

## WORK INSTRUCTION

**SUPPLY OF  
SPECIFIC PRODUCTION EQUIPMENTS**

## REVISIONS

Rev.	Reason	Revised paragraphs	Date
0	New edition		30/06/17
1			
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## 0. FLOW-CHART

[not necessary]

## 1. SUBJECT

This document is a guide for the preparation of an estimate to manufacture production tools, hereafter referred to as “equipment”, which have to comply with the Gewiss production and quality requirements, in compliance with the regulations in force about the prevention of accidents and CE instructions (low voltage machines).

The standard equipment (as for example: manual screwers, clinching machines, etc.) which must always respect the CE marking is not included in these specifications.

## 2. RESPONSIBILITY

Supplier:

- prepares the offer, valid for 3 months, following the general instructions of this document and the fields here below:
  - type of equipment to consider
  - type of product to be treated
  - assembly sequence and product checking;
  - testing specifications
  - machine productivity per hour (in pieces/h), on an average of 8/16 hours;
  - pre-test and final testing for acceptance
  - delivery time of the equipment whose carriage will be paid by GEWISS.
- designs and manufactures the equipment following the instructions of the relevant specifications.

### 2.1 GEWISS - SUPPLIER RELATIONS

#### 2.1.1 Parties involved

During the equipment manufacturing process, the Supplier will have to contact 3 GEWISS interlocutors according to his requirements:

- *PURCHASE DEPARTMENT* (it is responsible for formalizing and managing the contacts; sending and receiving the operational documents);
- *ENGINEERING DEPARTMENT*: (it is responsible for all the technological decisions which affect the production process, when necessary or required, it can provide the Supplier and the GEWISS parties with technical support and checks the manufacturing progresses, gives the approval to the supplier project and, after the execution and productivity check, issues the final judgment on the equipment.

## 2.2 SUPPLIER'S RESPONSIBILITY AND OBLIGATIONS

The *Supplier* undertakes to design and manufacture according to the technical rules in force about the machine and to the instructions written in this document, in the relevant equipment specifications and in the Gewiss purchase order. The order is governed by the "General Conditions of Supply Gewiss" applicable that the supplier undertakes to respect.

The equipment to be designed taking into account these 4 points:

- productivity
- safety for operators
- ergonomics
- maintainability.

Any derogation from the instructions given at the moment of the order must be formalized and authorized by GEWISS.

In particular the *Supplier* is responsible for:

- the project and the working processes to be carried out by him;
- the material quality and relevant treatments;
- respecting of the deadline scheduled in the operative plan.

## 2.3 SUPPLY TERMS

The supplier :

- will give in his offer an equipment analysis and lay-out with overall dimensions, assembly positions, single components check, feeding systems and number of operators necessary to its working;
- will be willing to work together with the GEWISS technicians during the designing, the assembly and testing in order to optimize the machine according to our requirements, with the modalities to be agreed upon;
- when the project is finished, will give the GEWISS technicians the possibility of making an inspection before starting the manufacture.

Besides:

- the pre-testing will take place at the manufacture's premises with the GEWISS technicians, on fixed dates and will last some hours according to the type of the manufactured equipment. the equipment will have to be delivered mandatorily at deadline written in the relevant order.
- the final testing will take place in GEWISS within the deadlines foreseen at the moment of the order and for a minimum of eight consecutive production hours.

### 3. ORDER DOCUMENTS

#### 3.1 EQUIPMENT ORDER

The *PURCHASE DEPARTMENT* sends, with the Technical Specification, the order to the *Supplier*. The order includes the economic and delivery terms of the goods and/or of the ordered working process. It includes the equipment number to be mentioned in any documents addressed to GEWISS.

While ordering, the Supplier must indicate the scheduling and the necessary quantities of the semifinished articles useful for all the manufacturing and testing phases.

#### 3.2 TECHNICAL DOCUMENTS

Together with the equipment or in any case **strictly** within the following 15 days, the following documents must be handed in:

- 1 CE-marked manual one paper copy and one informatic copy containing:
  - a CE-marked certificate of conformity.
  - overall project / lay-out in DWG or DXF format;
  - pneumatic diagram;
  - electric diagram;
  - PLC programme listing;
  - PLC programme, PC and any Display on diskette with comment;
  - bills of materials (electric, pneumatic and mechanical) with commercial marks and codes;
  - list of critical spare components.

Together with the equipment, a set of critical spare components (with a high percentage of breakage and wear) will be delivered too.

A training course for GEWISS repair technicians can be asked for, issuing a certificate with all the discussed subjects for particularly complex equipment.

#### 3.3 EQUIPMENT SPECIFICATIONS

##### 3.3.1 Operative sections

The instructions given in the relevant equipment specifications are defined and traced thanks to the relevant numeration in the copy of the form given in the following page:

1. Equipment data
2. Product specifications (detailed in standard enclosure)
3. Equipment technical features (detailed in standard enclosure)

<b>GEWISS</b>		<b>EQUIPMENT SPECIFICATIONS</b>		
<b>MANUFACTURING</b>	Date:	State:	Class:	Supplier:
<b>EQUIPMENT NUMBER</b>	<b>EQUIPMENT DEFINITION</b>			
<div> <div> EQUIPMENT TYPE EQUIPMENT FOR </div> <div> COST CENTRE - CONSIGNEE DELIVERY DATE </div> </div>				
<p>THE MATERIALS AND THE COMPONENTS USED WILL HAVE TO BE OF THE BEST QUALITY WITH SUITABLE THERMIC TREATMENTS.  THE EXECUTION WILL HAVE TO BE ACCURATE AND CARRIED OUT PERFECTLY THUS GUARANTEEING THE CYCLE MANUFACTURING OF THE PIECES.  THE PROCESS MUST RUN AT FULL CAPACITY BEFORE CONSIDERING THE MANUFACTURED ARTICLES VALID.  FOR THE OTHER SUPPLY SPECIFICATIONS (STANDARDISATION, GUARANTEE, PROJECT ETC.) PLEASE REFER TO THE RELEVANT GENERAL SPECIFICATIONS AND TO THE TECHNICAL SPECIFICATIONS HERewith ENCLOSED.</p>				
FILLED IN BY		ENGINEERING DEPT.'S SIGNATURE		

GW 543-1-06-E

N.B.: THIS FORM IS HERewith ENCLOSED ONLY AS AN EXAMPLE. THE CURRENT UPDATED VERSION IS AVAILABLE IN GEWISS INTRANET.

### 3.3.2 Equipment data

A) *Date*

The date in the specifications is the issue date. When the specifications are updated, the date will be updated too.

B) *State*

It explains if the equipment specifications are provisional or definitive.

C) *Class*

It stands for the equipment class (plastic or metal equipment or tools).

D) *Supplier*

It stands for the equipment manufacturer.

E) *Equipment number*

It is the identification code.

### 3.3.3 Product specifications (detailed in standard enclosure)

- type of the product to assemble;
- components list;
- assembly sequence and product checking;
- production rate;
- pre-testing and final testing;
- Gewiss' requirements.

### 3.3.4 Equipment technical features (detailed in standard enclosure)

- manufacturing features of the machine;
- preferential commercial mechanical-pneumatic components;

## 3.4 PROJECT EXECUTION

The project equipment must be delivered in digital format and with the last modifications and changes made.

### ***General projet rules:***

To be present:

- For mechanical drawings
  - Overall assembly drawing of the machine with the position numbering of all components (including the normalized ones);
  - Individual drawings of the various components contained in the overall assembly excluding the purchase components
  - BOM of all components in .xls files including purchase components with trade codes.

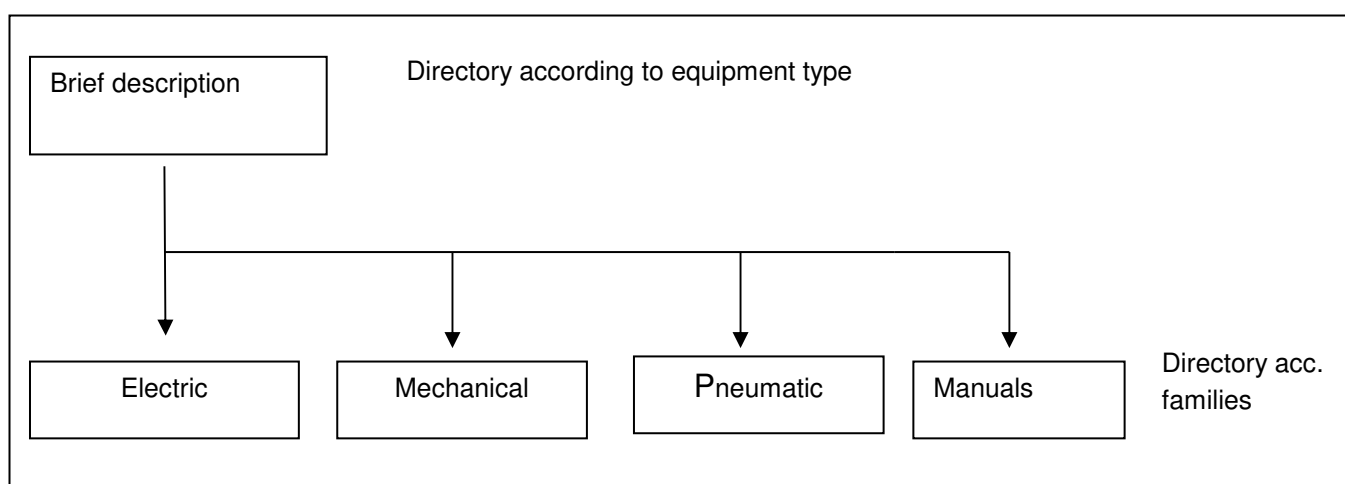
#### Per i disegni elettrici

- List and graph of the components in the diagram;
- Graphical planes of electrical components in cabinets or on the machine;
- Electric diagram;
- BOM of all components in .xls files including purchase components with trade codes

- For pneumatic / hydraulic drawings

- List and graph of the components in the diagram;
- Graphical planes of pneumatic / hydraulic components in the cabinets or on the machine
- Pneumatic / hydraulic diagram;
- BOM of all components in .xls files including purchase components with trade codes.

The documents must be provided according to the following division.



#### **File format:**

Favorite Inventor:

- .IAM IAM assembly 3D Inventor
- .IPT IAM assembly 3D Inventor
- .IDW IDW 2D drawings Inventor

Alternatively

- .STEP 3D assembly
- .DWG. 2D Drawings in Autocad Format
- .DXF 2D drawings in generic format

The files can be zipped with WinZip.

If the projects executed in a CAD format are supplied for the first time, the *ENGINEERING DEPT.* will check the compatibility between the systems and the standardization instructions used by the Supplier.



### ***Detail table***

The following fields must be filled in:

- A) Mechanical drawings:  
position (reference to the system);  
quantity (number of pieces to manufacture);  
installation denomination;  
element denomination;  
material;  
dimensions;  
thermic treatment;  
hardness (after treatment);  
drawing number according to the required structure;  
designer;  
date of the project;  
scale/s.
- B) electric or pneumatic drawings:  
installation denomination;  
element denomination;  
drawing number according to the required structure;  
designer;  
date of project.

## **4. EQUIPMENT PRE-TESTING**

This chapter provides you with the instructions to test the conditions of the equipment at the end of sampling and pre-production lots.

During this phase all manufacturer's technical problems, as well as any pending questions, are written down. At the same time possible improvements to be made are suggested.

### **4.1 NOTICE AND PREPARATION**

The *Supplier* informs the *ENGINEERING DEPT.* by e-mail or by fax about the scheduled date of sampling at least 5 working days early.

The Supplier must arrange for the equipment, the material and any other auxiliary foreseen tools necessary to manufacture in the best conditions, in order to check the equipment in the typical production conditions.

### **4.2 EXECUTION AND CONTROL**

The pre-testing has to be carried out at the manufacturer's premises together with the *ENGINEERING* following the modalities and cycle provided for by the relevant equipment specifications, where the duration is also specified. The *PRODUCTION DEPT.* gives its technical support and has the possibility of witnessing the pre-testing if deemed necessary.

### 4.3 EQUIPMENT QUALITY CERTIFICATION AND POST-PRODUCTION CONTROL

The equipment passes the pre-testing providing that it:

- corresponds to the equipment specifications in every part;
- produces in cycles and as requested;
- is designed and manufactured according to these instructions.

The *ENGINEERING DEPT.* gives its approval only if the inspection is successfully passed.

Any adjustment and/or modification to the equipment in order to meet the initial requirements are written in the sampling form GW537 “Equipment sampling” by the *ENGINEERING DEPT.*

#### 4.3.1 Filling in of Form GW537

The information included in the form GW537 “Equipment Sampling” are grouped by analogy, in main sections. In this way the information can be defined and traced through the relevant numeration on the form copy at the end of the paragraph :

1. Form data;
2. Equipment data;
3. Sampling technical data;
4. Sampling technical data;
5. GW codes associated with the equipment
6. Comments to the pre-testing;
7. Comments to the testing;
8. Approval

To fill in the section 1 follow the same instructions included in the Specifications for the Equipment Manufacturing GW543, except for :

- State  
It indicates the state of the sampling:  
Creation : the form is in preparation;  
Issued : the planning offices can plan the sampling;  
Planned : the sampling is planned;  
AT-Eseg.Ben\_Si : Executed with approval OK  
AT-Eseg.Ben\_No : Executed with NO approval  
AT-Eseg.Ben.SI\_R: Executed with approval OK by open points settlement;  
AT-Appr.Ben\_SI : Completed with approval OK;  
AT-Appr.Ben\_NO : Completed with NO approval.  
AT- ppr.Ben.SI\_R: Completed with approval OK by open points settlement.
- Execution date  
In creation/issued state is the sampling request date; in planned state is the sampling previous date; in executed/completed state is the sampling execution date.
- Executor  
The department to whom is required to do the equipment sampling.

		<h2 style="margin: 0;">EQUIPMENT SAMPLING</h2>																																																																												
MANUFACTURING		N°: 10000319716.000	Exec. Date: 27.07.2015	State: Conf. Appr. YES	Activity: COLLAUDO	Exec.:																																																																								
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<p><b>MOULD TECHN. DATA</b></p> <table style="width: 100%;"> <tr><td>Location</td><td>STAM100</td></tr> <tr><td>Room</td><td>REPARTO</td></tr> <tr><td>Wght</td><td>300 KG</td></tr> <tr><td>Length</td><td>2350 mm</td></tr> <tr><td>Width</td><td>1800 mm</td></tr> <tr><td>Height</td><td>1500 mm</td></tr> </table> <table style="width: 100%;"> <tr> <td>Pieces Number</td> <td>_____</td> <td>Delivery manuals on cd/dvd</td> <td>OK</td> </tr> <tr> <td>Cycle (pieces/hour)</td> <td>_____</td> <td>Software delivery equipment</td> <td>_____</td> </tr> <tr> <td>electrical devices</td> <td>OK</td> <td>Delivery electrical diagrams</td> <td>OK</td> </tr> <tr> <td>pneumatic devices</td> <td>OK</td> <td>Delivery pneumatic diagrams</td> <td>OK</td> </tr> <tr> <td>mechanical devices</td> <td>OK</td> <td>Delivery mechanical drawings</td> <td>OK</td> </tr> <tr> <td>Compliance statement</td> <td>OK</td> <td>Delivery list of materials</td> <td>OK</td> </tr> <tr> <td>Presence nameplate</td> <td>OK</td> <td>Presence of photo equipment</td> <td>OK</td> </tr> <tr> <td>Manufacturer's serial numb.</td> <td>03361-16-01</td> <td>Hand-delivery to the departm.</td> <td>OK</td> </tr> <tr> <td>Delivery paper manuals</td> <td>OK</td> <td></td> <td></td> </tr> </table> <p><b>NOTES: TESTING</b></p> <p>Technical Drawing Number A _____</p> <p>Length mm _____</p> <p>Width mm _____</p> <p>Height mm _____</p> <p>Weight kg _____</p> <p>The percentage of use _____%</p> <p>Finished Product Codes Associated</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-bottom: 1px solid black; width: 25%;"></td><td style="border-bottom: 1px solid black; width: 25%;"></td><td style="border-bottom: 1px solid black; width: 25%;"></td><td style="border-bottom: 1px solid black; width: 25%;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> <tr><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td><td style="border-bottom: 1px solid black;"></td></tr> </table> <p>Date of Pretesting: _____ Result _____</p>   <p>Date of Final Test _____</p>							Location	STAM100	Room	REPARTO	Wght	300 KG	Length	2350 mm	Width	1800 mm	Height	1500 mm	Pieces Number	_____	Delivery manuals on cd/dvd	OK	Cycle (pieces/hour)	_____	Software delivery equipment	_____	electrical devices	OK	Delivery electrical diagrams	OK	pneumatic devices	OK	Delivery pneumatic diagrams	OK	mechanical devices	OK	Delivery mechanical drawings	OK	Compliance statement	OK	Delivery list of materials	OK	Presence nameplate	OK	Presence of photo equipment	OK	Manufacturer's serial numb.	03361-16-01	Hand-delivery to the departm.	OK	Delivery paper manuals	OK																										
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## 5. GENERAL MANUFACTURING FEATURES

- Machine Noise level < 80dB measured at a distance of 1mt. In normal operation
- Ambient temperature reached in summer: 35 °
- Electric working frequency 50Hz
- Operating voltage 230 / 400V
- Anti-shock filters on the power supply
- Presence on the 30mA differential switch power supply
- Presence of general disconnecter with gray or black handle
- Power supply cable directly connected to the circuit breaker
- Supply of machine with steering cable equipped with plug IEC 309 of length mt. 6
- Interface circuitry cables with external orange power supplies
- Photocells / sensors with connector
- Tensile voltage signaling plates on the various switchgear / branch boxes
- Labels of residual dangers
- If falling within the Italian specific regulations "direttiva macchine", provide emergency button with rotation release on yellow background, easily accessible to the operator
- Presence of buttons of:
  - . START cycle on the control panel (white color)
  - . STOP cycle on the control panel (black color)
  - . Emergency RESET (not door) on the control panel (blue color)
  - . RFDI safety switches on Pilz brand protection doors
  - . Siemens PLC
  - . Siemens Display
  - . Respect for the colors of any luminous columns as by machinery directive (the colors are shown in sequence from the top):

RED	Danger condition of the machine that can harm the operator, for example: exclusion of protections for manual operation ( <b>intermittent light</b> ).
YELLOW	Machine in anomaly, protections open, thermal tripped, other abnormal situations ( <b>intermittent light</b> ). Stop of machine in phase with stop button or ready to start ( <b>fixed light</b> )
BLUE	Request of operator intervention (intermittent light)
GREEN	Machine running. (Fixed light)

- It is possible for the machine to perform teleservice in the event of a fault
- Wireless PC Card, WIFI that supports 802.11g protocol
- USB output for export / import data
- GEWISS electrical equipment is required, wherever possible
- Pneumatic operating pressure of the 4 to 7 bar machine
- Blue color pneumatic tubes
- Air handling unit FR with Metalwork transducer / progressive starting / speed unloading unit type "ONE".
- Consider in the construction the ability to easily carry the machine in the plant with forklifts.

## 5.1 PREFERENTIAL COMMERCIAL COMPONENTS:

The use of GEWISS electrical material is explicitly requested.

For the other components please refer to the following tables, always pointing out alternative proposals.

### MECHANICAL COMPONENTS

COMPONENT	MANUFACTURER		
	Preferential	Other	Alternative
Mechanical rotary tables	AUTOROTOR	BETTINELLI	
Ball bearings	SKF	INA	
Bearings	SKF	INA - FAG	
Bearing Holders	SKF	INA	
Gearboxes	BONFIGLIOLI	STM - MOTOVARIO	
Shock absorbers	SMC	ENIDINE	
Aluminum profiles for structures	BOSCH	DCM	
Aluminum profiles for protections	BOSCH	DCM	
Conveyor belts with profiled structure	BOSCH	MONTECH - MB	
Anti-vibrating feet	ELESA	BOSCH-MARBETT	
Circular vibrators	BOSCH RNA, BONINO	COSBERG PESCE	
Linear vibrators	BOSCH RNA, BONINO	COSBERG PESCE	
Digital vibration regulators	REO		
Loaders for vibrators	BONINO	M.B. - COSBERG-PESCE	
Automatic labeling machines	AL TECH		
Film printer for packaging	MARKEM		
Paint Dosers	DOPAG		
Fat dosers	EFD - TECNOINCOLLAGGI	DOPAG	
Thermosilicate glue dosers	NORDSON		
Ultrasonic welding machine	SIRIUS		

### **PNEUMATIC COMPONENTS**

COMPONENT	MANUFACTURER		
	Preferential		Preferential
Fittings	LEGRIS	METALWORK-SMC	
Clear filter groups. And / or lubricators	METAL WORK (ONE)	SMC	
Pressure Switches	SMC	FESTO	
ISO Cylinders	FESTO	SMC	
Compact or special cylinders	FESTO	SMC	
Solenoid valves + hub with tube outlet	FESTO	SMC	
Rotating actuators	FESTO		
Pneumatic slides	FESTO	SMC	
Pneumatic clamps	GIMATIC	MONTECH-SCHUNK	
Manually operated valves	PNEUMAX	TÉLÉMECANIQUE	
Dissecting filters	SMC	FESTO	
Vacuum pump	BECKER	VUOTOTECNICA	
Vacuum elements	PIAB	VUOTOTECNICA	
Pick and Place	MONTECH		
Self-powered screwdrivers	COSBERG		
Manual screwdrivers	FIAM	DESOUTTER	
Electric screwdrivers	KOLVER		

### **ELECTRICAL COMPONENTS**

COMPONENT	MANUFACTURER		
	Preferential		Preferential
Optical barriers	SICK		
Marking / Soldering Laser	ELETTRONICA VALSERIANA		
Distribution boards	GEWISS	RITTAL	
Alphanumeric displays	SIEMENS		
Junction boxes	GEWISS		
Push-Button boxes	GEWISS (COMBI 22)		
Connectors	GEWISS	ILME	
Relay (always and only hooped)	FINDER	OMRON	
Timers	FINDER	OMRON	
Temperature Controllers	DATASENSOR	OMRON	
Impulse count	OMRON		
Automatic circuit breakers	GEWISS		
Magnetothermic switch for motors	GEWISS	SIEMENS-SCHNEIDER	
Thermal relays	SIEMENS	SCHNEIDER	
Contactors	SIEMENS	SCHNEIDER	

COMPONENT	MANUFACTURER		
	Preferential		Preferential
Pushbutton panels	GEWISS	SCHNEIDER	
PLC	SIEMENS		
Fieldbus for PLC	SIEMENS (ET200S)		
Industrial PCs	ASEM		
Three-phase motors	SIEMENS		
Brushless motors			
Motors in C.C.	MINIMOTOR	PENTA	
Encoded sensor for doors	PILZ	SCHMERSAL PIZZATO	
Microswitches in general	SCHNEIDER	OMRON	
Reed Sensors with Connector	FESTO	SMC	
Inductive sensors with connector	BALLUFF	SELET-BAUMER	
Modular light columns	SCHNEIDER		
External monochrome signal lamp	GEWISS (GW27)		
Inverter	LENZE	SCHNEIDER	
Terminal Blocks	WEIDMULLER		
Cable glands	GEWISS		
Cable carrier	GEWISS		
Cable protection sheath	GEWISS		
Automatic door lock switches	GEWISS		
door lock switches	GEWISS		
24VDC power supplies	SIEMENS		
230V power supply for stabilized PC	APC		
Inductive ring sensors	TURCK		
Safety modules / control units	PILZ		
Transformers			
Fiber optic photocells	KEYENCE	NATIONAL	
Photocells with connet. d.18mm	DATASENSOR	SELET	
Laser photocells	KEYENCE	WENGLOR	
Fork photocells	BAUMER	WENGLOR	
Network filters	FINMOTOR		
Robot scares	EPSON		
Spring contact needles	TEST PROBES (ELCON)	INGUN	
Precision measuring instruments	BURSTER		
Power Resistors	MDR		
Instrumental data acquisition cards	NATIONAL INSTRUMENTS		
Cartesian electric axes	FESTO		
Vision Sensor	KEYENCE		
Vision camera	COGNEX		

## **6. REFERENCE DOCUMENTS**

Form GW537 "Equipment sampling

Form GW543 "Equipment Specifications"