

# ISO 8103-1:2024-10 (E)

## Escalators and moving walks - Part 1: Safety requirements

---

<b>Contents</b>		<b>Page</b>
<b>Foreword</b>		<b>vi</b>
<b>Introduction</b>		<b>vii</b>
<b>1</b>	<b>Scope</b>	<b>1</b>
<b>2</b>	<b>Normative references</b>	<b>1</b>
<b>3</b>	<b>Terms, definitions, symbols and abbreviations</b>	<b>3</b>
3.1	Terms and definitions	3
3.2	Symbols and abbreviations	5
<b>4</b>	<b>List of significant hazards</b>	<b>7</b>
4.1	General	7
4.2	Mechanical hazards	7
4.3	Electric hazards	8
4.4	Radiation hazards	8
4.4.1	Electromagnetic radiation generated by the machine	8
4.4.2	Electromagnetic radiation received from outside	8
4.5	Fire hazard	8
4.6	Hazards generated by neglecting ergonomic principles in machinery design	8
4.7	Hazard generated by failure of control circuit	8
4.8	Hazards generated by break-up during operation	9
4.9	Slipping, tripping and falling hazards	9
4.10	Hazards specific for this type of machine	9
4.11	Significant hazards due to seismic events	10
<b>5</b>	<b>Safety requirements and/or protective measures</b>	<b>10</b>
5.1	General	10
5.2	Supporting structure (truss) and enclosure	10
5.2.1	General	10
5.2.2	Angle of inclination	11
5.2.3	Access to the interior	11
5.2.4	Inspection covers	11
5.2.5	Structural design	11
5.3	Steps, pallets, belt	11
5.3.1	General	11
5.3.2	Dimensions	12
5.3.3	Structural design	12
5.3.4	Guiding of steps, pallets and belt	17
5.3.5	Clearance between steps or pallets	17
5.3.6	Missing step or pallet device	17
5.4	Drive unit	17
5.4.1	Driving machine	17
5.4.2	Braking system	18
5.4.3	Steps and pallets drive	21
5.4.4	Belt drive	22
5.5	Balustrade	22
5.5.1	General	22
5.5.2	Dimensions of balustrade	22
5.5.3	Skirting	23
5.5.4	Newel	26
5.5.5	Clearance between steps, pallets or belt and skirting	26
5.6	Handrail system	27

5.6.1	General	27
5.6.2	Profile and position	27
5.6.3	Distance between the handrail centre lines	27
5.6.4	Handrail entry	27
5.6.5	Guiding	27
5.7	Landings	28
5.7.1	Surface properties	28
5.7.2	Configuration of steps, pallets and belts	28
5.7.3	Combs	29
5.8	Machinery spaces, driving station and return stations	29
5.8.1	General	29
5.8.2	Dimensions and equipment	30
5.8.3	Lighting and socket outlets	30
5.9	Fire protection	31
5.10	Transportation	31
5.11	Electric installations and appliances	38
5.11.1	General	38
5.11.2	Contactors, relay contactors, components of failsafe circuits	39
5.11.3	Main switches	40
5.11.4	Electric wiring	40
5.12	Electric control system	41
5.12.1	Protective devices and functions	41
5.12.2	Safety devices and functions	43
5.12.3	Control devices and functions	50
<b>6</b>	<b>Verification of the safety requirements and/or protective measures</b>	<b>56</b>
6.1	General	56
6.2	Specific data, test reports and certificates	60
<b>7</b>	<b>Information for use</b>	<b>60</b>
7.1	General	60
7.2	Signals and warning devices	61
7.2.1	Plates, inscriptions and notices for use	61
7.2.2	Special indicators for escalators and moving walks starting automatically	61
7.3	Inspection and test	62
7.3.1	General	62
7.3.2	Constructional inspection and acceptance inspection and test	62
7.4	Accompanying documents (in particular, instruction handbook)	62
7.4.1	Contents	62
7.4.2	Presentation of the instruction handbook	65
7.4.3	Advice for drafting and editing information for use	65
7.5	Marking	65
	<b>Annex A (normative) Building interfaces</b>	<b>66</b>
	<b>Annex B (normative) Electronic components - Failure exclusion</b>	<b>73</b>
	<b>Annex C (normative) Drafting and assessing failsafe circuits</b>	<b>76</b>
	<b>Annex D (normative) Testing of failsafe circuits containing electronic components and/or safety related electrical, electronic and programmable electronic devices (E/E/PE)</b>	<b>77</b>
	<b>Annex E (informative) Design guideline for safety circuits</b>	<b>80</b>
	<b>Annex F (informative) Examples of possible dynamic torsional tests for steps and pallets</b>	<b>81</b>
	<b>Annex G (normative) Safety signs for the user of escalators and moving walks</b>	<b>84</b>
	<b>Annex H (informative) Guidelines for selection and planning of escalators and moving walks</b>	<b>85</b>
	<b>Annex I (normative) Requirements on escalators and moving walks intended to transport shopping trolleys and baggage carts</b>	<b>86</b>
	<b>Annex J (informative) Determination of anti-slip properties of the tread surfaces of steps and pallets, of comb plates and floor plates</b>	<b>88</b>
	<b>Annex K (informative) Determination of sliding properties of footwear on balustrade skirting</b>	<b>90</b>
	<b>Annex L (informative) Major modification</b>	<b>91</b>
	<b>Annex M (normative) Escalators and moving walks subject to seismic conditions</b>	<b>92</b>
	<b>Annex N (informative) Relationship between this document and ISO/TS 25740-1</b>	<b>95</b>
	<b>Bibliography</b>	<b>96</b>