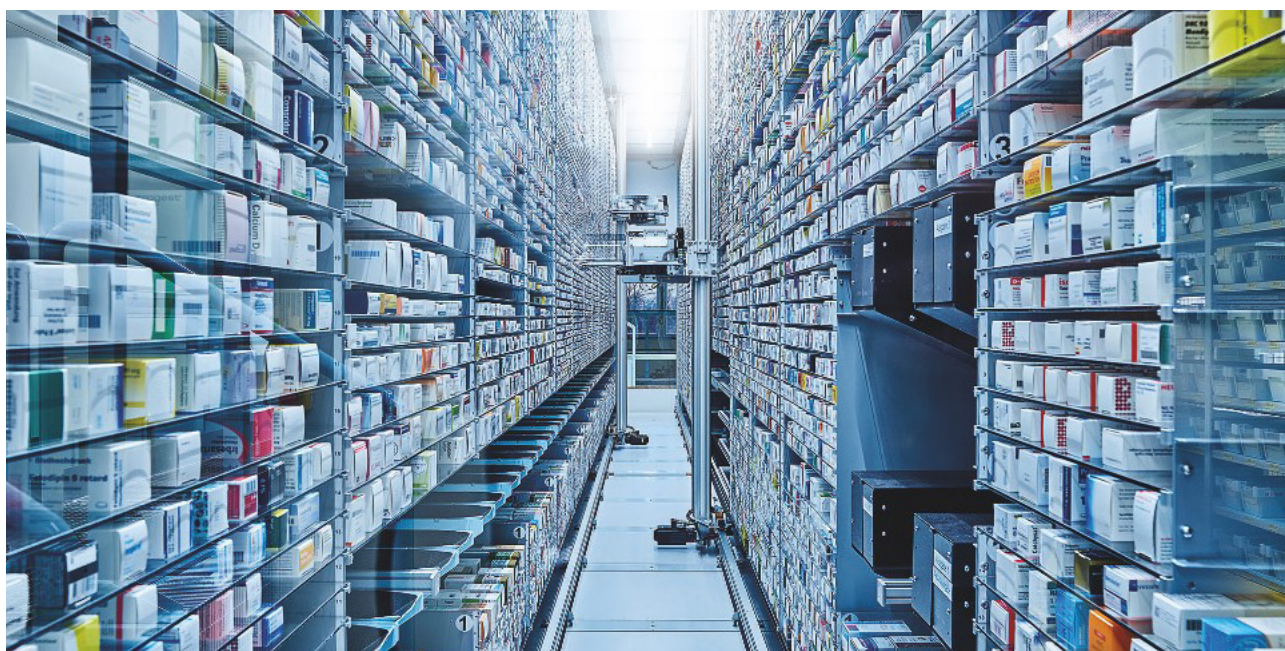


Achieving Safe Access to Automated Storage and Retrieval Systems



The growth in online retail has seen a corresponding growth in the use of automatic storage and retrieval systems in warehouses and distribution centres. Whilst increased automation may lead to less human interaction, the risks of serious injury are not necessarily reduced. Rail dependent automatic storage and retrieval systems can incorporate fast moving automatic picking and handling equipment utilised in narrow aisles, with limited opportunity for operators to avoid impact from approaching equipment.

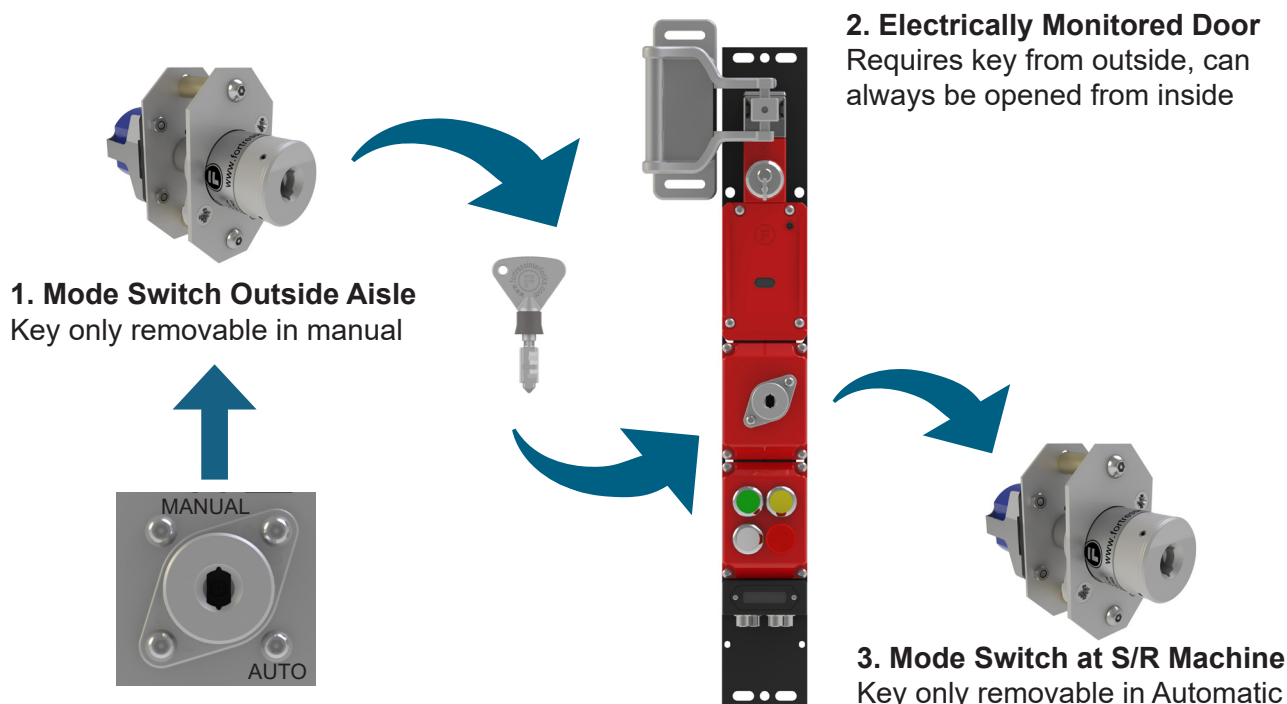


EN 528 Rail dependent storage and retrieval equipment – Safety requirements is a machine specific type C standard addressing all significant hazards relevant to rail dependent storage and retrieval equipment, when they are used under the conditions intended by the manufacturer including reasonably foreseeable misuse.

The issue of unauthorised access and whole-body access including the risk of operators being trapped inside the safeguarded space is addressed by the use of keys, referred to as key dependency in EN 528, and the requirement for escape release at either end of the aisles. (0.5x2m clearance is also required at aisle ends)

Access doors for the entrance and exit of people need to be constructed so that they can only be opened from the outside with a key but can be opened from the inside without a key. When the door is open, movement of the machine in that area shall be prevented, and restart can only be completed from the control station when the door is closed.

If we view this as a system schematic key dependency appears as per the image below.



The key for each door must be unique, and the operator that takes the key is responsible for others entering the safeguarded space. It is important to note that where emergency access keys are utilised, they must be kept in secure locations.

EN 528 also goes on to stipulate the conditions of safe operation and under access to aisles states:

“It is not permitted for unauthorized persons to enter the racking aisle and its approach areas, nor for persons to use it for access to other areas

Entry to these zones shall be restricted to specially authorized persons who have been properly informed of and use measures provided for their safety”

This requirement, coupled with the need for operators to enter one access door but egress from the other end of the aisle, leads to some interesting technical challenges. Whilst seemingly simple the logic is sometimes too complex for mechanical keys. The requirement for authorization can be achieved by the use of RFID “keys”.



The RFID “key” or badge is not only used for authorising individuals but, when used as part of the Fortress FRANK solution, can allow users to enter one access point and leave through another, the system tracks which individuals are inside the hazardous space and will not allow restart until all have exited.

Your local Fortress Interlocks representative will be more than happy to assist in creating a tailored safety system for your storage and retrieval application, contact us today for more information.