

**Available executions**

Execution No.	Material ID	Cylinder No.	Attribute 1: Alignment tool type	
			SCREWS	WEDGES
001	PAAD353974	5		X
002	PAAD214144	5	X	
003	PAAD214537	6	X	
004	PAAD353615	6		X
005	PAAD339256	7	X	
006	PTAA041936	7		X

SURFACE PROTECTION SEE GROUP 0344  
TOLERANCING PRINCIPLE ISO8015

**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.	X40-B X40DF-1.0								
Change History									
	-	sna102			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		
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				Qty per	A4	Item ID	PTAA024717		Drawing Page/s

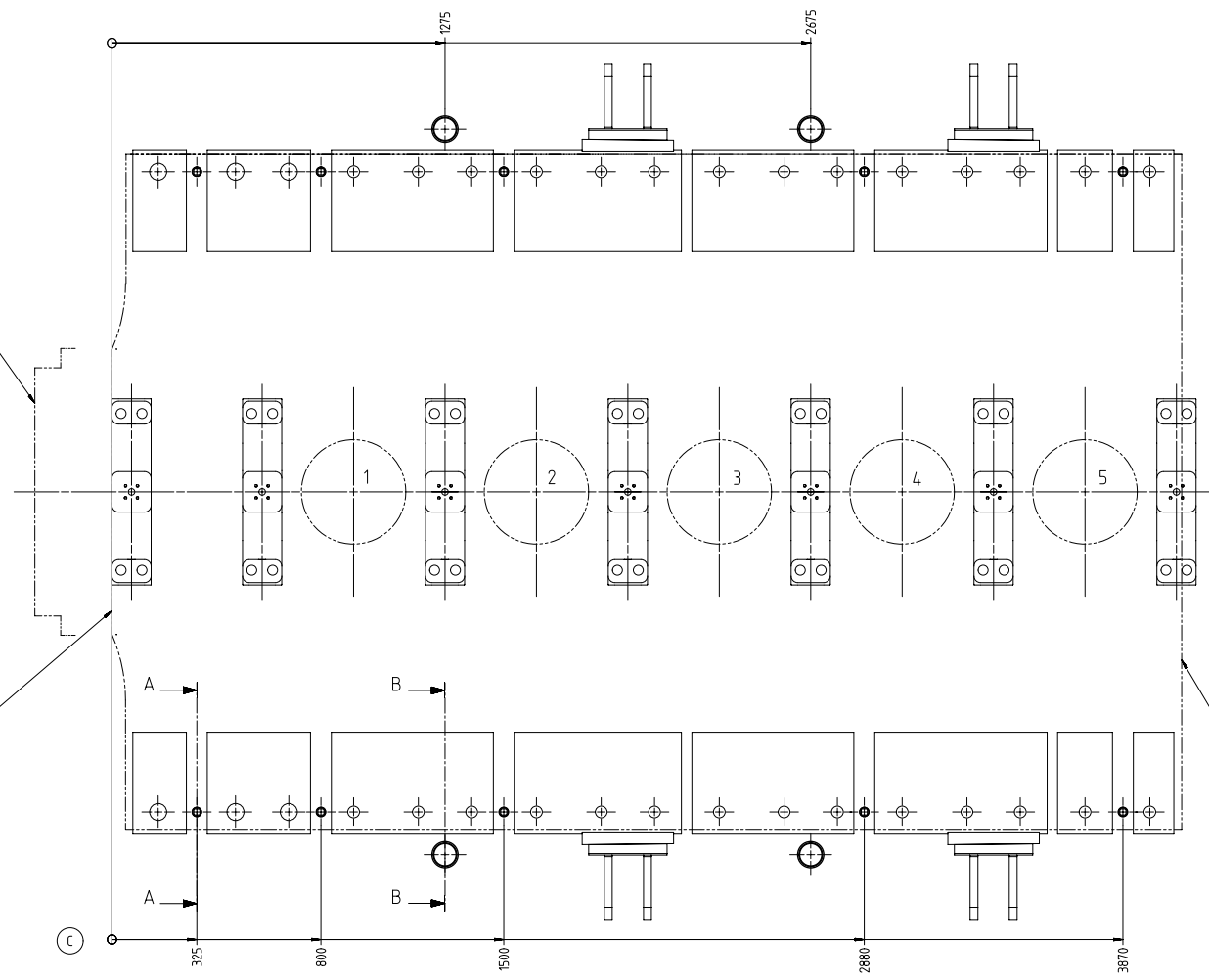
END FLANGE OF CRANKSHAFT COUPLING

DRIVING END

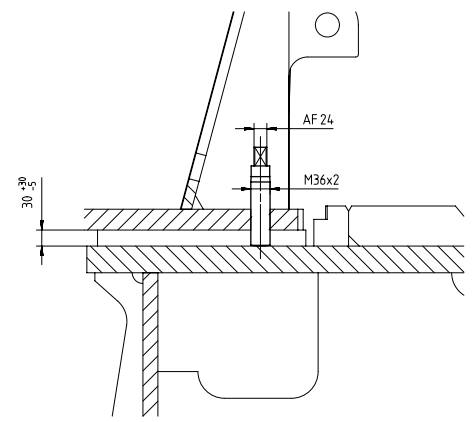
MACHINED SURFACE CONNECTION OIL BAFFLE

FREE END

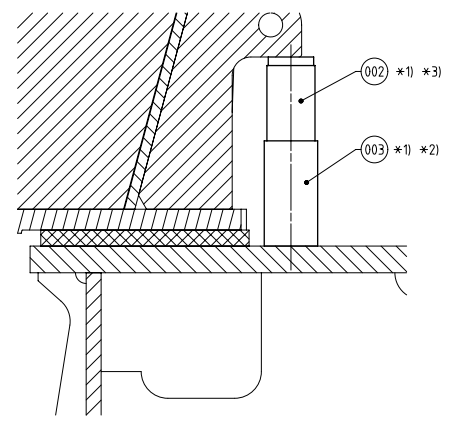
ENGINE BEDPLATE OUTLINE



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 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. Only 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

Quantity	SOI NO	Material ID	Material Name	Standard or Dimension, Dec	Basic Material Material Standard	Weight GR/NET
4	003	PAAD318480	SUPPORT BLOCK		C45E/S45C	1,34
4	002	PAAD318478	HYDRAULIC JACK		XXXXXX	
10	001	107.4.31.44.7.001	JACKING SCREW	107.4.31.44.7	ISO: JIS	



Product: WSX4.0-B, WSX4.0DF-1.0  
TOOL ENGINE ALIGNMENT  
Engine Alignment: Jacking Screws  
Werkzeug Motorsrichtung

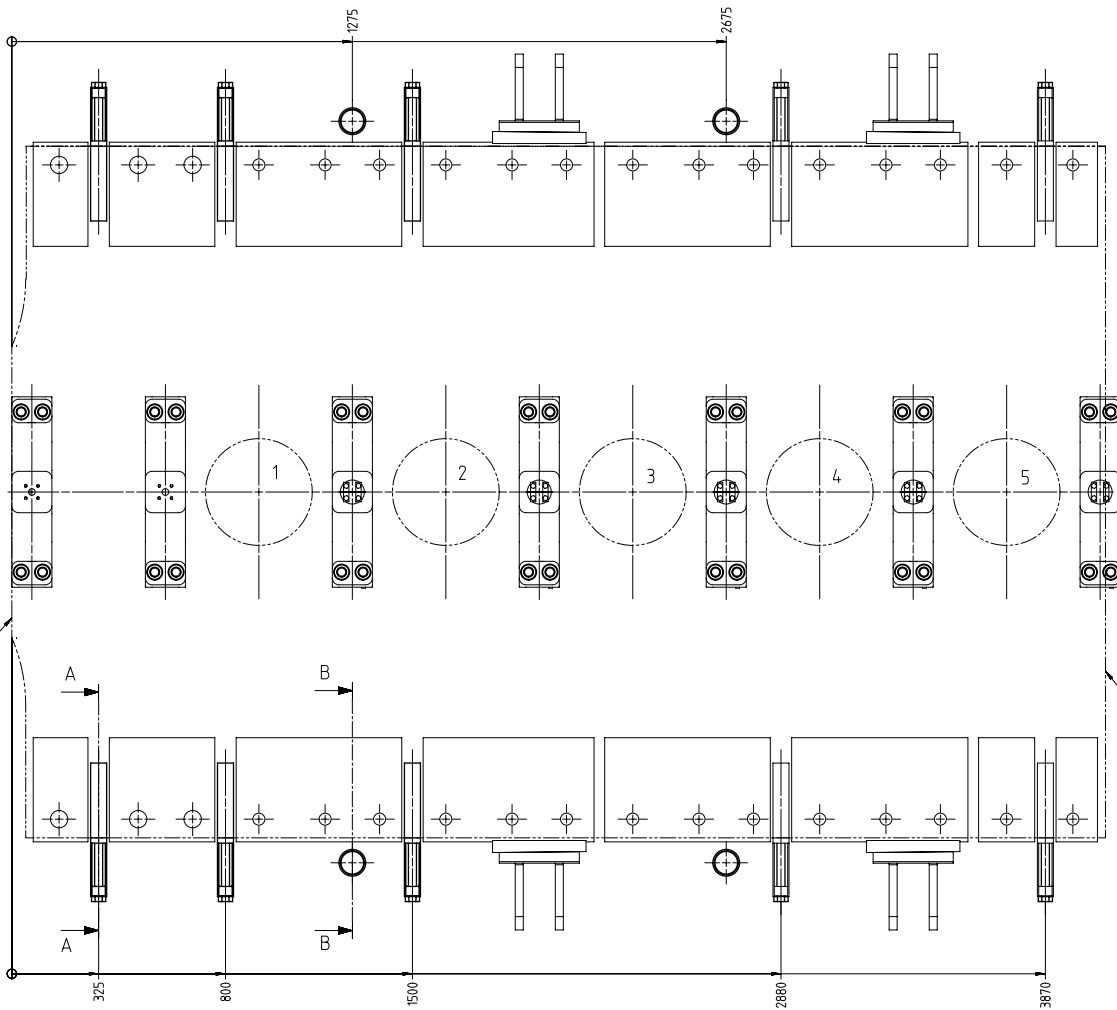
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TOLERANCING PRINCIPLE ISO8015	Chkd 17.12.2015 mhu019 Hug	Design Group	9710-01	DAAD073355	Rev. C
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd 17.12.2015 bha009 Haug				

END FLANGE OF CRANKSHAFT COUPLING

DRIVING END

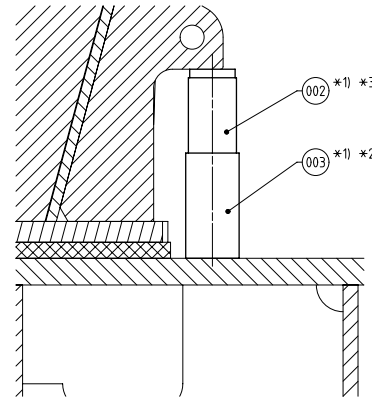
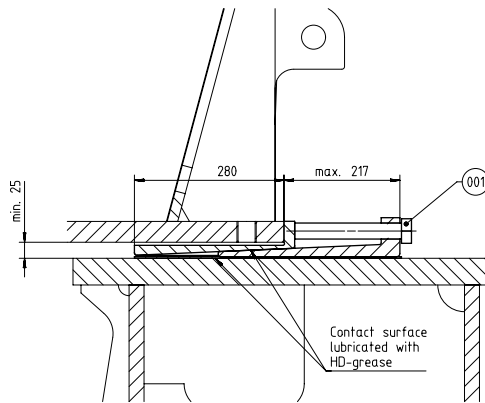
MACHINED SURFACE CONNECTION OIL BAFFLE

ENGINE BEDPLATE OUTLINE



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 (check 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

Quantity	ISO No	Material ID	Material Name	Dimension, Dec	Standard or Drawing	Basic Material Material Standard	Weight GRUNET
8	003	PAAD318480	SUPPORT BLOCK				8.51
8	002	PAAD318478	HYDRAULIC JACK				
10	001	107245.895.200	WEDGE		107245.895		

**WINGD**  
Wolpert Gas & Diesel

Product: WSX4.0-B  
WSX4.0DF-1.0

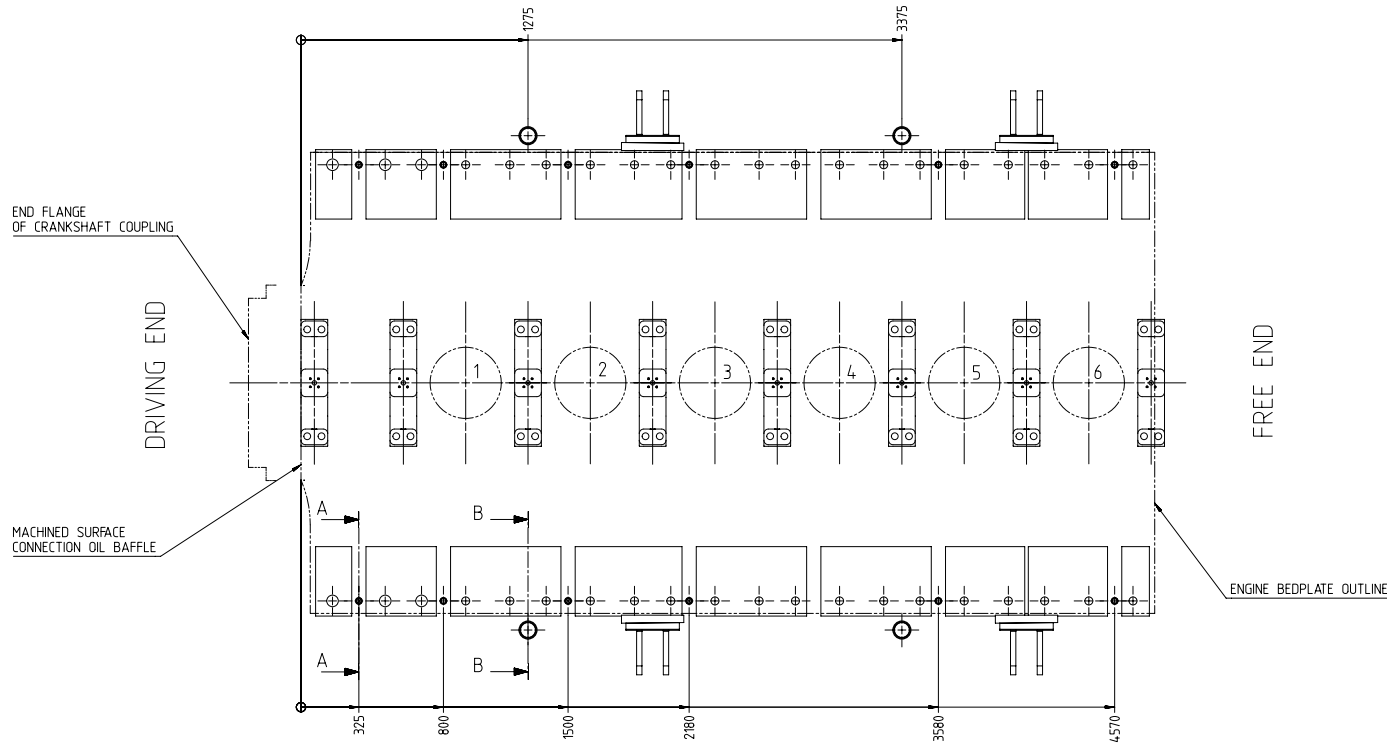
**TOOL ENGINE ALIGNMENT**  
Engine Alignment: WEDGES  
Werkzeug Motorausrichtung

Units: mm kg NX  
Scale: 1:10  
Size: A1  
Page: 1/1  
Material ID: DAAD129319

Surfact Protection See Group 0344  
TOLERANCING PRINCIPLE ISO8015  
GENERAL TOLERANCES ACCORDING TO ISO2768-mK

Made: 07.04.2020 dk1021 DH, Kim  
Chd: 29.04.2020 jst101 Pickup  
Appd: 18.05.2020 mhu019 Hug

Rev: -



CAUTION

Risk:  
Tool and/or bedplate damage

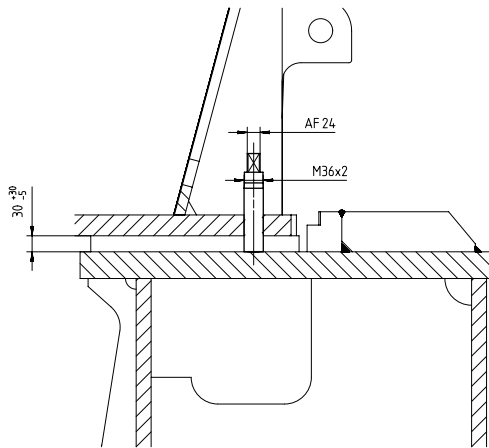
Countermeasure:  
Avoid overloading of jacking screws and/or bedplate areas by observing the appropriate engine alignment/ assembly procedure as follows:

- 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.

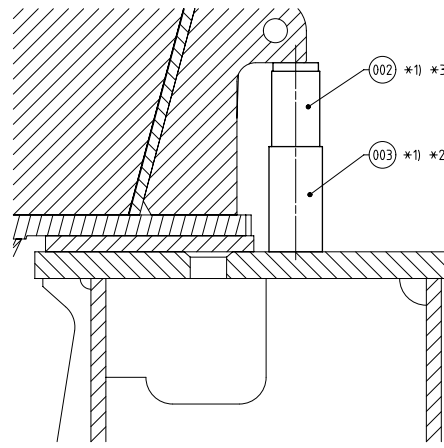
Remarks

- \*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

SECTION A-A 90°  
SCALE 1:5



SECTION B-B 90°  
SCALE 1:5



Quantity	ISO NO	Material ID	Material Name	Dimension, Qty	Standard or Drawing	Basic Material	Weight
PER ENGINE						Standard	GRUNET
4	003	PAAD318480	SUPPORT BLOCK			C45E/S45C	1,34
4	002	PAAD318478	HYDRAULIC JACK				
12	001	107.4.31.44.7.001	JACKING SCREW		107.4.31.44.7		
Material ID: PAAD074537 Mod: EAAD08640418.02.2016 EAAD090719 02.10.2019 EAAD092787 16.04.2020 Number Draw date Number Draw date Number Draw date						D-Code: XXXXX Standard: ISO, JIS Main Drw: H	

**WINGD**  
Wolpert Gas & Diesel

Product: W6X4.0-B W6X4.0DF-1.0

**TOOL ENGINE ALIGNMENT**  
Engine Alignment: Jacking Screws  
Werkzeug Motorausrichtung

Units	mm	kg	NX	Basic Material		Net Weight									
Surface Protection	SEE GROUP 0344	Made	07.12.2015	dk1021	DH, Kim	Scale	1:15	Size	A1	Page	1/1	Material ID	DAAD073489	Rev.	C
TOLERANCING PRINCIPLE	ISO2768	Chkd	17.12.2015	mhu019	Hug	Design Group		Drwg							
GENERAL TOLERANCES ACCORDING TO	ISO2768-mK	Appd	17.12.2015	bha009	Haag										

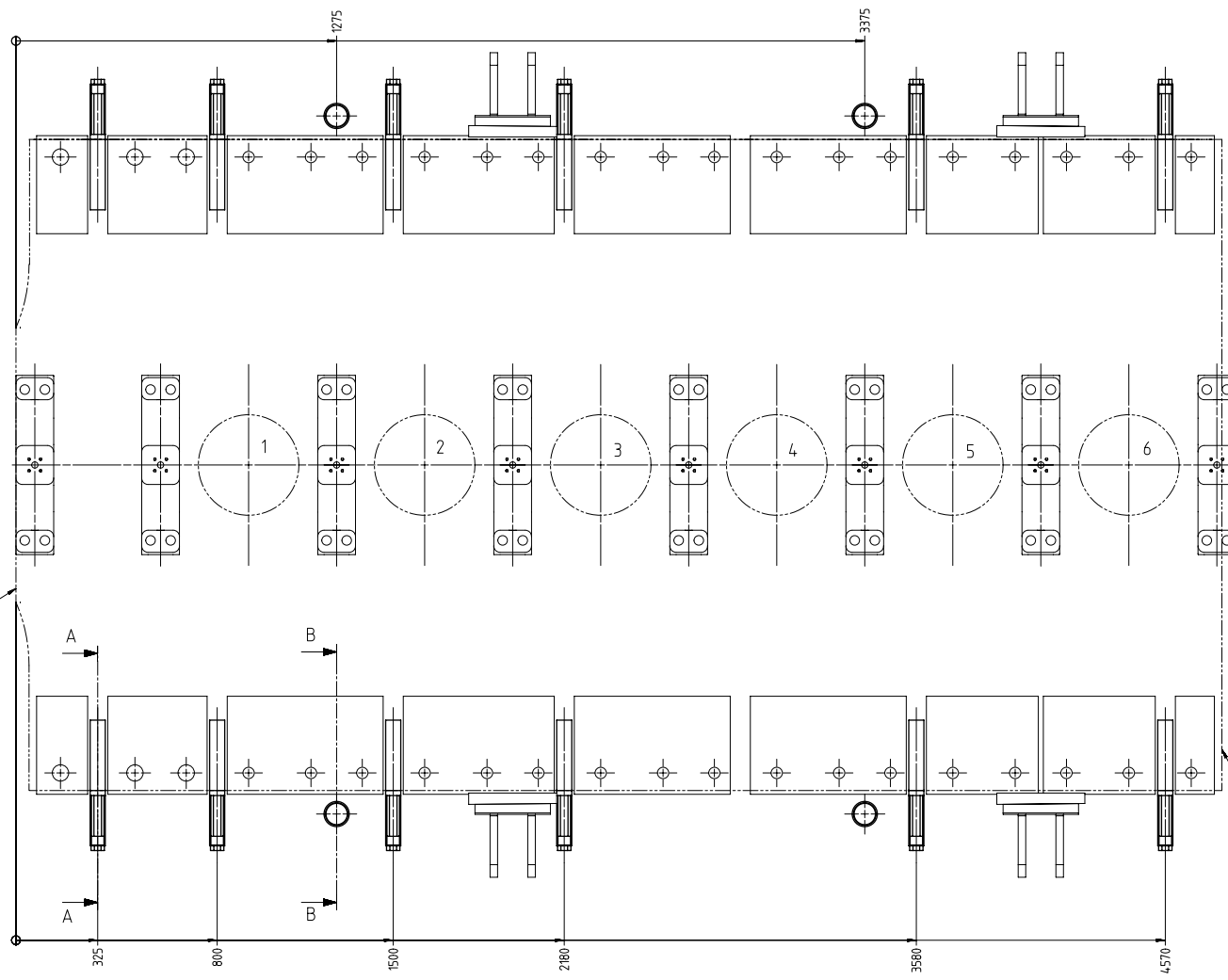
END FLANGE OF CRANKSHAFT COUPLING

DRIVING END

MACHINED SURFACE CONNECTION OIL BAFFLE

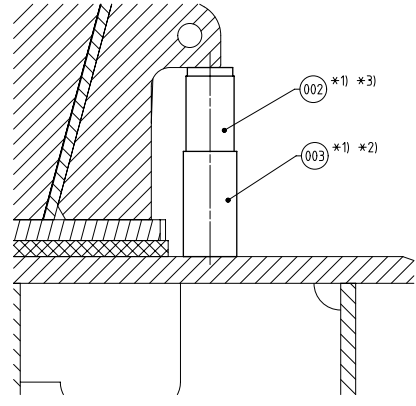
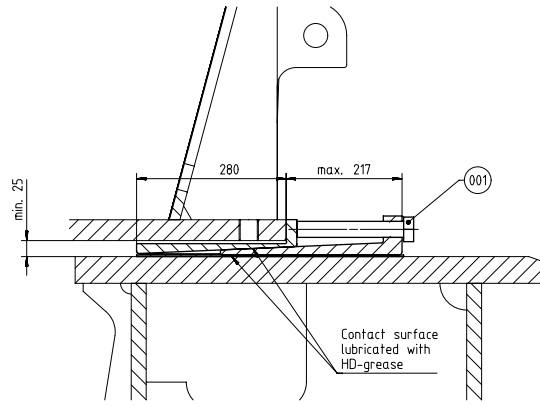
FREE END

ENGINE BEDPLATE OUTLINE



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 (check 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

Quantity	ISO ID	Material ID	Material Name	Dimension, Dec	Standard or Drawing	Basic Material Material Standard	Weight GRUNET
8	003	PAAD318480	SUPPORT BLOCK				8,51
8	002	PAAD318478	HYDRAULIC JACK				
12	001	107245.895.200	WEDGE		107245.895		



Product: W6X4.0-B  
W6X4.0DF-1.0  
TOOL ENGINE ALIGNMENT  
Engine Alignment: WEDGES  
Werkzeug Motorausrichtung


Units	mm kg	NX	Basic Material	Scale	1:10	Size	A1	Page	1/1	Material ID		Net Weight	
Surface Protection	SEE GROUP 0344	Made	02.04.2020 dk1021 DH, Kim	Scale	1:10	Size	A1	Page	1/1	Material ID		Net Weight	
Tolerancing Principle	ISO8015	Chd	29.04.2020 jst101 Pickup	Design Group		Drawing ID	9710-01			DAAD129143			
General Tolerances	ACCORDING TO ISO2768-mK	Appd	18.05.2020 mhu019 Hug										



SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
1	14	107.245.895.200	WEDGE				8.51
2	2	107.424.346.200	WEDGE	NARROW TYPE			3.357
3	6	PAAD318478	HYDRAULIC JACK				
4	4	PAAD318479	SUPPORT PLATE				
5	2	PAAD318480	SUPPORT BLOCK				



Prod.	7 X40-B 7 X40DF-1.0							
Change History								
	-	sde101	mhu019	10.01.2023	CNAA002424	Main Design/Drawing Introduced	-	-
Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E C

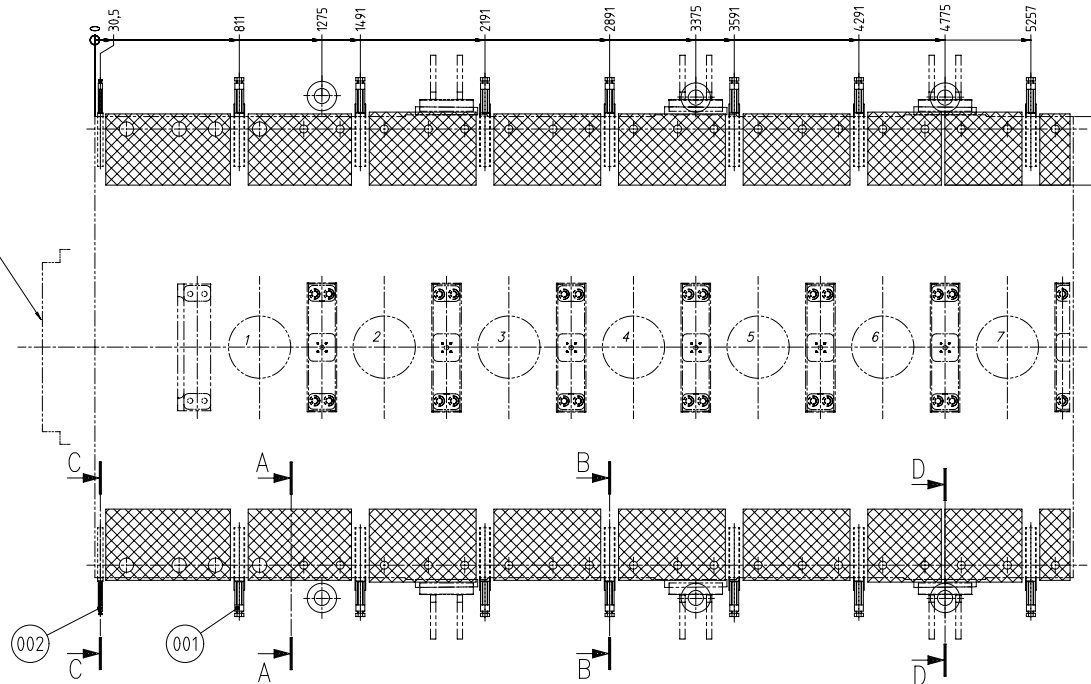
	TOOL ENGINE ALIGNMENT
--	-----------------------

<b>Bill Of Material</b>		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 PTAA041936
			Net Weight 125.9
			Standard WDS
			BOM Page/s 01/01

MACHINED SURFACE  
CONNECTION OIL BAFFLE

DRIVING END

FREE END



**CAUTION**

Risk:  
Tool and/or bedplate damage

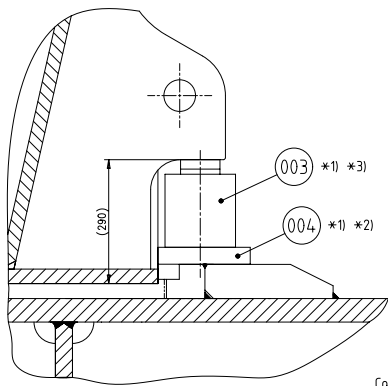
Countermeasure:  
Avoid overloading of bedplate areas by observing the appropriate engine alignment/assembly procedure as follows:

- 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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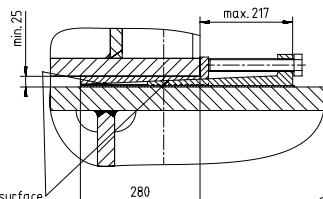
**Remarks**

- \*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 RCS-1002  
Load at 700 bar: 887 kN

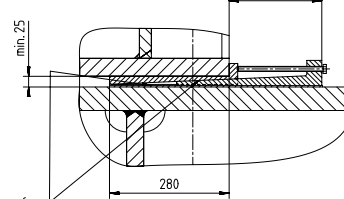
A-A 1:5



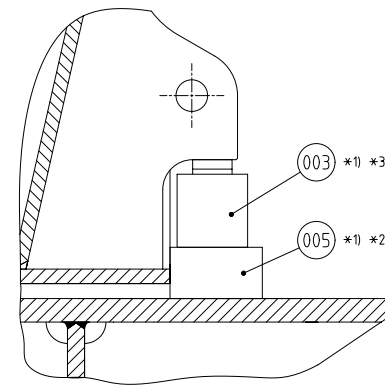
B-B 1:5



C-C 1:5



D-D 1:5



Contact surface  
lubricated with  
HD-grease

Contact surface  
lubricated with  
HD-grease

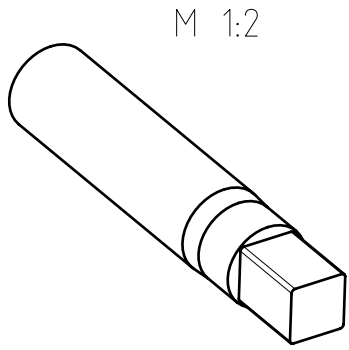
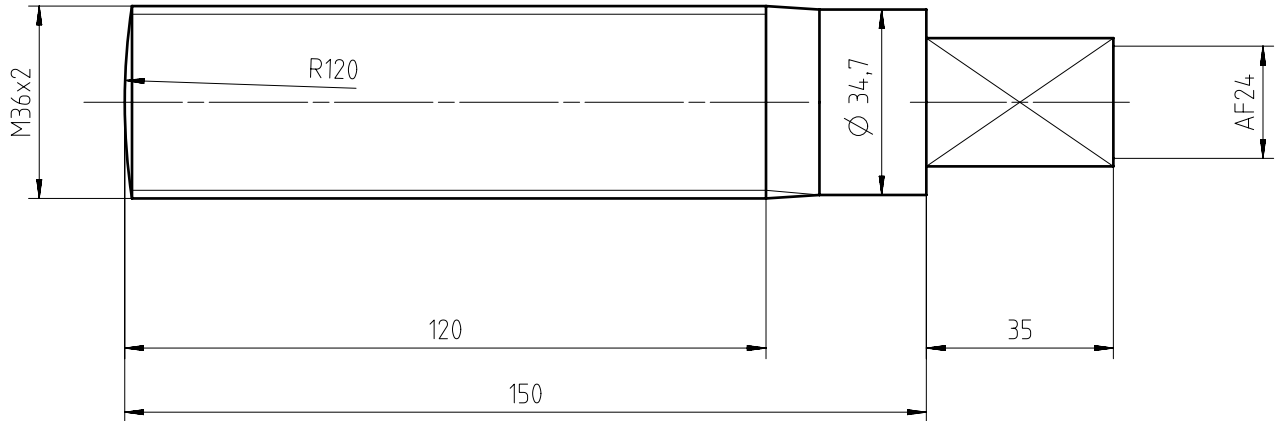
7XA0-B 7XA0DP+1.0									
Change History									
Rev	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code		
-	side101	enhd101	30.01.2023	0NMA002424	Main Design/Drawing Introduced				
separate BOM available		Dimension		Units [mm] [kg]		Basic Material		Net Weight 125.9	
Scale 1:15		NX		Main Design Yes		Design Group 9710-01		q-Code XXXXX	
SURFACE PROTECTION SEE GROUP 0344		TOLERANCING PRINCIPLE ISO8015		Engine A1		Form ID PTA041936		Drawing Page# 1/1	



**TOOL ENGINE ALIGNMENT**

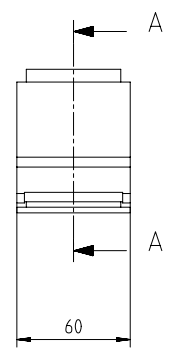
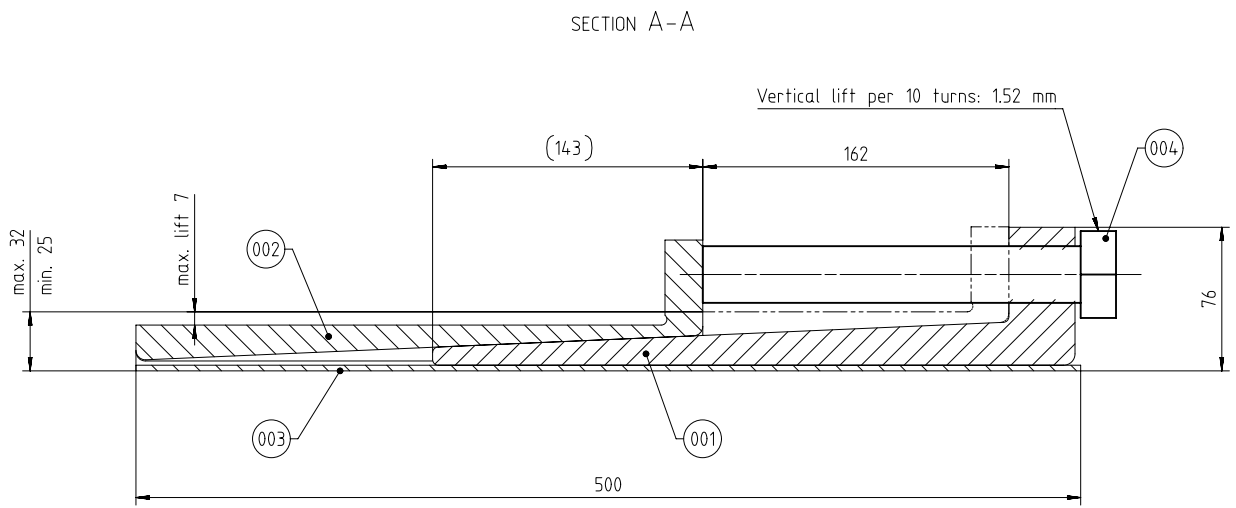


ROLLED THREAD

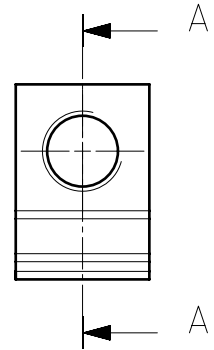
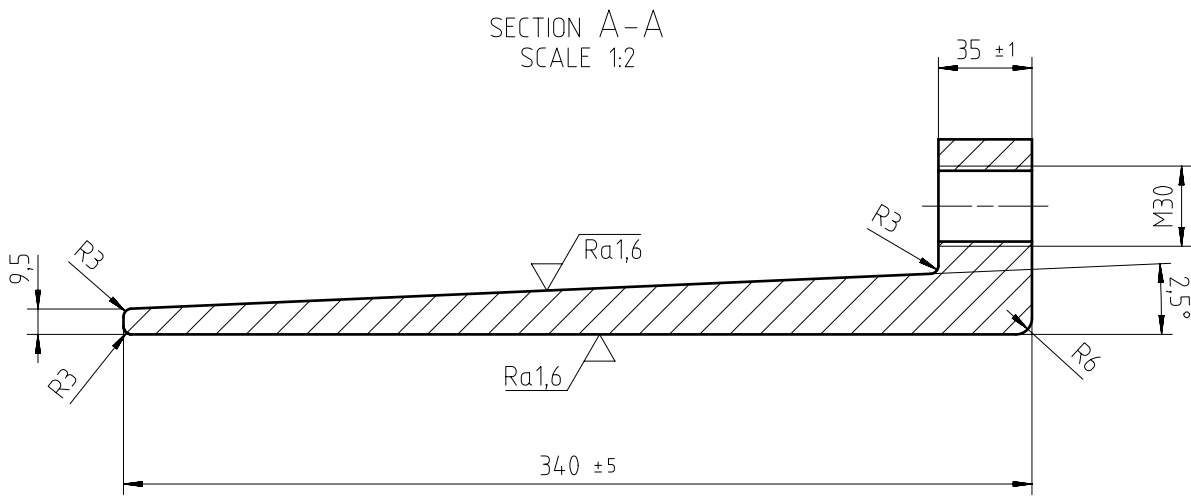


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									Standard ISO; JIS	
Modif.	A	EAAD083926	14.08.2012	B	EAAD091472	06.11.2019				
		Number	Drawn date		Number	Drawn date		Number	Drawn date	Number
					Product W-2S		JACKING SCREW			
							Abdrueckschraube			
Units	mm kg	NX			Basic Material		W-FU-235-N-T		Net Weight 1,34	
SURFACE PROTECTION SEE GROUP 0344		Made	11.02.2010 J.BAUMANN		Scale 1:1		Size	Page	Material	
TOLERANCING PRINCIPLE ISO8015		Chkd	20.01.2011 sfe006 Feuerstein		Design Group		A3	1/1	107.431.447.001	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	20.01.2011 dst009 Strödecke		9710-01		Drawing ID		107.431.447	
									Rev. B	

Approved  
CONFIDENTIAL DRAWING - Confidential



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
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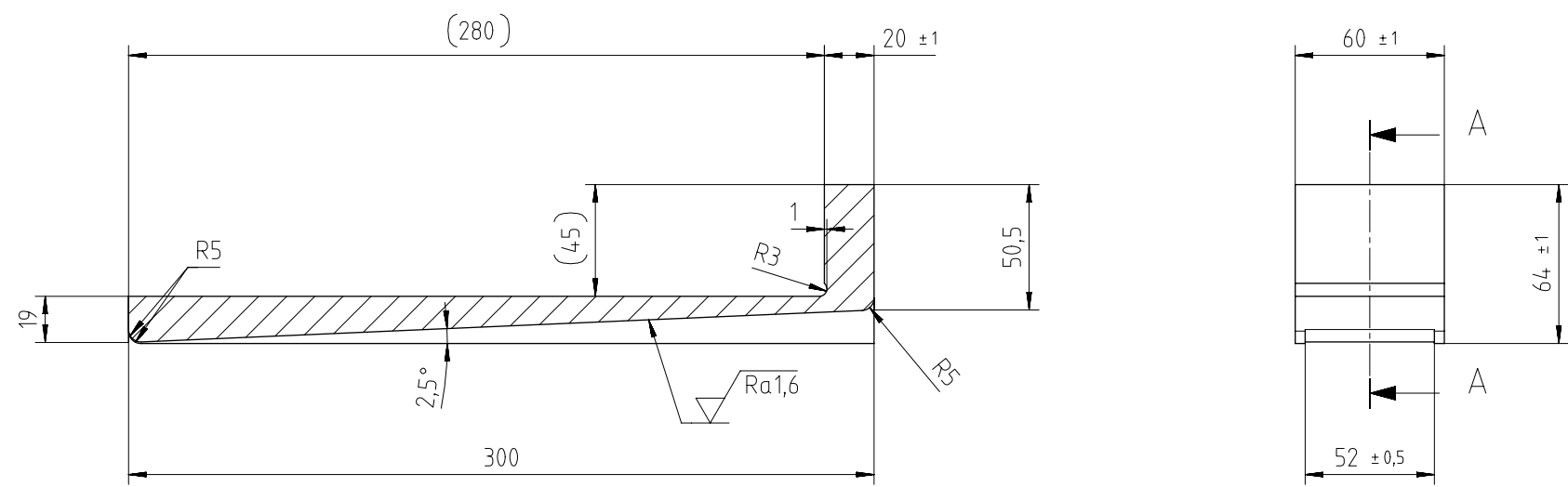
Ra50 (
 Ra1,6
 )

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
 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

SECTION A-A  
SCALE 1:2



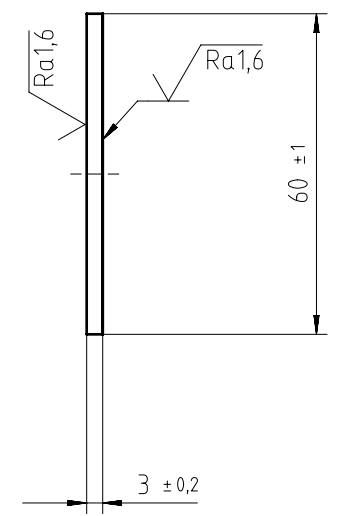
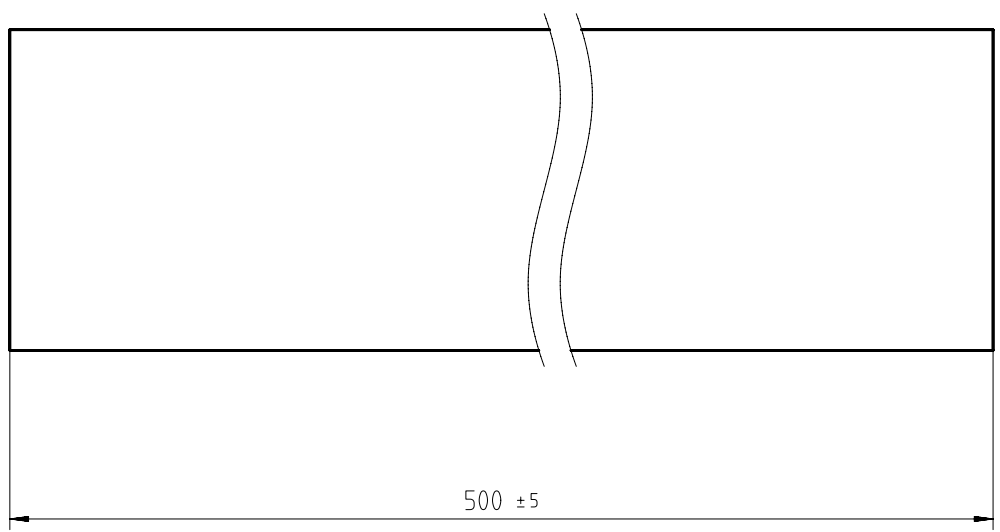
$\sqrt{Ra50}$  (  $\sqrt{Ra1,6}$  )

Free space for lic.								Q-Code XXXXXX	Main Drw.
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	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

1 2 3 4 5 6 7 8

A  
B  
C  
D  
E  
F



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

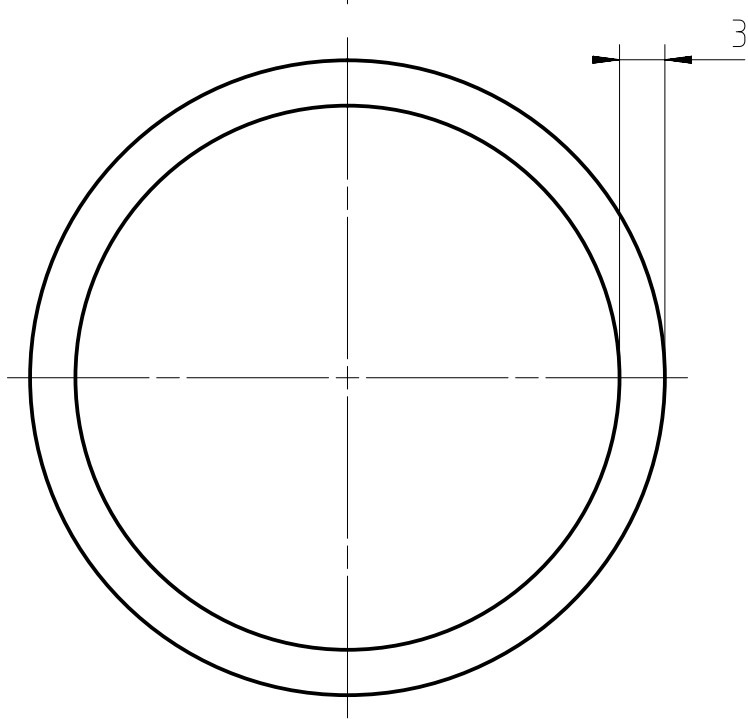
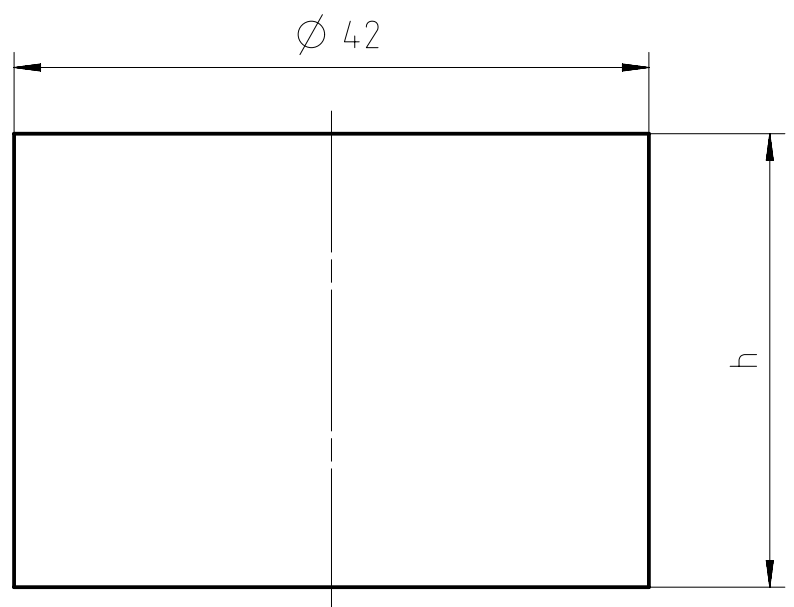
Free space for lic.								Q-Code XXXXXX	Main Drw.					
								Standard ISO; JIS						
Modif.	A	EAAD014305	11.09.1996	B	EAAD091472	05.11.2019								
		Number	Drawn date		Number	Drawn date	Number	Drawn date	Number	Drawn date				
		Product W-2S		PLATE Blech										
Units	mm kg	NX				Basic Material		W-FU-235-JR	Net Weight	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

A

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



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

A

B

C

D

Approved

F

Free space for lic.	Q-Code XXXXXX						Main Drw.
	Standard ISO; JIS						
Modif.	EAAD091472	15.11.2019					
	Number	Drawn date	Number	Drawn date	Number	Drawn date	
 <b>Winterthur Gas &amp; Diesel</b>			Product W-2S		SPONGE RUBBER RING Schaumstoff Huelse		
Units	mm kg	NX	Basic Material *			Net Weight 0,165	
Made	20.01.2011	wvr001	W.Wroblewsk	Scale 2:1	Size A4	Page 1/1	
Chkd	20.01.2011	sfe006	Feuerstein	Design Group	Material ID PAAD003706		
Appd	20.01.2011	dst009	Strödecke	9710-01	Drawing ID DAAD005307	Rev. A	

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DID - DIMENSIONAL DRAWING - Confidential

1 2 3 4

## MIDS - WinGD X40-B/DF – Tool Engine Alignment (DG 9710-01)

### TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2017-02-20	DRAWING SET	First web upload
2019-10-03	DAAD073355 DAAD073489	Tool arrangement drgs - new revision
2020-02-12	DAAD121418 107.431.447 DAAD006307	Main drg. for 7cyl – added Alignment tool drgs. – new revision
2020-08-31	DAAD007355 DAAD073489 107.431.447 DAAD129319 DAAD129143 107.245.895	Main and system drgs - new revision  Main and system drgs. (wedges) - added
2022-01-10	PTAA041936	Main drg, 7 cylinder, wedges – new drawing

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