



ELECTRONICS

TECHNICAL SPECIFICATION

MQBA 0 REWORK ST.

PLANT MMUM OFFLINE LINE

Rev : 01

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1. Purpose

The FURNISHING shall include all is needed to meet the requirements indicated in this Document.

2. Purpouse of the furnishing

The providing is requested for a machine for the process and quality control of the ME process.

3. References

4. Definitions and acronyms

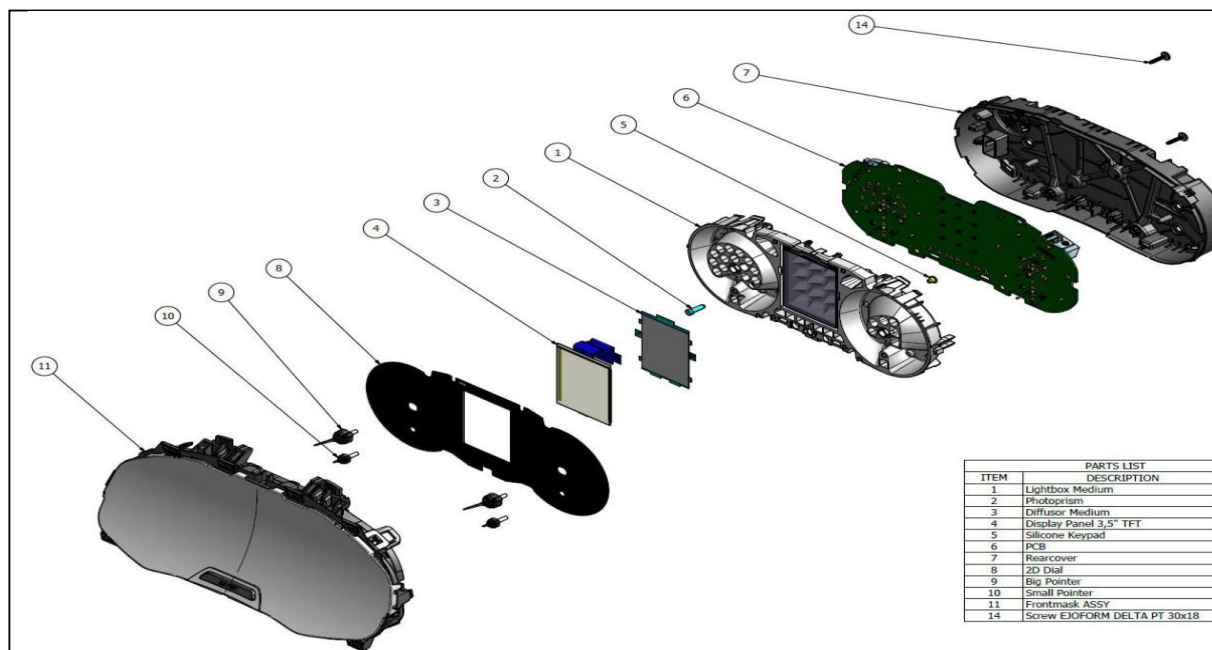
The following definitions apply

Operation	Definition	Comments	Permission

The following acronyms apply

ESD Electro Static Discharge.
EPA ESD Protected Area.

5. Product Description



6. Equipment Requirement for the station

No contact between fixture and electrical components during loading. The material of fixture must use ESD material. Fixtures must have pokayoke design; only correct direction of component can be loaded into the fixture. Material of fixtures must not be made from material that could damage the components.

The operator will have access to the fixture complying with the basic ergonomic rules in order to load and unload the product without mechanical interference and doing simple trajectories. The product positioning is guided and simplified by centering pins integral with the fixture. The benches will also be designed to facilitate visual inspection and preliminary control lever by the operator, making it simple, convenient and effective.

This workstation has to be equipped with (minimum required configuration):

6.1 **FRAME + ALUMINUM WORKING TABLE**

Frame made from aluminum profiles with ESD height-adjustable foot and ESD wheels and with 2 sliding shelves

– one for keyboard and mouse and the second for writing tools.

6.2 **LED Lighting**

LED lighting for illumination the work area.

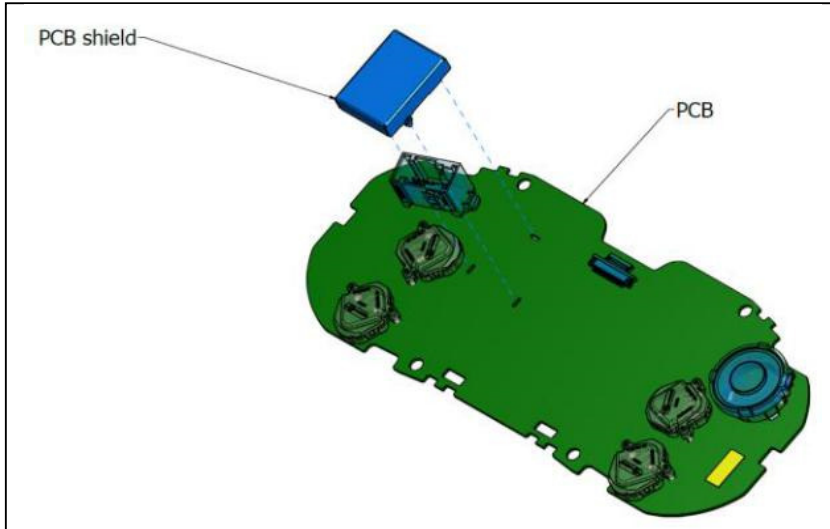


7. PC (Generic)

2 x min. 15'' **touch screen display** with adjustable **holder** (one for fixture 2 and one for fixture 4), **keyboard** and **mouse**, **PC** (parameters of PC are metioned in the general specification), **MIC code reader** (2D and 3D) with holder for the needs of Labview for Foolproof System

8. WORKPLACE 1 / FIXTURE 1 (Specific)

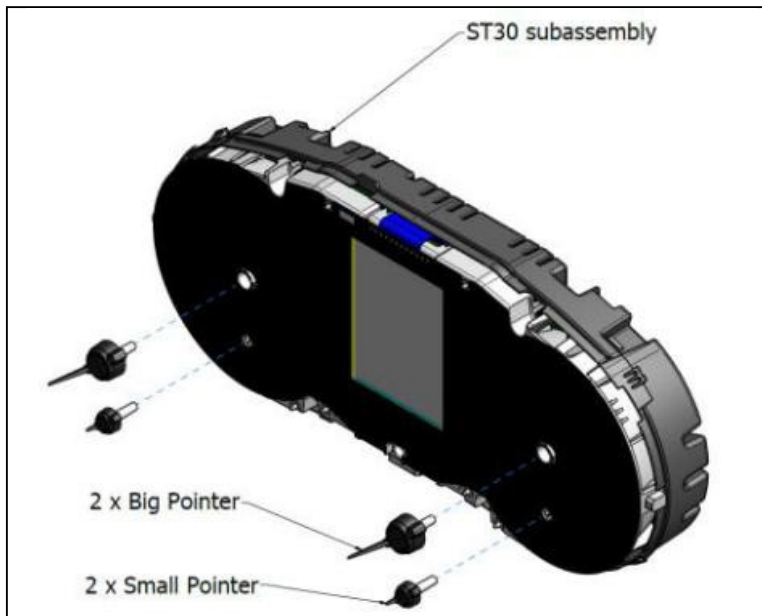
- for shield disassembly from PCB



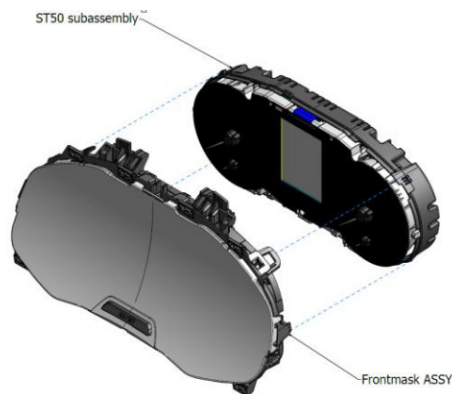
- orientation of subassembly inside the fixture is front face down, fixture must have poka-yoke design
- there have to be sensors for subassembly presence inside the fixture, locking system for subassembly and 2D MIC code reader from PCB
- this workplace has to communicate with Labview Software and update rpt file – interlocking and traceability
- fixture has to be placed on sliding trolley with handle with START button (there must be index of fixture in loading/unloading position and also for automatic position)
- there must be protected area for automatic system for shield disassembly with disassembling force measurement and with locked scrap area (removable transparent box) for shields
- estimated disassembly force is 400N, we have to be able to set the limits in reference recipe for disassembly force
- locked scrap area (removable transparent box) for PCBs must be part of this workplace
- shelf for thermoform for reuse PCBs must be part of this workplace

9. WORKPLACE 2 / FIXTURE 2 (Specific)

for big and small pointers disassembly from ST30 subassembly

**10. WORKPLACE 3 / FIXTURE 3 (Specific)**

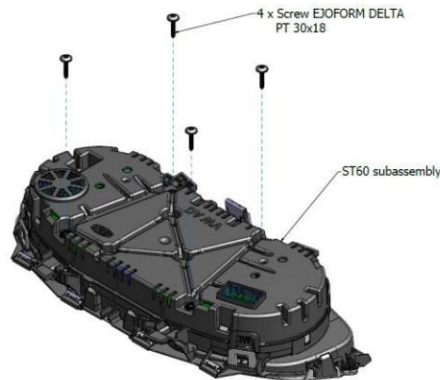
- for frontmask disassembly from ST50 subassembly



- orientation of subassembly inside the fixture is front face up, fixture must have poka-yoke design
- there don't have to be sensors for subassembly presence inside the fixture and locking system for subassembly
- pins for frontmask unclipping must be part of the fixture and operator has to be able to unclip frontmask during insertion of subassembly into the fixture
- locked scrap areas (removable transparent boxes) for frontmasks and buttons must be part of this workplace
- shelf for thermoform for reuse buttons must be part of this workplace

11. WORKPLACE 4 / FIXTURE 4 (Specifc)

- for fronfmask unscrewing



- orientation of subassembly inside the fixture is front face down, fixture must have poka-yoke design
- there don't have to be sensors for subassembly presence inside the fixture and locking system for subassembly
- There has to be electrical screwdriver mounted on handling unit with balancer. There doesn't have to be control unit for data collection (torque, angle, etc.) and evaluation.
- locked scrap area (removable transparent box) for screws must be part of this workplace

Stations will be installed in the plant in MMUM . For more information about our standards see attached

MM GENERAL EQUIPMENT TECHNICAL SPECIFICATION_REV1

12. Data Management (Generic)

- IPC (Win 10,core i7, 8 GB RAM)
- Data log of every rework station must be save PC
- Traceability as below :

	RTP-FILE Explanation it
Index 0	Station Number
Index 1	Date
Index 2	Time
Index 3	User Name
Index 4	Shift
Index 5	error code
Index 6	Number of Fails
Index 7	If it's 1 rework pending else 0 (allow to assemble)
Index 8	Frequency of test product it means product test fails three then it will not allow to rework forth time
Index 9	1 Then duplicate TRC it meanproduct is assembly in the station-it should be 0 then it will allow to assemble in this station (Statio pass update)

Example

: YCA,Hi+_MT_0LHP,Magneti Marelli,0,0LGWI100R57V,0,0,0,0,0
1010,06/7/2019,18:49,Admin_1,B,0,0,0,0,1
1020,06/7/2019,18:59,Admin_1,B,0,0,0,0,1
1030,06/7/2019,18:55,Admin_1,B,0,0,0,0,1
Pointer: 1040(F1),7/6/2019,7:01 PM,Admin_1,B,0,0,0,0,1
1050,06-07-2019,19:05,Admin_1,B,0,0,0,0,1
1060,06-07-2019,19:15,Admin_1,B,0,0,0,0,1
1070,0,0,0,0,0,0,0,1
1080,7/6/2019,19:27,Administrator,B,0,0,0,0,1

13. Data Security

PC Must be locked from Front and Back side of PC .

Data log store for every station activity like foolproof file ,log with parameter (DDTTY+MIC CODE)

14. Equipment efficiency

The equipment efficiency is the ratio between good parts to total parts.

The minimum value of the efficiency must be 95%.

15. Maintenance

15.1 Professional maintenance

- MTTR (Mean Time To Recovery)
- MTBF (Mean Time Between Failures)
- Machine Ledger
- SMP
- Magnetic Folder
- Machine FMEA.
- Level-01 Spare Parts.

16. Autonomus maintenance

All parts of the Fixture must be easily accessible from the outside and must allow for cleaning and maintenance.

Evaluate to provide the gauge unit for measurement / visual check to be located in front face of the machine / Fixture

In particular, the control panels must be opened completely and must be ergonomically accessible. All parts must be reached ergonomically with simple cleaning tools. Inaccessible parts of the workplace, should also be easily reached by opening the outer panels through hinges instead.

17. Safety-Environment-Energy

17.1 Safety: Regulations

The equipment must be provided in accordance with current regulations concerning safety
Specific details:

- Machines / equipment / facilities / assembly lines must be accompanied by
- Manual of use and maintenance in English
- EC declaration of conformity in English
- CE marking

Anywhere where there is a workstation must be a readily accessible and visible to stop button / emergency shutdown. The stop / emergency stop button must be **latched red mushroom and on yellow background. All energy sources (electricity, compressed air, nitrogen, etc.) of machines / equipment must be segmented and lockable. All energy isolation point should have indication of LOTO point for isolation**

Machinery / equipment / facilities / assembly lines must be equipped with exhaust systems to prevent the formation of potentially dangerous electrostatic charges.

Any covers doors must be fitted with gas springs and a friction clutch on the hinges and should be interlocked.

All the corners of machines / equipment should be rounded; if this is not possible, they must be protected with yellow / black rubber/hazardous corner marking.

The health and safety signs must comply with the requirements of (reference at local law), as well as the specific reference standards.

The main switches of machines / equipment must be fitted with lockable door lock and LOTO safety sign should be displayed.

All organs of machines / equipment movement must be protected by fixed guards, or alternatively be equipped with safety devices (e.g. light curtains, interlocks, switches, etc.) for the immediate stop in case of detection presence people and all potential energy shall be release immediately after application of emergency stoppage.

The restart of machine / equipment must be performed by the operator. For the air FURNISHING, a soft start must be included to prevent sudden movements of the various actuators.

The protecting fixed guard's bodies of machines / equipment movement must be removable only using special tools.

Any belt conveyors must not have crack in the transport plan that would enable the drag or the entrapment of the hand / finger, and must have a curtain at the ending point.

For normal transporters the maximum allowed inclination is about 15 °; if higher inclinations are necessary, it is necessary the use of tapes with suitable projections on the surface which function as stops.

17.2 Energy:

In order to reduce energy consumption and usury of the mechanical parts it is necessary:

- Operate transport engines only when actually needed. No pets always on conveyors.
- All the lights must be with LED technology

18. Pre Acceptance and Training

The supplier have to declare where the pre acceptance of the Fixture will be done in them factory with the necessary needs.

In case of particular complexity of the Fixture, could be necessary do training close the supplier assembly factory.

The training will be available during the installation and start-up at MM dedicated technical staff (minimum three technologists and three maintenance operators).

19. Final documentation

Together with the delivery of the equipment, the following documents must be provided, otherwise it will not be given approval to payment to delivery of the same:

- Manuals in Local language (see paragraph 3.19) in accordance with the Directives (1 copy on paper and one electronic copy -pdf- printable format)
- detailed drawings of specific mechanical parts M.M (if present) 1 copy on paper and one electronic copy -pdf- printable and / or assemblies to DWG; MM for the specific details you require the 3D step file;
- legislation mechanical diagram (1 copy on paper and one electronic copy -pdf- printable format);
- legislation wiring diagram (1 copy on paper and one electronic copy -pdf- printable format);
- Sources of all SW programs and all the dedicated libraries, used during compilation, on CD
- List of full and original equipment spare parts, for each item, including prices and the manufacturers' codes.

20. Non-Commercial parts

The Supplier must provide a list of the special spare parts(Critical & Consumable) and relative prices during offer stage . Accordingly it will be ordered with Machine

ANNEX 1 : ELS BE Process Equipment Industry 4.0 requirements” Specification



ELS Back-End
Industry 4.0 requiren

ANNEX 2 : MQBA0 Product documentation

Max volume per year	1,20,000	
Flexibility	+10%	To be add to the volume.
Working day/year	288	
Shift per day	3	
Hour per shift	7.5	
OEE	75%	
Max saturation	90%	

ADD PRODUCT DOCUMENTATION

Product Name:- MQBA0

Contents of the commercial offer

Based on these data, the supplier must be able to provide the following data:

- Fixture Drawing Before putting production
- List of accessories needed to comply with the specification for the Fixture.
- List of accessories needed to meet production needs.
- Cadence

Secondary product to be evaluated

To complete the residual saturation of the line have to make like option the evaluation of the following product going to costify the fast setup for:

- Other
- Cycle Time

21. PROJECT TIME LINE

Activity	Time	Place
PO	10 Sept 2019	Supplier
Kick-off meeting	15-Sept-2019	Supplier
Detailed design / design review meetings	20-Sept-2019	Supplier
Machine / components production	-	Supplier
Machine assembly and debugging	-	Supplier
Machine pre-acceptance	10-Dec-2019	Supplier
Machine final acceptance	15-Dec-2019	Supplier
Machine delivery	17-Dec-2019	MMUM
Machine Installation	25-Dec-2019	MMUM
First sample production	30-Dec-2019	MMUM
R&R Cp and Cpk	6-Jan-2020	MMUM
Machine final acceptance	9-Jan 2020	MMUM