alignment by means of wedges and/or shims. Before adjusting the height of wedges and/or shims lift the engine by the hydraulic jacks. Any height adjustment must be performed in small steps - no more than 1 mm per step. Changes in height larger than the maximum allowance (1mm) require a gradual process where all wedges and/or shims are successively adjusted in stages, to ensure the best possible load distribution.

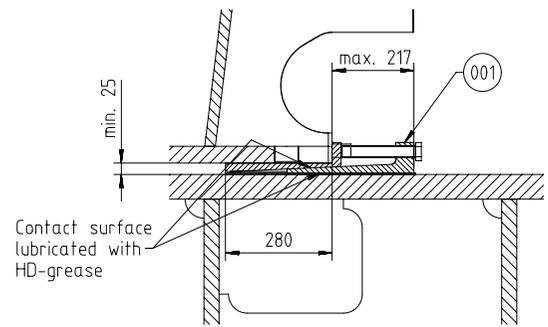
Remarks

- *1) To be provided by the shipyard
- *2) Height depending on the requirement (chock thickness in correlation with maximum permissible extension of the hydraulic jack)
- *3) Hydraulic jack proposal
Type: Enerpac RCS-1002
Load at 700 bar: 887 kN

SECTION A-A
SCALE 1:5



SECTION B-B
SCALE 1:5



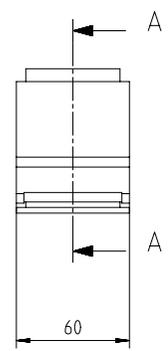
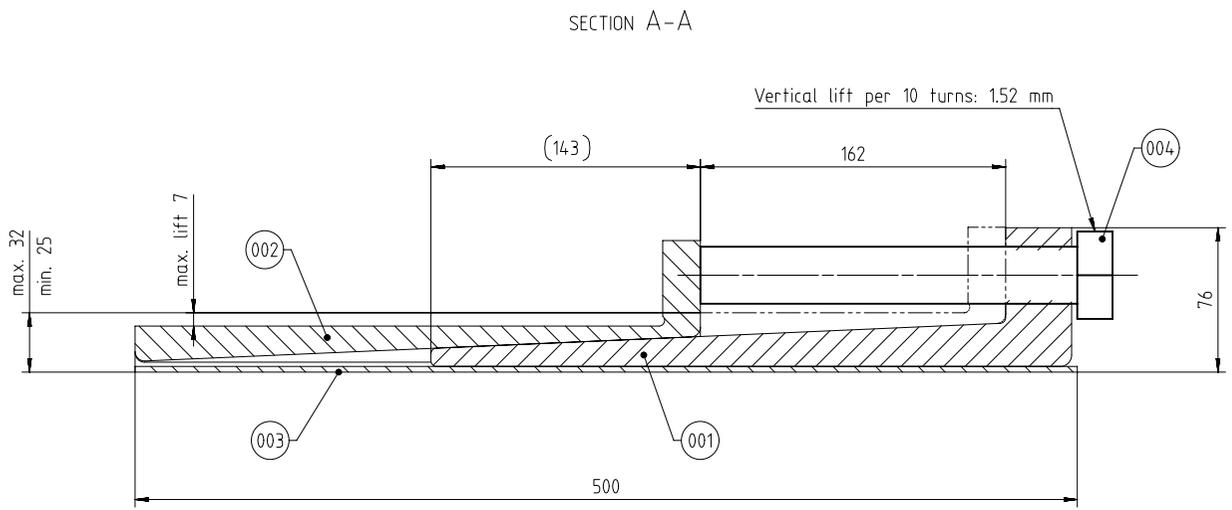
Prod.	8X72 8X72-B	8X72DF 8X72DF-1,1	8X72DF-2,1 8X72DF-A-1,0	8X72DF-M-1,0
Change History	B npa101 mhu019 20.04.2023 CNA003194	Drawing update		4 3
A sde101 mhu019 11.01.2023 CNA003069	Main Design/Drawing Introduced		4 3	
- sde101 mhu019 14.10.2020 EAAD786553	-		- -	
Rev. Creator Approver Approval Date Change ID Change Synopsis	Approved		Activity Code E C	



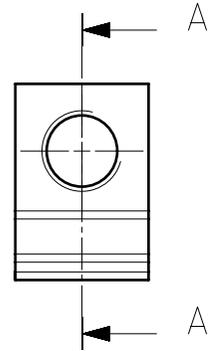
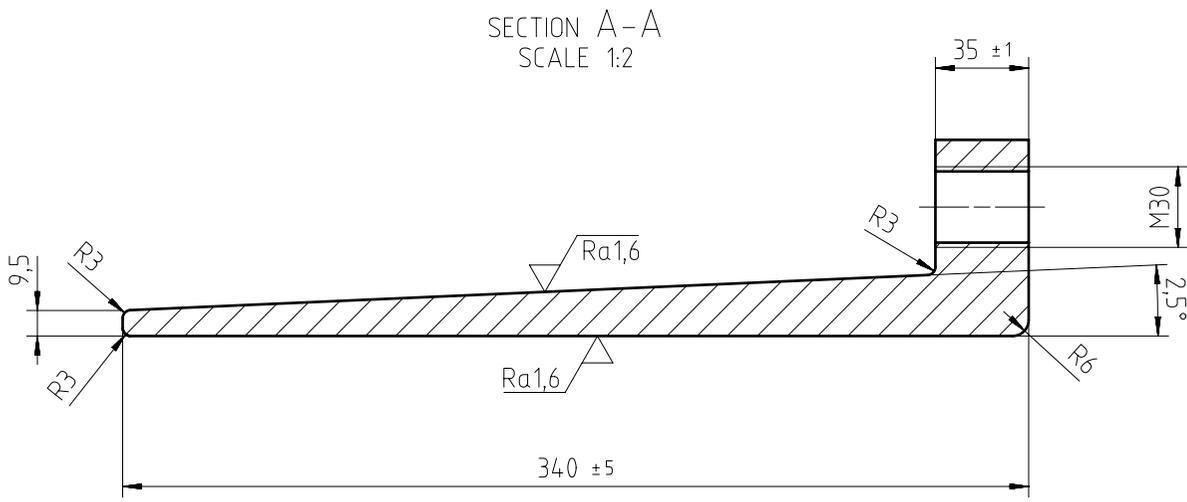
TOOL ENGINE ALIGNMENT
Alignment with: Wedges

separate BOM available	Dimension	Units [mm] [kg]	Basic Material	Net Weight 153.2
Scale 1:40	NX			

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TOLERANCING PRINCIPLE ISO8015	Main Design Yes	Design Group 9710-01	Q-Code XXXXX	Standard WDS
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Qty per Engine	A2	Item ID PAAD356276	Drawing Page/s 1/1



1	004	015.151.048.701	HEXAGON HEAD SCREW M30x200	ISO 4017	88	1,21						
1	003	107.245.898.001	PLATE	107.245.898	W-FU-235-JR	1,0						
1	002	107.246.894.001	KEY	107.246.894	W-FU-235-JR	3,0						
1	001	107.246.895.001	KEY	107.246.895	W-FU-235-JR	3,3						
QTY	SEQ NO	Material ID	Material Name	Dimension, Occ	Standard or Drawing	Basic Material Material Standard	Weight GR./NET					
Free space for ill.						Q-Code XXXXXX Standard ISO; JIS	Main Drw.					
Modif.	B	EAAD014493	05.02.2002	C	7-73552	19.10.2009	D	EAAD084635	27.06.2013	E	EAAD091472	11.11.2019
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date		
Units			mm kg	NX	Product W-2S		WEDGE		Schraeger Keil			
SURFACE PROTECTION SEE GROUP 0344			Made	10.07.1996	D.Scheffler		Scale	1:2	Size	A2	Page	1/1
TOLERANCING PRINCIPLE ISO8015			Chkd			Design Group			Material ID	107.245.895.200		
GENERAL TOLERANCES ACCORDING TO ISO2768-mK			Appd	30.08.1996	WCH001 Service User		9710-01	Drawing ID	107.245.895		Rev.	E
			Units	mm kg	NX	Basic Material			Net Weight 8,51			

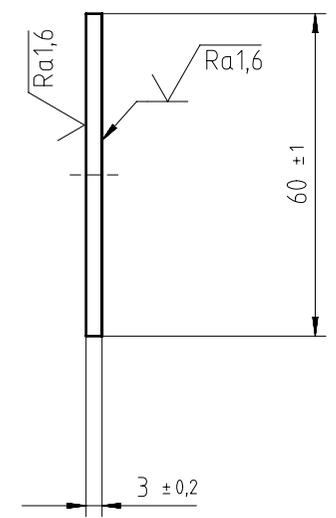
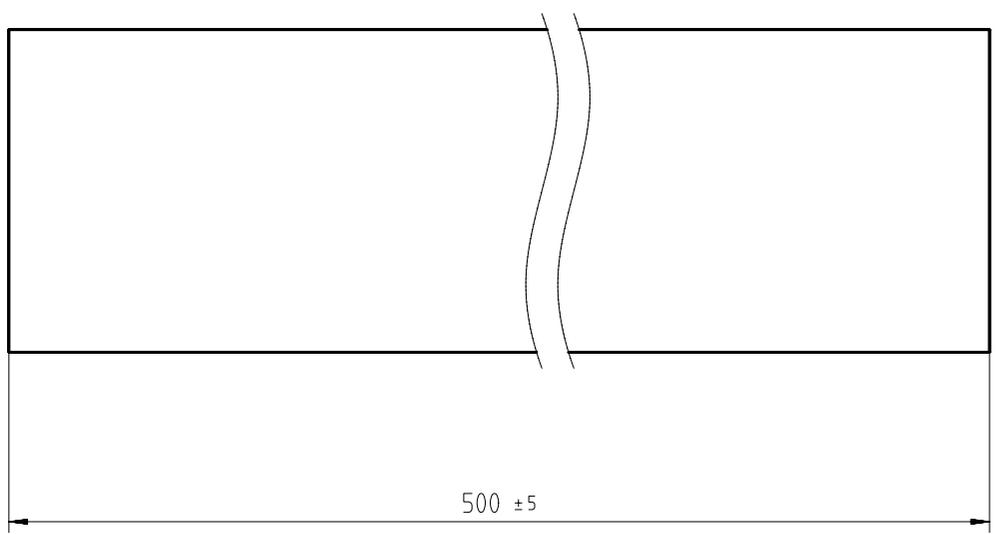


Ra50 (
 Ra1,6
)

Free space for lic.								Q-Code XXXXXX	Main Drw.
								Standard ISO; JIS	
Modif.	A	7-73.552	19.10.2009	B	EAAD091472	04.11.2019			
		Number	Drawn date		Number	Drawn date	Number	Drawn date	Number
 Winterthur Gas & Diesel				Product W-2S		KEY Keil			
Units	mm kg	NX		Basic Material		W-FU-235-JR		Net Weight 3,3	
SURFACE PROTECTION SEE GROUP 0344			Made	16.05.2001 D.ADMINISTRATOR		Scale	1:2		Design Group 9710-01
TOLERANCING PRINCIPLE ISO8015			Chkd			Size	A3		
GENERAL TOLERANCES ACCORDING TO ISO2768-mK			Appd	27.12.2001 WDMS2		Page	1/1		Drawing ID 107.246.895
					Material ID	107.246.895.001		Rev.	
									B

1 2 3 4 5 6 7 8

A
B
C
D
E
F



$\sqrt{Ra50}$ ($\sqrt{Ra1,6}$)

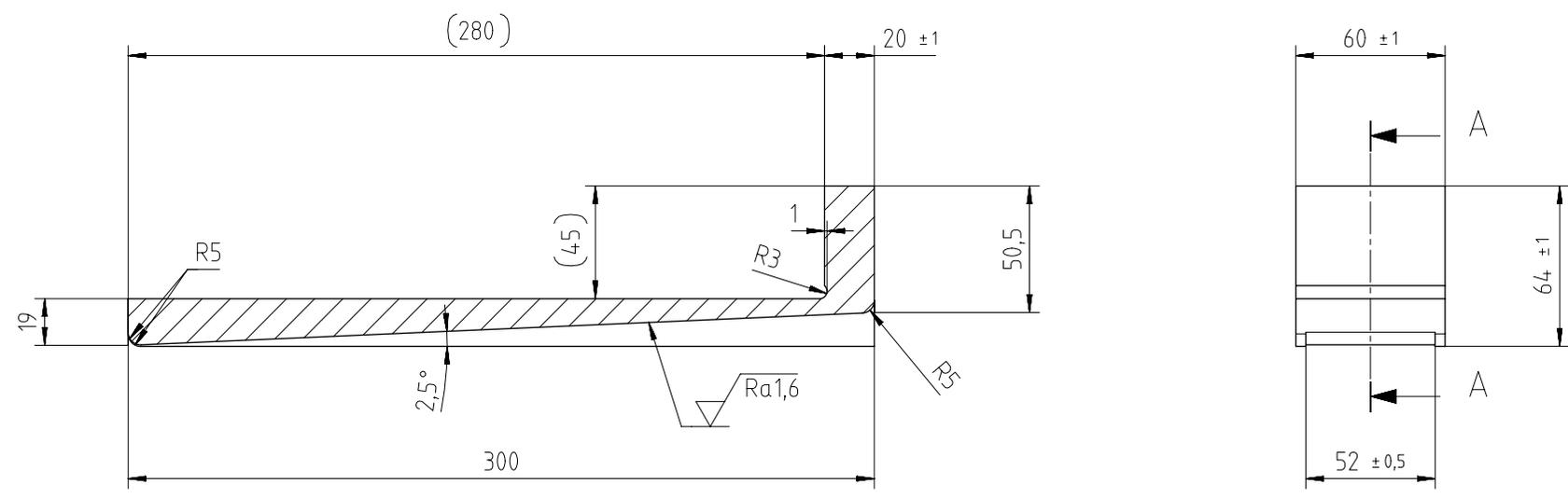
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								Standard ISO; JIS						
Modif.	A	EAAD014305	11.09.1996	B	EAAD091472	05.11.2019								
		Number	Drawn date		Number	Drawn date	Number	Drawn date	Number	Drawn date				
 WIN GD <i>Winterthur Gas & Diesel</i>		Product W-2S		PLATE Blech										
Units	mm kg	NX			Basic Material	W-FU-235-JR			Net Weight 1					
SURFACE PROTECTION SEE GROUP 0344		Made	11.07.1996 D. Schaeffler		Scale	1:1		Size	A3	Page	1/1	Material ID	107.245.898.001	
TOLERANCING PRINCIPLE ISO8015		Chkd			Design Group	9710-01		Drawing ID	107.245.898			Rev.	B	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	22.07.1996 MLU011 Lüthi											

Approved
UID - DIMENSIONAL DRAWING - Confidential

1 2 3 4 5 6 7 8

A
B
C
D
E
F

SECTION A-A
SCALE 1:2

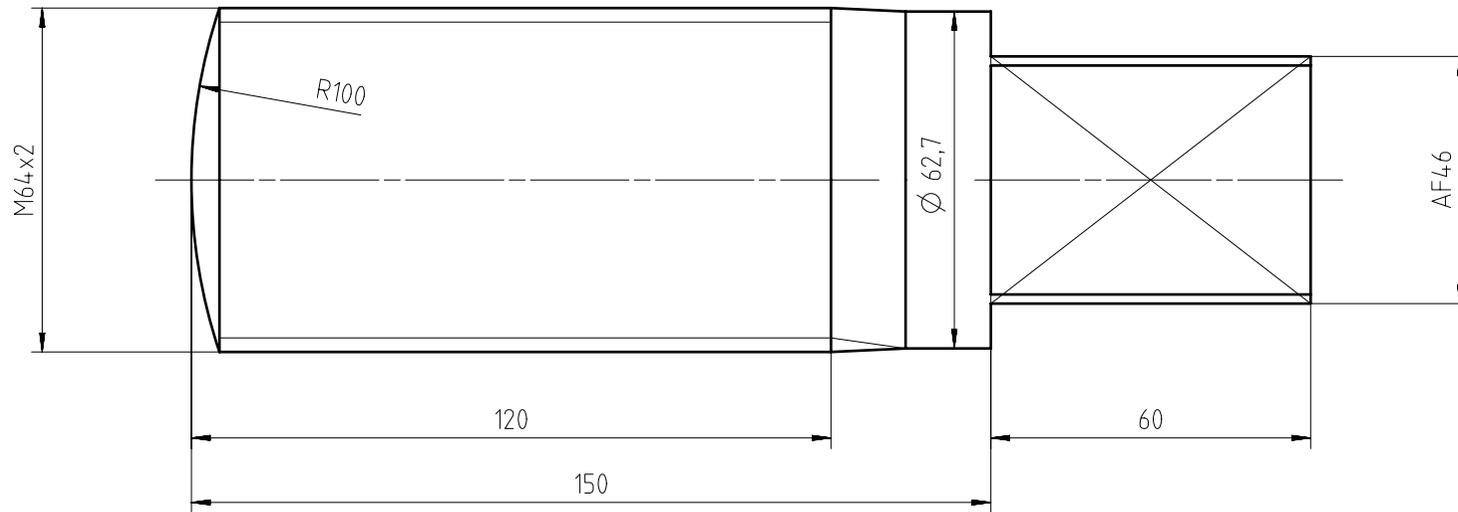


$\sqrt{Ra50}$ ($\sqrt{Ra1,6}$)

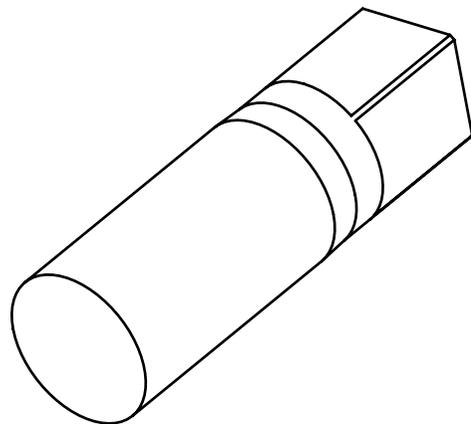
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								Standard ISO; JIS	
Modif.	(A) 7-73.552	19.10.2009	(B) EAAD091472	05.11.2019					
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date	
			Product W-2S		KEY				
					Keil				
Units	mm kg	NX		Basic Material	W-FU-235-JR			Net Weight 3	
SURFACE PROTECTION SEE GROUP 0344		Made	16.05.2001 D.ADMINISTRATOR		Scale	1:2		Material ID 107.246.894.001	
TOLERANCING PRINCIPLE ISO8015		Chkd			Design Group	9710-01			
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	27.12.2001 WDMS2		Drawing ID	107.246.894		Rev. B	

Approved
DIM - DIMENSIONAL DRAWING - Confidential

ROLLED THREAD



M 1:2



Free space for lic.								Q-Code XXXXXX	Main Drw.
								Standard ISO; JIS	
Modif.	A	EAAD091472	06.11.2019	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Number	Drawn date		Number	Drawn date	Number	Drawn date	Number
WINGD Winterthur Gas & Diesel		Product W-2S			JACKING SCREW Abdrueckschraube				
Units	mm kg	NX	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Basic Material	W-FU-235-N-T		Net Weight 4,64	
SURFACE PROTECTION SEE GROUP 0344		Made	07.12.2012 mhu019 M.Hug		Scale	1:1		Size	A3
TOLERANCING PRINCIPLE ISO8015		Chkd	10.12.2012 wwr001 Wroblewski		Design Group	9710-01		Page	1/1
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	12.12.2012 bha009 Haag		Material ID	PAAD109518		Rev.	A
		Drawing ID		DAAD034398					

Approved
D
E
F
DIMENSIONAL DRAWING - Confidential

1

2

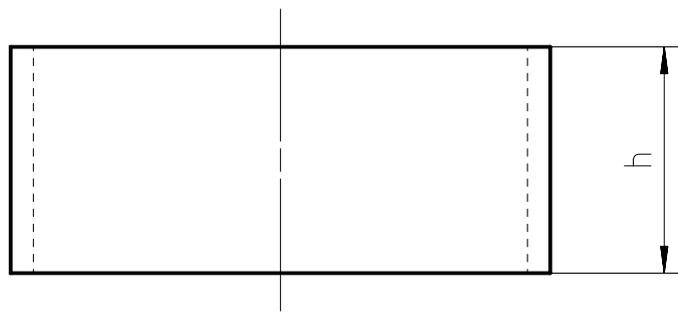
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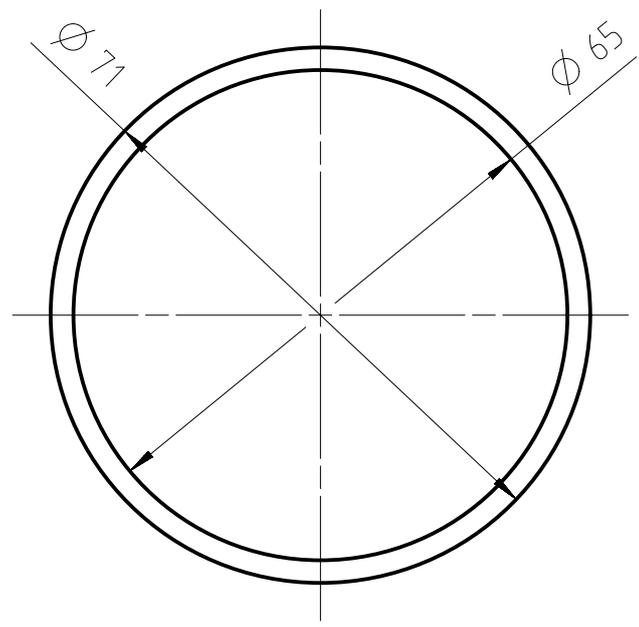
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SURFACE PROTECTION SEE GROUP 0344
 TOLERANCING PRINCIPLE ISO8015
 GENERAL TOLERANCES ACCORDING TO ISO2768-mK



B

B



C

C

D

D

h - determined after engine alignment
 * material according to shipyard experience

E

E

Prod.											
Change History											
	-	dki021	dst009	23.02.2022	CNAA001537	new Design				-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved		Activity Code	E	C

F

F



SPONGE RUBBER RING

Scale 1:1				NX	Dimension					
Units [mm] [kg]	Basic Material		Net Weight		0.001					
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Qty per	A4	Item ID		PTAA026527		Drawing Page/s		1/1		

1

2

3

4

MIDS – Tool Engine Alignment (DG9710-01)

WinGD X72/-B/DF/DF-1.1/DF-2.1

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2016-10-16	DRAWING SET	First web upload
2017-01-09	DAAD066096	Assembly drg - new revision
2017-08-09	DAAD090375 DAAD090428	Assembly drgs 5,7 cylinder, alignment by wedges - added
2017-08-18	DAAD050329 DAAD090375 DAAD034418 DAAD056229 DAAD066096 DAAD090428	Assembly drgs. - new revision
2019-10-03	DAAD090375 DAAD050329 DAAD034418 DAAD056229 DAAD066096 DAAD090428	Assembly drgs. - new revision
2020-09-29	107.245.895 107.246.895 107.245.898 107.246.894 DAAD034398	Wedge assembly and jacking screw drgs – new revision
2020-10-13	DAAD066199 DAAD130269	Main drg – new revision and new drawing
2022-01-25	DRAWING SET	First web upload of drawing set with “new” bedplate layout, as replacement of the previous version which originates from X72 with “old” bedplate layout

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2022-03-18	PTAA010934 PTAA011001 PTAA010902 PTAA010919 PTAA011002 PTAA011007	First web upload of drawing set with “new” bedplate layout, as replacement of the previous version which originates from X72 with “old” bedplate layout
2023-01-13	PAAD191650 PAAD356276	New main and system drg for 8 cyl. - added
2023-04-21	PAAD191650 PAAD356276	Main and system drg – new revision
2023-06-22	PAAD191650	New drawing revision
2023-10-20	PTAA010934 PTAA011001 PTAA010902 PTAA010919 PTAA011002 PTAA011007	New drawing revisions

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