



Author	Gestor	Approved by	Sheets	Supplements
Jaroslav Beneš	PKT/2	PS	5	

Technical conditions for tooling delivery and types.

Valid for: Machines and equipment
 Special machines and transfer lines
 Assembly lines

Table of contents:

1	Basic technical conditions	3
2	Locating and gauging fixtures	3
3	Tooling layouts and working schedules	3
4	Numbers of tools	3
5	Technology	4
6	List of released tool suppliers	4



The latest updated version of this ITS is available at the "<http://cts.skoda-auto.com/>" web site, the company is not obliged to notify their business partners on the ITS update.

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/>.

First release: 1988-12-08

Revision-number:	Date:	Remark:
1.	2000-05-10	completely reworked
2.	2002-02-01	font Arial, logotype ŠKODA AUTO
3.	2009-07-30	fill in
4.	2010-12-12	completely reworked
5.	2011-06-06	fill in
6.	2016-09-30	fill in
7.	2020-11-24	logotype ŠKODA AUTO

1 Basic technical conditions

- 1.1 Make preferential use of the standardized and catalogue tooling according to the List of released suppliers for ŠKODA AUTO as stated in point 6. of this chapter. Special tools and exceptions beyond this list are subject to the approval by ŠKODA AUTO.
- 1.2 The standardized tools in the Bill of Material must be identified under the number of ISO or DIN standard (not the firm number).
- 1.3 The catalogue tools in the Bill of material must be identified under the catalogue number and firm number.
- 1.4 ŠKODA AUTO reserve the right to require further associated data on tool, its setting, and as the case may be, the grinding plans for further re-grinding. Supplier must provide such information within the tooling delivery. (Due to the use of tools, remeasurement, exposure,...).
- 1.5 Execution, instalation, assembly, launching, handing oves must agree with ITS

2 Locating and gauging fixtures

- 2.1 Supplier must supply the machine complete with the pertinent tools and fixtures for the adjustment of tools and the tooling accuracy reports. Fa. AJ Albrecht, Bos, Grent CZ, Hommel Hercules GmbH, Kavon CZ, Weppeler&Trefil

3 Tooling layouts and working schedules

- 3.1 The tooling layouts, working schedules, and special tooling drawings must constitute a part of the offer and they must be submitted for preliminary approval by ŠKODA AUTO 3 months after the Contract has been entered into.
- 3.2 The definitive tooling layouts, working schedules, the definitive production drawing of the special tools, and the cutting tool sharpening charts must be handed over during the acceptance procedure at ŠKODA AUTO.
- 3.3 The definitive tooling documents shall be delivered once on the printable foils and once on data carrier, recommended USB Flash Drive (recommended format : DWF, DXF, DWG) by the final acceptance at ŠKODA AUTO at the latest. Bill of Material shall be prepared as a PC-Bill of Material. Recommended format : PDF, DOC, XLS.
- 3.4 In case of need, ŠKODA AUTO has the right to require a visit of the tool supplier's engineer.

4 Numbers of tools

We require that the following is delivered along with the machine by the final acceptance at ŠKODA AUTO at the latest:

- 4.1 3 sets of clamping elements, holders (e.g. boring bars, tool holders, bushings) for each work spindle.
- 4.2 The catalogue or standardized cutting tools for a service life of 3 months.
- 4.3 The special cutting tools (according to drawing) for a service life of 4 months.
- 4.4 Individual numbers of tools shall be specified individually in the technical hearing of the Offer by the service life and terms of delivery of the selected tool suppliers.



5 Technology

5.1 Hole machining (drilling, roughing, reaming, boring)

5.1.1 Short drilling spindle

- HSK - connection of spindles
- preferentially use thermal collets
- preferentially use carbide tools, PCD, CBN
- use internal cooling with the machined material: aluminium, steel in case of openings $> 3,5 \times D$
- preferentially use standardized tools, catalogue tools

5.1.2 Drilling spindles - tools with guide way

- guides for tools, i.e. basic sleeve, change sleeve, and clamp bolts as per DIN
- preferentially use standardized tools, catalogue tools

5.2 Milling

- clamping as per DIN 2079 (except for small milling cutters, intermediate parts, milling shafts, etc.), it is possible here to use adjustment adaptors, HSK system, DIN clamping
- preferentially use standardized tools, catalogue tools

5.3 Threading and tapping

- adjustable clamping bush
- threaded collet with clutch and length adjustment for steel and cast-iron machining, without clutch for aluminium
- screw taps according to the appropriate DIN standard – workpiece drawing

5.4 Turning

- OD machining modular system with CAPTO, KM clamping
- ID machining modular systems with CAPTO, KM clamping
- drilling, reaming, - HSK with VDI adapter
- preferentially use standardized tools, catalogue tools

5.5 Boring

- HSK spindle
- built-in holders, type as per ISO
- spare and structural parts according to the Supplier List
- preferentially use standardized tools, catalogue tools

5.6 Broaching

- for cast iron - sintered-carbide replaceable tool tips
- for steel - arbors of HSS, sintered-carbid
- preferentially use standardized tools, catalogue tools

5.7 Grinding

- abrasive wheels and dressing tools, standardized, catalogue

5.8 Honing, lapping

- standardized and catalogue tooling

6 List of released tool suppliers

6.1 Turning tools

- modular systems by SANDVIK, WALTER, ISCAR, KENNAMETAL, WIDIA, Seco, Komet

6.2 Tool holders and built-in holders

- accessories to the boring bars
- company of Sandvik, Widia, Kennametal, Walter, Iscar, ,
Pramet Tool, Seco, Komet

6.3 Cutting materials (replaceable tool tips)

- company of Sandvik, Widia, Kennametal, Walter, Iscar, Mitsubishi,
HORN, SUMITOMO, Pramet Tool, Seco, Holfelder, Komet

6.4 Boring bars, micrometric heads

- company of Sandvik, Widia, Iscar, Kieninger, Holfelder, Komet, Mapal, Ingersoll

6.5 HSK - connection of spindles

- Gühring, Kennametal, Mapal, Jel



- 6.6 HSK - fixtures, hydraulic expansion sleeves with radial length adjustment
 - company of Gühring, Kennametal, Bilz, Mapal, Jel
- 6.7 Milling heads
 - company of Sandvik, Widia, Ingersoll, Iscar, Kennametal, Ceratizit, Walter
- 6.8 Milling heads with PKD tips
 - company of Widia, Walter, Sandvik, Mapal, FMT, Holfelder
- 6.9 Drilling, spot drilling, roughing, reaming, boring
 - company of Gühring, Final Brno, Iscar, Komet, Kieninger, Tyroline, Mapal, Kennametal, TBT, Klenk
- 6.10 Taps
 - company of Gühring, Emuge, JEL, Komet, Mapal, Bass, Tyroline
- 6.11 PKD + CBN + ceramic RTT
 - (replaceable tool tips) - tools
 - company of Mapal, Urma-Weiss, David Richards, DIAS Turnov, Ceram tec, Iscar, Walter, FMT, Sumitomo, Kieninger, Jel, Gühring, Kennametal, Holfelder
- 6.12 Adjustable reamers
 - company of Mapal, GÜHRING, Seco, Kieninger
- 6.13 Abrasive wheels
 - company of Tyrolit, Tesch, 3M, Hermes, Cafro, Winter, Wendt, Naxos Diskus, Krebs, Mach Rotec, Lach Diamant, Reishauer
- 6.14 Dressing tools + diamond rollers
 - company of Winter, Stroh, Wendt, Dia Praha, Dr.Kaiser, Reishauer, Diato, Gehring, Möessner, Effgen
- 6.15 Workpiece fixtures
 - company of Röhm, Forkhardt, Blessing, Bidervis, König, Dörn, EMUGE, Ringspann, Hainbuch, Buderus, Präwema, Neidlein, GST
- 6.16 Hobs
 - hobs - company of Fette, Pfauter
 - slotting tools - Liebherr, TSA, Samputensilli
- 6.17 Broaching tools (solid broaches - HSS)
 - company of A. Klink, WINCO, EBAY, EKIN, Berghaus
- 6.18 Broaching tools (composed broaches - HM)
 - company of A. Klink, Vebro
- 6.19 Shaver plates
 - company of Gleason - Hurth, Samputensilli, Stahlwerk, TSA
- 6.20 Quick-change drilling and tapping adapters
 - Bliz, Emuge
- 6.21 Honing tools
 - company of Kadia, Gehring, Nagel, Diato, Winter
- 6.22 Brushes
 - company of Kullen Mez, Osborn, Thaler, Lessmann
- 6.23 Assembly tooling – catalogue tools
 - Atlas Copco, DGD, Cleco, Facom, Hazet, HHW, Stahlwille, Sandvik Belzer, Titan, Bilz, Tona Stanley, Ingersoll Rand, Wera, Narex, Bosch, Bahco, Apex, Geta, Koken, KS Tools, Knipex, Böllhoff, Rectus Parker, IHR, Cejn, Mubea, Stäubli, Vagner, Gesipa, Innomatec, Doga, Bories, Schenker, Tecna, WEH.