


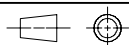
Available executions

Execution No.	Material ID	Cylinder No.	Attribute 1: Crankshaft parts		Attribute 2: Bedplate Split	
			1	2	standard	Weight Levelled
001	PAAD370399	7	X			
002	PTAA059869	8	X		X	
003	PTAA003754	8		X	X	
004	PAAD295494	9		X	X	
005	PAAD202723	10		X	X	
006	PAAD142162	11		X	X	
007	PAAD279802	12		X	X	
008	PAAD374048	12		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.	X92DF X92DF-2.0	X92-B								
Change History										
	-	npa101			new Design					
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C	
			TOOL ENGINE ALIGNMENT MIDS master drawing							
separate BOM available			Dimension							
Scale	-		NX	Units [mm] [kg]	Basic Material			Net Weight	0.001	
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the drawing the recipient recognizes and honours these rights. Neither the whole nor any part of this drawing may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.				Main Design	Design Group	9710-01	Q-Code	X X M	Standard	WDS
				Qty per	A4	Item ID	PTAA054057		Drawing Page/s	1/1

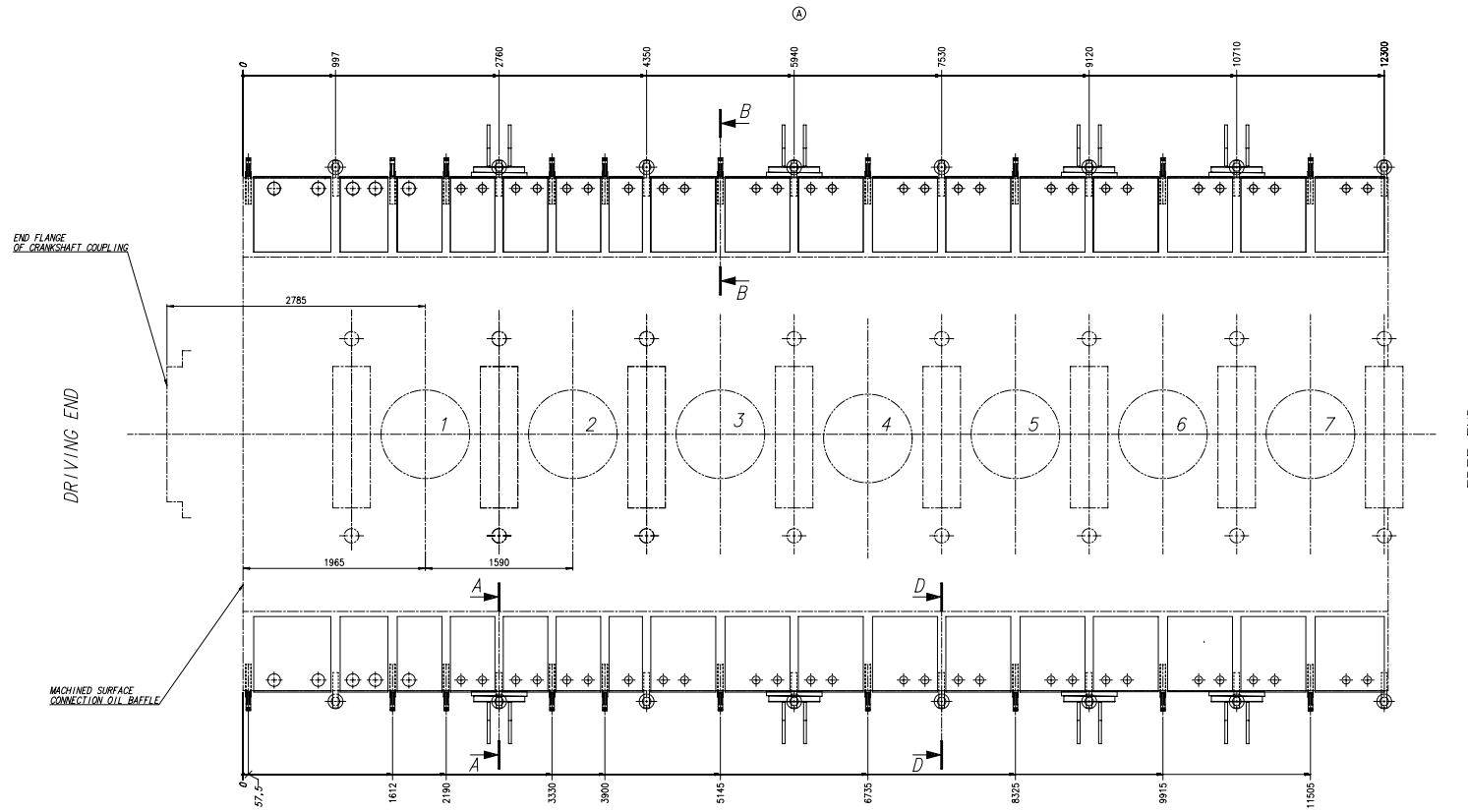
SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	20	107.245.895.200	WEDGE				8.51
003	16	PAAD318478	HYDRAULIC JACK				
004	8	PAAD318479	SUPPORT PLATE				
005	8	PAAD318480	SUPPORT BLOCK				

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Prod.	7 X92-B 7 X92DF			7 X92DF-2.0 7 X92DF-A-1.0		7 X92DF-M-1.0		
Change History								
	A	npa101	mhu019	13.02.2024	CNAA005217	Drawing updated		4 3
	-	sde101	mhu019	12.01.2021	EAAD786939	-		- -
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code

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

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	PAAD370399		BOM Page/s	01/01	



CAUTION

Risks:
Tool and/or bedplate damage

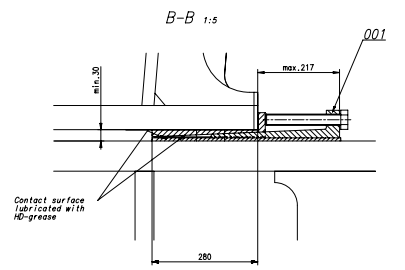
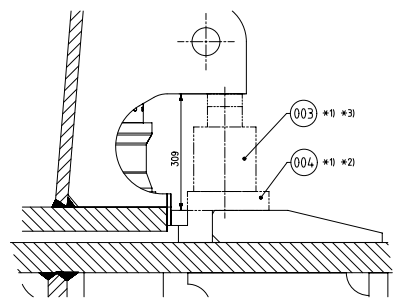
Countermeasure:
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- 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.

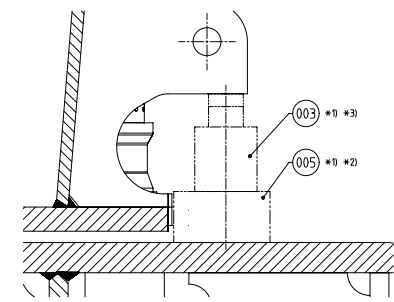
Remarks

- *1) To be provided by the shipyard
- *2) Height depending on the requirement (check thickness in correlation with maximum permissible extension of the hydraulic jack)
- *3) Hydraulic jack proposal
Type: Enerpac RHM-1003
Load at 700 bar: 931 kN

A-A 1:5



D-D 1:5



		TOOL ENGINE ALIGNMENT Alignment with Wedges	
Drawing updated Date: 12/01/2021 Author: mhv/9 Checked: mhv/9 Approved: mhv/9	Drawing updated Date: 12/01/2021 Author: mhv/9 Checked: mhv/9 Approved: mhv/9	Scale: 1:20 Unit: [mm] [kg]	Part Weight: 170.2
SOURCE PROTECTION SEE GROUP 004 TOLERANCING FROM FILE 03016 DIMENSIONS ACCORDING TO SYSTEM:		Design: 9710-01 Code: X X 0 Engine: AD Part: PAAD370399	Drawing: WDS Sheet: 23 Total: 23

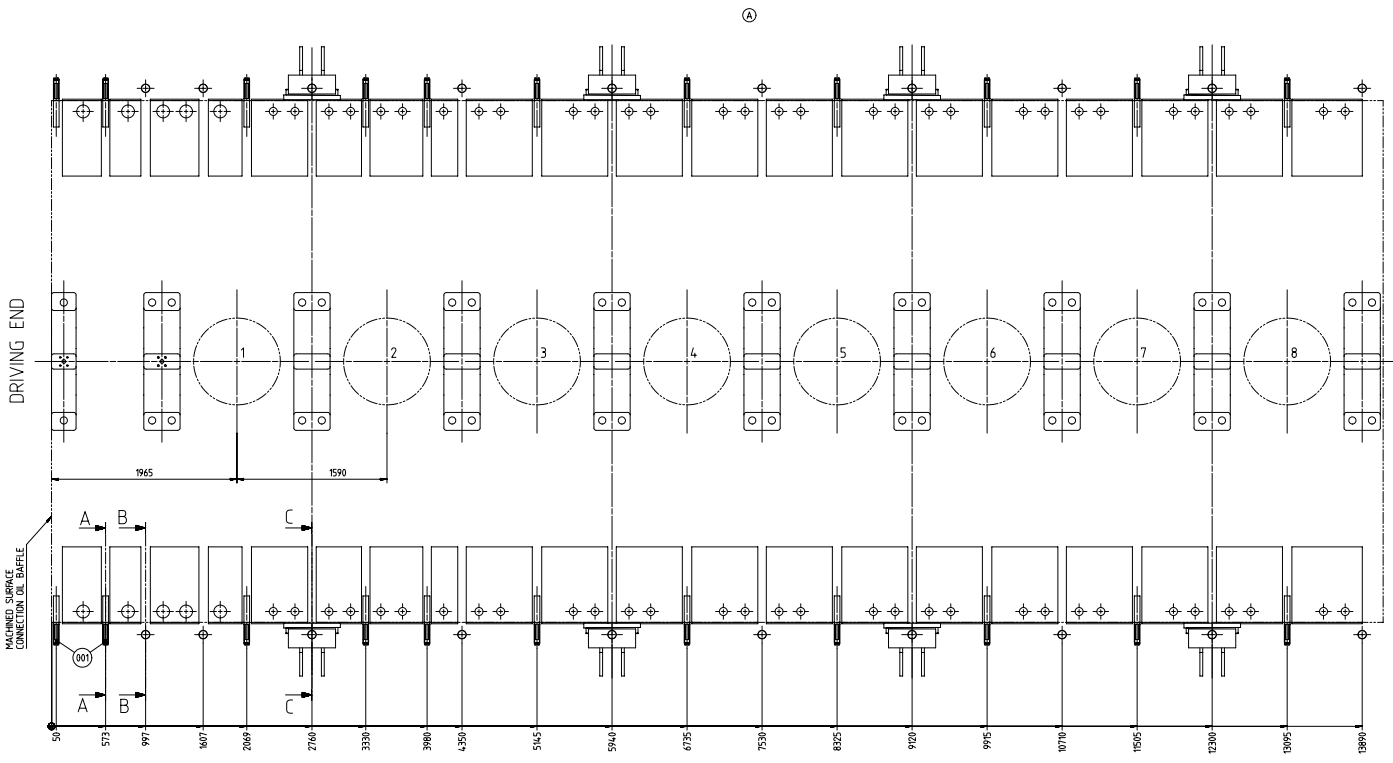
SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	22	107.245.895.200	WEDGE				8.51
002	20	PAAD318478	HYDRAULIC JACK				
003	12	PAAD318480	SUPPORT BLOCK				
004	8	PAAD318479	SUPPORT PLATE				



Proc.	8 X92-B 8 X92DF	8 X92DF-2.0 8 X92DF-M-1.0					
Change History							
	A	npa101	mhu019	22.02.2024	CNAA005327	Drawing updated	4 3
	-	npa101	mhu019	19.09.2023	CNAA004488	New MainDesign	- -
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved Activity Code E C

	<h1>TOOL ENGINE ALIGNMENT</h1> <p>Alignment with: Wedges + Crankshaft Parts: 1</p>
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Bill Of Material		Dimension					
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Main Design	Yes	Design Group	9710-01	Q-Code	X X M	Standard	WDS
Qty per	Engine	A4	Item ID	PTAA059869		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:

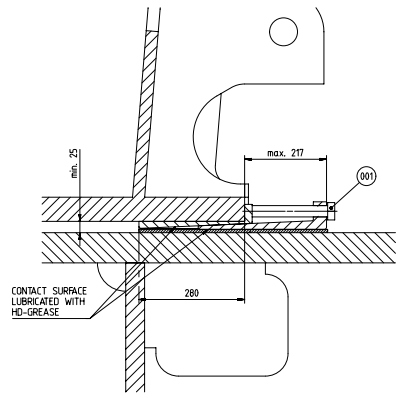
- Insert wedges and/or shims in all indicated positions.
- Lift the engine into the engine room and place it on levelled wedges and/or shims (wedges or shims must be inserted as deep as possible below the bedplate to ensure that the support point is as close as possible to the engine monoblock column).
- 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 (check thickness in correlation with maximum permissible extension of the hydraulic jack).
- *3) Hydraulic jack proposal
Type: Enerpac RCH-1003
Load at 700 bar: 931 kN

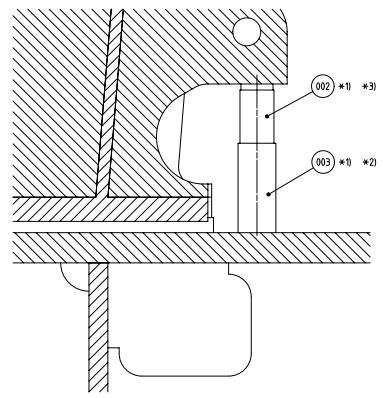
SECTION A-A $\odot 90^\circ$

SCALE 1:5



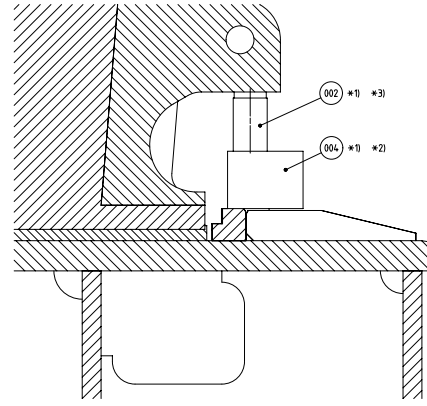
SECTION B-B $\odot 90^\circ$

SCALE 1:5



SECTION C-C $\odot 90^\circ$

SCALE 1:5



REVISED		REVISIONS			
NO.	DATE	BY	REASON	APPROVED	
1					
<p>WINGD TOOL ENGINE ALIGNMENT Alignment with Wedges + Crankshaft Parts: 1</p>					
<p>separate BOM available</p>		<p>Drawn: []</p>	<p>Checked: []</p>	<p>Scale: X X M</p>	<p>Sheet: 1/1</p>
<p>DATE: 1/20 1:20</p>	<p>SCALE: 1:5</p>	<p>UNIT: [mm]</p>	<p>PROJ: []</p>	<p>NO. []</p>	<p>REV. []</p>
<p>SOURCE PROTECTION SEE GROUP 04A</p>					
<p>TOLERANCING PRINCIPLE ISO261</p>					
<p>GENERAL TOLERANCES ACCORDING TO ISO2768-M</p>					
<p>DATE: 1/20</p>	<p>SCALE: 1:5</p>	<p>UNIT: [mm]</p>	<p>PROJ: []</p>	<p>NO. []</p>	<p>REV. []</p>
<p>PTAA059869</p>					

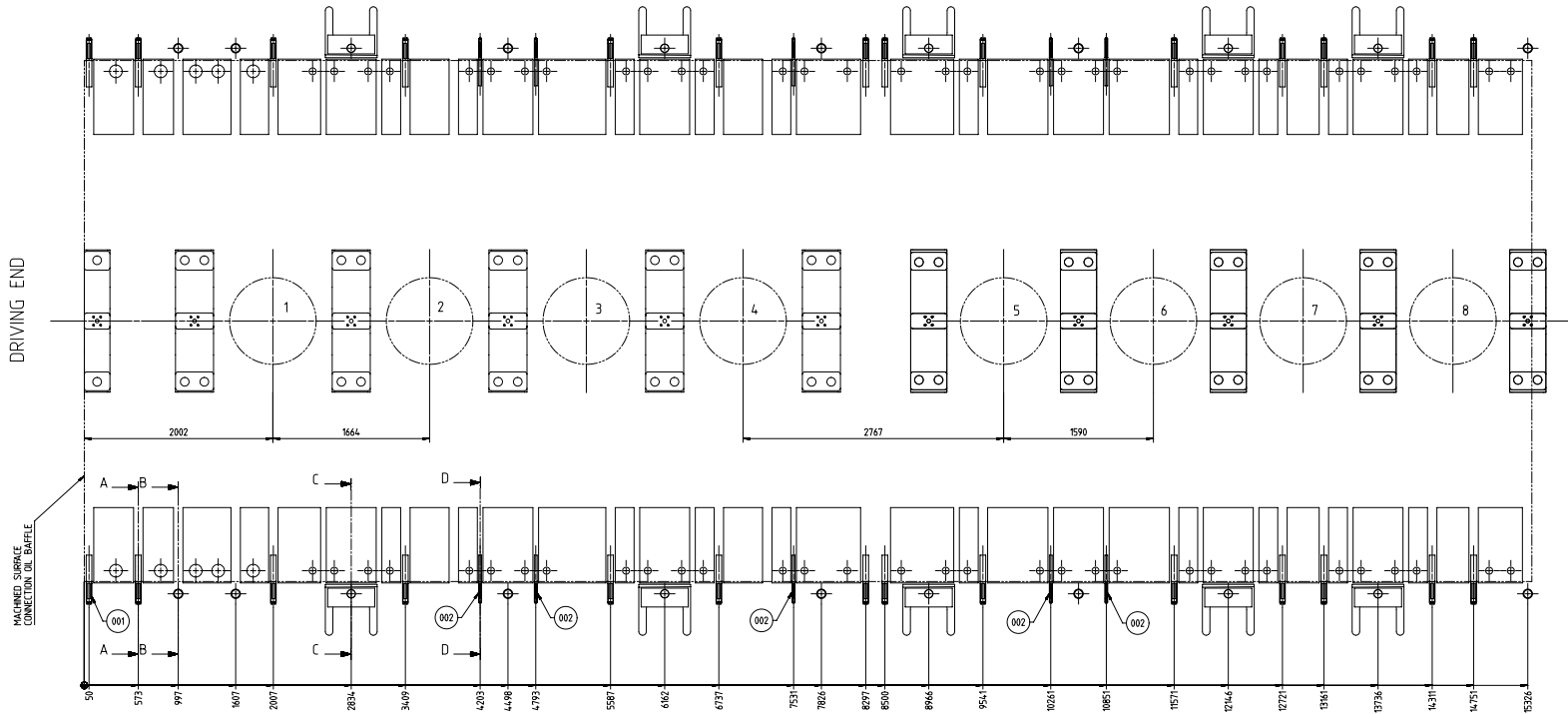
SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	28	107.245.895.200	WEDGE				8.51
2	10	107.424.346.200	WEDGE	NARROW TYPE		W-FU-235-JR	3.8
3	1	PAAD318478	TOOL ENGINE ALIGNMENT				75
4	1	PAAD318480	TOOL ENGINE ALIGNMENT				75
5	1	PAAD318479	TOOL ENGINE ALIGNMENT				75



Prod.	8 X92-B							
Change History								
	-	dki021	dst 009	21.07.2021	CNAA000279	new Drawing		-
Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E C

 Winterthur Gas & Diesel	<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 XXXXX
	Qty per	Engine A4	Item ID PTAA003754
			Net Weight 276.3
			Standard WDS
			BOM Page/s 01/01



CAUTION

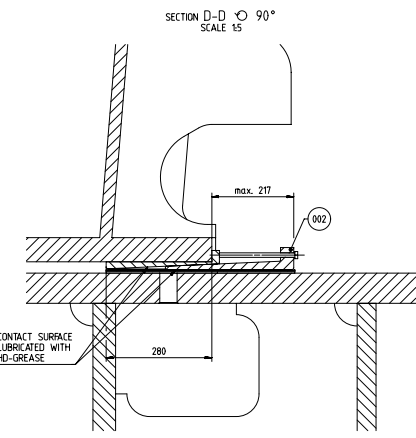
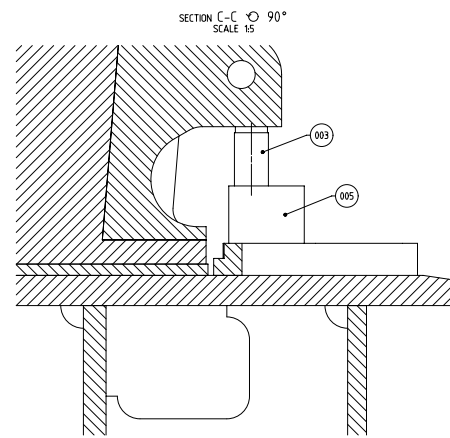
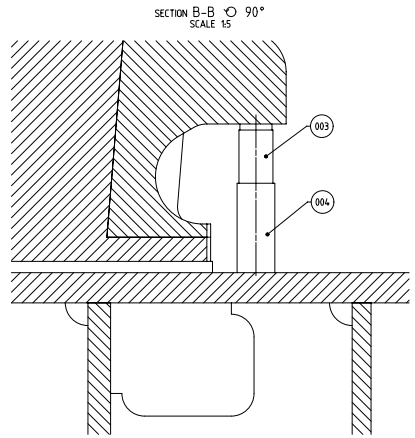
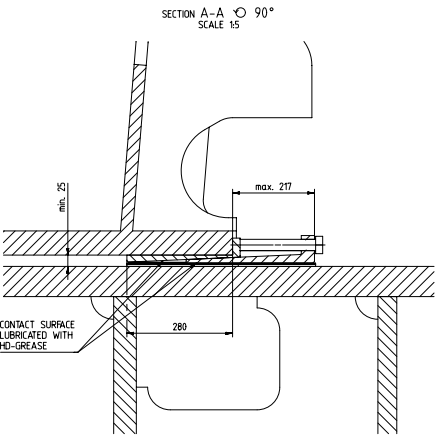
Risk:
Tool and/or bedplate damage

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).
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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 RCH-1003
Load at 700 bar: 931 kN



REV		DATE		BY		CHK		APP	
1									
		TOOL ENGINE ALIGNMENT Alignment with Wedges		Drawing No: 9710-01 Scale: 1:20		Drawing Date: 27.6.23		Drawing Sheet: 1/1	
DRAWING PROTECTION SEE GROUP 004 TOLERANCING PROBLEME SOBRES DIMENSIONS TOLERANCES ACCORDING TO ISO 2768-MS		Material: 9710-01 Drawing: PTA003754		Drawing: 276.3 Drawing: WDS		Drawing: 1/1		Drawing: 1/1	

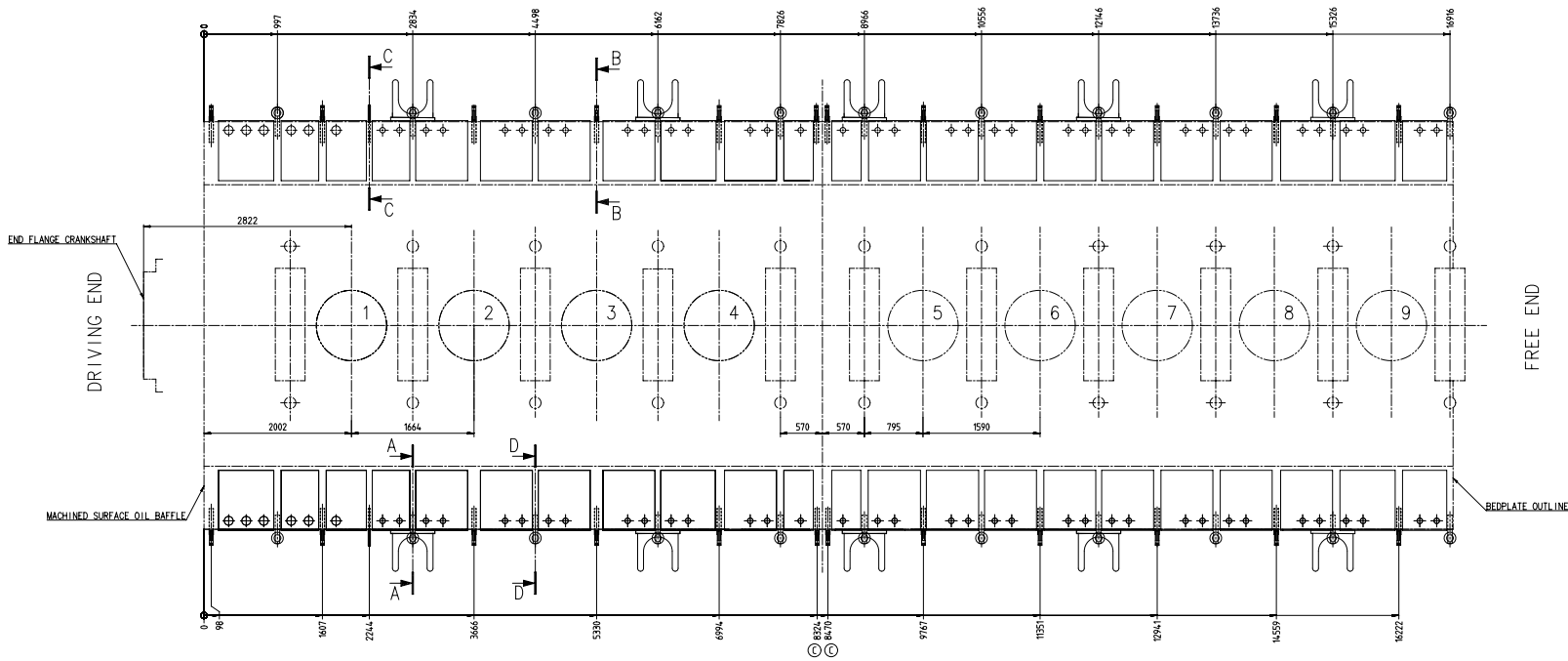
SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	24	107.245.895.200	WEDGE				7.511
2	2	107.424.346.200	WEDGE	NARROW TYPE			3.357
3	22	PAAD318478	HYDRAULIC JACK				
4	10	PAAD318479	SUPPORT PLATE				
5	12	PAAD318480	SUPPORT BLOCK				



Prod.	9 X92 9 X92-B		9 X92DF 9 X92DF-2.0		9 X92DF-A-1.0 9 X92DF-M-1.0				
Change History	C	sde101	mhu019	10.01.2023	CNAA002424	Drawing Updated		4	3
	B	sde101	mhu019	17.01.2022	CNAA001401	Drawing Updated		4	3
	A	sde101	mhu019	02.10.2019	EAAD090713	Legacy information. See corresponding ChangeNotice		4	3
	-	sde101	dst009	11.06.2018		-		-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E

	<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	XXXXX	Standard	WDS		
Qty per	Engine	A4	Item ID	PAAD295494		BOM Page/s	01/01		



CAUTION

Risk:
Tool and/or bedplate damage

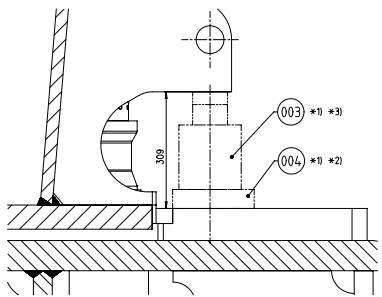
Countermeasure:
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- 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)
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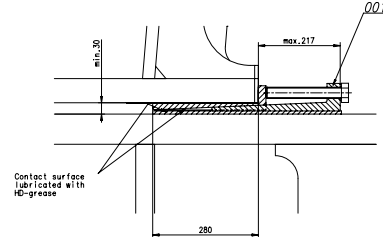
Remarks

- +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 RCH-1003
Load at 700 bar: 931 kN

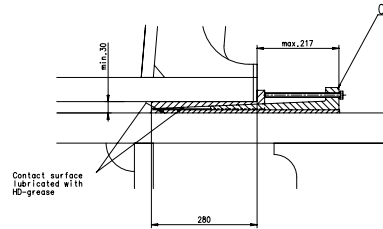
A:A 1:5



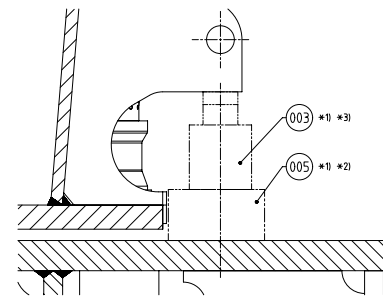
B-B 1:5



C-C 1:5



D:D 1:5



REV		DESCRIPTION		DATE	BY	CHKD
C	01/01	01/2023	02/2023	01/2023	02/2023	01/2023
C	01/01	01/2023	02/2023	01/2023	02/2023	01/2023
A	01/01	01/2023	02/2023	01/2023	02/2023	01/2023
A	01/01	01/2023	02/2023	01/2023	02/2023	01/2023


WINGD Wedge and Shim		TOOL ENGINE ALIGNMENT Alignment with Wedges	
Scale: 1:25	Unit: [mm]	Proj: []	Rev: 2118
Material: []	Design: []	9710-01	XXXXX
Engine: AD	PAAD295494	22	23

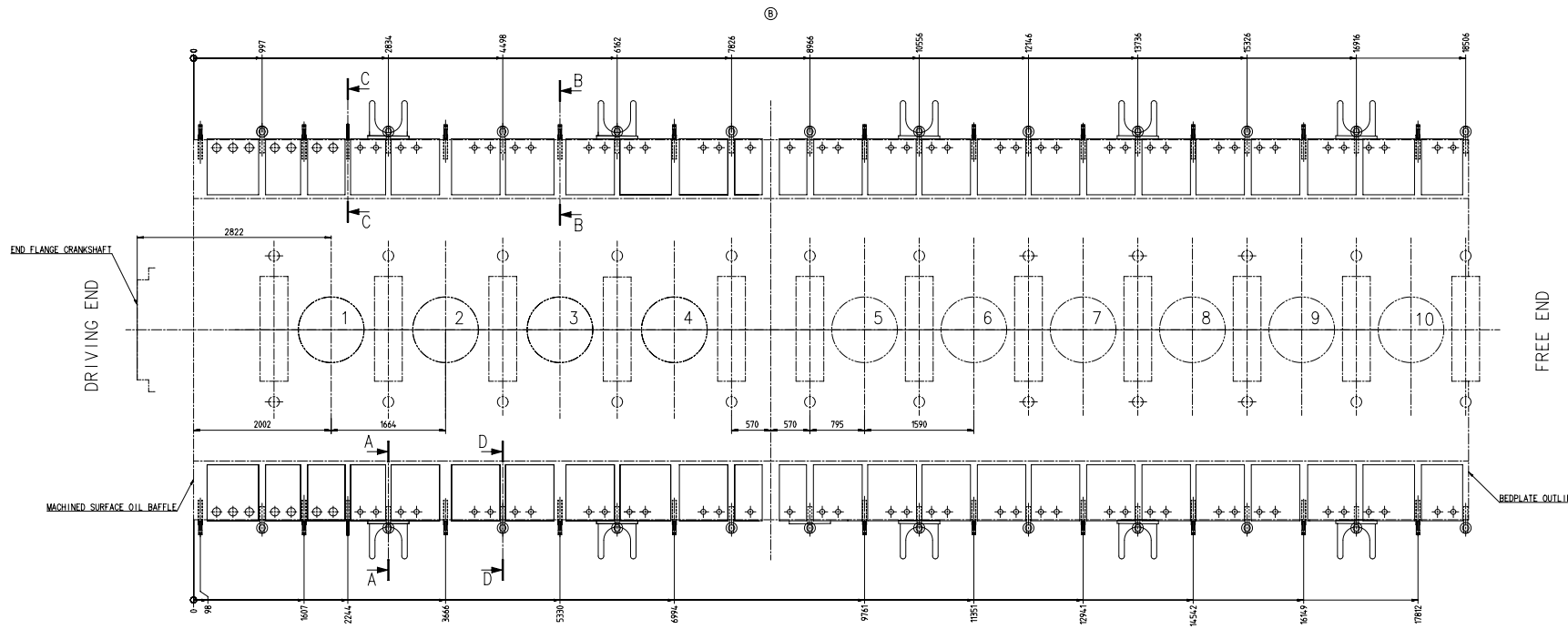
SURFACE PROTECTION SEE GROUP 094
TOLERANCES: HOLE: 0/0.02

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	26	107.245.895.200	WEDGE				8.51
2	2	107.424.346.200	WEDGE	NARROW TYPE		W-FU-235-JR	3.8
3	24	PAAD318478	HYDRAULIC JACK				
4	10	PAAD318479	SUPPORT PLATE				
5	14	PAAD318480	SUPPORT BLOCK				



Prod.	10 X92 10 X92-B	10 X92DF 10 X92DF-2.0							
Change History	B	ssh102	mhu019	17.01.2022	CNA001401	Drawing Updated		4	3
	A	sde101	mhu019	02.10.2019	EAAD090713	Legacy information. See corresponding ChangeNotice		4	3
	-	dkl021	bha009	11.09.2015		-		-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E

		<h1>TOOL ENGINE ALIGNMENT</h1> <p>Alignment with: Wedges</p>								
Bill Of Material		Dimension								
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		Main Design	Yes	Design Group		9710-01	Q-Code	XXXXX	Standard	WDS
		Qty per	Engine	A4	Item ID	PAAD202723			BOM Page/s	01/01



CAUTION
 Risk:
 Tool and/or bedplate damage

Countermeasure:
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- Insert wedges and/or shims in all indicated positions.
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Remarks

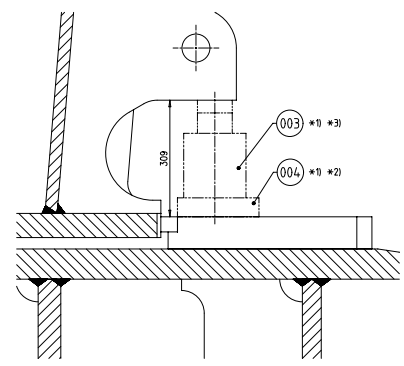
- 1) To be provided by the shipyard
- 2) Height depending on the requirement (check thickness in correlation with maximum permissible extension of the hydraulic jack)
- 3) Hydraulic jack proposal
 Type: Emerpac R01-1003
 Load at 700 bar: 931 kN

A-A 1:5

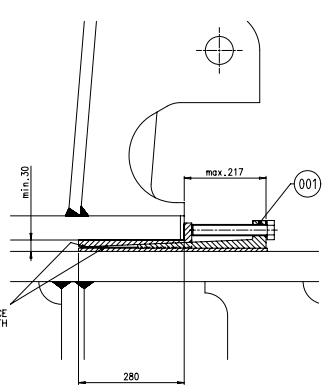
B-B 1:5

C-C 1:5

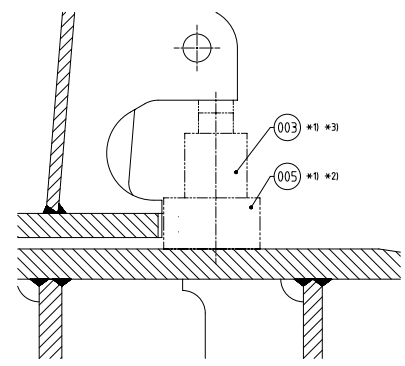
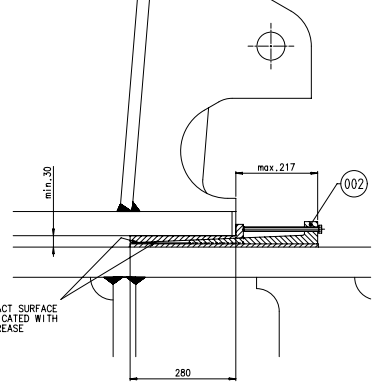
D-D 1:5



CONTACT SURFACE
 LUBRICATED WITH
 HD-GREASE



CONTACT SURFACE
 LUBRICATED WITH
 HD-GREASE



WINGD		TOOL ENGINE ALIGNMENT	
Alignment with Wedges			
Scale: 1:25	Unit: [mm] [kg]	Basic Material:	Net Weight: 228.9
Material: 1.25	Design: 9710-01	Scale: XXXXX	Standard: WDS
Part: 4401	Part: 1402005	Part: PAAD202723	Part: 1
SOURCE PROTECTION SEE GROUP 004		GENERAL TOLERANCES ACCORDING TO ISO 2768	

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	26	107.245.895.200	WEDGE				8.51
003	28	PAAD318478	HYDRAULIC JACK				
004	12	PAAD318479	SUPPORT PLATE				
005	16	PAAD318480	SUPPORT BLOCK				

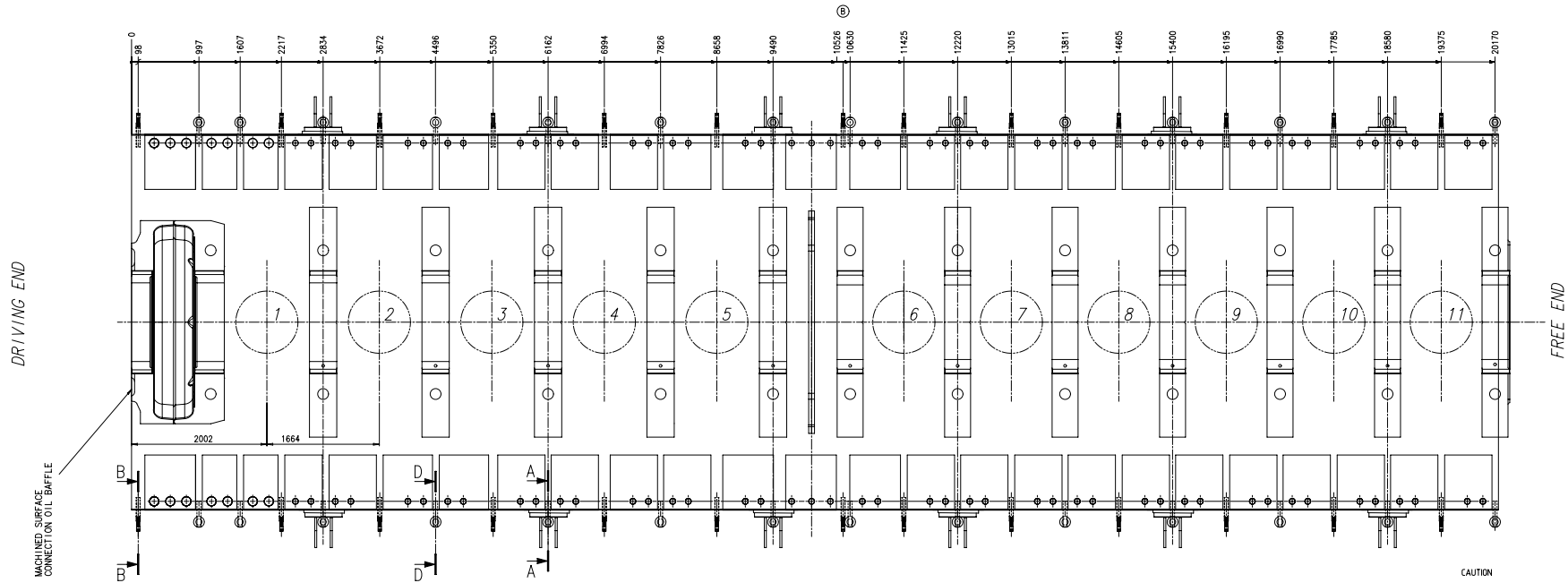
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Prod.	11 X92 11 X92-B	11 X92DF 11 X92DF-2.0	11 X92DF-A-1.0
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Change History	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C
	B	sj0101	mhu019	13.02.2024	CNA005217	Drawing Updated			4	3
A	sde101	mhu019	02.10.2019	EAAD090713	Legacy information. See corresponding ChangeNotice			4	3	
-	grpadm	bha009	11.09.2015	EAAD778960	-			-	-	

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

Bill Of Material		Dimension	
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the document the recipient recognizes and honours these rights. Neither the whole nor any part of this document may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.	Units	[m] [kg]	Basic Material
	Main Design	Yes	Design Group
	Qty per	Engine	A4
			Item ID
			PAAD142162
			Net Weight
			221.3
			Q-Code
			X X O
			Standard
			WDS
			BOM Page/s
			01/01

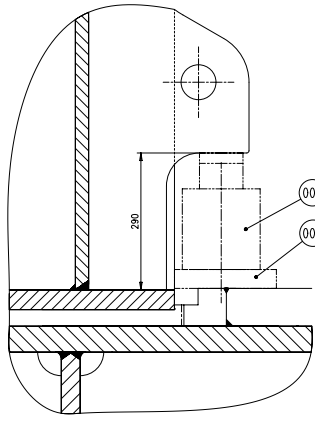


CAUTION
 Risk:
 Tool and/or bedplate damage

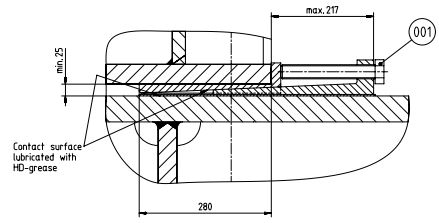
Countermeasure:
 Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- 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.

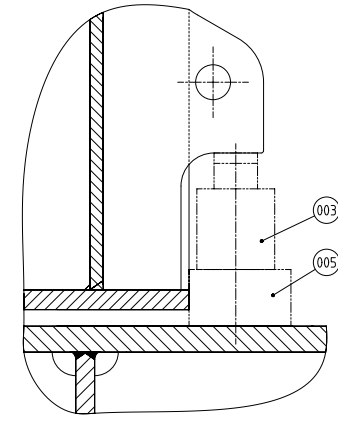
A-A 1:5



B-B 1:5



D-D 1:5



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 RCH-1003
 Load at 700 bar: 931 kN

NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/2023	ISSUED		
2				
3				
4				
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NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/2023	ISSUED		
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NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/2023	ISSUED		
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NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/2023	ISSUED		
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NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/2023	ISSUED		
2				
3				
4				
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NO.	DATE	DESCRIPTION	BY	CHKD.
1	12/2023	ISSUED		
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24				

SOURCE PROTECTION SEE GROUP 00A
 TOLERANCES FROM PLE ISO 2768
 DIMENSIONS ACCORDING TO SYSTEM A

WING TOOL ENGINE ALIGNMENT
 Alignment with Wedges

separate BOM available
 Scale: 1:5
 Units: [mm] [kg]
 Design: 9710-01
 Date: 12/2023
 Author: [Name]
 Checked: [Name]
 Approved: [Name]

Net Weight: 2213
 WDS
 PAAD14/2162
 19

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	28	107.245.895.200	WEDGE				8.51
3	30	PAAD318478	HYDRAULIC JACK				
4	12	PAAD318479	SUPPORT PLATE				
5	18	PAAD318480	SUPPORT BLOCK				

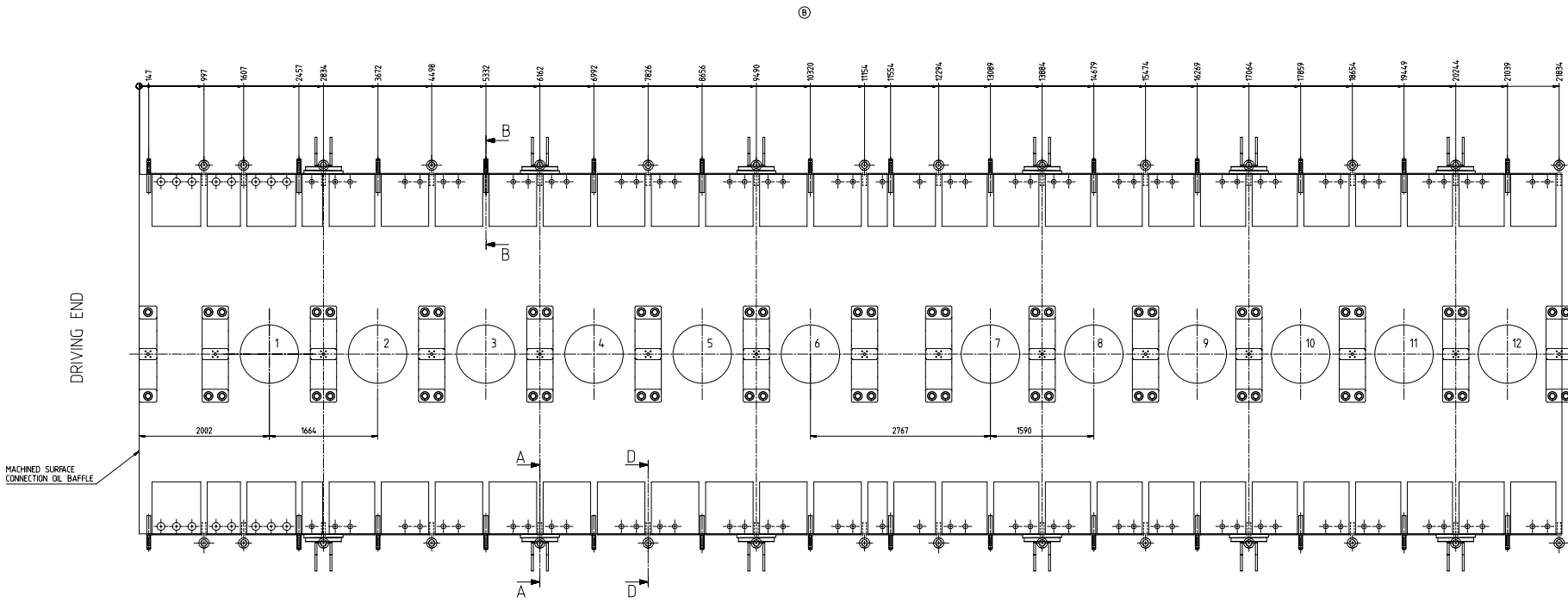
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Prod.	12 X92 12 X92-B	12 X92DF 12 X92DF-2.0	12 X92DF-A-1.0 12 X92DF-M-1.0
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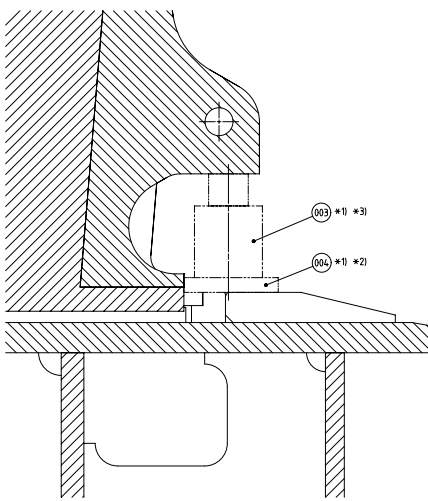
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A	sde101	mhu019	02.10.2019	EAAD090713	Legacy information. See corresponding ChangeNotice			4	3	
-	dki021	mhu019	17.11.2017	EAAD782032	-			-	-	

	<h2>TOOL ENGINE ALIGNMENT</h2> <h3>Alignment with Wedges</h3>
--	---

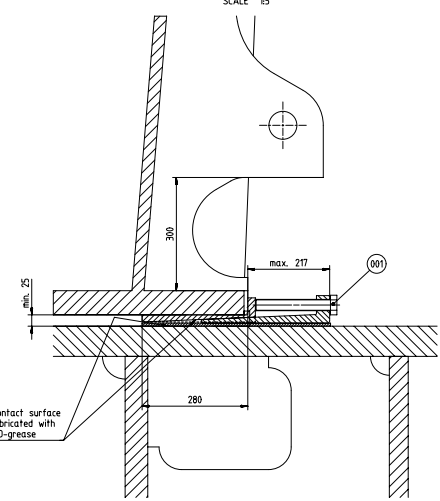
Bill Of Material		Dimension	
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the document the recipient recognizes and honours these rights. Neither the whole nor any part of this document may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.	Units	[m] [kg]	Basic Material
	Main Design	Yes	Design Group 9710-01 Q-Code XXXXX
	Qty per	Engine A4	Item ID PAAD279802
			Net Weight 238.3
			Standard WDS
			BOM Page/s 01/01



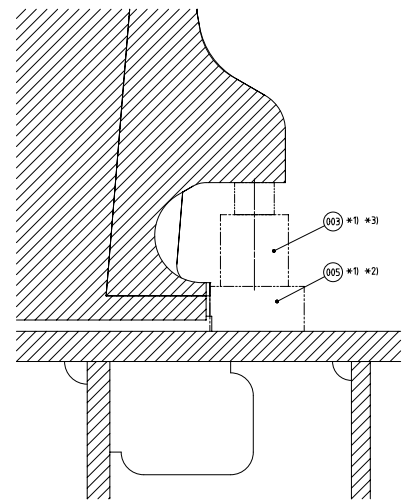
SECTION A-A
SCALE 1:5



SECTION B-B
SCALE 1:5



SECTION D-D
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 (±mm) 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 (check thickness in correlation with maximum permissible extension of the hydraulic jack)
- *3) Hydraulic jack proposal Type: Enerpac RCH-003 Load at 700 bar: 931 kN

REVISION		DATE	BY	CHKD	APPV	DESCRIPTION
1	Issue	12/01/2011	W. J.			Issue for production
2	Change	12/01/2011	W. J.			Change of material
3	Change	12/01/2011	W. J.			Change of material
4	Change	12/01/2011	W. J.			Change of material
5	Change	12/01/2011	W. J.			Change of material
6	Change	12/01/2011	W. J.			Change of material
7	Change	12/01/2011	W. J.			Change of material
8	Change	12/01/2011	W. J.			Change of material
9	Change	12/01/2011	W. J.			Change of material
10	Change	12/01/2011	W. J.			Change of material
11	Change	12/01/2011	W. J.			Change of material
12	Change	12/01/2011	W. J.			Change of material
13	Change	12/01/2011	W. J.			Change of material
14	Change	12/01/2011	W. J.			Change of material
15	Change	12/01/2011	W. J.			Change of material
16	Change	12/01/2011	W. J.			Change of material
17	Change	12/01/2011	W. J.			Change of material
18	Change	12/01/2011	W. J.			Change of material
19	Change	12/01/2011	W. J.			Change of material
20	Change	12/01/2011	W. J.			Change of material
21	Change	12/01/2011	W. J.			Change of material
22	Change	12/01/2011	W. J.			Change of material
23	Change	12/01/2011	W. J.			Change of material
24	Change	12/01/2011	W. J.			Change of material

SOURCE PROTECTION SEE GROUP 00A		TOLERANCES FROM PLE ISO 8015		DIMENSIONS TOLERANCES ACCORDING TO ISO 2768-MS	
Scale	1:25	Scale	1:10	Scale	1:10
Unit	mm	Unit	mm	Unit	mm
Material	Steel	Material	Steel	Material	Steel
Design	9710-01	Design	9710-01	Design	9710-01
Drawn	AD	Drawn	AD	Drawn	AD
Checked	AD	Checked	AD	Checked	AD
Approved	AD	Approved	AD	Approved	AD
Project	PAAD279802	Project	PAAD279802	Project	PAAD279802
Sheet	22	Sheet	22	Sheet	22
Total	23	Total	23	Total	23

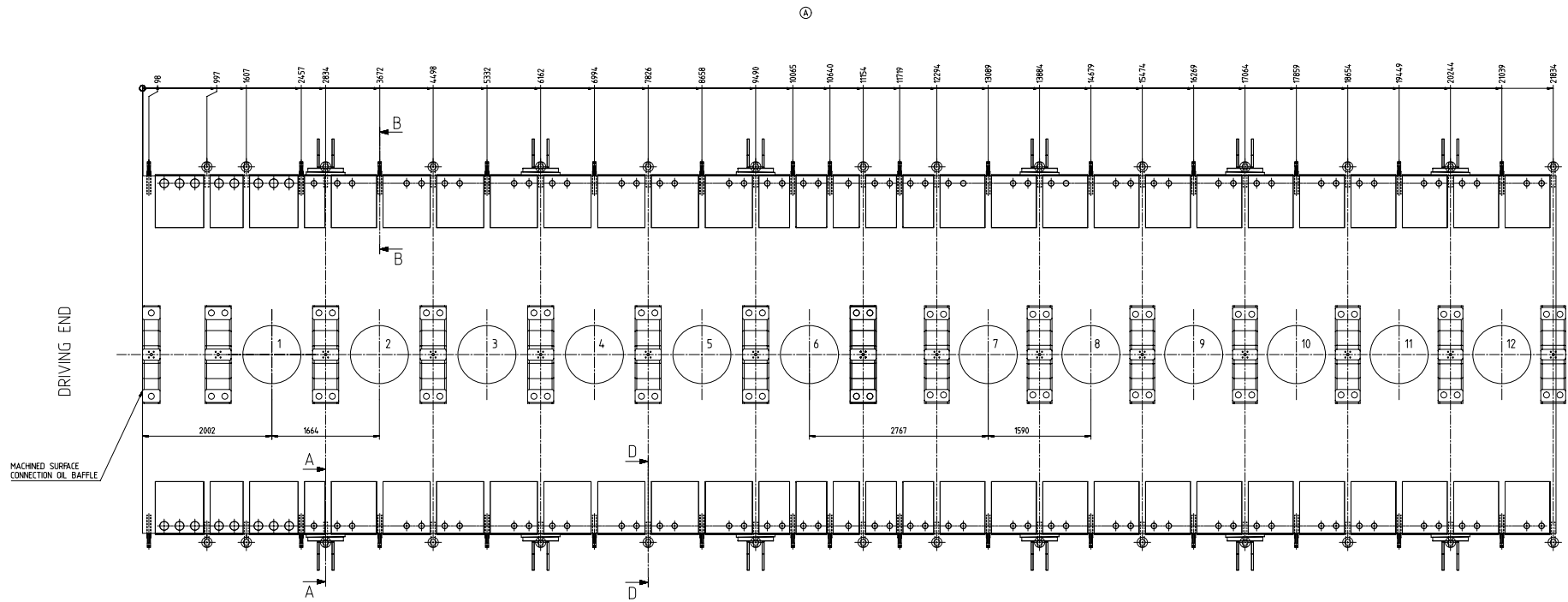
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3	30	PAAD318478	HYDRAULIC JACK				
4	12	PAAD318479	SUPPORT PLATE				
5	18	PAAD318480	SUPPORT BLOCK				

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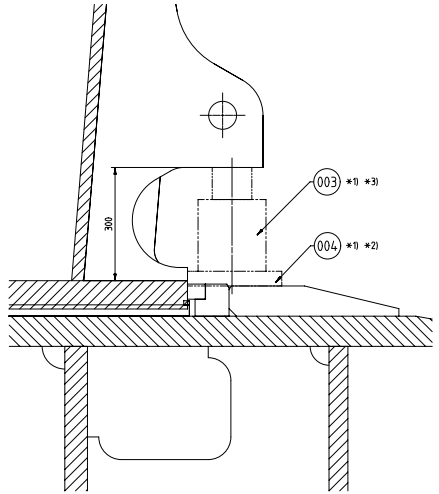
Prod.	12 X92-B 12 X92DF		12 X92DF-2.0						
Change History									
	A	sj0101	mhu019	13.02.2024	CNAA005217	Drawing Updated	4 3		
	-	sde101	mhu019	16.02.2021	EAAD787057	-	- -		
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E

	<h2>TOOL ENGINE ALIGNMENT</h2> <p>Alignment with: Wedges + STD bedplate split</p>
--	---

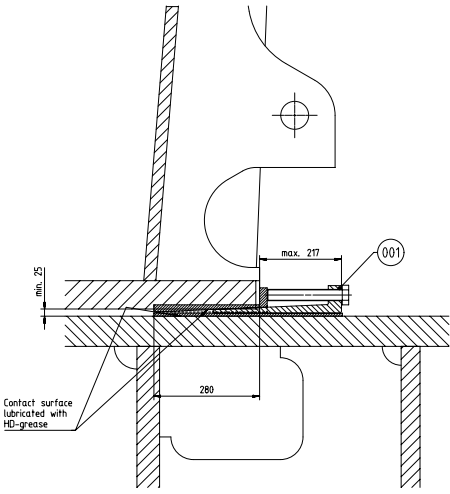
Bill Of Material		Dimension								
Copyright Winterthur Gas & Diesel Ltd. All rights reserved. By taking possession of the document the recipient recognizes and honours these rights. Neither the whole nor any part of this document may be used in any way for construction, fabrication, marketing or any other purpose nor copied in any way nor made accessible to third parties without the previous written consent of Winterthur Gas & Diesel Ltd.		Units	[m] [kg]	Basic Material			Net Weight	225.3		
		Main Design	Yes	Design Group		9710-01	Q-Code	X X O	Standard	WDS
		Qty per	Engine	A4	Item ID	PAAD374048		BOM Page/s	01/01	



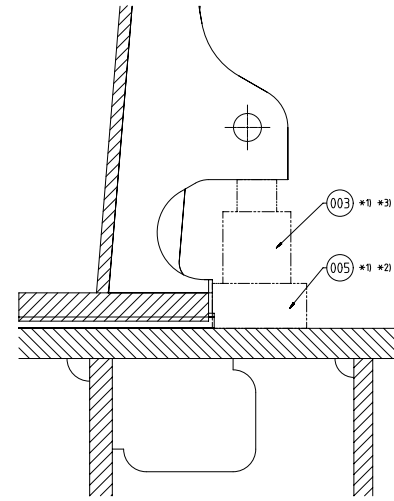
SECTION A-A
SCALE 15



SECTION B-B
SCALE 15



SECTION D-D
SCALE 15



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 (±mm) require a gradual process where all wedges and/or shims are successively adjusted in stages, to ensure the best possible load distribution.

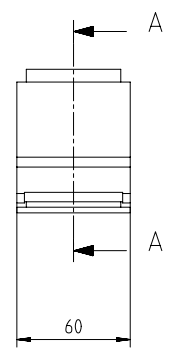
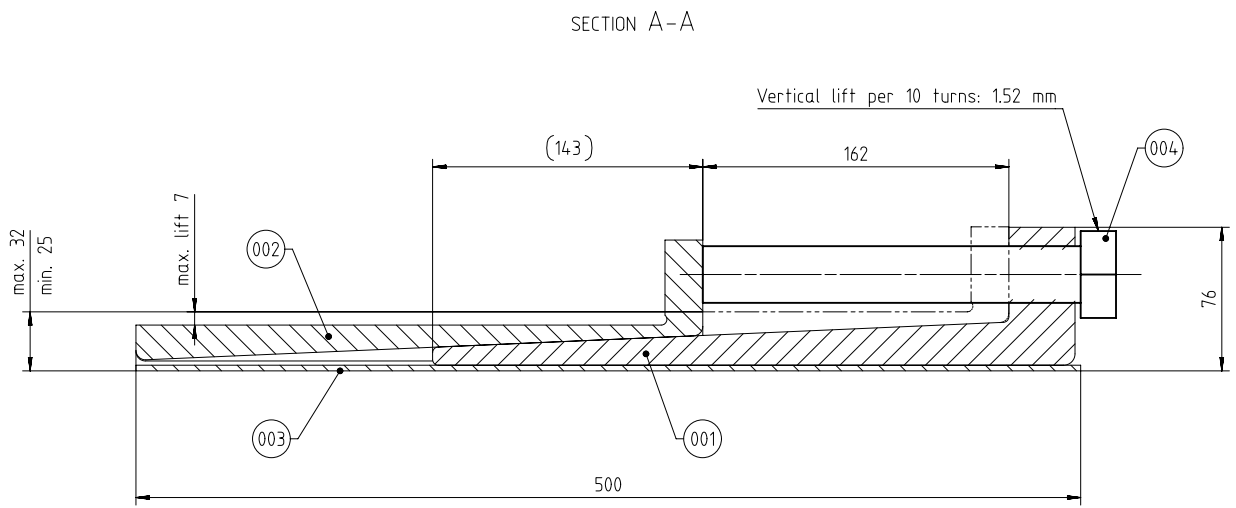
Remarks

- #1) To be provided by the shipyard
- #2) Height depending on the requirement (check thickness in correlation with maximum permissible extension of the hydraulic jack)
- #3) Hydraulic jack proposal
Type: Enerpac RCH-003
Load at 700 bar: 931 kN

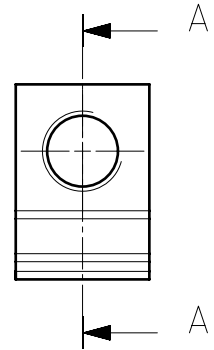
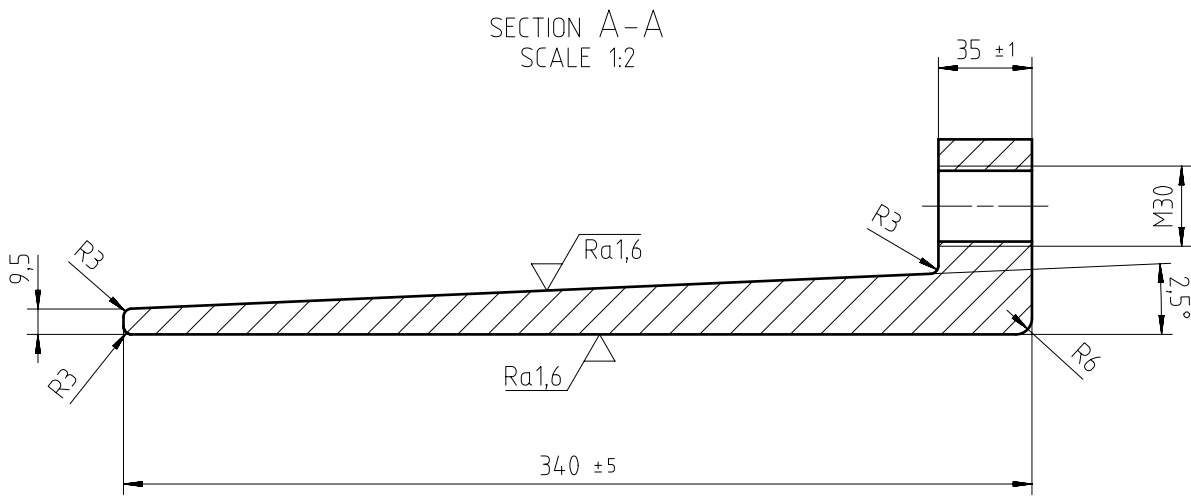
REVISION		DATE		BY		CHECKED	
1	A	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017
2	B	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017
3	C	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017
4	D	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017	12/10/2017

DRIVER	DESIGNER	DATE	SCALE	PROJECT	NO.	REV.	BY	CHECKED
12/10/2017	12/10/2017	12/10/2017	1:25	9710-01	01	01	12/10/2017	12/10/2017

WINGD		TOOL ENGINE ALIGNMENT		Net Weight: 225 kg	
Wingard Marine & Diesel		Alignment with Wedges + STD bedplate split		Drawing No: 9710-01	
SOURCE PROTECTION SEE GROUP 00A		TOLERANCING FROM FILE 03015		DESIGN: 9710-01	
GENERAL TOLERANCES ACCORDING TO ISO 2768-mS		MATERIAL: EN 10202 SA4070367		CHECKED: X X 0	
19		22		23	
PAAD374048		22		23	



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 file						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		
			Product W-2S		WEDGE							
					Schraeger Keil							
Units	mm kg	NX			Basic Material		Net Weight 8,51					
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



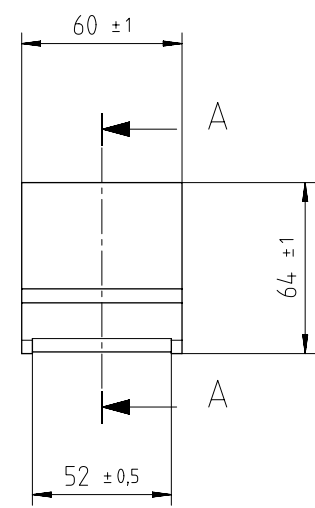
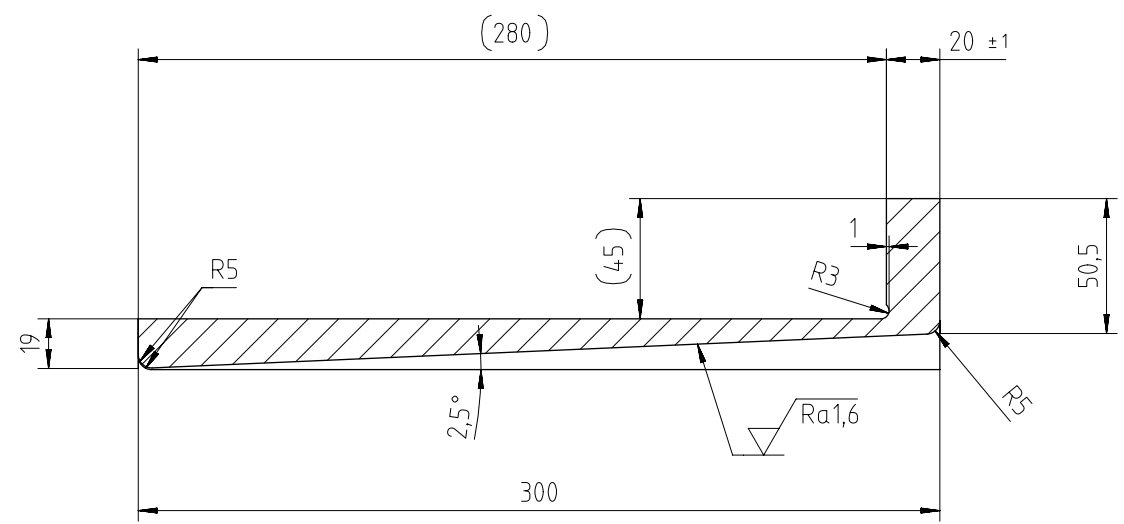
Ra50 (
 Ra1,6
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Free space for lic.	Q-Code XXXXXX							Main Drw.		
	Standard ISO; JIS									
Modif.	A	7-73.552	19.10.2009	B	EAAD091472	04.11.2019				
		Number	Drawn date		Number	Drawn date	Number	Drawn date	Number	Drawn date
 Winterthur Gas & Diesel				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		Size	A3
TOLERANCING PRINCIPLE ISO8015			Chkd			Design Group	9710-01		Page	1/1
GENERAL TOLERANCES ACCORDING TO ISO2768-mK			Appd	27.12.2001 WDMS2		Material ID	107.246.895.001		Drawing ID	107.246.895
					Rev.	B				

1 2 3 4 5 6 7 8

A
B
C
D
E
F

SECTION A-A
SCALE 1:2



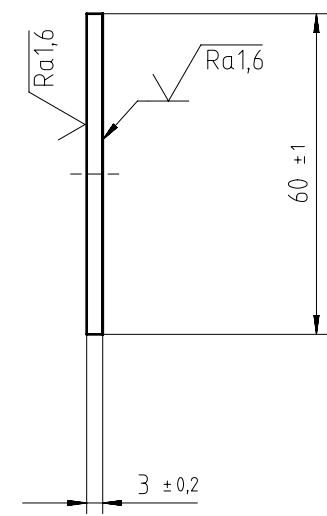
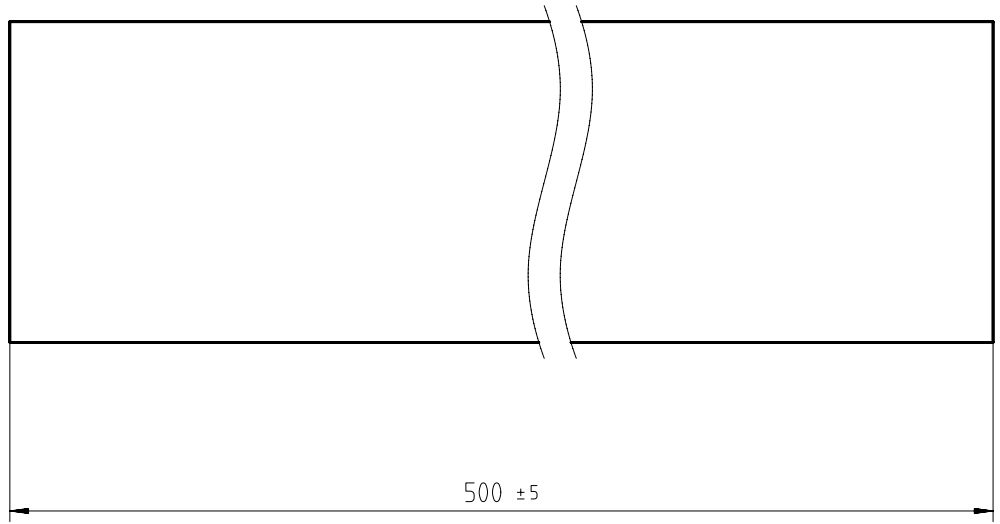
$\sqrt{Ra50}$ ($\sqrt{Ra1,6}$)

Free space for lic.								Q-Code XXXXXX	Main Drw.
								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	
 Winterthur Gas & Diesel			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	
TOLERANCING PRINCIPLE ISO8015			Chkd			Design Group	9710-01		
GENERAL TOLERANCES ACCORDING TO ISO2768-mK			Appd	27.12.2001	WDMS2		Size	A3	
					Page	1/1		Material ID	107.246.894.001
					Drawing ID	107.246.894		Rev.	B

Approved
DIM - DIMENSIONAL DRAWING - Confidential

1 2 3 4 5 6 7 8

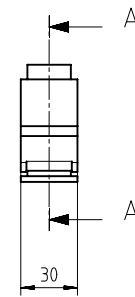
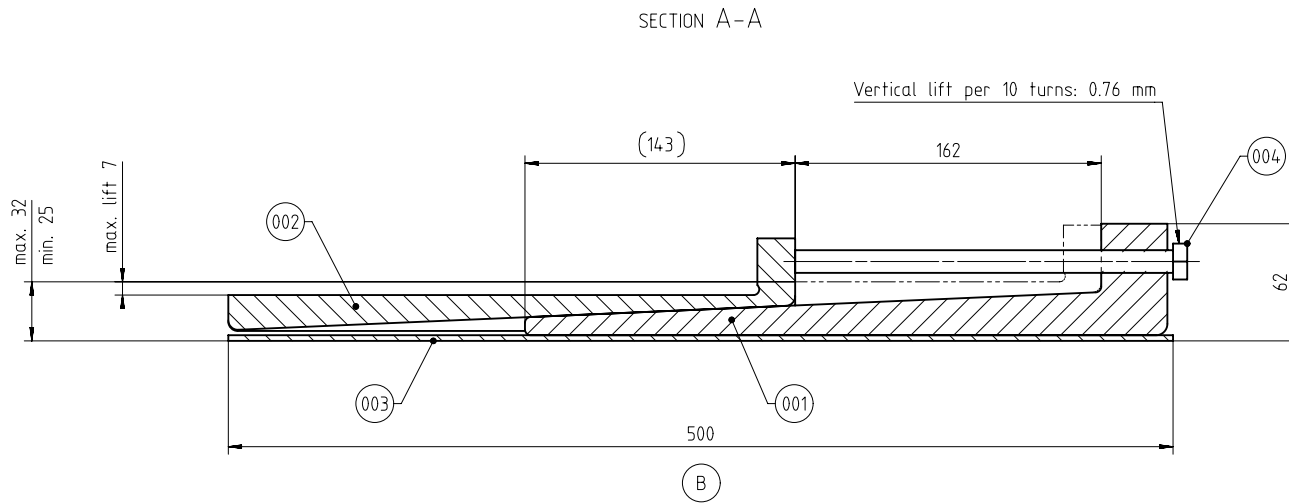
A
B
C
D
E
F



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

Free space for lic.								Q-Code XXXXXX	Main Drw.					
								Standard ISO; JIS						
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		Number	Drawn date		Number	Drawn date	Number	Drawn date	Number	Drawn date				
 Winterthur Gas & Diesel		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



QTY	SEQ NO	Material ID	Material Name	Dimension, Occ	Standard or Drawing	Basic Material Material Standard	Weight GR./NET
1	004	015.151.040.701	HEXAGON HEAD SCREW M12x200		ISO 4017	88	0,156
1	003	FAAD34.3262	PLATE		DAAD1234.06	W-FU-235-JR	0,4
1	002	107.424.348.001	KEY		107.424.348	W-FU-235-JR	1,5
1	001	107.424.347.001	KEY		107.424.347	W-FU-235-JR	1,7

Modif.	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
A	EAAD084635	27.06.2013	B	EAAD091472	06.11.2019			

Free space for ill.

Q-Code
XXXXXX
Standard
ISO; JIS

Main Drw.

Product
W-2S

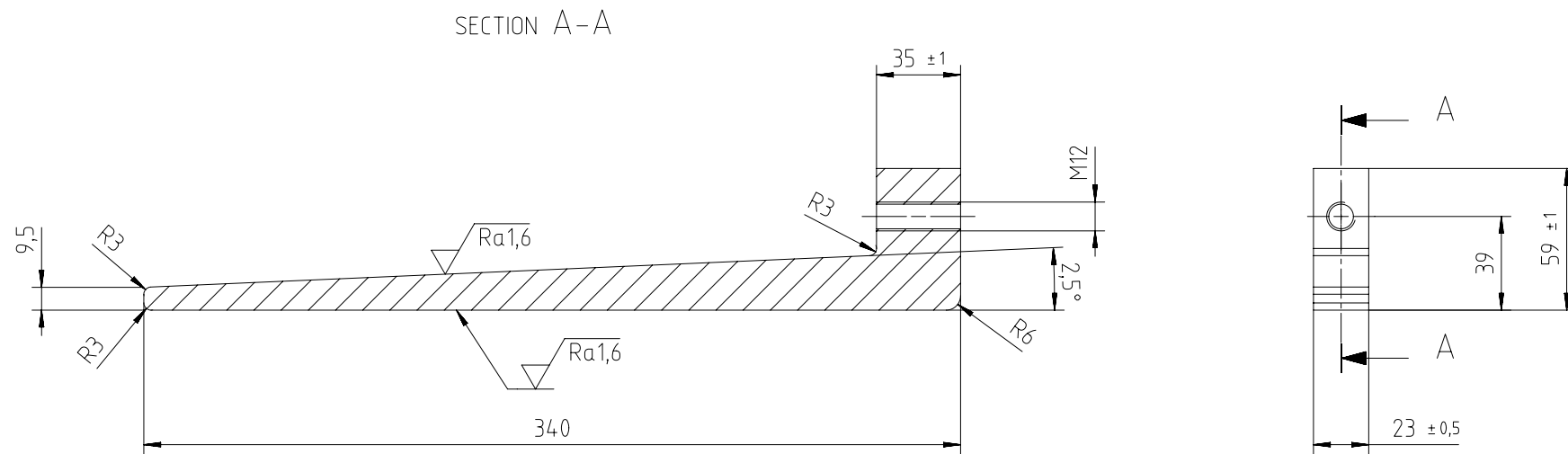
WEDGE
Schraeger Keil

Units mm kg NX

Basic Material W-FU-235-JR

Net Weight 3,8

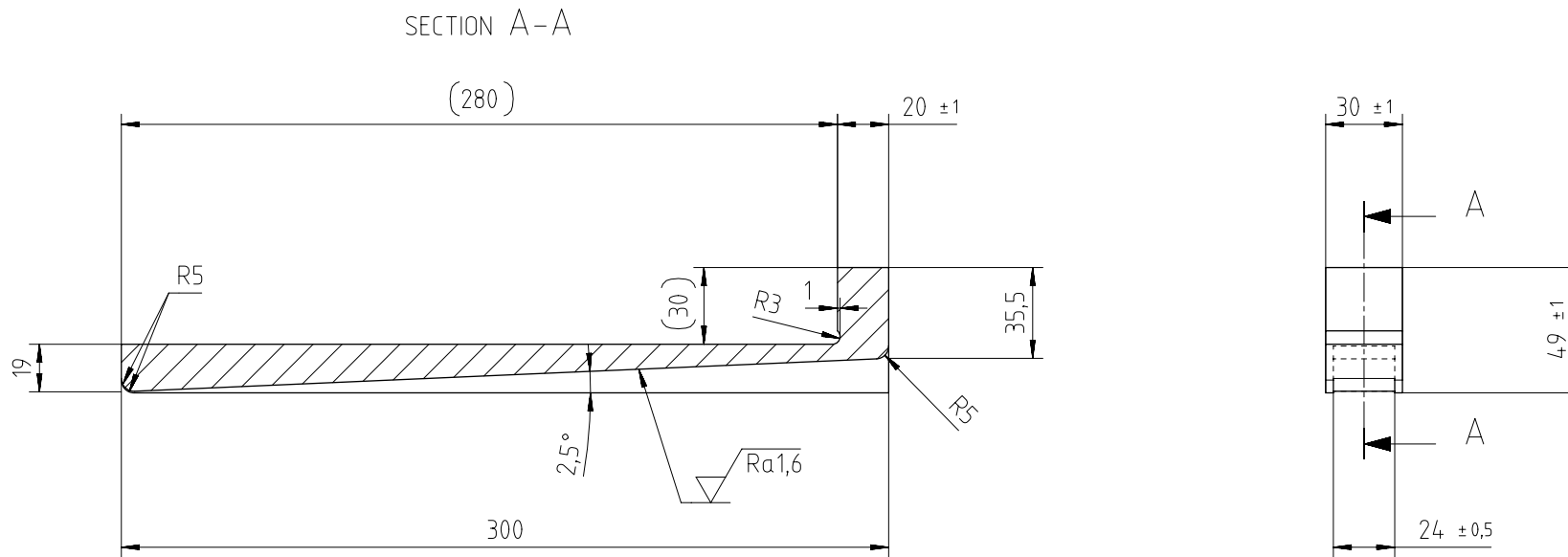
SURFACE PROTECTION SEE GROUP 0344	Made	05.08.2009	jba029	J.BAUMANN	Scale	1:2	Size	A2	Page	1/1	Material ID	107.424.346.200
TOLERANCING PRINCIPLE ISO8015	Chkd				Design Group		Drawing ID	9710-01				
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	28.09.2009	JBA029	Baumann								Rev. B



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

Free space for lic.	Q-Code XXXXXX								Main Drw.					
	Standard ISO; JIS													
Modif.	A	EAAD091472	05.11.2019											
	Number	Drawn date	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	1,7				
SURFACE PROTECTION SEE GROUP 0344		Made	05.08.2009 J.BAUMANN		Scale	1:2		Size	A3	Page	1/1	Material ID	107.424.347.001	
TOLERANCING PRINCIPLE ISO8015		Chkd			Design Group	9710-01		Drawing ID	107.424.347			Rev.	A	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	28.09.2009 JBA029 Baumann											

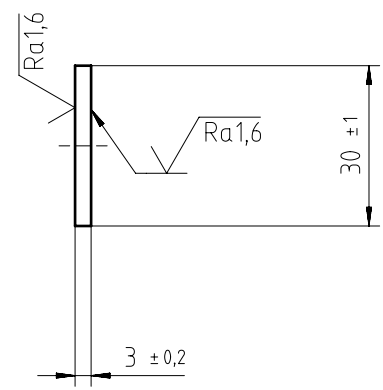
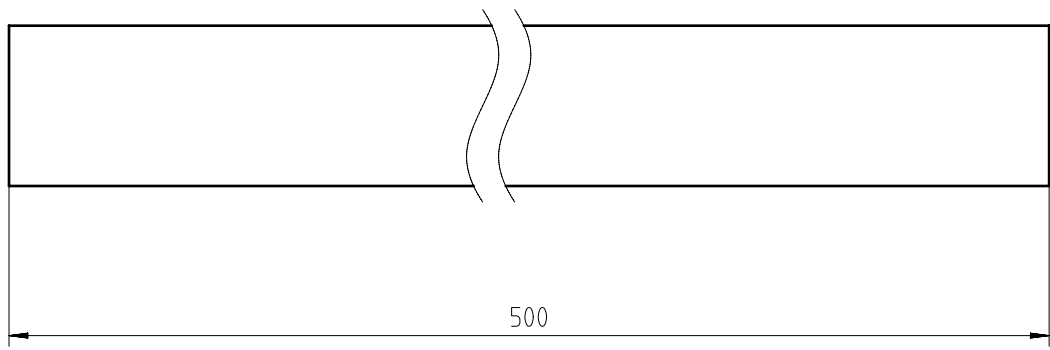
UID - DIMENSIONAL DRAWING - Confidential



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

Free space for lic.								Q-Code XXXXXX	Main Drw.
								Standard ISO; JIS	
Modif.	A	EAAD091472	06.11.2019	○	○	○	○	○	○
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number
				Product W-2S		KEY Keil			
Units	mm kg	NX			Basic Material W-FU-235-JR			Net Weight 1,5	
SURFACE PROTECTION SEE GROUP 0344		Made	05.08.2009 J.BAUMANN		Scale	1:2		Size	A3
TOLERANCING PRINCIPLE ISO8015		Chkd			Page	1/1		Material ID	107.424.348.001
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	28.09.2009 JBA029 Baumann		Design Group	9710-01		Drawing ID	107.424.348
								Rev.	A

UID - DIMENSIONAL DRAWING - Confidential



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

Free space for lic.								Q-Code XXXXXX	Main Drw.
								Standard ISO; JIS	
Modif.	○		○		○		○		
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date	
		Product W-2S		PLATE Blech					
Units	mm kg	NX		Basic Material	W-FU-235-JR			Net Weight 0,4	
SURFACE PROTECTION SEE GROUP 0344		Made	06.11.2019 dki021 DH.Kim		Scale	1:1		Size A3	
TOLERANCING PRINCIPLE ISO8015		Chkd	26.11.2019 jpi101 Pickup		Design Group	1/1			
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	02.12.2019 mhu019 Hug		9710-01	Material ID	PAAD343262		
					Drawing ID	DAAD123406		Rev.	-

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Approved

MIDS – Tool Engine Alignment (DG9710-01)

WinGD X92-B/DF/DF-2.0

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2017-01-13	DRAWING SET	First web upload
2017-11-17	DAAD094562	Tool Arrangement, 12cyl drg - new added
2018-06-13	DAAD100823	Tool Arrangement, 9cyl drg - new added
2019-10-03	DAAD044462 DAAD044255 DAAD094562 DAAD070098 DAAD100823	Tool Arrangement drgs - new revision
2020-09-29	DAAD044462 107.245.895 107.246.895 107.246.894 107.245.898 107.424.346 107.424.347 107.424.348	System and wedge assembly drgs – new revision
2021-01-13	DAAD137841	Drawing set for 7 cyl. engine variant - added
2021-02-17	DAAD139723	Drawing set for 12 cyl. with weight levelled split design - added
2021-07-21	PTAA003754	8X92-B, 2-part CS, mid drive – new drawing
2022-01-20	PAAD202723 PAAD295494	Main drgs – new revisions
2022-01-20	PAAD295494	Main drg – new revision
2023-01-12	PAAD295494	Main drg – new revision

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2023-02-01	PAAD279802-B	Main drg – new revision
2023-11-20	PAAD279802-B	New MIDS-master revision
2024-02-15	PAAD374048-A PAAD142162-B PAAD370399-A	New revision
2024-02-22	PTAA059869-A	New revision

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