**Technical specification of the Chip Module**

**General technical specification**

*Chip Module* must be compliant with the Annex 1C of appendix 9 of Commission implementing Regulation (EU) 2016/799 and Commission implementing Regulation (EU) 2021/1228, implementing Regulation (EU) No 165/2014 of the European Parliament and of the Council laying down the requirements for construction, testing, installation, operation and repair of tachographs and their components.

Chip Module supported configurations:

* Driver card
* Workshop card
* Control card
* Company card

**Chip module basic specification**

• Contact chip module

• Communication interface:

* Fully compliant to contact ISO/IEC 7816-3
* T=0 and T=1 protocols supported
* Support of Extended Length APDU in T=1

• Chip module size/punching size:

* 11.8 mm x 13 mm, R=2,2mm for 8 contacts modules

Buyer accepts both size options.

* • Maximum module thickness: 580 μm
* • Maximum Tape thickness: 180 μm
* • Working temperature range: -10 °C to + 50 °C
* • Short temperature peak allowed: 210 °C less than 1 sec.

*Explanatory comment:* This parameter refers to the manufacturing process of the card, not to its normal use by the cardholder.

The contracting authority requires this parameter because of the manufacturing technology, which puts such a strain on the contact chip when inserting it into the card body

* • Storage for up to one year after delivery in standard conditions
* • Modul reliability: 500 hrs. at 85 °C, 85 % HR
  1. • Chip modules winded on the reel: o width of the inner surface of the reel for winding the belt 35-40 mm
  2. o fixing hub diameter: Ø 13 mm or 76.5 mm
  3. o winding hub diameter: Ø 150 mm -180 mm
  4. o Quantity: 6 000 - 11 000 micromodules per reel

o defective chips pierced by a 2 mm punch in a defined position

**Total yield per reel**

Typical:> 98%

Maximum amount of all defects marked positions will not exceed 10%

Consecutive defects <10 positions each track Splices <10 per 10 meters

*Explanatory comment:* The contracting authority requires full compatibility with the technology of the Mühlbauer CML 3420, Mühlbauer CMI 5001 and Mühlbauer CMI 200 - contact chip insertion (milling and glue tape lamination) machines.