FSS 5, Attachment 3:

CHECKLIST for TOOLING MACHINES
Manual Operated Lathe

Issue date: 2009-03-30

Freudenberg

Job No.

I. Nature of the inspection

☐ First inspection ☐ Follow-up inspection

II. Details of the machine:

In-house system designation

	Designation	Type	Ser. No.	Year of construction	Manufacturer/Supplier	Site
1.						
2.						
3.						

III. Information concerning the scope of the inspection

The inspection was carried out in accordance with the checklist for Tooling Machines, dated 2007-12-10.

IV. Inspection results

☐ The machine / system comply with the current FSS 5.

☐ The machine / system does not meet every requirement of the FSS 5 checklist. However, the machine / system may be used as the functions concerned are not critical in terms of safety.

☐ The machine/ system does not comply with the current FSS 5.

- ☐ The machine / system will be upgraded.

  Initial cost estimate: _____ Deadline: _____

  Follow-up inspection required!
- ☐ The machine / system will be removed from service by _____ at the latest. Until this time, technical and / or organizational measures have been implemented to ensure safe operation, as laid down in the attachment.

☐ Date of next regular inspection: _____.

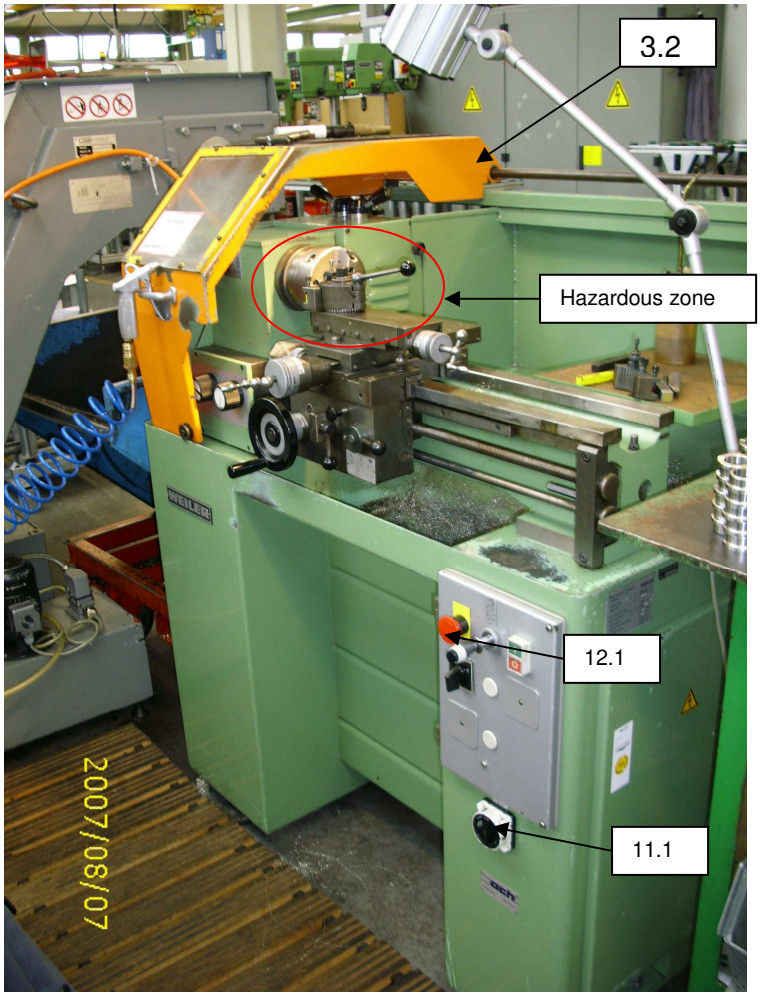
V. Distribution list

Responsible person for corrections and improvements:	
Responsible person for documentation and files:	

VI. Inspection performance

	Mechanical part	Electrical part	Production	Others
Name				
Date				
Signature				

Check **Machine / system designation** _____	Irrelevant	OK	Not OK	References	Remarks



Check **Machine / system designation** _____		Irrelevant	OK	Not OK	References	Remarks
1.	**Operating manual, circuit diagrams, technical data sheets**					
1.1	Is an operating manual available for the machine?					
1.2	Are the circuit diagrams available?					
1.3	Are instructions for use available?					
1.4	Is a maintenance schedule available?					
2.	**General condition of the machine / system** Visual inspection; enclosures; barriers; cables; hoses; lines					
2.1	Have all enclosures and barriers been secured in a suitable manner and to an adequate extent (with safety bolts where necessary)?					
2.2	Are all enclosures and barriers in faultless condition?					
2.3	Are all parts of the machine protected against the hazards associated with used energy supplies (hydraulic, pneumatic) in a suitable manner and to an adequate extent?				EN 982 and EN 983	
2.4	Are all lines, hoses and other facilities used to generate and carry energy protected against mechanical, thermal and/or chemical damage?					
2.5	Has the machine been installed and secured in accordance with the manufacturer's instructions and to withstand the normal loads and stresses encountered in operational service?					
3.	**Risk of mechanical contact with moving (machine) components** Visual inspection and function test; checking with reference to the operating instructions					
3.1	Are safety devices and guards in place that prevent access to hazardous zones or bring potentially hazardous movements to a standstill before the hazardous zone is reached? Do these also apply at openings where material is fed into the machine?					
3.2	Is there a safety hood with limit switch for the clamping jaws?					

	Check **Machine / system designation** _____	Irrelevant	OK	Not OK	References	Remarks
3.3	Have the guards and safety mechanisms been designed and dimensioned in such a way that they are capable of withstanding foreseeable impact energy (where workpieces or machine components are thrown out)? Applies to second safety hood, where fitted.				EN 13128; EN 12417	
3.4	Applies to second safety hood, where fitted. Have the inspection windows in guards and safety mechanisms been fitted on the inside and bolted to the guard or safety mechanism, and are they resistant to damage caused by chips and cooling lubricant, or have replacement intervals been defined?					
3.5	Is sufficient clearance maintained between the guards and safety mechanisms and the hazardous zone?				**Is it impossible for the safety hood to come into contact with the workpiece / chuck?**	
3.6	Do the guards and/or safety mechanisms obstruct the necessary observation of the working cycle?					

Art des Werkstoffes der trennenden Schutzeinrichtung	Max. Geschwindigkeit des Werkzeuges [m/s]	Dicke des Werkstoffes der trennenden Schutzeinrichtung [mm] Bei innenliegender, unbeschädigter Sichtscheiben und ausreichendem Überstand mit mindestens 25mm Überdeckung
St 12.03	80	1,5
	115	3,0
Polycarbonat	85	4,0
	100	6,0
	120	8,0
	150	12,0
	170	2*6,0
	230	2*12,0

Diese Tabelle zeigt nur einen Ausschnitt zur groben Information der in den Normen DIN EN 13128 und 12417 beschriebenen Werte.

Geschwindigkeit v= größter Werkzeugdurchmesser [m] * π* höchster Spindeldrehzahl [U/sec]

Check **Machine / system designation** _____		Irrelevant	OK	Not OK	References	Remarks
4.	**Workpiece clamping facilities / jaw chucks (lathes) - for powered chucks only**					
4.1	Is the actuating force of the workpiece clamping facility monitored and have measures been taken to prevent the main spindle starting if the clamping force does not reached the specified value?					
4.2	Have measures been taken to prevent fingers being pinched when loading and unloading? **(4 mm max. clamping travel, or step-by-step clamping movement in increments not exceeding 4 mm, or 4 mm/s max. closing speed)**					
5.	**Tailstock sleeve (lathes) - for powered sleeves only**					
5.1	Are powered movements of the center sleeve restricted to 20 mm/s with guards and safety mechanisms open?					
5.2	**Is there a control facility with automatic reset (jog switch / foot switch) to trigger the powered movement?**					
6.	**Chip collection and disposal?**					
6.1	Is access to potentially **hazardous areas** prevented by fixed and/or electrically monitored moving guards and safety mechanisms?					
7.	**Drive elements (belts, chains, gearwheels, shafts)**					
7.1	Is access to potentially **hazardous areas** prevented by fixed and/or electrically monitored moving guards and safety mechanisms?					
8.	**Hazards caused by gas, vapor, mist, liquid and dust** Visual inspection, working zone analysis, test record					
8.1	Have facilities been provided to restrain and/or to discharge such emissions at source? (cooling lubricant, dust)					
8.2	Are the employees protected against the release of substances that are generated, used or stored in the equipment and facilities?					
9.	**Command facilities** Visual inspection and function test					

	Check **Machine / system designation** _____	Irrelevant	OK	Not OK	References	Remarks
9.1	Are the command facilities clearly recognizable as such and are their functions easily distinguishable?				**Indelible markings in the form of icons or in the local language**	
9.2	Are the command facilities fitted outside the hazardous zone(s) and can they be operated safely?					
9.3	Can the command facilities be operated inadvertently?					
10.	**Starting the machine / system** (switching on) Function test; checking with reference to circuit documents and operating instructions					
10.1	Can the machine only be **started** by deliberately operating the command facilities provided for this purpose?					
10.2	If the machine is at a **standstill**, can it only be **restarted** by deliberately operating the command facilities provided for this purpose?					
10.3	*Can a **fundamental operating state only be controlled** by deliberately operating the command facilities provided for this purpose?*					
11.	**Shutting the machine / system down** (switching off) Function test; checking with reference to circuit documents and operating instructions					
11.1	Is there a master switch to turn the complete machine on and off and can this switch be secured with at least 3 locks?					
11.2	Does shutdown result in the complete machine assuming a safe state?					
11.3	Is the command to shut the machine down given precedence over the command to start the machine?					
11.4	Can the energy supply to the drive(s) be interrupted after the machine has been switched off completely?					

Check **Machine / system designation** _____		Irrelevant	OK	Not OK	References	Remarks
11.5	Are clearly recognizable facilities provided to disconnect the machine from every single energy source?					
12.	**Emergency STOP facilities** Visual inspection and function test; checking with reference to circuit documents					
12.1	Are emergency STOP facilities provided?					
12.2	Does the emergency STOP facility bring potentially hazardous movements or processes to a standstill as quickly as possible? And does the emergency STOP facility put the machine in a safe state?				**Fastest possible braking without coasting (e.g. electromagnetic brake)**	
12.3	In doing so, does the emergency STOP facility not generate any other potential hazards?					
12.4	Is the emergency STOP facility accessible quickly, easily and safely and is it marked conspicuously?					
12.5	Is the emergency STOP facility integrated into an intrinsically safe / self-testing emergency STOP circuit? Not absolutely essential				*Is an error in the emergency STOP circuit detected (machine cannot be restarted)?*	
12.6	Can the machine only be **restarted** by deliberately operating the command facilities provided for this purpose?					
13.	**Lighting** Visual inspection; measurement					
13.1	Are the working zones adequately illuminated for the work performed in them?				**750 lux can be achieved using an additional lamp**	
14.	**Alarm facilities** Visual inspection and function test					
14.1	Are the visual alarm signals easily seen and unmistakable?					

Check **Machine / system designation** _____		Irrelevant	OK	Not OK	References	Remarks
15.	**Using equipment and facilities** Visual inspection; checking with reference to the operating manual and the instructions for use					
15.1	Is the equipment solely used for the intended purpose specified by the manufacturer?					
16.	**Preventive and corrective maintenance work, cleaning** Checking with reference to the operating manual, the instructions for use and the maintenance schedule				**Refer to FSS 1**	
17.	**Identification markings** Visual inspection					
17.1	Does the machine bear the necessary safety identification markings and hazard warnings?					
18.	**Risk of fire, explosion and overheating equipment** Visual inspection and function test, checking with reference to the operating manual and the work instructions					
18.1	Are the employees protected against the potential hazards resulting from fire and overheating equipment?					
18.2	Have protective measures been taken on machines used to process materials that produce self-igniting or explosive particles to prevent fire and/or explosion? (Reducing the amount of dust produced, facilities to collect and remove dust, equipment to dampen dust produced by the machine.)					
18.3	Where potential fire and/or explosion hazards cannot be eliminated completely, have measures been implemented to deal with the hazards? (fire extinguishers)					
19.	**Contact with electric current** Visual inspection and function test, checking with reference to the operating manual, measurement					
19.1	Does the equipment offer the employee protection against direct contact with electric current?					

Check **Machine / system designation** _____		Irrelevant	OK	Not OK	References	Remarks
19.2	Does the equipment offer the employee protection against indirect contact with electric current?					
20.	**Risk of people slipping, tripping or falling** (in connection with machines) Visual inspection					
20.1	Have measures been taken to ensure that personnel cannot slip, trip or fall?					