

Safety Distance Calculator

A formal risk assessment should be conducted as a part of an overall safety program. The following formula is intended to be used only as a general guideline for calculating the safety distance from a hazard. Other factors may likely need to be considered.



Safety Distance Calculation

The minimum distance calculated is the minimum horizontal distance from the outer edge of the Eurozone Safe-Guarding Mat detection zone to the nearest part of the hazard.

The European prEN-999 formula for floor mounted Safe-Guarding Mats is:

$$S = (1600 \times T) + 1200\text{mm}$$

S is the minimum safety distance in millimeters.

The factor of 1600 is based on the standard assumption of 1600mm/s as the approach speed.

T is the overall stopping time in seconds.

The added 1200mm take into account stride length and arm reach.

The overall stopping time T is made up of two parts: $T = t1 + t2$

(t1) is the maximum time between actuation of the sensing function and the output signal switching devices being in the OFF state. For the RT6, $t1 = 20\text{mS}$

(t2) is the response time of the machine i.e. the time required to stop the machine or remove the risks after receiving the output from the ME151-4 Safe-Guarding Mat.

The response time of the machine used in the calculations needs to be the worst case time. Some machines have inconsistent response times, which are dependent upon mode of operation, nature of the workpiece and point in the operating cycle at which stopping is initiated. An allowance should be made for wear in brakes etc., if this can affect the response time. An allowance for further delays in the machine control system may be required in some circumstances.

CALCULATION EXAMPLE:

In this example the RT6 is being used with a machine whose worst case response time has been measured as 0.485 seconds.

Using the formula above,

$$T = t1 + t2$$

$$= 20\text{mS} + 485\text{mS}$$

$$= 505\text{mS} = 0.505\text{S}$$

$$S = (1600 \times 0.505) + 1200\text{mm}$$

$$= 808 + 1200\text{mm} = 2008$$

Safe-Guarding Mats will be required from 2008mm right up to the edge of the machine baseplate.

Q. How can I obtain additional support?

A. We're always willing to help so feel free to contact us at your convenience.

By phone:	Eastern US and Canada	800-220-3343
	Western US and Canada	800-887-3343
	Outside USA or Canada	1-610-869-4422
Website:	www.milleredge.com	
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