

# Technical Delivery Specification (TLV) of Aerne Engineering AG

FO-090 - 15 February 2024

## 1 Scope of application

- 1.1 These Technical Delivery Specifications are an integral part of the offer. All deviating agreements must be set out in writing. The following order of priority applies:
- 1.2 Priority 1: Legal regulations, in particular safety regulations
- 1.3 Priority 2: The printed text of the offer. Handwritten changes require mutual signature.
- 1.4 Priority 3: Written agreements that deviate from the following provisions, insofar as reference is made to them in the order.
- 1.5 Priority 4: General technical regulations.

## 2 Compliance with the guidelines

- 2.1 Aerne Engineering AG (hereinafter "\_ae") guarantees compliance with all individual components of this technical delivery specification by confirming the order, insofar as these are not excluded by special agreements. In particular, \_ae guarantees compliance with the following guidelines:

- a) Machinery Directive 2006/42/EC
- b) Low Voltage Directive 2014/35/EU
- c) EMC Directive 2014/30/EU

## 3 Prices, conditions and scope of delivery

- 3.1 Unless otherwise specified, the prices stated in the offer include the following components:
  - a) Project management
  - b) Development and construction
  - c) Creating the production documents
  - d) Procurement and manufacture of production parts
  - e) Procurement of machine components
  - f) Switch cabinet construction
  - g) Programming
  - h) Assembly at \_ae
  - i) Commissioning (hereinafter referred to as "IBN") at \_ae
- 3.2 The assembly and IBN includes the installation and wiring of all components and system parts included in the scope of delivery. Acceptance shall take place at \_ae during the operation defined in the specifications or the list of requirements. The duration is determined at the discretion of \_ae.
- 3.3 The definitive documentation will be finalised after acceptance and submitted to the customer no later than four weeks after acceptance. It will be provided in electronic form (excluding purchased part documentation). The documentation is in German and contains the following chapters:
  - a) Operating instructions (standard from \_ae)
  - b) Electrical diagram, if necessary
  - c) Pneumatic diagram, if necessary

- d) Submission of relevant assembly e-drawings for ordering wear and spare parts
- e) CE Declaration of Conformity or EC Declaration of Incorporation
- f) Acceptance protocol

3.4 Staff training takes place in Arbon.

3.5 In the event of changes to the order confirmation and the specifications or the list of requirements, \_ae shall notify the customer as soon as possible of the additional expenditure, the additional costs and any delay in delivery.

3.6 \_ae is not responsible for the following components:

- a) Energy supply (interface: switch cabinet, compressed air preparation)
- b) Samples and individual parts must be provided to \_ae in sufficient quantities. If \_ae is not at fault, postponements due to missing provided parts must be accepted
- c) Procurement of dummy parts
- d) On-site adjustments

3.7 Pricing is EXW ex Arbon unpacked (Incoterms 2020). See also GTC.

3.8 Payments are payable net within 30 days.

- a) 30% After order
- b) 30% After concept approval
- c) 30% After acceptance at \_ae or before delivery
- d) 10% After signing the commissioning report or no later than 30 days after delivery.

3.9 Prices are based on current exchange rates. In the event of exchange rate fluctuations of 5% or more to the disadvantage of \_ae, we reserve the right to make price adjustments.

3.10 The delivery periods are specified in the offer and confirmed in the order confirmation. The order confirmation is the start date.

3.11 \_ae shall not be liable to pay any compensation in the event of delayed delivery. However, \_ae is obliged to notify any postponements without delay.

3.12 If the system is not collected from \_ae within 30 days of acceptance, storage costs will be charged at the usual commercial rate.

3.13 A bank guarantee can be issued on request. The costs are not included in the offer and will be invoiced separately.

## 4 Project process

4.1 Initialisation

- a) In the preliminary study, the remaining open questions are clarified in order to complete the specifications
- b) Calculation based on the information
- c) Preparation and presentation of the offer
- d) Project order (release for conception phase)

- 4.2 Concept
- Creation / definition of the requirements specification or list of requirements
  - Development of the proposed solution as a basis for decision-making
  - Creation of the entire schedule with milestones
  - Discussion of the concept with the client
  - Concept approval by the customer (milestone, max. 48h after receipt)
- 4.3 Development
- Development and elaboration of the concept
  - Release of the design (milestone, max. 48h after receipt)
  - Creating the production documents
- 4.4 Production
- Production and procurement of the individual components
  - Assembly
  - Control system construction and programming
  - IBN at \_ae
- 4.5 Introduction
- Acceptance by the client at \_ae
  - Training at \_ae
- 5 System design, machine elements**
- 5.1 In principle, \_ae endeavours to build the system according to the latest state of the art. Care is taken to ensure the quietest possible operation and the best possible accessibility to the various stations.
- 5.2 The system is built on a stable base frame.
- 5.3 The following points describe the design of a typical \_ae system or machine. In the event of special requirements, \_ae reserves the right to switch to other manufacturers. Components from reputable manufacturers are used. Special customer requirements can be catered for, but must be recorded in writing when the quotation is prepared.
- Profile systems: Robotunits
  - Protective enclosures: Robotunits, Troax
  - Pneumatics: FESTO, Schunk, SMC
  - Gripper systems: Schunk
  - El. linear systems: Schunk, FESTO, LinMot
  - Electric drives, gearboxes, frequency converters: Nord, MT, Tramec, Varmec, Servomech, MDrive, Dunker, Toshiba, SEW
  - Servo drives: FESTO, Panasonic, Bosch, Yaskawa, B&R
  - Robotics: ABB, Stäubli, Yaskawa, KUKA, FANUC
  - Control systems: Siemens, Eaton, Beckhoff, B&R
  - Sensors: Baumer, SICK, Cognex, Wenglor
  - Additions: ASBA (own product)
- 5.4 The input devices are selected according to the complexity of the system.
- 5.5 By default, no permanent sensor monitoring is carried out for all sensors. Only those sensors that are required for the current programme sequence or contribute to the safety of man and machine.
- 5.6 The colour shades are selected as follows:
- Base frame: RAL7035, RAL5017 silk gloss
  - ASBA drives: ground stainless steel
  - Switch cabinets: RAL 7035
  - Purchased parts: Standard colour Supplier
- 6 System performance, environment, connections**
- 6.1 The system performance is described in the mutually signed specifications or requirements list or in the offer.
- 6.2 The following environmental conditions must be submitted without request to \_ae, at the latest when the order is placed:
- Ambient temperature
  - Air humidity
  - Floor load
  - Lift mass
  - Goal mass
- 6.3 Connection data
- Electrical connection: 400/230V ±5%, 50Hz
  - Pneumatic connection: 5-6 bar, purified and unlubricated air
- 7 Acceptance**
- 7.1 The acceptance date is mutually agreed.
- 7.2 The defined system services and requirements (6.1.) must be met in order to fulfil the acceptance procedure.
- 7.3 In principle, acceptance applies at \_ae; the signature of the commissioning protocol is only used for the functional test at the customer's premises.
- 7.4 Changes and requests compared to the offer, concept or design approval will be charged with additional costs.
- 7.5 If a system, machine or assembly developed and built by \_ae on behalf of the customer has not been approved or accepted by the customer, the customer may not put it into operation and therefore may not produce, assemble, test, etc. any parts/components. (no operation as intended). If the customer nevertheless puts the system, machine or assembly into operation, \_ae cannot be held liable for any resulting personal injury or property damage (parts/components, damage to the system, etc.) or for consequential damage.
- 8 Non-disclosure agreement**
- 8.1 A non-disclosure agreement can be signed at the customer's request. The scope of the agreement is determined by the customer.

FO-090 - 15 February 2024, Aerne Engineering AG

\_ae reserves the right to make changes to these TLV at any time without prior notice. The current TLV are available on the homepage.