






|  |   |      |       |      |      |      |  |   |        |
|--|---|------|-------|------|------|------|--|---|--------|
| OWNER:<br><br>شرکت سست و سویی توهمه ایران (سهامی عامه) | BUSHEHR PETROCHEMICAL COMPANY<br>MEG PLANT                  |      |       |      |      |      | EPC CONTRACTOR:<br><br>Chagalesh-Enerchimi-Steam<br>Joint Venture<br>BUPC-MEG PLANT PROJECT |   |        |
|  | PULSATION DAMPER DETAIL DRAWING<br>FOR NITROGEN GAS BOOSTER |      |       |      |      |      |   |   |        |
| MC :   |   |      |       |      |      |      |   |  |        |
| Owner Document Number:<br>17811-23C  | Project   | Area | Phase | Unit | Dis. | Doc. | Seq.   | Rev.:   | Page   |
|  | BU  | 20   | VD    | 303  | ME   | DWG  | 0079   | 06  | 1 of 6 |

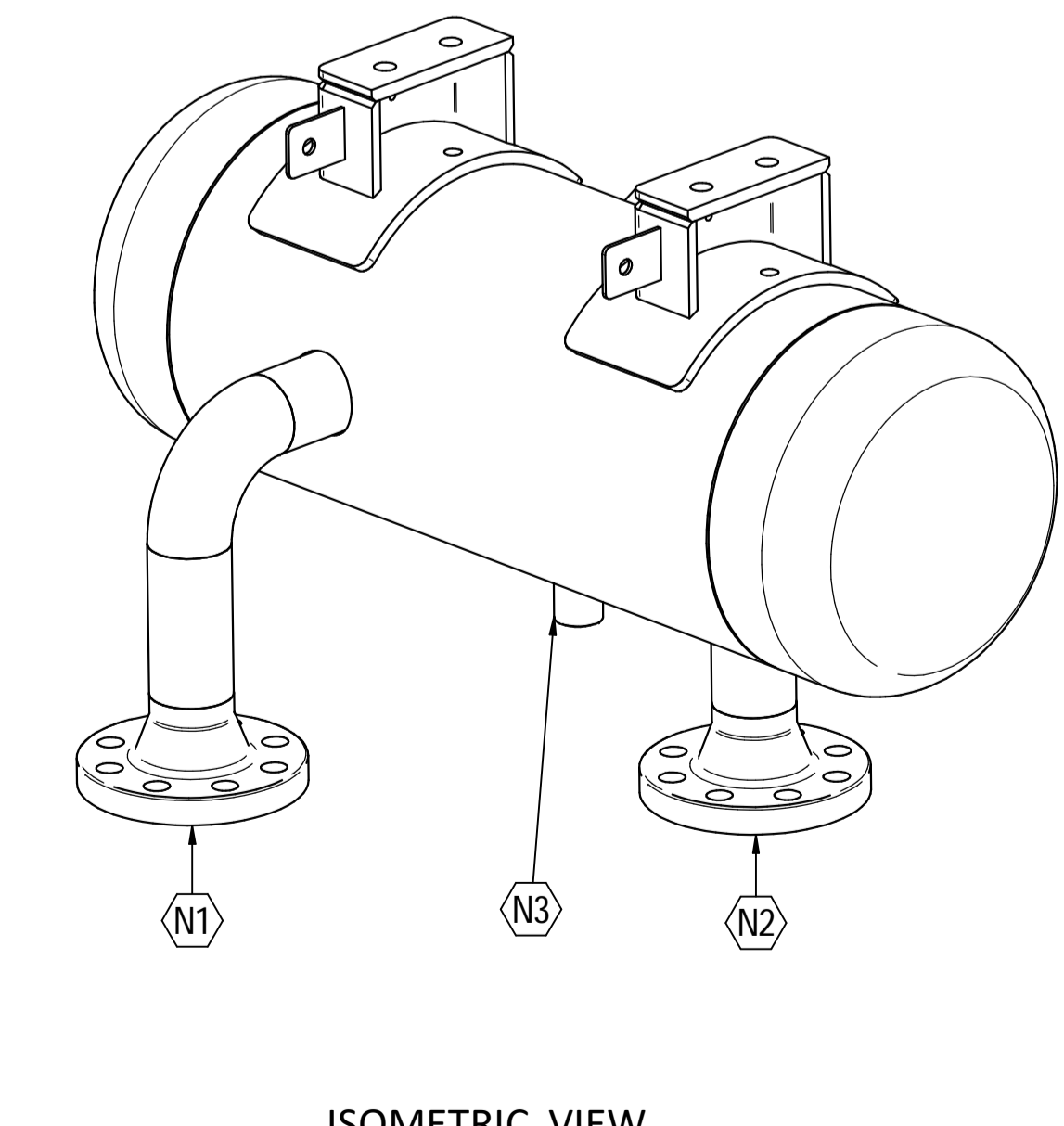
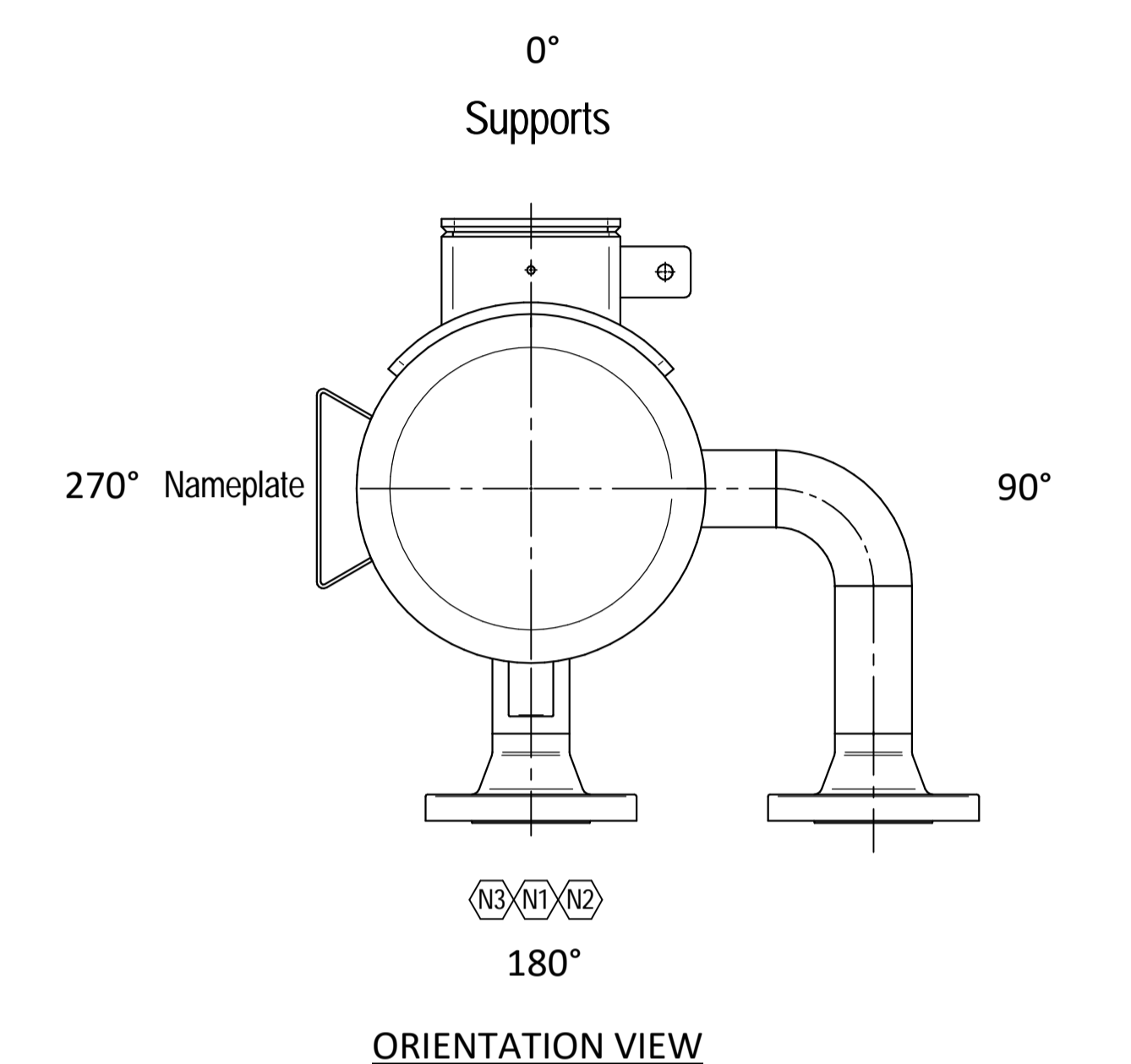
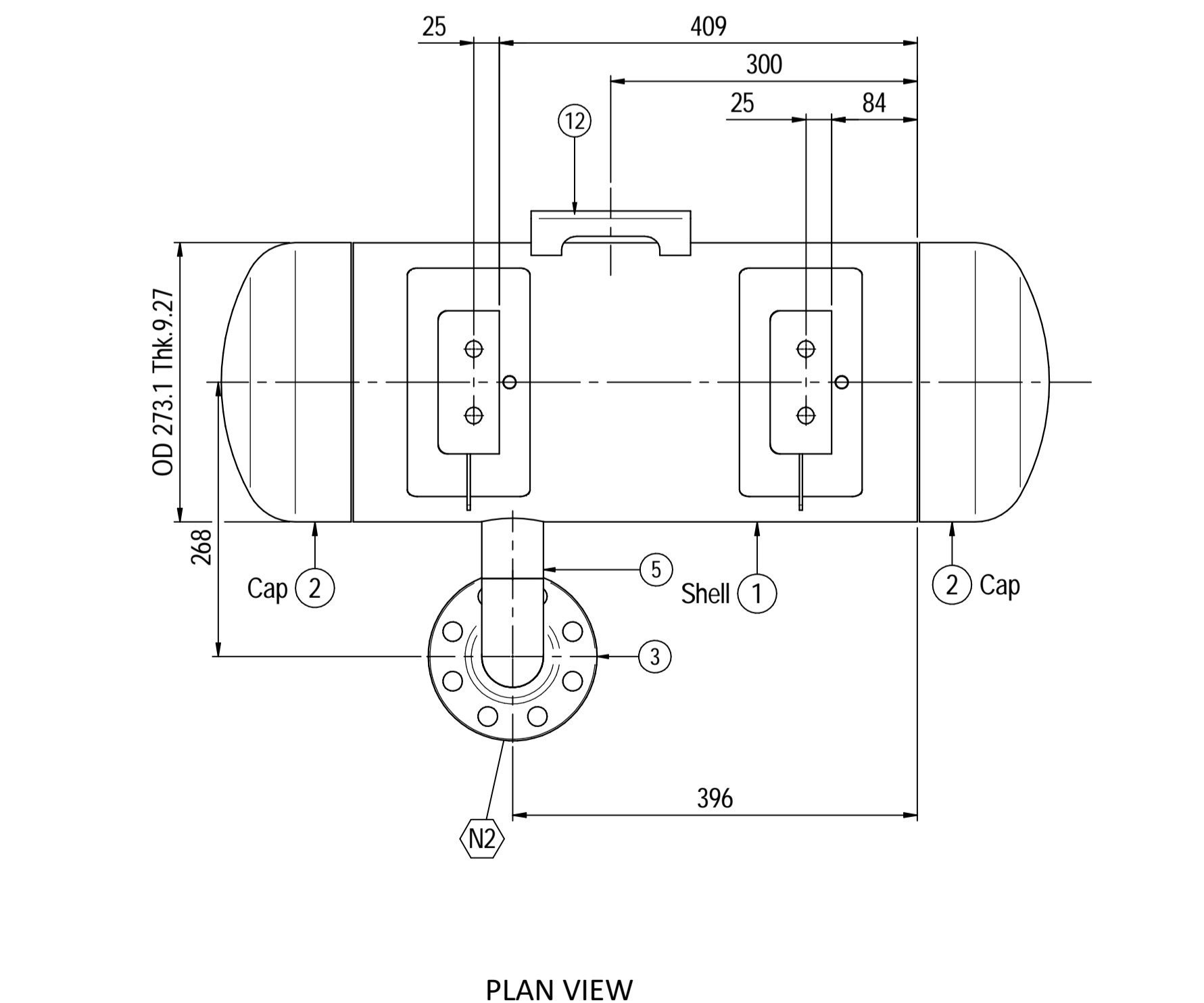
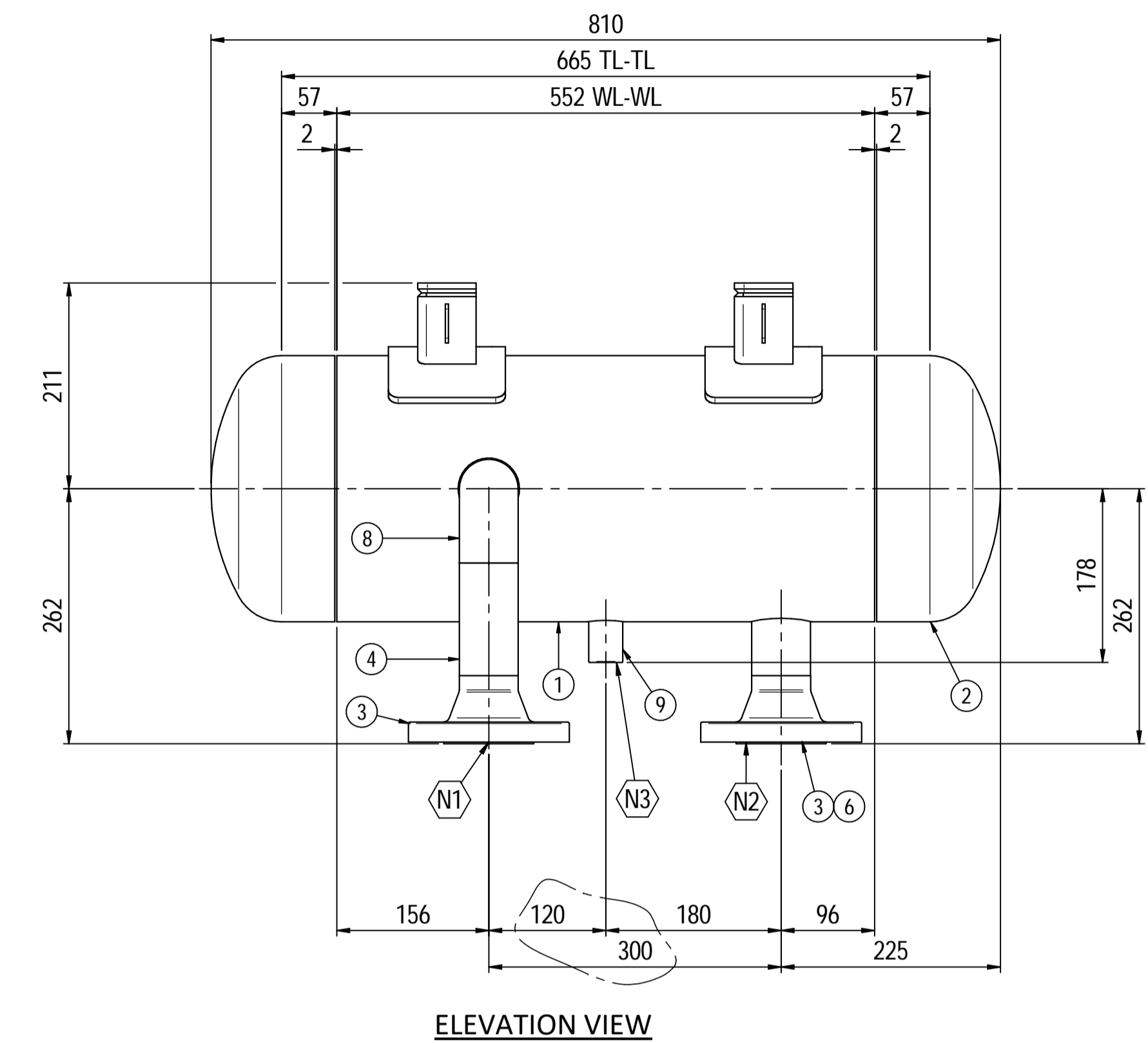
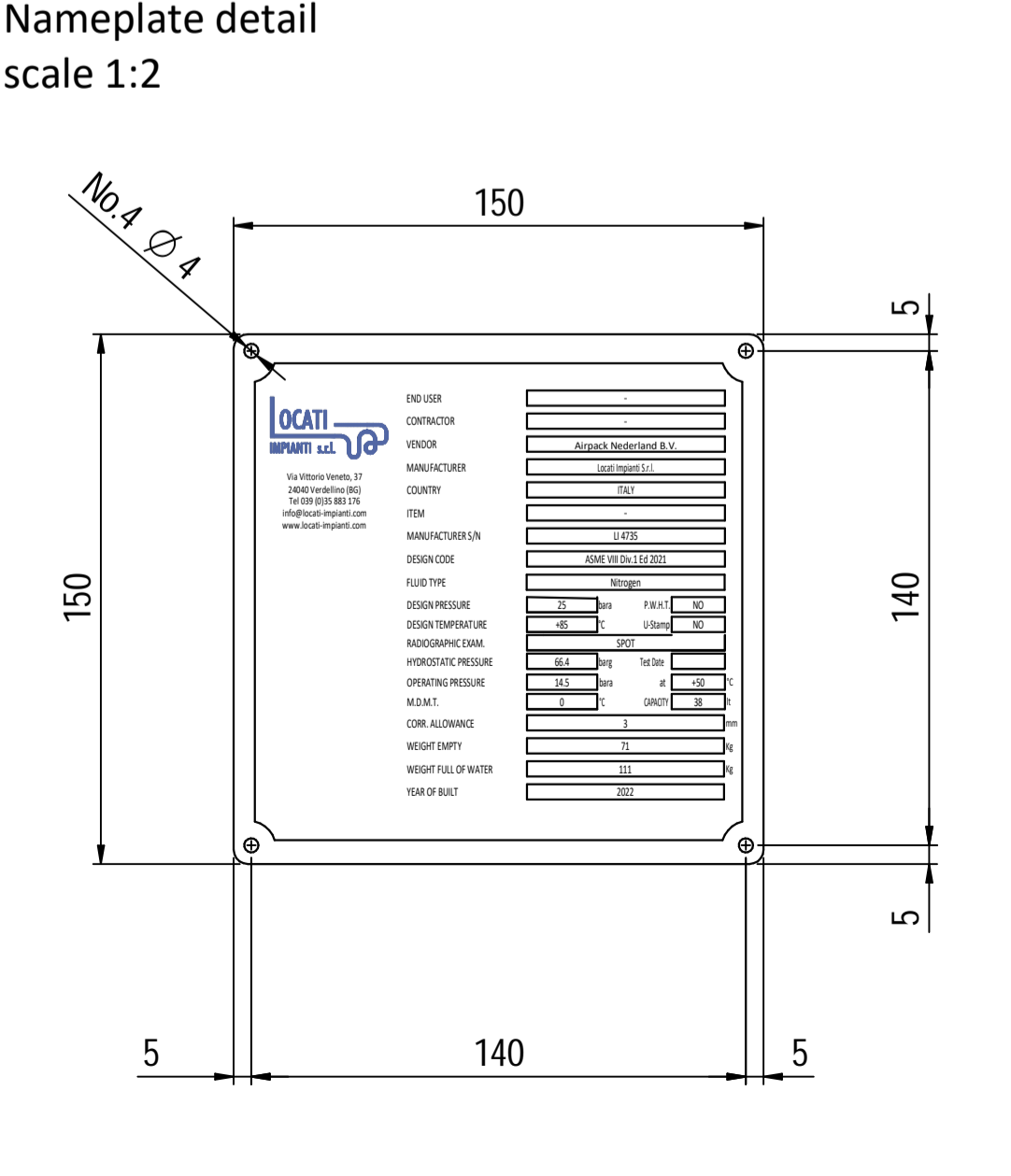
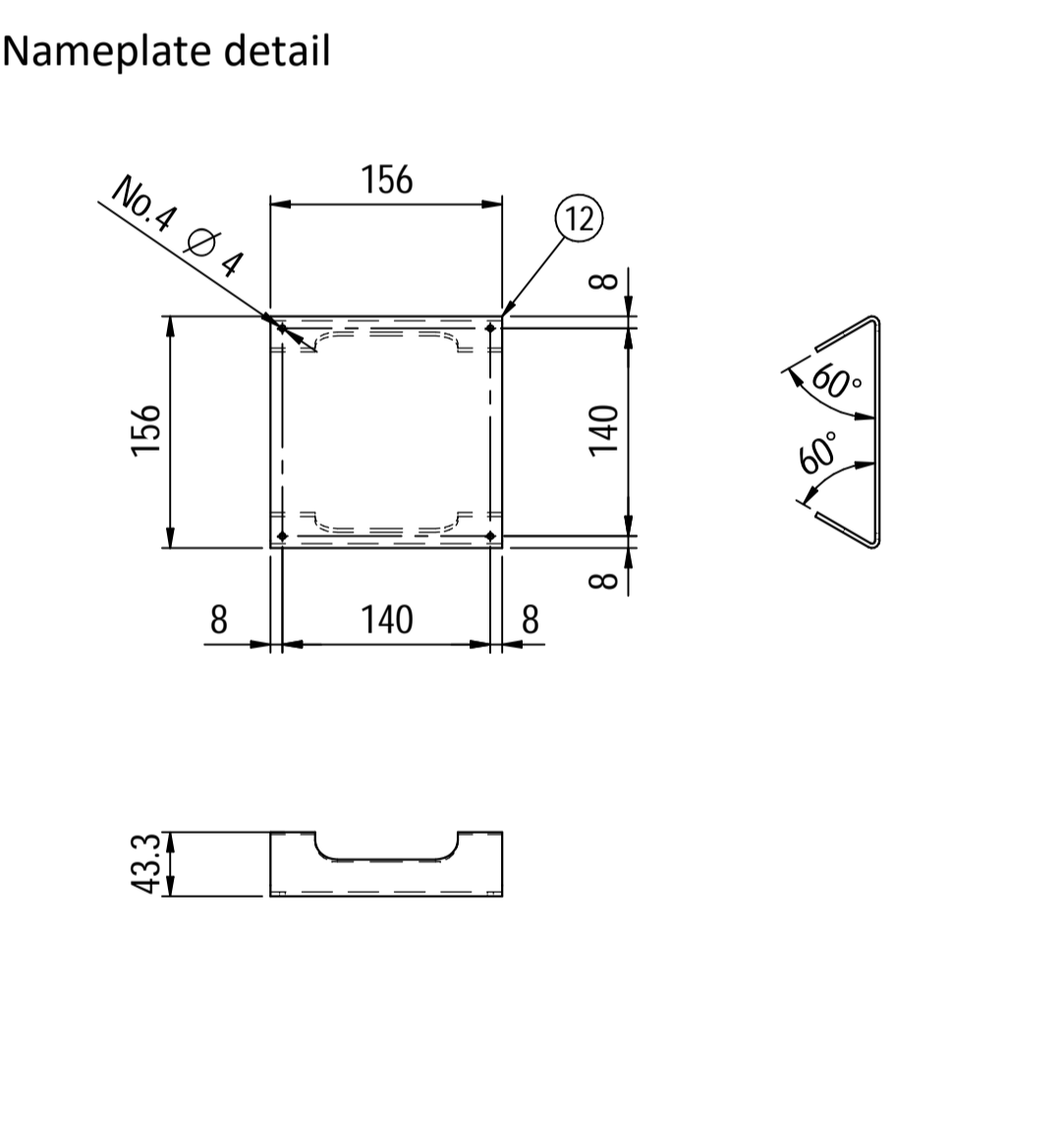
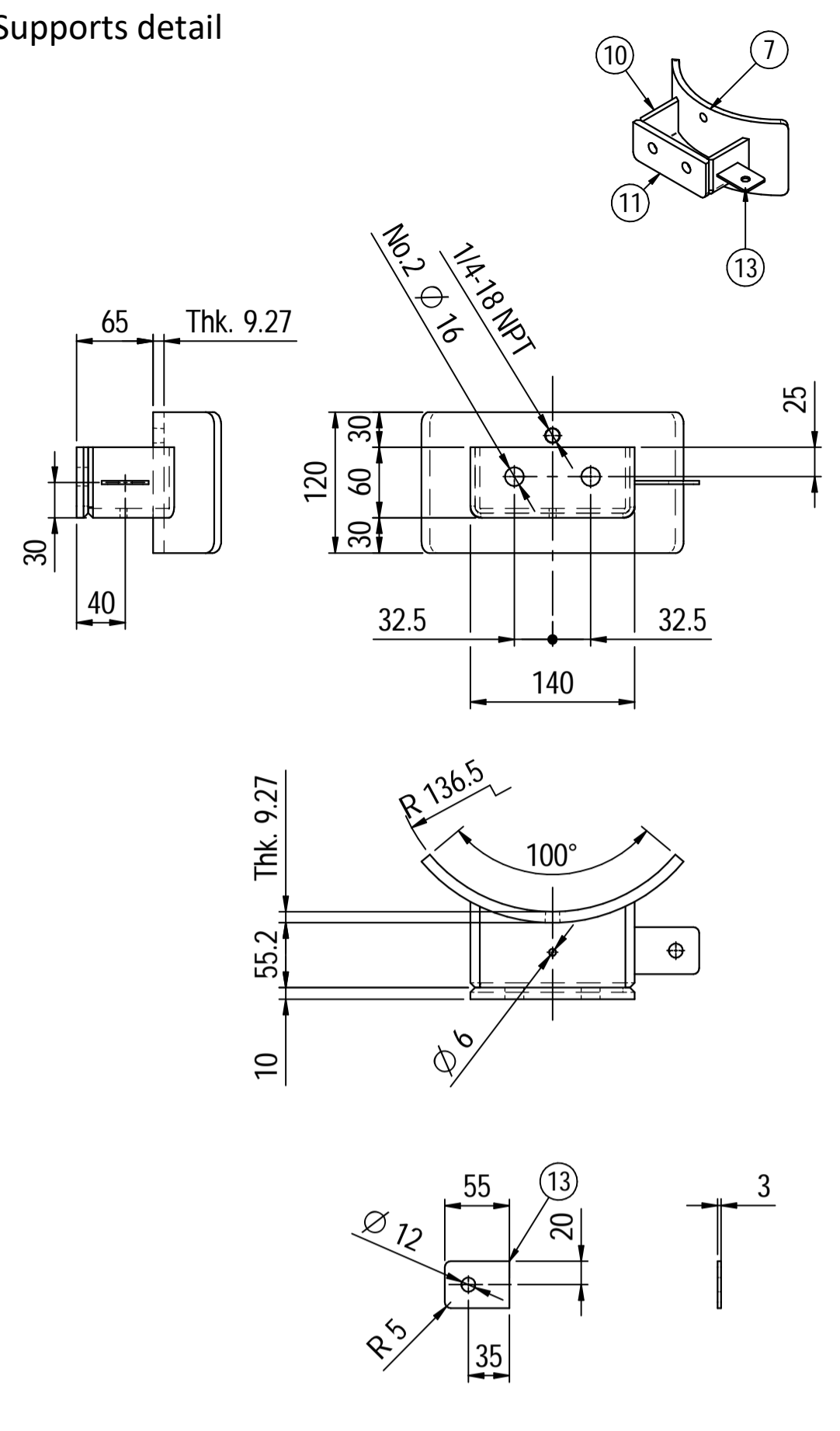
## PULSATION DAMPER DETAIL DRAWING FOR NITROGEN GAS BOOSTER

|             |             |                           |                 |                |                 |                 |
|-------------|-------------|---------------------------|-----------------|----------------|-----------------|-----------------|
| 06          | 13/07/2022  | Approved for Construction | KP              | CL             | JR              |                 |
| 05          | 16/06/2022  | For approval              | KP              | CL             | JR              |                 |
| 04          | 03/06/2022  | For approval              | KP              | CL             | JR              |                 |
| 03          | 13/05/2022  | For approval              | KP              | CL             | JR              |                 |
| 02          | 06/05/2022  | For approval              | KP              | CL             | JR              |                 |
| 01          | 26/04/2022  | For approval              | KP              | CL             | JR              |                 |
| 00          | 06/04/2022  | For approval              | KP              | CL             | JR              |                 |
| <b>Rev.</b> | <b>Date</b> | <b>Purpose of Issue</b>   | <b>Prepared</b> | <b>Checked</b> | <b>Approved</b> | <b>AC Code</b>  |
|             |             |                           |                 |                | <b>Class: 1</b> | <b>Phase: P</b> |









| Material List |      |  |             |       |  |
|---------------|------|--|-------------|-------|--|
| Pos.          | Q.ty | Description                              | Mat.        | Cert. |  |
| 1             | 1    | Shell by seamless pipe 10" Sch.STD L=552 | SA106 Gr.B  | 3.1   |  |
| 2             | 2    | Cap 10" Sch40                            | A234 WPB    | 3.1   |  |
| 3             | 2    | Flange 2" WN #300 RF Sch.160             | A105        | 3.1   |  |
| 4             | 1    | Seamless pipe 2" Sch160 L=115.5          | A106 GrB    | 3.1   |  |
| 5             | 1    | Seamless pipe 2" Sch160 L=69             | A106 GrB    | 3.1   |  |
| 6             | 1    | Seamless pipe 2" Sch160 L=68             | A106 GrB    | 3.1   |  |
| 7             | 2    | Pad by pipe 10" Sch.STD                  | A106 Gr.B   | 3.1   |  |
| 8             | 1    | Seamless elbow 2" 90° LR Sch160          | A234 WPB    | 3.1   |  |
| 9             | 1    | Coupling 1/2" NPT #6000                  | A105        | 3.1   |  |
| 10            | 2    | Plate 74.5x231 Thk.8                     | A516 70     | 3.1   |  |
| 11            | 2    | Plate 16x65 Thk.10                       | A516 70     | 3.1   |  |
| 12            | 1    | Nameplate support 156x241 Thk.3mm        | A516 70     | 3.1   |  |
| 13            | 2    | Earthing Plate 55 x 40 Thk.3             | A240 TP316L | 3.1   |  |

**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: 2013;
- 6) Flange fittings in accordance with ASME B16.9: 2012;
- 7) The flange dimensions are in accordance with ASME B16.5: 2013;
- 8) 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;
- 9) All welds are continuous except where indicate;
- 10) See document C220006CLC011 for vessel calculation.

| ITEM | QTY | SERVICE    | SIZE | O.D. | THK  | RATING | TYPE | FACE  | O.D. | THK. | Tc       |
|------|-----|------------|------|------|------|--------|------|-------|------|------|----------|
| N3   | 1   | DRAIN      | 1/2" | 38.1 | 8.38 | #6000  | -    | NPT-F | -    | -    | 8.5 ± 10 |
| N2   | 1   | AIR OUTLET | 2"   | 60.3 | 8.74 | #300   | WN   | RF    | -    | -    | 8.5 ± 10 |
| N1   | 1   | AIR INLET  | 2"   | 60.3 | 8.74 | #300   | WN   | RF    | -    | -    | 8.5 ± 10 |

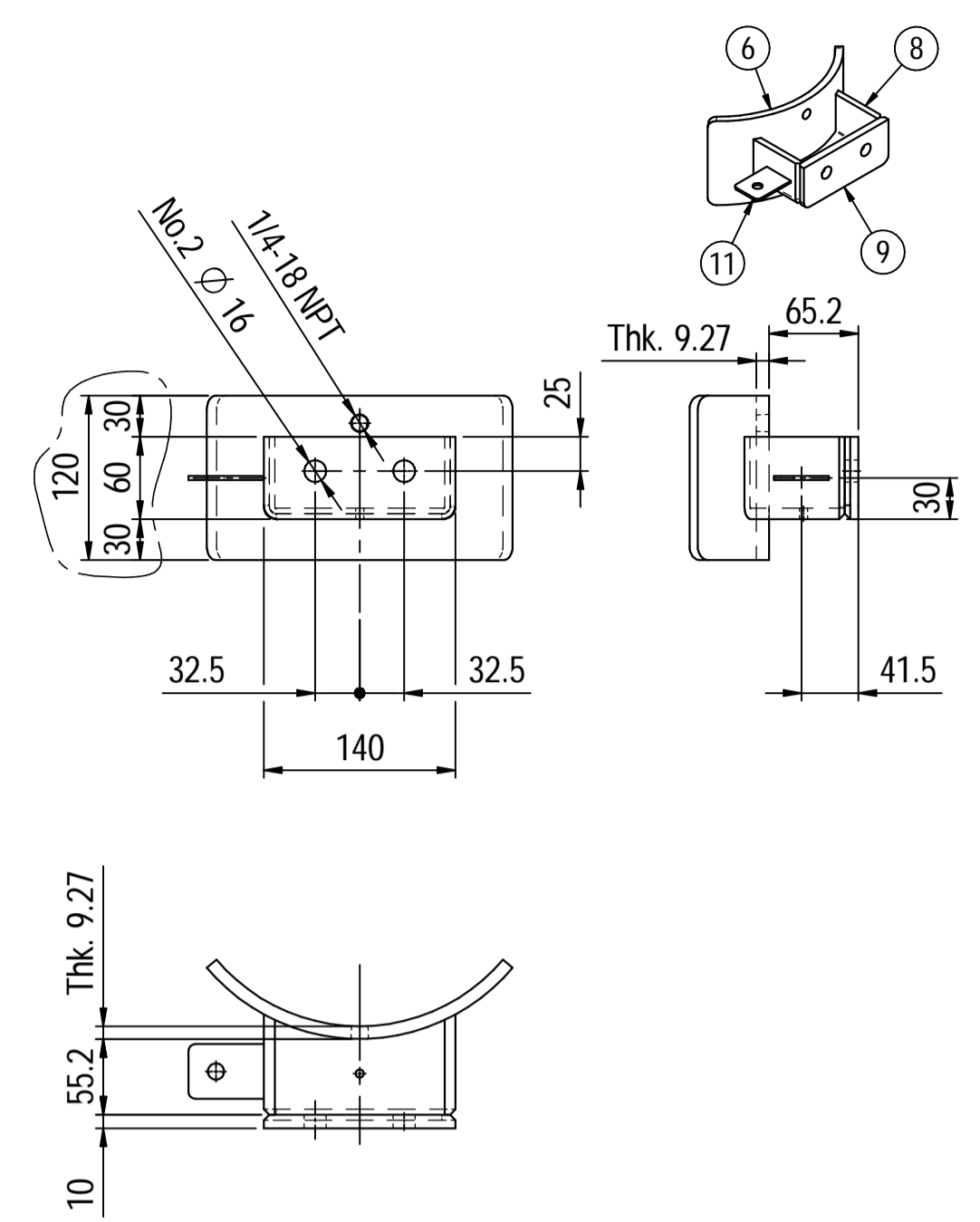
| ITEM | Qtà | SERVIZIO | NPS/DN | O.D. | THK | RATING | TYPE    | FACE | O.D. | THK. | RINFORZO |
|------|-----|----------|--------|------|-----|--------|---------|------|------|------|----------|
|      |     |          |        |      |     |        | FLANGIA |      |      |      |          |

| DATI DI PROGETTO / Design data |                          |                           |                             |
|--------------------------------|--------------------------|---------------------------|-----------------------------|
| FLUIDO                         | Nitrogen                 | COLLAUDO                  | Lloyd Register              |
| STATO FISICO DEL FLUIDO        | Gas                      | Test                      | NATIONAL BOARD REGISTRATION |
| CODICE DI CALCOLO              | ASME VIII Div. 1 Ed.2021 | CANADIAN REGISTER NUMBER  | NO                          |
| PRESSIONE DI ESERCIZIO         | 14.5 bara                | SERVIZIO LETALE           | NO                          |
| PRESSIONE DI PROGETTO          | 25 bara (24 barg)        | X-RAY                     | RT examination              |
| PRESSIONE ESTERNA              | NO                       | LIQUIDI PENETRANTI        | NO                          |
| PRESSIONE DI PROVA IDRAULICA   | 66.4 barg                | ULTRASUONI                | NO                          |
| TEMPERATURA DI ESERCIZIO       | +50 °C                   | CONTROLLO MAGNETOSCOPICO  | NO                          |
| TEMPERATURA DI PROGETTO        | +85 °C                   | WELDING MAP               | NO                          |
| SOVRAMEALLO DI CORROSIONE      | 3 mm                     | PROCEDIMENTO DI SALDATURA | See doc: C220006WBK013      |
| CAPACITA'                      | 38 l                     | TIPO DI FONDO             | CAP                         |
| EFFICIENZA GIUNTI              | 0.85                     | FORMAZIONE FONDO          | HOT                         |
| MAWP @ Design Temperature      | 38.12 bar @ +85 °C       | PESO A VUOTO              | 71 kg                       |
| MAWP(EXT)                      | NO                       | PESO IN ESERCIZIO         | 71 kg                       |
| MDMT @ MAWP                    | 0 °C @ 38.12 bar         | PESO PIENO D'ACQUA        | 111 kg                      |
| TRATTAMENTO TERMICO            | NO                       | DATI DEL VENTO            | -                           |
| IMPACT TEST                    | NO                       | DATI SISMICI              | -                           |

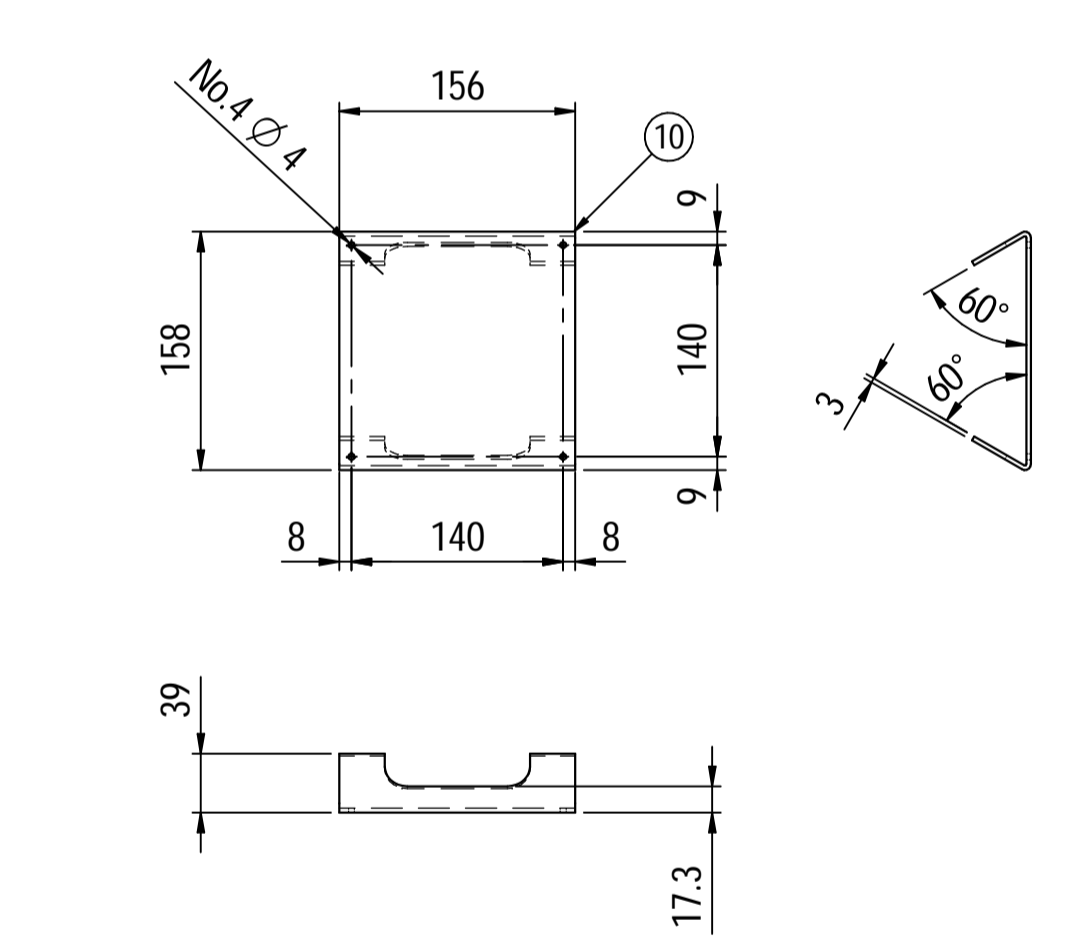
| Rev. | Descrizione / Description         | Disegnato/Draw | Controllato/Checked | Approvato/Approved | Data/Date  |
|------|-----------------------------------|----------------|---------------------|--------------------|------------|
| 05   | Modified as per Client comments   | CM             | MV                  | GL                 | 16/06/2022 |
| 04   | Modified as per Client comments   | CM             | MV                  | GL                 | 11/05/2022 |
| 03   | Modified as per Client comments   | CM             | MV                  | GL                 | 15/04/2022 |
| 02   | Modified as per Customer comments | CM             | MV                  | GL                 | 02/04/2022 |
| 01   | Modified shell length             | CM             | MV                  | GL                 | 30/03/2022 |
| 00   | FIRST ISSUE                       | CM             | MV                  | GL                 | 16/03/2022 |

| Oggetto/Object N2 PULSATION DAMPER 2nd STAGE SUCTION |                        |              |       |
|--|------------------------|--------------|-------|
| Scala/Scale  | 1 : 5                  | Formato/Size | A1    |
| Comm. N°/Job No.                                     | C220006                | Foglio/Sheet | 1 - 1 |
| Cliente/Customer                                     | Airpack Nederland B.V. |              |       |
| Ord. No.   | 18498-VV-0901          |              |       |
| Dis. N°/Dwg No.                                      | C220006DWG005          | Rev.         | 06    |

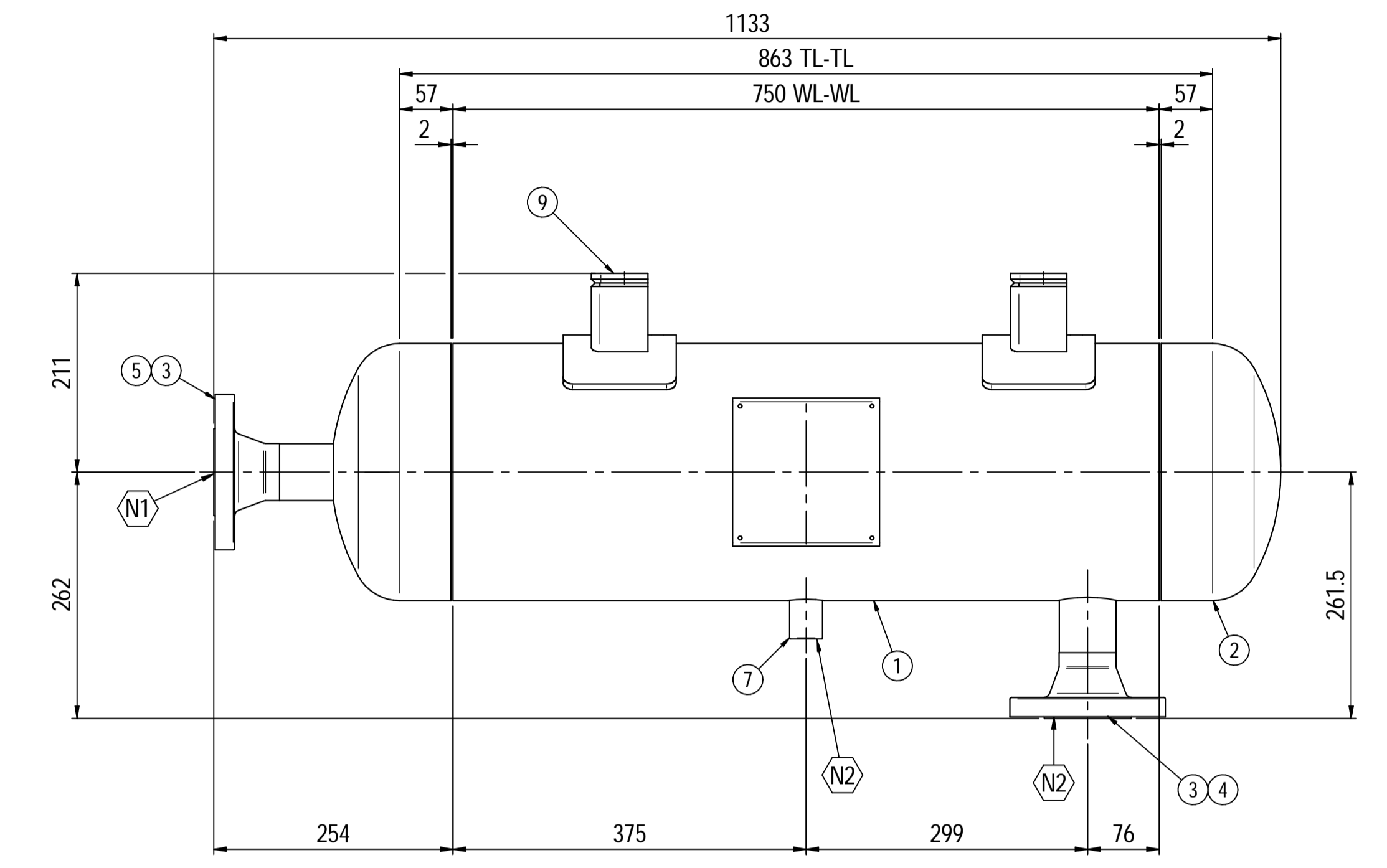
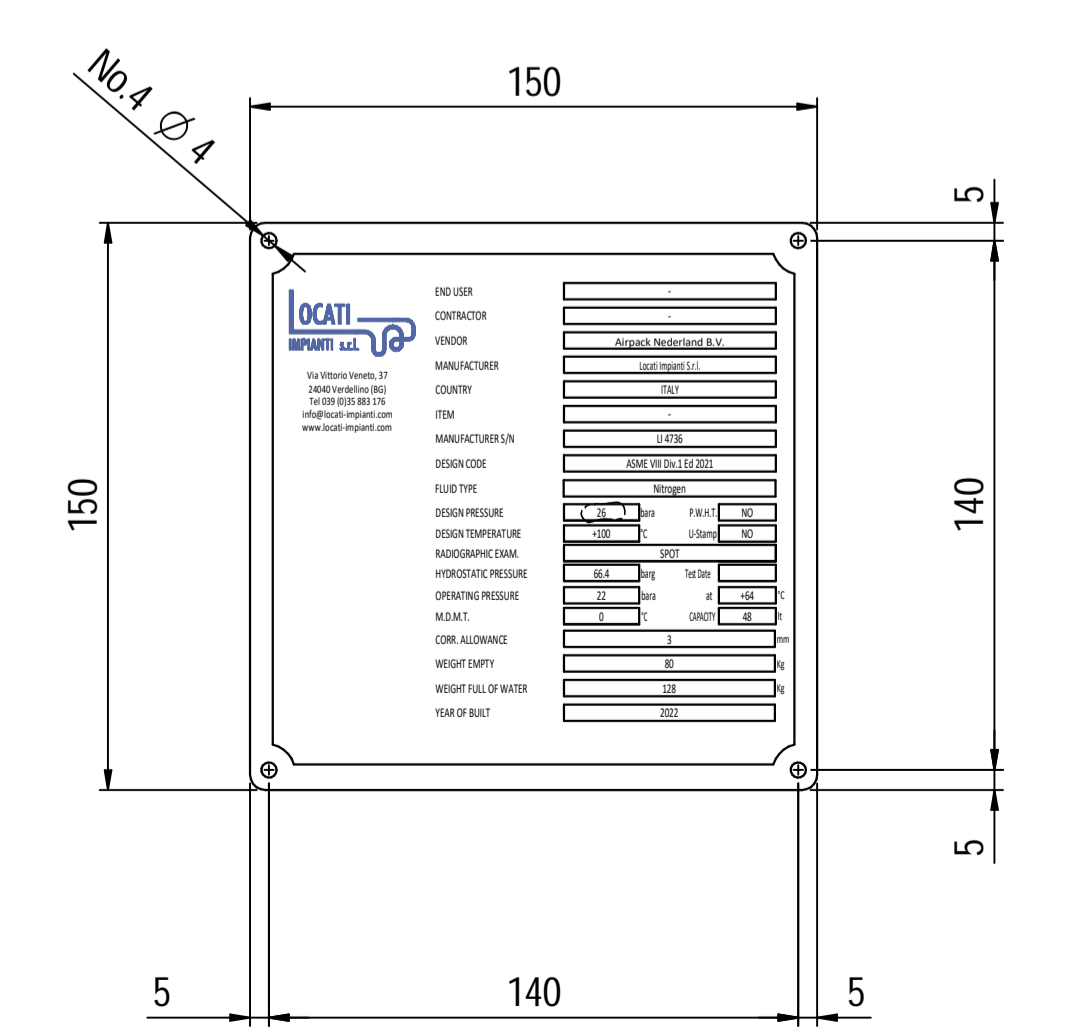
Supports detail



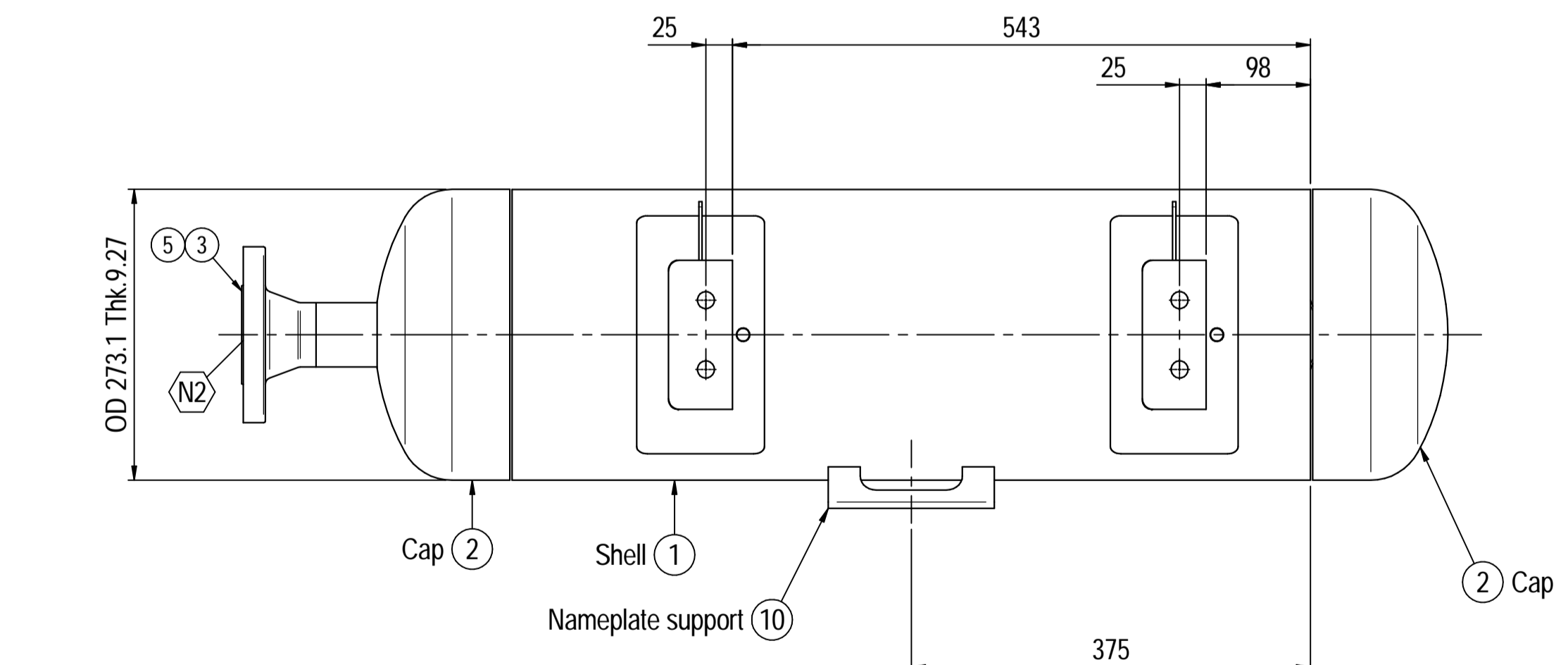
Nameplate detail



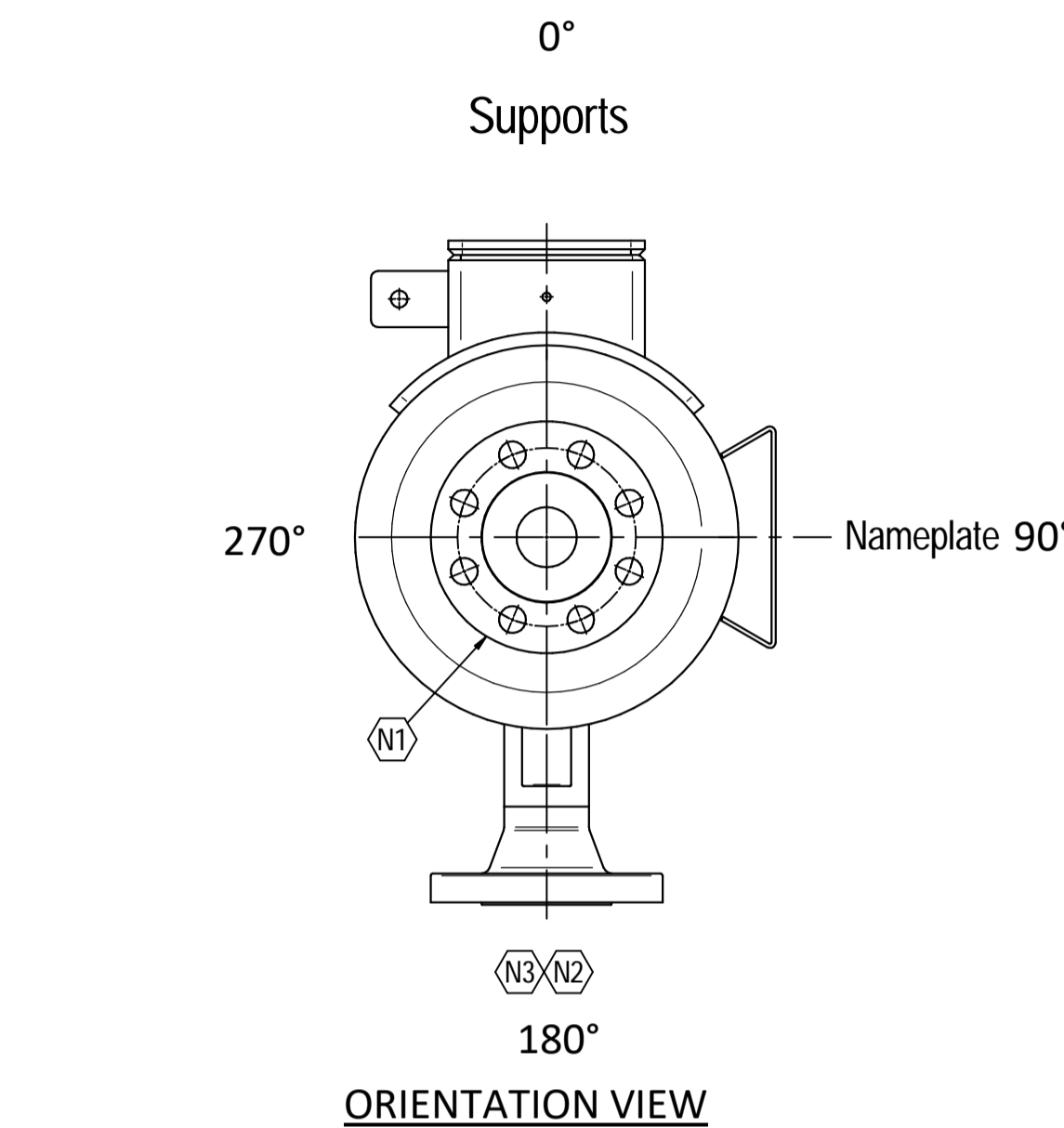
Nameplate detail scale 1:2



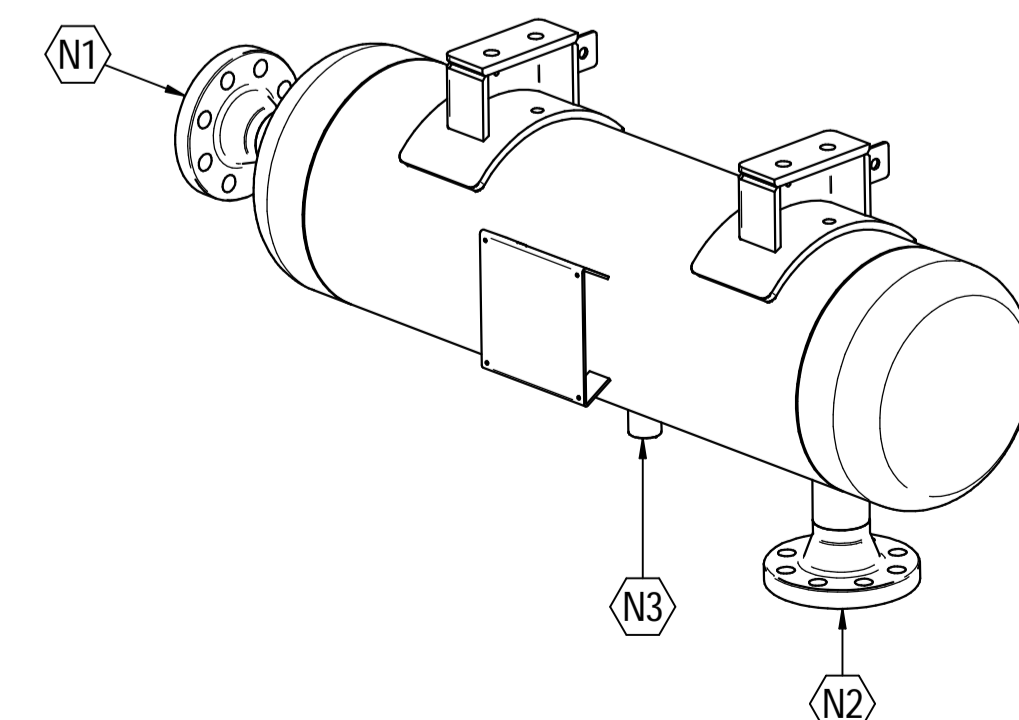
ELEVATION VIEW



PLAN VIEW



ORIENTATION VIEW



ISOMETRIC VIEW scale 1:8

| Material List |      |  |             |       |
|---------------|------|--|-------------|-------|
| Pos.          | Q.ty | Description                              | Mat.        | Cert. |
| 1             | 1    | Shell by seamless pipe 10" Sch.STD L=750 | SA106 Gr.B  | 3.1   |
| 2             | 2    | Cap 10" Sch40                            | A234 WPB    | 3.1   |
| 3             | 2    | Flange 2" WN #300 RF Sch.160             | A105        | 3.1   |
| 4             | 1    | Seamless pipe 2" Sch160 L=68             | A106 GrB    | 3.1   |
| 5             | 1    | Seamless pipe 2" Sch160 L=65             | A106 GrB    | 3.1   |
| 6             | 2    | Pad by pipe 10" Sch.STD                  | A106 Gr.B   | 3.1   |
| 7             | 1    | Coupling 1/2" NPT #6000                  | A105        | 3.1   |
| 8             | 2    | Plate 74.5x231 Thk.8                     | A516 70     | 3.1   |
| 9             | 2    | Plate 16x65 Thk.10                       | A516 70     | 3.1   |
| 10            | 1    | Nameplate support 234 x 156 thk3mm       | S275 JR     | 3.1   |
| 11            | 2    | Earthing Plate 55 x 40 Thk.3             | A240 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: 2013;  
 6) Flange fittings in accordance with ASME B16.5: 2012;  
 7) The flange dimensions are in accordance to ASME B16.5: 2013;  
 8) 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;  
 9) All welds are continuous except where indicate;  
 10) See document C220006CLC012 for vessel calculation.

| ITEM | QTY | SERVICE    | SIZE | O.D. | THK  | RATING | TYPE | FACE  | O.D. | THK. | Tc       |
|------|-----|------------|------|------|------|--------|------|-------|------|------|----------|
| N3   | 1   | DRAIN      | 1/2" | 38.1 | 8.38 | #6000  | -    | NPT-F | -    | -    | 8.5 + 10 |
| N2   | 1   | AIR OUTLET | 2"   | 60.3 | 8.74 | #300   | WN   | RF    | -    | -    | 8.5 + 10 |
| N1   | 1   | AIR INLET  | 2"   | 60.3 | 8.74 | #300   | WN   | RF    | -    | -    | 8.5 + 10 |

| DATI DI PROGETTO / Design data |                          |                               |                       |
|--------------------------------|--------------------------|-------------------------------|-----------------------|
| FLUIDO                         | Nitrogen                 | COLLAUDO                      | Test                  |
| STATO FISICO DEL FLUIDO        | Gas                      | NATIONAL BOARD REGISTRATION   | NO                    |
| CODICE DI CALCOLO              | ASME VIII Div. 1 Ed.2021 | CANADIAN REGISTER NUMBER      | NO                    |
| PRESSIONE DI ESERCIZIO         | 23 bara                  | SERVIZIO LETALE               | NO                    |
| PRESSIONE DI PROGETTO          | (26bara (25 barg))       | X-RAY                         | RT examination        |
| PRESSIONE ESTERNA              | NO                       | LICUIDI PENETRANTI            | NO                    |
| PRESSIONE DI PROVA IDRAULICA   | 66.4 barg                | Dye penetrant extension       | NO                    |
| TEMPERATURA DI ESERCIZIO       | +83 °C                   | ULTRASUONI                    | NO                    |
| TEMPERATURA DI PROGETTO        | +100 °C                  | ULTRASONIC extension          | NO                    |
| SOVRAME TALLO DI CORROSIONE    | 3 mm                     | CONTROLLO MAGNETOSCOPICO      | NO                    |
| CAPACITA'                      | 48 l                     | Magnetic particle examination | NO                    |
| EFFICIENZA GIUNTI              | 0.85                     | TALLONE DI SALDATURA          | NO                    |
| WAWP @ Design Temperature      | 38.12 barg @ +100 °C     | PROCEDIMENTO DI SALDATURA     | See doc:C220006WBK013 |
| MWMP(EXT)                      | NO                       | Welding procedure             |                       |
| MDMT @ MAWP                    | 0 °C @ 38.12 barg        | TIPO DI FONDO                 | CAP                   |
| TRATTAMENTO TERMICO            | NO                       | Head type                     |                       |
| IMPACT TEST                    | NO                       | FORMAZIONE FONDO              | HOT                   |
|                                |                          | Joint efficiency              |                       |
|                                |                          | PESO A VUOTO                  | 80 kg                 |
|                                |                          | Empty weight                  |                       |
|                                |                          | PESO IN ESERCIZIO             | 80 kg                 |
|                                |                          | Operating weight              |                       |
|                                |                          | PESO PIENO D'ACQUA            | 128 kg                |
|                                |                          | Full water weight             |                       |
|                                |                          | DATI DEL VENTO                |                       |
|                                |                          | Wind datas                    |                       |
|                                |                          | DATI SISMICI                  |                       |
|                                |                          | Seismological datas           |                       |

| Rev. | Descrizione / Description       | Disegnato/Draw | Controllato/Checked | Approvato/Approved | Data/Date  |
|------|---------------------------------|----------------|---------------------|--------------------|------------|
| 05   | Modified as per Client comments | CM             | MV                  | GL                 | 16/06/2022 |
| 04   | Modified design pressure        | CM             | MV                  | GL                 | 03/06/2022 |
| 03   | Modified as per Client comments | CM             | MV                  | GL                 | 11/05/2022 |
| 02   | Modified as per Client comments | CM             | MV                  | GL                 | 15/04/2022 |
| 01   | Modified shell length           | CM             | MV                  | GL                 | 30/03/2022 |
| 00   | FIRST ISSUE                     | CM             | MV                  | GL                 | 16/03/2022 |

| Oggetto/Object N2 PULSATION DAMPER 2nd STAGE DISCHARGE |                        |              |       |
|--|------------------------|--------------|-------|
| Scala/Scale  | 1 : 5                  | Formato/Size | A1    |
| Comm. N°/Job No.                                       | C220006                | Foglio/Sheet | 1 - 1 |
| Cliente/Customer                                       | Airpack Nederland B.V. |              |       |
| Ord. No.   | 18498-VV-0901          |              |       |
| Dis. N°/Dwg No.  | C220006DWG006          | Rev.         | 06    |