

Acceptance/conversion protocol electrical machines and installations

Contracting Authority:

Name:

Street:

Town/city:

Contractor:

Name:

Street:

Town/city:

Description of the system:

Inventory number:

"EPLAN" number:

Type:

Manufacturer:

Type:

Order no.:

Participants:

The power cable of the machine/system comes from UV...../HV...../Cell.....

Outlet/Fuse.....

Cable type...../No. of cores..... Cable cross section.....

Please cross out non-relevant parts; fill in relevant parts

The power cable was measured according to inspection protocol Yes No N/A Comment

PC_GP_13_Prüfprotokoll_Zuleitung_Schott AG

☐☐☐

with no.:

1. Proof of successful initial inspection

1.1	Yes	No	N/A	Comment
<p>Is there a complete inspection report (inspection protocol) for the initial inspection of the machine and the electrical system?</p> <p><i>The inspection report must include the following minimum specifications:</i></p> <ul style="list-style-type: none"> • Name and address of the client and contractor; • Description of the individual inspection protocols for documentation of measured values; • Designation of the object, e.g. system, building, building parts, distributor, circuits; • The inspected circuits must be viewable in the documentation with their designations and the corresponding protective equipment; • Used measurement and test devices; • All information ascertained during viewing, inspection and measurement as well as the results of calculations must be assessed by the inspector. This evaluation is the result of the inspection; • The result of the inspection is to be documented as part of the relevant measured values for evaluation; • Inspection centre, inspector, inspection date, signature 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p>1.2</p> <p>In electro-technical systems (inspection according to VDE 0100-600) (sub-distribution supply line to control box) Were all required inspections carried out?</p> <p><i>Following inspections are required:</i></p> <ul style="list-style-type: none"> • Visual inspection; • Measurement of conductivity of the protective conductor; • Measurement of insulation resistance; • Measurement of loop impedance; • When using RCDs: Measurement of breaking current, cut-off time, contact voltage; • Inspection of voltage polarity (upon request); • Inspection of phase rotation (clockwise rotating field); • Functional test of switch component combinations, safety installations; • Test of max. voltage drop < 4% 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

1. Proof of successful initial inspection

1.3	Yes	No	N/A	Comment
<p>In electro-technical machines (Inspection according to VDE 0113) (Control box incl. machine) Were all required inspections carried out? Was the inspection protocol 'Prüfprotokoll_VDE 0113-1.pdf' Schott used?</p> <p><i>Following inspections are required:</i></p> <ul style="list-style-type: none"> • Visual check; • Test of conductivity of the protective conductor; • Test of loop impedance with suitability of the overload protection device; • Test of protection in the case of indirect touching; • Test of insulation resistance; • Voltage check; • Test of protection against residual voltage; • Functional test of switch component combinations, safety installations 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.4	Yes	No	N/A	Comment
<p>Is the system/machine in the explosion area? Inspection in conjunction with the explosion representative of SCHOTT AG SMU dept. SMU according to EC Directive 94/9/EC (ATEX95)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1.5	Yes	No	N/A	Comment
<p>Were the safety-relevant functions tested with the client and documented in an acceptance protocol? (emergency off, safety circuits)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2. Documentation

2.1	Yes	No	N/A	Comment
<p>Is a VIN plate available for the electrical equipment with the following specifications? (EN 60204-1)</p> <p><i>With machines according to VDE 0113 with the following specifications:</i></p> <ul style="list-style-type: none"> • Name or company logo of the supplier; • Registration logo, if required; • Serial number; • Measurement voltage, number of phases and frequency, • Load current for every feed-in; utilisation calculation with possible coincidence factor • Short circuit coordination of the equipment; • Number of main documentation. (SCHOTT "EPLAN" – number) <p><i>With switch component combinations according to VDE 0660 with the following specifications:</i></p> <ul style="list-style-type: none"> • Name of the manufacturer of the switch component combination or trademark; • Type designation or code number or a different identification which make the • labelling for determination of the manufacturing date necessary; • Manufacturer standard IEC 61439-X used <p><i>The specifications must preferably be permanently attached to the control box with the feed-in and be easily readable. The factory or serial number must be consistent with the specifications in the current flow diagrams.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2. Documentation

2.2	Yes	No	N/A	Comment
Are the required additional identifications available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p><i>These could be:</i></p> <ul style="list-style-type: none"> • Requirement of the electrical supply; • Protection type; • Protection class; • Year of manufacture; • Operation and surrounding conditions; • Mains system; • Dimensions, weight <p><i>In the case of switch component combinations according to VDE 0660 the following additional identifications are required:</i></p> <ul style="list-style-type: none"> • Measurement voltage; • Measurement operating voltage; • Measurement impulse voltage test; • Measurement insulation voltage; • Measurement electricity of the switch component combination; • Measurement electricity of every circuit; • Measurement surge current stability; • Measurement short-term current stability; • Conditional measurement short circuit electricity; • Measurement frequency; • Measurement load factor 				

2. Documentation

2.3	Yes	No	N/A	Comment
Is the documentation complete?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p><i>Among other things, a complete documentation includes:</i></p> <ul style="list-style-type: none"> • <i>Operating manual in German and in original language;</i> • <i>Function description (e.g. protection measures);</i> • <i>Specifications:</i> <ul style="list-style-type: none"> ○ <i>on programming with circuit diagrams;</i> ○ <i>on processes;</i> ○ <i>on evaluation and dimensioning of the safety functions according to DIN EN ISO 13849-1 (incl. "Sistema" project);</i> ○ <i>of the inspection intervals;</i> ○ <i>on frequency and process of functional testing;</i> ○ <i>on setting, maintenance and repair, especially for installations and circuits with protective function;</i> • <i>Diagrams (VDE 0040-1): function diagrams, overview diagrams, current flow diagrams, terminal diagrams, wiring diagrams, construction diagrams, instruction diagrams, potential equalisation diagrams, cable route diagrams, layout, earthing diagram etc.</i> • <i>Current flow diagram should include:</i> <ul style="list-style-type: none"> ○ <i>Type and cross section of conductors;</i> ○ <i>Length of the circuits;</i> ○ <i>Type of protective equipment;</i> ○ <i>Measurement electricity or adjustment value of the protective equipment;</i> ○ <i>Short circuit currents and short circuit breaking capability to be expected</i> ○ <i>Heat loss performance calculation</i> • <i>Parts lists;</i> • <i>Complete programming with password and editable file format with comment files;</i> • <i>Source code of the software</i> • <i>Replacement/wear parts lists;</i> • <i>Tool lists;</i> • <i>Maintenance instructions, regulations, protocols;</i> • <i>Component descriptions;</i> • <i>Settings of protective equipment</i> <p><i>Documentation should be available both on paper (on site and in the archive) as well as on data carriers in a format editable to the client.</i></p>				

2. Documentation

2.4	Yes	No	N/A	Comment
<p>Are the required explanations/documents available?</p> <p> <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A </p> <ul style="list-style-type: none"> • <i>CE – declaration of conformity;</i> • <i>Risk assessment;</i> • <i>Specialist company declaration</i> • <i>Inspection protocols</i> • <i>Inspection of contact-free protection equipment according to ZH1/597</i> 				

2.5	Yes	No	N/A	Comment
<p>With switch component combinations (control box), (according to DIN EN 61439)</p> <p>Is the required proof available?</p> <p><i>The construction type certificate must include the following proof:</i></p> <ul style="list-style-type: none"> • <i>Solidity of materials and parts;</i> • <i>Protection type of encasing;</i> • <i>Air and leakage paths,</i> • <i>Protection against electrical shock and consistency of protective conductor circuits;</i> • <i>Installation of equipment;</i> • <i>Inner circuits and connections;</i> • <i>Connections for conductors inserted from outside.</i> • <i>Insulation properties;</i> • <i>Heating;</i> • <i>Protection against short circuiting;</i> • <i>Electromagnetic compatibility;</i> • <i>Mechanical function</i> • <i>Conductor types documented incl. cross section in "EPLAN";</i> <p><i>The part certificate must include the following proof:</i></p> <ul style="list-style-type: none"> • <i>Protection type of encasing;</i> • <i>Air and leakage paths;</i> • <i>Protection against electrical shock and consistency of protective conductor circuits;</i> • <i>Installation of equipment;</i> • <i>Inner electrical circuits and connections;</i> • <i>Connections for conductors inserted from outside;</i> • <i>Mechanical function.</i> • <i>Insulation properties;</i> • <i>Wiring, operating behaviour and function</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2. Documentation

2.6

	Yes	No	N/A	Comment
Are the adjustment values of the over protection organs set to rated current and documented in the hardware diagrams ("EPLAN")?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. Identification of the control equipment

3.1	Yes	No	N/A	Comment
Are the mains input terminals clearly marked in the control box? (L1, L2, L3, N, PE)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3.2	Yes	No	N/A	Comment
Are the mains input terminals marked with a lightning arrow in order to point out that they are still under voltage after the main switch has been switched off?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p><i>It is permitted to either lay the feed-in on the terminal input rail or to connect directly to the terminals of the main switch. In both cases the connection terminals are to be identified.</i></p> <p><i>Labelling e.g. station, block, field or distribution, outlet or fuse, cable type.</i></p>				
3.3	Yes	No	N/A	Comment
Are all equipment and components clearly marked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p><i>Clear labelling for SCHOTT systems!!!</i></p> <p><i>This ensures mix-ups during repairs, for example, are avoided. The identifications must be consistent with the current flow diagram. Does the identification remain even after a parts replacement? Equipment identification according to DIN EN 61346?</i></p>				
3.4	Yes	No	N/A	Comment
Are all lines, cables and connection points clearly (individually) marked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p><i>Conductor must be identifiable at every connection, consistent with the technical documentation.</i></p> <p><i>Cable labelling e.g. after method R (e.g. W23-1) or CR (e.g. A1/X1:2) (VDE 0040-4).</i></p> <p><i>The identifications must be consistent with the current flow diagram.</i></p>				

4. Mains switch

4.1	Yes	No	N/A	Comment
<p>Does the machine have a hand-operated mains switch that can be locked in the off position with which the entire machine and all polls are separated from the mains?</p> <p>Marking: red switch/yellow background!</p> <p><i>Instead of the mains switch a plug connection can take over the function as long as the machine has a measurement electricity of not more than 16 A and a total measurement output of not more than 3 kW.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.2	Yes	No	N/A	Comment
<p>Is the mains switch easily accessible?</p> <p><i>The mains switch should be at a height of between 0.6 and 1.7 m.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4.3	Yes	No	N/A	Comment
<p>If there are circuits available that are not covered by the mains switch: is there information in the operating manual regarding these circuits?</p> <p><i>The bypassing of mains switches is only permitted for the following exceptions:</i></p> <ul style="list-style-type: none"> • <i>Lighting and sockets that are required for repair or maintenance purposes</i> • <i>Circuit low voltage protection</i> • <i>Measuring systems and programme memory</i> • <i>Control current circuits for locking mechanisms</i> • <i>Circuits that should usually be left switched on for correct operation</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4. Mains switch

4.4	Yes	No	N/A	Comment
<p>If there are circuits available that are not covered by the mains switch:</p> <ul style="list-style-type: none"> Is there a warning sign near the mains switch and is there a warning sign near the circuit or is the circuit routed separately from other circuits or is the circuit marked orange in the case of locking circuits? <p><i>The danger of the electrical current is to be warned through the special identification obligations. An additional warning is also required if voltages continue to be present after the mains is switched off.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4.5	Yes	No	N/A	Comment
<p>Are all circuits secured with an RCD for power sockets and control box illumination? (VDE0100-410)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

4.6	Yes	No	N/A	Comment
<p>Is an RCM (Residual current monitoring) for differential current measurement installed in the feed-in?</p> <p>Is this set and are the adjustment values documented? (Inspection protocol initial inspection)</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5. Electrical installation rooms

5.1	Yes	No	N/A	Comment
<p>Can the electrical installation rooms (e.g. control box, terminal box) be clearly recognised as such?</p> <p><i>If this is not the case then the electrical installation room must be marked with a lightning arrow.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.2	Yes	No	N/A	Comment
<p>Does the electrical installation room only contain electrical components?</p> <p><i>Only electrical components are allowed in electrical installation rooms, not components such as pneumatic and hydraulic valves, chain drives or water pipes.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.3	Yes	No	N/A	Comment
<p>Are the covers and doors of the electrical installation rooms lockable and can they only be opened with the help of keys or tools or can the electrical installation room only be opened if the active parts are separated from the mains beforehand?</p> <p><i>This is to ensure that only electrically skilled persons or competent persons have access. A corresponding mains switch off can be realised by a special mains switch which is locked to the opening controls of the door.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5.4	Yes	No	N/A	Comment
<p>Are there protective conductor connections on the doors and covers in which electrical components are installed and are these marked with the earth symbol?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5. Electrical installation rooms

5.5	Yes	No	N/A	Comment
<p>Do housings in which control units and other electrical components are installed display at least the protection type IP 54?</p> <p><i>The protection type IP 54 is upheld if the moveable doors have sealing lips and if vents have filter elements. Cable inlets must be attached or be made up of similarly sealed systems.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5.6	Yes	No	N/A	Comment
<p>Are all electrical installation rooms easily accessible without danger?</p> <p><i>This is particularly the case for electrical installation rooms that contain control units and other components that are often adjusted or exchanged (e.g. motor protection switch, fuses).</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5.7	Yes	No	N/A	Comment
<p>In areas with limited access, is the minimum aisle width for emergency exits upheld?</p> <p><i>Doors of all installations within the operating site must be able to closed in the direction of movement. The doors of all installations and pivoting component group supports must be able to be opened by at least 90°</i></p> <p><i>The doors that can be caught in an open position or in performance switches or equipment that can be completely removed for maintenance purposes must have a minimum distance of 500 mm between the door edge or the edge of the performance switches/equipment and the opposite side of the operation gangway or maintenance gangway.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

5.8	Yes	No	N/A	Comment
<p>Are control boxes and switching boxes attached to the floor according to installation instructions?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

6. Wiring within the installation rooms

6.1	Yes	No	N/A	Comment
Are set connection points available for all cables?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.2	Yes	No	N/A	Comment
Are the cables within the installation room laid in suitable channels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>It is not permissible for individual cables to be laid loosely in the control box.</i>				
6.3	Yes	No	N/A	Comment
Are all connection terminals set out with protection against direct contact (at least protection type IP2X)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>This is valid for screw locks, adjustable timed contact elements, current cut-out, engine protection switches, protection and similar.</i>				
6.4	Yes	No	N/A	Comment
Are all lines implemented from connection terminal to connection terminal without interconnectors (e.g. insulating screw joints)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.5	Yes	No	N/A	Comment
Are all reserve cores routed to terminals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.6	Yes	No	N/A	Comment
Are the connections to electrical components that are attached to doors equipped with flexible cables (stranded wires)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6.7	Yes	No	N/A	Comment
Do the line connections to doors have strain relief on both sides and are they specially protected against damage, e.g. through hosing or spiral wrapping?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

6. Wiring within the installation rooms

6.8	Yes	No	N/A	Comment
Are components on which installation work is being undertaken easily accessible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Components that require maintenance or adjustment work may only be installed at a height between 0.4 and 2 m. Terminal strips or device connections must be positioned at least 0.2 m over the access level.</i>				

6.9	Yes	No	N/A	Comment
Have terminals been assigned twice? If yes, does the construction comply with standards?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Components and terminal strips can only be assigned twice if they are setup this way. Otherwise, double cores are to be used. N and PE terminals cannot be assigned twice!</i>				

6.10	Yes	No	N/A	Comment
Is the N rail covered against contact protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>(VDE 0660 part 514, covering of active conductors)</i>				

6.11	Yes	No	N/A	Comment
Are the cable colours implemented according to the SCHOTT AG Mainz instructions, ETAR electro-technical implementation regulations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<ul style="list-style-type: none"> • <i>Main circuits</i> • <i>Control circuits</i> • <i>Special circuits</i> 				

7. Lines outside of the installation rooms

7.1	Yes	No	N/A	Comment
<p>Are all cables outside of the installation rooms used as sheathed cables and protected against mechanical damages?</p> <p><i>A sufficient mechanical protection is at hand if the following requirements are fulfilled:</i></p> <ul style="list-style-type: none"> • The cables are arranged in such a way that no mechanical damages can be expected even in the case of maintenance and repair works. • Additional protection using plastic hoses or flexible protective metal hoses, for example, is available. • The cables are not guided over any sharp edges. • The cables are suitable for bending loads (stranded wires). • The bend radius is at least 10 times the outer diameter of the cable. • The gap between moving lines and moving machine parts is at least 25 mm. If this gap cannot be upheld then corresponding partitions must be available. • The cables are laid in such a way that outside influences, e.g. oil, high temperatures or chemical influences do not exist. • The correct attachments are used (EMV) 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.2	Yes	No	N/A	Comment
<p>Are cable channels, pipes, swivel arms and attachments made from metal connected to the protective conductor system?</p> <p><i>Problems regarding protection against dangerous contact voltage occur in metallic attachments if these are not used in conductive housing. Attachments made from non-conductive materials are to be used in such cases.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.3	Yes	No	N/A	Comment
<p>Do the cable types used correspond to the system and environmental requirements?</p> <p><i>Possible requirements could be:</i></p> <ul style="list-style-type: none"> • Mechanical solidity; • Functional integrity; • UV resistance; • Halogen-free; 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7. Lines outside of the installation rooms

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7.4	Yes	No	N/A	Comment
Is the strain relief for all outgoing cables equipped with cable clamps? (see SCHOTT AG Mainz instructions, ETAR electro-technical implementation regulations, section 5 EMV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

7.5	Yes	No	N/A	Comment
Is the shielding of cables earthed over a large area on both sides? (see SCHOTT AG Mainz instructions, ETAR electro-technical implementation regulations, section 5 EMV)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8. Protective conductor system

8.1	Yes	No	N/A	Comment
<p>Are all conductive machine parts, that can take on voltage in the case of a fault, connected to the protective conductor system with low resistance?</p> <p><i>It is assumed that all electrically conductive machine parts that are connected to electrical components can take up contact voltage through insulation errors. This includes, for example, electrically conductive attachments or housing parts of pneumatic valve magnet coils.</i></p> <p><i>In transformers, that do not create an extra-low voltage, dangerous touch voltages can occur in the case of a fault, even if the voltage in its undisturbed condition is under 50 V.</i></p> <p><i>The low impedance design of the protective conductor connections must be proven on every machine by way of measurements. The measurement must occur with at least 200 mA measuring current. The max. permissible resistance value depends on the cable length, the cross section and material of the protective conductor.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.2	Yes	No	N/A	Comment
<p>Is the mounting plate on the rear of the control box equipped with a separate protective conductor connection?</p> <p><i>The connection of the mounting plate with the protective conductor via the cap rail is not considered to be sufficient.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8.3	Yes	No	N/A	Comment
<p>Is only one protective conductor (PC) attached to each terminal or connection point?</p> <p><i>These measures are to prevent numerous connections to be interrupted from the protective conductor system upon unfastening a protective conductor connection.</i></p> <p><i>(Radial wiring)</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

8. Protective conductor system

8.4	Yes	No	N/A	Comment
<p>Are all protective conductor connections secured against self-loosening?</p> <p><i>The securing can be made up of serrated washers, spring washers or lock rings.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p>8.5</p> <p>Are all protective conductor connection points marked with the earth symbol?</p> <p><i>The connection terminals are not to be marked with 'PE'. This designation can only be used for the external mains connection</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p>8.6</p> <p>Is a potential equalisation installed for the system?</p> <ul style="list-style-type: none"> • <i>Connection to the central potential equalisation</i> • <i>Building, inspection protocol</i> • <i>Documentation and identification in the hardware diagram</i> • <i>Identification of the earthing cables</i> 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

9. Control current circuits with control transformers

9.1	Yes	No	N/A	Comment
<p>Does the feed-in of the control current circuits occur via a transformer?</p> <p><i>The feed-in from a transformer is mandatory if the machine has more than two touching elements (e.g. push-button for start and stop of the machine). Therefore, in practice, it is almost always necessary to use control transformers.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p>9.2</p> <p>Does the control transformer show divided coils?</p> <p><i>The transformer is suitable as a control transformer if it is built according to VDE 0550 or VDE 0551 (IEC 742). The VIN plate of the transformer has corresponding specifications in this case.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p>9.3</p> <p>Is the control current circuit earthed on one side by a removable connection via the protective conductor system?</p> <p><i>The one-sided earthing of the control current circuit makes the insulation damages immediately noticeable via a short circuit and avoids unsafe machine conditions.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<p>9.4</p> <p>Is the cable connection from the protective conductor system to the control current circuit included in the current flow diagram?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

10. Emergency stop

10.1	Yes	No	N/A	Comment
<p>Is the machine equipped with a category 0 stop function?</p> <p><i>With a category 0 stop function according to DIN EN 60204-1 the entire machine can be disconnected from the power supply. This function is usually undertaken by the mains switch.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.2	Yes	No	N/A	Comment
<p>Are sufficient numbers of installations on the machine to stop it in an emergency?</p> <p><i>The necessary number of installations for an emergency stop depends on a risk assessment. As long as the machine has adequate protective equipment in all operation modes then it is sufficient if there is a central emergency stop button, for example in the area of the control cabinet.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.3	Yes	No	N/A	Comment
<p>Do the installations for an emergency stop have a red handle on a yellow background?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.4	Yes	No	N/A	Comment
<p>Do the installations for an emergency stop mechanically slot in automatically?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.5	Yes	No	N/A	Comment
<p>Is an automatic re-start prevented after releasing the emergency stop?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10.6	Yes	No	N/A	Comment
<p>Does the emergency stop system have priority over all other operation modes or entry instructions?</p> <p><i>The emergency stop function must always be in operation regardless of the operation mode or input signal to the machine. The emergency stop function must even operate in the case of a pressed start button.</i></p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

10. Emergency stop

10.7

	Yes	No	N/A	Comment
Does the safety equipment correspond to the ascertained safety requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>Based on the risk assessment according to DIN EN ISO 12100 the required PL value (Performance Level according to DIN EN ISO 13849-1) is set for every safety-related control function. The selected safety components must correspond to this.</i>				

11. Other

11.1	Yes	No	N/A	Comment
Are SCHOTT AG standard components used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>(see SCHOTT AG Mainz instructions, ETAR electro-technical implementation regulations).</i>				

11.2	Yes	No	N/A	Comment
Is there a control system connection to the production data network (PDN)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<i>(see SCHOTT AG Mainz instructions, ETAR electro-technical implementation regulations, section 2 SPS controls).</i>				

[illegible]

Final comments:

The acceptance is granted: ☐

The acceptance is not granted: ☐

Defects found must be remedied by: _____
Date

Signatures:

Place

Date

Signature of the client/project manager

Signature of the Contractor/project manager

Signature of the client/RESP

Signature of the Contractor/