



HIRSCHMANN
AUTOMOTIVE

Technical Delivery Regulation

P01 - Pneumatics

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

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P01: Pneumatics

1. General

1.1. Area of Application

This Hirschmann factory standard specifies the delivery regulations for the pneumatic option models of machines, machinery 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

In addition to the requirements specified in this technical delivery specification, the contractor is fully responsible for all requirements applicable to their service arising from regulations (e.g. EC directives, regulations and other applicable laws) as well as from standards and generally accepted rules of technology, even if this technical delivery specification does not specify such in detail.

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. Pneumatics

2.1. General

The system must be designed and constructed in such a way that pneumatic components, including the pipes, are accessible, and installed so that they do not interfere with adjustment and maintenance tasks.

All types of pneumatic process control devices (e.g. clock feed valve) require the approval of Hirschmann Automotive.

Units with high air consumption are to be connected with separate valve blocks to prevent pressure losses or repercussions (from exhaust air) on other cylinders.

Pneumatic drives are generally to be mounted with exhaust air throttling. Hirschmann Automotive must be made aware of supply air throttling and apertures in lines.

For machines with sizes larger than 1,000 mm x 2,000 mm, a 3/8 inch air connection (see 3.1.a) is to be attached to the longitudinal side, which is fed from the X-distributor in the maintenance unit (e.g. for air gun).

Air connections (see 3.1.a) are to be distributed so that they can be used by system operator in a radius of approx. 2,500mm (e.g. for air guns with a spiral hose)

Connection coupling and manual slide valve must be arranged for free access and be visible. If necessary, also the course of the belt section is to be noted.

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2.2. System pressure

At 6 bar system pressure, perfect functioning of the machine/machinery must be guaranteed.

2.3. Maintenance unit

The pneumatic system must have a maintenance unit which is located in a readily accessible position on the machine/machine system.

For protection, the maintenance unit is to be mounted behind the front of the system; no parts may protrude over the system level.

The maintenance unit should be from FESTO, type MS6-... and generally 3/8" inch in size.

Minimum requirements for setting up the MS6-... maintenance unit:

1. Lockable manual on-off valve
2. Compressed air filter
3. Control valve
4. Distributor
5. Electr. on-off valve
6. Digital pressure monitor

2.4. Pneumatic valves

2.4.a. General

The valve type must be selected taking into account the intended function, tightness and resistance to withstand foreseeable mechanical influences and environmental influences.

No modifications shall be made to the valves by the machine supplier.

2.4.b. Installation

When installing valves, the following should be considered:

- Easy disconnectability of the valve from the lines or connections connected to it
- Good accessibility for replacement, repair or adjustment work
- Influences of gravity, shock or vibrations upon the valve
- Sufficient space for tightening and loosening of screws and electrical connections
- Good access must be ensured for manual actuation.
- Precautions to prevent incorrect installation of valves
- Positioning as close as possible to the associated drive, without impairing accessibility
- Directional valves with pistons must be mounted horizontally in relation to the position of the piston.

2.5. Non-return valves

Pneumatic drives which have to remain in the end position for a ventilation of the pneumatics are to be equipped with lockable non-return valves.

2.6. Cylinders

Preferably use cylinders with a C, T or trapezoidal groove.

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2.7. End position damping

Overloading of the internal end position damping as a result of excessive mass deceleration, must be carried out, e.g. through additional external shock absorbers.

2.8. Stroke end stops

Adjustable external stroke end stops must be secured against displacement by suitable means.

2.9. Piston stroke

The piston stroke must be larger than the required stroke.

2.10. Gripper

Grippers from Schunk, AFAG or SMC are to be used. If another manufacturer is used, this must be clarified with Hirschmann Automotive in advance.

2.11. Manometer

Each adjustable pressure must be easy to read via a manometer or a pressure gauge.

2.12. Pressure regulator

Specific pressures must be labelled on the individual stations and in the documentation. They must be regulated via a lockable digital pressure regulator.

2.13. Sound muffler

All exhaust openings of the pneumatic system must be fitted with sound mufflers. Only low-noise nozzles and diaphragms may be used. They must not be mounted at head height.

2.14. Oiler

If an oiler is required, the oil drop quantity on the maintenance unit is to be documented and it is to be ensured that only the part of the machine requiring oiling is misted (2-circuit system).

If possible, oilers should be avoided. If one is to be installed, this is to be in consultation with Hirschmann Automotive.

The oiled exhaust air must be discharged from the cell via a filter/separator.

2.15. Vacuum

With vacuum generators, use OVEM-... from Festo. If another type is used, this must be clarified with Hirschmann Automotive in advance.

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2.16. Labelling

All cylinders, valves, connectors, separating points, devices within a system including the hose lines must be clearly and unmistakably marked.

Labelling signs must principally

- Be made of aluminium or two-layer plastic, etched or lasered
- have good legibility
- be permanently attached to a well visible point (permanently)
- be attached next to the components, assemblies and devices
- for covered installed devices be attached next to the installation space.

The identification plates may not be attached to interchangeable components, assemblies or devices.

3. Preferred and undesirable suppliers/components

3.1. Desirable components

3.1.a. Couplings

- Atlas Copco

3.1.b. Valves

- Festo
- SMC

3.1.c. Non-return valves

- SMC VQ1000-FPG-...
- Festo HGL-...

3.1.d. Gripper

- Schunk
- AFAG
- SMC

3.1.e. Cylinders

- Festo
- Schunk
- AFAG
- SMC

3.2. Non-desirable components

3.2.a. Gripper

- Festo: gripper HGP, HGR

3.2.b. Drives

- Festo: swivel / rotary drives DSR, DSM

3.2.c. Valves

- Festo: MLC-8-378-B valve
- Festo: MFHE on-off valve

3.2.d. Pressure regulator

- Festo: analogue pressure regulator (MS4-LR/ material number 527690)

3.2.e. Couplings

- Euro couplings