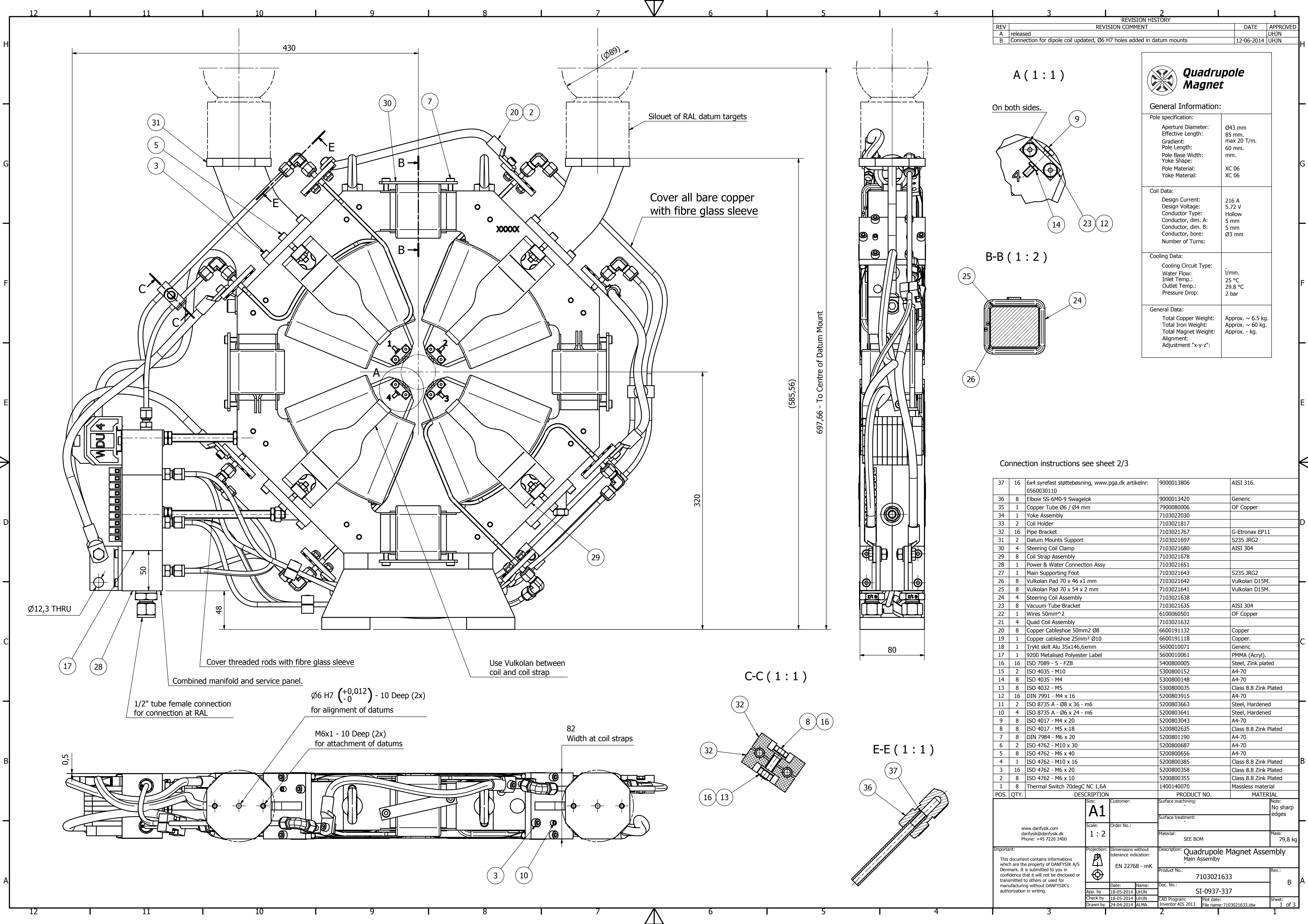
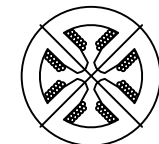




| REVISION HISTORY |                                                                       |            |          |
|------------------|-----------------------------------------------------------------------|------------|----------|
| REV              | REVISION COMMENT                                                      | DATE       | APPROVED |
| A                | released                                                              |            | UHJN     |
| B                | Connection for dipole coil updated, Ø6 H7 holes added in datum mounts | 12-06-2014 | UHJN     |



## Quadrupole Magnet

### General Information:

|                     |             |
|---------------------|-------------|
| Pole specification: |             |
| Aperture Diameter:  | Ø43 mm      |
| Effective Length:   | 85 mm.      |
| Gradient:           | max 20 T/m. |
| Pole Length:        | 60 mm.      |
| Pole Base Width:    | mm.         |
| Yoke Shape:         |             |
| Pole Material:      | XC 06       |
| Yoke Material:      | XC 06       |

|                    |        |
|--------------------|--------|
| Coil Data:         |        |
| Design Current:    | 216 A  |
| Design Voltage:    | 5.72 V |
| Conductor Type:    | Hollow |
| Conductor, dim. A: | 5 mm   |
| Conductor, dim. B: | 5 mm   |
| Conductor, bore:   | Ø3 mm  |
| Number of Turns:   |        |

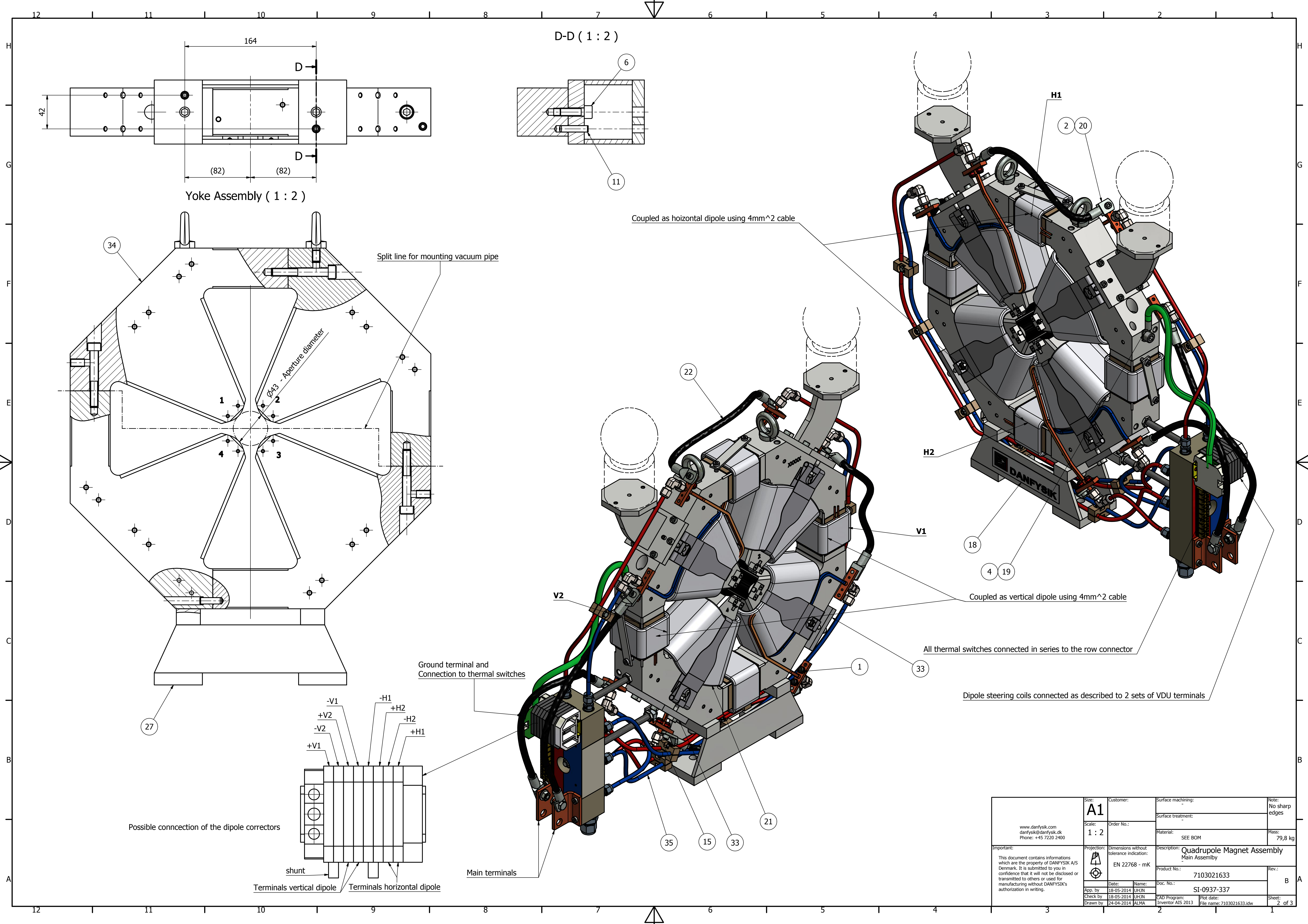
|                       |         |
|-----------------------|---------|
| Cooling Data:         |         |
| Cooling Circuit Type: |         |
| Water Flow:           | l/min.  |
| Inlet Temp.:          | 25 °C   |
| Outlet Temp.:         | 29,8 °C |
| Pressure Drop:        | 2 bar   |

|                      |                   |
|----------------------|-------------------|
| General Data:        |                   |
| Total Copper Weight: | Approx. ~ 6.5 kg. |
| Total Iron Weight:   | Approx. ~ 60 kg.  |
| Total Magnet Weight: | Approx. ~ kg.     |
| Alignment:           |                   |
| Adjustment "x-y-z":  |                   |

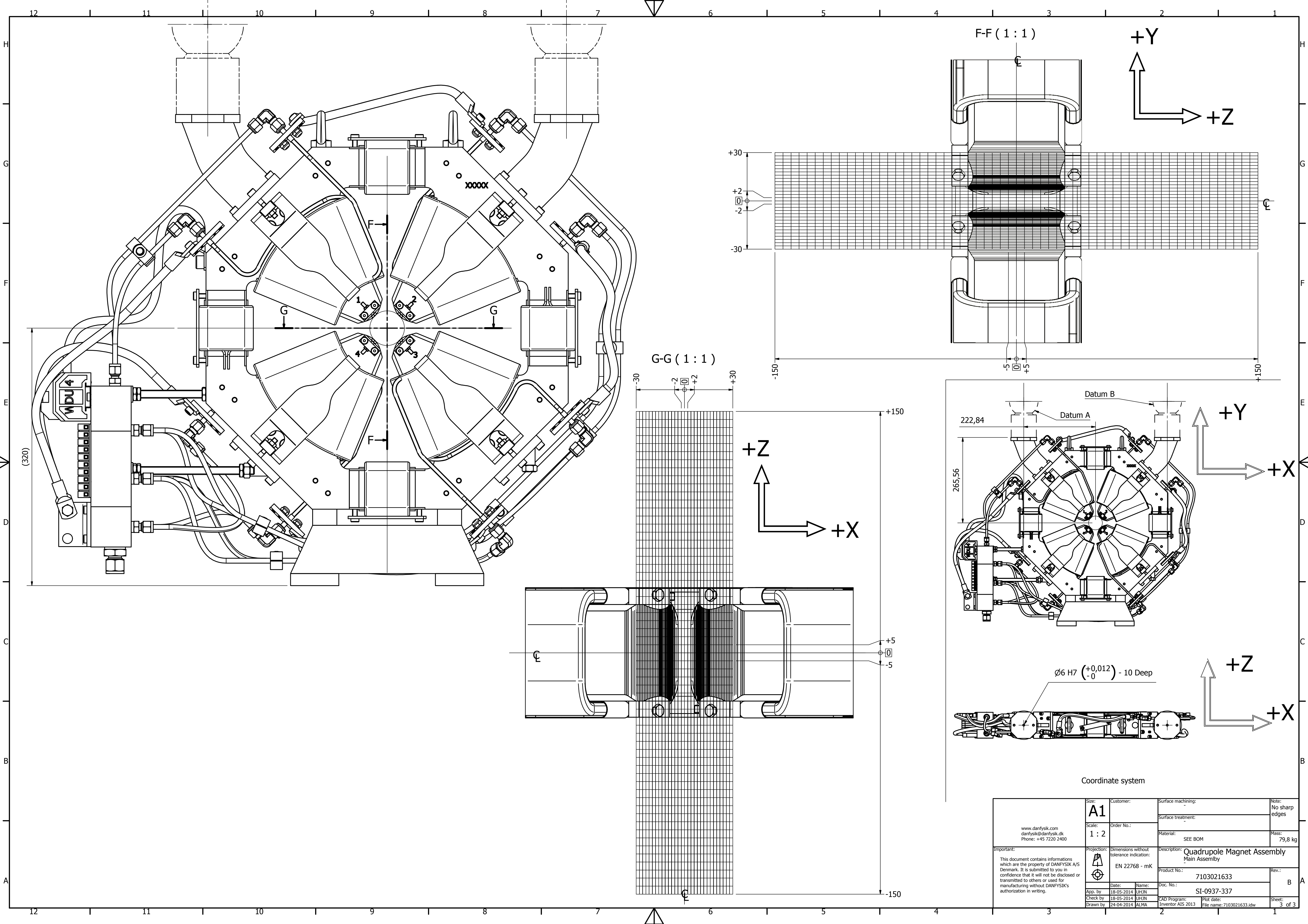
Connection instructions see sheet 2/3

|    |    |                                                              |            |                       |
|----|----|--------------------------------------------------------------|------------|-----------------------|
| 37 | 16 | 6x4 syrefast støttebøsning, www.pga.dk artikelnr: 0560030110 | 9000013806 | AlSi 316.             |
| 36 | 8  | Elbow SS-6M0-9 Swagelok                                      | 9000013420 | Generic               |
| 35 | 1  | Copper Tube Ø6 / Ø4 mm                                       | 7900080006 | OF Copper             |
| 34 | 1  | Yoke Assembly                                                | 7103022030 |                       |
| 33 | 2  | Coil Holder                                                  | 7103021817 |                       |
| 32 | 16 | Pipe Bracket                                                 | 7103021767 | G-Etronax EP11        |
| 31 | 2  | Datum Mounts Support                                         | 7103021697 | S235 JRG2             |
| 30 | 4  | Steering Coil Clamp                                          | 7103021680 | AlSi 304              |
| 29 | 8  | Coil Strap Assembly                                          | 7103021678 |                       |
| 28 | 1  | Power & Water Connection Assy                                | 7103021651 |                       |
| 27 | 1  | Main Supporting Foot                                         | 7103021643 | S235 JRG2             |
| 26 | 8  | Vulkolan Pad 70 x 46 x1 mm                                   | 7103021642 | Vulkolan D15M.        |
| 25 | 8  | Vulkolan Pad 70 x 54 x 2 mm                                  | 7103021641 | Vulkolan D15M.        |
| 24 | 4  | Steering Coil Assembly                                       | 7103021638 |                       |
| 23 | 8  | Vacuum Tube Bracket                                          | 7103021635 | AlSi 304              |
| 22 | 1  | Wires 50mm^2                                                 | 6100060501 | OF Copper             |
| 21 | 4  | Quad Coil Assembly                                           | 7103021632 |                       |
| 20 | 8  | Copper Cablesheoe 50mm2 Ø8                                   | 6600191132 | Copper                |
| 19 | 1  | Copper cablesheoe 25mm2 Ø10                                  | 6600191118 | Copper.               |
| 18 | 1  | Trykt skilt Alu 35x146,6xmm                                  | 5600010071 | Generic               |
| 17 | 1  | 9200 Metalised Polyester Label                               | 5600010061 | PMMA (Acryl).         |
| 16 | 16 | ISO 7089 - 5 - FZB                                           | 5400800005 | Steel, Zink plated    |
| 15 | 2  | ISO 4035 - M10                                               | 5300800152 | A4-70                 |
| 14 | 8  | ISO 4035 - M4                                                | 5300800148 | A4-70                 |
| 13 | 8  | ISO 4032 - M5                                                | 5300800035 | Class 8.8 Zink Plated |
| 12 | 16 | DIN 7991 - M4 x 16                                           | 5200803915 | A4-70                 |
| 11 | 2  | ISO 8735 A - Ø8 x 36 - m6                                    | 5200803663 | Steel, Hardened       |
| 10 | 4  | ISO 8735 A - Ø6 x 24 - m6                                    | 5200803641 | Steel, Hardened       |
| 9  | 8  | ISO 4017 - M4 x 20                                           | 5200803043 | A4-70                 |
| 8  | 8  | ISO 4017 - M5 x 18                                           | 5200802635 | Class 8.8 Zink Plated |
| 7  | 8  | DIN 7984 - M6 x 20                                           | 5200801190 | A4-70                 |
| 6  | 2  | ISO 4762 - M10 x 30                                          | 5200800687 | A4-70                 |
| 5  | 8  | ISO 4762 - M6 x 40                                           | 5200800656 | A4-70                 |
| 4  | 1  | ISO 4762 - M10 x 16                                          | 5200800385 | Class 8.8 Zink Plated |
| 3  | 16 | ISO 4762 - M6 x 20                                           | 5200800358 | Class 8.8 Zink Plated |
| 2  | 8  | ISO 4762 - M6 x 10                                           | 5200800355 | Class 8.8 Zink Plated |
| 1  | 8  | Thermal Switch 70degC NC 1,6A                                | 1400140070 | Massless material     |

| POS. | QTY. | DESCRIPTION                              | PRODUCT NO.                             | MATERIAL           |
|------|------|------------------------------------------|-----------------------------------------|--------------------|
|      |      | Size: A1                                 | Customer:                               | Surface machining: |
|      |      | Scale: 1:2                               | Order No.:                              | Surface treatment: |
|      |      | Projection: EN 22768 - mK                | Material:                               | SEE BOM            |
|      |      | Dimensions without tolerance indication: | Description: Quadrupole Magnet Assembly | Mass: 79,8 kg      |
|      |      | Product No.:                             | 7103021633                              | Rev.:              |
|      |      | Date: 18-05-2014                         | Doc. No.:                               | SI-0937-337        |
|      |      | Name: UHJN                               | CAD Program: Inventor AIS 2013          | Sheet: 1 of 3      |
|      |      | App. by: 18-05-2014                      | Check by: 24-04-2014                    | Drawn by: ALMA     |



|                                                                                                                                                                                                                                                                                                                                                                                     |                            |                                                           |                      |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------|----------------------|--------------------------|
| <div>www.danfysik.com</div> <div>danfysik@danfysik.dk</div> <div>Phone: +45 7220 2400</div> <div>Important:</div> <div>This document contains informations which are the property of DANFYSIK A/S Denmark. It is submitted to you in confidence that it will not be disclosed or transmitted to others or used for manufacturing without DANFYSIK's authorization in writing.</div> | Size:<br><b>A1</b>         | Customer:                                                 | Surface machining:   | Note:<br>No sharp edges  |
|                                                                                                                                                                                                                                                                                                                                                                                     | Scale:<br><b>1 : 2</b>     | Order No.:                                                | Surface treatment:   |                          |
|                                                                                                                                                                                                                                                                                                                                                                                     | Projection:<br>            | Dimensions without tolerance indication:<br>EN 22768 - mK | Material:<br>SEE BOM | Mass:<br>79,8 kg         |
|                                                                                                                                                                                                                                                                                                                                                                                     | App. by<br>18-05-2014 UHJN | Date:<br>18-05-2014                                       | Name:<br>UHJN        | Doc. No.:<br>SI-0937-337 |
| Check by<br>18-05-2014 UHJN                                                                                                                                                                                                                                                                                                                                                         |                            | CAD Program:<br>Inventor AIS 2013                         |                      | Plot date:<br>24-04-2014 |
| Drawn by<br>24-04-2014 ALMA                                                                                                                                                                                                                                                                                                                                                         |                            | File name:<br>7103021633.idw                              |                      | Sheet:<br>2 of 3         |
|                                                                                                                                                                                                                                                                                                                                                                                     |                            | Product No.:<br>7103021633                                |                      | Rev.:<br>B               |



|                                                                                                                                                                                                                                                                                                                                                                                     |                                        |                                                           |                                   |                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------|-----------------------------------|-----------------------------------------|
| <div>www.danfysik.com</div> <div>danfysik@danfysik.dk</div> <div>Phone: +45 7220 2400</div> <div>Important:</div> <div>This document contains informations which are the property of DANFYSIK A/S Denmark. It is submitted to you in confidence that it will not be disclosed or transmitted to others or used for manufacturing without DANFYSIK's authorization in writing.</div> | Size:<br><b>A1</b>                     | Customer:                                                 | Surface machining:<br>-           | Note:<br>No sharp edges                 |
|                                                                                                                                                                                                                                                                                                                                                                                     | Scale:<br><b>1 : 2</b>                 | Order No.:                                                | Surface treatment:                |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                     | Projection:<br>                        | Dimensions without tolerance indication:<br>EN 22768 - mK | Material:<br>SEE BOM              | Mass:<br>79,8 kg                        |
|                                                                                                                                                                                                                                                                                                                                                                                     | Date:<br>18-05-2014                    | Name:<br>UJUN                                             | Doc. No.:<br>SI-0937-337          | Rev.:<br>B                              |
| App. by<br>Check by<br>Drawn by                                                                                                                                                                                                                                                                                                                                                     | 18-05-2014<br>18-05-2014<br>24-04-2014 | UJUN<br>UJUN<br>ALMA                                      | CAD Program:<br>Inventor AIS 2013 | Plot date:<br>File name: 7103021633.idw |