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Technical conditions for basic equipment, realization and construction arrangement of conveyor belt systems at ŠkodaAuto.

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Therefore we strongly recommend that everybody checks the ITS regularly. These documents become valid on the date of their last update. For the contracts signed is decisive the validity of the ITS at the time of the order.

Note: In case of any differences between the Czech, English or German language mutation of this ITS, the Czech version takes precedence.

The Czech version is available at <http://cts.skoda-auto.com/>.

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2.	1997-05-15	fully revised
3.	2002-02-01	change of CSN guidelines
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5.	2012-02-28	clause adjustment 1, 3.5.2, 8
6.	2012-07-25	change of CSN guidelines
7.	2020-02-20	change of CSN guidelines and directives

1 General conditions

Conveyor deliveries must comply with the following regulations:

- EC Declaration of Conformity according to 2006/42/EC, including CE marking. European Parliament and Committee guideline no. 2014/30/EU which stipulates the technical requirements in terms of electromagnetic compatibility.
- European Parliament and Committee guideline no. 2014/35/EU which stipulates the technical requirements on low voltage electric facilities.
- Government regulation no. 361/2007, Coll. which states the rules of the protection of occupational health and safety.
- ČSN, EN, ISO, DIN technical standards.

2 Labelling of technical information on transport facilities

Single conveyor belts, possibly also drivelines of complex transport facilities units must be permanently labelled:

- with a protection mark, possibly also the manufacturer and their seat
- type label, production number, year of production
- information given on the manufacturer's tag for the particular type of transport facility (weight, information about energy, etc.)

The lettering must be resistant to climatic conditions.

3 Technical requirements

Transport facilities and their parts must fulfil the regulations and the respective guidelines regarding parameters and main dimensions of the individual types of conveyor belts given in the guideline amendment. Bearing capacity of the basis (floors, machines) must be dimensioned with respect to the weight of the conveyors including the weight of delivered loads at maximum power output and the resulting power generated during their operation. Construction and realization of the locks must meet the standards of this guideline and comply with ITS 1.09.

3.1 Noise, vibrations, dustiness

Project arrangement of the transport facility and its construction must fulfil the regulations of valid hygienic standards on acceptable noise limits (ITS 1.19), vibrations, dangerous substances in the air, heat overload, cold and other factors having negative impact on the human body.

3.2 Fire safety

The transport facility construction must adhere to the fire safety regulations and ČSN 018013, ČSN ISO 3864-1. Electric fire signalling must follow the ČSN 34 2710 guideline.

Spots at transport facilities which may pose a risk of a fire break-out must be equipped with manual fire extinguishers.

3.3 Electric parts of the facility

Transport facilities must adhere the following guidelines depending on the working environment: ITS 1.11 and ČSN 33 2340 ed.2.

The construction of the transport facility must eliminate the build-up of electrostatic charges in dangerous amounts in the sense of ČSN CLC/TR 60079-32-1.

Lighting of transport facilities must adhere to the guidelines under ČSN 73 0580-1,-2,-3,-4 and ITS 1.08, ITS 2.00.

3.4 Hydraulic and pneumatic facilities

Must fulfil the requirements of ITS 1.12, ITS 1.13.

3.5 Surface finish

3.5.1 Surface of the parts of the transport facility must be protected against corrosion. Kind and finish of the protection are determined based on the character of the working environment and type of delivered loads.

3.5.2 Colour shade of the surface finish of the transport facility is selected in accordance with the ČSN 01 2725 guideline and the ŠkodaAuto colour guideline ITS 1.08 based on the agreement between the supplier and the customer.

3.5.3 Construction parts of the transport facility must not have sharp edges and flashes which might cause an injury during operation and servicing of the facility. If they are necessary for correct functioning, they must be covered.

3.6 Stability and balance

3.6.1 Transport facility must ensure stability and compactness under the given working conditions. Rotating parts (drums,clutches,rolls) must be balanced.

3.6.2 On the slanted sections of transport facilities stable position of piece burdens on the transport facility must be secured in the same way as it was positioned at the loading.

3.6.3 Transport facility construction must be arranged so that the transported load does not fall down, especially in the areas of its passing from one transport facility to another or to a different type of facility.

3.7 Replaceability and manipulation

3.7.1 Construction and project arrangement of the transport facility must enable easy access to the parts and control facilities which require periodical checks, check openings, lubrication spots, regulating load-on and load-off facilities regardless if these are controlled manually or mechanically.

3.7.2 Construction design of the transport facility must allow for the pieces, parts and knots of the same size.

3.7.3 For the assembly of heavy parts of the transport facility requiring a more frequent replacement due to wear-out it is necessary to equip the transport facility with an assembly lifting device.

3.7.4 Parts of the transport facilities weighing more than 50kg must be equipped with hooking loops, hooks and pins, or the spots which may be used for their hooking must be clearly labelled.

3.7.5 Lifting and lowering systems of the transport facilities must be constructed so that the operator does not have to be present under them. If not possible otherwise, the operator must be protected with a suitable shield.

3.8 Lubrication spots

All lubrication spots must be labelled according to the ITS 1.17 guideline. Spots on the transport facility which are lubricated periodically must be accessible without removing the protective facilities.

4 Drive and stretching

4.1 Driving system

4.1.1 Driving system must ensure a reliable transfer of the propulsion power to the loaded carrying means during operation, launch and shut-down up to the overload limit set by the transport facility manufacturer. It must be suitably protected against overload and change of speed from the allowed limits.

4.1.2 Construction design of the parts of the propulsion system which is subject to extreme wearing must enable their easy replacement (motor, gear boxes, electric drums, propulsion drums, chain wheels, etc.)

4.1.3 Gear boxes must be sealed against oil leakage and provided with watermarks. Silicon-free oil must be used.

4.2 Reverse and stretching system

Stretching facility with a weight must have end stops to limit the track of stretching cart and end switches switching of the propulsion of the transport facility when the limit stretching position of the cart is reached. Stretching weight must be secured against possible fall. Opposing weights at the levers must be secured against release and fall after being fastened in the desired position. Access to the stretching cart space and the weight-stretching space must be prevented (with a barrier, railing, etc.). The stretching ropes must be joined professionally with clamps or twisting.

4.3 Carrying means

At sloping or vertical transport facilities the possibility of free movement of the carrying means with the transported load at the propulsion system shut-down. Non-propulsion transport systems (roller, pulley carriers, hanging trails) must have a braking system in the un-load section for the reduction of the loading moves. The slant of the carrying means must be set so that mutual slipping of the carried loads or their fall and spilling is prevented at all times. The Carrying means must be secured against exceeding the set speed.

5 Control and safety facility

5.1 Placement and realization

5.1.1 Control elements must be placed on every transport facility in a suitable and clearly visible spot or operation control stations must be set up (working spots). Operation and control elements placed on the transport facility working spot should be of the same type in the respective control facility group.

5.1.2 Operation and control elements must be easily accessible and their construction must eliminate any possibilities of unwanted or autonomous start-up and shut-down. They must not allow an incorrect cascade of operations to be launched.

5.1.3 Emergency control elements must be red and of a different shape than the other control elements. They must be easily accessible, blocking circuit must eliminate repeated start-up of the machine before the emergency situation has been dealt with.

5.1.4 The work station must include a layout scheme of emergency switches. The layout of emergency control elements (stop switches) must be consulted with the customer. At a transport facility which is a part of the transport and technological automated lines facilities for automatic power shut-down must be planned in case an emergency situation at the following technological facility occur.

5.1.5 In the transport facility control scheme blocking limiting the possibility of repeated start-up before the emergency situation removal must be taken into consideration. At technological lines consisting of several simultaneously operating transport facilities which follow each other and are connected with other machinery the propulsion of these facilities and all machinery must be set so that in case of sudden shut-down of any machine or facility the preceding machine or facility shuts down automatically. Also the possibility of switching off any transport facility from the operation working spot must be considered. Central and local control must be mutually blocked.

5.1.6 The opening and closing section of the transport facility must be equipped with emergency switches for operation stop. This guideline does not involve the transport facilities equipped with a run-on emergency switch at the complete length of the track.

5.1.7 Automated and programme controlled transport facilities must be equipped with information system of the current working stages (e.g. start-up and switch-off, etc.).

5.1.8 At the sloping tracks of overhead conveyors from which the load, gliders or chains may slide down upon its tearing, protective facilities must be placed which will shut down the power supply to the conveyors. These sections must be provided with chain grippers in the case of tearing so that no persons are harmed.

5.2 Labelling and signalling

At the work spots tables must be placed which explain the meaning of the signalling means used and the manner of control of the transport facility. Sections of the transport facility track which are located outside of the visibility angle of the operator from the operation spot audible or visible signalling must be placed at the complete length of the track which is switched on automatically before the transport facility drive is switched on. This must be consulted with the customer.

Paints and signalling colours of dangerous parts of the transport facilities and the placement of warning and safety signs must adhere to the ČSN ISO 3864-1 and the ITS 1.18.

6 Space arrangement

6.1 General conditions

All floors, platforms, bridges and staircases must be modified as per their location and the surrounding working environment. If the mobile parts of transport facilities are protected with railing this must be placed at least 0.5m from the nearest mobile part.

6.2 Passes, clearings, crossings

In operation shops, tunnels, bridges and on platforms along the track of the transport facility the following widths and heights of passes must be observed for safe operation, assembly and repairs:

a) widths of passes for the operators

- 0,75 m along one conveyor belt (except segment conveyors)
- 1,0 m between simultaneously placed conveyors (except segment conveyors)
- 1,0 m along one segment conveyor
- 1,2 m between simultaneously placed segment conveyors

If the whole track of the transport facility is covered with a fixed full or net enclosure the passing width may be reduced to 0.7m.

- 0,5 m width of the pass for maintenance and assembly

b) heights of passes

- 2,1 m for transport facilities with permanent working spots placed in operation spaces
- 2,0 m for transport facilities without working spots placed in operation spaces
- 1,9 m for transport facilities placed on platforms in tunnels and on bridges

The ceiling must be free of sharp protrusions. All passes, clearings and crosses of the transport facility must be labelled in line with ČSN 01 8010 and ČSN 01 8012

7 Railing

7.1 Construction and design of the transport facility railing must adhere to the relevant guidelines under ČSN, EN, ČSN ISO.

7.2 Crossover bridges must be placed so that the clearance from the floor to the lowest fringing parts of the building constructions (communication systems) is at least 2m. The width of the crossing bridges must be at least 1m. Dimensions of the passes in the platform floors and bridges must not have a smaller dimension than the following:

- 0.7m for frequently used passes (permanent work places)
- 0.6m for less frequently used passes (temporary work places)

Given dimensions of the passes must not be reduced by ladders or steps.

7.3 Platforms and bridges

The transport facility which has the axis of driving and stretching drums, chainbelts or chain wheels in the height of more than 1.5m from the floor must incorporate operation platforms. The transport facilities may be equipped with platforms from the height of 1.8m above the floor level. Vertical clearance between the floor and the platform to the fringing parts of the building constructions (passing height) must be at least 2m. The platforms may be provided with railing of the height of 1m and the laths at the height of at least 0.15m from the platform floor level.

7.4 Platform floors

The surface of all floors, bridges and staircases must be consistent, non-slippery and must not detain water. The floors must be made of inflammable material. When using perforated material the dimension of the perforations must not exceed 30mm. In the width of the passage way along the track of the transport facility placed in bridges (tunnels) with an angle of 6° to 12° the floors must be equipped with cross pieces. For angles more than 12° stairs must be built-in.

8 Acceptance to operation

Process acceptance due ITS 1.01

9 Guarantees

Due ITS 1.01

10 Spare parts

10.1 The supplier shall state what spare parts should ŠkodaAuto have in possession on the spot. In the commission detailed price per piece must be stated at all the spare parts. A list of recommended spare parts shall be attached to the the spare part offer. Regardless, technical data of the engines and power systems of the facility must be stated so that ŠkodaAuto may determine whether their own sources may be used.

10.2 The supplier shall determine the estimated service life of the individual parts of the conveyor, i.e. the service life of the trail arches, chains of the vertical and horizontal trail sections as well as witches and dropping sections.

11 Final stipulation

11.1 The supplier is obligated to consult the lubrication plans with the lubrication technologist of the customer as per ITS 1.17.

11.2 During the trial operation the supplier is obligated to measure the secondary chain pull ratio on customer's request which shall determine that the mximum pull ratio of the chain does not exceed 80% of the allowed pull value with respect to the used dimensions of the chain links.

11.3 The delivery contract must include the manner of replacement operation may a defect occur during the guarantee period. Further it shall also state the damage compensation.