



HIRSCHMANN
AUTOMOTIVE

Technical Delivery Specification

R02 – Robotics

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

Revision status:

This delivery regulation R01 replaces all previous regulations.

Version:	Page no.:	Description of change:	Date:
R00	6	Created by: Herburger Markus	12.03.2020
R01		Published Version	04.05.2020
R02	5	Revised, Welte Markus	15.11.2021

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1. General

1.1. Area of Application

This Hirschmann factory standard specifies the delivery regulations for the documentation of machines, systems and production facilities.

1.2. Deviations

Deviations from this delivery specification which may appear necessary or appropriate to the manufacturer, require 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 regulations (e.g. EU directives, regulations and other applicable laws) as well as from standards and generally accepted rules of technology.

As far as regulations, standards and technical rules are referenced in this technical delivery specification, the contractor themselves must check whether they are applicable for their 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.

2. Robot manufacturer

The robot manufacturers to be contracted must always be coordinated with Hirschmann Automotive. The following robot manufacturers should preferably be used within Hirschmann systems:

- Epson
- Yaskawa
- Kuka

3. Installation and robot type

The installation location and type of robot are defined by the project. Maximum handling weights and movement radii are also defined by the project or task, and must be determined with and checked by the supplier.

4. Standards

Each supplier must observe the current Machine Directive 2006/42/EC. When operating robots, the following standards must be observed:

- Industrial robots EN ISO 10218-1
- Robotic systems EN ISO10218-2
- HRC applications ISO / TS 15066

5. Calibration

In a robotic system, options must be present for calibrating the tool centrepont (TCP), all grippers, robot flange and robot vision systems.

The calibration method must be agreed with Hirschmann Automotive.

6. Programming

6.1. Launch programs

Robot programs should preferably be launched by the higher-level control system (SPS).

6.2. Home position

The home position is the position that a robot should be in before and after the program is run. The home position must be defined in a program.

6.3. Calibration

A program/programs must be stored that can be used for the calibration of the tool centrepont or frame.

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6.4. Service position

The service position is a position that can be automatically achieved for maintenance purposes, and which ensures optimal accessibility to the machine and robot.

6.5. Maintenance cycles

Manufacturer-dependent maintenance cycles must be observed, and the corresponding programs must be created and stored on the robot controller.

6.6. Changing systems

If changing systems (e.g. gripper changing system) are used, this must be agreed with Hirschmann Automotive. A program for gripper changes must also be programmed and stored on the robot controller.

7. Interfaces

Profinet/Profisafe interfaces are to be used. If other interfaces are used, these must be agreed with Hirschmann Automotive.

8. Robot periphery

A cable retraction system must be offered as an optional accessory.

The bracket for the Flex Pendant Retractable Cable is to be installed next to the main door

Flex Pendant Retractable Cable



9. Safety equipment

Protective devices for robot cells should be designed so that they cannot be reached by the robot. If this is not possible, protection zones limited by means of the software must be defined and implemented.

If the robot can reach the safety device and no protection by means of integrated protection zones is present, the supplier must provide mathematical evidence of the stability of the protective device. However, in the event that suitable axis end stops or fixed stops are used, the mathematical proof is not required.

The possibility of workpieces being ejected from the cell must also be eliminated. For further information, see Technical Delivery Specification S01.