



LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia
Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT



Detail Drawings for Pulsation Dampers

Document No. 17735-23B

Project No.	Vendor Doc.	P.O. No.	Department	Document Type	Serial No	Revision	Page
N278	VD	6019	ME	DWG	0025	02	Page 1 of 6

**Airpack B.V. - Air Compressor –
Integrated Methanol and Ammonia Plant
17735-COM Detail Drawings for Pulsation Dampers (K020)**

Code 2
M.Dalakeh

REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
02	15-05-2024	Issued for Approval	S.K.	J.J.	S.K.
01	21-02-2024	Issued for Approval	S.K.	J.J.	S.K.

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Detail Drawings for Pulsation Dampers

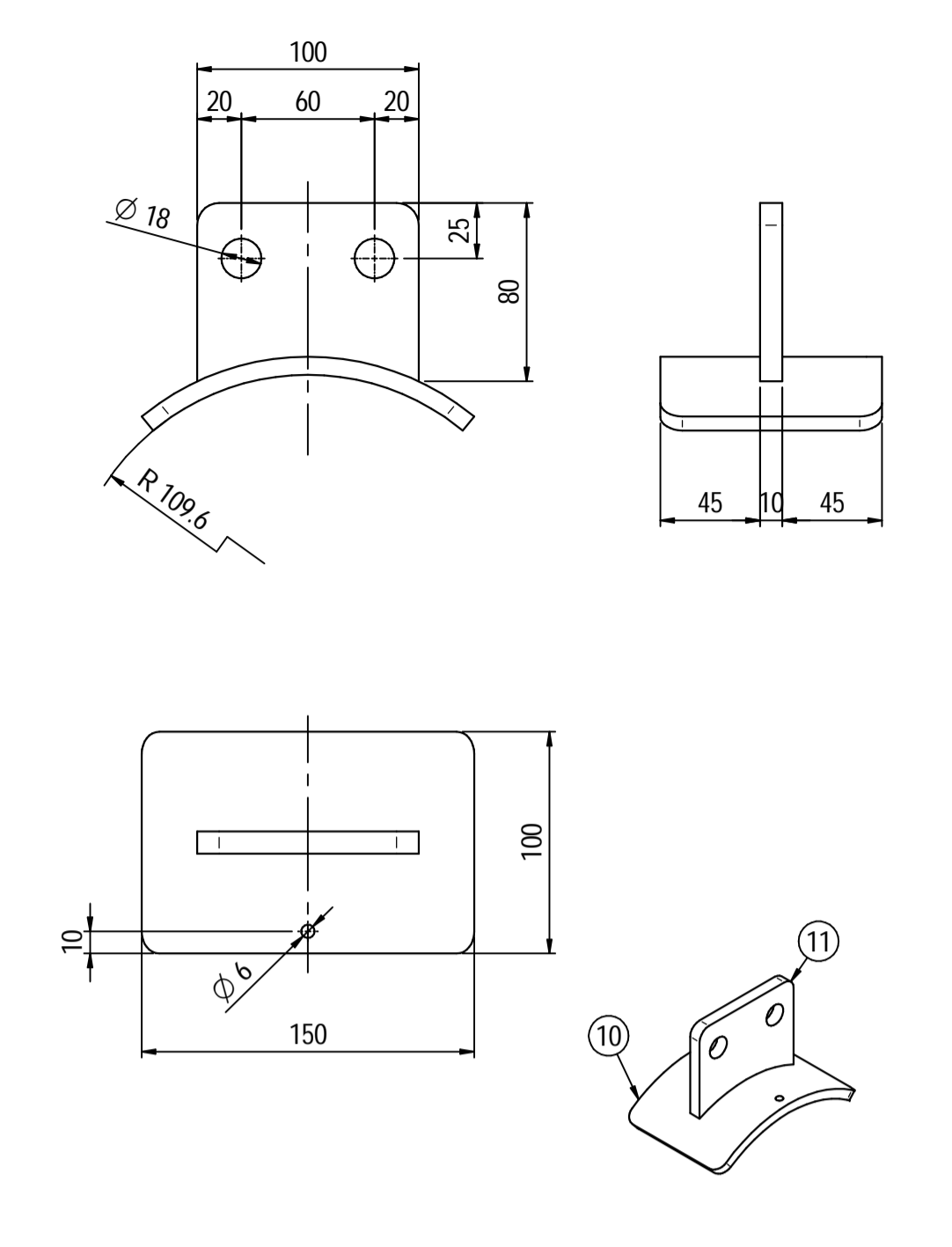
Document No. 17735-23B

Project No.	Vendor Doc.	P.O. No.	Department	Document Type	Serial No	Revision	Page
N278	VD	6019	ME	DWG	0025	02	Page 2 of 6

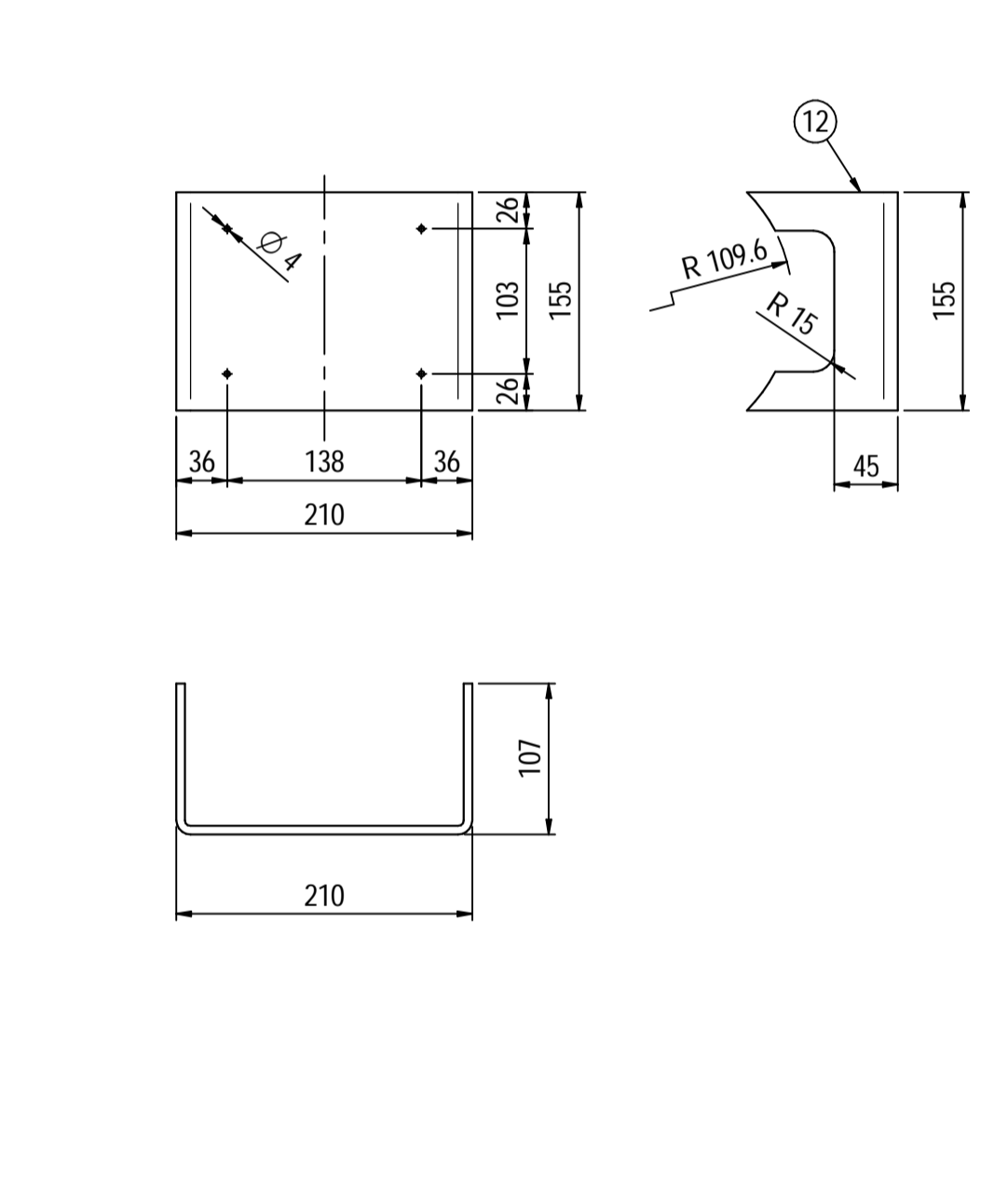
LIST OF REVISED PAGES

Rev. Page	01	02	03	04	05	Rev. Page	01	02	03	04	05	Rev. Page	01	02	03	04	05	Rev. Page	01	02	03	04	05
1	X	X				26						51						76					
2	X	X				27						52						77					
3	X	X				28						53						78					
4	X	X				29						54						79					
5	X	X				30						55						80					
6	X	X				31						56						81					
7						32						57						82					
8						33						58						83					
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10						35						60						85					
11						36						61						86					
12						37						62						87					
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15						40						65						90					
16						41						66						91					
17						42						67						98					
18						43						68						ATTACHMENT					
19						44						69						1					
20						45						70						2					
21						46						71						3					
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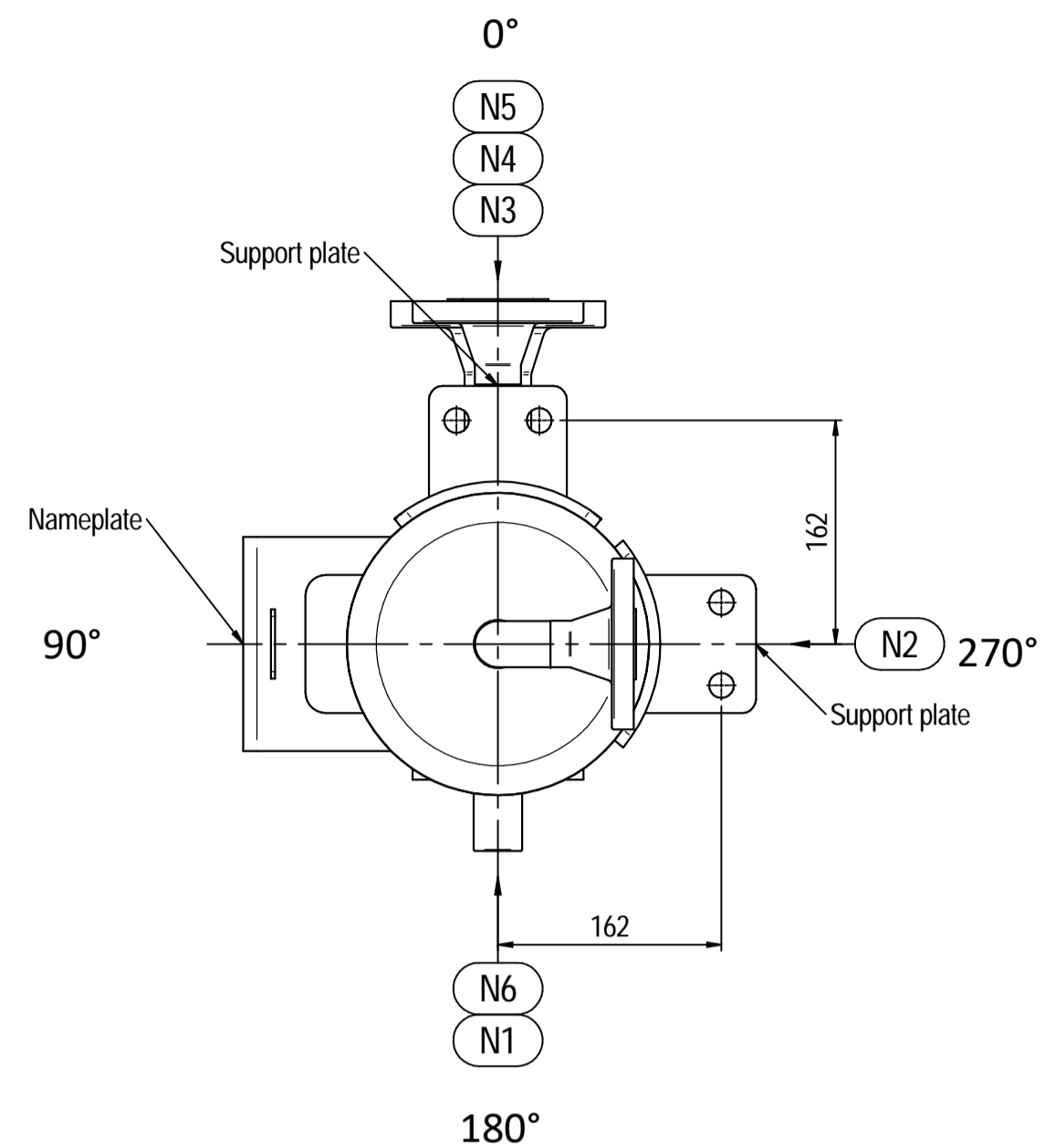
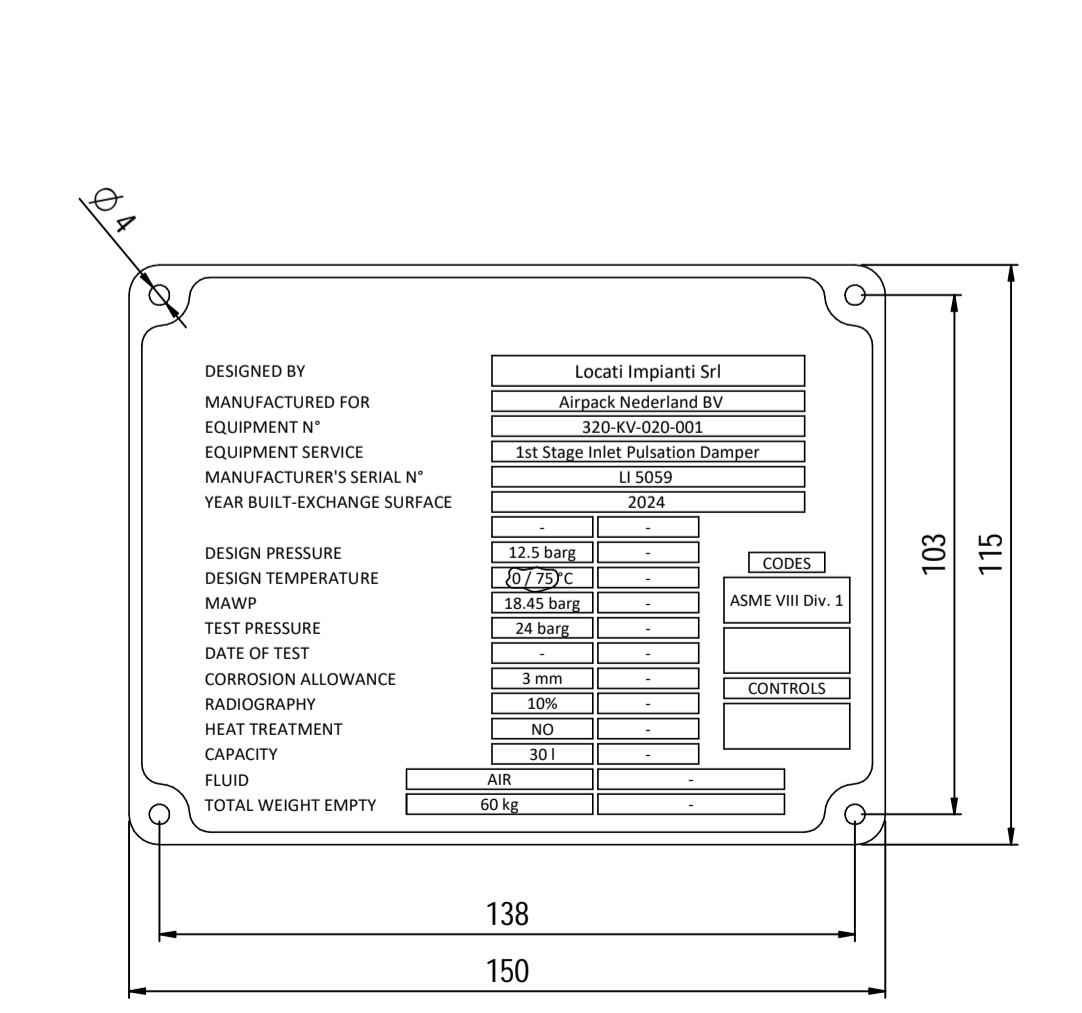
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Scale 1 : 3



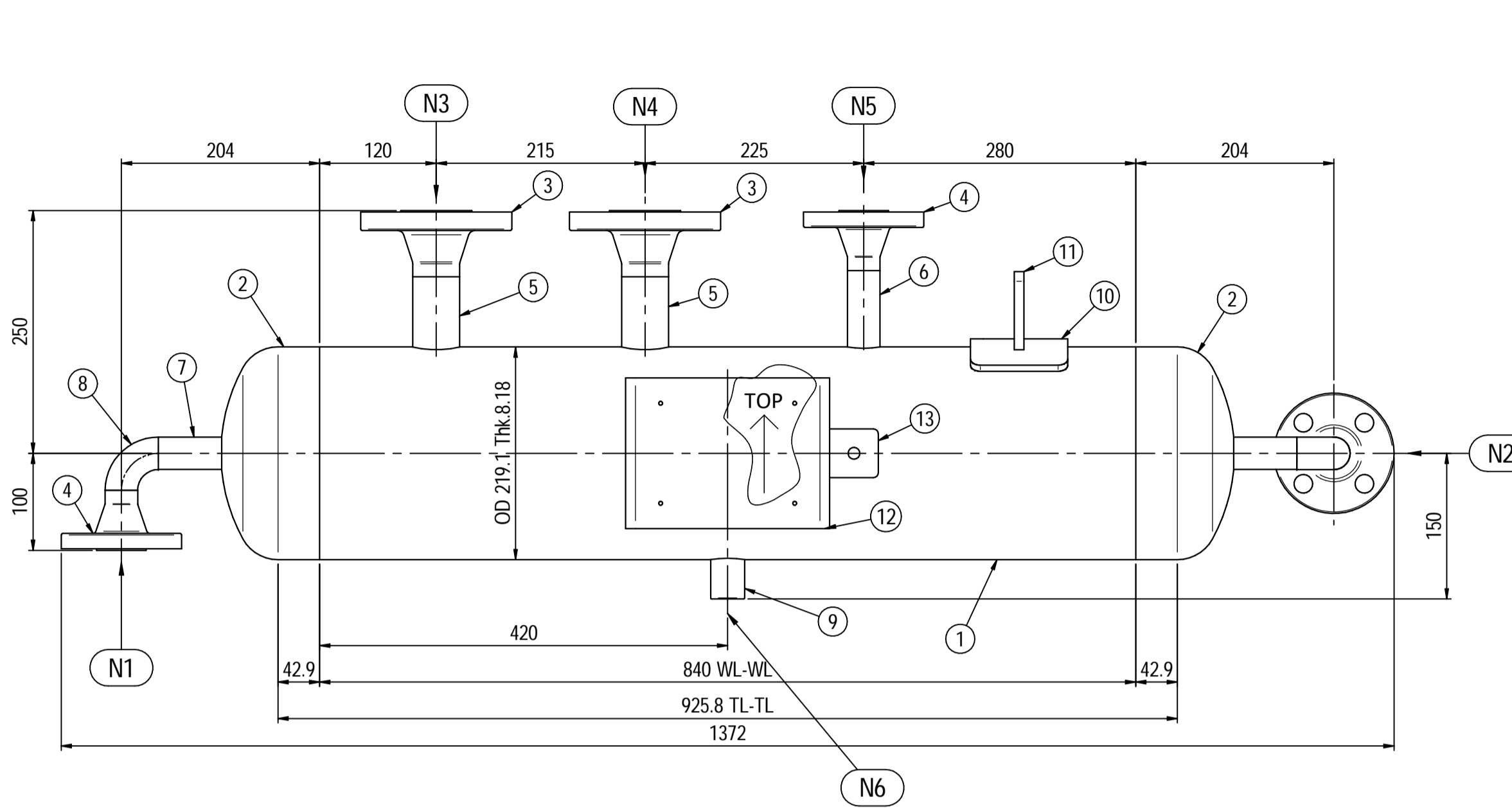
Nameplate detail
Scale 1:5



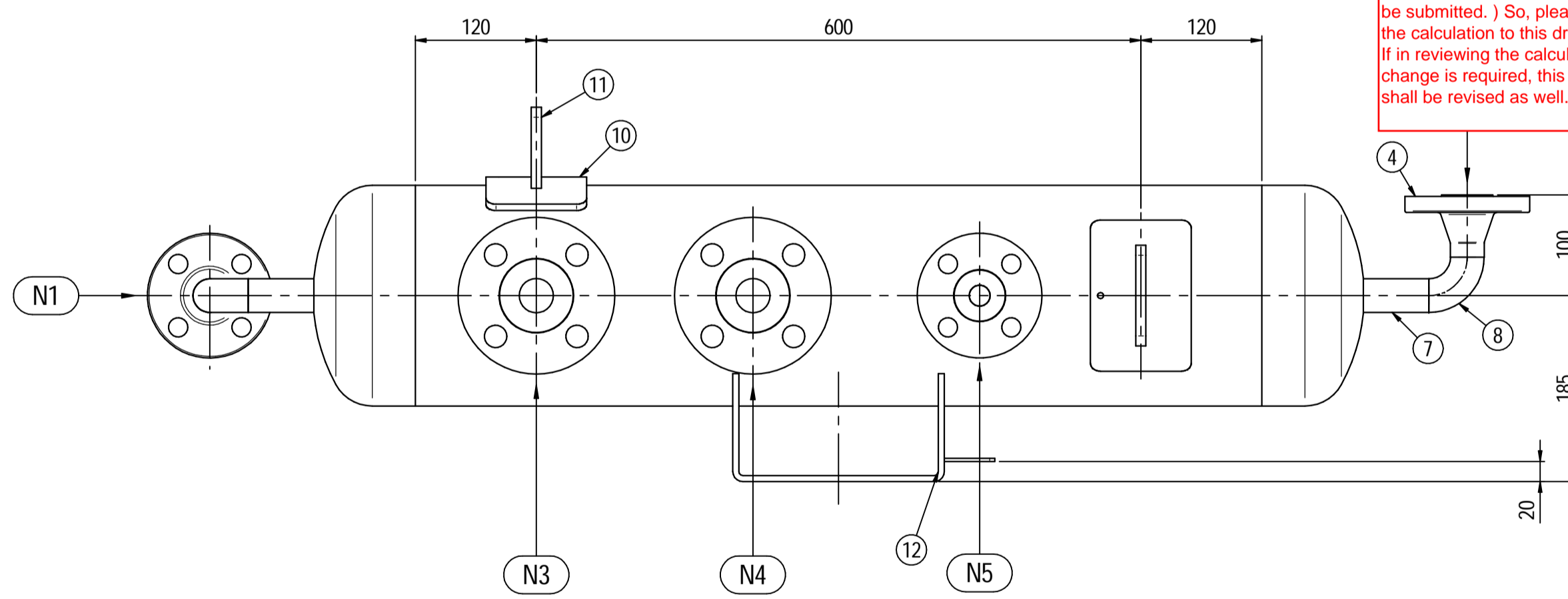
Nameplate detail
scale 1:1.5



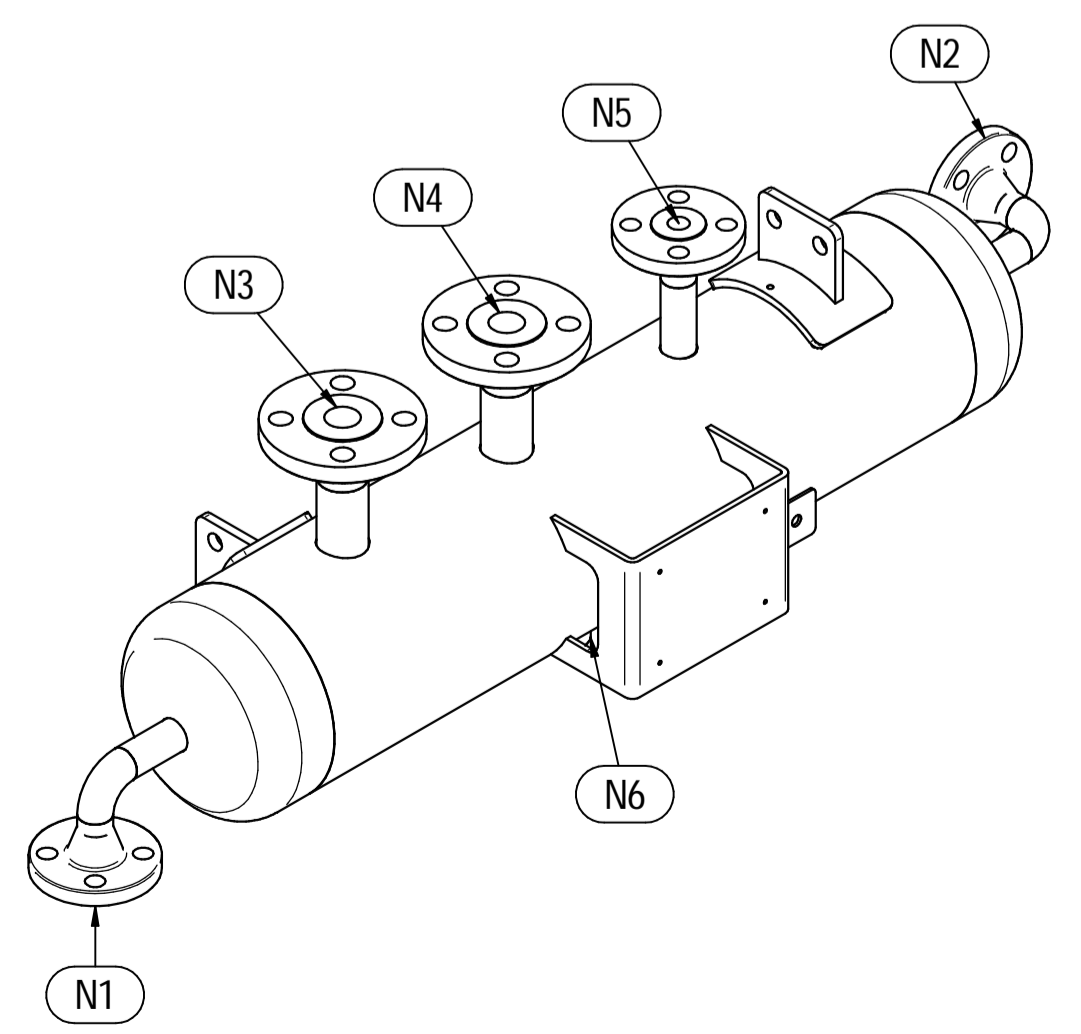
ORIENTATION VIEW



ELEVATION VIEW



PLAN VIEW



ISOMETRIC VIEW

Please be noted that mentioned document is not found on the VPIS. On VPIS only "Pulsation Study Approach 1 Calculations" is considered which is different from mechanical calculation. Therefore please consider below comment from previous revision.
General comment for all drawing: Please note that drawing shall be submitted with calculations. (As per agreements in before order, ASME Sec VIII Div.1 calculation to be submitted.) So, please attach the calculation to this drawing. If in reviewing the calculation, any change is required, this drawing shall be revised as well.

For test ITP shall be followed.

Pos.	QTY	Description	Material	Cert.
1	1	Shell by Seamless Pipe 8" Sch.40 L=840	SA106 Gr.B	3.1
2	2	Cap 8" Sch.40	SA234 WPB	3.1
3	2	Flange 1 1/2" WN #300 RF Sch.160	A105	3.1
4	3	Flange 1" WN #300 RF Sch.160	SA105	3.1
5	2	Seamless Pipe 1 1/2" Sch.160 L=75	SA106 Gr.B	3.1
6	1	Seamless Pipe 1" Sch.160 L=80	SA106 Gr.B	3.1
7	2	Seamless Pipe 1" Sch.160 L=73	SA106 Gr.B	3.1
8	2	Seamless elbow 1" 90° LR Sch.160	SA234 WPB	3.1
9	1	Coupling 1/2" NPT #6000	A105	3.1
10	2	Pad by pipe 100 x 150 Thk.8.18	SA106 Gr.B	
11	2	Support plate 100 x 80 Thk.10	SA516 70	
12	1	Nameplate support by plate 403 x 155 Thk.6	SA516 70	
13	1	Earthing plate 50 x 40 Thk.3	SA240 TP316L	

- Note:**
- Governing measurement S.I. unless otherwise specified
 - Flange bolt holes have to be straddled from main vessel center line in plan & vertical & horizontal centreline in elevation
 - Material: certification 3.1 EN 10204
 - All internal edge shall be rounded off
 - Nozzle flanges in accordance with ASME B16.5: 2020
 - Flange fittings in accordance with ASME B16.9: 2018
 - All fillet welds not detailed on "WELDING MAP" or drawing shall have throated equal to 0.7 times the minimum thickness to be welded
 - All welds are continuous except where indicate
 - For calculation see document number C230048CLC005
 - The nameplate use in SS316 and is laser engraved
 - Non corrosive service, no inspection opening per UG-46(a)
 - On support hexagonal bolts DIN 933, class 8.8 shall be use (Airpack scope)

Please clarify and indicate in drawing.

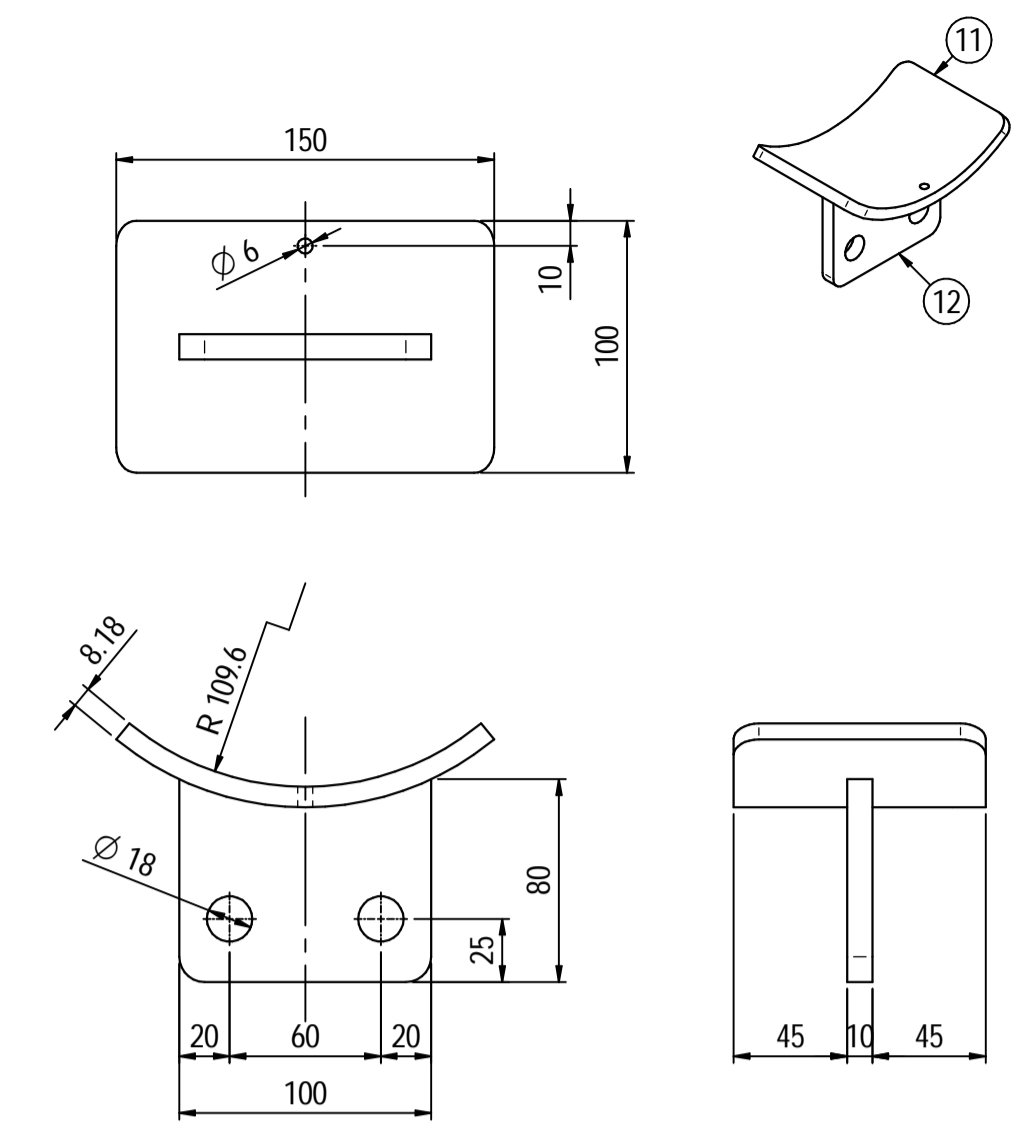
ITEM	QTY	SERVICE	SIZE	PIPE O.D.	THK	RATING	FLANGE TYPE	FACE	O.D.	THK.	Tc
N6	1	DRAIN	1/2"	38.1	8.38	#6000	NPT-F	-	-	-	8 ± 10
N5	1	PSV CONNECTION	1"	33.4	6.35	#300	WN RF	-	-	-	8 ± 10
N4	1	TEMPERATURE GAUGE	1 1/2"	48.3	7.14	#300	WN RF	-	-	-	8 ± 10
N3	1	TEMPERATURE TRANSMITTER	1 1/2"	48.3	7.14	#300	WN RF	-	-	-	8 ± 10
N2	1	AIR OUTLET	1"	33.4	6.35	#300	WN RF	-	-	-	8 ± 10
N1	1	AIR INLET	1"	33.4	6.35	#300	WN RF	-	-	-	8 ± 10

DATI DI PROGETTO / Design data			
FLUIDO	Air	COLLAUDO	Test
STATO FISICO DEL FLUIDO	Gas	PED	N/A
CODICE DI CALCOLO	ASME VIII Div.1 Ed.2021		
PRESSIONE DI ESERCIZIO	9.5 barg	SERVIZIO LETALE	NO
PRESSIONE DI PROGETTO	12.5 barg	X-RAY	RT examination
PRESSIONE ESTERNA	NO	LIQUIDI PENERANTI	NO
PRESSIONE DI PROVA IDRAULICA	24 barg	ULTRASUONI	NO
TEMPERATURA DI ESERCIZIO	5 + 46°C	CONTROLLO MAGNETOSCOPICO	NO
TEMPERATURA DI PROGETTO	75 °C	ALLONIE DI SALDATURA	NO
SOVRAMEALLO DI CORROSIONE	3 mm	PROCEDIMENTO DI SALDATURA	See doc: C230048WBK009
CAPACITA'	32 l	TIPO DI FONDO	CAP
EFFICIENZA GIUNTI	0.85	FORMAZIONE FONDO	HOT
MAWP @ Design Temperature	18.45 barg @ +75°C	PESO A VUOTO	60 kg
MAWP(EXT)	NO	PESO IN ESERCIZIO	60 kg
MDMT @ MAWP	0 °C @ 18.45 barg	PESO PIENO D'ACQUA	92 kg
TRATTAMENTO TERMICO	NO	DATI DEL VENTO	-
IMPACT TEST	NO	DATI SISMICI	-

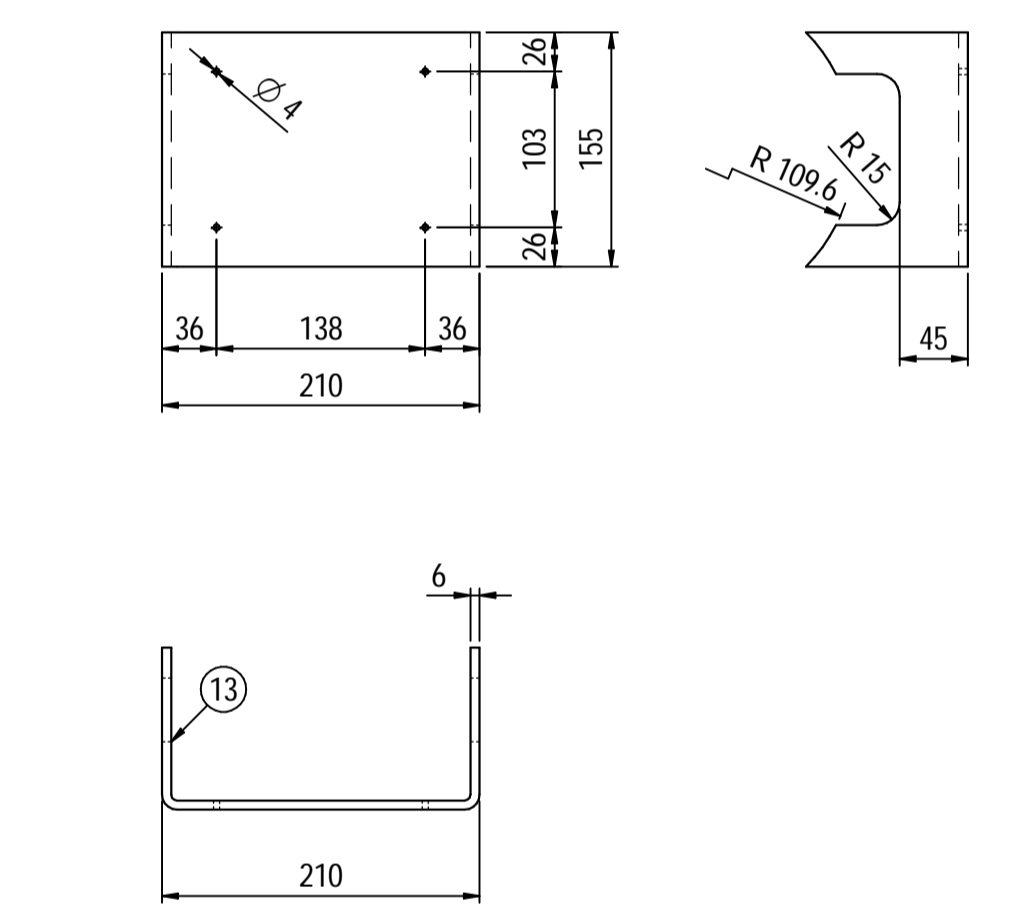
Rev.	Descrizione / Description	Disegnato/Draw	Controllato/Checked	Approvato/Approved	Data/Date
01	Revised as per Customer comments	LG	MV	MV	11/05/2024
00	FIRST ISSUE	LG	MV	MV	03/02/2024

Oggetto/Object			
1st STAGE INLET PULSATION DAMPER			
Scala/Scale	1 : 5	Formato/Size	A1
Comm. N°/Job No.	C230048	Foglio/Sheet	1 - 1
Cliente/Customer	Airpack Nederland B.V.		
Ord. No.	17735-VV-900 (SK)		
Dis. N°/Dwg No.	C230048DWG001	Rev.	01

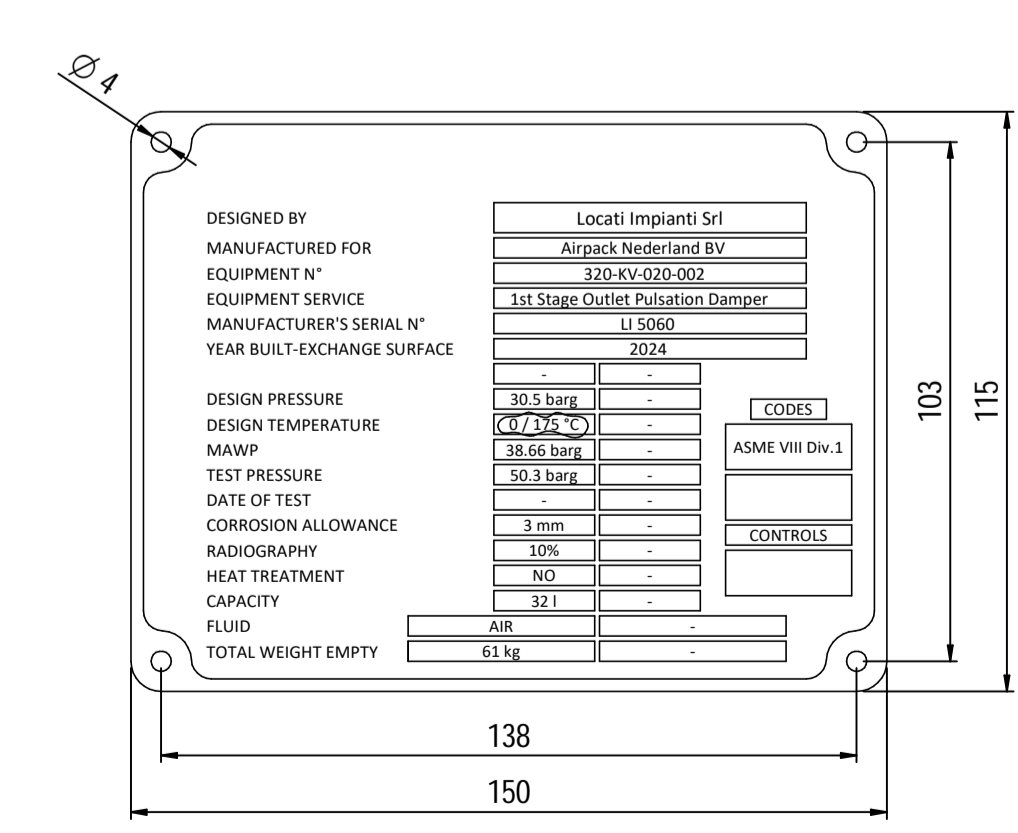
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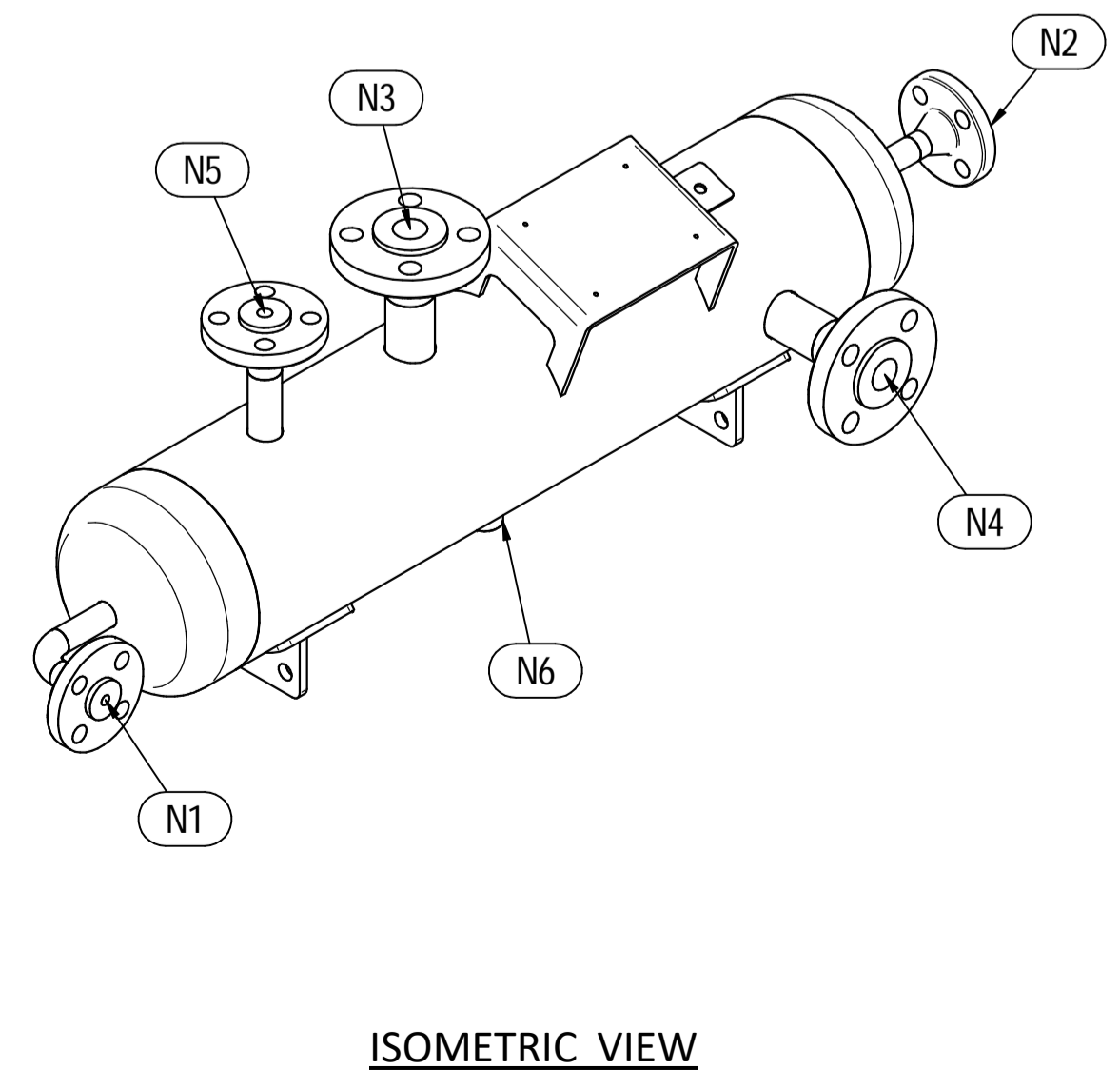
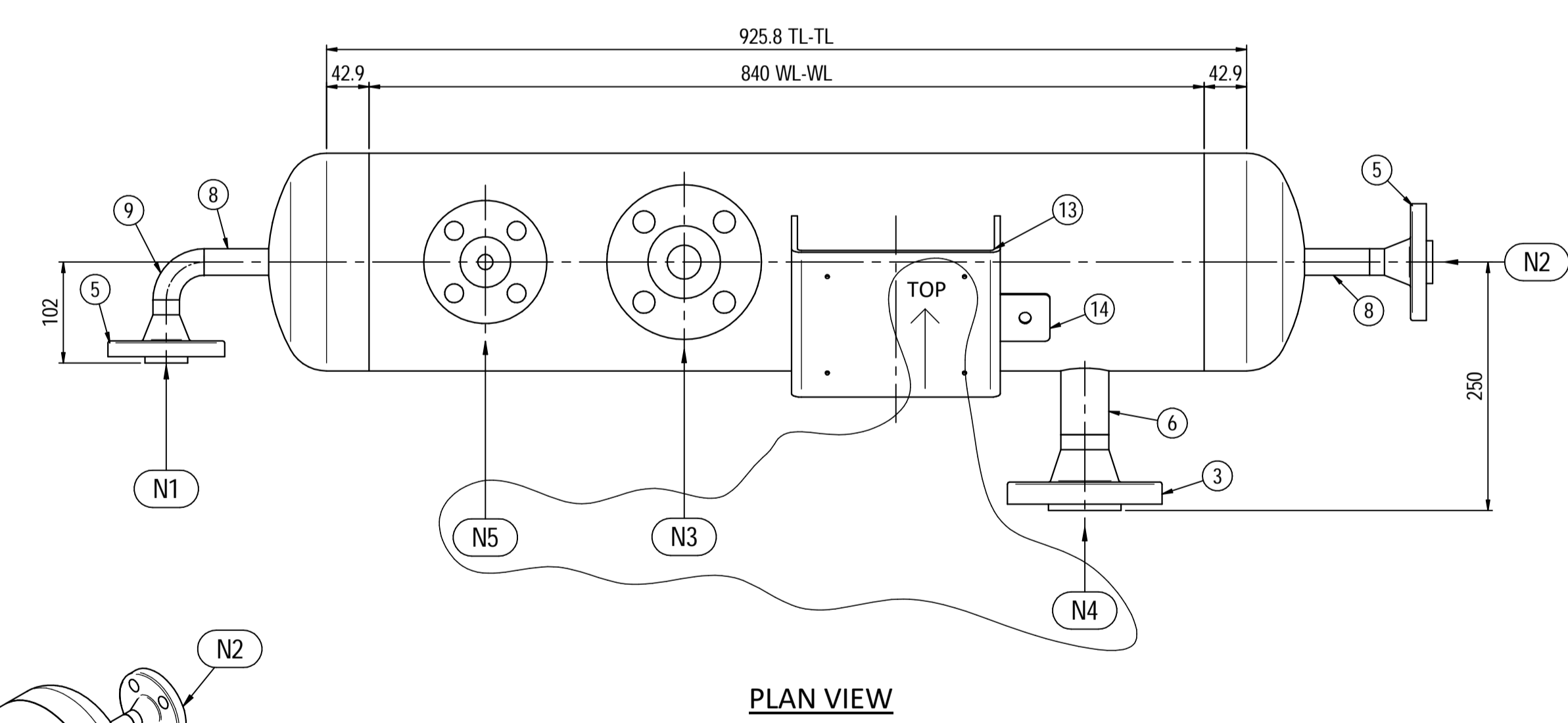
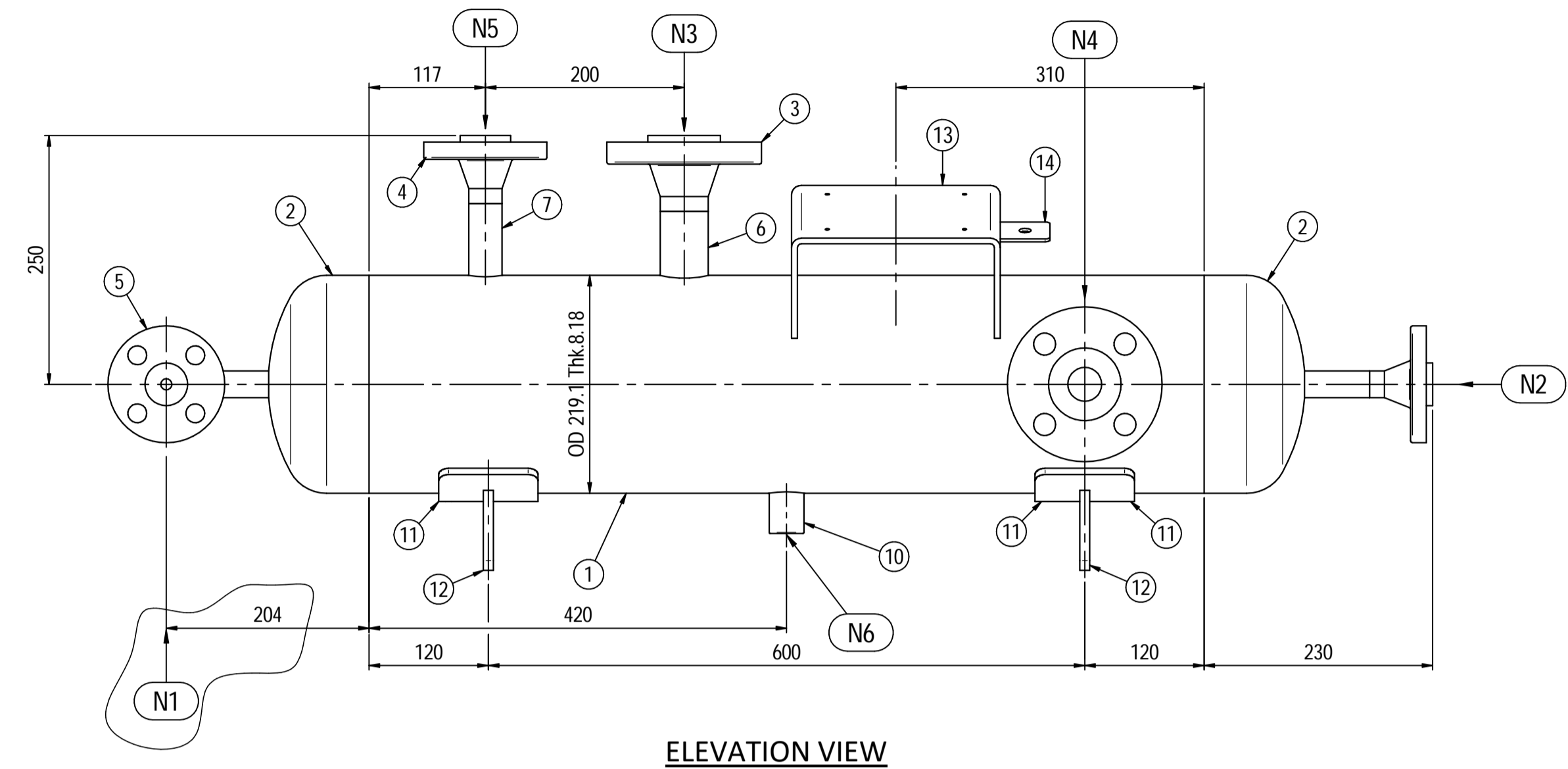
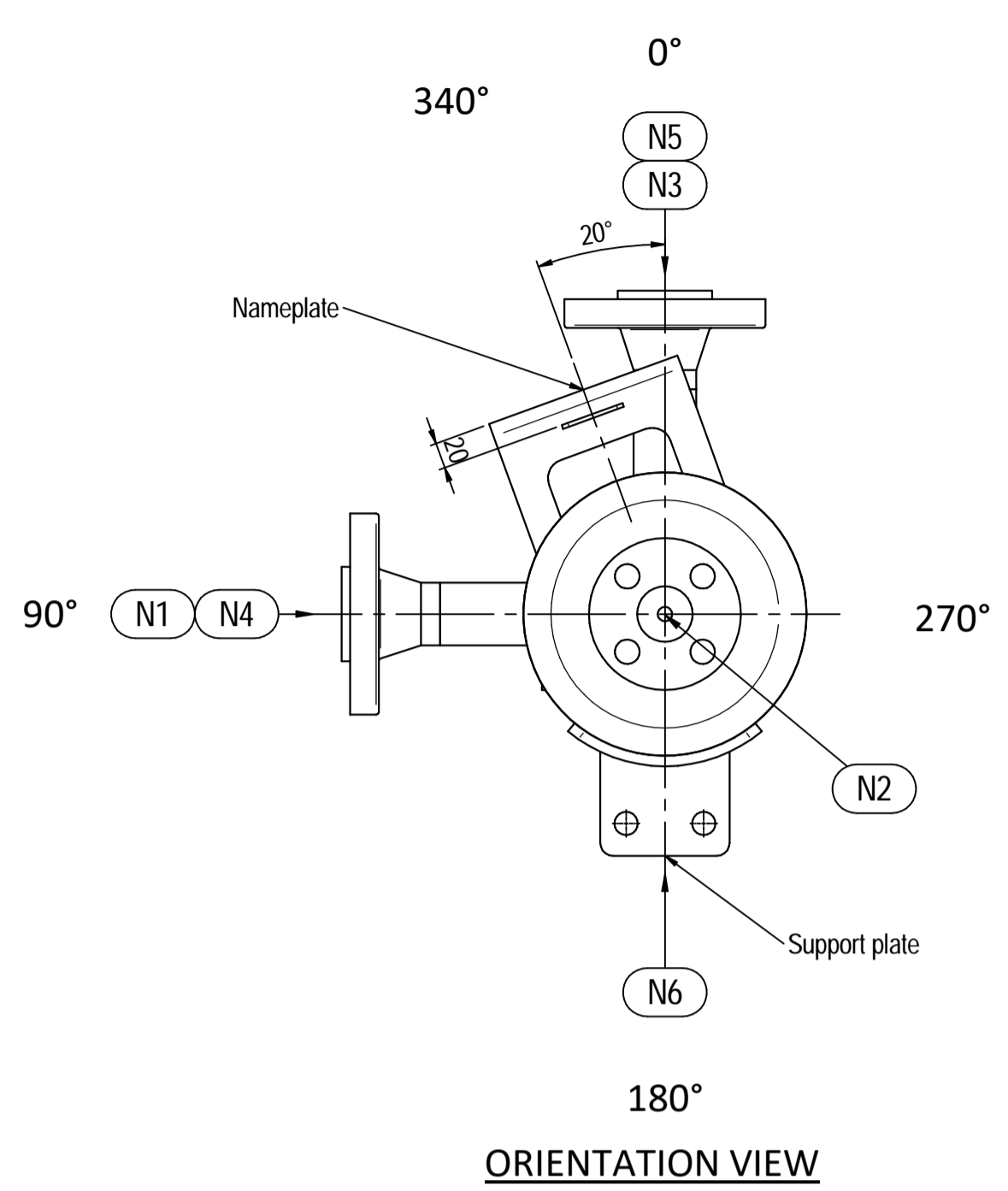
Nameplate detail
Scale 1:5



Nameplate detail
scale 1:1.5



Please refer to the same comments on page 3.



Pos.	QTY	Description	Material	Cert.
1	1	Shell by Seamless Pipe 8" Sch.40 L=840	SA106 Gr.B	3.1
2	2	Cap 8" Sch.40	SA234 WPB	3.1
3	2	Flange 1 1/2" WN #600 RF Sch.160	SA105	3.1
4	1	Flange 1" WN #600 RF Sch.XXS	SA105	3.1
5	2	Flange 3/4" WN #600 RF Sch.XXS	SA105	3.1
6	2	Seamless Pipe 1 1/2" Sch.160 L=75	SA106 Gr.B	3.1
7	1	Seamless Pipe 1" Sch.XXS L=80	SA106 Gr.B	3.1
8	2	Seamless Pipe 3/4" Sch.XXS L=73	SA106 Gr.B	3.1
9	1	Seamless elbow 3/4" 90° LR Sch.XXS	SA234 WPB	3.1
10	1	Coupling 3/4" NPT #6000	A105	3.1
11	2	Pad by pipe 100 x 150 Thk.8.18	SA106 Gr.B	
12	2	Support plate 100 x 80 Thk.10	SA516 70	
13	1	Nameplate support by plate 403 x 155 Thk.6	SA516 70	
14	1	Earthing plate 50 x 40 Thk.3	SA240 TP316L	

- Note:
- Governing measurement S.I. unless otherwise specified
 - Flange bolt holes have to be straddled from main vessel center line in plan & vertical & horizontal centreline in elevation
 - Material: certification 3.1 EN 10204
 - All internal edge shall be rounded off
 - Nozzle flanges in accordance with ASME B16.5: 2020
 - Flange fittings in accordance with ASME B16.9: 2018
 - All fillet welds not detailed on "WELDING MAP" or drawing shall have the weld throated equal to 0.7 times the minimum thickness to be welded
 - All welds are continuous except where indicate
 - For calculation see document number C230048LC006
 - The nameplate ise in SS316 and is laser engraved
 - Non corrosive service, no inspection opening per UG-46(a)
 - On support hexagonal bolts DIN 933, class 8.8 shall be use (Airpack scope)

ITEM	QTY	SERVICE	SIZE	O.D.	THK	RATING	TYPE	FACE	O.D.	THK.	Tc
N6	1	DRAIN	1/2"	38.1	8.38	#6000	NPT-F	-	-	-	8± 10
N5	1	TEMPERATURE GAUGE	1 1/2"	48.3	7.14	#600	WN RF	-	-	-	8± 10
N4	1	TEMPERATURE TRANSMITTER	1 1/2"	48.3	7.14	#600	WN RF	-	-	-	8± 10
N3	1	PSV CONNECTION	1"	33.4	9.09	#600	WN RF	-	-	-	8± 10
N2	1	AIR OUTLET	3/4"	26.7	7.82	#600	WN RF	-	-	-	8± 10
N1	1	AIR INLET	3/4"	26.7	7.82	#600	WN RF	-	-	-	8± 10

ITEM	Qtà	SERVIZIO	NPS/DN	PIPE TUBO	FLANGE	FACE	O.D.	THK.	THK.	RINFORZO
DATI DI PROGETTO / Design data										
FLUIDO		Air		COLLAUDO		Test				0094 Iqa Inspection Iberia SA
STATO FISICO DEL FLUIDO		Gas		TEST		PED				N/A
CODICE DI CALCOLO		ASME VIII Div. 1 Ed.2021								
PRESSIONE DI ESERCIZIO		23.3 barg		SERVIZIO LETALE		NO				
PRESSIONE DI PROGETTO		30.5 barg		X-RAY		RT examination				Spot (10%)
PRESSIONE ESTERNA		NO		LIQUIDI PENETRANTI		NO				
PRESSIONE DI PROVA IDRAULICA		50.26 barg		ULTRASUONI		NO				
TEMPERATURA DI ESERCIZIO		157 °C		CONTROLLO MAGNETOSCOPICO		NO				
TEMPERATURA DI PROGETTO		175 °C		TALLONE DI SALDATURA		NO				
SOVRAMEZZO DI CORROSIONE		3 mm		PROCEDIMENTO DI SALDATURA		See doc: C230048WBK009				
CAPACITA'		32 l		TIPO DI FONDO		CAP				
EFFICIENZA GIUNTI		0.85		FORMAZIONE FONDO		HOT				
MAWP @ Design Temperature		38.66 barg @ +175 °C		PESO A VUOTO		61 kg				
MAWP(EXT)		NO		PESO IN ESERCIZIO		61 kg				
MDMT @ MAWP		0 °C @ 38.66 barg		PESO PIENO D'ACQUA		93 kg				
TRATTAMENTO TERMICO		NO		DATI DEL VENTO						
IMPACT TEST		NO		DATI SISMICI						

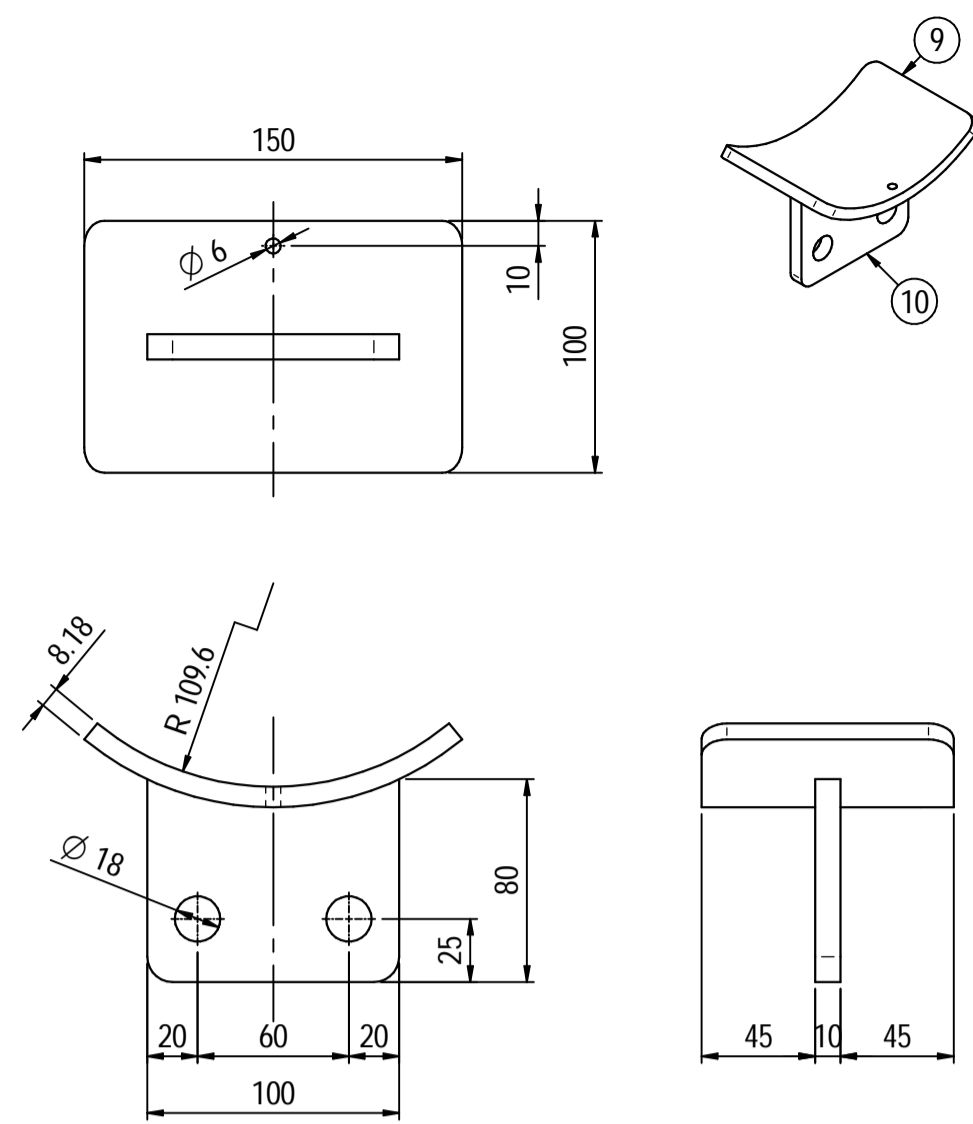
Rev.	Descrizione / Description	Disegnato/Draw	Controllato/Checked	Approvato/Approved	Data/Date
00	FIRST ISSUE	LG	MV	MV	03/02/2024
Oggetto/Object: 1st STAGE INLET PULSATION DAMPER					

Outlet.

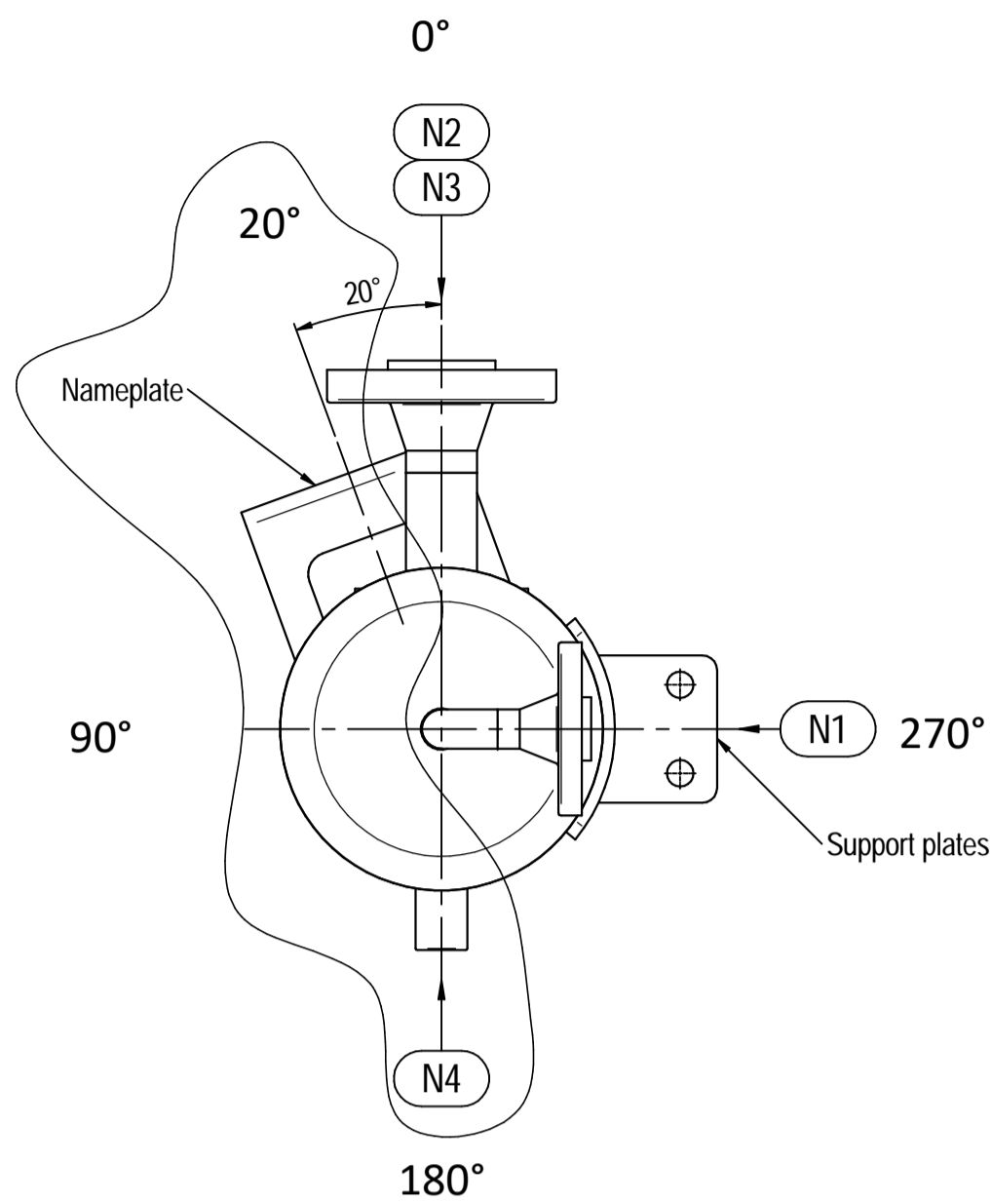
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Cliente/Customer	Airpack Nederland B.V.		
Ord. No.	17735-VV-900 (SK)		
Dis. N°/Dwg No.	C230048DWG001	Rev.	00

Supports detail

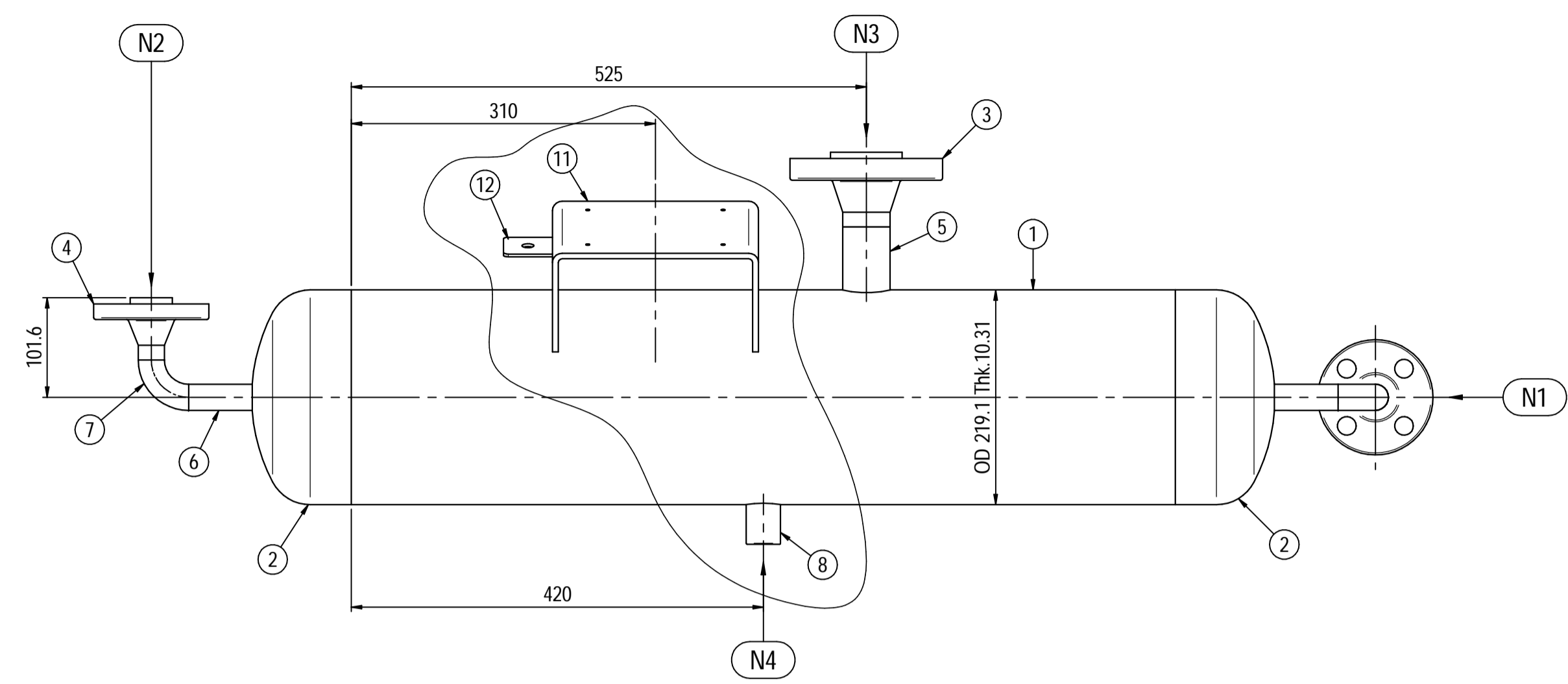
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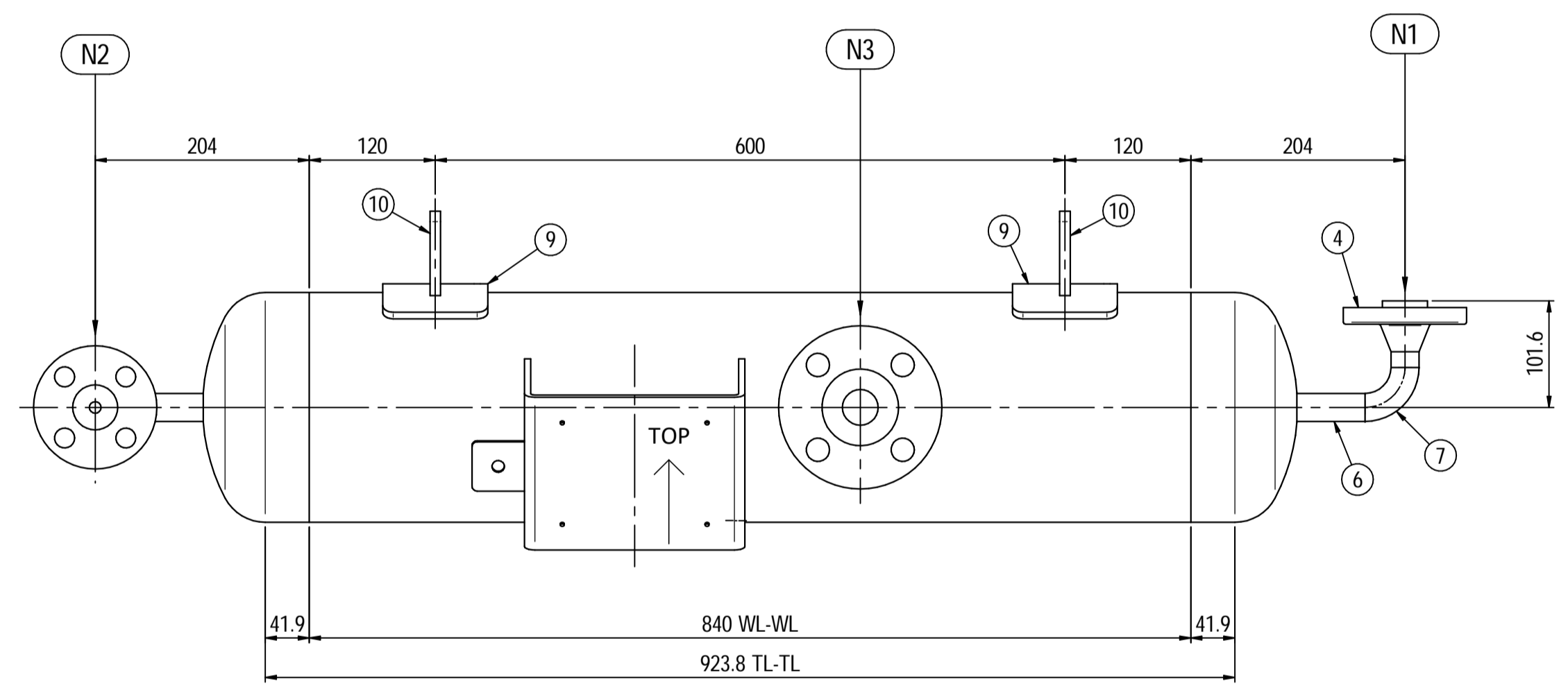
Please refer to the same comments on page 3.



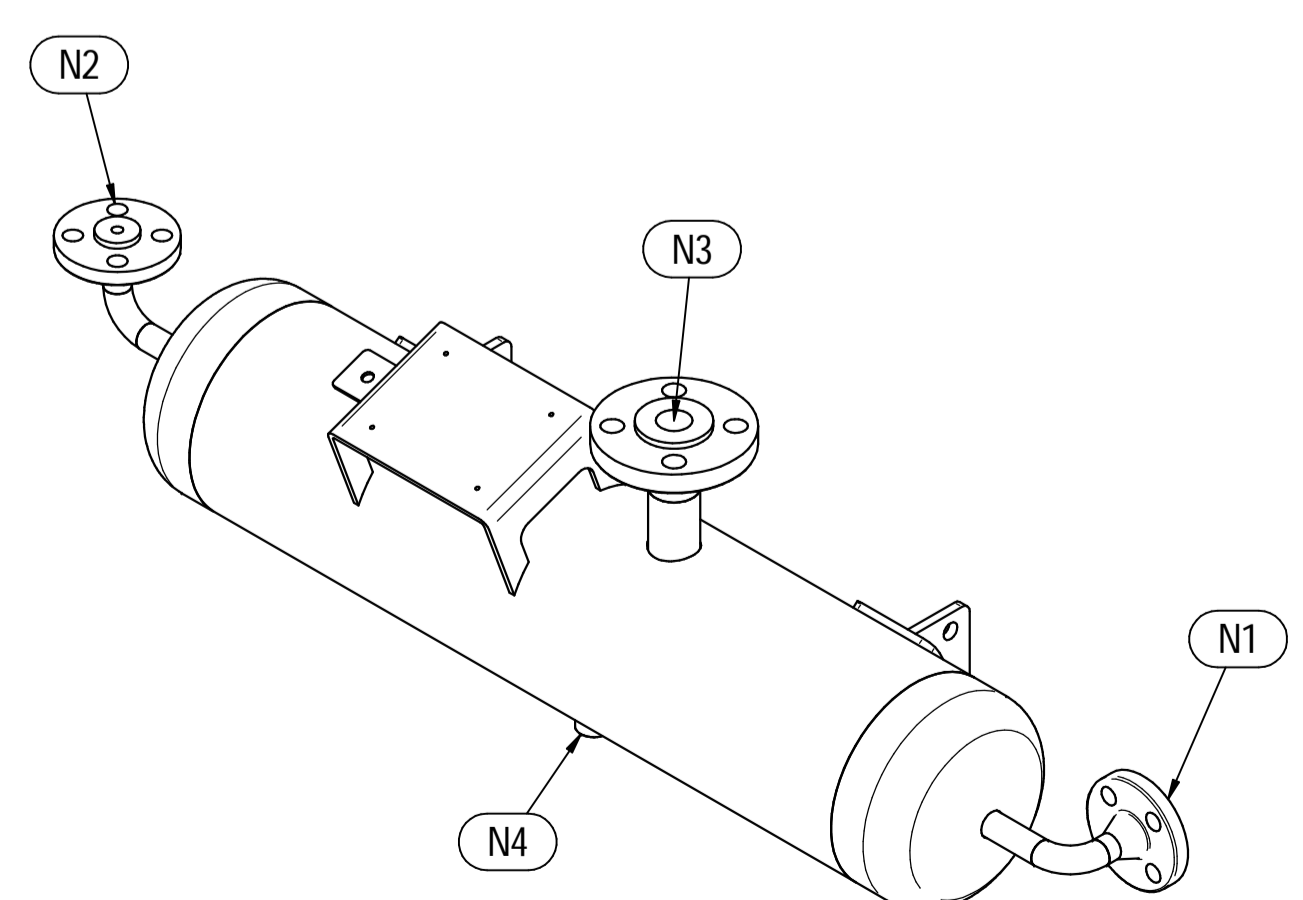
ORIENTATION VIEW



ELEVATION VIEW



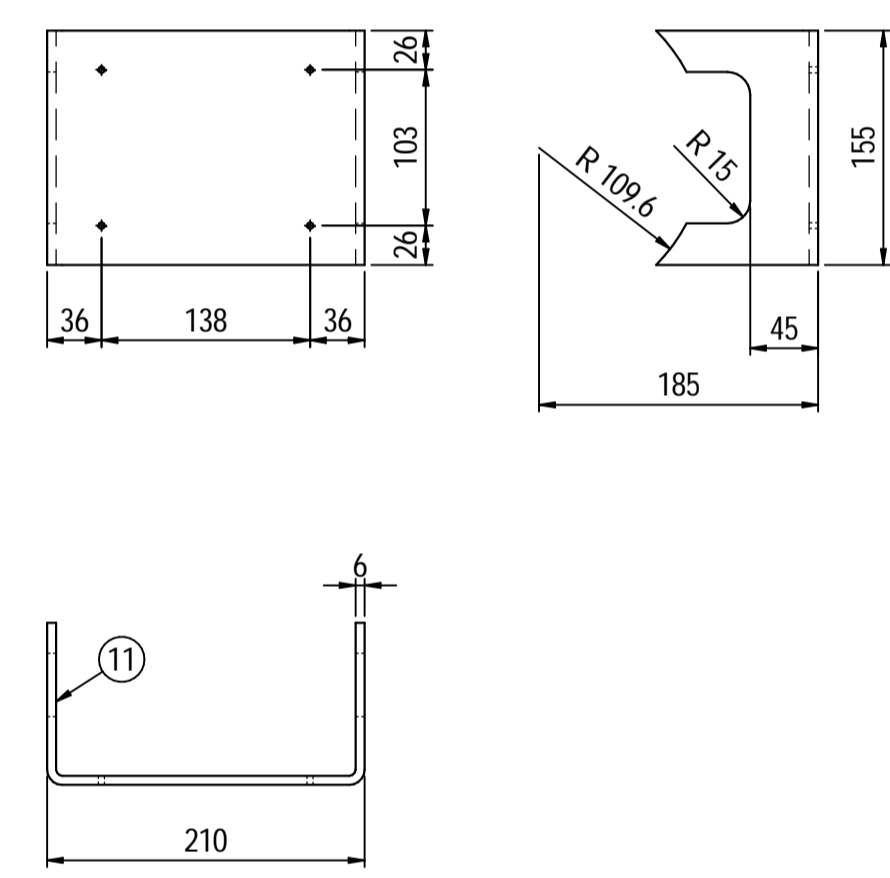
PLAN VIEW



ISOMETRIC VIEW

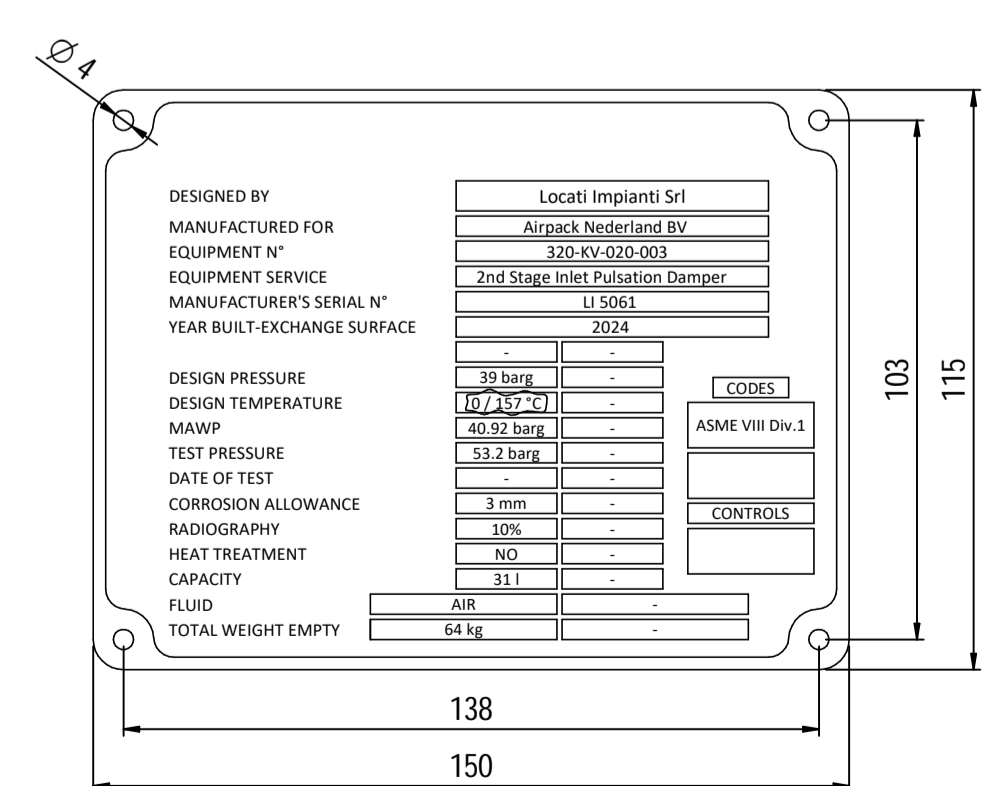
Nameplate detail

Scale 1:5



Nameplate detail

scale 1:1.5



Pos.	QTY	Description	Material	Cert.
1	1	Shell by Seamless Pipe 8" Sch.60 L=840	SA106 Gr.B	3.1
2	2	Cap 8" Sch.60	SA234 WPB	3.1
3	1	Flange 1 1/2" WN #600 RF Sch.160	SA105	3.1
4	2	Flange 1/2" WN #600 RF Sch.XXS	SA105	3.1
5	1	Seamless Pipe 1 1/2" Sch.160 L=75	SA106 Gr.B	3.1
6	2	Seamless Pipe 3/4" Sch.XXS L=73	SA106 Gr.B	3.1
7	2	Seamless elbow 1/2" 90° LR Sch.XXS	SA234 WPB	3.1
8	1	Coupling 1/2" NPT #6000	A105	3.1
9	2	Pad by pipe 100 x 150 Thk.8.18	SA106 Gr.B	
10	2	Support plate 100 x 80 Thk.10	SA516 70	
11	1	Nameplate support by plate 403 x 155 Thk.6	SA516 70	
12	1	Earthing plate 50 x 40 Thk.3	SA240 TP316L	

- Note:
- 1) Governing measurement S.I. unless otherwise specified
 - 2) Flange bolt holes have to be straddled from main vessel center line in plan & vertical & horizontal centreline in elevation
 - 3) Material: certification 3.1 EN 10204
 - 4) All internal edge shall be rounded off
 - 5) Nozzle flanges in accordance with ASME B16.5: 2020
 - 6) Flange fittings in accordance with ASME B16.9: 2018
 - 7) All fillet welds not detailed on "WELDING MAP" or drawing shall have the weld throated equal to 0.7 times the minimum thickness to be welded
 - 8) All welds are continuous except where indicate
 - 9) For calculation see document number C230048CLC007
 - 10) The nameplate use in SS316 and is laser engraved
 - 11) Non corrosive service, no inspection opening per UG-46(a)
 - 12) On support hexagonal bolts DIN 933, class 8.8 shall be use (Airpack scope)

ITEM	QTY	SERVICE	SIZE	O.D.	THK	RATING	TYPE	FACE	O.D.	THK.	Tc
N4	1	DRAIN	1/2"	38.1	8.28	#6000	NPT-F	-	-	-	8 ± 10
N3	1	TEMPERATURE TRANSMITTER	1 1/2"	48.3	7.14	#600	WN RF	-	-	-	8 ± 10
N2	1	AIR OUTLET	1/2"	26.7	7.82	#600	WN RF	-	-	-	8 ± 10
N1	1	AIR INLET	1/2"	26.7	7.82	#600	WN RF	-	-	-	8 ± 10

ITEM	Qtà	SERVIZIO	NPS/DN	O.D.	THK	RATING	TYPE	FACE	O.D.	THK.	RINFORZO
DATI DI PROGETTO / Design data											
FLUIDO		Air									
STATO FISICO DEL FLUIDO		Test									
CODICE DI CALCOLO		ASME VIII Div.1 Ed.2021									
PRESSIONE DI ESERCIZIO		22.1 barg									
PRESSIONE DI PROGETTO		39 barg									
PRESSIONE ESTERNA		NO									
PRESSIONE DI PROVA IDRAULICA		53.2 barg									
TEMPERATURA DI ESERCIZIO		60 °C									
TEMPERATURA DI PROGETTO		157 °C									
SOVRAMEZZA DI CORROSIONE		3 mm									
CAPACITA'		31 l									
EFFICIENZA GIUNTI		0.85									
MAWP @ Design Temperature		40.92 barg @ +157°C									
MDMT @ MAWP		0 °C @ 40.92 barg									
TRATTAMENTO TERMICO		NO									
IMPACT TEST		NO									

Rev.	Descrizione / Description	Disegnato/Draw	Controllato/Checked	Approvato/Approved	Data/Date
01	Revised as per Customer comments	LG	MV	MV	11/05/2024
00	FIRST ISSUE	LG	MV	MV	03/02/2024

Oggetto/Object: **2nd STAGE INLET PULSATION DAMPER**

Scala/Scale: 1 : 5 Formato/Size: A1

Comm. N°/Job No.: C230048 Foglio/Sheet: 1 - 1

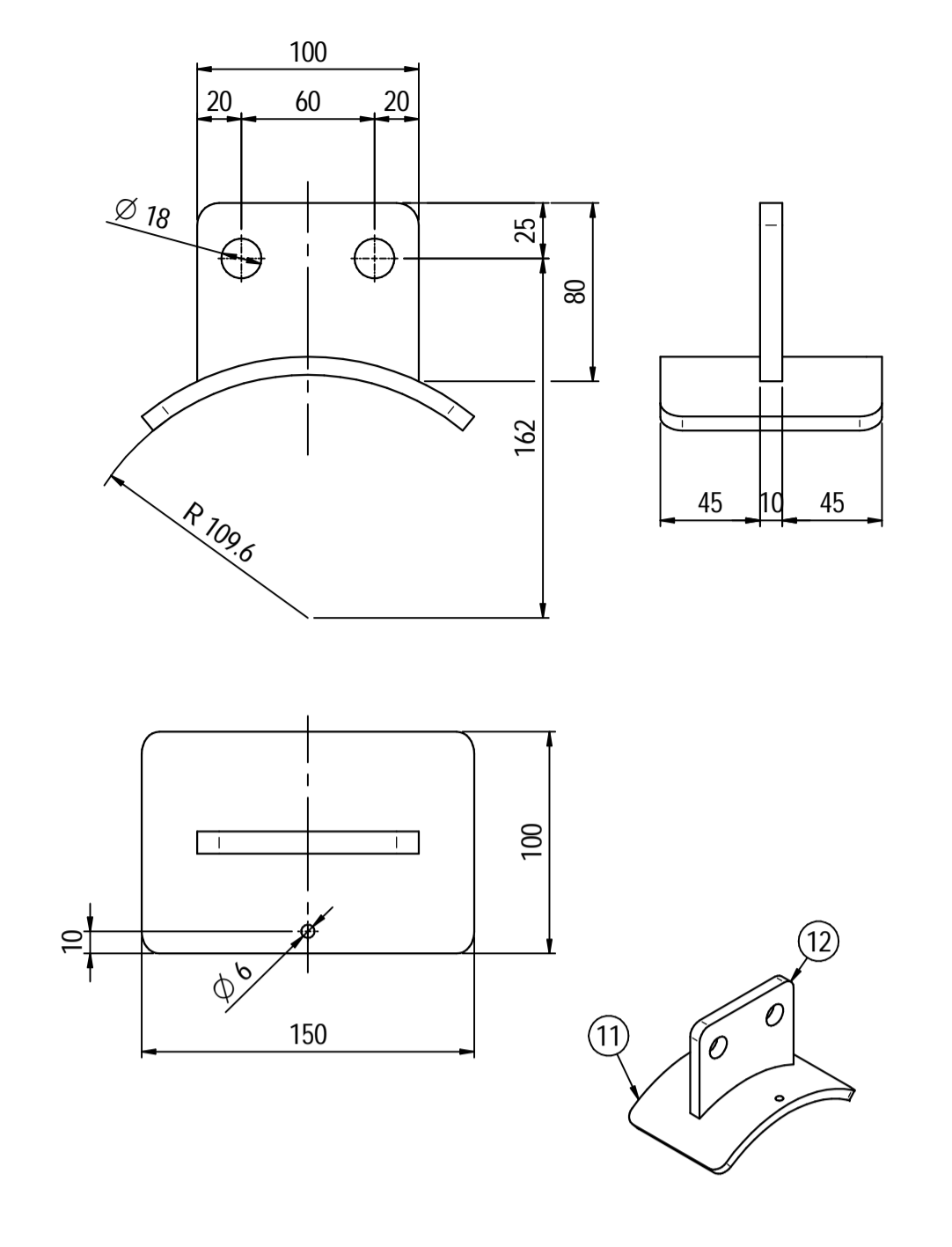
Cliente/Customer: Airpack Nederland B.V.

Ord. No.: 17735-VV-900 (SK)

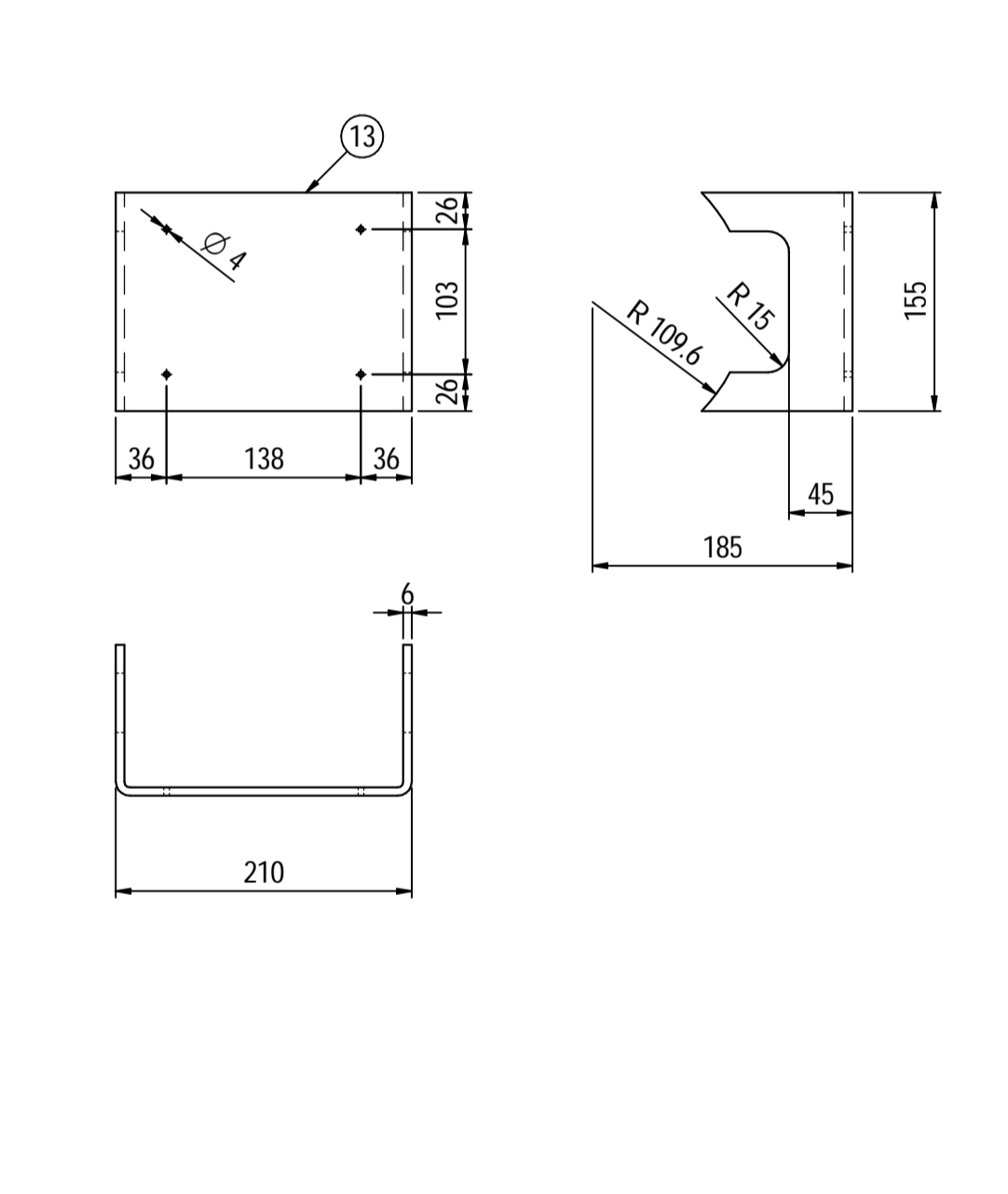
Dis. N°/Dwg No.: **C230048DWG003** Rev.: 01

Locati Impianti S.r.l. logo

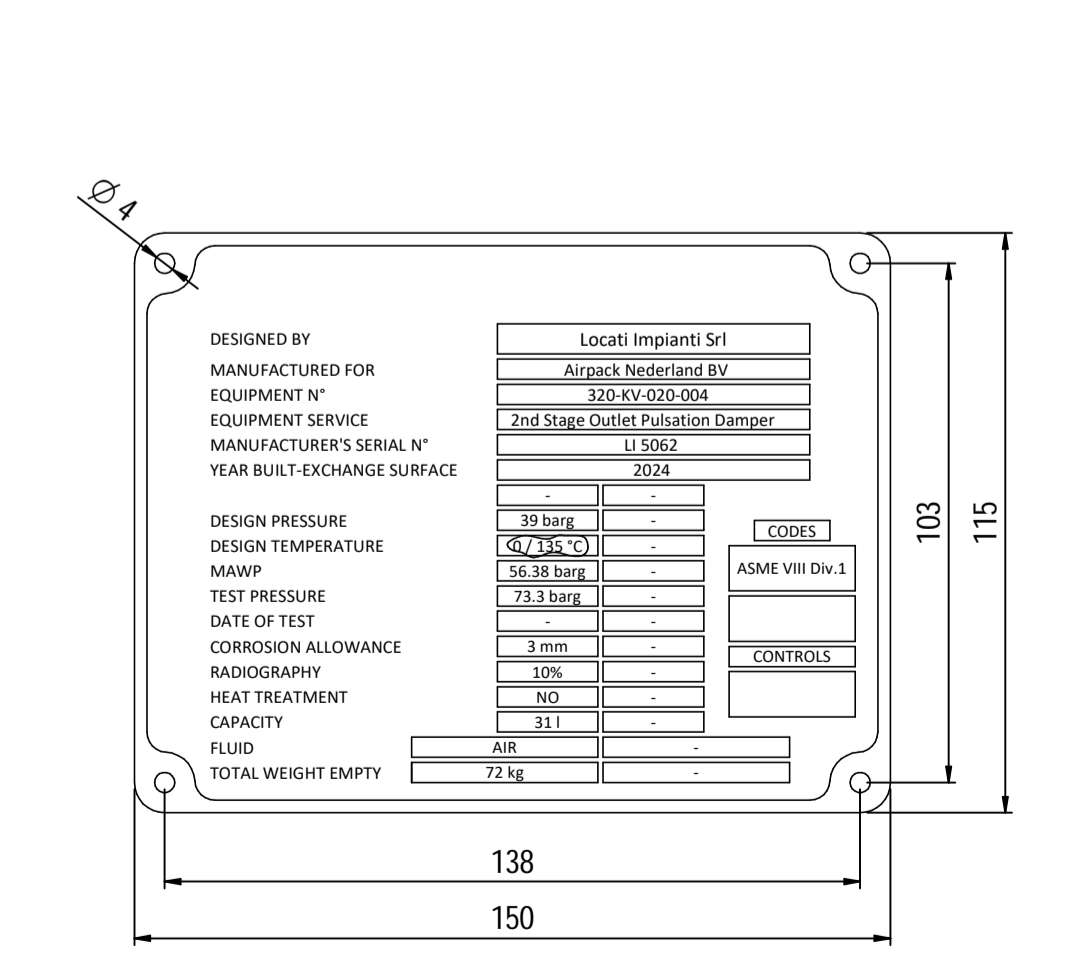
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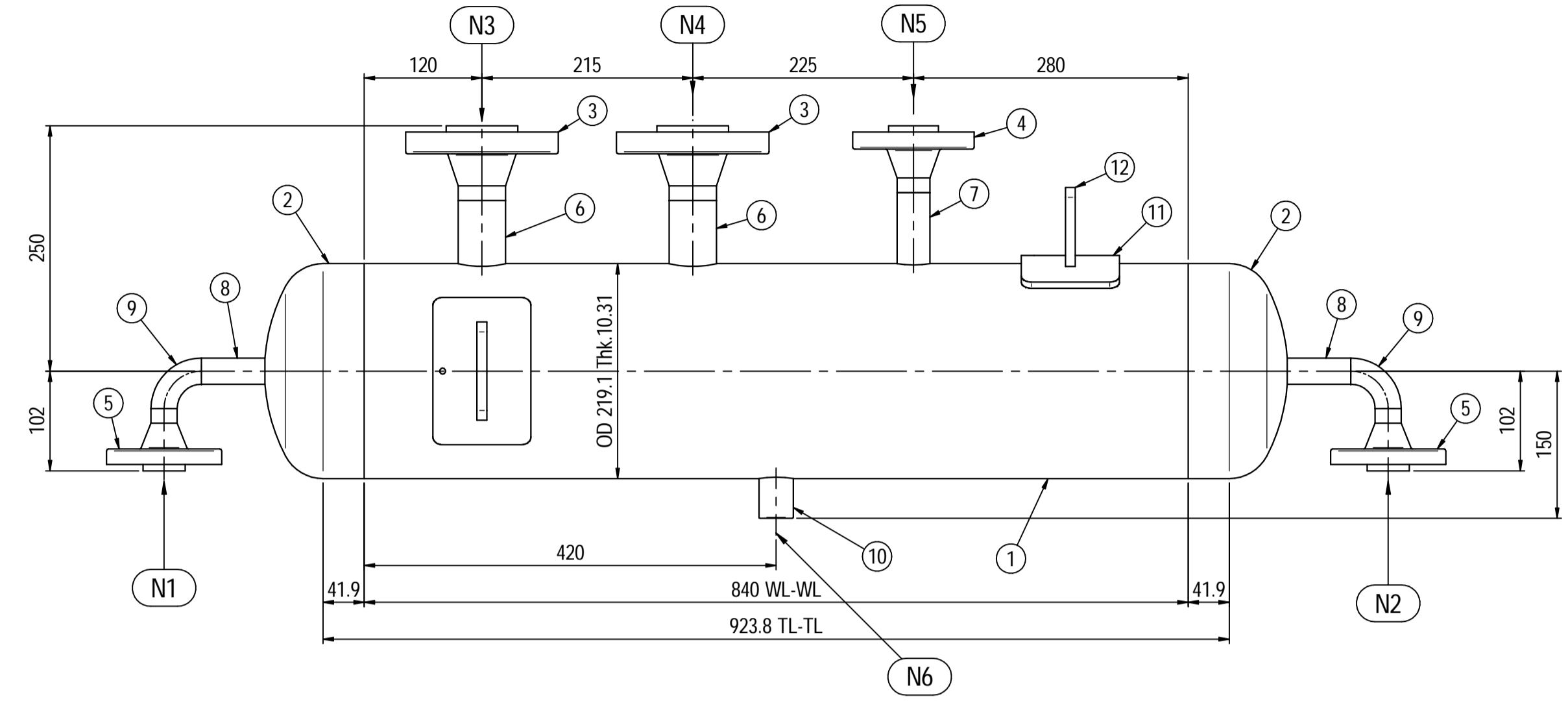
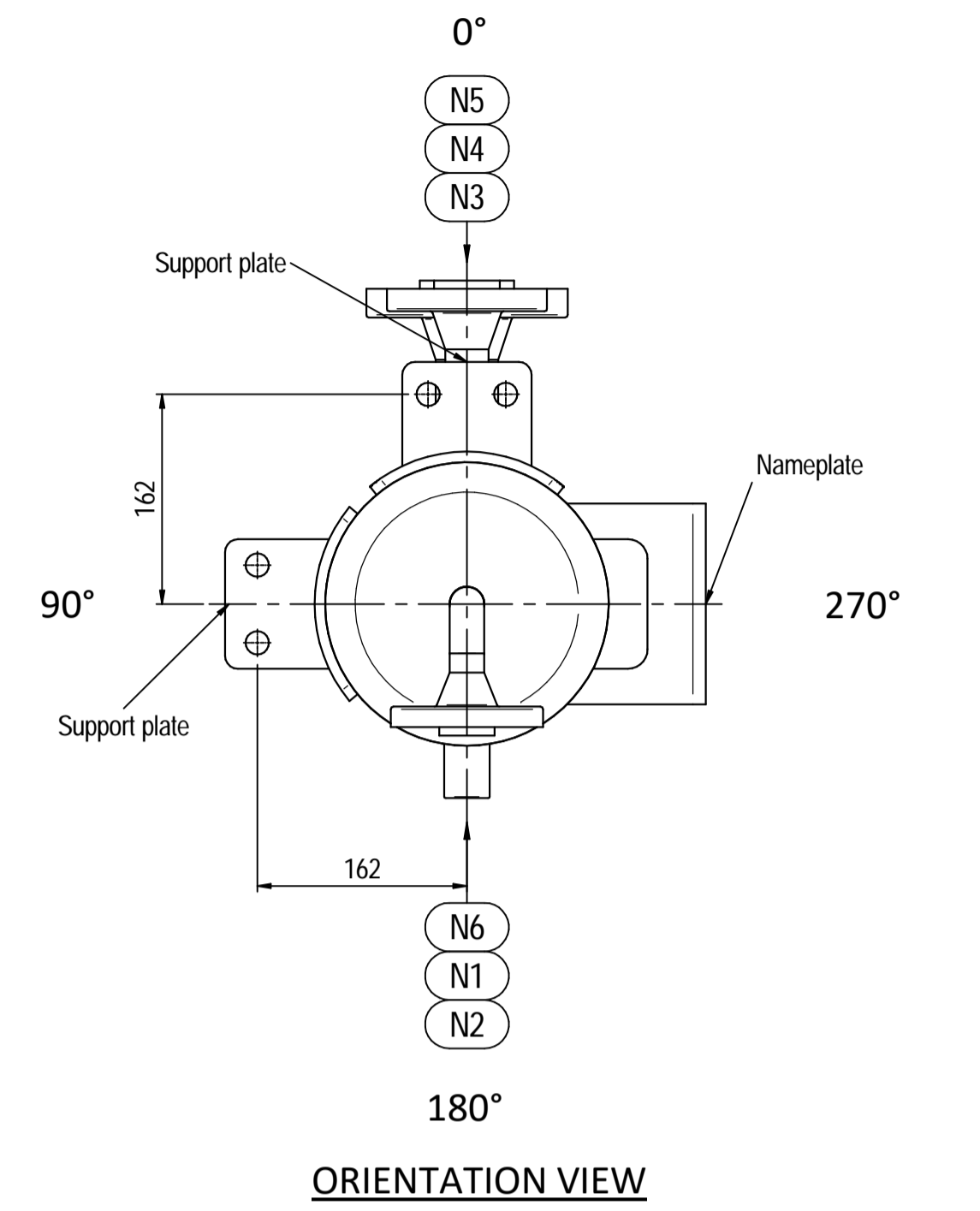
Nameplate detail
Scale 1:5



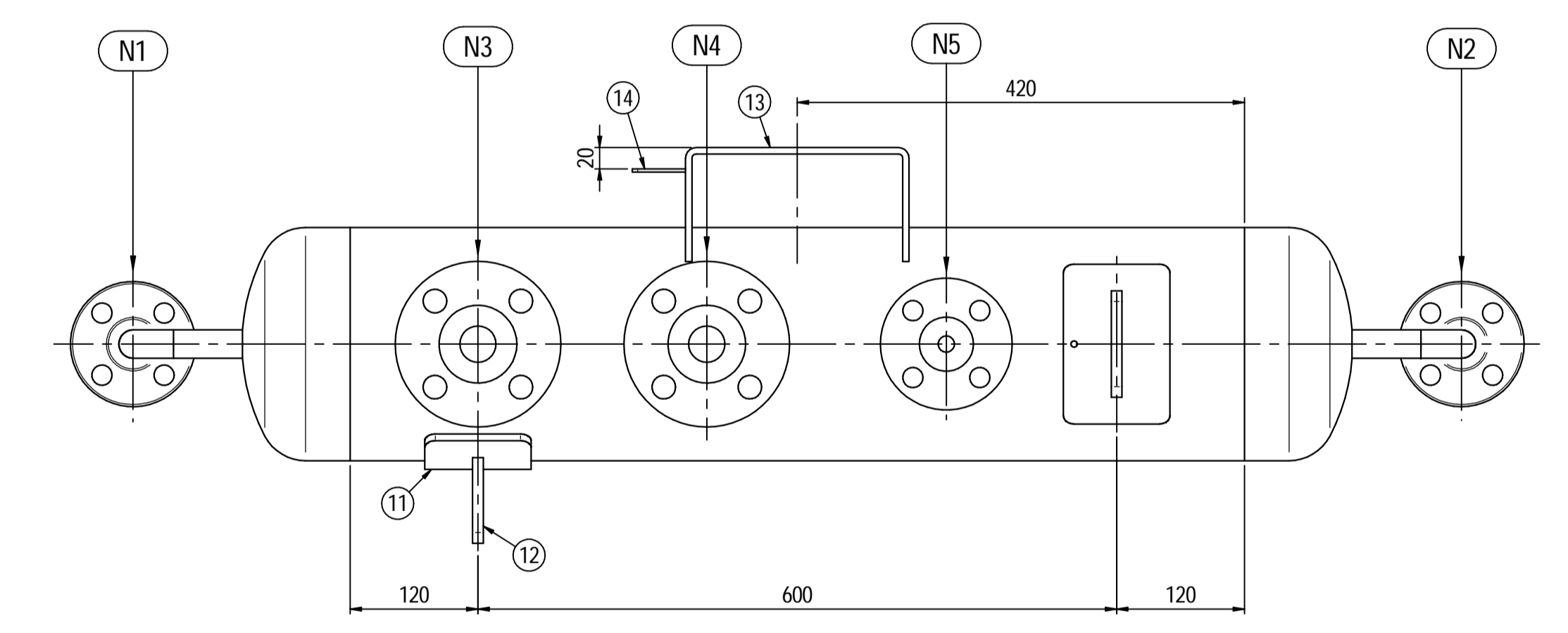
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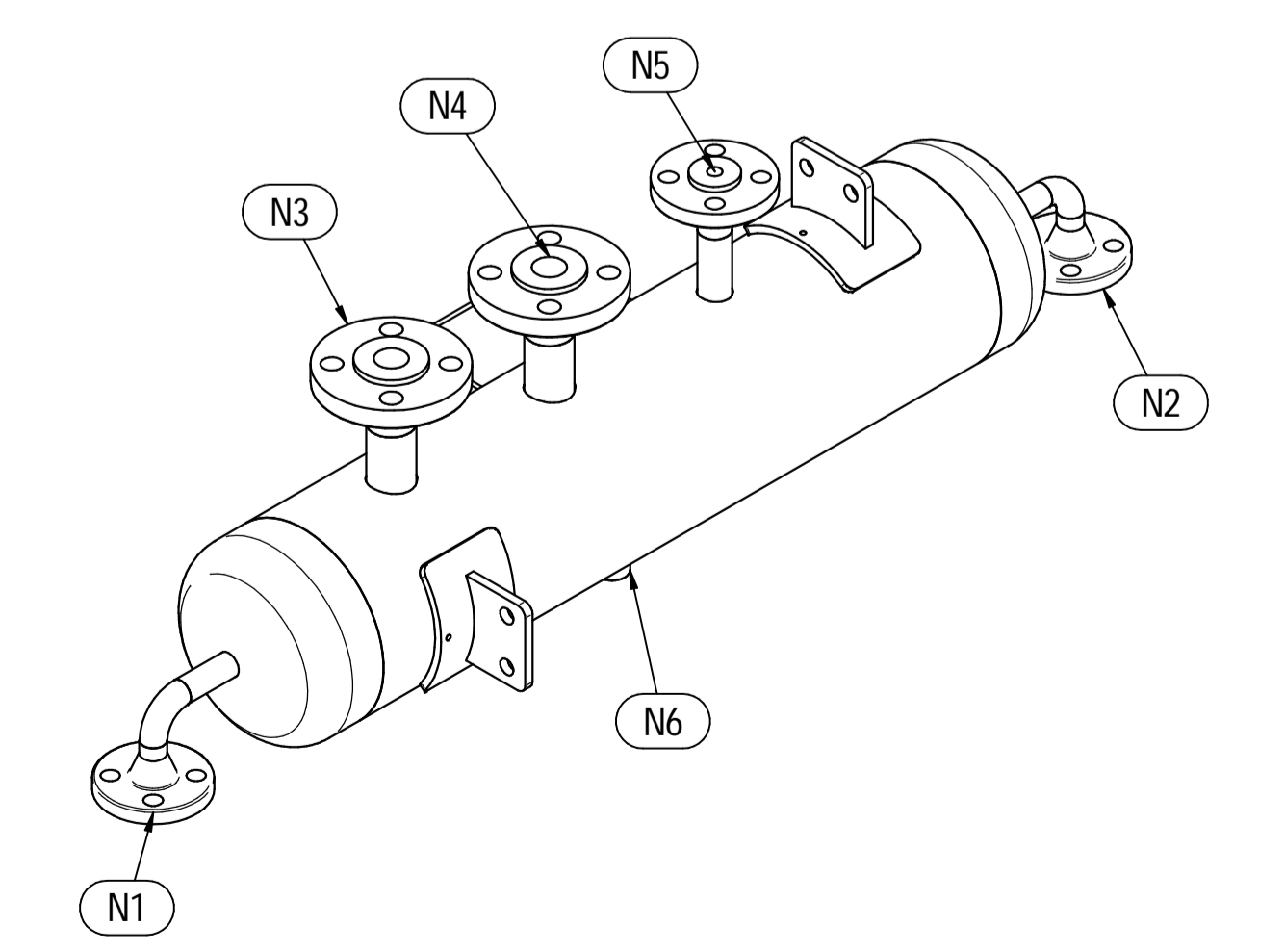
Please refer to the same comments on page 3.



ELEVATION VIEW



PLAN VIEW



ISOMETRIC VIEW

Pos.	QTY	Description	Material	Cert.
1	1	Shell by Seamless Pipe 8" Sch.60 L=840	SA106 Gr.B	3.1
2	2	Cap 8" Sch.60	SA234 WPB	3.1
3	2	Flange 1 1/2" WN #600 RF Sch.160	SA105	3.1
4	1	Flange 1" WN #600 RF Sch.XXS	SA105	3.1
5	2	Flange 3/4" WN #600 RF Sch.XXS	SA105	3.1
6	2	Seamless Pipe 1 1/2" Sch.160 L=75	SA106 Gr.B	3.1
7	1	Seamless Pipe 1" Sch.XXS L=80	SA106 Gr.B	3.1
8	2	Seamless Pipe 3/4" Sch.XXS L=73	SA106 Gr.B	3.1
9	2	Seamless elbow 3/4" 90° LR Sch.XXS	SA234 WPB	3.1
10	1	Coupling 3/4" NPT #6000	A105	3.1
11	2	Pad by pipe 100 x 150 Thk.8.18	SA106 Gr.B	
12	2	Support plate 100 x 80 Thk.10	SA516 70	
13	1	Nameplate support by plate 403 x 155 Thk.6	SA516 70	
14	1	Earthing plate 50 x 40 Thk.3	SA240 TP316L	

- Note:
- Governing measurement S.I. unless otherwise specified
 - Flange bolt holes have to be straddled from main vessel center line in plan & vertical & horizontal centreline in elevation
 - Material: certification 3.1 EN 10204
 - All internal edge shall be rounded off
 - Nozzle flanges in accordance with ASME B16.5: 2020
 - Flange fittings in accordance with ASME B16.9: 2018
 - All fillet welds not detailed on "WELDING MAP" or drawing shall have the weld throated equal to 0.7 times the minimum thickness to be welded
 - All welds are continuous except where indicate
 - For calculation see document number C230048CLC008
 - The nameplate use in S5316 and is laser engraved
 - Non corrosive service, no inspection opening per UG-46(a)
 - On support hexagonal bolts DIN 933, class 8.8 shall be use (Airpack scope)

ITEM	QTY	SERVICE	SIZE	O.D.	THK	RATING	TYPE	FACE	O.D.	THK.	Tc
N6	1	DRAIN	1/2"	38.1	8.38	#6000	NPT-F	-	-	-	8 ± 10
N5	1	PSV CONNECTION	1"	33.4	9.09	#600	WN RF	-	-	-	8 ± 10
N4	1	TEMPERATURE TRANSMITTER	1 1/2"	48.3	7.14	#600	WN RF	-	-	-	8 ± 10
N3	1	TEMPERATURE GAUGE	1 1/2"	48.3	7.14	#600	WN RF	-	-	-	8 ± 10
N2	1	AIR OUTLET	3/4"	26.7	7.82	#600	WN RF	-	-	-	8 ± 10
N1	1	AIR INLET	3/4"	26.7	7.82	#600	WN RF	-	-	-	8 ± 10

DATI DI PROGETTO / Design data			
FLUIDO	Air	COLLAUDO	0094 Iqa Inspection Iberia SA
STATO FISICO DEL FLUIDO	Gas	Test	N/A
CODICE DI CALCOLO	ASME VIII Div. 1 Ed.2021	CONTRULLI	
PRESSIONE DI ESERCIZIO	30 barg	SERVIZIO LETALE	NO
PRESSIONE DI PROGETTO	39 barg	RT examination	Spot (10%)
PRESSIONE ESTERNA	NO	LICUIDI PENETRANTI	NO
PRESSIONE DI PROVA IDRAULICA	73.3 barg	ULTRASUONI	NO
TEMPERATURA DI ESERCIZIO	116 °C	CONTROLLO MAGNETOSCOPICO	NO
TEMPERATURA DI PROGETTO	135 °C	WELD TEST COUPON	NO
SOVRAMEZZO DI CORROSIONE	3 mm	PROCEDIMENTO DI SALDATURA	See doc.C230048WBK009
CAPACITA'	311	TIPO DI FONDO	CAP
EFFICIENZA GIUNTI	0.85	FORMAZIONE FONDO	HOT
MAWP @ Design Temperature	56.38 barg @ +135 °C	PESO A VUOTO	72 kg
MAWP(EXT)	NO	PESO IN ESERCIZIO	72 kg
MDMT @ MAWP	0 °C @ 56.38 barg	PESO PIENO D'ACQUA	103 kg
TRATTAMENTO TERMICO	NO	DATI DEL VENTO	
IMPACT TEST	NO	DATI SISMICI	

Rev.	Descrizione / Description	Disegnato/Draw	Controllato/Checked	Approvato/Approved	Data/Date
01	Revised as per Customer comments	LG	MV	MV	11/05/2024
00	FIRST ISSUE	LG	MV	MV	03/02/2024

Oggetto/Object: **2nd STAGE OUTLET PULSATION DAMPER**

Scala/Scale	1 : 5	Formato/Size	A1
Comm. N°/Job No.	C230048	Foglio/Sheet	1 - 1
Cliente/Customer	Airpack Nederland B.V.		
Ord. No.	17735-VV-900 (SK)		
Dis. N°/Dwg No.	C230048DWG004	Rev.	01

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