

The Control Categories

Category ¹⁾	Requirements	System behaviour ²⁾	Principles to achieve safety
B	The safety-related parts of control systems and/or their protective equipment and their components must be so arranged, built, selected, assembled and combined in accordance with the applicable standards that they are able to withstand the influences to be anticipated.	The occurrence of a fault can lead to the loss of the safety function.	Mainly characterised by the selection of components
1	The requirements of B must be fulfilled. Proved components and safety principles must be applied.	The occurrence of a fault can lead to the loss of the safety function. The probability of a fault occurring is lower than in Category B.	Mainly characterised by the selection of components
2	The requirements of B and the application of proved safety principles must be fulfilled. The safety function must be tested by the machine control system at suitable intervals.	<ul style="list-style-type: none"> • The occurrence of a fault can lead to loss of the safety function in the interval between tests. • The loss of the safety function is detected by the test. 	Mainly characterised by the structure
3	The requirements of B and the application of proved safety principles must be fulfilled. Safety-related parts must be arranged such that: <ul style="list-style-type: none"> • A single fault in each of these parts does not lead to loss of the safety function and: • Whenever this can be carried out in an appropriate manner, the individual fault should be detected. 	<ul style="list-style-type: none"> • If an individual fault occurs, the safety function is always maintained. • Some but not all faults are detected. • An accumulation of undetected faults can lead to loss of the safety function. 	Mainly characterised by the structure
4	The requirements of B and the application of proved safety principles must be fulfilled. Safety-related parts must be arranged such that: <ul style="list-style-type: none"> • A single fault in each of these parts does not lead to loss of the safety function and: • The individual fault is detected on or before the next requirement of the safety function. If this is not possible, an accumulation of faults must not lead to loss of the safety function. 	<ul style="list-style-type: none"> • If faults occur, the safety function is always maintained. • The faults are detected in time to prevent a loss of the safety function. 	Mainly characterised by the structure

¹⁾ The categories are not intended to be applied in any particular sequence or hierarchical arrangement in relation to the technical safety requirements.

²⁾ The risk assessment will indicate whether the complete or partial loss of the safety function due to faults is acceptable.