



Check list for visual inspections and functional checks
 (This list is not exhaustive)

**No.
N 3**

**Numerically controlled
 Machining centres
 with CE marking
 - - Essential safety requirements* - -**

(*acc. to DIN EN 12417 „Machine tools – Safety – Machining centres“
 - edition 03/2007 – for ascertainment of the EC Machinery Directive 98/37/EC and
 EC Machinery Directive 2006/42/EC Annex I)

Valid for:

Machining centres with horizontal or vertical spindle position for two or more machining processes, e.g. milling, drilling, reboring, with automatic tool change from magazine or similar storing unit

Details relating to the tested machine tool:	
Manufacturer: _____	
Type designation: _____	Year of manufacture: _____
Location: _____	Mach. no.: _____

No.	Safety requirements	EN 12417	Y/N
1	CE marking		
1.1	Is the CE marking affixed to the machine in a clearly visible and permanent manner ?	Mach Directive	
2	EC Declaration of conformity		
2.1	Is an EC Declaration of conformity in acc. with Annex II A of the Machinery 98/37/EC available for the <u>operable</u> machine?	Mach Directive	
3	Marking		
3.1	Are name and address of the manufacturer , if need be, type designation and serial number and year of manufacture declared on the machine?	EN 12417 cl. 7.4	
4	Instructions		
4.1	Are instructions for use containing all necessary safety information available for the machine?	EN 12417 cl. 7.2	
5	Working area safeguarding		
5.1.	Is the working area enclosed by fixed and/or interlocking guards ?	Table 2 1.1.2.1	
5.2.	Are, if need be, other guards provided? <i>(e.g. protected operator position – fencing – protective devices, such as pressure-sensitive floors, laser scanners or light barriers)</i>	1.1.2.1	

No.	Safety requirements	EN 12417 table 2 cl. ...	Y/N
6	Operating modes		
6.1	Is selection of at least two available operating modes (<i>automatic mode, set-up mode</i>) made by key-lockable switch (mode selection switch), access code or means providing equivalent safety?	1.1.6.1	
6.2	Operating mode 1 (automatic mode): Is automatic production possible only with the guards closed and/or active protective devices?	1.1.6.2	
6.3	Operating mode 2 (set-up mode): Are <u>arbor movements</u> in set-up mode with the guards open limited to a maximum of 2 m/min or to distances of max. 10 mm? Are hold-to-run control devices (hold-to-run switches) in conjunction with an enable device used to <u>initiate the arbor movements</u> ? (<i>Enable device not required for monitored hold-to-run switches. See EN 12417 for further control devices</i>)	1.1.6.3	
6.4	Is the <u>spindle rotation braked down</u> in set-up mode within two rotations (without tool)? Is <u>spindle rotation</u> initiated only by start command in conjunction with an acknowledgment device ? (<i>Acknowledgment device not required for monitored hold-to-run switches.</i>)	1.1.6.3	
6.5	Does the <u>automatic tool and workpiece change mechanism</u> remain stopped in set-up mode when the guard is open ?	1.1.6.3	
6.6	Operating mode 3 (<i>Machine use under manual or numerical control with protective devices not active, with acknowledgment device</i>) Are, for a possibly available operating mode 3, the details of intended use known, and do the instructions for use define the required operator training level ?	1.1.6.4	
6.7	Are the limited operating conditions for operating mode 3 complied with?	1.1.6.4	
6.8	Operating mode 3 (<i>Machine operated under manual or numerical control with the protective devices not active, without acknowledgment device</i>) Do ergonomic reasons render the use of an acknowledgment device unpracticable?	1.1.6.4	
6.9	Is operating mode 3 without acknowledgment device selected using a special key-lockable switch , and is a combination of other control measures used instead of the acknowledgment device?	1.1.6.4	

No.	Safety requirements	EN 12417 table 2 cl. ...	Y/N
7	Rescue of trapped or caught persons		
7.1	Are provisions taken for <u>machine arbor movements</u> in case of an emergency ? (e.g. manual control devices for power-operated valves or drives, control devices for initiating for countermovements)	1.1.7	
8	Tool magazine		
8.1	Do fixed and/or movable interlocking guards safeguard the tool magazine?	1.2.1	
8.2	Is, in case of <u>whole-body access</u> to the tool magazine's protective cover, a protective device with tripping function provided to detect the presence of persons?	1.2.4	
8.3	Are <u>movements with the interlocking guard open</u> (e.g. for adding tools, maintenance and adjustment purposes) initiated by hold-to-run control from tool station to tool station, or by two-hand control device for continuous movements? Is this done either with reduced speeds or by using control devices at a safe distance from hazardous movements?	1.2.5	
8.4	Are tools held safely in the <u>magazine holder</u> , or has the user been informed about the <u>tool holder's</u> construction data (e.g. maximum limits for mass, inertia moments, overturning moments)?	1.2.6	
9	Tool changing device		
9.1	Is <u>access</u> to hazardous movements prevented by fixed and/or movable interlocking guards? Or is the hazardous movement stopped or prevented by triggering of protective devices ?	1.3.1	
9.2	Are <u>movements with the guard open</u> initiated only stepwise by hold-to-run control in conjunction with an acknowledgment device , or, for continuous movements, by two-hand control device located at a safe distance from the hazardous situation?	1.3.2	
10	Tool loading and unloading devices (e.g. pallet changing device)		
10.1	Are <u>loading and unloading positions</u> for the operators on tool loading and unloading devices arranged outside the working area and at a distance from other hazardous mechanisms?	1.4.1	

No.	Safety requirements	EN 12417 table 2 cl. ...	Y/N
10.2	<p>Is <u>access to hazardous movements</u> prevented by fixed and/or movable interlocking guards?</p> <p>Or is the hazardous movement stopped or prevented by triggering of protective devices?</p>	1.4.2	
10.3	<p>Is a power-operated movement only possible by actuating a hold-to-run control device in conjunction with an acknowledgment device where <u>access</u> is required <u>with the guards open</u>?</p> <p>Or is, for continuous movements, a two-hand control device provided at a safe distance from the hazardous situation?</p>	1.4.3	
11	Chip collection and removal		
11.1	<p>Is <u>access</u> prevented by fixed guards?</p> <p>Are electrically interlocked movable guards provided where frequent access (<i>more than once per shift</i>) is necessary?</p>	1.5.1	
11.2	<p>Is a hold-to-run control device used where chip collection and removal system movement is necessary with the interlocking guard <u>open</u> (<i>e.g. for cleaning purposes</i>), and is an emergency stop device provided in the direct vicinity?</p>	1.5.3	
12	Drive elements		
12.1	<p>Do fixed guards and/or movable interlocking guards prevent <u>access</u> to hazardous drive elements (<i>e.g. belts, chains, gears</i>) (<i>when access is required several times per shift</i>)?</p>	1.6.1	
12.2	<p>Is guard locking used on guards to prevent reaching into hazardous movements which are slowing down?</p>	1.6.3	
13	Pits		
13.1	<p>Are pits in or around the machine covered (<i>e.g. by grating</i>) or safeguarded against persons falling into them? (<i>e.g. by railing, ropes with coiling device, chains</i>)</p>	1.7.1	
13.2	<p>Are <u>pit access doors</u> (<i>access for the purpose of inspection, maintenance, adjustment</i>) interlocked, and is automatic mode prevented when they are opened)?</p>	1.7.2	
13.3	<p>Are safety distances between moving machine components and pit walls kept, or are additional protective measures against the risk of crushing and trapping implemented?</p>	1.7.3	

No.	Safety requirements	EN 12417 table 2 cl. ...	Y/N
14	Working platforms / Workplaces at heights		
14.1	Are working platforms designed in such a way that it is not possible for persons and objects to fall off them ? Are railings and toe-boards provided, if the working platform height exceeds 500 mm?	1.8.1	
14.2	Is a safe access to and exit from working platforms provided?	1.8.1	
14.3	Are protective measures against crushing or collisions taken for <u>horizontally or vertically extendable working platforms</u> which are connected to a movable part of the machine? <i>(e.g. bellows, metal shutters, pressure-sensitive protective devices)</i>	1.8.4	
14.4	Are safe accesses, workplaces or holders provided for <u>machine parts at heights</u> which must be accessible for the purpose of maintenance works or fault clearance?	19	
15	Noise		
15.1	Are adequate noise reduction measures implemented?	4.1.1 & 4.1.2	
15.2	Are the noise emission values determined for the machine declared?	EN 12417 cl.7.3	
16	Emissions		
16.1	Is the machine equipped with a device allowing connection of exhaust equipment ?	7.1.4	
16.2	Does an exhaust device prevent generation of health-damaging concentrations (<i>aerosols, fumes or mists</i>) where <u>cooling lubricants are used</u> ?	Mach Directive Annex I cl. 1.5.13	
16.3	Is <u>cooling lubricant supply automatically interrupted</u> if the operators introduce their hands into the working area? <i>(e.g. when loading or unloading the machine)</i>	7.1.7	
17	Fire or explosions		
17.1	Are appropriate measures taken to prevent injuries and damages caused by fire and explosions if <u>flammable cooling lubricants</u> are used?	7.2	
17.2	Are protective measures to avoid fire and/or explosions taken on machines for the processing of materials creating <u>self-igniting or explosive particles</u> (<i>e.g. aluminium, magnesium and their alloys</i>)? <i>(reduction of dust creation, devices to collect and remove created dust, devices to moisten created dust, elimination of ignition sources)</i>	see also EN 13478 and EN 1127-1	
17.3	Are additional measures provided where it is not possible to exclude risks due to fire and/or explosions? <i>(e.g. fire extinguishers, explosion relief)</i>	7.2	

