

1

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A

B

C

D

E

F

Available executions

Execution No.	Material ID	Cylinder No.	Attribute 1: Turbocharger lubrication	
			INTERNAL	EXTERNAL
001	PTAA085622	5		X
002	PTAA085624	5	X	
003	PTAA085625	6		X
004	PTAA085626	6	X	
005	PTAA092233	7		X
006	PTAA092228	7	X	

A

A

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.

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Prod.	X52DF-A-S1.0							
Change History								
	A	npa101				Master Drawing Updated		
	-	sjo101	mhu019	21.12.2023	CNAA004970	new Design	-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Activity Code	E

WIN GD

Winterthur Gas & Diesel

LUBRICATING OIL SYSTEM

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	PTAA085629	Drawing Page/s	1/1	

1

2

3


4

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
001	1	PTAA085619	LUBRICATING OIL SYSTEM SPECIFICATION + DESIGN GUIDANCE VALUE + PROPOSAL			0.001
002	1	PAAD245338	LUBRICATING OIL SYSTEM FOR SEPARATED TC LUBRICATING			0
003	1	PTAA058055	LUBRICATING OIL DRAIN TANK			165
004	1	107.341.455	INSTRUCTION FOR FLUSHING			
005	1	PAAD178480	LUBRICATING OIL DRAIN TANK			0.001

Prod.	5 X52DF-A-S1.0										
Change History											
	-	sjo101	mhu019	20.12.2023	CNAA004971	New MainDesign				-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved		Activity Code	E	C
<div><div>WIN GD</div><div>Winterthur Gas & Diesel</div></div>				<div>LUBRICATING OIL SYSTEM</div> <div>Ext. TC Lubrication</div>							
Bill Of Material				Dimension <div>Ext. TC Lubrication</div>							
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				Main Design Yes		Design Group 9722		Q-Code X X M		Standard WDS	
				Qty per Engine	A4	Item ID	PTAA085622		BOM Page/s 01/01		

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	1	PTAA085619	LUBRICATING OIL SYSTEM SPECIFICATION + DESIGN GUIDANCE VALUE + PROPOSAL				0.001
002	1	PAAD245338	LUBRICATING OIL SYSTEM FOR SEPARATED TC LUBRICATING				0
003	1	PAAD381279	LUBRICATING OIL DRAIN TANK				165
004	1	107.341.455	INSTRUCTION FOR FLUSHING				
005	1	PAAD178480	LUBRICATING OIL DRAIN TANK				0.001

Prod.	6 X52DF-A-S1.0							
Change History								
	-	sjo101	mhu019	20.12.2023	CNAA004971	New MainDesign	-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code E C

				LUBRICATING OIL SYSTEM Ext. TC Lubrication				
Bill Of Material				Dimension				
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				Main Design		Design Group		WDS
				Qty per		Item ID		BOM Page/s
				Engine		A4		01/01
						9722		WDS
						Q-Code		WDS
						X X M		WDS
						PTAA085625		WDS


SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
001	1	PTAA085619	LUBRICATING OIL SYSTEM SPECIFICATION + DESIGN GUIDANCE VALUE + PROPOSAL			0.001
002	1	PAAD381279	LUBRICATING OIL DRAIN TANK			165
003	1	107.341.455	INSTRUCTION FOR FLUSHING			
004	1	PAAD178480	LUBRICATING OIL DRAIN TANK			0.001

Prod.	6 X52DF-A-S1.0										
Change History											
	-	sjo101	mhu019	20.12.2023	CNAA004971	New MainDesign			-	-	
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C	
<div><div>WIN GD</div><div>Winterthur Gas & Diesel</div></div>				LUBRICATING OIL SYSTEM Int. TC Lubrication							
Bill Of Material				DimensionInt. TC Lubrication							
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				Main Design Yes		Design Group 9722		Q-Code X X M		Standard WDS	
				Qty per Engine		A4	Item ID	PTAA085626		BOM Page/s 01/01	

SEQ NO	QTY	Item ID	Item Name Dimension	Standard-ID	Basic Material	Net Weight
001	1	PTAA085619	LUBRICATING OIL SYSTEM SPECIFICATION + DESIGN GUIDANCE VALUE + PROPOSAL			0.001
002	1	PAAD245338	LUBRICATING OIL SYSTEM FOR SEPARATED TC LUBRICATING			0
003	1	PTAA092291	LUBRICATING OIL DRAIN TANK			240
004	1	107.341.455	INSTRUCTION FOR FLUSHING			
005	1	PAAD178480	LUBRICATING OIL DRAIN TANK			0.001

Prod.	7 X52DF-A-S1.0			
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<div>WIN GD</div> <div>Winterthur Gas & Diesel</div>		LUBRICATING OIL SYSTEM					
		7 cylinder, external TC LO					
Bill Of Material		Dimension7 cylinder, external TC LO					
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		Main DesignYes		Design Group9722		Q-CodeXX M	StandardWDS
		Qty perEngine	A4	Item IDPTAA092233	BOM Page/s01/01		

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
016	1 m	PAAD308926	HEATING ELEMENT	10QTVR2-CT			0.126
Prod.	X52DF-A-S1.0						
Change History							
	A	npa101	mhu019	12.11.2024	CNAA007222	Drawing updated	4 3
	-	sjo101	mhu019	20.12.2023	CNAA004971	new Design	- -
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved Activity Code E C
			LUBRICATING OIL SYSTEM SPECIFICATION + DESIGN GUIDANCE VALUE + PROPOSAL				
Bill Of Material			Dimension				
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			Main Design		Design Group 9722	Q-Code X X M	Standard WDS
			Qty per		A4	Item ID PTAA085619	BOM Page/s 01/01

Pos.	SYSTEM COMPONENTS *1)
001	Residue oil tank
002	Suction strainer *15)
003	Lubricating oil pump one for transfer and separator service one for separator service
004	Lubricating oil heater with relief valve and temperature control
005	Self-cleaning centrifugal separator
006	Clean lubricating oil tank
007	Dirty lubricating oil tank
009	Deck connection
010	Float non-return valve
011	LO sampling cock *16)

X52DF-A-S1.0			Number of cylinders			
			5	6	7	8
Clean L0 tank	capacity	(m³)	equal or bigger than L0 drain tank volume			
Dirty L0 tank	capacity	(m³)	equal or bigger than L0 drain tank volume			
L0 separator	capacity	(l/h)	1020	1230	1430	1640
Residue oil tank	capacity	(m³)	Depending on ship's requirements			

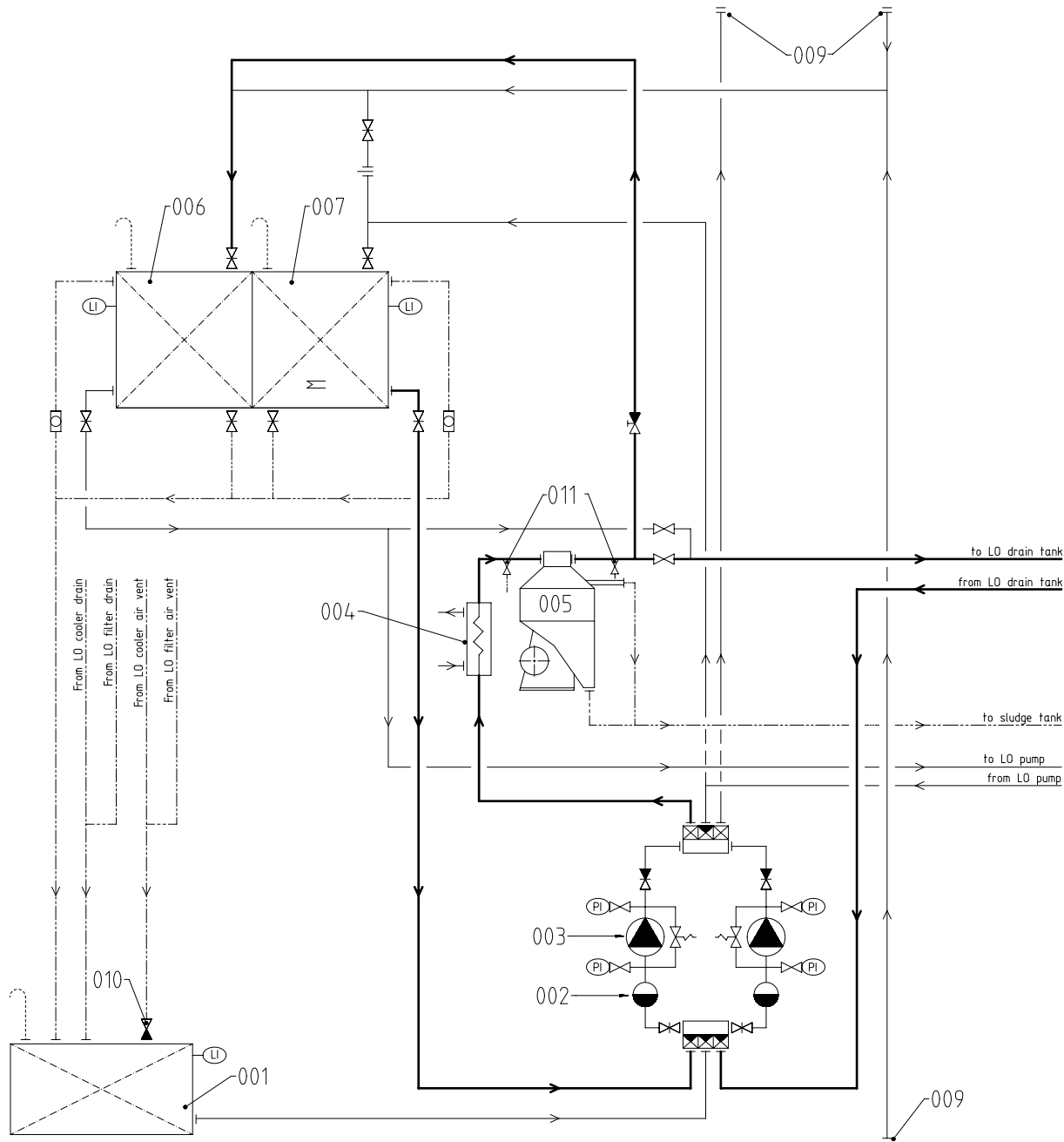
Remarks:

- Air vents and drain valves where necessary.
- Air vent and drain pipes must be fully functional at all inclination angles of the ship at which the engine must be operational (check Class rules).
- Pipe diameters to be designed according to shipyards' practice and component suppliers' recommendations.

*1) To be delivered by external supplier and to be installed by the shipyard.

*12) Mesh size according to pump suppliers recommendation.

*20) Recommended position for LO sampling to check LO quality / treatment efficiency.




- Main separating piping
- Transfer / dirty LO pipes
- Overflow / drain pipes
- Air vent pipes

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	1	107.246.799.200	PLATE				15
002	2	PAAD381278	VERTICAL OIL DRAIN				75


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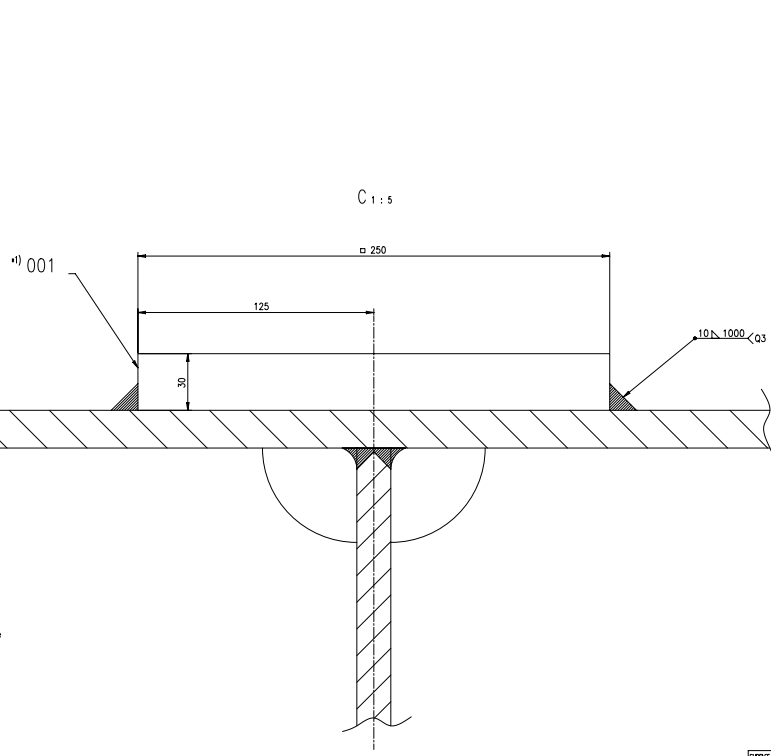
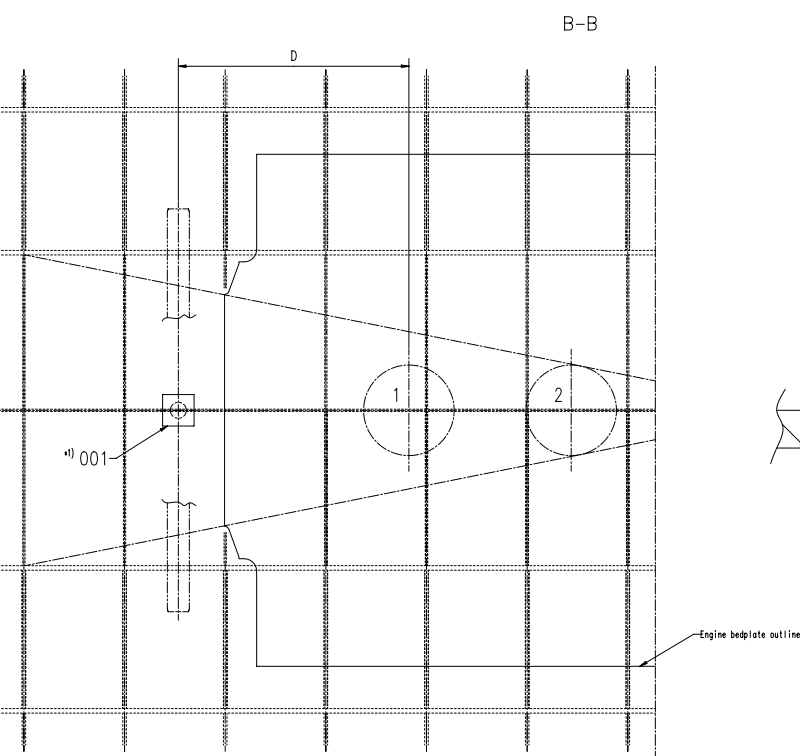
Prod.	X52-S2.0 X52DF-S1.0		X52DF-S2.0							
Change History										
	A	sjo101	mhu019	10.11.2023	CNA004295	Drawing updated				4 3
	-	npa101	mhu019	05.04.2023	CNAA003511	new Design				- -
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis	Approved	Activity Code	E	C

		LUBRICATING OIL DRAIN TANK FOR STANDARD ENGINE SEATING								
Bill Of Material			Dimension							
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			Main Design		Design Group		9722	Q-Code	X X M	Standard WDS
			Qty per		A4	Item ID		PTAA058055		BOM Page/s 01/01

SEQ NO	QTY	Item ID	Item Name	Dimension	Standard-ID	Basic Material	Net Weight
001	1	107.246.799.200	PLATE				15
002	3	PAAD381278	VERTICAL OIL DRAIN				75

Prod.	X52-S2.0 X52DF-A-S1.0		X52DF-M-S1.0 X52DF-S1.0		X52DF-S2.0						
Change History											
	-	npa101	nm101	06052024	011005292	new Design				-	-
	Rev.	Creator	Approver	Approval Date	Change ID	Change Synopsis			Approved	Activity Code	E C

			LUBRICATING OIL DRAIN TANK FOR STANDARD ENGINE SEATING								
Bill Of Material			Dimension								
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			Main Design			Design Group			9722	Q-Code	X X M
			Qty per			A4			Item ID		
									PTAA092291		
									Standard		
									BOM Page/s		
									240		
									WDS		
									01/01		



ENGINE TYPE	D	E
RT-fl ex50-D/DF	1387	165
X82-B	2395	460
X35-B	1015	124
X40-B	1170	172
X52/X52DF/X52DF-1,0/X52DF-2,1	1630	325
X62-B/X62DF/X62DF-1,1/X62DF-2,1	1888	343
X72-B/X72DF/X72DF-1,1&1,2/X72DF-2,1&2,2	2131	370
X82-2,0/X82DF-1,0	2395	460
X92-B-/X92DF	2677	334

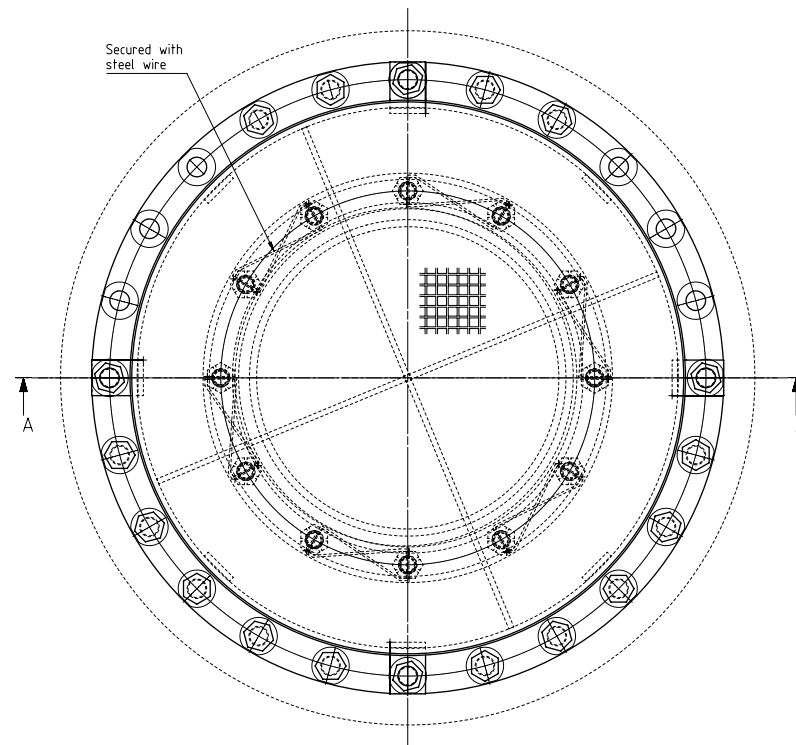
REMARKS:



*1) Access to the plate has to be kept clear for the hydraulic jack, to lift up the flywheel during removal of lower main bearing shell.

[illegible]

*4) No specific quality level required.
Oil tight is fundamental.

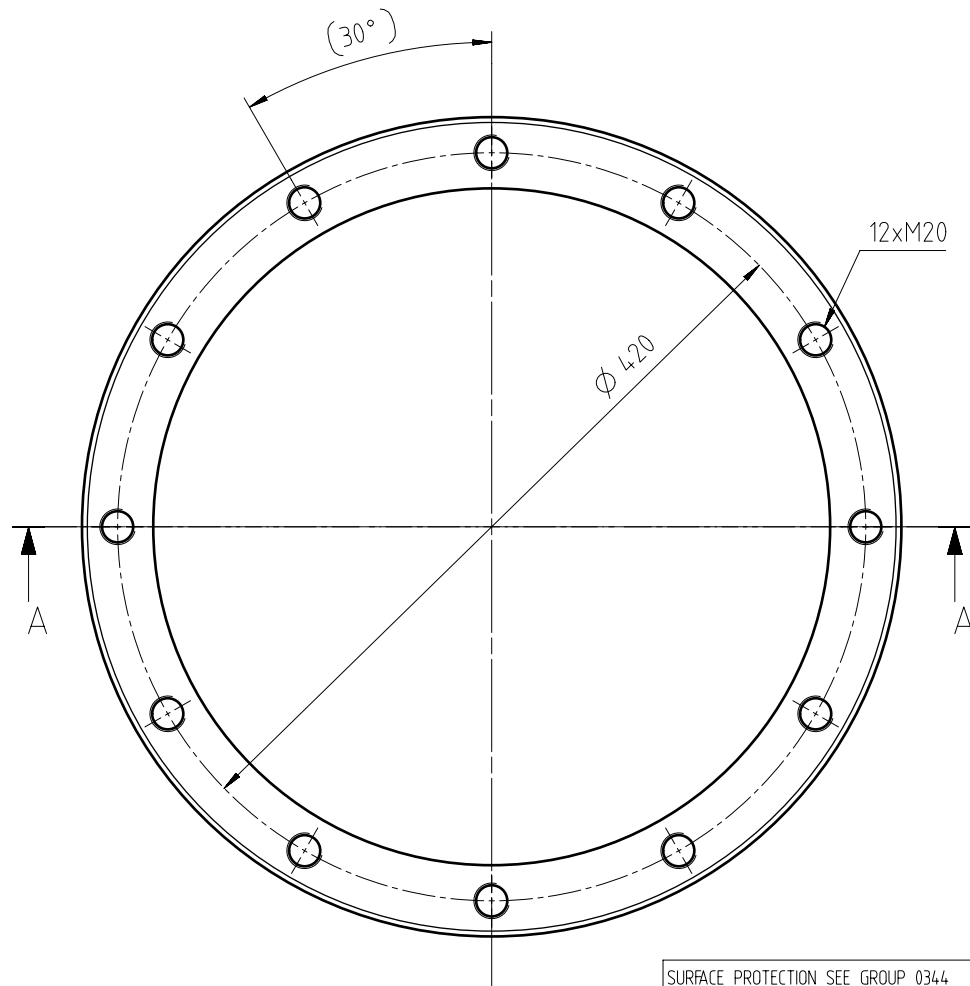
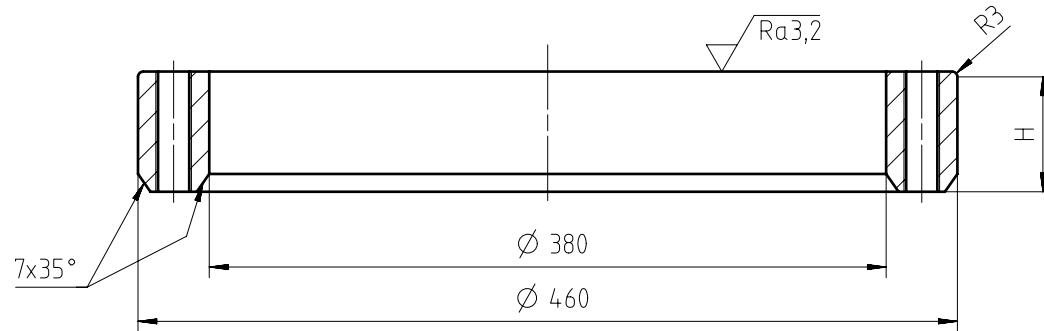
A	To be measured after alignment of the engine
H	A - 45 mm



24	008	015.07.360.910	TAB WASHER	21	DN 93	Steel Zn 5 bk	0,1
24	008	015.15.044.261	HEXAGON HEAD SCREW M20x40		ISO 4017	8.8	0,155
12	006	015.15.1374.201	HEXAGON HEAD SCREW M20x30			8.8	0,12
2	005	PAAD104.199	RUBBER GASKET		DAAD032827	NBR Perbunan	1,5
1	004	PAAD381274	OIL STRAINER		DAAD143410		8,3
1	003	PAAD104.189	COVER		DAAD032819		24,9
1	002	PAAD104.051	RING		DAAD032783	W-FU-235-JR	29,0
1	001	PAAD104.868	WELDING FLANGE		DAAD032919	W-FU-235-JR	29,0
QTY	SEQ NO	Material ID	Material Name	Dimension, Qty	Standard or Drawing	Basic Material Material Standard	Weight GR/NET
						Q-Code XXXXXX Standard ISO, JIS	Main Dim.
Model							
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number
			Product W-25 VERTICAL OIL DRAIN Oelablauf vertikal				
Units	mm kg	NX		Basic Material	Net Weight 75		
Made	30.04.2021	dkk021	DH.Kim	Scale 1:3	Size A1	Page 1/1	Material ID PAAD381278
Chkd	30.04.2021	jal101	Pickup	Design Group	Drawing ID	DAAD143415	Rev. -
Appd	30.04.2021	mh019	HUG	9722			

(B)

SECTION A-A



$\sqrt{Ra12,5}$ (✓) SHARP EDGES REMOVED

H depends on chock thickness

H = A - 45 mm

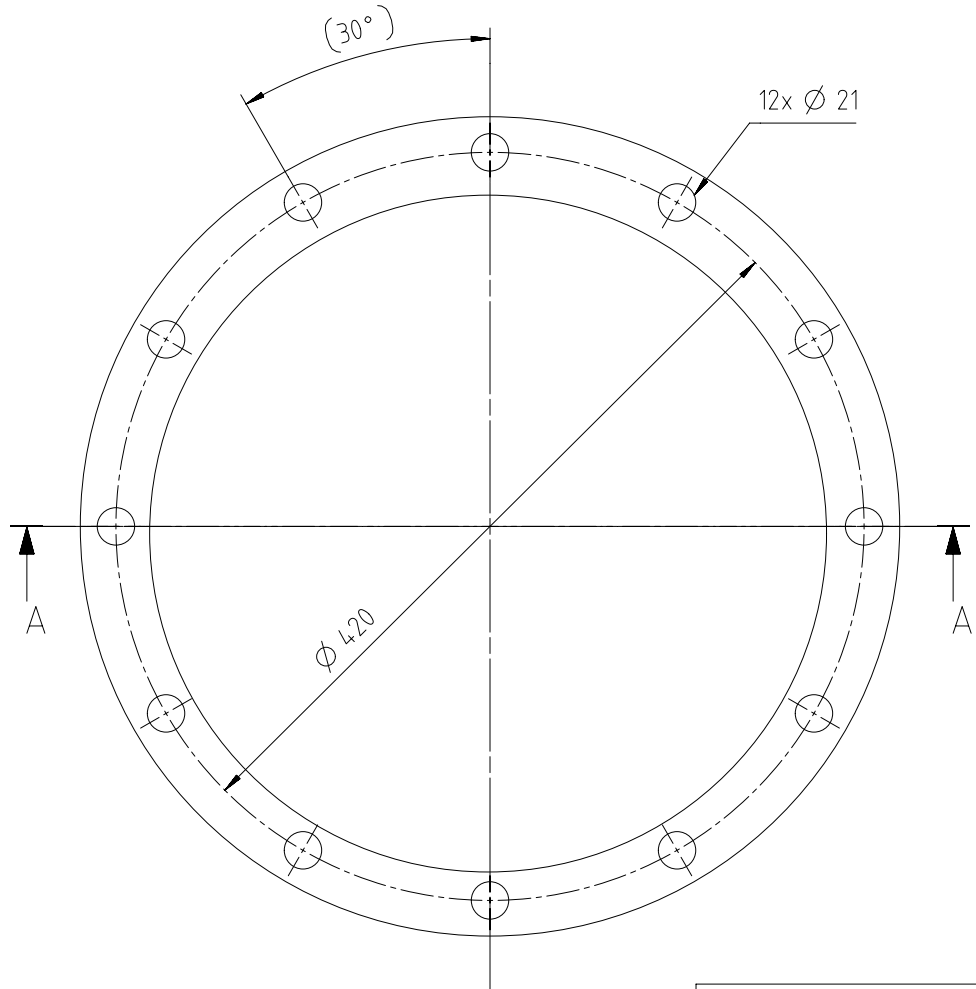
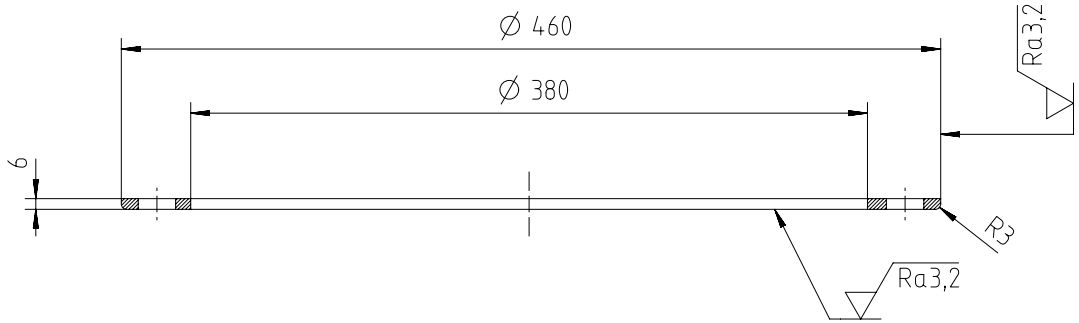
for the relation of A see Drawing DAAD033160

Free space for lic.								Q-Code XXXXX	Main Drw.		
								Standard ISO; JIS			
Modif.	(A)	EAAD084385	07.04.2015	(B)	EAAD091530	28.01.2020					
	Number	Drawn date		Number	Drawn date		Number	Drawn date		Number	Drawn date
WIN GD Winterthur Gas & Diesel		Product W-2S		WELDING FLANGE Anschweisssflansch							
Units	mm kg	NX				Basic Material		W-FU-235-JR		Net Weight 29	
SURFACE PROTECTION SEE GROUP 0344		Made	05.11.2012 asex06 A.Sekulic		Scale 1:3		Size A3	Page 1/1	Material ID PAAD104868		
TOLERANCING PRINCIPLE ISO8015		Chkd	03.12.2012 mhu019 Hug		Design Group 9720		Drawing ID DAAD032919		Rev. B		
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	03.12.2012 wwr001 Wroblewski								

UID - DIMENSIONAL DRAWING - Confidential

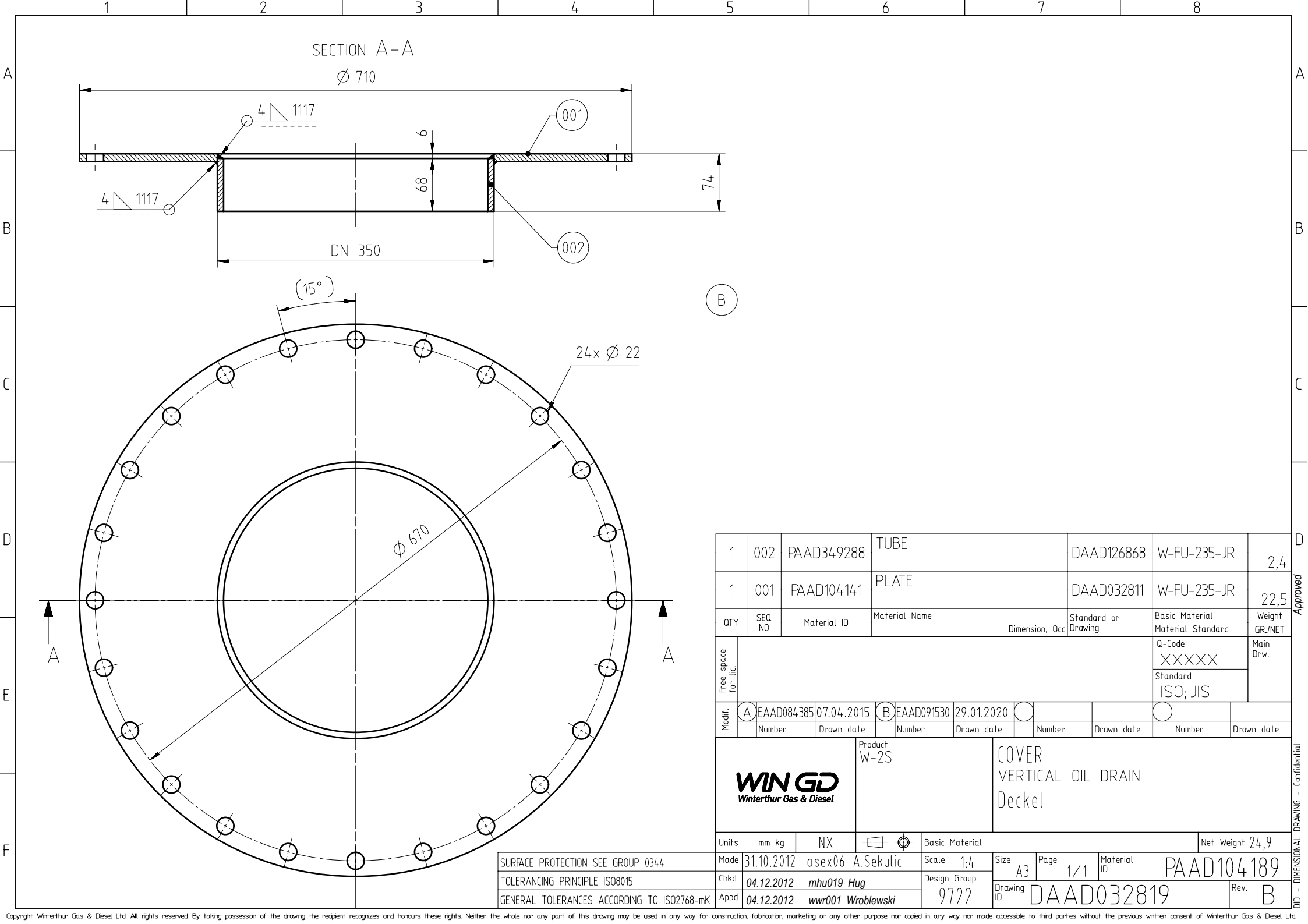
(B)

SECTION A-A



✓ Ra 12,5 (✓) SHARP EDGES REMOVED

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								Standard ISO; JIS	
Modif.	(A)	EAAD084385	07.04.2015	(B)	EAAD091530	28.01.2020			
		Number	Drawn date		Number	Drawn date		Number	Drawn date
WIN GD Winterthur Gas & Diesel			Product W-2S			RING Ring			
Units	mm kg	NX			Basic Material	W-FU-235-JR			Net Weight 2,4
Made	30.10.2012	asex06 A.Sekulic			Scale 1:3	Size A3	Page 1/1	Material ID	PAAD104051
Chkd	03.12.2012	mhu019 Hug			Design Group 9722	Drawing ID	DAAD032783		
Appd	03.12.2012	wwr001 Wroblewski							
									Rev. B



(B)

SECTION A-A

Ø 710

DN 350

Ra3,2

(15°)

24 x Ø 22

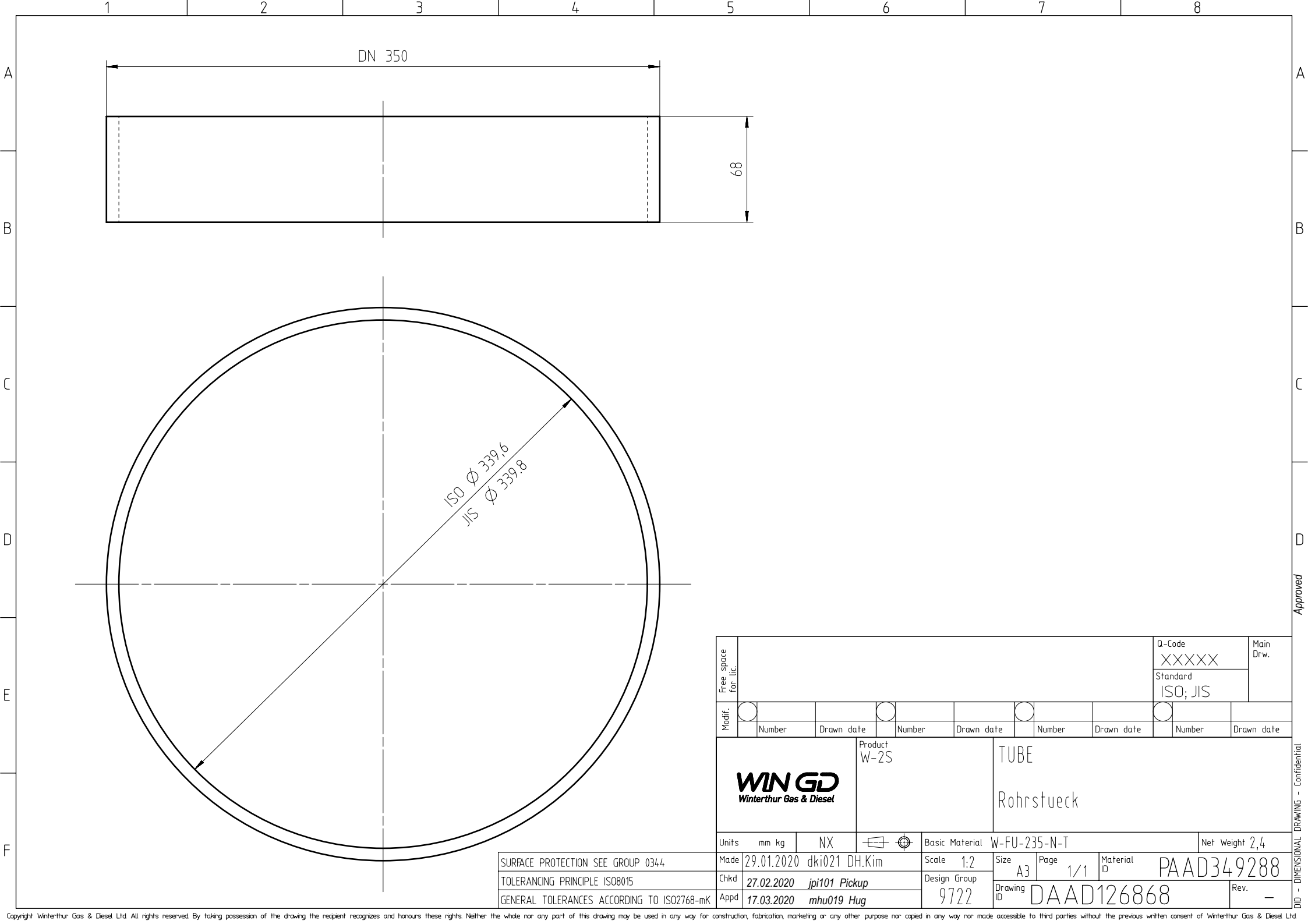
Ø 670

✓ Ra12,5 (✓) SHARP EDGES REMOVED

Free space for lic.								Q-Code XXXXXX	Main Drw.	
								Standard ISO; JIS		
Modif.	(A)	EAAD084385	07.04.2015	(B)	EAAD091530	28.01.2020				
	Number	Drawn date		Number	Drawn date		Number	Drawn date		Number
WIN GD Winterthur Gas & Diesel		Product W-2S		PLATE Blech						
Units	mm kg	NX		Basic Material		W-FU-235-JR			Net Weight 22,5	
Made	31.10.2012 asex06 A.Sekulic		Scale		1:4		Size	A3		Page
Chkd	03.12.2012 mhu019 Hug		Design Group		9720		Drawing ID	DAAD032811		Rev.
Appd	03.12.2012 wwr001 Wroblewski								B	

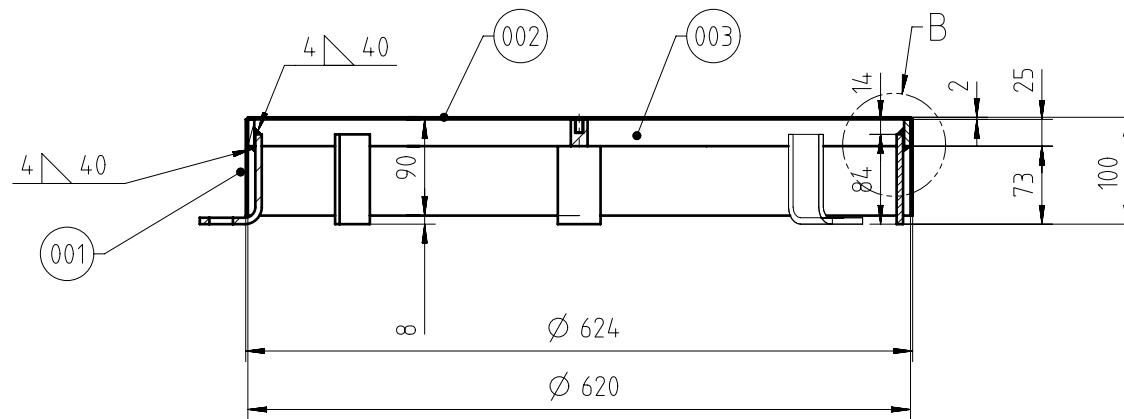
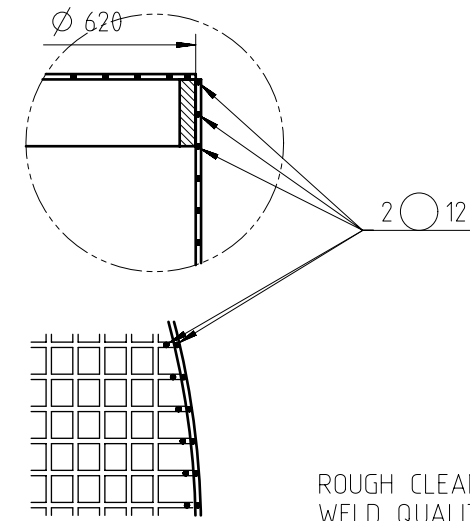
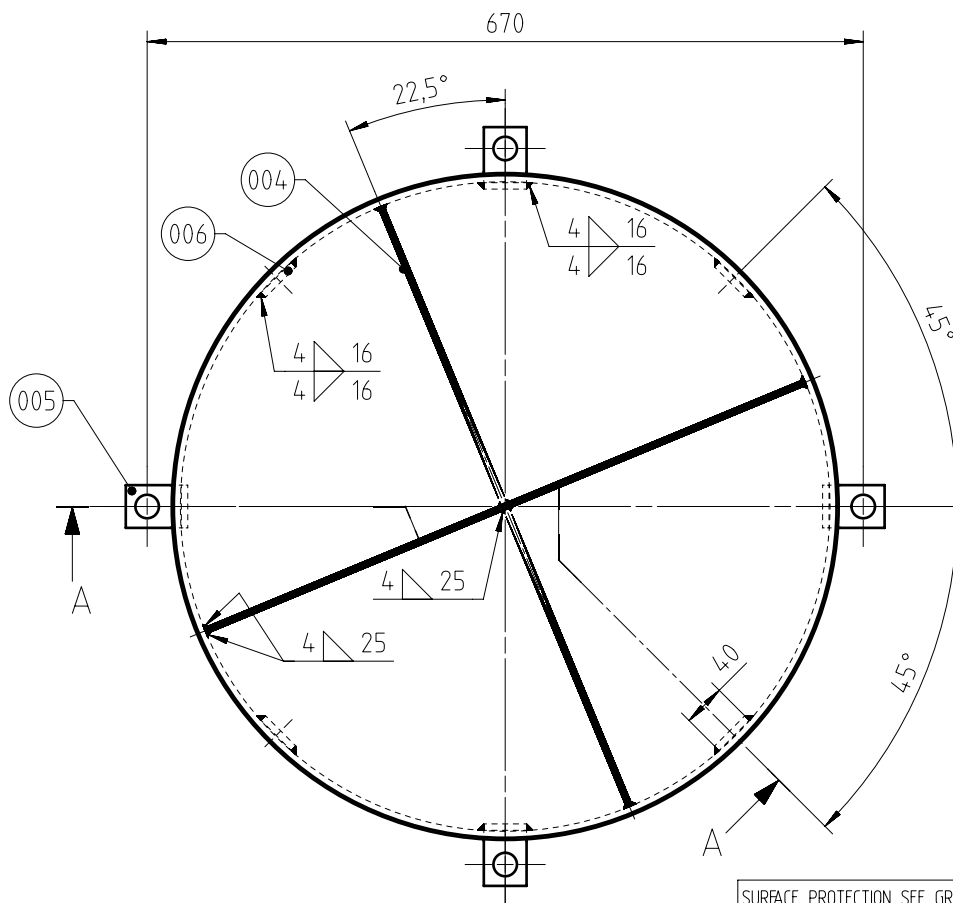
SURFACE PROTECTION SEE GROUP 0344	
TOLERANCING PRINCIPLE ISO8015	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	

PAAD104141	
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Free space for lic.								Q-Code	Main Drw.
								XXXXXX	
								Standard	
							ISO; JIS		
Modif.	<input type="radio"/>			<input type="radio"/>			<input type="radio"/>		
	Number	Drawn date		Number	Drawn date		Number	Drawn date	
WIN GD <i>Winterthur Gas & Diesel</i>			Product W-2S		TUBE Rohrstueck				
Units	mm kg	NX			Basic Material		W-FU-235-N-T		Net Weight 2,4
Made	29.01.2020 dki021 DH.Kim			Scale 1:2		Size A3	Page 1/1	Material ID	PAAD349288
Chkd	27.02.2020 jpi101 Pickup			Design Group 9722		Drawing ID	DAAD126868		Rev. —
Appd	17.03.2020 mhu019 Hug								

SECTION A-A

DETAIL B
SCALE 1:2ROUGH CLEANED
WELD QUALITY CLASS Q3

4	006	PAAD381277	FLAT BAR 40x6x151	DAAD143414	W-FU-235-JR	0,2
4	005	PAAD381276	HOLDER	DAAD143413	W-FU-235-JR	0,24
2	004	PAAD104882	FLAT BAR 608x25x6	DAAD032933	W-FU-235-JR	0,85
1	003	PAAD104881	RING 608x25x6	DAAD032928	W-FU-235-JR	2,7
1	002	PAAD104875	PERFORATED SHEET NO ZINC PLATED D620	DAAD126992	W-FU-235-JR	1,4
1	001	PAAD381275	PERFORATED SHEET NO ZINC PLATED D620	DAAD143411	W-FU-235-JR	0,7

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 XXXXXX Standard ISO; JIS	Main Drw.

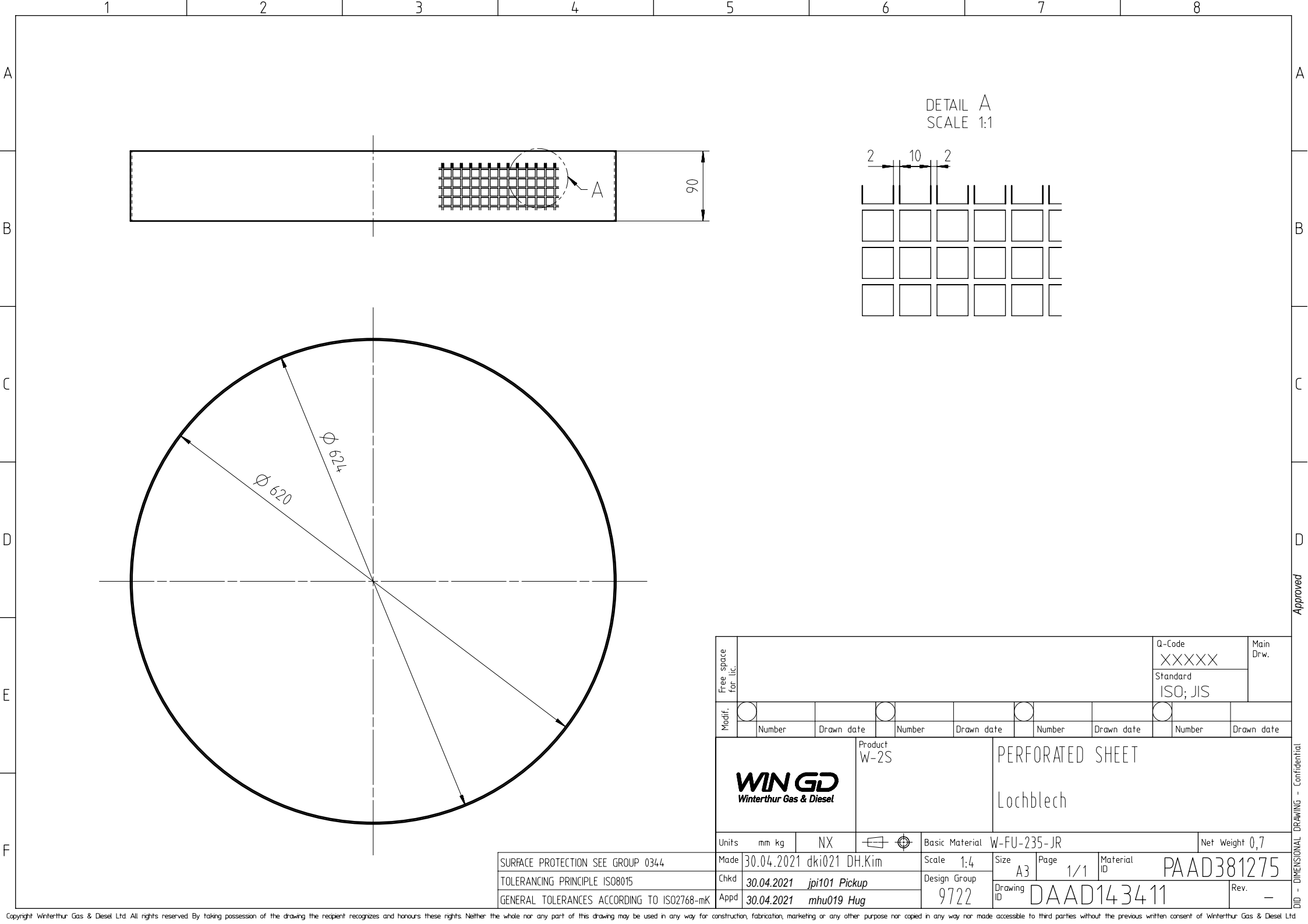
Modif.	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date
--------	--------	------------	--------	------------	--------	------------	--------	------------

WIN GD Winterthur Gas & Diesel		Product W-2S	OIL STRAINER FOR OIL DRAIN IN BEDPLATE Oelsieb				
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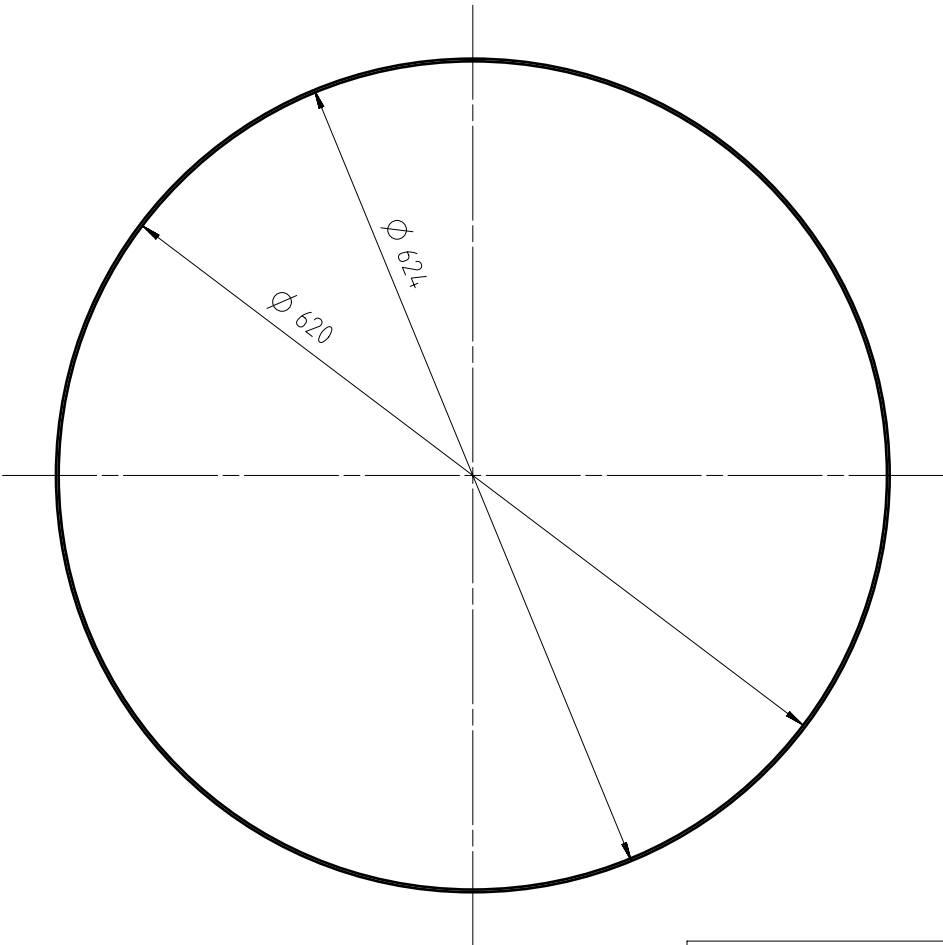
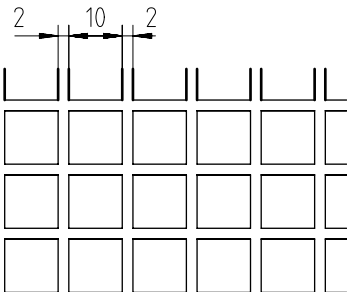
Units	mm kg	NX	Basic Material	Net Weight 8,3
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SURFACE PROTECTION SEE GROUP 0344	Made	30.04.2021 dki021 DH.Kim	Scale	1:5	Size	A3	Page	1/1	Material ID	PAAD381274
TOLERANCING PRINCIPLE ISO8015	Chkd	30.04.2021 jpi101 Pickup	Design Group	9722	Drawing ID	DAAD143410	Rev.	-		
GENERAL TOLERANCES ACCORDING TO ISO2768-mK	Appd	30.04.2021 mhu019 Hug								

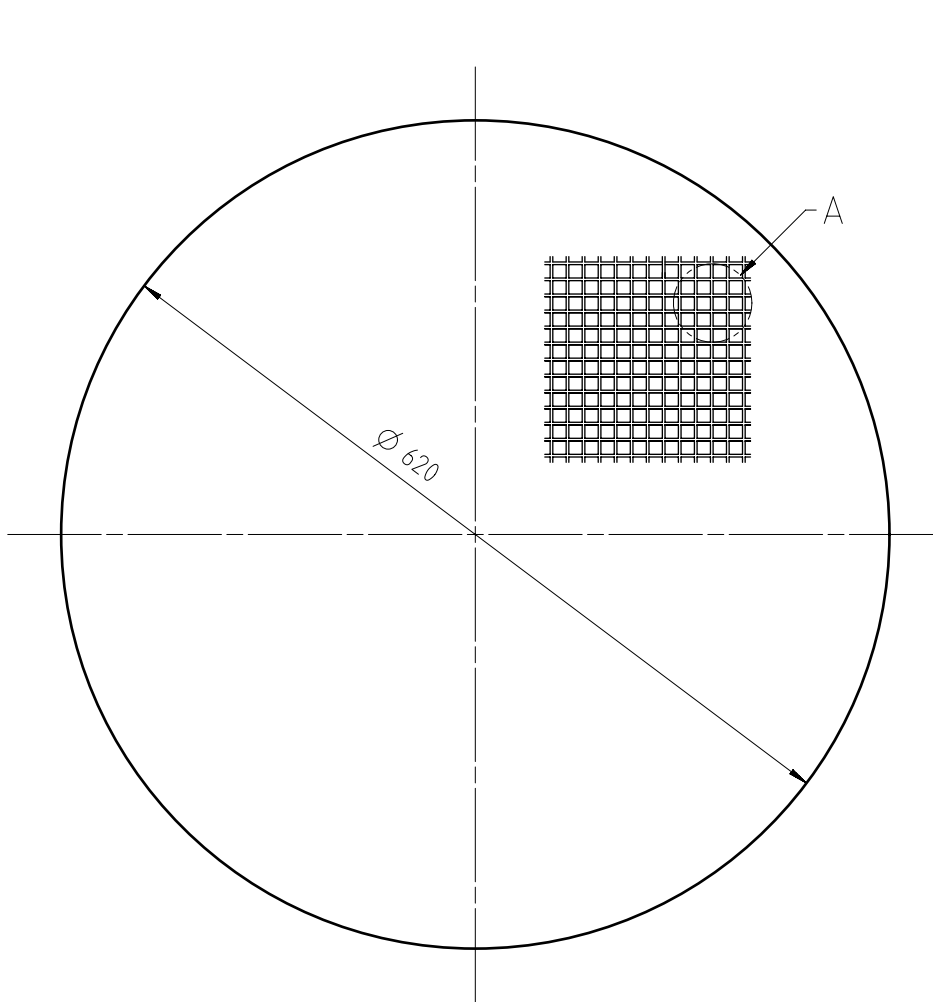
DID - DIMENSIONAL DRAWING - Confidential



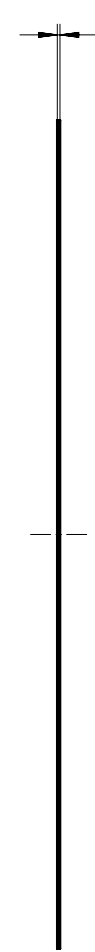
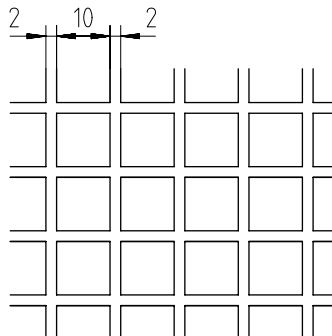
DETAIL A
SCALE 1:1



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	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date	
<div>WIN GD</div> <div>Winterthur Gas & Diesel</div>			Product W-2S		PERFORATED SHEET Lochblech				
Units	mm kg	NX		Basic Material W-FU-235-JR				Net Weight 0,7	
Made	30.04.2021 dki021 DH.Kim			Scale	1:4	Size	A3	Page	1/1
Chkd	30.04.2021 jpi101 Pickup			Design Group 9722	Drawing ID	Material ID		PAAD381275	
Appd	30.04.2021 mhu019 Hug					DAAD143411		Rev.	

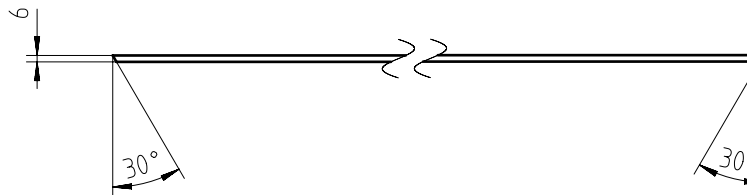
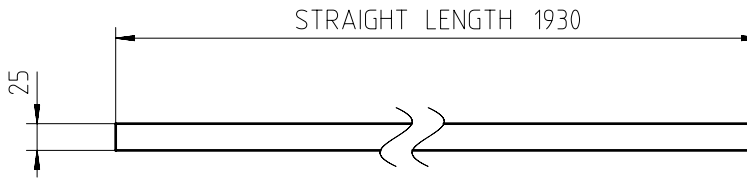
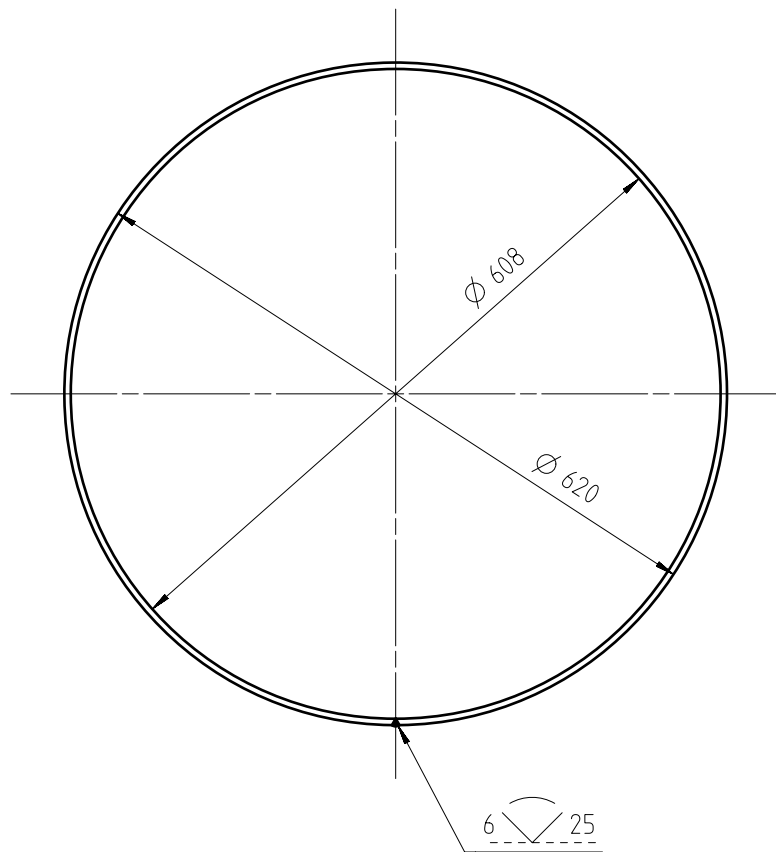
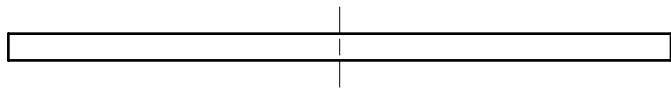




DETAIL A
SCALE 1:1

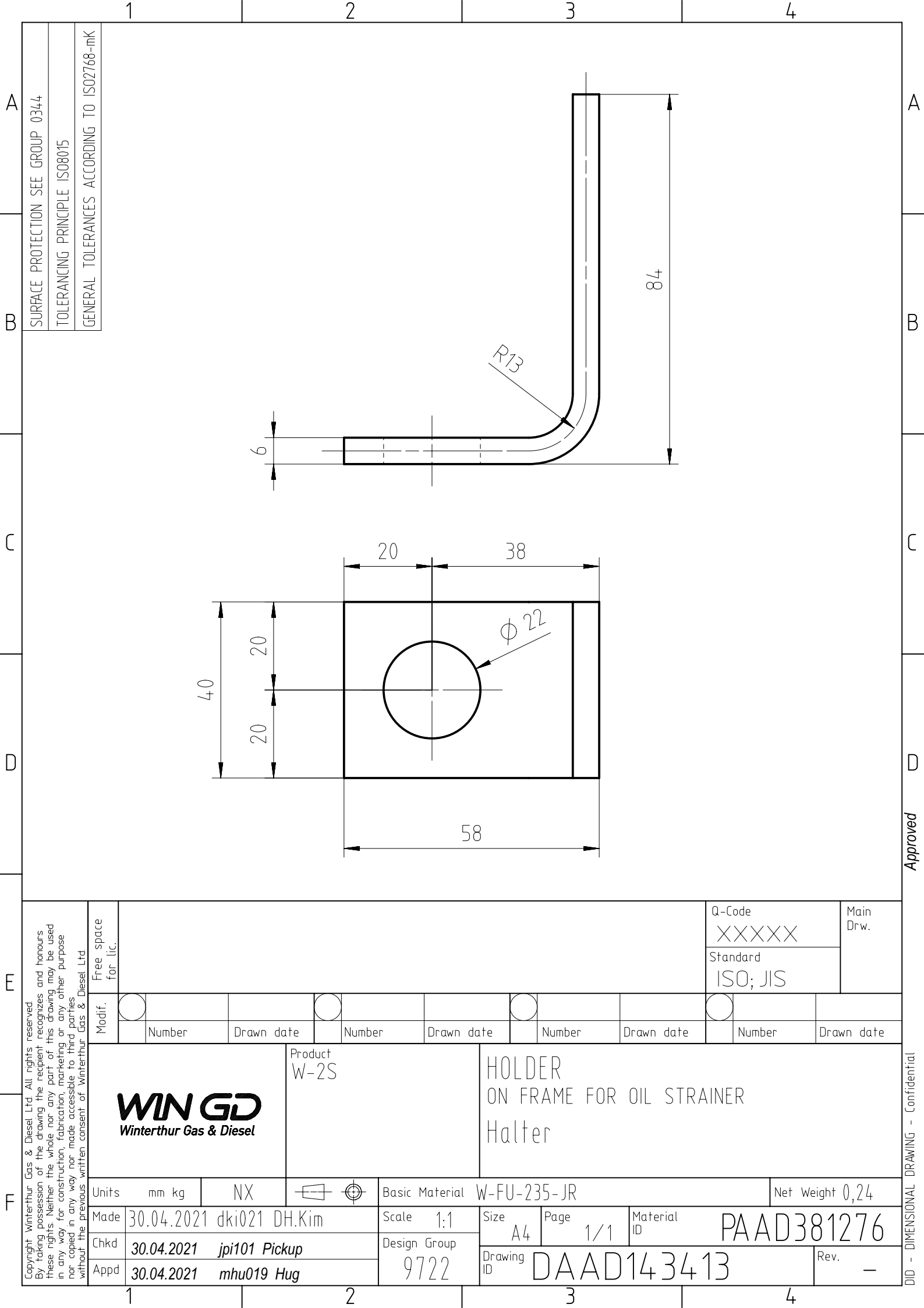


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	Number	Drawn date		Number	Drawn date		Number	Drawn date					
WIN GD Winterthur Gas & Diesel		Product W-2S		PERFORATED SHEET Lochblech									
Units	mm kg	NX			Basic Material		W-FU-235-JR		Net Weight 1,4				
SURFACE PROTECTION SEE GROUP 0344		Made	03.02.2020 dki021 DH.Kim		Scale	1:4		Size	A3	Page	1/1	Material ID	PAAD104875
TOLERANCING PRINCIPLE ISO8015		Chkd	27.02.2020 jpi101 Pickup		Design Group		9722		Drawing ID	DAAD126992		Rev.	—
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	17.03.2020 mhu019 Hug										

(B)



Free space for lic.								Q-Code XXXXX	Main Drw.	
								Standard ISO; JIS		
Modif.	(A)	EAAD084385	07.04.2015	(B)	EAAD091530	30.01.2020				
		Number	Drawn date		Number	Drawn date		Number	Drawn date	
 Winterthur Gas & Diesel		Product W-2S		RING Ring						
Units	mm kg	NX			Basic Material		W-FU-235-JR		Net Weight 2,7	
SURFACE PROTECTION SEE GROUP 0344		Made	06.11.2012 asex06 A.Sekulic		Scale 1:5		Size A3	Page 1/1	Material ID PAAD104881	
TOLERANCING PRINCIPLE ISO8015		Chkd	03.12.2012 mhu019 Hug		Design Group 9722		Drawing ID DAAD032928		Rev. B	
GENERAL TOLERANCES ACCORDING TO ISO2768-mK		Appd	03.12.2012 wwr001 Wroblewski							



SURFACE PROTECTION SEE GROUP 03/44
TOLERANCING PRINCIPLE ISO8015
GENERAL TOLERANCES ACCORDING TO ISO2768-mK

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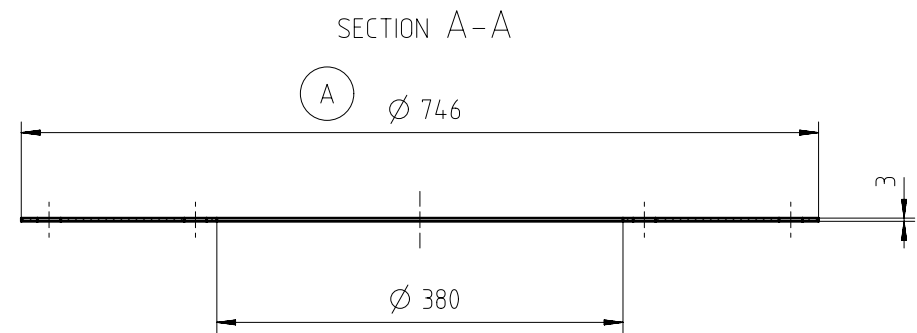
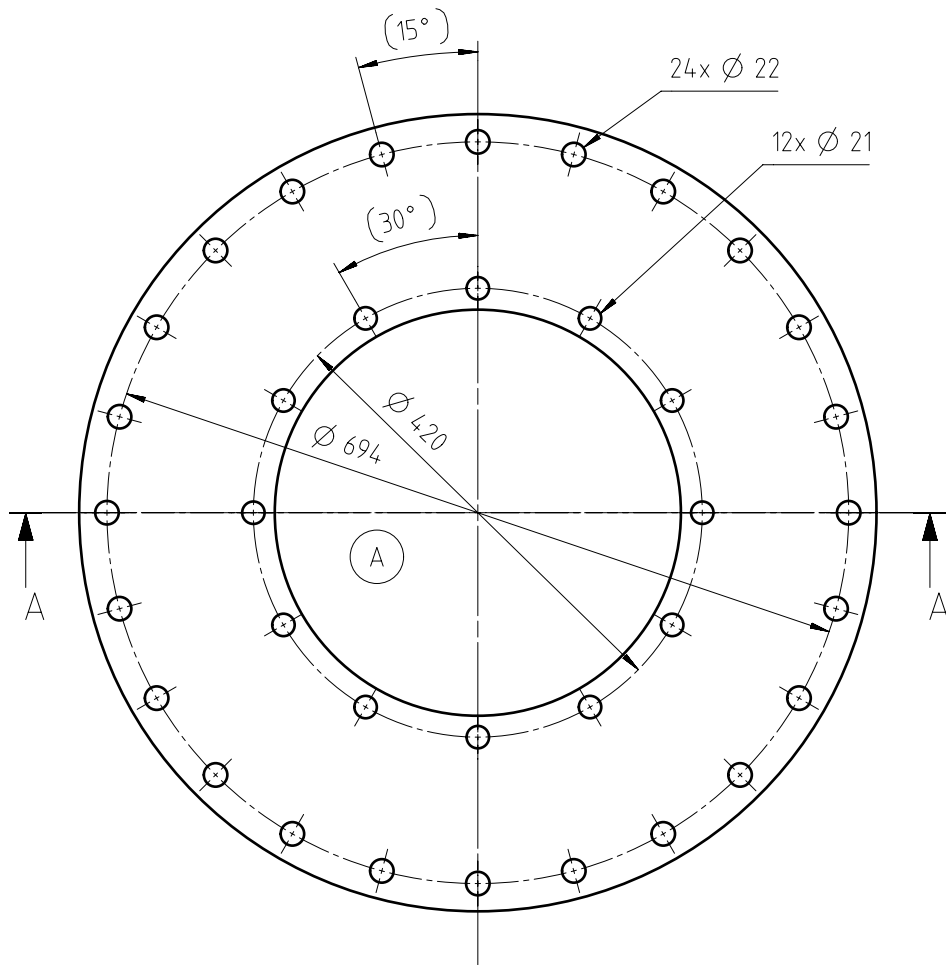
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										Standard ISO; JIS		
Modif.												
	Number	Drawn date		Number	Drawn date		Number	Drawn date		Number	Drawn date	
 Winterthur Gas & Diesel				Product W-2S				HOLDER ON FRAME FOR OIL STRAINER Halter				
Units	mm kg		NX			Basic Material W-FU-235-JR					Net Weight 0,24	
Made	30.04.2021 dki021 DH.Kim					Scale 1:1		Size A4	Page 1/1	Material ID PAAD381276		
Chkd	30.04.2021 jpi101 Pickup					Design Group 9722		Drawing ID	DAAD143413			Rev. —
Appd	30.04.2021 mhu019 Hug											

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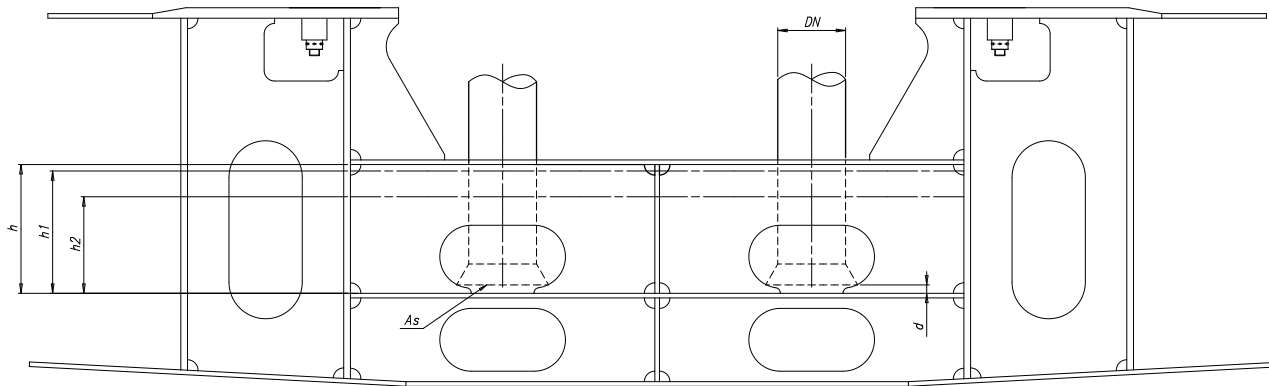
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										Q-Code		Main Draw.	
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										Standard			
										ISO; JIS			
Free space for lic.	Modif.	<input type="radio"/>				<input type="radio"/>				<input type="radio"/>			
		Number	Drawn date			Number	Drawn date			Number	Drawn date		
<div><div><div>WIN GD</div><div>Winterthur Gas & Diesel</div></div></div>				Product W-2S				FLAT BAR Flachstahl					
Units		mm kg		NX				Basic Material W-FU-235-JR				Net Weight 0,2	
Made	30.04.2021 dki021 DH.Kim				Scale 1:1		Size A4	Page 1/1	Material ID PAAD381277				
Chkd	30.04.2021 jpi101 Pickup				Design Group 9722		Drawing ID	DAAD143414				Rev. —	
Appd	30.04.2021 mhu019 Hug												

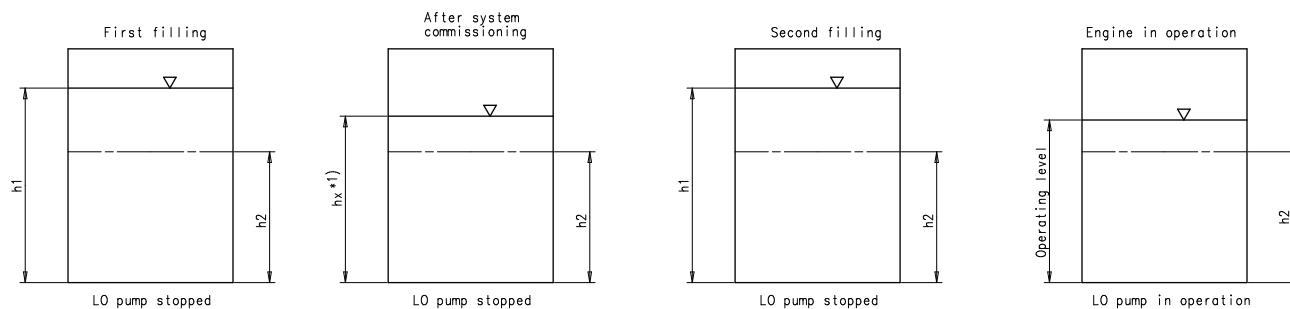


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	Standard ISO; JIS													
Modif.	A	EAAD091530	30.01.2020											
	Number	Drawn date	Number	Drawn date	Number	Drawn date	Number	Drawn date						
 Winterthur Gas & Diesel				Product W-2S		RUBBER GASKET Gummidichtung								
Units	mm kg	NX	Basic Material		NBR Perbunan			Net Weight 1,5						
SURFACE PROTECTION SEE GROUP 0344				Made	31.10.2012 asex06 A.Sekulic		Scale	1:5	Size	A3	Page	1/1	Material ID	PAAD104199
TOLERANCING PRINCIPLE ISO8015				Chkd	03.12.2012 mhu019 Hug		Design Group	9722	Drawing ID	DAAD032827			Rev.	A
GENERAL TOLERANCES ACCORDING TO ISO2768-mK				Appd	03.12.2012 wwr001 Wroblewski									

② W-X52/W-X52DF



LO DRAIN TANK - FILLING PROCESS



Specifications that need to be met:

Dimensioning guidelines and capacities for tank design

No. of cylinders		4	5	6	7	8
h	Recommended total tank height (mm)	according to installation requirements				
	Recommended total tank volume: 105% ±4) (m³)	10	12	13	15	17
h1	Recommended filling level (mm)	according to installation requirements				
	Recommended volume: 100% ±4) (m³)	9	11	13	14	16
h2	Low-level alarm (mm)	*2)				
	Volume (m³)					
Vr	Min. retention volume ±5) (m³)	6	7	8	9	10
d	Distance between suction pipe and bottom of tank (mm)	*3)				
As	Suction area	min. 1.5 x suction pipe area (DN)				

REMARKS:

- *1) Level after filling of external system. Volume and level in the LO drain tank depend on capacity of pipes, coolers, filters, etc. The oil volume in tank contains a part of the oil quantity, which drains back when the pumps are stopped.
- *2) The low-level alarm (h2) has to be positioned in such a way that a proper pump suction is ensured under the conditions defined by the classification societies.

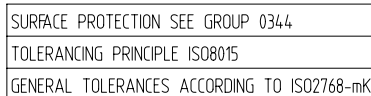
Minimum inclination angles comply with the rules of classification societies:

Heel to each side	15°
Rolling to each side	±22.5°
Trim	500/L, max. 5°
	L: ship length in meter
	Example L = 250 m
	Trim = 500/250 = 2°
Pitching	± 7.5°

Additionally this level has to be above or equal to the minimum retention volume (Vr) for M/E operation.

- *3) Distance (d) between suction pipe inlet of main LO pumps and LO drain tank bottom has to be in accordance with the requirements of the pump manufacturer. As guideline the following formula can be applied: $d = DN/4 + 40$, $d = \text{min. } 80 \text{ mm}$.
- *4) The stated tank volume represent the min. requirement. Final tank dimensions have to be aligned in regard to dimensional restrictions by ship and engine structure and the pump suction requirement.
- *5) To be maintained during engine operation (LO pump suction without LO drain back-flow (emergency case) is ensured for at least 3 minutes).

Free space for I.C.		Q-Code XXXXX		Min. Drw.	
Standard ISO JIS					
A) EAAD086282 16.11.2015		B) EAAD086531 31.03.2016			
Number	Draw date	Number	Draw date	Number	Draw date
WIN G2		Product W-52		LUBRICATING OIL DRAIN TANK FILLING GUIDELINE	
Units mm kg	IDE	Basic Material	Scale 1:25	Size A1	Page 1/1
Mode 10.12.2014	WANG	Design Group	9722	Material ID	PAAD178480
Chkd 16.01.2015	mhu019 Hug	Design Group	9722	Material ID	DAAD061878
Appd 16.01.2015	bha009 Haag	Design Group	9722	Material ID	Rev. B



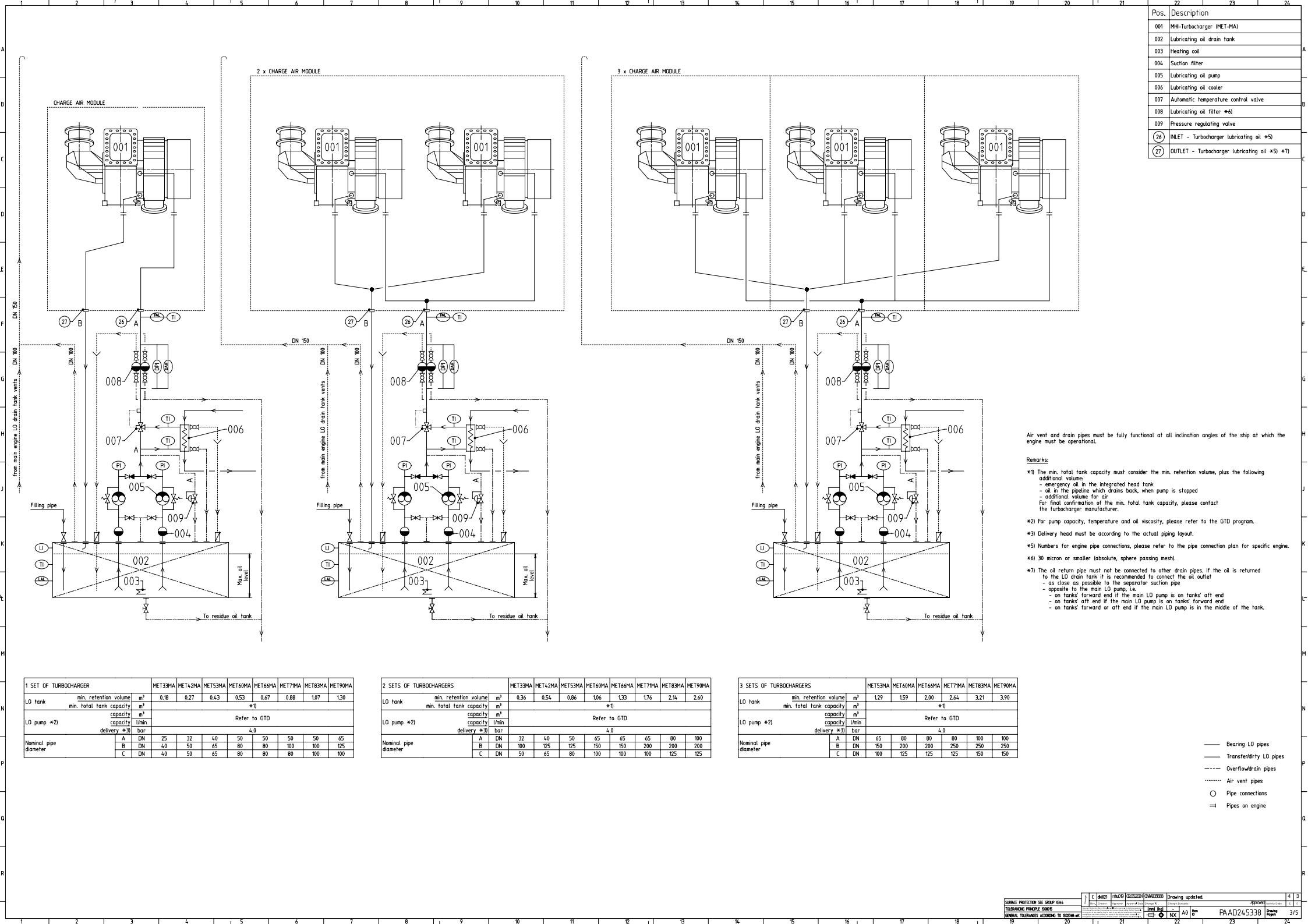
26

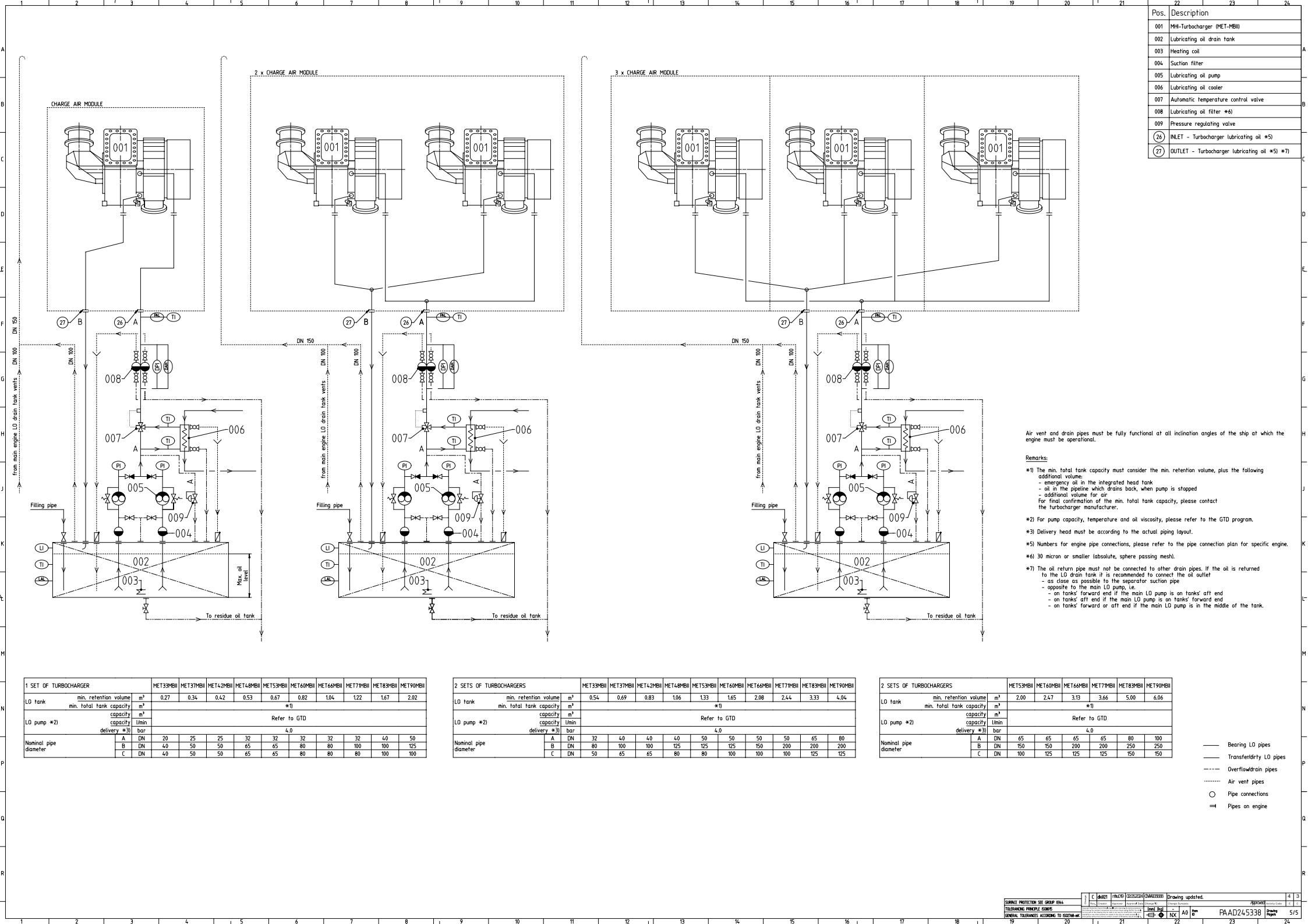
©

- 27

- Oil return to lubricating oil drain tank
- Oil return pipe must not be connected to other drain pipes.
- Oil outlet must be above the max. oil level in the tank or as an alternative a drain pipe with venting holes above the max. oil level needs to be installed.

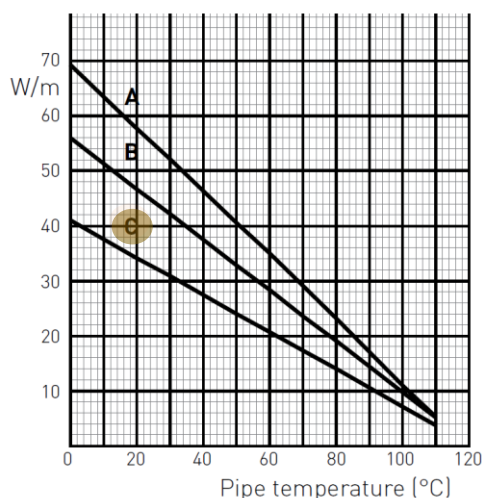
WIN GD
Winterthur Gas & Diesel





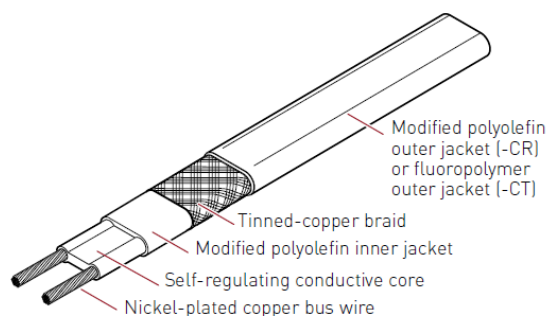
Self-Regulating Heating Cable 10QTVR2-CT

Order drawing



C 10QTVR2-CT

Heating cable construction



Specification:

Description: 10QTVR2-CT
Order No.: 391991-000
Area Classification: Non-hazardous and hazardous locations
Traced surface type: Metal and plastic
Chemical Resistance: Exposure to aqueous inorganic chemicals: Use -CR (modified polyolefin outer jacket)
Exposure to organic chemicals or corrosives: Use -CT (fluoropolymer outer jacket)
Supply Voltage: 200-277 VAC
Temperature Rating: Maximum maintain or continuous exposure temperature (power on) 225°F (110°C)
Maximum intermittent exposure temperature, 1000 hours (power on) 225°F (110°C)
Minimum installation temperature -76°F (-60°C)
Minimum Bending Radius: 13 mm at 20°C
35 mm at -60°C
Height: 4.5 mm
Width: 11.8 mm
Weight: 0.126 kg/m

Supplier:  **PENTAIR**
www.pentairthermal.com

MAXIMUM CIRCUIT LENGTH BASED ON TYPE 'C' CIRCUIT BREAKERS ACCORDING TO EN60898		
SUPPLY VOLTAGE 230 VAC		
Electrical protection sizing	Start-up temperature	Maximum heating cable length per circuit [m]
16A	-20°C	65
	+10°C	80
25A	-20°C	95
	+10°C	115
32A	-20°C	115
	+10°C	115
40A	-20°C	115
	+10°C	115

Substitute for: PC Q-Code X S X X X

Modif	A	EAAD090454	05.03.2019						
Number	Drawn Date	Number	Drawn Date	Number	Drawn Date	Number	Drawn Date	Number	Drawn Date

WINGD
Winterthur Gas & Diesel

Product
W-2S

Heating Element
Order Drawing

Made	24.10.2018	P. Kowalski	Main Drw.	Page	1 / 1	Material ID	PAAD308926		
Chkd	24.10.2018	R. Leutwyler	Design Group	Drawing ID		DAAD106761		Rev	
Appd	24.10.2018	W. Östreicher	0009						

MIDS - Lubricating Oil System (DG9722)

WinGD X52DF-A-S1.0

TRACK CHANGES

DATE	SUBJECT	DESCRIPTION
2023-12-21	DRAWING SET	First web upload
2024-05-07	PTAA245339C PTAA092228- PTAA092233- PTAA092291-	New execution for 7 cyl.
2024-11-14	PTAA085619A	New revision

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