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Applies to projects, acceptance of machines and machinery, manual work stations as well as function verification of planned technology. Acceptance is conducted in line with **ŠKODA AUTO** ITS including a check of adherence to ergonomic conditions with machines, machinery, equipment and work station arrangement.

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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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Change number:	Date:	Note:
1.	2000-11-23	fully revised
2.	2002-02-01	Arial font, ŠKODA AUTO logotype
3.	2009-03-30	fully revised
4.	2010-12-21	fully revised
5.	2013-11-15	fully revised
6.	2021-01-05	updating of standards



1. Working conditions:

1.1 Work station – general conditions

Work station is an area defined by employees for fulfilling work tasks and equipped to fulfil this purpose.

It must enable to create the best possible conditions necessary for the fulfilment of the required task.

Above all, it must allow a suitable working position, effective working movements and sufficient perceptual control, all in line with the stipulations of the Government regulation no. 361/2007 Coll. on health protection at work, as amended, ČSN EN ISO 6385 and ČSN EN 614-1+A1.

1.2 Work station – spatial and functional solution Spatial parameters and arrangement

Size and arrangement of the working area including equipment, size solution of the working level, manipulation and pedipulation space and visual range must be adequate to the kind of activity and size of persons who are going to work at the station (men, women).

Size parameters must be in line with the Government regulation no. 361/2007 Coll. and regulations of the series ČSN EN 547.

Necessary equipment of the work station, work tools, particularly mechanizing, manipulation and transport, which help to reduce the physical strain of manipulation, must be integrated in the work station project.

1.3 Working position

Work station must allow a suitable working position (sitting, standing or either of these) according to the kind of required work task, in the sense of the regulations of ČSN EN ISO 6385 and ČSN EN 614-1+A1. Work station must not cause the employee to work in a non-physiological working position, such as bend deep forward, squat, kneeling position, raising one's arms above shoulder height, torso rotation, forward bend and head rotation and maximum positions of upper limb joints (Government regulation no. 361/2007 Coll.). If sitting position is preferred, the seat must be designed simultaneously with the work station and adapted to the employees' body measurements and work requirements.

1.4 Working movements

Working movements must allow the best possible position for the fulfilment of the required working task in the functional working range and without undue physical load or risk of health damage; movements with high demands on accuracy must not be simultaneously demanding on muscular strength, in line with ČSN ISO 1503.

It is necessary to eliminate completely or allow only for a short time period any working movements which require higher one-side load in inconvenient working positions with longer periods of holding tools, objects or burdens, or in positions requiring undue effort.

1.5 Perceptual activity

In the work place, the best possible conditions must be secured to allow fulfilling of the required working task depending on the capabilities of human perception (sight, hearing, touch); this must also be taken into account when determining the overall arrangement of the work station, choice, design and layout of the indicators on the work equipment as well as lighting and acoustic conditions.

1.6 Work station safety

Work station must be arranged so that it will allow a comfortable and safe access and, if necessary, the most suitable use of mechanization, storage and transport means (ČSN EN ISO 14122-1,2,3).

1.7 Working devices

Working devices are an integral part of the work station; they must enable the most efficient fulfilment of the required working task and meet the ergonomic and safety requirements on machinery in line with the Government regulation no. 176/2008 Coll.

1.8 Indicators

Indicators must be selected and constructed so as to allow human perception in the sense of the regulations under ČSN EN ISO 6385, ČSN EN 614-1, ČSN EN 894 -1,2,3,4.

Indicators must be suited to the organ of perception which receives the information; they must meet the requirements of clear, immediate and reliable recognition of the information emitted and comprehension of its meaning; they must agree with the information transmission conditions in the working environment (lighting, noise).

Indicators on a working device must be arranged so as to enable optimal use; in particular according to their function for and impact on the work activity, according to the frequency of use, importance for reliable and safe operation and relation to the controls and mutual agreement of their functions in the sense of regulation under ČSN EN 894-2+A1 .

Particular attention must be paid to the requirements on the solution of visual and acoustic signalling of danger in the sense of ČSN EN ISO 7731 a ČSN EN 981+A1.

1.9 Controls

Controls must be selected, constructed and arranged so that their control is reliable and safe in the sense of regulations under ČSN EN ISO 6385, ČSN EN 614-1+A1 a ČSN EN 894-1,2,3,4 .

Controls must be adapted to that part of the body which operates them, they must conform to the possibilities of the movement range during the desired operation and must be in accordance with the requirements on strength, speed and accuracy.

Controls must take into account the use of Protective clothing and safety working tools, in particular protective gloves, if they are necessary for the given activity.

Direction of movement of controls on the working device must follow general principles of use and must agree with the direction of movement of the mobile part of the device.

Controls on the working device must be designed and protected so as to prevent unprompted or accidental change of their position in the sense of regulation under ČSN 894-3+A1.

Special attention must be paid to the functional connectedness between controls and indicators which signal the change of movement of the control part of the device and to the arrangement of a higher number of controls, so that unambiguous, immediate and safe function is secured.

START-STOP controls and emergency stop controls must be easy to reach from the basic working position, clearly visible and they must stop the dangerous operation as fast as possible; their layout must be clearly marked with their position, labelling, highlighting or light signalling in the sense of regulation series ČSN EN 60204 and ČSN EN 60073.

Labelling of indicators and controls, including their encoding is regulated by ČSN ISO 3864-1 and ČSN EN 60073.

Protective devices and measures for safe control of working devices, including safety labelling, must meet the requirements under ITS 5.13, ITS 1.11 a ITS 1.18.

2. Working environment

Working environment factor emissions are limited by the figures in line with the Government regulation no. 361/2007 Coll.

3. Working procedure

Working procedure for the fulfilment of a required working task must be within physiologically acceptable limits; it must not be exceedingly demanding and it must be in agreement with current findings, it must eliminate faulty possibilities and dangerous activities as well as the occurrence of risky situations.

4. Working risk

Elimination or limiting of dangerous risk factors concerns in particular the following:

- mechanical risk
- electric risk
- heating risk
- noise danger
- vibrations danger
- radiation danger
- chemical substances danger
- ergonomic danger

4.1 Ergonomic risk (danger)

Ergonomic risk induced by unsuitable working level, nonphysiological working position, one-side load, undue physical and psychical load must be eliminated as much as possible or limited to an acceptable level.

4.2 Effective protection against risk

If the possibility of foreseeable or actual risk cannot be ruled out during the execution of a required task, suitable and effective protection must be secured according to the predicted or actual risk: mechanical, physical, chemical or ergonomic.

5. Pre-acceptance at the supplier, acceptance for operation

It is conducted to verify the extent of ergonomic principles followed during the creation of work stations and construction of machines and devices in the sense of conditions under ITS 1.01 for acceptance of machines and devices.

6. Try-out

It is conducted to verify the functionality and arrangement of devices, tools and preparations and fulfilment of ergonomic principles directly at the work station (regards mainly welding shop work stations).

7. 3P product workshop

It is conducted to set up a new product in terms of its development. Product design may be changed following an evaluation.

Ergonomic arrangement of work station, technological units, verification of functionality of devices and tools and verification of assembly possibilities of a car must be approved by the plant's doctor, ergonomics specialist and safety technician.

8. 3P process workshop

It serves to set up the new product in terms of production planning, whereby the work station is evaluated from the viewpoint of tact time, arrangement, logistics, work safety, physical strain and working positions.

9. Catalogue of ergonomics

Serves as an internal methodical guideline containing selected specific data and limits anchored in the laws of the Czech Republic. It defines the minimum ergonomic requirements, in particular as regards product design, production base and logistics planning.

10. List of guidelines and regulations

Binding guidelines and regulations for the deliveries of investment property into **ŠKODA AUTO**:

ČSN EN ISO 6385	Ergonomic principles for the design of working systems
ČSN ISO 3864-1	Graphic marks - Safety colours and marks – Part 1: Rules of proposing safety marks and safety labelling
ČSN EN ISO 7250-1	Basic body measurements for technological projects – Part 1: Definitions and orientation points of body measurements
ČSN ISO 1503	Geometric orientation and movement directions – Ergonomic requirements
ČSN EN ISO 13732-1	Heating environment ergonomics – Assessment methods of human reaction to surfaces – Part 1: Hot surfaces
ČSN EN ISO 7731	Ergonomics – Warning signals for public and working spaces – auditory warning signals

Machinery safety:

ČSN EN ISO 12100	General construction principles – Risk assessment and reduction ((+ cor.1 - catalog number 509373)
ČSN EN ISO 14159	Hygienic requirements on machinery construction
ČSN EN ISO 14122-1	Permanent means of accessing machinery – Part 1: Selecting fixed means of access between two levels
ČSN EN ISO 14122-2	Permanent access means for machinery – Part 2: Working platforms and overcrossings
ČSN EN ISO 14122-3	Permanent access means for machinery – Part 3: Stairs, ladders and railing protection
ČSN EN 547-1+A1	Body parameters – Part 1: Principles for setting required parameters to enable access with a whole body
ČSN EN 547-2+A1	Body parameters – Part 2: Principles for setting required parameters to enable access with a whole body
ČSN EN 547-3+A1	Body parameters – Part 3: Anthropometric data
ČSN EN ISO 14738	Anthropometric requirements on machinery work station arrangement
ČSN EN 614-1+A1	Ergonomic projecting principles – Part 1: Terminology and general principles
ČSN EN 614-2+A1	Ergonomic projecting principles – Part 2: Machinery construction and working tasks
ČSN EN 1005-1+A1	Human physical efficiency – Part 1: Terms and definitions
ČSN EN 1005-2+A1	Human physical efficiency – Part 2: Manual operation of machinery and its parts
ČSN EN 1005-3+A1	Human physical efficiency – Part 3: Recommended limit powers for operating machinery
ČSN EN 1005-4+A1	Human physical efficiency – Part 4: Evaluating working positions and movements in relation to machinery
ČSN EN 1005-5	Human physical efficiency – Part 5: Evaluating risk of repeated manipulation
ČSN EN 842+A1	Visual signalling of danger – General requirements, proposing and testing
ČSN EN 894-1+A1	Ergonomic requirements for indicator and control design – Part 1: General principles for human-control interaction
ČSN EN 894-2+A1	Ergonomic requirements for indicator and control design – Part 2: Indicators
ČSN EN 894-3+A1	Ergonomic requirements for indicator and control design - Part 3: Controls
ČSN EN 894-4	Ergonomic requirements for indicator and control design - Part 4: Layout and arrangement of indicators and controls
ČSN EN ISO 13855	Protective devices layout with regard to the speed of human body part approximation
ČSN EN 981+A1	Acoustic and visual danger and information signalling system
ČSN EN 60073 ed.2	Principles of indicator and control encoding
ČSN EN 61310-1 ed.2	Indication, labelling and operation run-up, Part1: Requirements on visual, acoustic and tactile signals
ČSN EN 60204 (guideline series)	Electric devices of machine

Laws and government regulations :

Act no. 262/2006 Coll. of the Labour code



Government regulation no. 361/2007 Coll., stipulating conditions of occupational health protection conditions, as amended

Government regulation no. 101/2005 Coll., on detailed requirements on work station and working environment

Act no. 309/2006 Coll., ensuring further requirements on working safety and health protection

Government regulation no.176/2008Coll., on technical requirements on machinery

Government Decree No. 272/2011 Coll., on protection of health against adverse effects of noise and vibration.

Government regulation no. 378/2001 Coll., stipulating detailed requirements on safe operation and use of machines, technical equipment, devices and tools

Other:

Catalogue of ergonomics (ŠKODA Space)