



Performance Specification

Customer: Coil

Date: 2010-03-04

Email:

Proposal No.:

Cust. Reference: 28 kw clip

Run No.: 0

Item No.:

Technician:

Mo del: GCD-008-H-4-PI-83-0

Units Required: 1

Intended End Use: Heat exchanger to cool Water 14 °C using 12 °C Water with pressure drop at or below 20 kPa on hot side and at or below 20 kPa on cold side.

| | | <i>Hot Side</i> | | <i>Cold Side</i> | |
|-----------------------------------|-------------------------|--|---------------|------------------|---------------|
| Fluid Name | | Water | | Water | |
| OPERATING DATA | | Inlet | Outlet | Inlet | Outlet |
| Total Liquid flow | kg/h | 1.723,09 | 1.723,09 | 1.722,78 | 1.722,78 kg/h |
| Operating Temperature | °C | 28,00 | 14,00 | 12,00 | 26,00 °C |
| Pressure drop (allowed / calc.) | kPa | 20,00 / 8,86 | | 20,00 / 8,92 kPa | |
| Total Heat Exchanged | kW | | | 28 | |
| U-Clean | W/(m ² ·°C) | | | 2.541 | |
| U-Service | W/(m ² ·°C) | | | 2.305 | |
| Total Heat Transfer Area | m ² | | | 6,08 | |
| LMTD | °C | | | 2,00 | |
| Fouling Factor | (m ² ·°C)/kW | | | 0,0394 | |
| Surface Margin | % | | | 10 | |
| FLUID PROPERTIES | | Inlet | Outlet | Inlet | Outlet |
| Specific Gravity | - | 1,00 | 1,00 | 1,00 | 1,00 |
| Specific Heat Capacity | kJ/(kg·°C) | 4,18 | 4,18 | 4,19 | 4,18 |
| Thermal Conductivity | W/(m·°C) | 0,61 | 0,59 | 0,58 | 0,61 |
| Viscosity (avg.) | cP | 0,83 | 1,17 | 1,23 | 0,87 |
| CONNECTIONS | | | | | |
| Position | | M3 | S3 | S2 | M2 |
| Type | | THREADED | THREADED | THREADED | THREADED |
| Size | | R 1 1/4" | R 1 1/4" | R 1 1/4" | R 1 1/4" |
| Material | | 1.4401 | | 1.4401 | |
| CONSTRUCTION | | | | | |
| Pass Arrangement | | 2(1 + 1) | | 2(1 + 1) | |
| Channel Arrangement | | 20H+21H | | 20H+21H | |
| A-Dimension / C-Dimension | mm | 207,5 / 500 | | | |
| Plates (Material / Thickness) | | 1.4401 / 0,4 mm | | | |
| Gasket Material (Hot/Cold) | | NBR (P)(Clip-On) | | NBR (P)(Clip-On) | |
| No. of Plates | | 83 | | | |
| Frame material / Paint / Color | | P265GH Carbon Steel / S1 - 2 comp. Oxirane Ester / RAL 5012 (Royal Blue) | | | |
| Tightening Bolts / Nuts / Finish | | 8.8 / 8 / Zinc | | | |
| Pressure (design / test) | bar(g) | 10,00 / 14,30 | | 10,00 / 14,30 | |
| Temperature (min / design) | °C | -10,00 / 80,00 | | -10,00 / 80,00 | |
| Volume (per Side) | m ³ | 0,01 | | 0,01 | |
| Weight empty / flooded (per unit) | kg | 89 / 100 | | | |
| Pressure vessel code | | PED | | | |

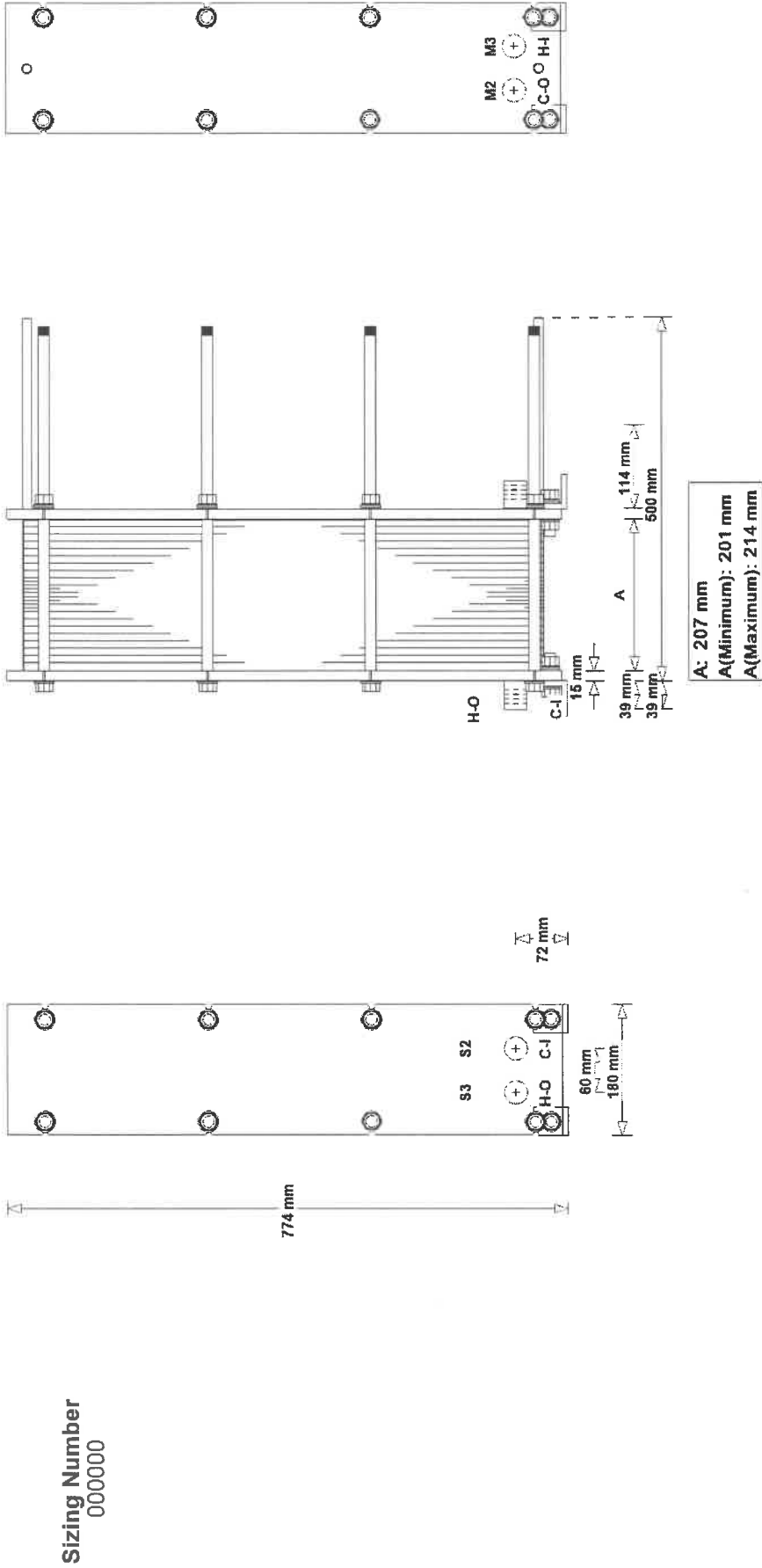
Remarks:

The performance guarantee is based on the accuracy of the data presented above, and the customers ability to supply product and operating conditions in conformance with the above.

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PLATE & FRAME LAYOUT GCD-008-H-4-PI-83-0



Sizing Number
000000



Technical Specification

Customer:

Date: 2010-03-04

Email:

Proposal No.:

Cust. Reference:

Run No.: 0

Item No.:

Technician:

Units Required: 1

Model: **GCD-008-H-4-PI-83-0**

| | | |
|------------------------------|-----------------|----------------------|
| Description | : Price Rank: 2 | |
| # Passes | : 1/1 | 1/1 |
| Plate Mix | : 20H+21H | 20H+21H |
| Volumetric Flow Rates | | |
| Per Channel | : 0,0800 | 0,0800 m³/h |
| Per Unit | : 1,7300 | 1,7300 m³/h |
| Total | : 1,7300 | 1,7300 m³/h |
| Mass Flow Rates | | |
| Per Channel | : 84,0500 | 84,0400 kg/h |
| Per Unit | : 1.723,0900 | 1.722,7800 kg/h |
| Total | : 1.723,0900 | 1.722,7800 kg/h |
| Temperatures | | |
| Inlet (Supplied) | : 28,0000 | 12,0000 °C |
| Outlet (Supplied) | : 14,0000 | 26,0000 °C |
| Inlet (Actual) | : 28,0000 | 12,0000 °C |
| Outlet (Actual) | : 14,0000 | 26,0000 °C |
| Pressure Drops | | |
| Port | : 0,2200 | 0,2200 kPa |
| Channel | : 8,6400 | 8,7000 kPa |
| Actual | : 8,8556 | 8,9192 kPa |
| Max PD Allowed | : 20,0000 | 20,0000 kPa |
| Port Diameter (Inlet) | : 30,0000 | 30,0000 mm |
| Port Diameter (Outlet) | : 30,0000 | 30,0000 mm |
| Operating Pressure | : 0,0000 | 0,0000 bar |
| Shear Stress | : 7,0859 | 7,1383 Pa |
| Velocities | | |
| Nozzle (Inlet) | : 0,4600 | 0,4500 m/s |
| Nozzle (Outlet) | : 0,4600 | 0,4500 m/s |
| Port (Inlet) | : 0,6800 | 0,6800 m/s |
| Port (Outlet) | : 0,6800 | 0,6800 m/s |
| Channel | : 0,1100 | 0,1100 m/s |
| Reference Temp. | : 21,0000 | 19,0000 °C |
| Wall Temp (↓ warm / ↑ cold) | : 13,0812 | 26,9305 °C |
| Wall Viscosity | : 0,9966 | 0,9993 cP |
| Film Coefficient | : 5.530,5687 | 5.460,9316 W/(m²·°C) |
| Reynolds Number | : 479,7353 | 456,4621 |
| F A 1 | : 0,9968 | 1,0033 |
| NTU | : 7 | 7 |

| | |
|-----------------------------|------------------------|
| Frame Type | : PI |
| Unit Dimension | |
| A(Minimum) | : 201,28 mm |
| A | : 207,50 mm |
| A(Maximum) | : 213,73 mm |
| B | : 445,00 mm |
| C | : 500,00 mm |
| T | : 15,00 mm |
| Plate (Quantity/Maximum) | : 83/126 |
| Unit Heat Transfer Area | : 6,08 m² |
| U Values | |
| Clean | : 2.540,7500 W/(m²·°C) |
| Required | : 2.304,5300 W/(m²·°C) |
| LMTD | : 2,0000 °C |
| Fouling Factor | |
| Allowed | : 0,000000 (m²·°C)/KW |
| Actual | : 0,039437 (m²·°C)/KW |
| Oversurfacing | |
| Allowed | : 10 % |
| Actual | : 10,2505 % |
| FT | : 1 |
| Version: 1.0.3.51 (0; 0; 0) | |

