SCHÖNENBERGER

General Terms of Technics and Installation

1 General Technical Data

1.1 Coating of Steel Components

SCHÖNENBERGER Systeme GmbH uses a powder coating as corrosion protection.

This coating which is applied by means of an electrostatic procedure consists of a mixed epoxy and polyester resin powder. The powder coating is applied with a thickness of > 60 µm and is extremely impact resistant and abrasion-proof.

Joining and fastening elements are electro-galvanised.

1.2 Coating of Aluminium Components

- Material: AL Mg Si 0.5
- Colour:
- EV1: Natural colour (colourless layer approx. 20µm)
- Surface treatment according to DIN 17611
- E6: anodised
- Type of profile: extruded hollow section

1.3 Synthetic Components

- Switch Basic Body: PA 66 GF50, Colour blue
- Trolley:
- Trolley-V, Link Bar: PA 6 GF30, Colour blue
- Trolley Roll: POM, Colour blue
- Single Carrier, Minitrolley: PA 6 GF 30, Colour blue

1.4 Conveyor Data – Standard

Conveyor Type	Speed	Comments
AFS Powered Rail	10 to 13 m/min	for trolleys, straight or 26°, with drag chain
KF Chain Conveyor (in-/decline)	10 m/min	for trolleys, 26°or 30°, with drag chain
TEF Transelastic Conveyor	10 to 13 m/min	for trolleys, straight run or up to 2°, flexible pushers
SF Vertical Conveyor		for trolleys, only for vertical transport
ILS 2100 Distribution System	up to 30 m/min	for singles, small units and bags on identifiable carriers (SC, MT, ST), friction lock of carrier and drive belt with P&F function
CDDC Continuous Distribution and Dispatch Conveyor	10 to 15 m/min	for singles, side bow chain for flexible design (3-dimensional) with in-/decline up to 45°
RA Friction Wheel Drive	10 m/min	for (bobbin) trains only
CP2100 – Catch- and Pin Conveyor	10 to 30 m/min	for single GOH, straight and in-/decline up to 30°, drag chain

1.5 Media Consumption

Installation	Requirement	Technical Specifications
Compressed air - closed circular pipeline (to be provided by the customer)	To be determined	Working pressure 6 bar. Air quality 99.9 % in relation to 3µ - oil free. The secondary pipe work as well as maintenance and pressure reduction units are supplied by SCHÖNENBERGER Systeme GmbH.
Electrical power (to be provided by the customer)	To be determined (kVA)	Power infeed: 3 x 400 V/N/PE/50 Hz The equipotential bonding according to DIN VDE 0100, Part 540 or UEC 364-5-54 must be provided by the customer next to the main cabinet. Diversity factor approx.: 80% - depending on the installation.

1.6 Surrounding / Ambient Conditions

- ambient temperature in working areas 15°C – 40°C
- ambient temperature in restricted / inaccessible areas 5°C -50°C
- humidity 20%-60%

Further conditions that might have negative effects on appearance and functionality of the system:

- high air content of aggressive substances like acid or salt
- dust particles like sand or else
- nanoparticles from chemicals like paint, dye, varnish, oil
- gas emissions from parts or products

SCHÖNENBERGER installations are built for indoor applications.

2 Norms and Regulations Applied

SCHÖNENBERGER Systeme GmbH produces and installs according to European Standards (EN) and following regulations and directives:

- Declaration of Conformity resp. Declaration of Incorporation according to
  - EC-Directive on Machinery 2006/42/EC incl. all relevant norms.
  - EC-Directive for Voltage Limits 2014/35/EU (NSR).
  - EC-Directive Electromagnetic Compatibility 2014/30/EU (EMV).

(The declaration is rendered void if the product is converted or modified without approval of SCHÖNENBERGER Systeme GmbH.)

- RAL-RG 603, version from August 2011 with the exception of the installation panels.
- VDE-Regulations.
- DGUV regulation and regulations of the employer's liability insurance association.
- Regulations for the place of work (ASR.)
- General conditions for the supply of machines and installations by the VDMA. (Association of German Engineering Shops).

3 Conditions to be met by the Customer

3.1 The customer is responsible for the following services

- All ground, construction and bedding work, if required scaffolding, and provision of all necessary building material.
- Organisation and fees of services and certifications from local or other authorities, fees for any technical control board.
- Obtaining all authorisations and inspections required for the preparatory work and the system to be installed, including, in particular, building inspections such as static inspections with respect to the dynamic and static loads on the building exerted by the equipment to be installed.
- General fire protection measures.
- Providing any connections for heating, lighting, water, compressed air and operating power for the equipment and the installation free of charge.
- Providing main supply cables to the required feeding points of the control cabinets.
- Providing forklifts and lifting platforms (e.g. scissor lifts).
- Providing waste containers and waste disposal.
- Providing internet access.
- Providing sanitary facilities, a changing room and first aid for the installation and service staff.
- Unloading of truck and transportation of the installation parts to the installation site.
- Providing the necessary dry and lockable premises for storing the tools belonging to the SCHÖNENBERGER installation staff.
- Ensuring that the installation site is freely accessible, closed, with normal temperature conditions, sufficiently illuminated for the installation and programming work, cleared and free of any other structural components. Theft-proof storage of material must be guaranteed.
- Ensuring that the floor has the required load-bearing capacity of concrete quality B25 and standard flatness tolerance according to DIN 18202 table 3 line 2 and 3 (of Oct 2005) and is fit for lifting platforms and forklifts. Free access to the installation site must be guaranteed.
- Ensuring that the potential drilling depth of the floor is min. 200 mm. Max. reinforcement of the floor 0,2 %, max. reinforcement diameter 10 mm.
- Ensuring that the installation work can be performed without interruptions. Delays during the installation not caused by SCHÖNENBERGER Systeme GmbH can result in additional costs and/or additional travelling hours/costs (see fig. 5.4) and will be charged separately after completion of the installation.
- Providing the staff and material and taking all other measures necessary for putting the system into operation and running tests.
- Cleaning the installation: SCHÖNENBERGER Systeme GmbH will leave the installation broom clean. In the event that the system is dirtied during or after installation by other tradesmen the customer shall be responsible for cleaning the SCHÖNENBERGER system.

Note: Impact loads on supports of the system have not been taken into account in the static calculations, necessary measures may have to be taken.

3.2 Co-operation by the Customer

The customer shall prepare the required organisation for the utilisation of the system and provide SCHÖNENBERGER Systeme GmbH with the necessary information, in particular, all data required by SCHÖNENBERGER Systeme GmbH for the production of the system. The customer shall provide this co-operation according to the time and work schedule of SCHÖNENBERGER Systeme GmbH.

Deliveries must be checked by the customer immediately.

3.3 The following shall apply for the Customer's helpers:

- Qualification: at least the equivalent of an approved locksmith, electrician or mechanic. SCHÖNENBERGER Systeme GmbH reserves the right to replace helpers after having run a check. The helpers must bring the specific tools of their trade.
- Addition: If a sufficient number of helpers is not available or if these helpers are insufficiently qualified SCHÖNENBERGER Systeme GmbH may decide to use additional SCHÖNENBERGER mechanics of its choice and at the customer's expense (see 6.4).
- Working Hours: According to the instructions of the SCHÖNENBERGER construction site manager, possibly including the unloading of lorries. The 5 day week customary in Germany (Mo-Fr) 10 hrs./day, i.e. max. 50 hrs./week shall apply.
- Liability: SCHÖNENBERGER shall not assume any liability in the event of an accident due to a failure by the helpers to comply with the safety regulations.
- Unqualified or insufficiently qualified helpers may be refused by the SCHÖNENBERGER installation manager. Unauthorised persons may be dismissed from the construction site by the SCHÖNENBERGER installation manager.

4 Limitation period for claims based on defects

The limitation period for claims based on defects shall, as a rule, be based on the General Terms of Delivery / Installation and Payment of SCHÖNENBERGER Systeme GmbH.

In the event that the installation/initial operation is not performed by SCHÖNENBGERGER Systeme GmbH the limitation period for claims based on defects shall only be granted for individual structural components.

The limitation period for claims based on defects for mechanical, electrical and pneumatic components (conveyor system) and trolleys shall be 12 months (for a one-shift operation) as from completion of the installation work or trial time.

SCHÖNENBERGER Systeme GmbH shall not be liable for the normal wear and tear through usage of components which are subject to such wear and tear if used according to instructions.

5 Instruction and Training

5.1 Instruction

The offer price includes a general instruction of the operating and maintenance staff with respect to the functioning and operation of the delivered equipment. The instruction will be given either during installation or after completion.

The instruction comprises:

- brief theoretical and practical instructions of the logistic procedures
- technical instruction for the handling of the various system components
- remission of the technical documentation

5.2 Training

A training of the operating staff is not included in the offer price. Training can be offered separately or charged on the basis of the services provided (for daily rates see 5.4).

6 Services

6.1 Spare Parts Package

The offer **does not** comprise a spare parts package. Upon request or in the event of an order we will gladly provide a spare parts proposal which will enable the customer to maintain the technical reliability of the system by keeping spares of critical components for urgent exchange on site.

Additional spare parts can be ordered during regular working hours.

6.2 Hotline Service

SCHÖNENBERGER Systeme GmbH offers the quickest possible help via internet from Monday through Thursday from 8.00 a.m. through 5.00 p.m. and Fridays from 8.00 a.m. through 2.00 p.m. (except on holidays) within the scope of a service and maintenance contract to be concluded separately for diagnoses and error shooting after expiry of the warranty period or for events not covered by the limitation period for claims based on defects. This help facility will prevent expensive down-times and staff costs.

If the tele-diagnostic service is used, costs will be charged at a rate of € 33.00 for any ¼ hour commenced (plus value added tax).

6.3 Customer Service / Maintenance Services

In the event of a disorder our service specialists are at your disposal by phone from Monday through Thursday from 8.00 a.m. through 5.00 p.m. and Fridays from 8.00 a.m. through 2.00 p.m. (except on public holidays). On site work is possible if required and agreed with you. During the limitation period for claims based on defects our service is free of charge. Thereafter a service or maintenance contract must be concluded to obtain this service. We can extend the availability times in this contract if requested.

6.4 Planning Support

We look forward to support you with extensions/modifications. As far as modifications after completion of the planning phase (detailed layout confirmed by the customer as planning blue-print for the project execution) are concerned we reserve the right to charge the following rates for the required additional planning work:

- Project manager € 1,320.00/day (8 hrs./day) or € 165.00/hr.
- Programmer € 1,320.00/day (8 hrs./day) or € 165.00/hr.
- Training, consulting € 1,120.00/day (8 hrs./day) or € 140.00/hr.

- Site Supervisor € 70.50/hr.
- Electrician € 70.50/hr.
- Maintenance service with maintenance contract € 795.00/day (incl.travel expenses)
- Maintenance service without maintenance contract € 895.00/day (incl.travel expenses)

Travelling time will be billed at the same rate as labour.

Travel expenses will be charged on the basis of receipts.

- Costs / kilometre travelled € 0.85/km

All prices refer to services in Germany; international services on request.

Services which exceed the above-mentioned times will be charged with the following surcharge:

- Night Work from 6.00 p.m. to 9.00 p.m. + 50 percent
- Night Work from 9.00 p.m. to 6.00 a.m. + 100 percent
- Saturdays + 50 percent
- Sundays and Public holidays + 100 percent

Daily expenses will be charged according to the applicable lump sum amounts for board and lodging laid down by the BMF in the applicable version, hotel expenses will be based on the receipt.

All the prices listed above are subject to the addition of the value added tax.

SCHÖNENBERGER Systeme GmbH reserves the right to increase the above listed prices reasonably in the event of an increase of its cost prices as from four months after conclusion of an agreement on deliveries and services.

7 Acceptance and Final Hand-Over to the Customer

7.1 Time of Acceptance

SCHÖNENBERGER Systeme GmbH indicates when the system is ready for acceptance. The required acceptance must then occur within a period of 2 weeks unless special acceptance conditions were agreed by contract between the customer and SCHÖNENBERGER Systeme GmbH.

7.2 Acceptance Procedure

7.2.1 Tests

a) Tests such as mechanical pre-tests are run on a continuous basis during the completion process of the system. The mechanical pre-tests are run on the lowest level to check whether all the elements of the system (e.g. sensors, guides, motors) function and whether the individual control elements are correctly connected to the control system.

b) Function tests are run to test and simulate the functionality of the transportation controls. The function tests can also be run during the installation work with the mutual agreement of both contracting parties.

7.2.2 Acceptance and Delivery of the System to the Customer

a) A SCHÖNENBERGER facility is handed over after completion of the installation and possibly after the running of the function test described in detail in the specifications. The instruction of the operating staff will have been completed by that point. A delivery according to various completion phases must be agreed separately by contract.

b) The following items are checked for the handing over of the system:

- Complete delivery of goods.
- Quality and execution of the installation work.
- Installation according to layout.
- Functioning and performance of the system or installation phase.
- Passing of risk to the customer as operator.
- Possibly function test if described in detail in the specifications.

c) Acceptance occurs after the handing over of the system and is recorded in an acceptance report signed by both parties.

d) The handing over and acceptance of the system by the customer can be performed by way of a joint viewing and functions tests on system components.

e) Minor defects which do not impact the performance of the system as agreed by contract may not impede an acceptance of the system. The contractor shall have a reasonable period of time to carry out the required refinishing tasks.

f) Once acceptance is completed liability is passed to the customer and the warranty period begins.

The above framework conditions shall apply in connection with the offer confirmed by the customer and the General Terms of Delivery/Installation and Payment of SCHÖNENBERGER Systeme GmbH.