

COORDINATED MACHINERY AND EQUIPMENT



Minimum safety requirements for machines and apparatus within Freudenberg (powered equipment, machines and systems - not including Industrial Trucks)

Job No.

I. Type of inspection

- Initial inspection Repeat inspection

II. Details of the Complex Machinery and Equipments

Internal system designation _____

	Designation	Type	Serial No.	Year of construction	Manufacturer/ supplier	Location
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						

III. Scope of the Inspection

All safety related functions and components shall be at a minimum in accordance with the FSS 5 General Machine Safety Checklist and local relevant standards. **This specific check list refers to “Coordinated Machinery”, an assembly of machines which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole.**

For each individual machine a **General Machine Safety Checklist** must be filled out and in addition the checklist for Cordinated Machinery.

IV. Results of the inspection

- The machine/apparatus/system complies with the minimum safety requirements for machinery and apparatus within Freudenberg.
- The machines / systems do not meet every requirement of the FSS 5 checklist. However, the machines / systems may be used as the functions concerned are not critical in terms of safety.
- The machine/apparatus/system does **not** comply with the minimum safety requirements for machinery and apparatus within Freudenberg.
 - The machine/apparatus/system will be upgraded.
First Estimated costs: _____ Date: _____
Renewed inspection required!
 - The machine/apparatus/system will be removed from service on _____ at the latest. Technical and/or organizational measures as per appendix will be implemented to ensure safe operation up to this date.
- Date of renewed standard inspection _____

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V. Distribution list

Responsible person for corrections and improvements:

Responsible person for documentation and files

VI. Inspection procedure

	Mechanical part	Electrical part	Production	Others
Name				
Date				
Signature				



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Name of Coordinated machinery or equipment		Not applicable	Ok	Not ok	References	Remarks
1	Orderliness / Documentation					
1.1	Is the documentation for the coordinated machinery or equipment in compliance with the local law (i.e. CE in Europe or OHSAS in USA)?					
1.2	Is there a user's / operation manual available for the coordinated machinery? These documents cover the individual operation modes, the safe operations at the interfaces of single machines and maintenance requirements for the coordinated machinery?					
1.3	Was a Risk assessment done (FSS 10)? Are the remaining risks known at the interfaces of machines?					
1.4	With reference to the interfaces there wiring diagrams available?					
1.5	With reference to the interfaces between machines, are there hydraulic diagrams available?					
1.6	With reference to the interfaces between machines, are there a compressed air diagrams available?					
2.	Control facilities <u>Perform visual and functional inspections</u>					
2.1	Interface inspection: With reference to the different control panels are they unambiguously recognizable as such and are their functions easily distinguishable? The risks to confuse the control panels are reduced to minimum?					
2.2	If the operator is unable to see into the hazardous zone(s) of the complex machinery is there a personnel detection system, visual or acoustic alarm, and does an employee have sufficient time to leave the hazardous zone prior to start-up?				The escape time has to be calculated to reach the nearest Stop / E-Stop button safely	
3.	Coordinated machinery or equipment - START- UP <u>Functional inspection; inspection conducted with reference to circuit diagrams and operating instructions</u>					
3.1	Is the whole coordinated machinery system start-up only possible by intentionally operating the control facilities provided for this purpose?					



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3.2	Is it impossible to start at the same time the whole coordinated machinery via several control panels?					
4.	Coordinated machine and equipment - SHUTDOWN (turning off) <u>Functional inspection; inspection conducted with reference to circuit diagrams and operating instructions</u>					
4.1	Are there at each operating panel OFF buttons which stop the entire line?					
4.2	Is the entire line / machinery STOPPED in a safe, coordinated way?					
4.3	Is there a main disconnect switch (Master switch) to turn the complex machinery on and off?				Please use the LOCKOUT procedure for this machine / equipment when doing the safety check! (FSS 1 requirements)	
4.3.1	If it is not possible, is there a clearly recognizable device that enables the single machine to be disconnected from <u>every</u> individual source of energy (see general FSS 5 Check list for single machine)?					
4.3.2	With reference to the interface is there a clear visible device available to disconnect and lock out the system of each energy source for difference production or maintenance modes?					
5.	Emergency STOP function of the entire coordinated machinery <u>Functional inspection in accordance with the operating instructions</u>					
5.1	Are emergency circuit devices fitted (the emergency stop is referred to the whole or part of the line)?					
5.2	If there are general line emergency stops and specific machine emergency stops (machine stop) installed, are there function difference clearly labeled and described?					
5.3	Does the emergency circuit device not give rise to any additional hazards or risks?					



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6.	Danger caused by gas, vapor, mist, liquid, dust, noise <u>Visual inspection, Working area analysis, test certificate</u>					
6.1	Is the noise level of the whole machinery, considering the adding contribution of single machines evaluated?					

7	Fixed and Movable guards					
7.1	Are the sections between individual machines safeguarded?					
7.2	Are the method of safeguarding in accordance with the FSS 5 requirements				see points 9.8, 9.9 and 9.10 of the General Machine Safety Checklist	
8.	Risk of breakage, bursting or shattering <u>Visual inspection; inspection conducted with reference to the operating instructions.</u> Interface inspection of all parts of the interface between the connected machines:					
8.1	Are the piping and energy transmission between the single machines adequately guarded against hazards caused by the types of energy used (hydraulic, pneumatic or thermal)?					
8.2	Have protective measures been implemented to protect persons from hazards caused by machine parts breaking, bursting and shattering at the interface sections?					
8.3	Are the piping and energy transmission between the single machines adequately guarded against hazards caused by the types of energy used (hydraulic, pneumatic or thermal)?					
9.	Warning facilities <u>Visual and functional inspections</u>					
9.1	Interface inspection of the whole line: are the different visual and acoustic warning systems easily to be assigned and identified to the respective machine?					



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10.	Performing production tasks such as setting, loading and unloading tasks <u>Visual and functional inspections, inspection conducted with reference to the operating instructions, the instructions for use and the work instructions</u>					
10.1	Interface inspection of the area between the single machines. Do personnel have safe access to all of the areas required to perform their work?					
10.2	Is there a set-up operation mode under safe conditions, i.e. at reduced speed?					
11.	Maintenance, service, cleaning and debugging work <u>Inspection in accordance to the operating instructions and the instructions provided by the manufacturer.</u>					
11.1	Interface inspection of the area between the single machines. Do personnel have safe access to all of the areas required to perform their work?					
11.2	Is there an operation mode under safe conditions, i.e. at reduced speed?					
11.3	Can all work associated with maintenance, service, cleaning and debugging be performed with the machine being at a complete stop?					
12.	Contact with electric current <u>Visual and functional inspections, inspection conducted with reference to the operating instructions, measurement</u>					
12.1	Interface inspection at the connection between the different machines: Does the whole machinery have protection between the machines that prevents personnel coming into direct or indirect contact with electric current?					
13.	Risk of slipping, tripping or falling (associated with machinery) <u>Visual inspection</u>					
13.1	Interface inspection at the area between the different machines: Are there any new slipping, tripping or falling traps at the connection point of the single machines with leads, hoses or other facilities?					



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13.2	Are cat walks, operator platforms ore mezzanines installed for a safe access to the equipment? For example for maintenance, cleaning, row material feeding and product take-off at parts of the machine which can not be reached from ground floor?					

14.	Ergonomics					
14.1	Operator and control panels are easily accessible?					
14.2	Displays, Indicators, gauges needed for operation are easy to read?					
14.3	Cat walks, ladders, maintenance panels, manways, inspection doors etc. are easily accessible?					