

Detail Drawings for Coolers



Document No. 17735-23A

| Project No. | Vendor Doc. | P.O. No. | Department | Document Type | Serial No | Revision | Page |
|-------------|-------------|----------|------------|---------------|-----------|----------|-------------|
| N278 | VD | 6019 | ME | DWG | 0024 | 05 | Page 1 of 5 |

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

| 05 | 21-05-2024 | Issued for Information | S.K. | J.J. | S.K. |
|------|------------|------------------------|-------|---------|----------|
| 04 | 08-05-2024 | Issued for Information | S.K. | J.J. | S.K. |
| 03 | 25-04-2024 | Issued for Information | S.K. | J.J. | S.K. |
| 02 | 12-02-2024 | Issued for Information | S.K. | J.J. | S.K. |
| 01 | 13-12-2023 | Issued for Information | S.K. | J.J. | S.K. |
| REV. | DATE | DESCRIPTION | DRAWN | CHECKED | APPROVED |

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LIST OF REVISED PAGES

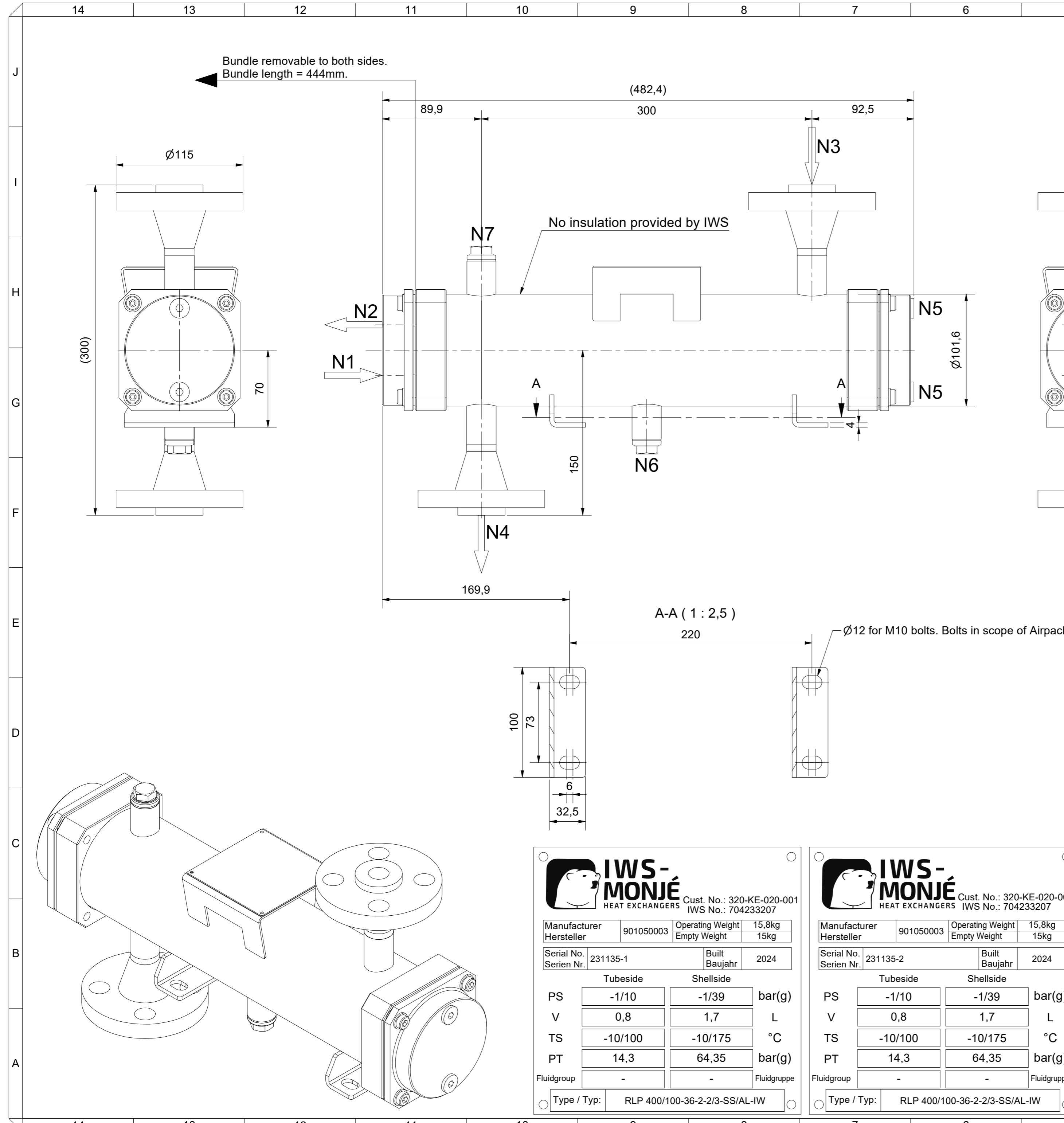
| Rev. Page | 01 | 02 | 03 | 04 | 05 | Rev. Page | 01 | 02 | 03 | 04 | 05 | Rev. Page | 01 | 02 | 03 | 04 | 05 | Rev. Page | 01 | 02 | 03 | 04 | 05 |
|-----------|----|----|----|----|----|-----------|----|----|----|----|----|-----------|----|----|----|----|----|------------|----|----|----|----|----|
| 1 | X | X | X | X | X | 26 | | | | | | 51 | | | | | | 76 | | | | | |
| 2 | X | X | X | X | X | 27 | | | | | | 52 | | | | | | 77 | | | | | |
| 3 | X | X | X | X | X | 28 | | | | | | 53 | | | | | | 78 | | | | | |
| 4 | | X | X | X | X | 29 | | | | | | 54 | | | | | | 79 | | | | | |
| 5 | | | X | | X | 30 | | | | | | 55 | | | | | | 80 | | | | | |
| 6 | | | | | | 31 | | | | | | 56 | | | | | | 81 | | | | | |
| 7 | | | | | | 32 | | | | | | 57 | | | | | | 82 | | | | | |
| 8 | | | | | | 33 | | | | | | 58 | | | | | | 83 | | | | | |
| 9 | | | | | | 34 | | | | | | 59 | | | | | | 84 | | | | | |
| 10 | | | | | | 35 | | | | | | 60 | | | | | | 85 | | | | | |
| 11 | | | | | | 36 | | | | | | 61 | | | | | | 86 | | | | | |
| 12 | | | | | | 37 | | | | | | 62 | | | | | | 87 | | | | | |
| 13 | | | | | | 38 | | | | | | 63 | | | | | | 88 | | | | | |
| 14 | | | | | | 39 | | | | | | 64 | | | | | | 89 | | | | | |
| 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 | | | | | |
| 22 | | | | | | 47 | | | | | | 72 | | | | | | 4 | | | | | |
| 23 | | | | | | 48 | | | | | | 73 | | | | | | 5 | | | | | |
| 24 | | | | | | 49 | | | | | | 74 | | | | | | 6 | | | | | |
| 25 | | | | | | 50 | | | | | | 75 | | | | | | 7 | | | | | |

| Nozzle Table / Stutzentabelle | | |
|-------------------------------|---------------------|--|
| No. / Nr. | Function / Funktion | Size / Größe |
| N1 | Tubeside In | G 3/4" - integrated in header |
| N2 | Tubeside Out | G 3/4" - integrated in header |
| N3 | Shellside In | ASME B16.5 - 3/4" - Class 600 - WNRF - Schedule 80 |
| N4 | Shellside Out | ASME B16.5 - 3/4" - Class 600 - WNRF - Schedule 80 |
| N5 | Tubeside Drain/Vent | G 1/4" - integrated in header |
| N6 | Shellside Drain | G 1/2" |
| N7 | Shellside Vent | G 1/2" |

| Design Parameters Design Bedingungen | | |
|--|--------------------------|-------------|
| TEMA Class/Type TEMA Klasse/Typ | Class C - Type BEW | |
| Mech. Design Code Konstruktionsvorschrift | ASME VIII Div.1:2023 | |
| Code Case(s) Code Case(s) | none | |
| Lethal Service Tödliche/Giftige Medien | no | |
| Impact Test Req. Kerbschlagversuch | no per UHA-51 (d) | |
| PWHT Wärmebehandlung | none | |
| Loadings acc. UG-22 Lasten gem. UG-22 | (a), (b), (d)(2), (j) | |
| Wind Loads Windlasten | none considered | |
| Seismic Loads Erdbebenlasten | none considered | |
| Operating Medium Betriebsmedium | Tubeside Rohrseite | Water |
| | Shellside Mantelseite | Air |
| Volume (V) Volumen | 0,8L | 1,7L |
| Design Pressure (MAWP) Max. zul. Druck (MAWP) / (PS) | -1/10bar(g) | -1/39bar(g) |
| Test Pressure (PT) Prüfdruck | 15bar(g) | 64,35bar(g) |
| Design Temperature (AT) Zul. Betriebstemperatur (AT) / (TS) | -10/100°C | -10/175°C |
| Corrosion Allowance Korrosionszuschlag | 0mm | 0mm |
| Number of Passes Anzahl der Wege | 2 | 1 |
| Weld Joint Efficiency Schweißnahtfaktor | 0,85 | |

| Job Information Auftragsinformationen | | Certification / Registration Zertifizierung / Registrierung | |
|---|--------------|--|--|
| IWS Item No. IWS Artikel Nr. | 704233207 | <input checked="" type="checkbox"/> ASME VIII Div. 1 | U-Stamp |
| IWS Project No. IWS Projekt Nr. | 104234198 | | NB Registration |
| Serial No. Serien Nr. | See Table | General Information Allgemeine Informationen | |
| Customer Item No. Kunden Artikel Nr. | See Table | Nondestructive Testing Zerstörungsfreie Prüfungen | Pressure test and RT acc. to ASME code. |
| Corresponding Documents Zugehörige Dokumente | | Surface Treatment Oberflächenbehandlung | pickled and passivated |
| Strength Calculation Festigkeitsberechnung | BZ-704233207 | Operating Weight Betriebsgewicht | ca. 15,8kg |
| Weld- and Test Plan Schweiß- und Prüfplan | SZ-704233207 | Hydrostatic Test Weight Wasserdruckprüfungsgewicht | ca. 17,5kg |
| Parts List Stückliste | Sheet 2 | Empty Weight Leergewicht | ca. 15kg |

| Revisions Revisionen | | | | |
|--|---|---------------------------------|---------------------|--------------------|
| Rev. | Reason for Issue Grund der Ausgabe | Date Datum | Drawn Gezeichnet | Checked Geprüft |
| R05 | Added weight to nameplate | 15.05.2024 | A.Heiss | T.Strohm |
| R04 | Added second nameplate and shellside vent | 02.05.2024 | A.Heiss | T.Strohm |
| R03 | Issued for review. Changed shell flange ring. | 23.04.2024 | K.Kraft | O.Latta |
| R02 | Issued for review | 19.01.2024 | K.Kraft | O.Latta |
| Rev. | Reason for Issue Grund der Ausgabe | Date Datum | Drawn Gezeichnet | Checked Geprüft |
| IWS Type Code IWS Typenschlüssel | | Description Beschreibung | | |
| RLP 400/100-36-2-2/3-SS/AL-IW | | Intercooler / Aircooler | | |
| IWS-MONJÉ HEAT EXCHANGERS | | Drawing No. Zeichnungsnummer | | |
| IWS-Monjé Heat Exchangers GmbH Wittener Straße 102 44789 Bochum Germany www.iws-monje.com | | Z-704233207 | | |
| This drawing and all data contained is exclusive property of IWS-Monjé Heat Exchangers GmbH and must not be disclosed to others without written consent. | | | | |
| Tolerances in acc. to EN ISO 13920-DH and ASME VIII Div. 1 UW-33, UW-35, UG-79, UG-80, UG-81 | | Scale Maßstab | 1 : 2,5 | Page Blatt |
| | | Format | A2 | 1 |



IWS-MONJÉ HEAT EXCHANGERS
Cust. No.: 320-KE-020-001
IWS No.: 704233207

| | | | |
|----------------------------|-----------|----------------------------------|----------------|
| Manufacturer Hersteller | 901050003 | Operating Weight Empty Weight | 15,8kg 15kg |
| Serial No. Serien Nr. | 231135-1 | Built Baujahr | 2024 |

| | Tubeside | Shellside | |
|------------|----------|-----------|-------------|
| PS | -1/10 | -1/39 | bar(g) |
| V | 0,8 | 1,7 | L |
| TS | -10/100 | -10/175 | °C |
| PT | 14,3 | 64,35 | bar(g) |
| Fluidgroup | - | - | Fluidgruppe |

Type / Typ: RLP 400/100-36-2-2/3-SS/AL-IW

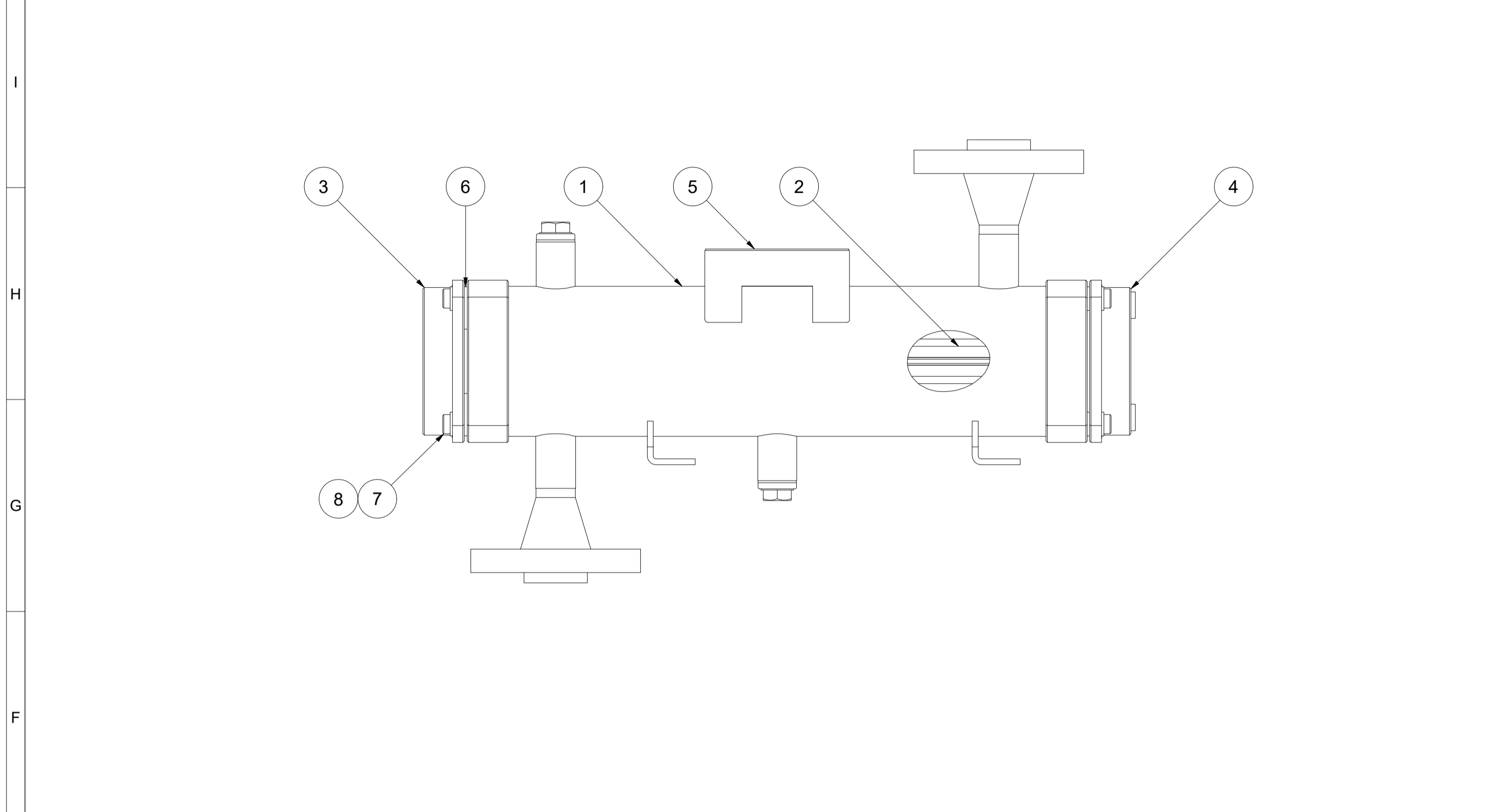
IWS-MONJÉ HEAT EXCHANGERS
Cust. No.: 320-KE-020-002
IWS No.: 704233207

| | | | |
|----------------------------|-----------|----------------------------------|----------------|
| Manufacturer Hersteller | 901050003 | Operating Weight Empty Weight | 15,8kg 15kg |
| Serial No. Serien Nr. | 231135-2 | Built Baujahr | 2024 |

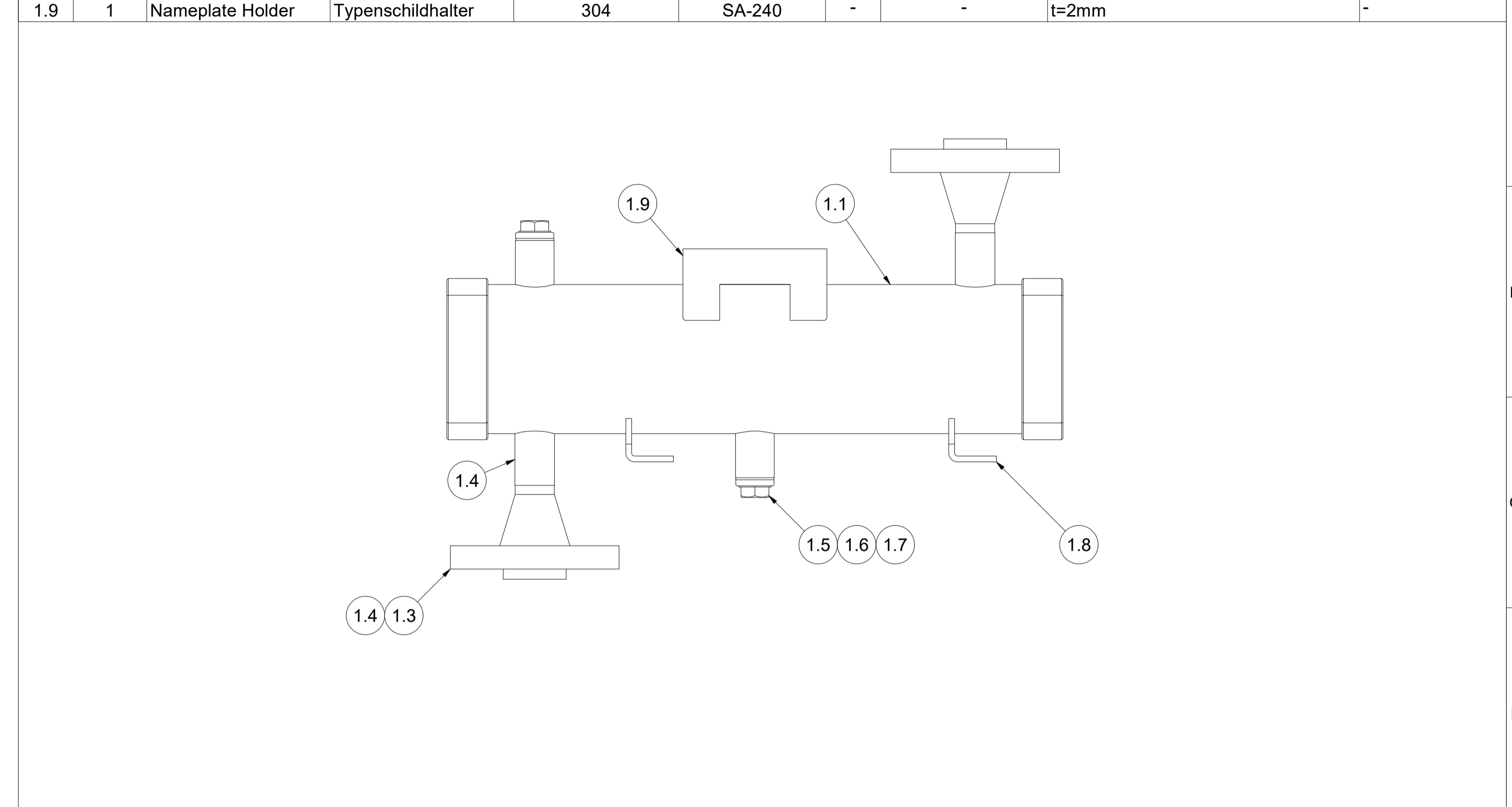
| | Tubeside | Shellside | |
|------------|----------|-----------|-------------|
| PS | -1/10 | -1/39 | bar(g) |
| V | 0,8 | 1,7 | L |
| TS | -10/100 | -10/175 | °C |
| PT | 14,3 | 64,35 | bar(g) |
| Fluidgroup | - | - | Fluidgruppe |

Type / Typ: RLP 400/100-36-2-2/3-SS/AL-IW

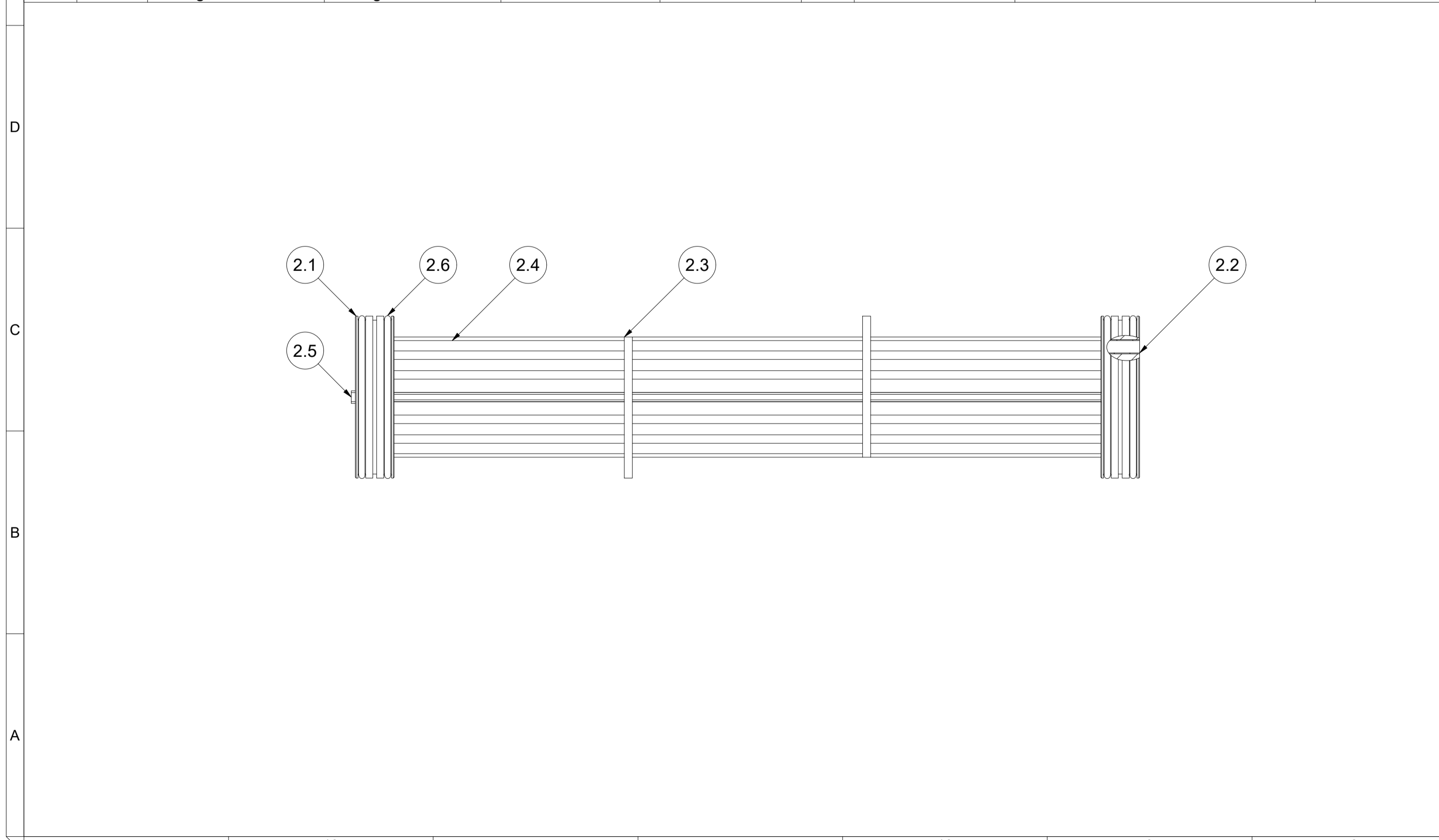
| 14 | 13 | 12 | 11 | 10 | 9 | 8 | | | |
|------|--------------|---------------------|------------------------|----------------------|------------------------------------|--------------|-----------------|--------------------------|---------------------|
| Pos. | Qty. / Menge | Description | Bezeichnung | Material / Werkstoff | Material Standard / Werkstoff Norm | Cert. / Zgn. | Standard / Norm | Dimensions / Abmessungen | Notes / Bemerkungen |
| 1 | 1 | Shell Assembly | Mantel Baugruppe | - | - | - | - | - | - |
| 2 | 1 | Bundle Assembly | Bündel Baugruppe | - | - | - | - | - | - |
| 3 | 1 | Inlet/Outlet Bonnet | Einlass-/Auslasskammer | 304 | SA-240 | 3.1 | - | KL10-F-14 | - |
| 4 | 1 | Return Bonnet | Umlenkammer | 304 | SA-240 | 3.1 | - | KL10-F-15 | - |
| 5 | 1 | Nameplate - IWS | Typenschild - IWS | 304 | - | - | - | t=1mm | - |
| 6 | 4 | Fixing Plate | Fixierblech | 304 | SA-240 | - | - | - | - |
| 7 | 8 | Bolt | Schraube | B8 | SA-193 | 3.1 | DIN 6912 | M8 x 30 | - |
| 8 | 12 | Washer | Scheibe | 304 | SA-240 | - | DIN 125 A | D9 | - |



| 7 | 6 | 5 | 4 | 3 | 2 | 1 | | | |
|------|--------------|---------------------|-------------------|----------------------|------------------------------------|--------------|-----------------|----------------------------|---------------------|
| Pos. | Qty. / Menge | Description | Bezeichnung | Material / Werkstoff | Material Standard / Werkstoff Norm | Cert. / Zgn. | Standard / Norm | Dimensions / Abmessungen | Notes / Bemerkungen |
| 1.1 | 1 | Shell | Mantel | TP316 | SA-312 | 3.1 | - | Ø101,6mm x 4,5mm x 379,8mm | - |
| 1.2 | 2 | Flanging | Flanschring | F316 | SA-182 | 3.1 | - | K10-2881-02 | - |
| 1.3 | 2 | Welding Neck Flange | Vorschweißflansch | F316 | SA-182 | 3.1 | ASME B16.5 | 3/4" Class 600 RF | - |
| 1.4 | 2 | Nozzle Pipe | Stutzenrohr | TP316 | SA-312 | 3.1 | - | Ø26,9mm x 3,9mm | - |
| 1.5 | 2 | Socket | Muffe | TP316 | SA-312 | 3.1 | - | G 1/2" | - |
| 1.6 | 2 | Plug | Stopfen | 316 | SA-182 | 3.1 | - | G 1/2" | - |
| 1.7 | 2 | Sealing Ring | Dichtring | Aluminium | - | - | - | - | - |
| 1.8 | 2 | Foot | Fuß | 304 | SA-240 | - | - | - | - |
| 1.9 | 1 | Nameplate Holder | Typenschildhalter | 304 | SA-240 | - | - | t=2mm | - |



| Pos. | Qty. / Menge | Description | Bezeichnung | Material / Werkstoff | Material Standard / Werkstoff Norm | Cert. / Zgn. | Standard / Norm | Dimensions / Abmessungen | Notes / Bemerkungen |
|------|--------------|----------------|-------------|----------------------|------------------------------------|--------------|-----------------|--------------------------|---------------------|
| 2.1 | 2 | Tubesheet | Rohrplatte | 316L | SA-182 | 3.1 | - | Ø91,8mm x 22mm | - |
| 2.2 | 36 | Tube | Rohr | TP316L | SA-312 | 3.1 | - | Ø8mm x 0,5mm | - |
| 2.3 | 2 | Baffle | Umlenkblech | Aluminium | - | - | - | t=4,5mm | - |
| 2.4 | 1 | Fin | Rippe | Aluminium | - | - | - | - | - |
| 2.5 | 1 | Divider Gasket | Trennsteg | PE-1000 | - | - | - | - | - |
| 2.6 | 4 | O-Ring | O-Ring | Viton | - | - | - | - | - |

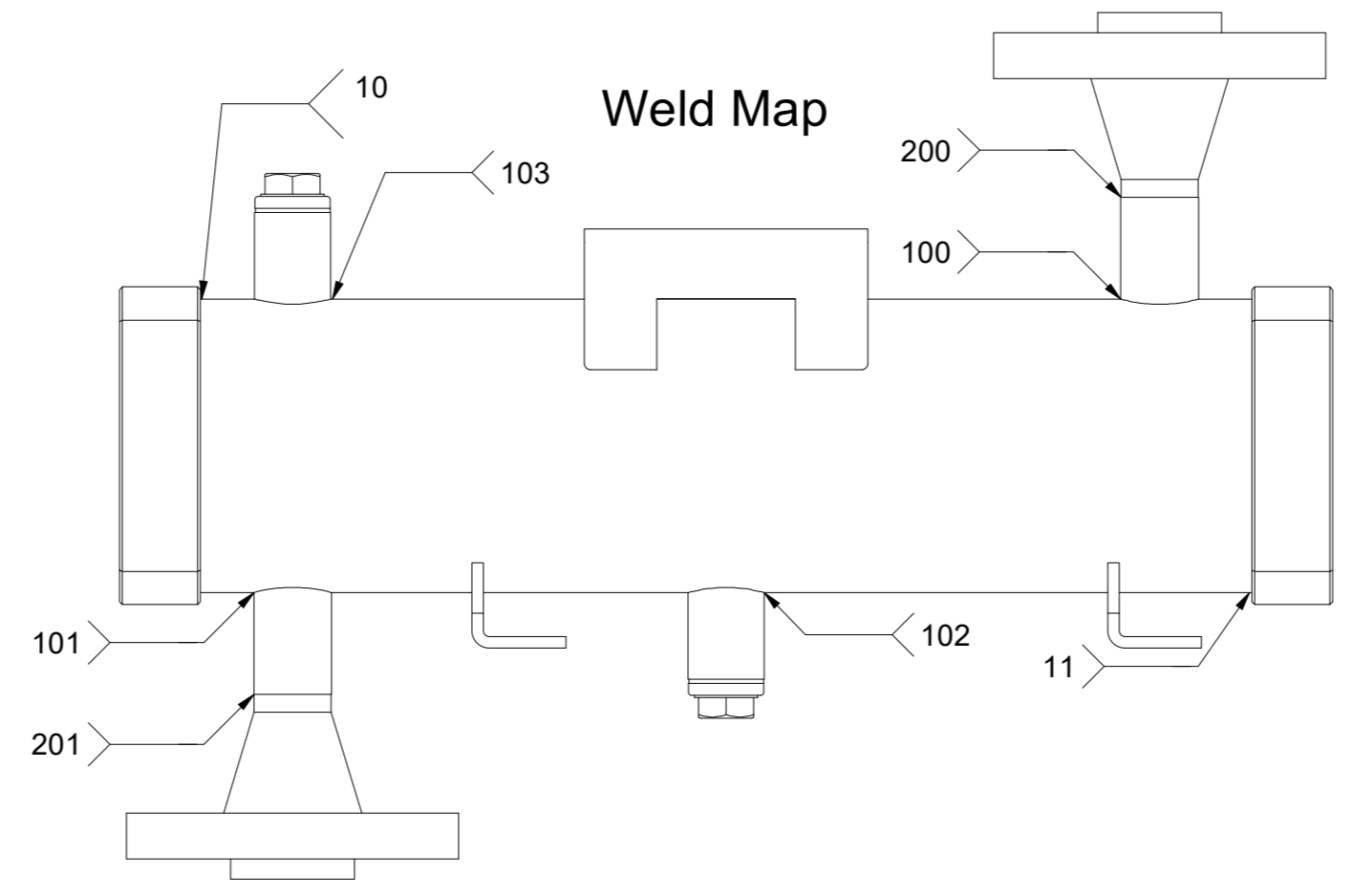
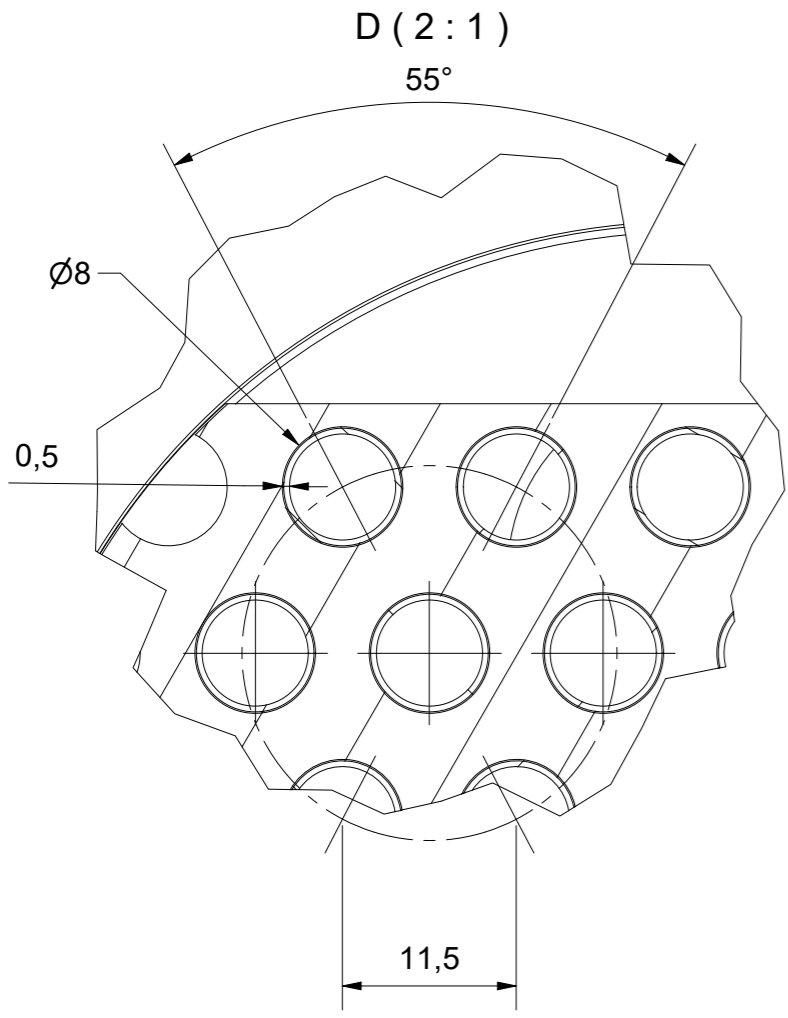
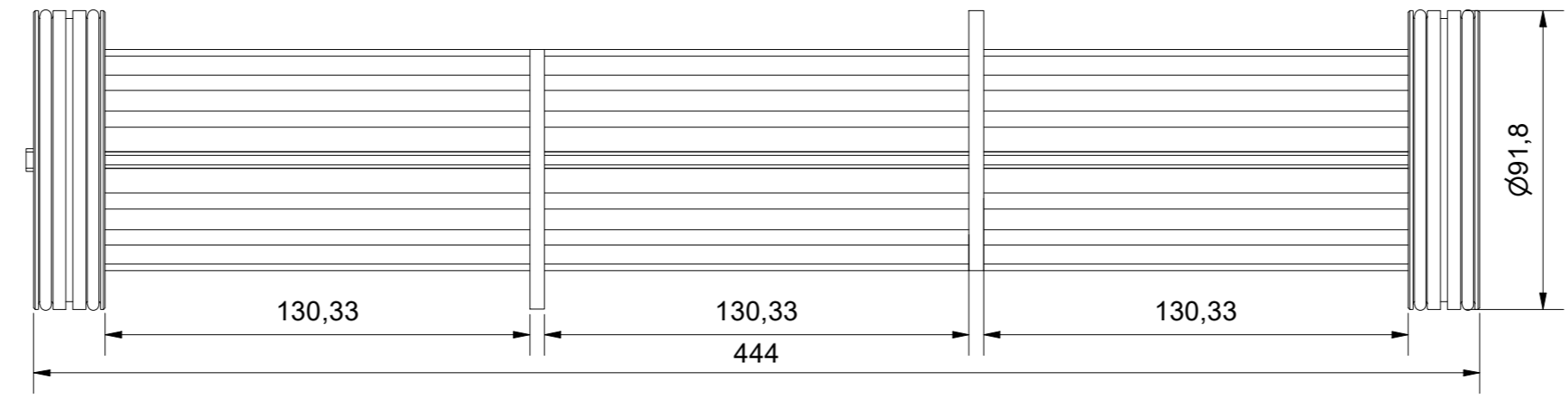
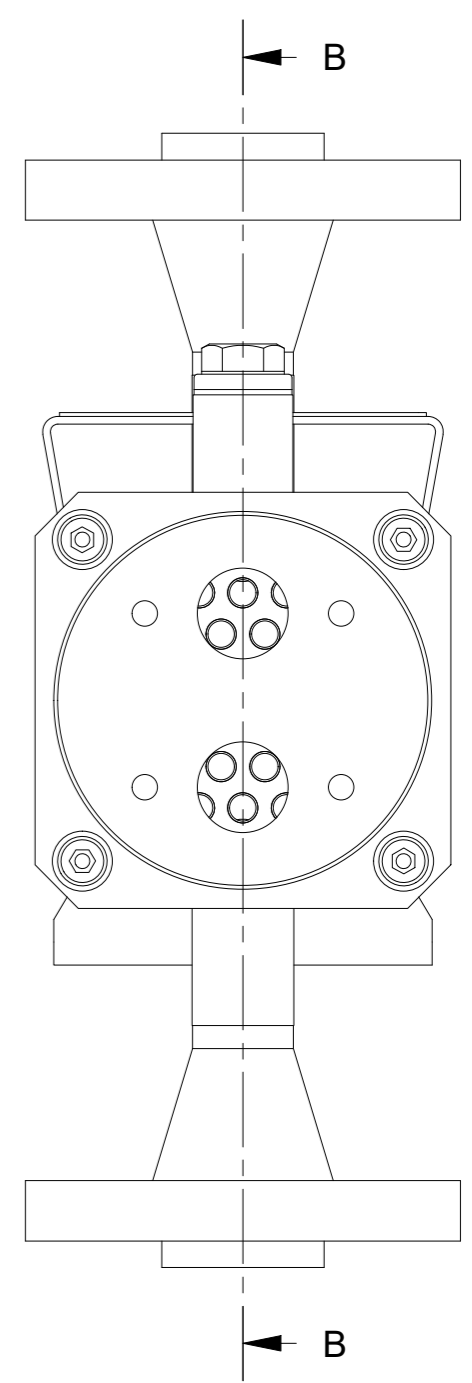
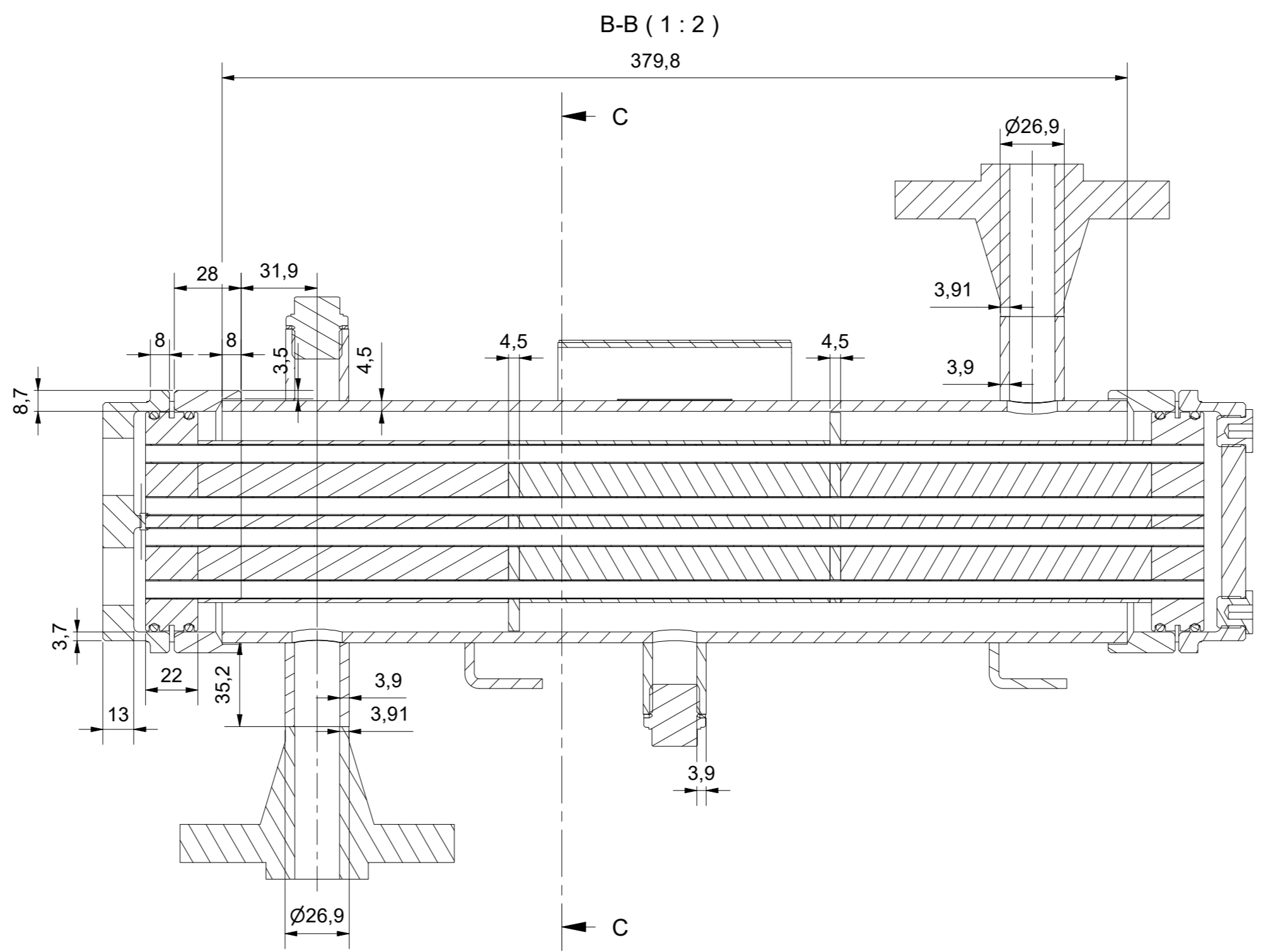
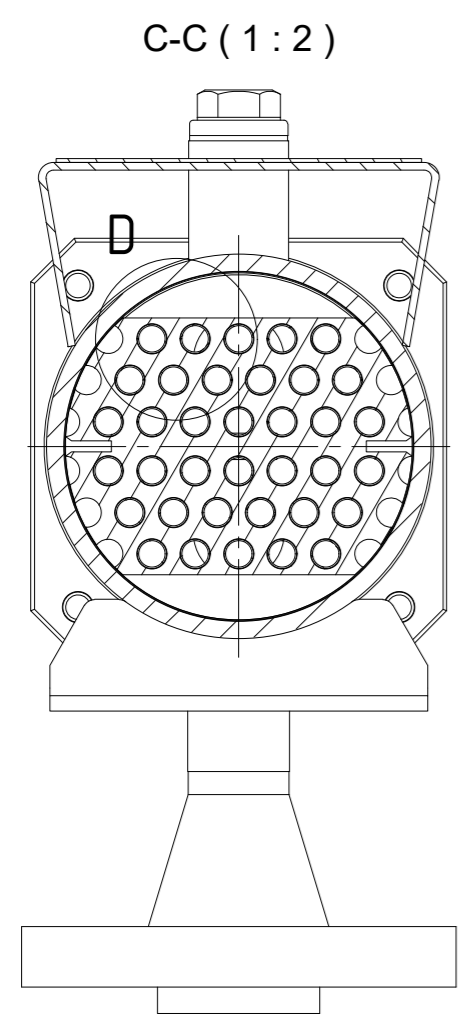


| Revisions | | | | | |
|-----------|---|------------|------------|----------|-------------|
| Rev. | Reason for Issue | Date | Drawn | Checked | Approved |
| Rev. | Grund der Ausgabe | Datum | Gezeichnet | Geprüft | Freigegeben |
| R05 | Added weight to nameplate | 15.05.2024 | A.Heiss | T.Strohm | S.Monje |
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| IWS Type Code IWS Typenschlüssel | RPL 400/100-36-2-2/3-SS/AL-IW | Description Beschreibung | Intercooler / Aircooler |
| | | Drawing No. Zeichnungsnummer | Z-704233207 |
| <small>Tolerances in acc. to EN ISO 13920-DH and ASME VIII Div. 1 UW-33, UW-35, UG-79, UG-80, UG-81</small> | | | |
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| <small>Format</small> | | <small>Format</small> | A1 |
| <small>Page</small> | | <small>Page</small> | |
| <small>Blatt</small> | | <small>Blatt</small> | |
| <small>2</small> | | <small>2</small> | |

14 13 12 11 10 9 8 7 6 5 4 3 2 1

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| Revisions | | | | | |
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|  IWS-MONJÉ HEAT EXCHANGERS IWS-Monjé Heat Exchangers GmbH Wittener Straße 102 44789 Bochum Germany www.iws-monje.com | Drawing No. Zeichnungsnummer Z-704233207 |
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14 13 12 11 10 9 8 7 6 5 4 3 2 1