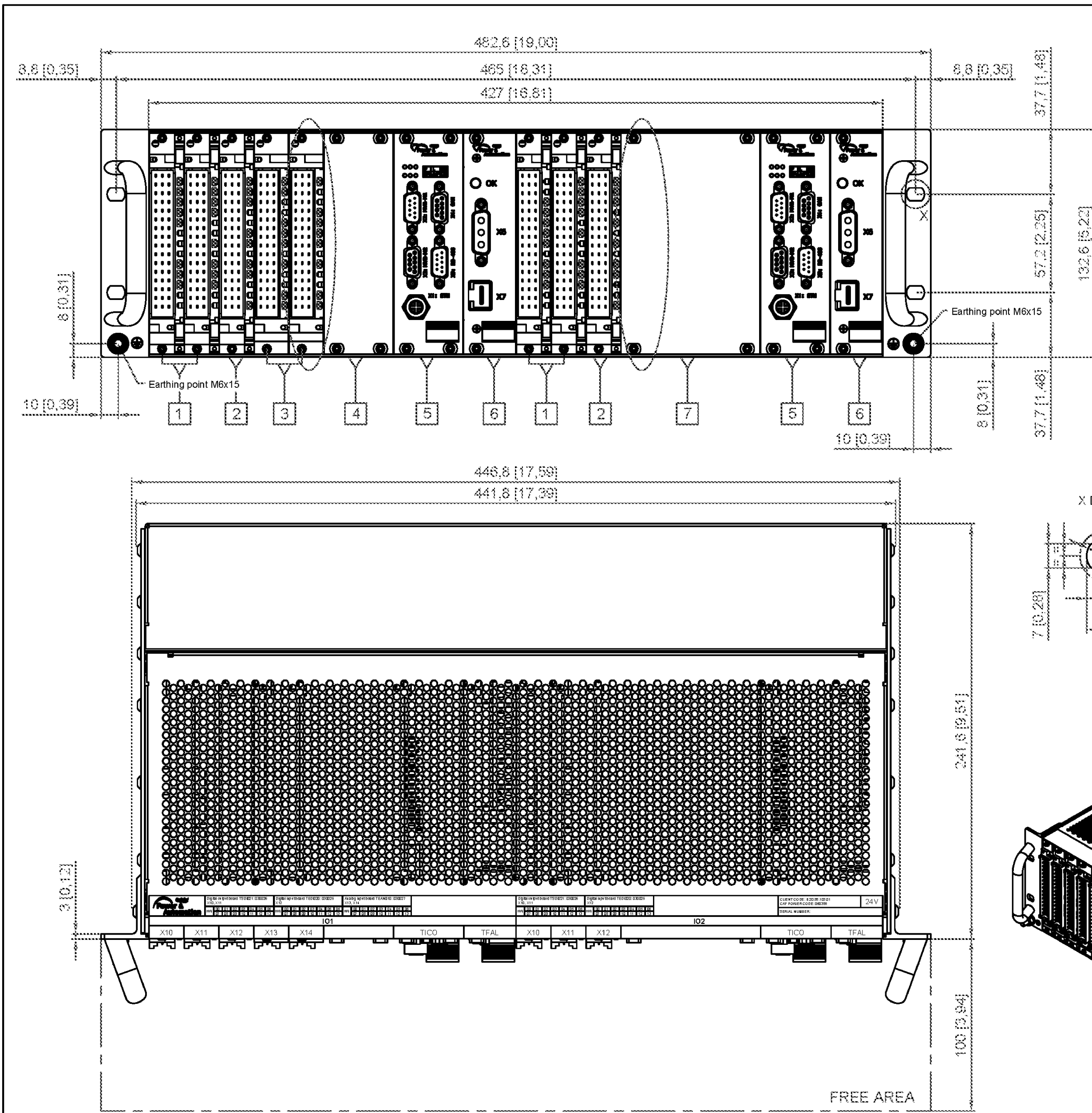


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| DIGITAL OUTPUT BOARD CONNECTOR: F48 MALE | | | | | |
|--|-----|--------|-----|--------|-----|
| CONNECTOR | PIN | SIGNAL | PIN | SIGNAL | PIN |
| 1 | 32 | NC15 | 32 | COM15 | 32 |
| | 30 | NC14 | 30 | COM14 | 30 |
| | 28 | NC13 | 28 | COM13 | 28 |
| | 26 | NC12 | 26 | COM12 | 26 |
| | 24 | NC11 | 24 | COM11 | 24 |
| | 22 | NC10 | 22 | COM10 | 22 |
| | 20 | NC9 | 20 | COM9 | 20 |
| | 18 | NC8 | 18 | COM8 | 18 |
| | 16 | NC7 | 16 | COM7 | 16 |
| | 14 | NC6 | 14 | COM6 | 14 |
| | 12 | NC5 | 12 | COM5 | 12 |
| | 10 | NC4 | 10 | COM4 | 10 |
| | 8 | NC3 | 8 | COM3 | 8 |
| | 6 | NC2 | 6 | COM2 | 6 |
| | 4 | NC1 | 4 | COM1 | 4 |
| | 2 | NC0 | 2 | COM0 | 2 |
| | 32 | NC15 | 32 | COM15 | 32 |
| | 30 | NC14 | 30 | COM14 | 30 |
| | 28 | NC13 | 28 | COM13 | 28 |
| | 26 | NC12 | 26 | COM12 | 26 |
| | 24 | NC11 | 24 | COM11 | 24 |
| | 22 | NC10 | 22 | COM10 | 22 |
| | 20 | NC9 | 20 | COM9 | 20 |
| | 18 | NC8 | 18 | COM8 | 18 |

| DIGITAL INPUT BOARD CONNECTOR: F48 MALE | | | | | |
|---|-----|--------|-----|------------------|-----|
| CONNECTOR | PIN | SIGNAL | PIN | SIGNAL | PIN |
| 1 | 32 | E00 | 32 | Vref0 | 32 |
| | 30 | E02 | 30 | Vref0 | 30 |
| | 28 | E04 | 28 | Vref0 | 28 |
| | 26 | E06 | 26 | Vref0 | 26 |
| | 24 | E08 | 24 | Vref0 | 24 |
| | 22 | E10 | 22 | Vref0 | 22 |
| | 20 | E12 | 20 | Vref0 | 20 |
| | 18 | E14 | 18 | Com0 for E12 E15 | 18 |
| | 16 | E16 | 16 | Vref1 | 16 |
| | 14 | E18 | 14 | Vref1 | 14 |
| | 12 | E20 | 12 | Vref1 | 12 |
| | 10 | E22 | 10 | Vref1 | 10 |
| | 8 | E24 | 8 | Vref1 | 8 |
| | 6 | E26 | 6 | Vref1 | 6 |
| | 4 | E28 | 4 | Vref1 | 4 |
| | 2 | E30 | 2 | Com1 for E28 E31 | 2 |
| | 32 | E00 | 32 | Vref0 | 32 |
| | 30 | E02 | 30 | Vref0 | 30 |
| | 28 | E04 | 28 | Vref0 | 28 |
| | 26 | E06 | 26 | Vref0 | 26 |
| | 24 | E08 | 24 | Vref0 | 24 |
| | 22 | E10 | 22 | Vref0 | 22 |
| | 20 | E12 | 20 | Vref0 | 20 |
| | 18 | E14 | 18 | Com0 for E12 E15 | 18 |
| | 16 | E16 | 16 | Vref1 | 16 |

| ANALOG INPUT BOARD CONNECTOR: DIN41612 F48 MALE | | | | | |
|---|-----|------------------------|-----|------------------------|-----|
| CONNECTOR | PIN | SIGNAL | PIN | SIGNAL | PIN |
| 1 | 32 | GND | 32 | GND | 32 |
| | 30 | Channel 0 GND | 30 | Channel 0 voltage mode | 30 |
| | 28 | Channel 0 current loop | 28 | Channel 0 voltage mode | 28 |
| | 26 | NC | 26 | NC | 26 |
| | 24 | NC | 24 | NC | 24 |
| | 22 | Channel 1 GND | 22 | Channel 1 voltage mode | 22 |
| | 20 | Channel 1 current loop | 20 | Channel 1 voltage mode | 20 |
| | 18 | NC | 18 | NC | 18 |
| | 16 | NC | 16 | NC | 16 |
| | 14 | Channel 2 GND | 14 | Channel 2 voltage mode | 14 |
| | 12 | Channel 2 current loop | 12 | Channel 2 voltage mode | 12 |
| | 10 | NC | 10 | NC | 10 |
| | 8 | NC | 8 | NC | 8 |
| | 6 | Channel 3 GND | 6 | Channel 3 voltage mode | 6 |
| | 4 | Channel 3 current loop | 4 | Channel 3 voltage mode | 4 |
| | 2 | GND | 2 | GND | 2 |
| | 32 | GND | 32 | GND | 32 |
| | 30 | Channel 0 GND | 30 | Channel 0 voltage mode | 30 |
| | 28 | Channel 0 current loop | 28 | Channel 0 voltage mode | 28 |
| | 26 | NC | 26 | NC | 26 |
| | 24 | NC | 24 | NC | 24 |
| | 22 | Channel 1 GND | 22 | Channel 1 voltage mode | 22 |
| | 20 | Channel 1 current loop | 20 | Channel 1 voltage mode | 20 |
| | 18 | NC | 18 | NC | 18 |
| | 16 | NC | 16 | NC | 16 |

| TICO (X2) MVB CONNECTOR, D-SUB8 MALE | | |
|--------------------------------------|--------|--|
| CONNECTOR | PIN | SIGNAL |
| 1 | 1 | A Data P-Line A+ |
| | 2 | A Data N-Line A- |
| | 3 | Not connected |
| | 4 | B Data P-Line B+ |
| | 5 | B Data N-Line B- |
| | 6 | A Term. P - pole of TERMINATOR of line A |
| | 7 | A Term. N - pole of TERMINATOR of line A |
| | 8 | B Term. P - pole of TERMINATOR of line B |
| | 9 | B Term. N - pole of TERMINATOR of line B |
| | Shield | CONNECT TO GND |

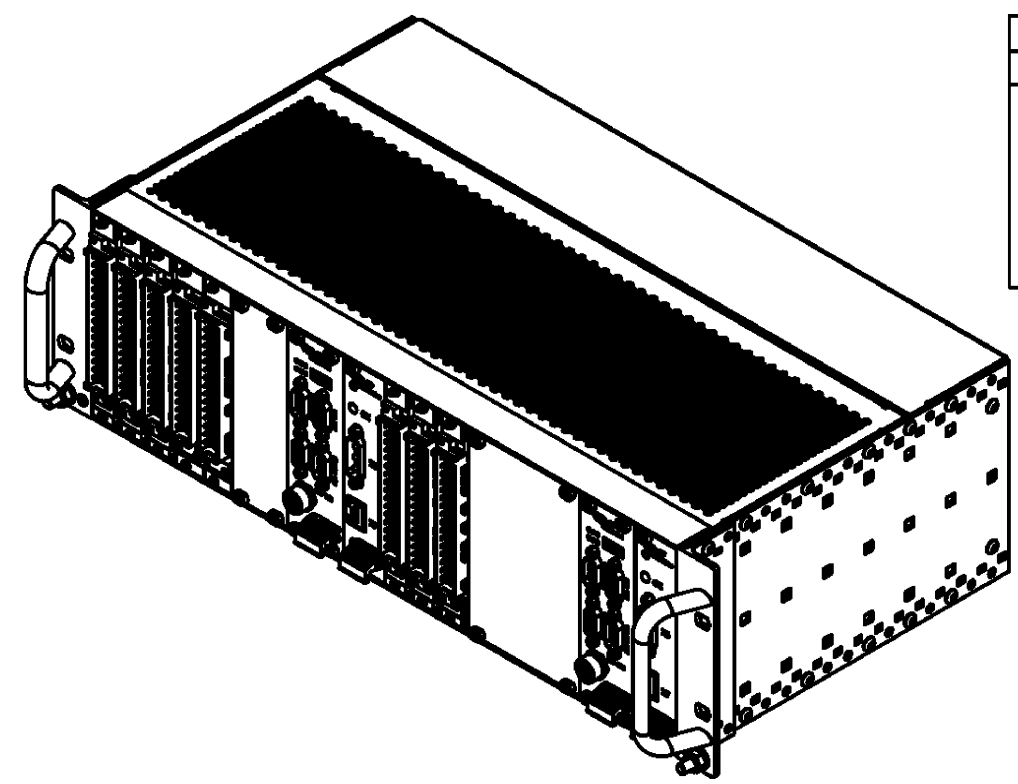
| TICO (X3) MVB CONNECTOR, D-SUB8 FEMALE | | |
|--|--------|--|
| CONNECTOR | PIN | SIGNAL |
| 1 | 1 | A Data P-Line A+ |
| | 2 | A Data N-Line A- |
| | 3 | NC |
| | 4 | B Data P-Line B+ |
| | 5 | B Data N-Line B- |
| | 6 | A Term. P - pole of TERMINATOR of line A |
| | 7 | A Term. N - pole of TERMINATOR of line A |
| | 8 | B Term. P - pole of TERMINATOR of line B |
| | 9 | B Term. N - pole of TERMINATOR of line B |
| | Shield | CONNECT TO GND |

| TICO (X4) CAN CONNECTOR, D-SUB8 FEMALE | | |
|--|-----|---|
| CONNECTOR | PIN | SIGNAL |
| 1 | 1 | TERM. LOW Connect with CAN_L TERM in terminator (pin4) |
| | 2 | CAN L |
| | 3 | CAN GND |
| | 4 | CAN L TERM |
| | 5 | CAN L TERM |
| | 6 | CAN GND |
| | 7 | CAN H |
| | 8 | TERM. HIGH Connect with CAN_H TERM in terminator (pin5) |
| | 9 | CAN H TERM |

| TICO (X6) RS-485 or RS422 CONNECTOR, D-SUB8 MALE | | |
|--|-----|---|
| CONNECTOR | PIN | SIGNAL |
| 1 | 1 | A RS485+ For RS422 (Reception +) |
| | 2 | B RS485- For RS422 (Reception -) |
| | 3 | GND |
| | 4 | A RS485+ For RS422 (Transmission +) |
| | 5 | B RS485- For RS422 (Transmission -) |
| | 6 | TERM. A Connect to A in terminator (Pin4) |
| | 7 | TERM. B Connect to B in terminator (Pin5) |
| | 8 | GND |
| | 9 | Not connected |

| TFAL (X6) POWER CONNECTOR | | |
|---------------------------|-----|--------------------|
| CONNECTOR | PIN | SIGNAL |
| 1 | 1 | Not connected |
| | 2 | Battery voltage V+ |
| | 3 | Battery voltage V- |

| X1 ETHERNET CONNECTOR | | |
|-----------------------|-----|--------|
| CONNECTOR | PIN | SIGNAL |
| 1 | 1 | TX+ |
| | 2 | TX- |
| | 3 | TX |
| | 4 | RX |



| | | | | | |
|---|------------------------------|--------|----|-------|---|
| 7 | PL_16 CIEGA | 010002 | -- | 16 HP | 1 |
| 6 | TFAL010 | 060112 | -- | 6 HP | 2 |
| 5 | TICO002 | 060111 | -- | 8 HP | 2 |
| 4 | PL_8 CIEGA | 010045 | -- | 8 HP | 1 |
| 3 | Analog input board TEAN010 | 030027 | -- | 4 HP | 2 |
| 2 | Digital input board TEDI020 | 030025 | -- | 4 HP | 2 |
| 1 | Digital output board TSDI021 | 030026 | -- | 4 HP | 4 |

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Dimensions in: mm [inches]

Weight 4,5 Kg / 9.9 lb

| Ver. | Date | Name | MODIFICATION |
|------|----------|--------|---|
| 1 | 11-03-15 | G.Tomé | Generation of the drawing |
| 2 | 01-06-15 | G.Tomé | Digital input card has been removed on IO1 |
| 3 | 23-06-16 | G.Tomé | IO2 analog input board (X13) moved to IO1 (X14) |

| SCALE | 1/2 |
|----------|---------------------------|
| Drawn | Date 11-03-15 Name G.Tomé |
| Approved | Date 11-03-15 Name G.Tomé |

| Pos. | Description | CAF Power Code | Manufacturer Part | Notes | Quant. |
|-----------------------------------|-------------|----------------|-------------------|---------|--------|
| Reference IOM862_2SD1ED2EA_2SD1ED | | | | | |
| Designation OVERALL DRAWING | | | | | |
| | | | | Version | 03.00 |



| | | | | | |
|----|-------------------------------------|---|---------|--------|-------|
| 01 | MIM (2) 4SD 2ED 2EA - MÓDULO DOBLE | 1 | CAF P&A | 060385 | 4.500 |
| 01 | MIM (2) 4SD+2ED+1EA - MÓDULO DOPPIO | 1 | CAF P&A | 060385 | 4.500 |

| | | | | | |
|---|--|------------------|----------------------------------|---------|----|
| LOCOMOTIVA E401 | | 4.500 | A1 | BEASAIN | OT |
| A ACTUALIZAR | | 2016-07-06 14044 | ISO 2768 -cK DIN ISO 13920-BF | | |
| Ed. | | Descripción | Date | Nome | |
| X:X | | Disegnato | 01/07/2015 | 10221 | |
| | | Comprovato | 01/07/2015 | 14044 | |
| | | Verificato | 01/07/2015 | 14422 | |
| | | Date | es/it | Nome | |
| CAF | | B.20.88.103 | | | |
| CONSTRUTTORE E AUSILIARIA DE FERROCARRILES, S.A. BEASAIN (GIPUZKOA) | | A | | | |
| | | 1/1 | | | |