GIOVENZANA
INTERNATIONAL B.V.

DICHIARAZIONE DI CONFORMITA' UE
EU DECLARATION OF CONFORMITY

Giovenzana International B.V. Strawinskylaan 1427 - 1077 XX AMSTERDAM (NL)

Dichiara sotto la propria responsabilità che i prodotti con marchio G.G. International sono conformi per ciò che riguarda i valori di MTTFd e B10d alla direttiva ISO 13849-2:2012.

Declares under own responsibility that the products with G.G. International trademark regarding the MTTFd e B10d values are in according with the ISO 13849-2:2012.

Table C.1 — International Standards dealing with $MTTF_D$ or B_{10D} for components

	Basic and well-tried safety principles according to ISO 13849-2:2012	Relevant standards	Typical values: $MTTF_D$ (years) B_{10D} (cycles)
mechanical components	Table A.1 and Table A.2	—	$MTTF_D$ = 150
hydraulic components with $n_{op} \geq 1\,000\,000$ cycles per year[a]	Table C.1 and Table C.2	ISO 4413	$MTTF_D$ = 150
hydraulic components with 1 000 000 cycles per year $> n_{op} \geq 500\,000$ cycles per year [a]	Table C.1 and Table C.2	ISO 4413	$MTTF_D$ = 300
hydraulic components with 500 000 cycles per year $> n_{op} \geq 250\,000$ cycles per year[a]	Table C.1 and Table C.2	ISO 4413	$MTTF_D$ = 600
hydraulic components with $n_{op} < 250\,000$ cycles per year [a]	Table C.1 and Table C.2	ISO 4413	$MTTF_D$ = 1 200
pneumatic components	Table B.1 and Table B.2	ISO 4414	B_{10D} = 20 000 000[c]
relays and contactor relays with small load	Table D.1 and Table D.2	IEC 61810-3 IEC 60947 series	B_{10D} = 20 000 000
relays and contactor relays with nominal load	Table D.1 and Table D.2	IEC 61810-3 IEC 60947 series	B_{10D} = 400 000
proximity switches with small load	Table D.1 and Table D.2	IEC 60947 series ISO 14119	B_{10D} = 20 000 000
proximity switches with nominal load	Table D.1 and Table D.2	IEC 60947 series ISO 14119	B_{10D} = 400 000
contactors with small load[d]	Table D.1 and Table D.2	IEC 60947 series	B_{10D} = 20 000 000
contactors with nominal load[d]	Table D.1 and Table D.2	IEC 60947 series	B_{10D} = 1 300 000

NOTE 1 For the definition and use of B_{10D}, see C.4.

NOTE 2 B_{10D} is estimated as two times B_{10} (50 % dangerous failure) if no other information (e.g. product standard) is available.

NOTE 3 Emergency stop devices according to IEC 60947-5-5 and ISO 13850 and enabling switches according to IEC 60947-5-8 can be estimated as a category 1 or category 3/4 subsystem depending on the number of electrical output contacts and on the fault detection in the subsequent subsystem. Each contact element (including the mechanical actuation) can be considered as one channel with a respective B_{10D} value. For enabling switches according to IEC 60947-5-8 this implies the opening function by pushing through or by releasing. In some cases, it is possible that the machine builder can apply fault exclusion according to ISO 13849-2:2012, Table D.8, considering the specific application and environmental conditions of the device.

NOTE 4 Reduction of switching cycles can lead to an increasing probability of sticking of the switching elements in spool valves (see ISO 4413).

NOTE 5 The $MTTF_D$ for mechanical components refers exclusively to mechanically moving components/parts (not to housing).

[a] B_{10D} calculation for hydraulic components is not permitted as a reverse calculation from standard $MTTF_D$ values.

[b] If fault exclusion for direct opening action is possible.

[c] In general, this value can be assumed for most pneumatic components. However, depending on the application and type, e.g. shut-off valve, this value can be significantly lower.

[d] "Nominal load" or "small load" should take into account safety principles described in ISO 13849-2:2012, such as over-dimensioning of the rated current value. "Small load" means, for example, 20 %.

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Table C.1 *(continued)*

	Basic and well-tried safety principles according to ISO 13849-2:2012	Relevant standards	Typical values: $MTTF_D$ (years) B_{10D} (cycles)
position switches[b]	Table D.1 and Table D.2	IEC 60947 series ISO 14119	B_{10D} = 20 000 000
position switches (with separate actuator, guard-locking)[b]	Table D.1 and Table D.2	IEC 60947 series ISO 14119	B_{10D} = 2 000 000
emergency stop devices[b]	Table D.1 and Table D.2	IEC 60947 series ISO 13850	B_{10D} = 100 000
push buttons (e.g. enabling switches)[b]	Table D.1 and Table D.2	IEC 60947 series	B_{10D} = 100 000

NOTE 1 For the definition and use of B_{10D}, see C.4.

NOTE 2 B_{10D} is estimated as two times B_{10} (50 % dangerous failure) if no other information (e.g. product standard) is available.

NOTE 3 Emergency stop devices according to IEC 60947-5-5 and ISO 13850 and enabling switches according to IEC 60947-5-8 can be estimated as a category 1 or category 3/4 subsystem depending on the number of electrical output contacts and on the fault detection in the subsequent subsystem. Each contact element (including the mechanical actuation) can be considered as one channel with a respective B_{10D} value. For enabling switches according to IEC 60947-5-8 this implies the opening function by pushing through or by releasing. In some cases, it is possible that the machine builder can apply fault exclusion according to ISO 13849-2:2012, Table D.8, considering the specific application and environmental conditions of the device.

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[a] B_{10D} calculation for hydraulic components is not permitted as a reverse calculation from standard $MTTF_D$ values.

[b] If fault exclusion for direct opening action is possible.

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[d] "Nominal load" or "small load" should take into account safety principles described in ISO 13849-2:2012, such as over-dimensioning of the rated current value. "Small load" means, for example, 20 %.

Amsterdam, 17-03-2025
(Luogo e data di emissione)
(Place an date of issue)

Paolo Matteo Maria Cavadini
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