In compliance with:

**CEN ISO 13849-1:2015**

Safety of machinery, safety related parts of control systems Part 1: general principles of design

**MTTFd  MLE Series**

B10d rating based on the calculated assumptions below is:-

\[
\text{= 1,500,000 cycles}
\]

Calculation data assumptions (CEN ISO 13849-1:2015, Annex C):

- Performance Level e (CEN ISO 13849-1, Table 2)
- Safety Integrity Level 3 (CEN ISO 13849-1, Table 3)
- MTTFd denotation HIGH (CEN ISO 13849-1, Table 4)

\[t_{\text{cycle}}, \text{mean time between two successive cycles} \quad 3600 \text{ seconds (1 cycle per hour)}\]

\[h_{\text{op}}, \text{mean operation in hours per day} \quad 1 \text{ shift x 8 hours.}\]

\[d_{\text{op}}, \text{mean operation in days per year} \quad 220 \text{ days.}\]

\[n_{\text{op}} = (d_{\text{op}} \times h_{\text{op}} \times 3600) / t_{\text{cycle}} \quad 1760 \text{ mean annual operations}\]

\[B10d \text{ no. cycles until 10\% of components fail dangerously} \quad 1,500,000 \text{ cycles}\]

\[\text{MTTFd} = B10d / (0.1 \times n_{\text{op}}) \quad 8,522.72 \text{ years}\]

\[\lambda_d = (0.1 \times n_{\text{op}}) / (B10d \times 220 \times 8) \quad 6.67 \times 10^{-08} \text{ per operating hour}\]

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