

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	KONE Corporation
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-KON-20160133-IBA1-EN
Issue date	12/09/2016
Valid to	11/09/2021

KONE Revolving Door 30 KONE Door Business

www.bau-umwelt.com / <https://epd-online.com>



Picture may not represent the exact door configuration described in this EPD.

1. General Information

KONE Door Business

Programme holder

IBU - Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number

EPD-KON-20160133-IBA1-EN

This Declaration is based on the Product Category Rules:

Automatic doors, automatic gates, and revolving door systems, 07.2014
(PCR tested and approved by the SVR)

Issue date

12/09/2016

Valid to

11/09/2021



Prof. Dr.-Ing. Horst J. Bossenmayer
(President of Institut Bauen und Umwelt e.V.)



Dr. Burkhard Lehmann
(Managing Director IBU)

KONE Revolving Door 30

Owner of the Declaration

KONE Corporation
Keilasatama 3
02150 Espoo
Finland

Declared product / Declared unit

One KONE Revolving Door 30 automatic building door, including:

- four door leaves
- supporting structure (frame including glazing)
- drive unit
- canopy
- controller and safety systems
- packaging material

Scope:

This EPD lists the environmental impacts of the KONE Revolving Door 30, including packaging material.

The components are sourced from approved international suppliers and the door is manufactured by the approved contract manufacturer at their production facility in Germany. The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

Verification

The CEN Norm /EN 15804/ serves as the core PCR

Independent verification of the declaration
according to /ISO 14025/

☐ internally ☒ externally



Dr.-Ing. Wolfram Trinius
(Independent verifier appointed by SVR)

2. Product

2.1 Product description

KONE automatic revolving doors facilitate pedestrian flows and provide thermal insulation in various types of buildings. The KONE Revolving Door 30 is available in a variety of configurations, with different internal and external diameters, passage and canopy heights, and number of door leaves.

The door consists of a supporting structure and frame, including glazing, canopy, drive unit, controller, and safety systems. Additional features such as night slides may be installed. The KONE Revolving Door 30 meets all relevant technical and safety standards, including /EN 16005/.

2.2 Application

KONE automatic revolving doors are designed and engineered for a wide range of applications including

public and commercial buildings such as hospitals, offices, hotels, and airports.

2.3 Technical Data

Name	Value	Unit
Burglar protection class acc. to EN 1628 - EN 1630	WK2*	-
Power input "Standby"	22	W
Power input "Operation"	36	W

* Additional equipment not considered in this EPD must be added to the revolving door in order to meet the requirements of the burglar protection standards.

**Energy measurements are performed with reference equipment under reference conditions. The actual

energy consumption of a specific installation can vary due to the conditions, exact door configuration, and usage rates.

2.4 Application rules

This product complies with the following European directives:

2004/108/EC Electromagnetic Compatibility Directive (EMCD)

2006/42/EC Machinery Directive (MD)

2006/95/EC Low Voltage Directive

This product complies with the following harmonized European standards:

DIN EN ISO 13850:2008-09: Safety of machinery.

Emergency stop equipment, functional aspects.

Principles for design

DIN EN ISO 12100:2010: Safety of machinery – Basic concepts – Risk assessment and risk reduction.

DIN EN 16005:2013-01: Power operated pedestrian doorsets – Safety in use – Requirements and test methods

DIN EN 60335-1:2012: Safety of household and similar electrical appliances. Part 1: General requirements

EN ISO 13856-1:2013: Safety of machinery – Pressure sensitive protective devices – Part 1: General principles for the design and testing pressure sensitive mats and pressure sensitive floors

EN ISO 13856-2:2013 Safety of machinery – Pressure sensitive protective devices – Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars

DIN EN 12978:2009-10: Doors and gates. Safety equipment for power operated doors and gates. Requirements and test methods

DIN EN ISO 13849-1:2008-12: Safety of machinery. Safety-related parts of control systems. Part 1: General principles for design

DIN EN ISO 13849-2:2013-02: Safety of machinery. Safety-related parts of control systems. Part 2: Validation

DIN EN 61000-6-2:2005 + corr. 2011: Electromagnetic compatibility (EMC). Part 6-2: Generic standards: Interference resistance for industrial environment

DIN EN 61000-6-3:2007+A1:2011: Electromagnetic compatibility (EMC). Part 6-3: Generic standards. Interference emission for residential, commercial and light industrial environments

DIN EN 60529:2000-09: Protection classes of housing

DIN EN ISO 9001:2008-12: Quality management systems. Requirements

In addition to the harmonized European standards, the following national standards have also been applied and complied with:

DIN 18650-1:2010: Powered pedestrian doors - Part 1: Product requirements and test methods

DIN 18650-2:2010: Building hardware. Powered pedestrian doors - Part 2: Safety at powered pedestrian doors

2.5 Delivery status

The revolving door is delivered ready for installation on wooden pallets stabilized with wooden or metal frames.

2.6 Base materials / Ancillary materials

The composition of the product by percentage (%) of total mass per unit (excluding packaging) is as follows

Component	Percentage (%)
Steel	15.2%
Stainless steel	0.7%
Aluminum	35.7%
Copper/Brass	0.7%
Glass	41.6%
Plastics	1.2%
Sealants/Rubber	4.3%
Electronics	0.2%
Others	0.4%
Total	100%

2.7 Manufacture

The profiles, glass, and other standard components such as sensors or other electronic parts are provided by external suppliers and assembled by the approved contract manufacturer at their production facility in Germany. The profiles are bent, machined, and surface treated, either anodized or powder coated, by a third-party. The manufacturing unit is /DIN EN ISO 9001/ certified.

2.8 Environment and health during manufacturing

Offcuts and scraps are directed to a recycling unit. Waste is sent for disposal. Preparation and manufacturing conditions do not require any special health and safety measures.

2.9 Product processing/Installation

KONE revolving doors are supplied partially assembled and ready for installation. Installation is performed on-site by trained technicians.

2.10 Packaging

Packaging, including polystyrene, plastic and corrugated cardboard, is provided to protect the door during transport. The door is shipped to the destination site on wooden pallets that are stabilized with wooden frames. All packaging materials are theoretically recyclable.

2.11 Condition of use

The door must be installed, used, and maintained in accordance with the design specifications and instructions provided by KONE.

2.12 Environment and health during use

No personal injury or damage to health or environment is expected if the door is used in accordance with the instructions provided by KONE.

2.13 Reference service life

The product has a technical service life of 10,000,000 passages (270° door rotation per single passage). A reference service life of 20 years was used as the basis for this EPD.

2.14 Extraordinary effects

Fire

Not applicable.

Water

Unforeseen contact with water may result in malfunction of the electrical components. No impact on the environment is expected from contact with water.

Mechanical destruction

No impact on the environment is expected in the event of mechanical destruction.

2.15 Re-use phase

The majority (by weight) of the components are steel, aluminum, and glass, which can all be recycled. The plastic components can be used for energy recovery within a waste incineration process.

2.16 Disposal

Waste codes according to the /European Waste Catalogue/

Manufacturing

EWC 12 01 01 Ferrous metal filings and turnings
EWC 12 01 03 Non-ferrous metal filings and turnings
EWC 12 01 05 Plastics shavings and turnings

Packaging

EWC 15 01 01 Paper and cardboard packaging
EWC 15 01 02 Plastic packaging
EWC 15 01 03 Wooden packaging

End of Life

EWC 16 02 14 Used devices, with the exception of those outlined in 16 02 09 to 16 02 13
EWC 16 02 16 Components removed from used devices, with the exception of those outlined in 16 02 15
EWC 17 02 02 Glass
EWC 17 02 03 Plastics
EWC 17 04 01 Copper, bronze, brass
EWC 17 04 02 Aluminium
EWC 17 04 05 Iron and steel
EWC 17 04 11 Cables, with the exception of those outlined in 17 04 10

Disposal of the door is subject to the /WEEE Directive/, /Directive 2012/19/EU/.

2.17 Further information

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3. LCA: Calculation rules

3.1 Declared Unit

The declaration refers to the declared unit of 1 piece of KONE Revolving Door KR 30 (outer diameter= 3100 mm, total height=2300 mm) including packaging, as specified in Part B requirements on the EPD for doors, windows, shutters, and related products /IBU PCR Part B/.

Declared unit

Name	Value	Unit
Declared unit	1	Piece
Mass (total system incl. packaging)	1208.63	kg
Conversion to 1kg	0.001	Piece / kg
Area	22.40	m ²

*The areas for the Revolving doors are represented by the lateral area i.e. the outer wall cylinder area surrounding the revolving door leafs

3.2 System boundary

Type of the EPD: cradle to gate - with options

The following life cycle phases were considered:

A1-A3 Production phase:

- A1 – Raw material extraction and processing
- A2 – Transport to the manufacturer and
- A3 – Manufacturing.

A4-A5 Construction phase:

- A4 – Transport from the gate to the site
- A5 – Packaging waste processing

The use phase:

- B6 – Occupational energy use

End-of-life phase:

- C2 – Transport to waste processing
- C3 – Waste processing
- C4 – Disposal (landfill)

These information modules include provision and transport of all materials, products, as well as energy and water provisions, waste processing up to the end-of-waste status or disposal of final residues.

Module D:

Declaration of all benefits or recycling potential from EOL and A5

3.3 Estimates and assumptions

Transport:

For all raw materials including product transportation before and after use road transport over an average distance of 600km has been considered.

Use phase:

For the use phase, it is assumed that the door is used in the European Union, thus an European electricity grid mix is considered within this phase. Please see chapter 4 for a detailed parameter list of the use scenario assumptions.

EOL:

In the End-of-life phase a recycling scenario with 100% collection rate was assumed.

3.4 Cut-off criteria

In the assessment, all available data from production process were considered, i.e. all raw materials used, auxiliary materials (e.g. lubricants), thermal energy consumption and electric power consumption -

including material and energy flows contributing less than 1% of mass or energy (if available).

3.5 Background data

For life cycle modeling of the considered products, the GaBi ts Software System for Life Cycle Engineering, developed by thinkstep AG, is used /GaBi ts 2016/. The GaBi-database contains consistent and documented datasets which are documented in the online

GaBi-documentation /GaBi ts 2016D/.

To ensure comparability of results in the LCA, the basic data of GaBi database were used for energy, transportation and auxiliary materials.

3.6 Data quality

The requirements for data quality and background data correspond to the specifications of the /IBU PCR PART A/.

thinkstep AG performed a variety of tests and checks during the entire project to ensure high quality of the completed project. This obviously includes an extensive review of project-specific LCA models as well as the background data used.

The technological background of the collected data reflects the physical reality of the declared products. The datasets are complete and conform to the system boundaries and the criteria for the exclusion of inputs and outputs.

All relevant background datasets are taken from the GaBi ts software database. The last revision of the used background data has taken place not longer than 10 years ago.

3.7 Period under review

The period under review is 2014 (12 month average).

3.8 Allocation

Regarding incineration, the software model for the waste incineration plant is adapted according to the material composition and heating value of the material. Following specific life cycle inventories for the waste incineration plant are considered:

- Waste incineration of plastic from packaging
- Waste incineration of paper from packaging
- Thermal treatment of plastic parts
- Waste incineration of particle board
- Waste incineration of electronic scraps (printed wiring boards)

Regarding the recycling material of metals, the metal parts in the EOL are declared as end-of-waste status. Thus, these materials are considered in module D. Specific information on allocation within each background dataset used is available in the GaBi dataset documentation.

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to /EN 15804/ and the building context, respectively the product-specific characteristics of performance, are taken into account.

4. LCA: Scenarios and additional technical information

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	1.88	l/100km
Transport distance	600	km
Capacity utilisation (including empty runs)	85	%

Installation into the building (A5)

Name	Value	Unit
Packaging waste (Paper/Cardboard, Plastics, Pallets) to be treated	299.13	kg

Reference service life

Name	Value	Unit
Reference service life	20	a

Operational energy use (B6)

The energy consumption of the door is defined in two use modes:

1. The non-active mode: door is ready to be used, but door leaves are not actively moving
2. The active mode: door is executing an opening - closing cycle

The total energy consumed during the whole product life was calculated using following formula:

$$(E_{non-active} + E_{active}) * days_year * life_span * 3600/10^6$$

With:

$$E_{non-active} = E_{standby} + E_{idle} = P_{non-active} * T_{non-active}$$

$$E_{active} = P_{active} * T_{active} = P_{active} * (N_{cycle} * T_{cycle}/3600)$$

Where:

Estand-by = Energy consumption due to stand-by mode per day

Eidle = Energy consumption due to idle mode per day

Pnon-active = The required power [W] to keep the control system energized, including the required accessories to switch to the active mode. Covers stand-by and idle mode

Tnon-active = Operation time in non-active mode in hours per day (= 24 hours – *Tactive*). Covers stand-by and idle mode

Eactive = Energy consumption due to active mode per day

Pactive = Average power during the time of the whole cycle

Tactive = Average operation time per day

Ncycle = Average number of opening/closing cycles per day

Tcycle = Average Time [s] of one opening/closing cycle

days_year = Operation days per year [d]

Life_span = Reference service life of product [a]

$3600/10^6$ = Conversion factor from Wh to MJ

Name	Value	Unit
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Electricity consumption	2344.4	kWh
Days per year in use	255	d/a
Hours per day in non-active mode	8.24	h/d
Off time	8	h/d
Power in non-active mode	21,60	W
Power in active mode	36,30	W
Operating time for one rotation cycle*	14,30	s
Numbers of rotation cycles per day	1961	

* Basis here is the time per cycle at an assumed constant speed. Power taken from measurement of constant rotation.

End of life (C1-C4)

Name	Value	Unit
Collected as mixed construction waste	909.5	kg
Recycling	854	kg
Energy recovery	48.48	kg
Landfilling	7.02	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Collected separately waste (incl packaging)	1208.63	kg
Recycling (metals, glass)	84	%
Energy recovery (Plastics, Paper/Wood)	16	%
Landfill (inert material)	1	%

5. LCA: Results

The table below shows the LCA results for the declared unit - 1 Piece of KONE Revolving Door 30

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MNR	MNR	MNR	X	MND	MND	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: One piece of KONE Revolving Door 30

Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	C4	D
GWP	[kg CO ₂ -Eq.]	5.47E+3	3.30E+1	2.64E+2	1.09E+3	2.48E+1	3.62E-1	1.23E+2	-3.52E+3
ODP	[kg CFC11-Eq.]	2.60E-6	1.52E-10	8.73E-10	7.71E-7	1.14E-10	2.59E-11	6.01E-9	1.70E-6
AP	[kg SO ₂ -Eq.]	2.06E+1	8.14E-2	2.53E-2	3.02E+0	6.12E-2	1.30E-4	4.08E-2	-1.78E+1
EP	[kg (PO ₄) ³ -Eq.]	1.71E+0	1.89E-2	5.19E-3	2.71E-1	1.42E-2	1.54E-5	6.40E-3	-1.03E+0
POCP	[kg ethene-Eq.]	1.54E+0	-2.29E-2	2.38E-3	2.08E-1	-1.72E-2	9.77E-6	2.15E-3	-1.13E+0
ADPE	[kg Sb-Eq.]	1.05E-1	2.20E-6	2.27E-6	3.55E-4	1.65E-6	1.43E-8	5.02E-6	-4.91E-2
ADPF	[MJ]	6.56E+4	4.55E+2	4.49E+1	1.18E+4	3.42E+2	4.37E-1	4.52E+1	-3.69E+4

Caption: GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources

RESULTS OF THE LCA - RESOURCE USE: One piece of KONE Revolving Door 30

Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	C4	D
PERE	[MJ]	2.09E+4	IND	IND	IND	IND	IND	IND	IND
PERM	[MJ]	3.33E+0	IND	IND	IND	IND	IND	IND	IND
PERT	[MJ]	2.09E+4	2.59E+1	6.76E+0	5.30E+3	1.94E+1	1.79E-1	6.59E+0	-1.87E+4
PENRE	[MJ]	7.59E+4	IND	IND	IND	IND	IND	IND	IND
PENRM	[MJ]	1.89E+3	IND	IND	IND	IND	IND	IND	IND
PENRT	[MJ]	7.78E+4	4.57E+2	5.34E+1	1.89E+4	3.43E+2	6.78E-1	5.08E+1	-4.40E+4
SM	[kg]	2.07E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m ³]	4.06E+1	6.48E-2	6.12E-1	8.18E+0	4.87E-2	1.05E-3	2.49E-1	-4.98E+1

Caption: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

One piece of KONE Revolving Door 30

Parameter	Unit	A1-A3	A4	A5	B6	C2	C3	C4	D
HWD	[kg]	1.87E-3	3.45E-5	4.84E-8	1.20E-5	2.60E-5	4.46E-10	4.06E-7	-1.08E-4
NHWD	[kg]	9.88E+2	3.84E-2	6.13E-1	1.14E+1	2.88E-2	1.12E-3	1.31E+1	-9.27E+2
RWD	[kg]	4.84E+0	6.53E-4	3.49E-3	2.86E+0	4.91E-4	9.61E-5	2.21E-3	-2.81E+0
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	1.60E+2	0.00E+0	0.00E+0	8.54E+2	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	1.39E+2	0.00E+0	0.00E+0	1.80E-1	4.83E+1	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	3.15E+2	0.00E+0	0.00E+0	4.08E-1	1.66E+2	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	7.33E+2	0.00E+0	0.00E+0	9.50E-1	3.89E+2	0.00E+0

Caption: HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EEE = Exported thermal energy

6. LCA: Interpretation

It can be stated that the result of almost every environmental indicator in scope is clearly influenced by the production and supply of the raw materials as well as the use phase of the door consuming electric energy. To a much lesser degree the manufacturing of the products play a role. **GWP**

(Global Warming Potential) additionally is also notable affected by the (biogenic) emissions resulting from waste treatment (incineration of the wooden door parts). Only the indicator **ADP** (Abiotic Depletion Potential) elements is almost only influenced by the production of the raw materials as the production of energy is not affected by the extraction and

consumption of abiotic elements. The given credits for metal recycling and produced energy through the incineration of contained plastics are displayed as negative environmental burden.

Transports (modules A2, A4, C2) as well as the product installation (A5) play an insignificant role.

7. Requisite evidence

Not applicable in this EPD.

8. References

Institut Bauen und Umwelt

Institut Bauen und Umwelt e.V., Berlin(pub.):
Generation of Environmental Product Declarations (EPDs);

General principles

for the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2013/04
www.bau-umwelt.de

ISO 14025

DIN EN ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804

EN 15804:2012-04+A1 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

DIN EN ISO 9001:2008

Quality management systems – Requirements

WEEE

Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)

EWC

European Waste Catalogue and Hazardous Waste List - Valid from 1 January 2002, Environmental Protection Agency

GaBi ts

GaBi ts dataset documentation for the software-system and databases, LBP, University of Stuttgart and thinkstep, Leinfelden-Echterdingen, 2016 (<http://documentation.gabi-software.com/>)

IBU PCR Part A

Institut Bauen und Umwelt e.V., Berlin (pub.):
Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. April 2013
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IBU PCR Part B

PCR Guidance-Texts for Building-Related Products and Services. From the range of Environmental Product Declarations of Institute Construction and Environment e.V. (IBU). Part B: Requirements on the EPD for Automatic doors,

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2004/108/EC

Electromagnetic Compatibility Directive (EMCD)

2006/42/EC

Machinery Directive (MD)

2006/95/EC

Low Voltage Directive

DIN EN ISO 13850:2008-09

Safety of machinery. Emergency stop equipment, functional aspects. Principles for design

DIN EN ISO 12100:2010

Safety of machinery – Basic concepts – Risk assessment and risk reduction

DIN EN 16005:2013-01

Power operated pedestrian doorsets – Safety in use – Requirements and test methods

DIN EN 60335-1:2012

Safety of household and similar electrical appliances. Part 1: General requirements

EN ISO 13856-1:2013

Safety of machinery – Pressure sensitive protective devices – Part 1: General principles for the design and testing pressure sensitive mats and pressure sensitive floors

EN ISO 13856-2:2013

Safety of machinery – Pressure sensitive protective devices – Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars

DIN EN 12978:2009-10

Doors and gates. Safety equipment for power operated doors and gates. Requirements and test methods

DIN EN ISO 13849-1:2008-12

Safety of machinery. Safety-related parts of control systems. Part 1: General principles for design

DIN EN ISO 13849-2:2013-02

Safety of machinery. Safety-related parts of control systems. Part 2: Validation

DIN EN 61000-6-2:2005 + corr. 2011

Electromagnetic compatibility (EMC). Part 6-2: Generic

standards: Interference resistance for industrial environment

DIN EN 61000-6-3:2007+A1:2011

Electromagnetic compatibility (EMC). Part 6-3: Generic standards. Interference emission for residential, commercial and light industrial environments

DIN EN 60529:2000-09

Protection classes of housing

DIN EN ISO 9001:2008-12

Quality management systems. Requirements

DIN 18650-1:2010

Powered pedestrian doors - Part 1: Product requirements and test methods

DIN 18650-2:2010

Building hardware. Powered pedestrian doors - Part 2: Safety at powered pedestrian doors

**Publisher**

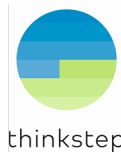
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