

## Rotative axis safety limit switches

### Technical data

### Risk assessment & determination of control system categories

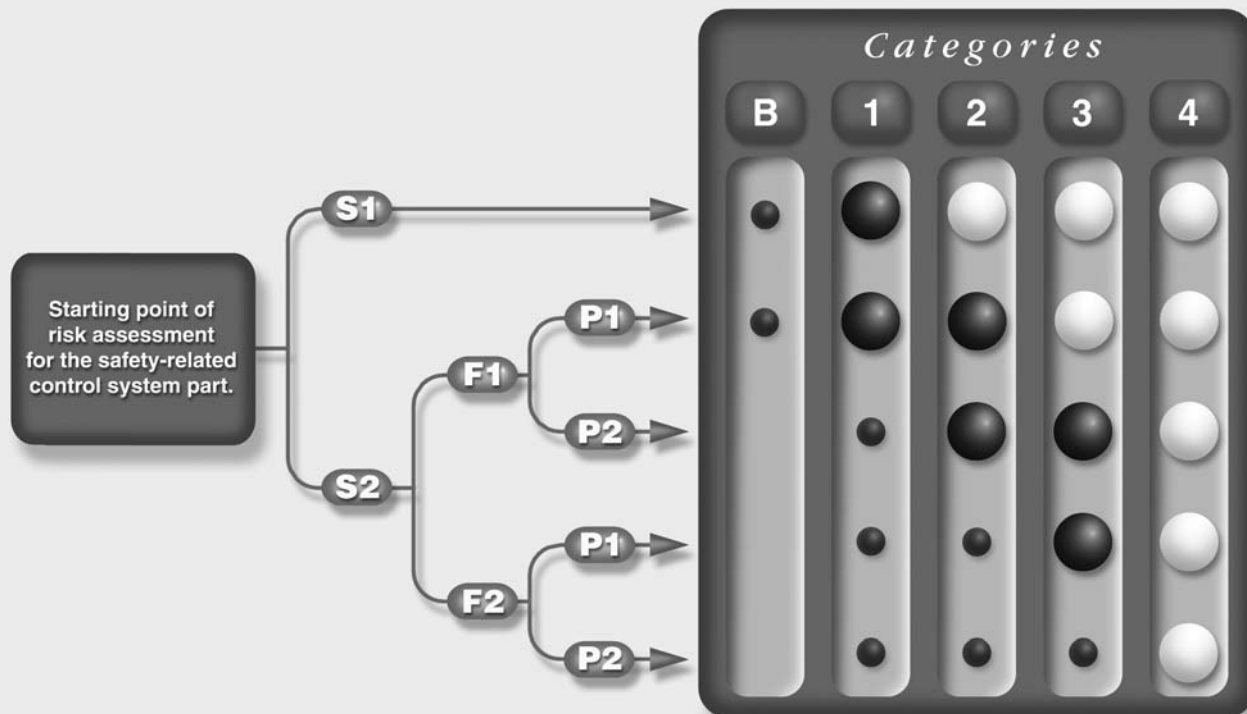
#### Classification of a machine into categories to EN 954-1

Pursuant to the Machinery Directive 89/392/EEC, every machine must comply with the relevant Directives and standards. Measures must be taken to keep the risk to persons below a tolerable extent.

In the first step, the project planner performs a risk evaluation to EN 1050 "Risk Assessment". This must take into consideration the machine's ambient conditions for instance. Any overall risk must then be assessed. This risk assessment must be conducted in such a form as to allow documentation of the procedure and the result achieved. The risk, dangers and possible technical measures to reduce risks and

dangers must be stipulated in this risk assessment. After stipulating the extent on the risk, the category on the basis of which the safety circuits are to be designed is determined with the aid of EN 954-1 "Safety-Related Components of Controls". This determined category defines the technical requirements applicable to the design of the safety equipment. There are five categories (B, 1, 2, 3 and 4) whereby B (standing for basic category) defines the lowest risk and, thus, also the minimum requirements applicable to the controller.

9



#### **S** Gravity of injury

- S1** Minor injury (normally reversible)
- S2** Major injury (normally irreversible), including death

#### **F** Frequency and / or length of exposure to the dangerous phenomenon

- F1** Rare to fairly frequent and / or short exposure time
- F2** Frequent to continuous and / or long exposure time

#### **P** Possibility to avoid the dangerous phenomenon

- P1** Possible under certain conditions
- P2** Rarely possible

#### Category selection

**B, 1 to 4** Categories for the safety-related control system parts

- Preferential categories for the reference points
- Measures that can be oversized for the risk concerned
- Categories that may require additional measures