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: AlMgSi 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 6 GF30, Colour blue (RAL 5012)
- Trolley:
- Trolley-V, Link Bar: PA 6 GF30, Colour blue (RAL 5012)
- Trolley Roll: POM, Colour blue (RAL 5012)
- Single Carrier, Minitrolley: PA 6 GF 30, Colour blue (RAL 5012)

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

- Obtaining all necessary authorisations and inspections with regard to the preparatory work and the installation object itself, including in particular building-related inspections such as e.g. statics inspection with regard to dynamic and static loads on the building due to the installation object. The customer shall bear the costs of official services, testing and TÜV fees.
- General fire protection measures.
- Provision of energy and connections (heating, lighting, water, compressed air and operating power) for the system and installation and assumption of the costs.
- Provision of power supply lines to the required feed points of the control cabinets, as well as provision of internet access for SCHÖNENBERGER assembly/service personnel.
- Provision of lifting equipment such as forklift trucks and work platforms.
- Provision of waste containers and waste disposal.
- Provision of sanitary facilities and first aid equipment as well as a changing room for use by assembly/service personnel in the immediate working environment.
- Assistance with unloading and transporting assembly parts to the assembly site.
- Provision of the necessary dry and lockable rooms for storing the tools of the SCHÖNENBERGER assembly personnel.
- The installation site must be easily accessible, closed, at a normal temperature, adequately lit for assembly and programming work, clear and free of other building rubbish. Theft-proof, dry material storage close to the installation site must be guaranteed.
- The floor must have the required load-bearing capacity in accordance with concrete quality B25 and evenness tolerance in accordance with DIN 18202 Table 3, lines 2 and 3 (as of 2005/10) and be accessible for lifting platforms and forklifts. Free access to the installation site must be guaranteed.
- Possible drilling depth in the floor min. 200 mm. Upper reinforcement level of the floor 0.2 %, maximum reinforcement diameter 10 mm.
- It must be possible to carry out the installation work without interruptions. Delays during installation for which SCHÖNENBERGER Systeme GmbH is not responsible may lead to additional costs and/or additional travelling hours/costs (see point 6.4) and will be invoiced separately after the end of installation.
- Provision of personnel and materials and performance of all other actions necessary for commissioning the system and carrying out tests.
- Cleaning of the system: SCHÖNENBERGER Systeme GmbH shall hand over the system swept clean. If soiling of the system is caused by other trades during or after installation, 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.

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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

Hotline Contract

After expiry of the warranty period, SCHÖNENBERGER Systeme GmbH offers a hotline service contract to be concluded. It shall be regulated in a separate agreement. Current prices can be provided upon request.

Remote diagnostics service

For remote diagnostics and error management from Monday through Thursday from 8.00 a.m. through 4.00 p.m. and Fridays from 8.00 a.m. through 2.00 p.m. (except on public holidays) costs shall be charged at a rate of 120,00 € for any 1/2 hour commenced. No guaranteed response time can be given.

6.3 Customer Service / Maintenance Services

In the event of a breakdown our service specialists can be reached by phone from Monday through Thursday from 8.00 a.m. through 4.00 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.

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 € 1,390.00/day (8 hrs./day) or € 174.00/hr.
- Programmer € 1,390.00/day (8 hrs./day) or € 174.00/hr.
- Training, consulting € 1,180.00/day (8 hrs./day) or € 150.00/hr.

- Site Supervisor € 85,00/hr.
- Electrician € 85,00/hr.
- Maintenance service with maintenance contract € 965.00/day (incl.travel expenses)
- Maintenance service without maintenance contract € 1050.00/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 € 1.00/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.
- 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.

These General Terms of Technics and Installation apply in conjunction with the offer confirmed by the customer and the Business Terms and Conditions of SCHÖNENBERGER Systeme GmbH