

Customer Specific Requirements – MAN CSAI Project

1. Scope

The Customer Specific Requirements (CSR) defined within this document apply to the production of inverters by Fideltronik (FT), and supplied direct to MAN as part of the Tebay Project (MAN CSAI).

This CSR acts in addition to the QMS requirements defined in VDA 6.3 / ISO-TS16949 (IATF16949 upon Fideltronik Certification)

This CSR relates to the Fideltronik Sucha Beskidska site where assembly of the Tebay inverters are carried out.

Fideltronik is not required to meet the published MAN CSRs, as this is the responsibility of BorgWarner as the first-tier supplier. BorgWarner has reviewed the MAN CSRs and passed on any relevant requirements within this document.

2. Quality Management System

Fideltronik will operate their QMS in line with VDA 6.3 / ISO-TS16949 requirements.

Fideltronik will implement core quality tools like FMEA, APQP, MSA, PPAP, SPC.

Fideltronik will support BorgWarner in the completion of any MAN APQP documents and meeting any APQP requirements advised by BorgWarner.

3. Customer Concern Management

In the event of a MAN quality concern raised against BorgWarner and relating to Fideltronik processes, the following requirements apply –

Fideltronik may use their own current controlled 8D format for response, provided that it continues to align to BorgWarner 8D requirements.

The required response times are as follows –

- Containment Actions at Fideltronik – Within 24 hours of working time from receipt of the returned unit from MAN. This will involve approval and possibly cooperation with BorgWarner
- Corrective Actions – 2 weeks from receipt of the non-conforming part at Fideltronik (or from receipt of the non-conforming part at BorgWarner, Gateshead if applicable). If Fideltronik are unable to complete within 2 weeks, then a request with a timing plan will be required by BorgWarner & MAN, within those 2 working weeks, defining the activities/timings to finalise the Interim and/or Permanent Corrective Actions.
- Completion and Submission to BorgWarner – 4 weeks from receipt of the non-conforming part at Fideltronik (or from receipt of the non-conforming part at BorgWarner, Gateshead if applicable). If unable to complete within 4 weeks, then a

request with a timing plan is required by BorgWarner & MAN, defining the activities/timings to close out.

- If a Company or Public Holiday occurs within these time frames, BorgWarner must be notified in writing immediately.

4. Logistics and Packaging

FT will use EDI portal for login and for printing of MAN delivery labels.

Transport of product is direct to MAN Poland, Starachowice, at the defined collection times. The ordered product must be available for collection in the agreed returnable packaging, by MAN's designated courier.

Packaging of the inverters is as per the defined and agreed method. It is the responsibility of FT to ensure that the required MAN stillages are available, and advise MAN and BorgWarner as soon as a shortage or damage is identified.

5. Components & Manufacturing Process

- Non-use of cadmium or lead in the Assembly Process or Components
- No CFCs to be used.
- Protective varnish and potting compound on printed circuit boards populated with ceramic film capacitors must be of the V0 standard of document UL94.
- In the event of partial varnishing, the area to be varnished must be precisely maintained.
- No rework, replacement or solder joint repair must be made on any ceramic surface mount capacitors. Also, careful handling of the PCBAs to avoid mechanical strain.
- PCB Assemblies must comply with the current IPC-A-610 "Acceptability of Electronic Systems", Class 3, unless clarified separately in agreement with MAN.
- The Product must comply to the European 'ELV Directive' 2000/53/EC

6. Continuous Improvement

Fideltronik will monitor yields on all BorgWarner production, and issue an analysis by product family and part number, with actions for the top 5 items. This will be issued to BorgWarner within 10 working days of the month end.

7. Environmental and social responsibility

BorgWarner requests that FT considers and implements good practice regarding sustainable development /social responsibility, especially in the following areas: No child labour, no forced work, working conditions, health and safety, environmental protection.

BorgWarner requires that Fideltronik maintains certification to ISO14001.

BorgWarner requires Fideltronik to support IMDS material declaration for the MAN CSAI inverters.

Issued by: David Wilkinson

Senior Quality Engineer

March 2018