



HIRSCHMANN
AUTOMOTIVE

Technical Delivery Regulation

S01 – Safety, Environment, Fire Protection

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This standard governs the requirements for the documentation and the general regulations for the delivery of systems.

Revision status:

This delivery regulation S01 replaces all previous regulations.

Version:	Page no.:	Description of change:	Date:
S01	complete	Created by Duelli Chantal	08/11/2018

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1. General

1.1. Area of application

This Hirschmann Automotive factory standard specifies the delivery regulations for the safety, environmental protection and fire protection of machines, systems and production facilities.

Set up location: _____

1.2. Deviations

Deviations from this delivery specification which may appear necessary or appropriate to the manufacturer, require prior written approval from Hirschmann Automotive.

1.3. Standards/regulations

Even if this technical delivery specification does not specify such in detail, the contractor is fully responsible for, in addition to the requirements specified in this technical delivery specification, all requirements applicable to their service arising from country-specific regulations of the place of installation (e.g. EC directives, regulations and other applicable laws) as well as from standards and generally accepted rules of technology. The minimum requirements to be fulfilled are the relevant EU regulations.

As far as regulations, standards and technical rules are referenced in this technical delivery specification, the contractor himself must check whether they are applicable to his work and whether other regulations, standards and rules are also to be adhered to.

If in doubt, the contractor must immediately contact the client.

In addition, the contractor shall immediately notify the client if the contractor recognises or identifies, on the basis of their knowledge, that the service to be rendered by the contractor is not suitable for the intended purpose or suited only to a limited extent.

1.4. General requirements

The machines, systems and production facilities must comply with the requirements and safety regulations for environmental protection and fire protection (laws, regulations, standards, etc.) of the installation site in their current form.

However, the minimum requirements are that the machinery, system or production facility must have at least one emergency stop switch easily accessible from the operator's side.

Appropriate protective measures must be taken against the risk of injury to the operator and the maintenance personnel by means of a suitable design and, if necessary, by means of appropriate protective equipment (e.g. housing, light grid, safety pressure beam, 2-hand control, etc.), so that, in terms of accident prevention, the risk of danger has been removed for relevant persons when used as intended.

The provisions of the NFPA (National Fire Protection Association) are also binding, as are the applicable regulations regarding environmental protection. The machinery, equipment and manufacturing facilities shall be designed in such a way that all energy sources (e.g. pneumatic, hydraulic or electrical) are clearly labelled and can be equipped with shut-off devices.

The use of materials that do not comply with the RoHS, REACH or Conflict Minerals Regulations, or asbestos-containing materials are strictly prohibited.

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With the delivery of the machine, system or production facility, Hirschmann Automotive receives at least 3 copies of the complete documentation. Consisting of:

- Drawing
- Operating manual
- Maintenance instructions, maintenance plan
- Wiring diagrams (electrical, hydraulic and/or pneumatic)
- BOM
- Spare parts list
- EC Declaration of Conformity

On request, the manufacturer must provide Hirschmann Automotive with a written risk assessment (according to ANSI/RIA R15.06) of the system, machine or production facility. If residual risks are present on the machine, system or production facility, these must be clearly indicated with corresponding warning signs and symbols according to EN/ISO 7010:2011.

2. Occupational safety

Each system, machine or production equipment supplied must comply with the legal requirements relating to occupational safety at the place of installation in the version applicable at the time. This includes checking for existing requirements with regard to:

- Employee protection
- Work equipment regulations
- Electromagnetic fields
- Electrical protection
- Machine safety
- Low voltage
- Laser protection

2.1. Workplace layout / ergonomics

In principle, machines/machinery and production equipment have to be conceived and designed according to ergonomic aspects. In order to avoid muscular and skeletal injuries, the loads on the operator must be kept to a minimum.

Manual workstations for assembly and testing tasks must always be designed as seating and standing workstations. A seated workstation must be equipped with a height-adjustable footrest and a height-adjustable chair. Tables for standing workplaces must be adjustable in height and adaptable to the size of the operator.

The control panel for the machine, system or production facility must be easily accessible by the operator without the need for unnatural movements or postures.

2nd2nd EC conformity assessment and CE marking

The EC conformity assessment shall be carried out in accordance with the Machinery Directive (EU) and the Machinery Safety Ordinance (MSV) in their valid forms. In the course of the EC conformity assessment procedure, the manufacturer must clarify which standards and rules have been taken into account in the design, construction and installation of the machine or system. These are also to be stated in the EC declaration of conformity.

The EC declaration of conformity must be signed by the company and included in the documentation. The CE marking must be clearly visible on the machine, system or production facility. The manufacturer guarantees that the machine, system or production facility complies with the most modern technological advances or the relevant requirements for the quality of work equipment in accordance with the applicable requirements, regulations and guidelines of the authorities and trade associations.

2.3. Laser devices

Machinery, systems, and production facilities equipped with a laser device shall be classified and certified according to the valid version of the standard (21 CFR 1010-1050). In addition, the provisions of the Ordinance for Optical Radiation (VOPST) shall be observed in their current form. The laser must be designed in such a way that there is no risk of injury to the operator or to maintenance personnel. If necessary, the laser unit must be encapsulated. Laser scattering must not be emitted at any time. Furthermore, the points listed in Section 5 "Laser safety" are to be fulfilled.

2.4. Noise protection

During production, the constant or cyclical noise level emitted by the machine, system or production facility shall not exceed 80 dB(A) under normal operating conditions. If this value is exceeded, appropriate noise protection measures (e.g. encapsulation) must be taken. The noise measurement must be carried out at a distance of 1 m from the machine, system or production facility, and also at the locations of the operators. The measurement protocols must be presented and handed over at the request of Hirschmann Automotive.

3. Environmental protection

3.1. General

Hirschmann Automotive is aware of its environmental responsibility as a company certified in accordance with the ISO 14001 standard.

Together with our partners, we want to reduce our environmental impact to a tolerable level or avoid it as far as possible.

Environmental pollution for the operator, e.g. oscillations, vibrations, noise, heat or cold must be reduced to the statutory limits as far as technically possible.

3.2. Legal framework

National legal requirements, in addition to all European regulations concerning environmental protection, must be taken into account and adhered to. Each delivered machine, system or production facility as well as substances supplied for or contained within, must comply with the legal requirements without exception.

3.3. Resource consumption / energy efficiency

The manufacturer undertakes to design the machine, system or production facility in accordance with energy efficiency criteria (minimum efficiency class B). The consumption of resources by the machine, system or production facility should be reduced to a minimum.

3.4. Emissions

The manufacturer must inform Hirschmann Automotive in advance of the expected emissions (for example air, water, gases, aerosols, smoke, dust, etc.). Naturally, all legal or standardised limit values must be heeded. If necessary, appropriate measures must be taken to comply with the predefined limit values (for example filters, extractors, oil separators, etc.).

The systems, machinery and production facilities must be leak-free, so that no process fluids (such as oils, cooling fluids, cooling lubricants, etc.) can escape and inadvertently enter the environment.

All machinery, systems and production facilities requiring extraction of oil and coolant must have a filtering device. The particle density must not exceed 0.2 mg/m^3 at the filtration outlet.

3.5. Substances used / prohibited substances

The manufacturer/supplier is obligated to supply a safety data sheet corresponding to the current, relevant chemical legislation in two copies and in German for every substance supplied or present within the machine, system or production facility. Furthermore, Hirschmann Automotive's safety expert has to clarify in advance whether the substances supplied or present can be used at Hirschmann Automotive. The approval for use of the materials is granted by the safety officer. The "Introduction of Chemical Substances" process must be followed without exception.

The use of materials that do not comply with the RoHS, REACH or Conflict Minerals Regulations, or asbestos-containing materials are strictly prohibited. Also not permitted are:

- Materials containing PCBs (polychlorinated biphenyls) (e.g. capacitors, hydraulic fluids, etc.).
- Switches and devices containing mercury,
- varnishes containing lead,
- substances or products containing chromium VI or
- asbestos-containing substances.

3.6. Waste prevention

The manufacturer/supplier undertakes to collect the packaging material (outer packaging) necessary for the delivery of the machine, system or production facility and to recycle or dispose of it at their own expense.

4. Fire protection

4.1. Legal and regulatory framework

With regard to fire protection and explosion hazards on machines, systems and production equipment, the legal regulations at the installation site apply as a basis. The following standards are also binding:

- EN 13478 Safety Of Machinery - Fire Prevention And Protection,
- EN 1127-1 Explosion Prevention.

4.2. General requirements concerning fire protection

In the context of fire safety, all electrical devices on every machine, system and production facility must be designed in accordance with the current applicable guidelines at the installation location.

If there are fire and explosion risks (e.g. in processes such as welding, soldering, etc.), the machinery, equipment and production facilities shall be equipped with suitable and appropriate fire prevention and firefighting devices (for example, CO₂ extinguishers). Halon extinguishing devices are prohibited.

In order to avoid damage and fire risks on electrically operated machines, systems or production facilities which can result from exceeding the maximum permissible load or through improper operation or control errors, suitable sensitive fuses (e.g. potential equalisers, isolation transformers and/or residual current circuit breakers) are to be installed.

If insulating materials are employed, only non-combustible materials according to DIN 4102 A1 may be used.

5. Laser safety

Machinery, systems, and production facilities equipped with a laser device shall be classified and certified according to the valid version of the standard (21 CFR 1010-1050). In addition, the provisions of the Ordinance for Optical Radiation (VOPST) shall be observed in their current form.

Standards to be observed:

- DIN EN ISO 60825-1 Safety of laser equipment - Classification of systems and requirements
- DIN EN ISO 60625-4 Safety of laser equipment - Laser safety barriers
- DIN EN ISO 11553-1 Safety of Machines - Laser processing machines
- DIN EN ISO 13849-1 Safety of Machines - Safety-related parts of control systems
- 2006/25/EC Minimum safety and health requirements concerning the exposure of workers to the risks arising from physical agents such as artificial optical radiation, etc.

The laser must be designed in such a way that there is no risk of injury to the operator or to maintenance personnel. If necessary, the laser unit must be encapsulated.

The design of the laser chamber is to be structured so that the SIK does not switch with each cycle. If this is not possible, Hirschmann Automotive GmbH must be informed immediately to work out a solution.

If there are components (e.g. circuit boards, relays, SIK TruMark) which have limited durability, a counter is to be integrated for each one which has a freely selectable password and can be reset, which counts down and outputs an early warning message. Furthermore, Hirschmann Automotive GmbH must be informed immediately.

Performance Level D must be observed for all safety-related models with regard to laser safety. This must be documented accordingly in the instructions.

The safety switch (maintenance flaps) must be screwed in a fixed position and the position may not be adjusted. The gap between actuator and sensor is to be chosen so that it lies at the end of the switching hysteresis.

All sliders or cleaning covers must be secured with labyrinthine transitions against scattered laser radiation. The covering of the labyrinths must be higher than the switching hysteresis of the safety switch. Likewise, all separating planes (e.g. movable to fixed components) must be provided with a labyrinth seal in the beam direction.

At no time may laser scatter radiation be emitted from the laser nest.

There must be an access hatch which is easy to dismantle so that the operator can clean the protective glass on the laser outlet opening on the inscription head.

There must be a job-related instruction in the manual on how to clean the protective glass on the laser outlet opening.

All covers for the laser area which can be dismantled, which are used for maintenance (e.g. cleaning lens) must be constructed so that they can only be mounted in one position (Poka Yoke). Under no circumstances may the safety switch be actuated by a wrong position of the cover.

All attachments to the laser chamber (e.g. air vents) must be screwed on from inside; no screws may be visible from outside. All screws of the laser chamber which do not have to be opened periodically for maintenance work (maintenance flaps) are to be sealed with sealing wax.

If a viewing window is installed, a certificate must be supplied about the spectral range / protection level as well as an EC type-examination certificate.

Preferred inscription laser: Panasonic LP-Z130-LS1-C. If another laser is used, this must be discussed with and approved by the Hirschmann Automotive GmbH Metal Process Engineering Department.

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If laser does not achieve Class 1, this is to be immediately clarified with the laser representative of Hirschmann Automotive GmbH and must be released separately.

For all installed lasers, the respective laser class, wavelength, laser power, laser type and a laser warning sign must be clearly visible on the station (sticker/sign). Furthermore, a laser warning sign must be attached to the external protection of the system in the affected area.

If no component was inserted in a nest or it remains empty due to an nOK part, the laser may not process the empty nest

It may not be possible that a part can be laid in the focussing area (between lens and part to be inscribed).

The laser nest must be constructed so that a build up of smoke is not possible, especially in the focussing area.

The extraction filter must be designed so that the exhaust air can be delivered back into the room. To avoid fine dust pollution, the laser station extraction must be equipped with at least one HEPA filter unit of class H13, activated carbon filter. Type LAS 200.5 extractors from ULT are preferred.

A written document from the extraction manufacturer regarding the suitability of the filters used for the laser process is required.

The state of the extraction must be monitored (extraction on/off). Laser processing should not be possible without extraction.

Opaque suction hoses must be used. They must be clamped with pipe clamps and secured against unintentional removal with a screwed-through screw. The suction hose may not be mounted in the laser beam direction.

It must be possible to decommission the laser via a removable key switch.