General delivery specification for machinery and equipment

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Changes:

This delivery specification is binding for suppliers and must be applied if it is part of the order.

1. Scope

This regulation specifies the general delivery regulations for “machinery and equipment” (hereinafter referred to as “MAE”).

2. Obligations

a) Safety and administrative regulations:

The “safety and administrative regulations” from the operators of the sites / chemical-parks are part of this order.

b) Laws, regulations and standards

This delivery specification applies to all machine types within NA. Country-specific legislation and regulations must be taken into account during implementation. If country-specific regulations have higher requirements on MAE, these shall be taken.
Deviations from this delivery specification must always be agreed.

In particular, these are the following laws, regulations and standards including their changes (each in the valid version at the time the order is accepted) and LANXESS provisions:

(1) The Code for Federal Regulations (CFR, especially CFR, Title 29, Part 1910) or Canada Occupational Health and Safety Regulations for Industrial Establishments shall be fulfilled
(2) Supplier’s Declaration of Conformity (for EMC) for electrical devices shall be provided.
(3) FCC or ISED certification
(4) Applicable US or Canadian standards (see table 2 and 3 for examples) shall be fulfilled.
(5) However, if the manufacturer did not design machinery according to US or Canadian standards, then RAGAGEP (recognized and generally accepted good engineering practices) providing a comparable high level of safety shall be applied. The use of RAGAGEP must be coordinated with the Lanxess customer
(6) The functional safety of machinery shall be performed according to ANSI B 11.26 and/or ISO 13849-1
(7) Electrical equipment shall be designed according to NEC/NFPA 70 and NFPA 79 or C22.2 NO. 301-16

(8) Hydraulic and pneumatic devices as individual units and as part of machines shall be designed according to ISO 4413 and ISO 4414
(9) IT security from MAE shall be designed according to IEC 62443
(10) MAE shall comply with the "state of the art" regarding noise emissions. For a single MAE, the emission sound pressure level shall less than 80dB (A).
(11) Requirements from statutory regulations on occupational, fire and environmental protection
(12) If substances are also necessary for the operation and / or maintenance of the MAE, that fall within the scope of the “Toxic Substances Control Act” or “Canadian Environmental Protection Act”, the consent of the customer shall be obtained.
(13) MAE shall be labeled with the used substances and the quantity.

c) Hazardous Locations (Hazloc):
If products, components or safety systems are intended to be used in potentially explosive atmospheres the following points must be respected.

- The National Electrical Code (NEC, article 500 to 506) or the Canadian Electrical Code (CEC, Section 18 and Appendix J) must be fulfilled
- National directives or regulations, standards and laws (for example NFPA, UL, NEMA, CSA) must be fulfilled
- Certification according to Society for Measurement and Control (ISA) or Underwriters Laboratories Inc. (UL) or Factory Mutual Research Corporation (FM) or Canadian Standards Association (CSA) must be provided
- Marking according to NEC 505 or NEC 506 or CSA must be provided
- Instructions according to ISA or UL or FM or CSA must be provided

d) Motors:
The electrical systems and electrical equipment from machinery and equipment must fulfill the requirements according to:

- US or Canadian regulations, standards (for example UL recognized or CSA) and relevant laws must be fulfilled
- Motors are mechanically and electrically compliant with NEMA MG1

3. ”Factory Acceptance Test“ / Preliminary acceptance and acceptance

LANXESS perform a ”Factory Acceptance Test“ (FAT) / Preliminary acceptance of the MAE in the manufacturing plant, unless it is agreed within the order.

The entire scope of the delivery shall be proven between the ”Factory Acceptance Test“ / Preliminary acceptance. At the ”Factory Acceptance Test“ / Preliminary acceptance there is no waiver of rights.

The final acceptance generally takes place in our factory and includes the proof of the guaranteed functions and properties and the fulfillment of the delivery regulations according to our order.

4. Documentation

The documentation shall be supplied in electronic and paper form. Standards are neutral formats, e.g. PDF (for exceptions see table 1). Exchange formats shall be coordinated with the Business Unit (scope of offer). The documentation shall be provided (according to the requirements of the ANSI B11 standards or CSA standards) in the official language (or one of the official languages) of the country of use, where the machinery is placed on the market and / or put into operation.

The following documents shall be delivered in advance by email to the technical contact person of the order:

- Installation plan with information about consumption values (e.g. electricity, gas, water, air)
- Circuit diagram including parts list
- Drawings of the workpiece-related equipment (e.g. clamping, loading and unloading devices, special tools, change parts).
- Sectional drawings (positioned)
- Parts lists with position and manufacturer ID numbers
- Spare parts lists
- Instructions / assembly instructions
- Foundation plan, if necessary

The manufacturer provides the risk assessment (preferably according to ANSI/ISO 12100) in English, unless otherwise agreed in the order. In the case of this agreement, the manufacturer grants LANXESS access on request.

Other documents of the MAE shall be delivered to the shipping address according to the following table

Table 1

Title	Documents
Documents for maintenance and repair	(1) Documents and information on maintenance and repair, including all supplied mechanical and electrical equipment (2) Maintenance plan (if possible with an estimated time expense) (3) Operating instructions and work instructions (4) Spare parts ordering information (5) Spare parts lists, wear parts lists, tool lists (distinction between mechanic / electric)
Part lists and drawings - Mechanic	(1) External parts and standard parts shall be recognizable in the mechanical parts lists (by the manufacturer's name and manufacturer number) (2) all parts lists (including standard assemblies, calibration parts, change parts) (3) All assembly drawings including standard assemblies (4) Wear parts drawings, tool drawings or workpiece-related drawings, test equipment drawings (5) Pneumatic and hydraulic documentation, preferably in PLANEDS, AutoCAD or COMOS PT, cooling lubricant plans and schemes

Title		Documents
		(6) P&ID flow diagrams, exportable to COMOS PT and 1x as paper printout
Electronic Documentation	Hardware	(1) Electrical documentation preferably in PLANEDS, AutoCAD or COMOS PT and 1x as paper printout (2) Circuit diagram and parts list (structured according to manufacturer's name and number) on CD / DVD, after consultation via network (3) Structured listing of all IT hardware components (PDF format)
	Software	(1) PLC program (2) Function plan, flow chart, function diagram, “cause & effect matrix”, function description (3) Programs and parameter sets of intelligent devices including any necessary software, recovery CD when computers are delivered (4) Structured listing of all software versions required for functionality / service in PDF format (5) Provision of all required data for functionality / service on CD / DVD, after consultation via the network (6) Image operating system PC control with description of the restoration (state: putting into service of the machinery)
	Network	(1) Definition of the network connection (e.g. IP addresses)
	Test Technology	(1) Test technology, test methods, test tools
Catalog parts Mechanical/Electric (purchased devices)		(1) Sorted alphabetically by supplier with the technical documentation and instructions
Test certificates		(1) Test report according to NFPA 79 or CSA SPE-1000 (2) Test certificates and / or test books for equipment subject to monitoring (e.g. pressure vessels) (3) Test reports of safety components (4) BUS test protocols (e.g. ProfiBus-DP, ETHERNET) (5) Test certificates for catalog parts (6) Calibration reports (assemblies, production parts) (7) other documents (e.g. acceptance papers, proof of performance)

Manufacturer changes after the "Factory Acceptance Test" at the MAE must be sent to LANXESS in writing before final acceptance. The changed documentation with a comprehensible revision must be supplied to us 4 weeks after final acceptance at the latest.

5. Laws, regulations, directives and standards

The latest edition (including all changes) applies to all documents.

Table 2

Document number	Title
OSHA 29 CFR 1910, Subpart O, in its entirety, including: OSHA 1910.212 OSHA 1910.219 OSHA 1910.147	OSHA (Occupational Safety and Health Administration) Requirements
TSCA	Toxic Substances Control Act
FCC Certification	Federal Communications Commission (FCC), Radio Equipment
ANSI/ISO 12100	Safety of machinery - General principles for design – risk assessment and risk reduction
ANSI B11.0	Safety of Machinery
ANSI B11.19	Performance Requirements for Risk Reduction Measures: Safeguarding and Other Means of Reducing Risk
ANSI B11.20	Safety Requirements for Integrated Manufacturing Systems (IMS)
ANSI B11.21	Performance Requirements for Safeguarding
ANSI B11.25	Safety Requirements for Large Machines.
ANSI B11.26	Machines - Functional Safety for Equipment: General Principles for The Design of Safety Control Systems Using ISO 13849-1
ANSI/RIA R15.06	American National Standard for Industrial Robots and Robot Systems- Safety Requirements
RIA TR R15.306	Task-based Risk Assessment Methodology
NFPA 79	Electrical Standard for Industrial Machinery
ANSI/ASSE Z244.1	Control of Hazardous Energy - Lockout/Tagout and Alternative Methods
ANSI Z535.4	Product Safety Signs and Labels
Canada Occupational Health and Safety Regulations for Industrial Establishments	Canada Occupational Health and Safety Regulations for Industrial Establishments
CEPA	Canadian Environmental Protection Act
CSA Z432-16	Safeguarding of machinery
CAN/CSA-Z434	Industrial Robots and Robot Systems
CSA Z460-13	Control of Hazardous Energy - Lockout and Other Methods
C22.2 NO. 301-16	Industrial Electrical Machinery *Note: Per CSA, the requirements of this Standard were reviewed against those of the NFPA 79 to avoid any unintentional conflict in requirements and maintain to the greatest extent possible a commonality of requirements between this Standard and existing US requirements.*
CSA SPE-1000	Model code for the field evaluation of electrical equipment
ISED Certification	Innovation, Science and Economic Development Canada (ISED) , Radio Equipment

Table 3

Document number	Title
ISO 12100	Safety of machinery - General principles for design – risk assessment and risk reduction
IEC 62443	Security for industrial automation and control systems
ISO 4413	Hydraulic fluid power - General rules and safety requirements for systems and their components
ISO 4414	Pneumatic fluid power - General rules and safety requirements for systems and their components
ISO 13854	Minimum distances to avoid crushing parts of the human body
ISO 13857	Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs
ISO 13850	Emergency Stop devices, functional aspects - Principles for design
ISO 13855	Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body
ISO 13856-1	Safety of machinery - Pressure-sensitive protective devices - Part 1: General principles for the design and testing of pressure-sensitive mats and pressure-sensitive floors
ISO 13856-2	Safety of machinery - Pressure-sensitive protective devices - Part 2: General principles for the design and testing of pressure-sensitive edges and pressure-sensitive bars
ISO 13856-3	Safety of machinery - Pressure-sensitive protective devices - Part 3: General principles for design and testing of pressure-sensitive bumpers, plates, wires and similar devices
ISO 14118	Isolation and energy dissipation - Prevention of unexpected start-up
ISO 14119	Interlocking devices associated with guards - Principles for design and selection
ISO 14120	Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards