

Emergency Stop Rope Pull Switches — Covering Conveyors to EN ISO 13850 with XY2C

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Designing rope-pull e-stop runs along conveyors: how constant-tension rope switches trip on pull and on slack, single- and double-sided spans to 2 × 100 m, reset and indicator options, and the tensioners, bellows, pull-rope and status accessories stocked for the XY2C family.

Why rope, and how it trips

A conveyor can be approached anywhere along its length, so EN ISO 13850's requirement that an e-stop be reachable leads to a rope along the run: pull the rope anywhere and the switch trips. The decisive property of a proper rope-pull switch is dual-mode tripping: it latches both on a pull and on rope breakage/slack (loss of tension) — the system fails safe if the rope is cut, stretches or a tensioner lets go. Tripping latches mechanically; restart only at the switch after a deliberate reset and an inspection walk.

The stocked family

Type | Span | Examples |

XY2CH compact | to ~30 m per side | 2NC+NO, 30 m, with-reset versions 13250/13270 |

XY2CE heavy duty | to 100 m per side | right-hand XY2CE5A290, left-hand XY2CE6A290, 2NO+2NC XY2CE1A296, with lamp XY2CE6A297 |

XY2CED double-sided | 2 × 100 m | 2×100 m NPT, Ex version XY2CEDA290EX |

Rope switch, basic | short runs | XY2CD111 1NO+1NC |

Accessories that make the span work

A rope run is a mechanical system: pull rope (6 m rope; longer runs from rope stock), tensioners every run (XY2CZ210, XY2CZ402 for long spans, M8 × 70, with bracket), tension indicators that show the green window at a glance (XY2CZ0024, XY2CZ0130), protective bellows for the lever shaft in washdown/dusty plants (XY2CZ901), and eye-bolt rope guides every 2–3 m so the pull transmits instead of sagging.

Engineering the run

Span per switch: respect the family limit (temperature swings stretch rope ~ proportionally to length; the switch's tension window absorbs only so much). Double-sided bodies halve the switch count on long conveyors.

Setting tension: with the run complete, tension until the indicator centres; then trip-test from the far end AND slack-test by releasing a tensioner — both must latch.

Geometry: rope at consistent height (typically 0.9–1.1 m), guides aligned so no segment rubs; corners only via proper pulleys rated for the system.

Contacts into the safety loop: 2NC channels to the monitored safety relay, NO for PLC status; lamp versions announce the tripped switch down a long gallery.

Seasonal maintenance: re-tension after the first month and seasonally; log it. A slack rope that still looks tight is the classic latent failure — the indicator exists to be read.

Button-type e-stops still belong at control stations and gates; the rope covers the length between. Validate the whole function — pull anywhere, machine stops within the measured time used in the safety-distance calculations elsewhere on the line (see the light-curtain guide) — and record the test in the machinery file.

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