Available executions

Execution No.	Material ID	Cylinder No.
001	PTAA003595	5
002	PTAA003592	6,7,8

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.

Prod. X52-S2.0

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
–	sde101				MIDS master drawing			

WIN GD
Winterthur Gas & Diesel

ENGINE STAYS
MIDS master drawing

separate BOM available

Dimension

Scale – NX | Units [mm] [kg] | Basic Material | Net Weight 12957

Main Design | Design Group 9715 | Q-Code X X M | Standard WDS

Qty per | A4 | Item ID PTAA030326 | Drawing Page/s 1/1

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
1	1	PTAA003582	ENGINE STAYS Longitudinal installation requirements			3590
4	1	PTAA003591	ENGINE STAYS Lateral installation requirements			0
5	1	PTAA074114	ENGINE STAYS Installation positions			0

Prod.				
	5 X52-S2.0			

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
A	dki021	mhu019	03.09.2024	CNAA006623	Drawing updated		4	3
-	sde101	mhu019	22.06.2023	CNAA003978	Main Design/Drawing Introduced		-	-

Approved

WIN GD

ENGINE STAYS

Lateral and longitudinal installation

Bill Of Material

Dimension

Units	[m] [kg]	Basic Material				Net Weight	3590
Main Design	Yes	Design Group	9715	Q-Code	X X M	Standard	WDS
Qty per	Engine	A4	Item ID	PTAA003595		BOM Page/s	01/01

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
1	1	PTAA003591	ENGINE STAYS Lateral installation requirements			0
2	1	PTAA074114	ENGINE STAYS Installation positions			0

Prod.	6,7,8 X52-S2.0			

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
B	dki021	mhu019	03.09.2024	CNAA006623	Drawing updated		4	3
A	sde101	mhu019	23.06.2023	CNAA003995	Drawing update		4	3
-	sde101	mhu019	22.06.2023	CNAA003978	Main Design/Drawing Introduced		-	-
					Approved			

WIN GD

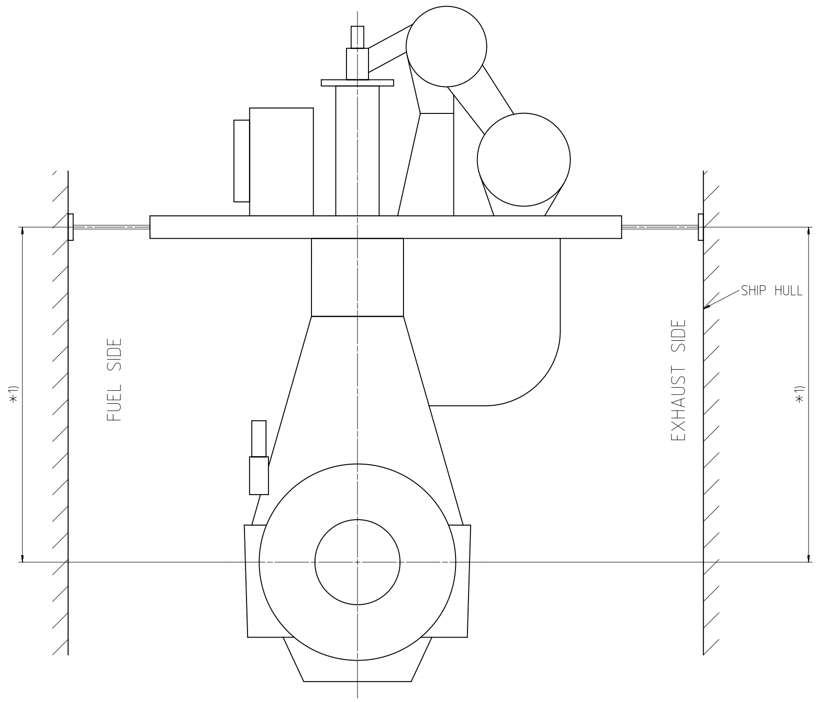
ENGINE STAYS

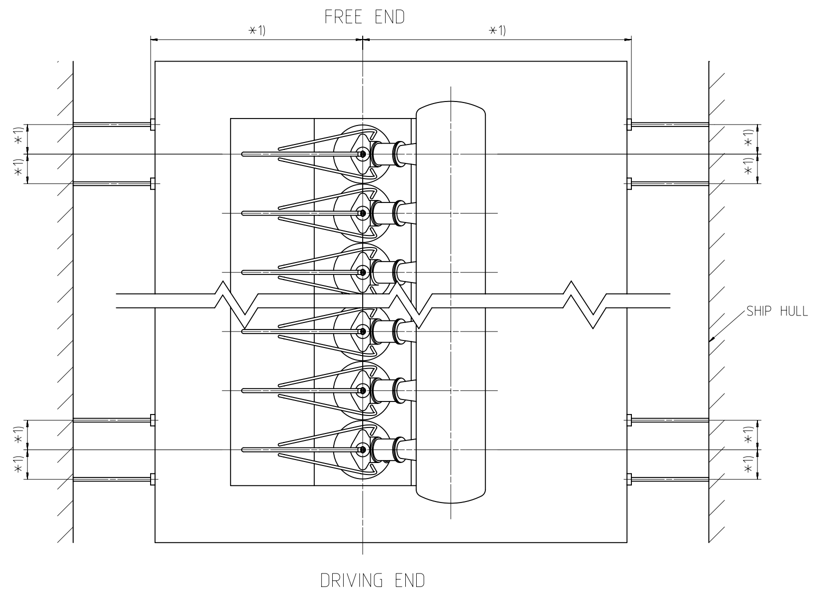
Lateral installation

Bill Of Material

Dimension

Units	[m] [kg]	Basic Material				Net Weight	0
Main Design	Yes	Design Group	9715	Q-Code	X X M	Standard	WDS
Qty per	Engine	A4	Item ID	PTAA003592		BOM Page/s	01/01





Remark:

The above view represents only a geneic outline view. Engine specific outline views are shown in the "Engine Outline View" drawings, included in DG0812. Available engine stays attachment points on platform side are defined in the "Platform Outline View" drawings, included in DG7602-01/-02.

Requirements for the installation and operation of hydraulic type engine stays

- Depending on the project specific requirements and selected engine stays type, the engine stays can be installed with one of the following arrangements:

  1) engine stays on exhaust side
  2) engine stays on fuel side
  3) engine stays on both sides

- Recommendation regarding the required number of engine stays is provided in the Marine Installation Manual (MIM).

- The finally required number of engine stays must be determined by the shipyard and depends on the transferred forces and ship structural stiffness. The transferred forces consist of the static engine stays pre-tensioning forces (as provided by the engine stays supplier) and the dynamic forces from the engine (as defined in the WinGD engine dynamic data sheet "Forces and Moments").

- The engine stays must adapt to the ship hull deformation and reduce the static reaction force acting on the engine and ship hull attachment points.

- The engine stays must increase the total stiffness of the system to avoid harmful resonance conditions. The dynamic stiffness of the engine stays (dynamic spring rate) is provided by the engine stays supplier.

- The engine stays must have a damping function to ensure that the acceptable vibrations (RMS limits) for the WinGD 2-stroke engine are maintained.

- The performance of the engine stays must be checked with vibration measurements during sea trial.

- The installation and commissioning of the engine stays must be in accordance with the supplier's instructions.

- The hydraulic type engine stays, as provided by the following suppliers, have WinGD makers' acceptance:

  Green & Clean Technology Co., Ltd (Korea)
  Hanmi Hydraulic Machinery Co., Ltd (Korea)
  Nantong Navigation Machinery Group Co., Ltd (China)

- WinGD layout of the support points on the engine side meets the requirements for the engine stays as provided from the above listed suppliers, i.e. the max. transferred forces and required support plate sizes are covered by the design accordingly. If an engine stays type from another supplier is selected, WinGD must be consulted.

Requirements for engine stays attachment points at ship hull side (per engine stay)

Max. force acting on the ship hull	$Fh_{max.}$	(kN)	*2)
Permissible deflection per 100 kN	$Def_{max.}$	(mm)	0.2

Remarks:

*1) The engine stays positions are defined in the "Platform Outline View" drawings, included in DG7602-01/02.

*2) Maximum force acting on the ship hull results from lateral moments of X/H type at the project specific rating plus engine stays pre-tensioning force according to stays supplier's specification.

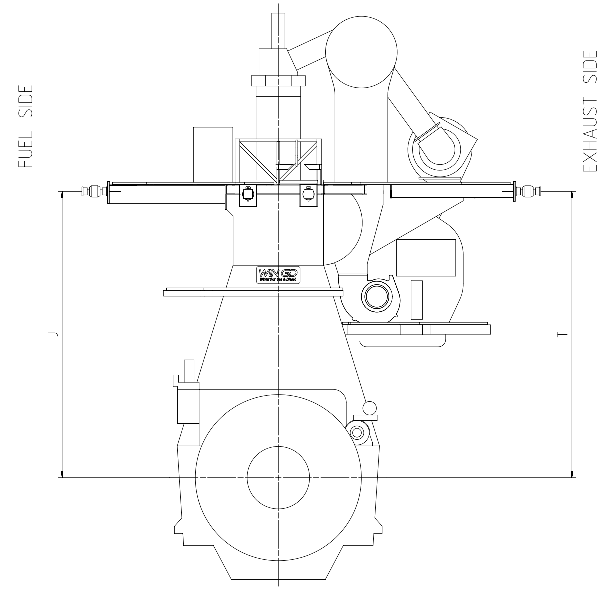
Prod.	W-2S								
Change History	C	dki021	mhu019	03.09.2024	CNAA006623	Drawing updated		4	3
	B	jzh101	yzh104	06.12.2023	CNAA004927	small improvements		4	3
	A	npa101	sth017	24.08.2023	CNAA004238	Drawing updated		4	3
	-	sde101	mhu019	22.06.2023	CNAA003978	new Design		-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis Approved	Activity Code	E	C

WIN GD

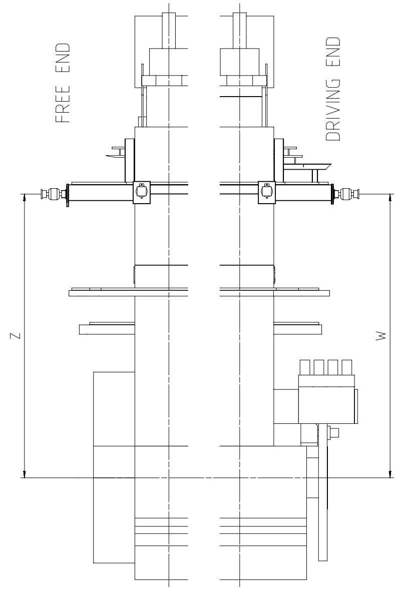
ENGINE STAYS
Lateral installation requirements

Dimension	Lateral installation requirements				
Scale 1:30	NX	Units [mm] [kg]	Basic Material	Net Weight	0.000
		Main Design	Design Group 9715	Q-Code X X M	Standard WDS
		Qty per	A0	Item ID PTAA003591	Drawing Page/s 1/1

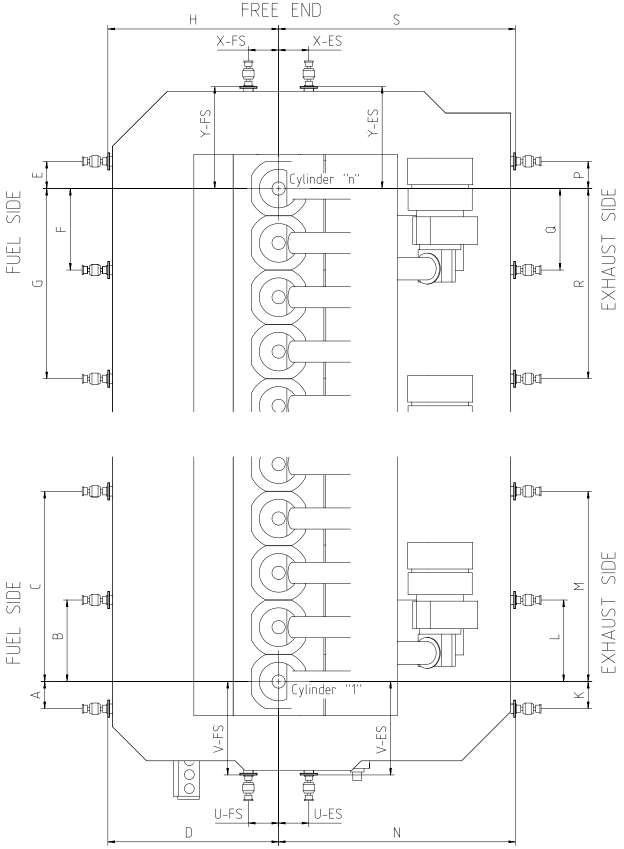
DRIVING END



FUEL SIDE



FREE END



DRIVING END

T1

ALLOWED ASSEMBLY DISPLACEMENT

HYDRAULIC TYPE STAY - ALL POSITION

VERTICAL DIMENSION	=	± 50mm
HORZONTAL DIMENSION	=	± 15mm
VERTICAL ANGLE	=	± 3,5°
HORIZONTAL ANGLE	=	± 1,0°

FRICTION TYPE STAY - ONLY FOR LONGITUDINAL POSITION

VERTICAL DIMENSION	=	± 50mm
HORZONTAL DIMENSION	=	± 50mm
VERTICAL ANGLE	=	± 0,0°
HORIZONTAL ANGLE	=	± 0,0°

T2

ENGINE SIDE INTERFACE SPECIFICATION

THESE VALUES ARE VALID FOR ENGINES IN BORE SIZE RANGE OF 620 TO 960MM.

PERMISSIBLE FORCE LONGITUDINAL	=	185 kN
PERMISSIBLE FORCE LATERAL	=	185 kN
STIFFNESS LONGITUDINAL	=	± 320 kN/mm (0,32^e-9 N/m)
STIFFNESS LATERAL	=	± 320 kN/mm (0,32^e-9 N/m)

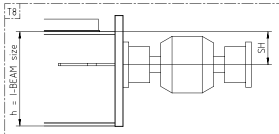
T3

ENGINE SIDE INTERFACE SPECIFICATION

THESE VALUES ARE VALID FOR ENGINES IN BORE SIZE RANGE UNTIL 610MM.

PERMISSIBLE FORCE LONGITUDINAL	=	185 kN
PERMISSIBLE FORCE LATERAL	=	185 kN
STIFFNESS LONGITUDINAL	=	± 320 kN/mm (0,32^e-9 N/m)
STIFFNESS LATERAL	=	± 320 kN/mm (0,32^e-9 N/m)

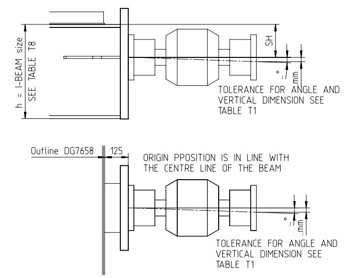
T8



h<350	SH=150
h=>350	SH=175

T4

DE & FE - LONGITUDINAL CONNECTION



DRIVING END only for 5 cyl. necessary

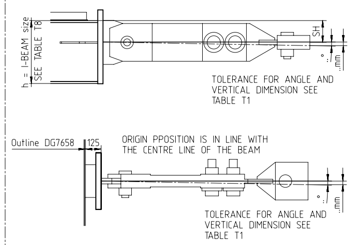
Cyl. No.	Attribute	U-FS	U-ES	V-FS	V-ES	W	
5	Diesel	595	595	2225	2225	4715	(B)
	DF	dimensions are on request					
	iSCR	595	595	2675	2675	4715	(A)
				(C)	(C)		

FREE END only for 5 cyl. necessary

Cyl. No.	Attribute	X-FS	X-ES	Y-FS	Y-ES	Z	
5	Diesel	595	595	2125	2125	4715	(B)
	DF	dimensions are on request					
	iSCR	595	595	2325	2325	4715	(A)

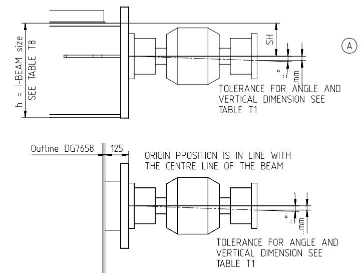
T7

FRICTION STAYS AS ADDITIONAL POSSIBLE SOLUTION FOR LONGITUDINAL STAYS



T5

FUEL SIDE - LATERAL CONNECTION

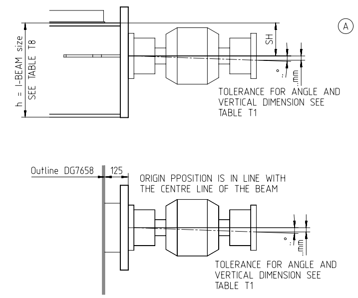


* only for engines with 11 and more cylinders

	Cyl. No.	A	B	C *	D	E	F	G *	H	J
(A)	5	430	1290	-	3725	430	430	-	3725	4690
	6	430	1290	-	3725	430	1290	-	3725	4690
	7	dimensions are on request								
	8	dimensions are on request								
	9	according to the GTD - not necessary								
	10	according to the GTD - not necessary								
	11	according to the GTD - not necessary								
	12	according to the GTD - not necessary								

T6

EXHAUST SIDE - LATERAL CONNECTION



* only for engines with 11 and more cylinders

	Cyl. No.	Attribute	TC No.	A1xx-L	A2xx-L	METxxMB	METxxMBII	K	L	M *	N (D)	P	Q	R *	S (B)	T
(A)	5	iSCR	1	-	-	MET37MB	MET37MBII	430	1290	-	4475	430	430	-	4475	4690
	6	Diesel	1	A165-L	A265-L	-	-	430	1290	-	4475	430	1290	-	4475	4690
	7	dimensions are on request														
	8	dimensions are on request														
	9	according to the GTD - not necessary														
	10	according to the GTD - not necessary														
	11	according to the GTD - not necessary														
	12	according to the GTD - not necessary														

ENGINE OUTLINE VIEW - SEE GROUP 0812-01 OR 0812-02
DISMANTLING DIMENSIONS - SEE GROUP 0816-01 OR 0816-02
PLATFORM BEAM DIMENSION - SEE GROUP 7644 TO 7648
RAILING - SEE GROUP 7653
WALK AREA - SEE GROUP 7658
PIPE CONNECTION PLAN - SEE GROUP 8020
ENGINE STAYS - SEE GROUP 9715
THE SUPPORTS THEMSELVES ARE DEFINED IN DG9715

IT'S ONLY A 2D DRAWING.
3D POINTS ARE VISIBLE IN THE PLATFORM OUTLINE GROUP 7602.

X82-1.0 - 2xA270 SHOWN AS REFERENCE.
THE DRAWING IS VALID FOR ALL CYLINDER NUMBERS AND TURBOCHARGER EXECUTIONS.
THE SPECIFIC POSITIONS ARE PROVIDED BY THE TABLE ABOVE (T6).

DIMENSIONS FOR REFERENCE ONLY!
THIS DRAWING CAN NOT BE USED FOR FINAL DESIGN!
PLEASE TAKE THE CORRESPONDING DESIGN GROUP!

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

Prod. X52-S2.0

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	E	C
D	jli111	rfl002	16.05.2024	CNAA005813	Drawing update	4	3
C	jli111	rfl002	04.03.2024	CNAA005351	Drawing update	4	3
B	cli101	rfl002	21.11.2023	CNAA004794	Drawing update	4	3
-	jli111	sth017	24.08.2023	CNAA004238	new Design	-	-

Change History — Approved — Activity Code

WIN GD Winterthur Gas & Diesel

ENGINE STAYS
POSITION OF ENIGINE STAYS , STD

Dimension
Scale NX — Units [mm] [kg] — Basic Material — Net Weight 0.000

Main Design — Design Group 7602-02 — Q-Code X X 0 — Standard WDS
Qty per — A0 — Item ID PTAA074114 — Drawing Page/s 1/1

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
001	2	PAAD046700	ENGINE STAYS/ FRICTION TYPE			302
002	2	PAAD046701	ENGINE STAYS/ FRICTION TYPE			330
003	2	PAAD046702	ENGINE STAYS/ FRICTION TYPE			359
004	2	PAAD046703	ENGINE STAYS/ FRICTION TYPE			387
005	2	PAAD046704	ENGINE STAYS/ FRICTION TYPE			417
006	1	107.246.429	ASSEMBLY INSTRUCTIONS for friction type engine stays			

Prod.	X52-S2.0							

Change History

Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E	C
B	dki021	mhu019	03.09.2024	CNAA006623	Drawing updated	4	3	
A	npa101	sth017	24.08.2023	CNAA004238	Drawing updated	4	3	
-	sde101	mhu019	22.06.2023	CNAA003978	new Design	-	-	

Approved

WIN GD

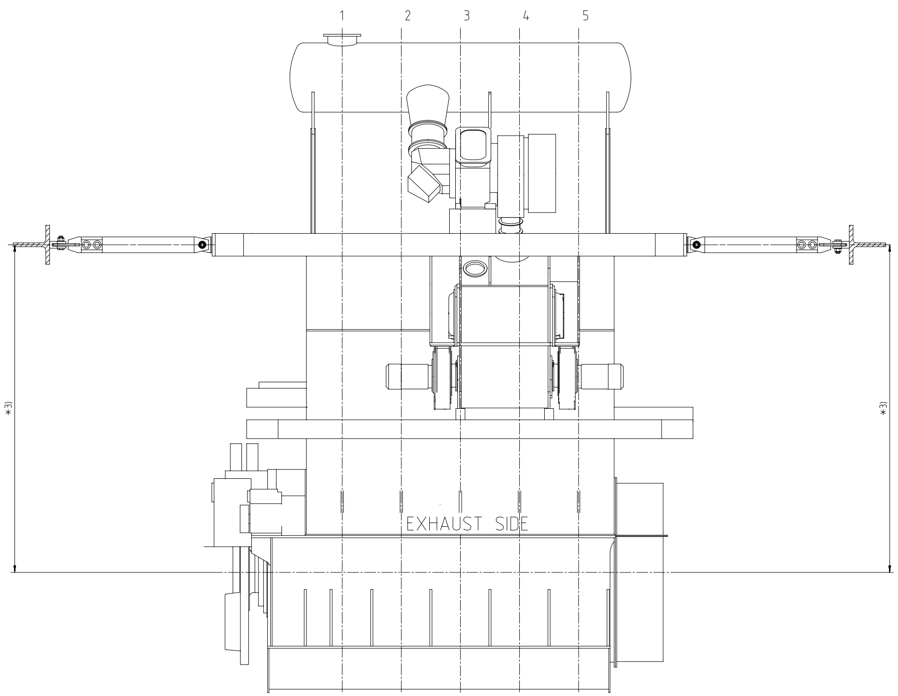
ENGINE STAYS

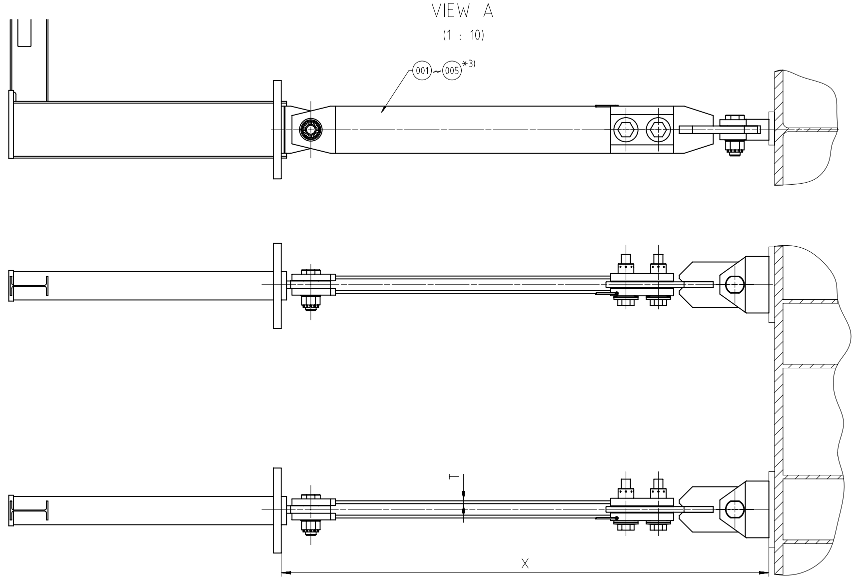
Longitudinal installation requirements

Bill Of Material

Dimension	Longitudinal installation requirements				
Units [m] [kg]	Basic Material			Net Weight	3590
Main Design	Design Group 9715	Q-Code X X M		Standard	WDS
Qty per	A4	Item ID	PTAA003582	BOM Page/s	01/01

Application of longitudinal engine stays *1)





Requirements for the installation and operation of friction type *1) engine stays according to WinGD design

- Depending on the project specific requirements the engine stays can be installed with one of the following arrangements:

  1) two engine stays on engine driving end side
  2) two engine stays on engine free end side

- The engine stays must adapt to the ship hull deformation and reduce the static reaction force acting on the engine and ship hull attachment points.
- The engine stays must increase the total stiffnes of the system to avoid harmful resonance conditions.
- The performance of the engine stays must be checked with vibration measurements during sea trial.
- WinGD layout of the support points on the engine side meets the requirements for the friction type engine stays according to WinGD design, i.e. the max. transferred forces and required support plate sizes are covered by the design accordingly.
- The installation and commissioning of the friction type engine stays must be done according to the instructions, as provided in the "Fitting instruction for friction type engine stays".
- If an engine stays type from another supplier or an hydraulic type stay is selected, WinGD must be consulted accordingly.

Requirements for ship side attachment point

Max. force acting on ship hull	$Fh_{max.}$	(kN)	*2)
Minimum stiffness	$k_{min.}$	(N/m)	0.8×10^9
Permissible deflection per 100 kN	$Def_{max.}$	(mm)	0.125

Remarks:

*1) Engine stays of friction type must be only installed in longitudinal direction. As an alternative also engine stays of hydraulic type can be applied.

*2) Relevant engine forces resulting from lateral moments of X/H-type at R1 rating are considered. The provided value represents the transmitted force per stay (2 pcs per side) which must be considered for the layout of the attachment points on ship hull side.

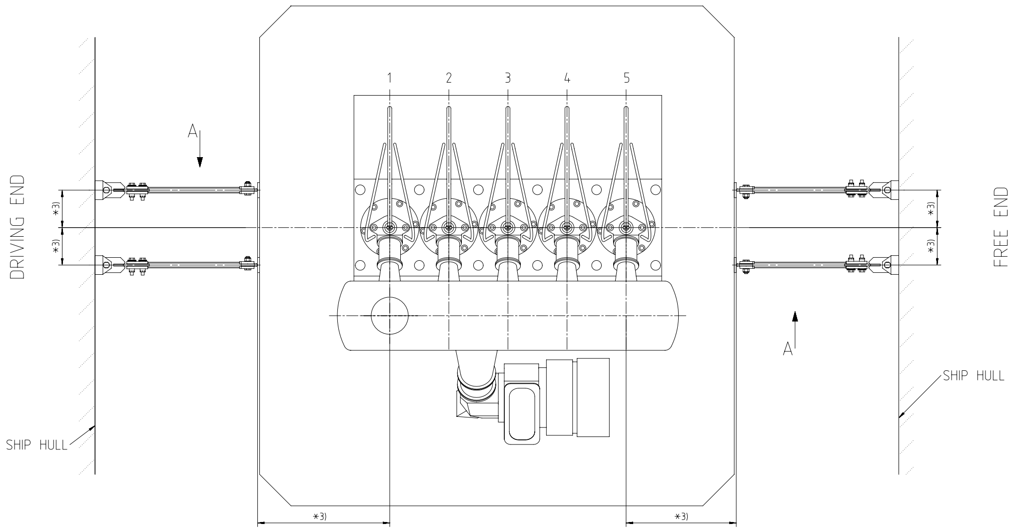
*3) The engine stays positions are defined in the "DG7602-01/-02 Platform Outline Views".

Pos. No. *4)	Material ID	X (mm)	T (mm)
001	PAAD046700	2000 - 2280	15
002	PAAD046701	2281 - 2560	20
003	PAAD046702	2561 - 2840	25
004	PAAD046703	2841 - 3120	30
005	PAAD046704	3121 - 3400	35

X defines the clear width between engine attachment points and ship side (to be determined by shipyard)

X min. = 2000 mm
X max. = 3400 mm

*4) Depending on the requirement, either the stay execution of Pos. 001, 002, 003, 004 or Pos. 005 must be selected.



Remark:

The above view represents the standard engine execution outline view, but it is also vaild for the left engine version.
Engine specific outline views are shown in the "Engine Outline View" drawings, included in DG0812.
Available engine stays attachment points on platform side are defined in the "Platform Outline View" drawings, included in DG7602-01/-02.

Prod.	W-2S					
B	dki021	mhu019	03.09.2024	CNAA006623	Drawing updated	4 / 3
A	npa101	sth017	24.08.2023	CNAA004238	Drawing updated	4 / 3
-	sde101	mhu019	22.06.2023	CNAA003978	new Design	- / -
Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis / Approved / Activity Code	E / C

WIN GD

ENGINE STAYS
Longitudinal installation requirements

separate BOM available | Dimension: Longitudinal installation requirements
Scale 1:30 | NX | Units [mm] [kg] | Basic Material | Net Weight 3590
Main Design | Design Group 9715 | Q-Code X X M | Standard WDS
Qty per | A0 | Item ID PTAA003582 | Drawing Page/s 1/1

Friction type stays according to WinGD design

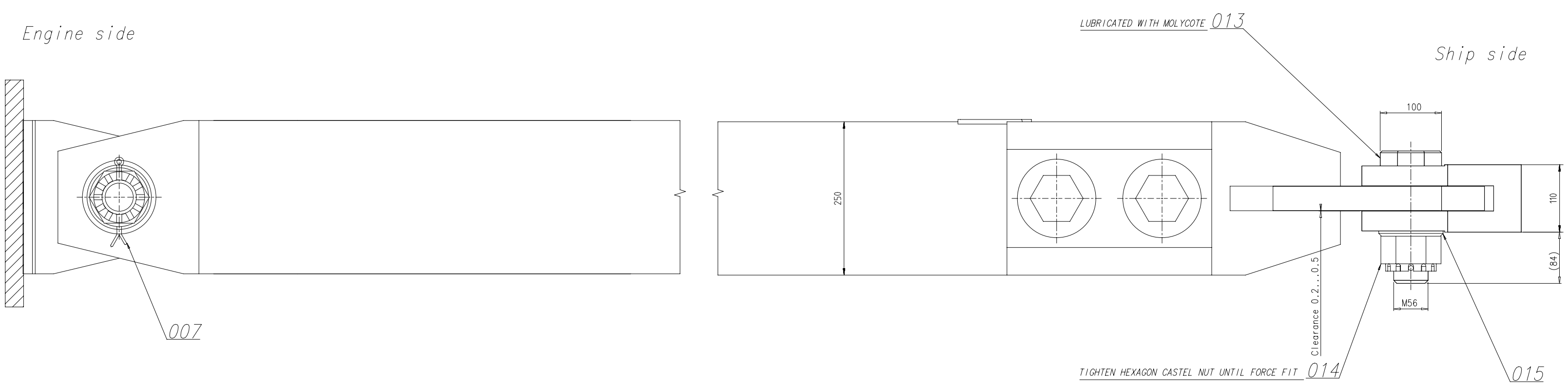
ONLY to be installed
in longitudinal direction on
engine driving end or free end

Please consult WinGD directly in case you have a specific question or need support.

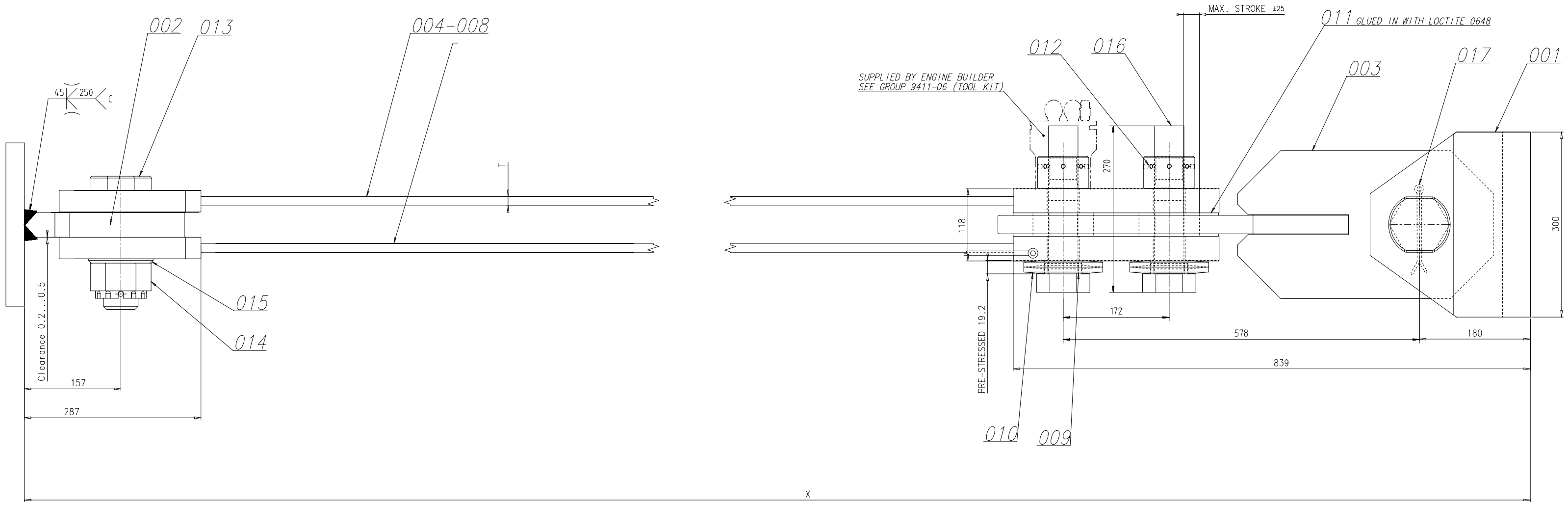
Winterthur Gas & Diesel Ltd.
Winterthur Gas & Diesel AG.
Winterthur Gas & Diesel S.A.

Schützenstrasse 3
PO Box 414, CH-8401
Winterthur, Switzerland

Tel. +41 (0)52 264 8844
Fax +41 (0)52 264 8866



Material ID	X (mm)	T (mm)
PAAD046700	2000-2280	15
PAAD046701	2281-2560	20
PAAD046702	2561-2840	25
PAAD046703	2841-3120	30
PAAD046704	3121-3400	35



NOTE:
X= CLEAR WIDTH BETWEEN ENGINE AND SHIP SIDE; TO BE DETERMINED BY SHIPYARD (SEE MAIN DRAWING)

Quantity (Net Weight 417)	Quantity (Net Weight 387)	Quantity (Net Weight 359)	Quantity (Net Weight 330)	Quantity (Net Weight 302)	SEQ NO	Material ID	Material Name / Dimension, Occ	Standard or Drawing	Basic Material / Material Standard	Weight GR./NET
2	2	2	2	2	017	015.509.017.503	SPLIT PIN 8x100	ISO 1234	Steel Zn-plated	0,04
2	2	2	2	2	016	015.151.024.781	HEXAGON HEAD BOLT M48x240	ISO 4014	8.8	4,29
2	2	2	2	2	015	015.500.102.330	WASHER 58	DIN 125-1	Steel blank	0,425
2	2	2	2	2	014	015.201.304.610	CASTLE NUT M56	Acc. WinGD	C45E;S45C	1,63
2	2	2	2	2	013	PAAD026437	BOLT	DAAD012368	C45E S45C	7,17
2	2	2	2	2	012	107.345.876.008	ROUND NUT M48	107.345.876	W-FA-42CrMo-QT	1,42
2	2	2	2	2	011	PAAD902269	SHIM 4THICK	DAAD902593		2,3
4	4	4	4	4	010	107.246.311.001	DISC SPRING 125 X 61 X 8	107.246.311		0,55
2	2	2	2	2	009	107.246.316.001	RING 60 x 50 x 17	107.246.316	RSt 37-2	0,12
2	-	-	-	-	008	PAAD902262	ENGINE STAYS	DAAD902592		137
-	2	-	-	-	007	PAAD902268	ENGINE STAYS	DAAD902592		122
-	-	2	-	-	006	PAAD902257	ENGINE STAYS	DAAD902592		108
-	-	-	2	-	005	PAAD902247	ENGINE STAYS	DAAD902592		93,8
-	-	-	-	2	004	PAAD902252	ENGINE STAYS	DAAD902592		79,6
1	1	1	1	1	003	PAAD902231	CLAMPING PART	DAAD902576		54,9
1	1	1	1	1	002	PAAD026436	SUPPORT	DAAD012141	W-FU-355-J0	15,6
1	1	1	1	1	001	PAAD026295	SUPPORT	DAAD012142	W-FU-235-J0	35,4

Material ID								
PAAD046704	PAAD046703	PAAD046702	PAAD046701	PAAD046700	Free space for lic.		Q-Code XXXXX; Standard ISO; JIS	Main Drw.

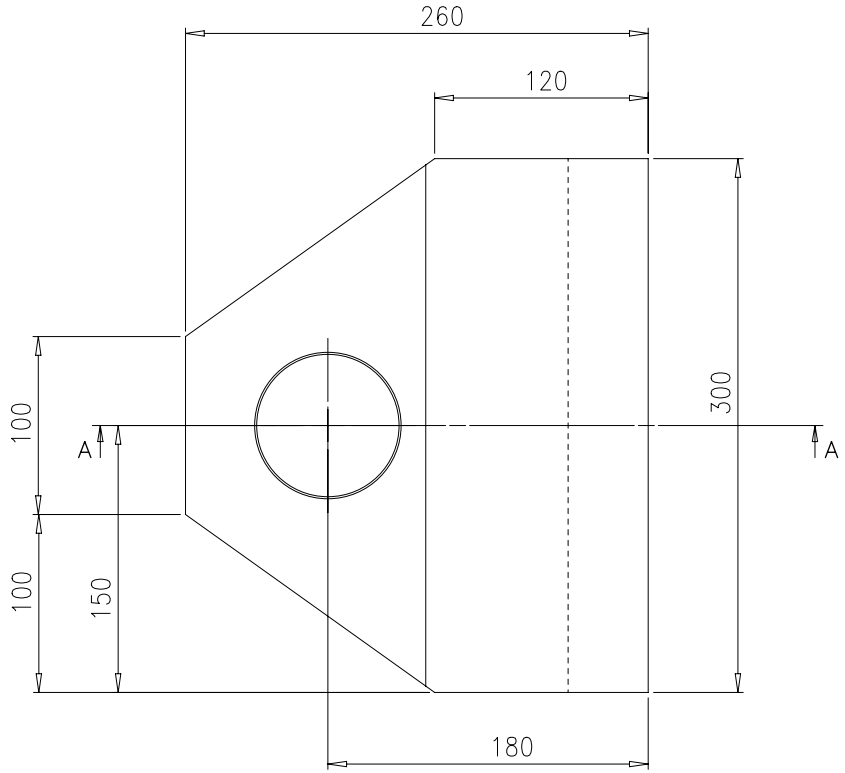
Modif.	Number	Drawn date
A	EAAD086524	19.04.2016
B	EAAD095725	18.01.2021

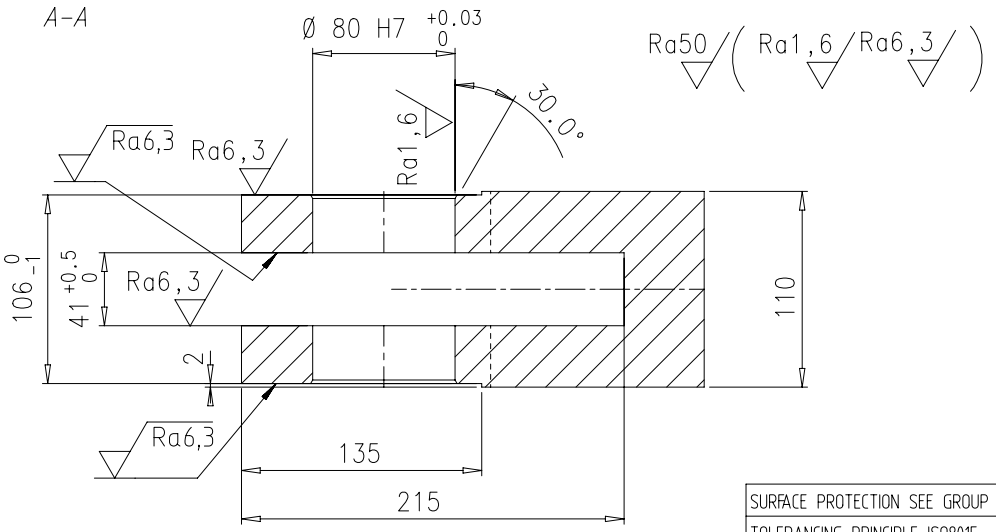
Approved

WIN GD Winterthur Gas & Diesel	Product W-2S	ENGINE STAYS/ FRICTION TYPE Motorenabstuetzung mit Reibbelag

	Units mm kg	NX	Basic Material	Net Weight
SURFACE PROTECTION SEE GROUP 0344	Made 10.06.2011 sfe006 Feuerstein	Scale 1:3	Size A0	Page 1/1
TOLERANCING PRINCIPLE ISO8015	Chkd 11.07.2011 wwr001 Wroblewski	Design Group 9715	Material ID	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd 11.07.2011 dst009 Strödecke		Drawing ID DAAD018242	Rev. B

PD - PRODUCTION DRAWING - Confidential





Free space for lic.									Q-Code XXXXX		Main Drw.
									Standard ISO; JIS		
Modif.	A	EAAD095725	28.04.2021	B	EAAD096559	29.04.2021					
		Number	Drawn date		Number	Drawn date		Number	Drawn date		Number	Drawn date

WIN GD Winterthur Gas & Diesel

Product W-2S

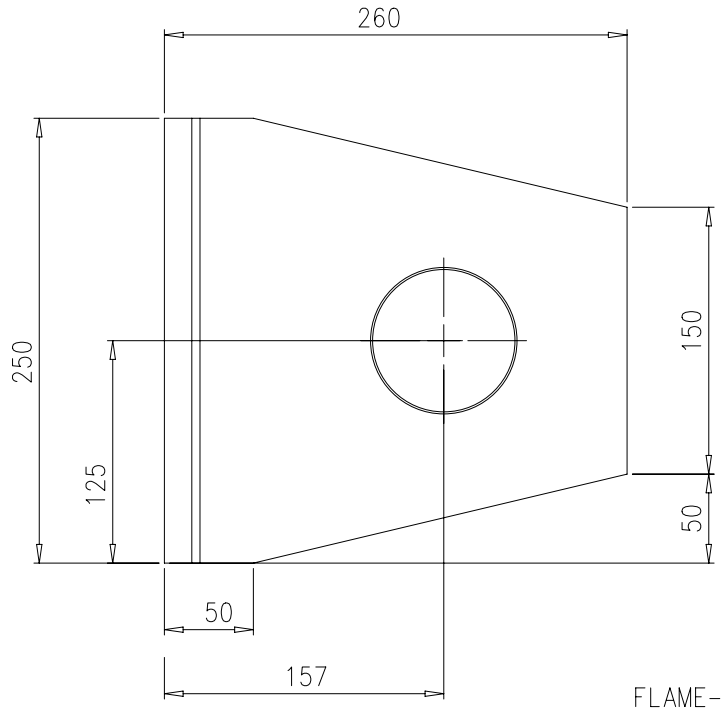
SUPPORT
TO ENGINE STAYS, FRICTION
SUPPORT
zu Motorabstuetzung

Units mm kg	NX		Basic Material W-FU-235-J0			Net Weight 35,4
Made 17.12.2010 mhu019 M.Hug			Scale 1:3	Size A3	Page 1/1	Material ID PAAD026295
Chkd 19.01.2011 sfe006 Feuerstein			Design Group 9715	Drawing ID DAAD012142		Rev. B
Appd 19.01.2011 dst009 Strödecke						

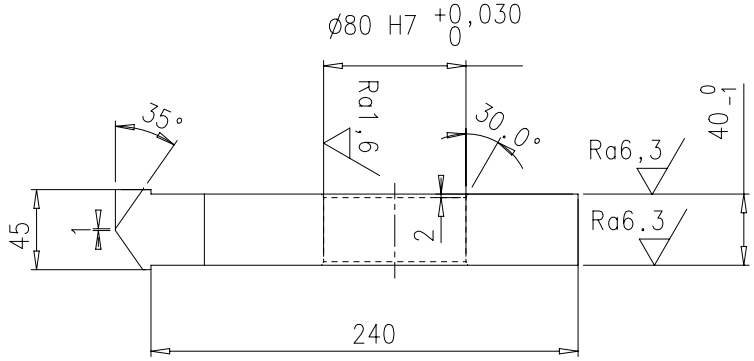
SURFACE PROTECTION SEE GROUP 0344
TOLERANCING PRINCIPLE ISO8015
GENERAL TOLERANCES ACCORDING TO ISO2768-mK

Approved

PD - PRODUCTION DRAWING - Confidential



Ra50 FLAME-CUT (Ra1,6 / Ra6,3 /)



Free space for lic.								Q-Code XXXXX		Main Drw.	
								Standard ISO; JIS			
Modif.	A	EAAD095725	28.04.2021	B	EAAD096559	29.04.2021					
		Number	Drawn date		Number	Drawn date		Number	Drawn date	Number	Drawn date

WIN GD Winterthur Gas & Diesel

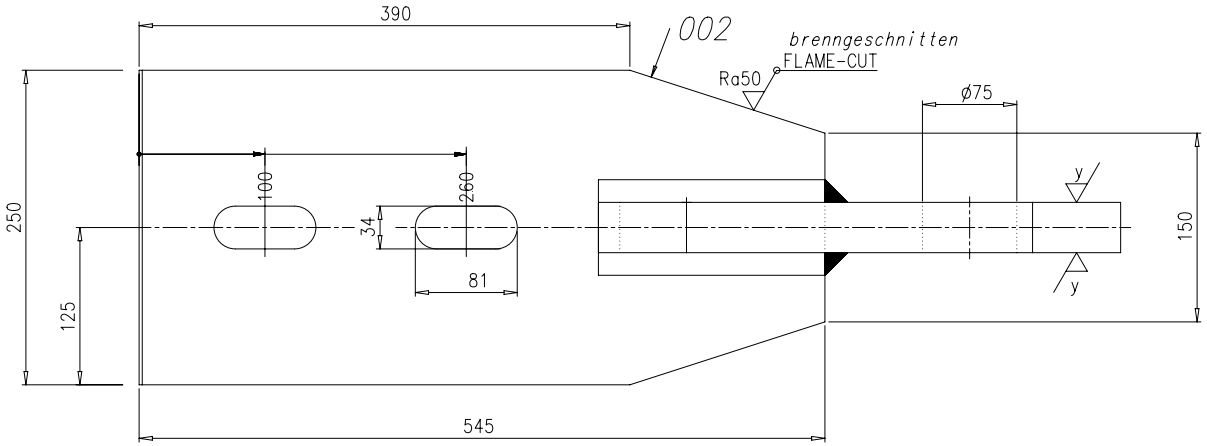
Product W-2S

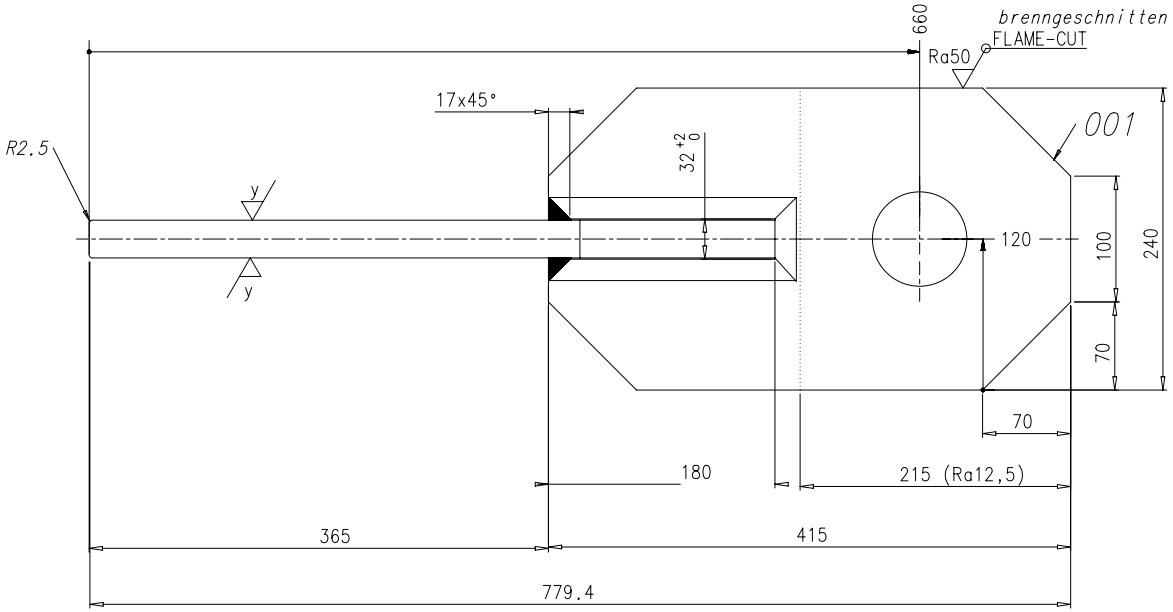
SUPPORT
TO ENGINE STAYS, FRICTION
Support
zu Motorabstuetzung

Units mm kg	NX		Basic Material W-FU-355-J0			Net Weight 15,6
SURFACE PROTECTION SEE GROUP 0344	Made	20.12.2010 mhu019 M.Hug	Scale 1:3	Size A3	Page 1/1	Material ID PAAD026436
TOLERANCING PRINCIPLE ISO8015	Chkd	19.01.2011 sfe006 Feuerstein	Design Group 9715	Drawing ID DAAD012141		Rev. B
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	19.01.2011 dst009 Strödecke				

Approved

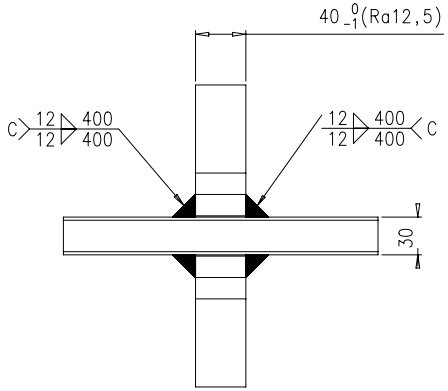
PD - PRODUCTION DRAWING - Confidential





RA50 (√)

y = Ra12.5 SANDBLASTED BEFORE WELDING



1	002	PAAD027199	PLATE	DAAD012457	W-FU-355-J0	26,9
1	001	PAAD027091	PLATE	DAAD012457	W-FU-235-J0	37,7
QTY	SEQ NO	Material ID	Material Name / Dimension, Occ	Standard or Drawing	Basic Material / Material Standard	Weight GR./NET

Free space for lic.

Q-Code XXXXX

Standard ISO; JIS

Main Drw.

Modif.

	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
A	EAAD082648	12.07.2011	B EAAD095725	28.04.2021	C EAAD096559	29.04.2021		

Approved

WIN GD Winterthur Gas & Diesel

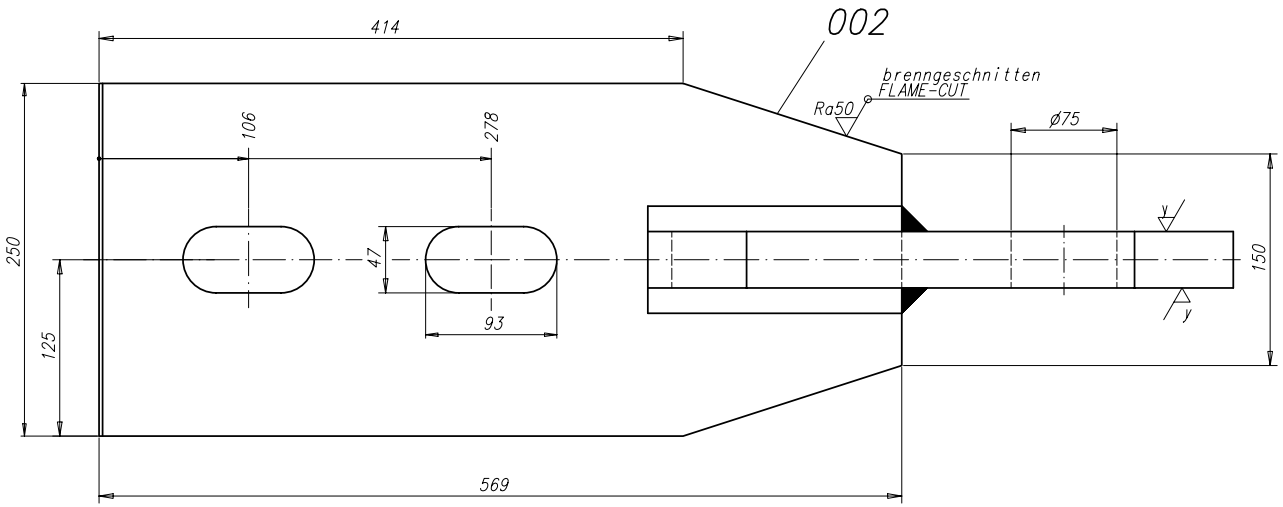
Product W-2S

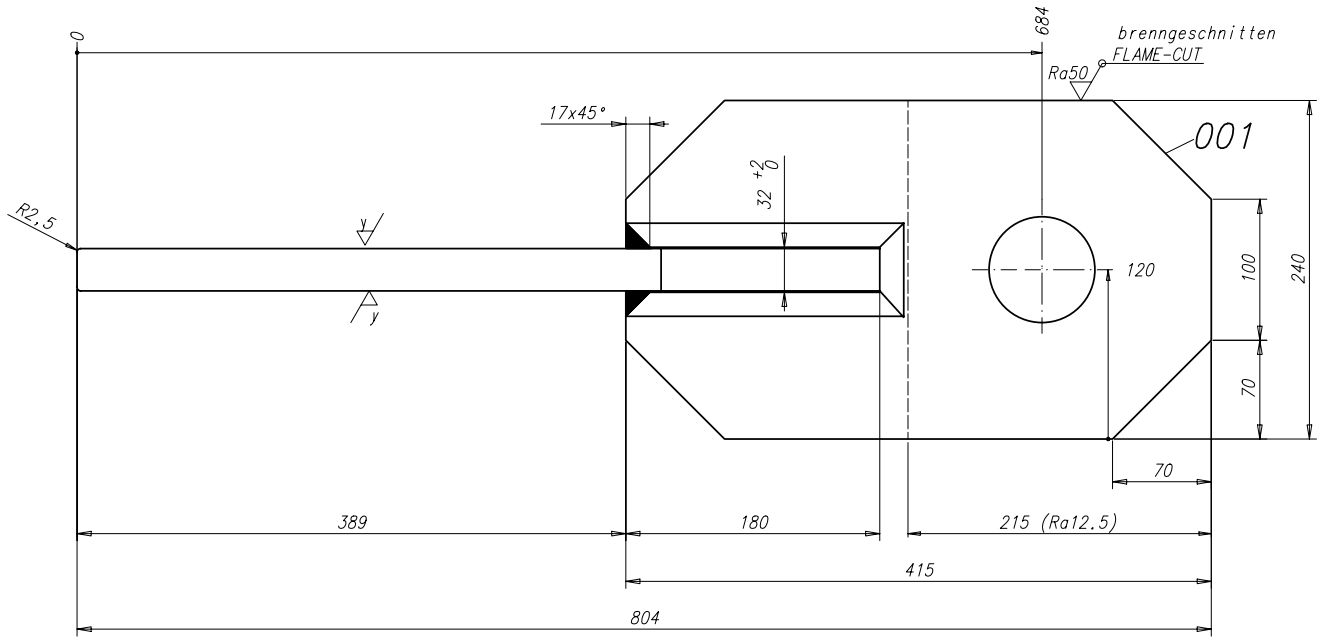
CLAMPING PART
WELDED, TO ENGINE STAYS
Klemmteil
geschweisst, zu Motorabstuetzung

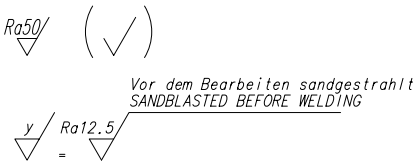
Units mm kg | NX | Basic Material | Net Weight 64,6

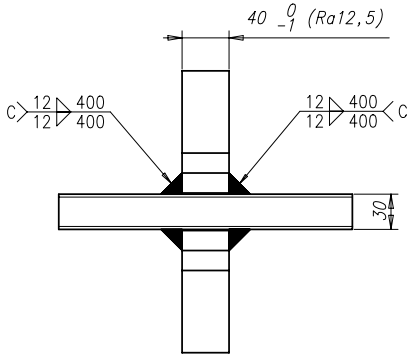
SURFACE PROTECTION SEE GROUP 0344	Made	22.12.2010 mhu019 M.Hug	Scale 1:1	Size A2	Page 1/1	Material ID PAAD027261
TOLERANCING PRINCIPLE ISO8015	Chkd	19.01.2011 sfe006 Feuerstein	Design Group 9715	Drawing ID DAAD012457		Rev. C
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	19.01.2011 dst009 Strödecke				

PD - PRODUCTION DRAWING - Confidential









QTY	SEQ NO	Material ID	Material Name	Dimension/Occ.Dimension	Standard or Drawing	Basic Material Material Standard	Weight GR./NET
1	002	PAAD902229	PLATE	30 THICK	DAAD902577	S235JRG2 SS400	30.1
1	001	PAAD902253	PLATE	40 THICK	DAAD902577	S355J2G3 SM520C	24.7

Free space for lic. | Q-Code XXXXX | Standard ISO JIS | Main Drw. | Approved

Modif: | Number | Drawn date | Number | Drawn date | Number | Drawn date | Number | Drawn date

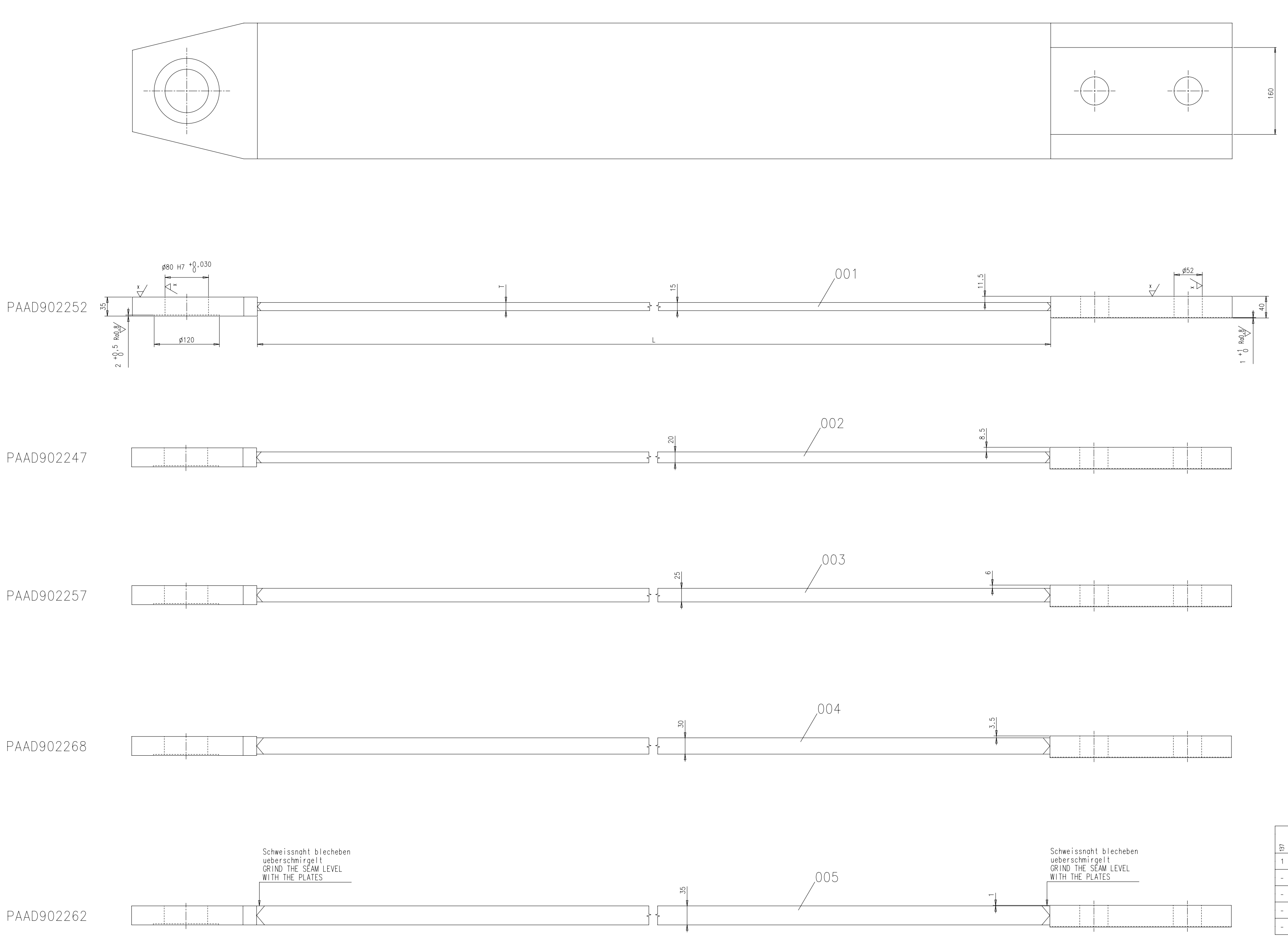
WIN GD Winterthur Gas & Diesel | Product W-2S

CLAMPING PART
WELDED, TO ENGINE STAYS
Klemmteil
geschweisst, zu Motorabstuetzung

Units mm kg | IDE | Basic Material | Net Weight 55.0

SURFACE PROTECTION SEE GROUP 0344	Made	31.05.2011 Pradip Soman	Scale 1:3	Size A2	Page 1/1	Material ID PAAD902230	
TOLERANCING PRINCIPLE ISO8015	Chkd	07.07.2011 mhu019 Hug	Design Group 9715				
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	07.07.2011 dsl009 Stroedecke		Drawing ID DAAD902577			Rev. –

DID - DIMENSIONAL DRAWING - Confidential



bearbeitet nach dem Schweissen
MACHINED AFTER WELDING

x = Ra1.7

MATERIAL ID	DIMENSIONS IN MM		
	X	T	L
PAAD902252	2000-2280	15	X - 1126
PAAD902247	2281-2560	20	
PAAD902257	2561-2840	25	
PAAD902268	2841-3120	30	
PAAD902262	3121-3400	35	

Fuer Mass X siehe H-Zeichnung
FOR MEASURE X SEE MAIN DRAWING

Quantity 137	122	108	93,8	79,6	SEQ NO	Material ID	Material Name	Standard or Drawing	Basic Material Material Standard	Weight GR./NET
1	-	-	-	-	005	PAAD902259	ENGINE STAYS	DAAD902591		137
-	1	-	-	-	004	PAAD902264	ENGINE STAYS	DAAD902591		122
-	-	1	-	-	003	PAAD902254	ENGINE STAYS	DAAD902591		108
-	-	-	1	-	002	PAAD902242	ENGINE STAYS	DAAD902591		93,8
-	-	-	-	1	001	PAAD902249	ENGINE STAYS	DAAD902591		79,6
PAAD902262	PAAD902268	PAAD902257	PAAD902247	PAAD902252						

Material ID

Q-Code XXXXX
Standard ISO; JIS

Modif.	Number	Drawn date	Number	Drawn date
	A EAAD095725	28.04.2021	B EAAD096559	29.04.2021

WIN GD Winterthur Gas & Diesel

Product W-2S

ENGINE STAYS
MACHINED, TO ENGINE STAYS
Motorabstuetzung
bearbeitet zu motorabstuzung

Units mm kg | NX | Basic Material | Net Weight

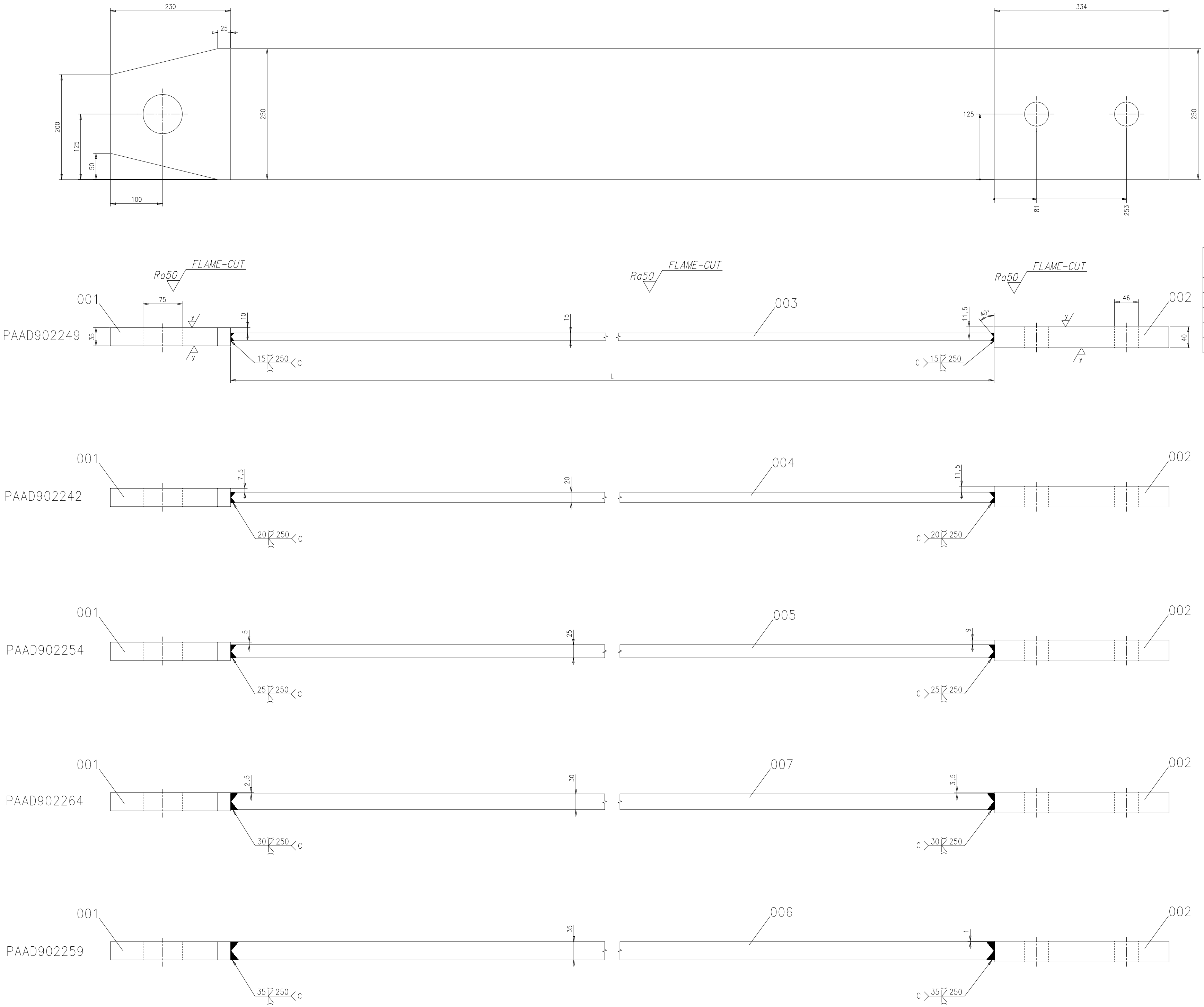
SURFACE PROTECTION SEE GROUP 0344
TOLERANCING PRINCIPLE ISO8015
GENERAL TOLERANCES ACCORDING TO ISO2768-mK

Made	01.06.2011	Pradip Soman	Scale 1:3
Chkd	07.07.2011	wwr001 Wroblewski	Design Group 9715
Appd	07.07.2011	dst009 Strödecke	

Size A0 | Page 1/1 | Material ID
Drawing ID DAAD902592 | Rev. B

DID - DIMENSIONAL DRAWING - Confidential

Approved



y / Ra12,5 SANDBLASTED BEFORE WELDING

MATERIAL ID	DIMENSIONS IN MM X	T	L
PAAD902249	2000-2280	15	X - 1126
PAAD902242	2281-2560	20	
PAAD902254	2561-2840	25	
PAAD902264	2841-3120	30	
PAAD902259	3121-3400	35	

Fuer Mass X siehe H-Zeichnung
FOR MEASURE X SEE MAIN DRAWING

Quantity (Net Weight 137) PAAD902259	Quantity (Net Weight 122) PAAD902264	Quantity (Net Weight 108) PAAD902254	Quantity (Net Weight 93,8) PAAD902242	Quantity (Net Weight 79,6) PAAD902249	SEQ NO	Material ID	Material Name / Dimension, Occ	Standard or Drawing	Basic Material / Material Standard	Weight GR./NET
1	-	-	-	-	007	PAAD902251	PLATE 30THICK	DAAD902591	W-FU-235-JR	85,4
-	1	-	-	-	006	PAAD902250	PLATE 35Thick	DAAD902591	W-FU-235-JR	99,6
-	-	1	-	-	005	PAAD902248	PLATE 25THICK	DAAD902591	W-FU-235-JR	71,2
-	-	-	1	-	004	PAAD902244	PLATE 20THICK	DAAD902591	W-FU-235-JR	56,9
-	-	-	-	1	003	PAAD902246	PLATE 15THICK	DAAD902591	W-FU-235-JR	42,7
1	1	1	1	1	002	PAAD902245	PLATE 40THICK	DAAD902591	W-FU-235-JR	25,2
1	1	1	1	1	001	PAAD902243	PLATE 35THICK	DAAD902591	W-FU-235-JR	11,8

Free space for lic.
Q-Code XXXXX
Standard ISO; JIS
Main Drw.

Modif.	Number	Drawn date		Number	Drawn date		Number	Drawn date		Number	Drawn date
A	EAAD095725	28.04.2021	B	EAAD096559	29.04.2021						

Approved

WIN GD Winterthur Gas & Diesel

Product W-2S

ENGINE STAYS
WELDED, TO ENGINE STAYS
Motorabstuetzung
geschweisst, zu Motarabstuetzung

SURFACE PROTECTION SEE GROUP 0344	Units mm kg	NX	Basic Material / Net Weight
TOLERANCING PRINCIPLE ISO8015	Made 01.06.2011 Pradip Soman	Scale 1:3	Size A0 / Page 1/1 / Material ID
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Chkd 07.07.2011 wwr001 Wroblewski	Design Group 9715	Drawing ID DAAD902591 / Rev. B
	Appd 07.07.2011 dst009 Strödecke		

DID - DIMENSIONAL DRAWING - Confidential

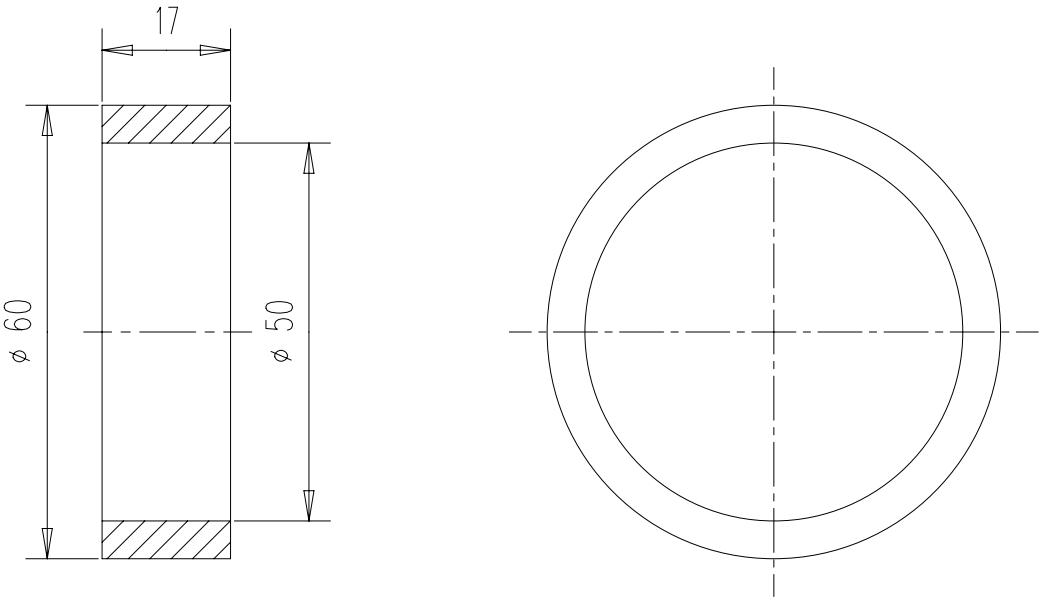
SURFACE PROTECTION SEE GROUP 0344

TOLERANCING PRINCIPLE ISO8015

GENERAL TOLERANCES ACCORDING TO ISO2768-mK

Ra12,5

SHARP EDGES REMOVED



Approved

Free space for lic.

Q-Code XXXXX

Standard ISO; JIS

Main Drw.

Modif.	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
A	EAAD083026	25.07.2011						
B	EAAD095725	28.04.2021						
C	EAAD096559	29.04.2021						

WIN GD Winterthur Gas & Diesel

Product W-2S

RING
TO ENGINE STAYS, FRICTION TYPE
Ring

Units mm kg	NX		Basic Material W-FU-235-JR			Net Weight 0,12
Made 08.09.1998 S. Sylianou		Scale 1:1	Size A4	Page 1/1	Material ID 107.246.316.001	
Chkd		Design Group 9715	Drawing ID 107.246.316			Rev. C
Appd 08.09.1998 WCH001 Service User						

ASD - ASSEMBLY DRAWING - Internal

001 DISC SPRING

MATERIAL	50 Cr V 4
MODULUS OF ELASTICITY	E = 2,06 x 10^5 N/mm2
OPERATING TEMPERATURE	-50...+200 °C
SURFACE PROTECTION	PHOSPHATED AND OILED (RUST PREVENTING OIL)

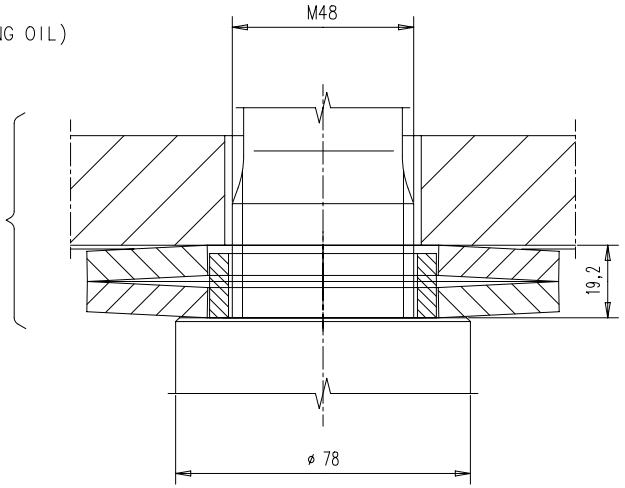
FOR ASSEMBLY OF THE DISC SPRING PACKET SEE SKETCH

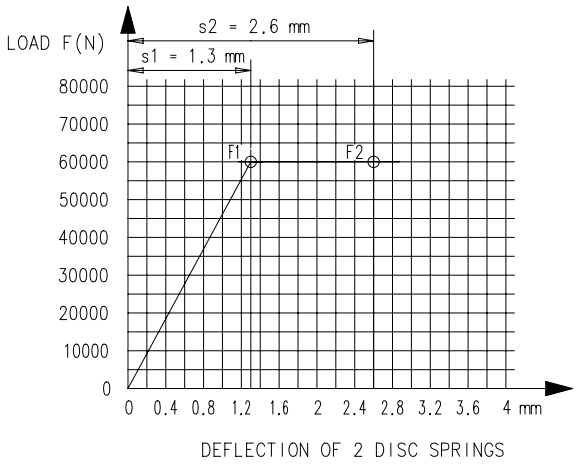
F1 = 60000 N BY DEFLECTION s1 = 1.3 mm OF 1 DISC

F2 = F1 BY DEFLECTION s2 = 2.6 mm OF 2 DISCS

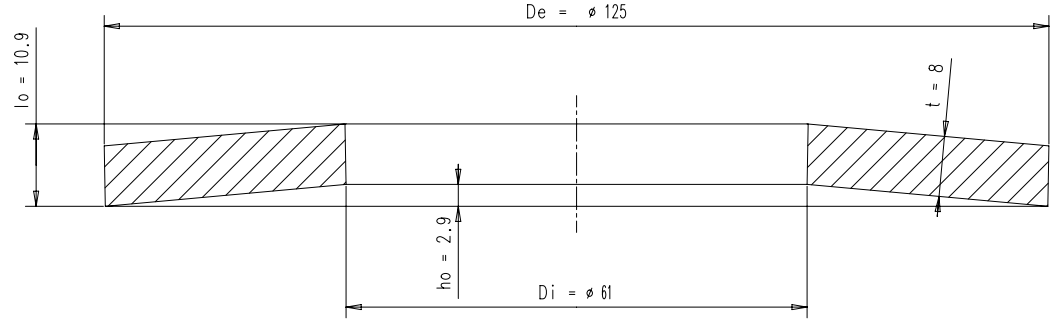
$\frac{ho}{s} = 0.50$

$s = \frac{ho}{0.50}$





DEFLECTION OF 2 DISC SPRINGS



SUPPLIER: URS INGOLD
P.O. Box 180
Oelestrasse 7
CH-3800 Interlaken

Approved

Free space for lic.

Q-Code XQXXX

Standard ISO; JIS

Main Drw.

Modif.	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
A	7-29.688	25.10.2004	B EAAD083026	25.07.2011	C EAAD095725	28.04.2021	D EAAD096559	29.04.2021

WIN GD Winterthur Gas & Diesel

Product W-2S

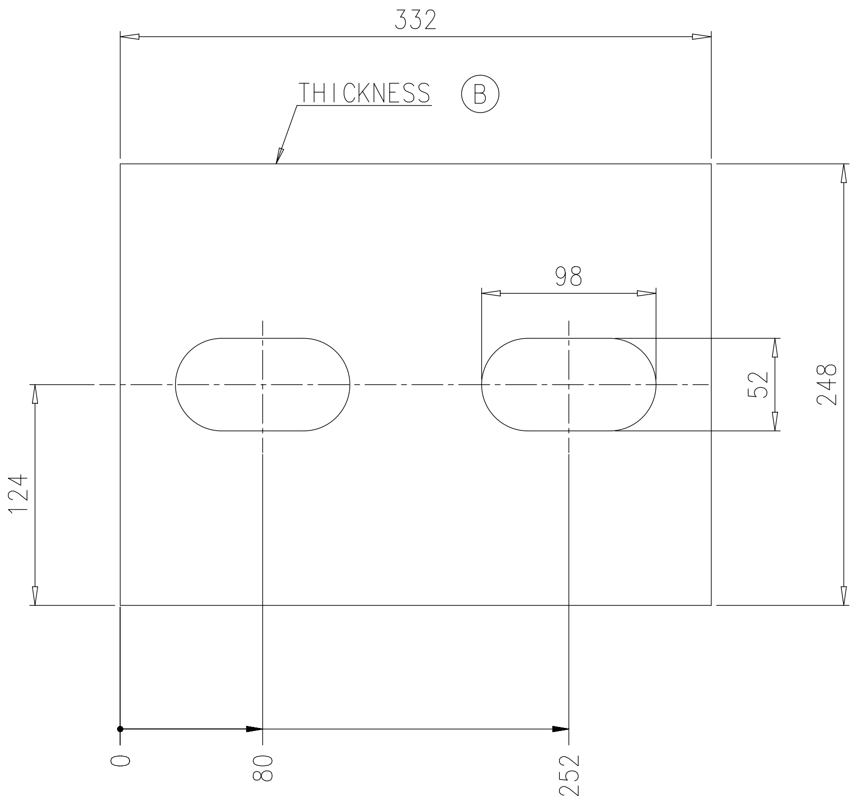
DISC SPRING
TO ENGINE STAYS, FRICTION TYPE
Tellerfeder

Units mm kg | NX | Basic Material | Net Weight 0,55

SURFACE PROTECTION SEE GROUP 0344	Made 08.09.1998 S. Natali	Scale -	Size A2	Page 1/1	Material ID 107.246.311.001
TOLERANCING PRINCIPLE ISO8015	Chkd	Design Group 9715	Drawing ID 107.246.311		Rev. D
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd 08.09.1998 WCH001 Service User				

DID - DIMENSIONAL DRAWING - Confidential

1	2	3	4	5	6	7	8



(B)

SPECIFICATION:

TECHNICAL DATA: AVERAGE COEFFICIENT OF FRICTION DRY: $\mu = 0{,}42$
MAX. PERMISSIBLE SURFACE PRESSURE: $p = 250 N/cm^2$

MATERIAL: ASBESTOS FREE FRICTION MATERIAL,
ALSO SUITABLE FOR USING IN OIL.

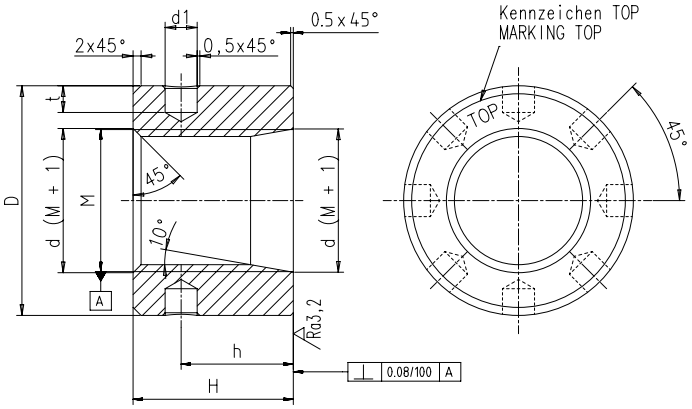
Approved

Free space for lic.						Q-Code XXXXX / Standard ISO; JIS	Main Drw.
Modif.	(A) EAAD095725 (Number)	28.04.2021 (Drawn date)	(B) EAAD096559 (Number)	29.04.2021 (Drawn date)	( ) Number / Drawn date	( ) Number / Drawn date	

WIN GD Winterthur Gas & Diesel	Product W-2S	SHIM TO ENGINE STAYS, FRICTION Beilage zu Motorabstutzung

SURFACE PROTECTION SEE GROUP 0344	Units mm kg	NX		Basic Material		Net Weight 2,3
TOLERANCING PRINCIPLE ISO8015	Made 31.05.2011	Pradip Soman	Scale 1:3	Size A3	Page 1/1	Material ID PAAD902269
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Chkd 07.07.2011	mhu019 Hug	Design Group 9715	Drawing ID DAAD902593		Rev. B
	Appd 07.07.2011	dst009 Strödecke				

DID - DIMENSIONAL DRAWING - Confidential



POS.	M	D	d	H	h	d1	t
001	M27	47	28	29	20	$6\ ^{+0.2}_{0}$	7
002	M30	52	31	33	23	$6\ ^{+0.2}_{0}$	7
003	M33	57	34	36	25	$6\ ^{+0.2}_{0}$	7
004	M36	62	37	39	27	$6\ ^{+0.2}_{0}$	7
005	M39	67	40	42	29	$6\ ^{+0.2}_{0}$	7
006	M42	73	43	46	32	$6\ ^{+0.2}_{0}$	7
007	M45	78	46	49	34	$6\ ^{+0.2}_{0}$	7
008	M48	83	49	52	36	$6\ ^{+0.2}_{0}$	7
009	M52	90	53	56	39	$6\ ^{+0.2}_{0}$	7
010	M56	97	57	61	43	$9.5\ ^{+0.2}_{0}$	10
011	M60	104	61	65	46	$9.5\ ^{+0.2}_{0}$	10
012	M64	110	65	70	49	$9.5\ ^{+0.2}_{0}$	10
013	M68	117	69	74	52	$9.5\ ^{+0.2}_{0}$	10
014	M72	124	73	78	55	$9.5\ ^{+0.2}_{0}$	10
015	M76	131	77	82	57	$9.5\ ^{+0.2}_{0}$	10
016	M80	138	81	87	61	$14\ ^{+0.2}_{0}$	15
017	M85	146	86	92	64	$14\ ^{+0.2}_{0}$	15
018	M90	155	91	98	69	$14\ ^{+0.2}_{0}$	15
019	M95	164	96	103	72	$14\ ^{+0.2}_{0}$	15
020	M100	172	101	108	76	$14\ ^{+0.2}_{0}$	15

Ra6,3 (Ra3,2)

MATERIAL:	W-FA-42CrMo-QT (D)
D >40 – ≤100	vergütet Rm = 900–1100 N/mm² HEAT TREATED
D >100 – ≤160	vergütet Rm = 800–950 N/mm² HEAT TREATED
D >160 – ≤250	vergütet Rm = 750–900 N/mm² HEAT TREATED

QTY	SEQ NO	Material ID	Material Name / Dimension, Occ	Standard or Drawing	Basic Material / Material Standard	Weight GR./NET
1	020	107.345.876.020	ROUND NUT M100	107.345.876	W-FA-42CrMo-QT	13,2
1	019	107.345.876.019	ROUND NUT M95	107.345.876	W-FA-42CrMo-QT	11,4
1	018	107.345.876.018	ROUND NUT M90	107.345.876	W-FA-42CrMo-QT	9,7
1	017	107.345.876.017	ROUND NUT M85	107.345.876	W-FA-42CrMo-QT	8,1
1	016	107.345.876.016	ROUND NUT M80	107.345.876	W-FA-42CrMo-QT	6,8
1	015	107.345.876.015	ROUND NUT M76	107.345.876	W-FA-42CrMo-QT	5,9
1	014	107.345.876.014	ROUND NUT M72	107.345.876	W-FA-42CrMo-QT	5,0
1	013	107.345.876.013	ROUND NUT M68	107.345.876	W-FA-42CrMo-QT	4,2
1	012	107.345.876.012	ROUND NUT M64	107.345.876	W-FA-42CrMo-QT	3,5
1	011	107.345.876.011	ROUND NUT M60	107.345.876	W-FA-42CrMo-QT	2,9
1	010	107.345.876.010	ROUND NUT M56	107.345.876	W-FA-42CrMo-QT	2,36
1	009	107.345.876.009	ROUND NUT M52	107.345.876	W-FA-42CrMo-QT	1,86
1	008	107.345.876.008	ROUND NUT M48	107.345.876	W-FA-42CrMo-QT	1,42
1	007	107.345.876.007	ROUND NUT M45	107.345.876	W-FA-42CrMo-QT	1,2
1	006	107.345.876.006	ROUND NUT M42	107.345.876	W-FA-42CrMo-QT	0,96
1	005	107.345.876.005	ROUND NUT M39	107.345.876	W-FA-42CrMo-QT	0,79
1	004	107.345.876.004	ROUND NUT M36	107.345.876	W-FA-42CrMo-QT	0,63
1	003	107.345.876.003	ROUND NUT M33	107.345.876	W-FA-42CrMo-QT	0,49
1	002	107.345.876.002	ROUND NUT M30	107.345.876	W-FA-42CrMo-QT	0,37
1	001	107.345.876.001	ROUND NUT M27	107.345.876	W-FA-42CrMo-QT	0,25

Free space for Mc. | Q-Code XQXXX | Main Drw.
Standard ISO; JIS

Modif.	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
	A EAAD700017	13.01.2011	B EAAD084319	06.02.2013	C EAAD087822	28.07.2017	D EAAD095725	18.01.2021

WINGD Winterthur Gas & Diesel

Product W-2S

ROUND NUT

Rundmutter

Units mm kg NX | Basic Material | Net Weight

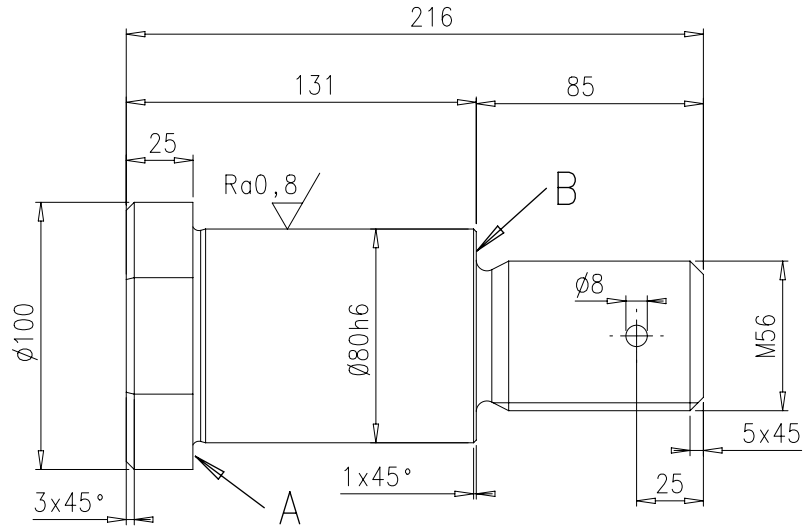
SURFACE PROTECTION SEE GROUP 0344
TOLERANCING PRINCIPLE ISO8015
GENERAL TOLERANCES ACCORDING TO ISO2768-mK

Made 19.08.2004 pne001 P.Neracher
Chkd
Appd 20.08.2004 PNE001 Neracher

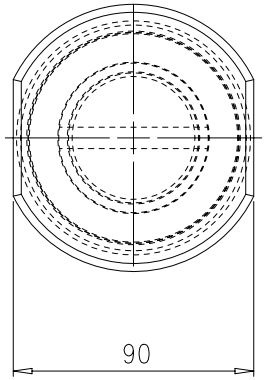
Scale 1:1 | Size A1 | Page 1/1 | Material ID
Design Group 3306
Drawing ID 107.345.876 | Rev. D

Approved

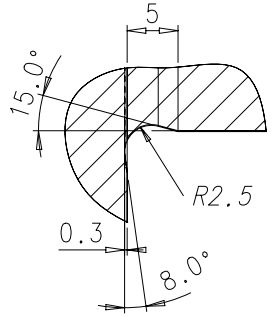
3D - DIMENSIONAL DRAWING - confidential



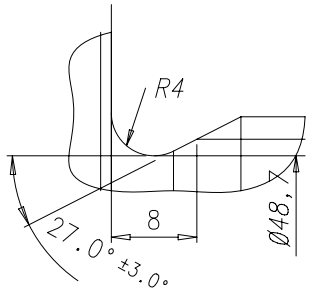
Ra3,2 NORMALIIZED, SHARP EDGES REMOVED, BURNSHED



A M2:1



B M2:1



Free space for lic.								Q-Code XXXXX		Main Drw.	
								Standard ISO; JIS			
Modif.	A	EAAD095725	28.04.2021	B	EAAD096559	29.04.2021					
		Number	Drawn date		Number	Drawn date		Number	Drawn date	Number	Drawn date

WIN GD Winterthur Gas & Diesel

Product W-2S

BOLT
TO ENGINE STAYS, FRICTION
Bolzen
zu Motorabstutzung

Units mm kg	NX		Basic Material W-FU-325-N		Net Weight 7.17
SURFACE PROTECTION SEE GROUP 0344	Made	16.12.2010 mhu019 M.Hug	Scale 1:2	Size A3 / Page 1/1	Material ID PAAD026437
TOLERANCING PRINCIPLE ISO8015	Chkd	19.01.2011 sfe006 Feuerstein	Design Group 9715	Drawing ID DAAD012368	Rev. B
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	19.01.2011 dst009 Strödecke			

Approved

PD - PRODUCTION DRAWING - Confidential

MIDS - Engine Stays (DG9715)

WinGD X52-S2.0

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2023-06-22	DRAWING SET	First web upload
2023-08-31	PTAA074114— PTAA003582-A PTAA003591-A	new drawings/ new drawing revision
2024-01-26	PTAA074114-B	New revision
2024-09-03	PTAA003595-A PTAA003592-B PTAA074114-D	New revision

WinGD Ltd
WinGD AG

Schützenstrasse 3
PO Box 414, CH-8401
Winterthur, Switzerland

Tel. +41 (0)52 264 8844
Fax +41 (0)52 264 8866

www.wingd.com