Technical information
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DIN EN 50085: the new European standard for installation systems and its effects in practice

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The new European standard and its effects in practice

The careful reader of product information and catalogues has possibly noted references to a new standard: DIN EN 50085. The following report introduces the contents of the new European standard and highlights its impact on products and practical use.

Creation of the EN 50085 standard family

The order to develop a standard, valid throughout Europe, for electrical installation systems can be traced back to 1994. The basis was the internationally valid standard IEC 61084. However, as installation practices in Europe differ between countries and even regions, there was no other option but to develop an independent European standard.

With the active cooperation of experts from England, France, Spain, Italy, Sweden and Germany, a family of standards was created over time, which covered all the current electrical installation systems: wall installation duct systems, wiring duct systems, underfloor systems and service pole systems.

OBO Bettermann has made active contributions to this standardisation over time and has added its know-how.

Validity

On taking effect, the standard EN 50085 has been valid throughout Europe. National standards replaced by this standard will lose their validity after the transition phase. This also applies to the German standards DIN VDE 0604 (wall duct systems) and DIN VDE 0634 (underfloor systems), which will lose their validity on 1.10.2011. This means that, for example, symbol authorisation certificates based on these old certificates shall no longer be valid. The standard EN 50085 is part of the family of component standards (product standards), which define the safety requirements of installation systems. This makes it the base for a declaration of conformity (CE symbol according to the low voltage directive) or the symbol authorisation certificate of a testing institute (e.g. VDE).

Structure of the EN 50085 standard family

The standard EN 50085 contains various parts. Part 1 describes general items, applicable for all installation systems. System-specific requirements are dealt with in the appropriate subchapters:

EN 50085-1
Electrical installation duct systems for electrical installations – Part 1: General requirements
Publication: 2005-11

EN 50085-2-1
Electrical installation duct systems for electrical installations – Part 2-1: Special requirements for electrical installation duct systems for walls and ceilings
Publication: 2007-10

EN 50085-2-2
Electrical installation duct systems for electrical installations – Part 2-2: Special requirements for electrical installation duct systems for underfloor, on-floor or flushfloor installation
Publication: 2009-07

EN 50085-2-3
Electrical installation duct systems for electrical installations – Part 2-3: Special requirements for wiring duct system for installation in switchgear cabinets
Publication: 1999-12

EN 50085-2-4
Electrical installation duct systems for electrical installations – Part 2-4: Special requirements for free-standing installation units
Publication: During 2010

Important content for the user

Central to EN 50085 is the requirement for the manufacturer to classify their systems. The planner or erection engineer can thus compare the requirements of the system they are planning with the system classification of the manufacturer, and find the solution which is right for them. However, the basic requirement is that the planner/erection engineer understands the basics of the classification. The classification takes important product properties into account, such as protection ratings, load capacities and areas of application.

IK/IP protection rating

Manufacturers must classify their products according to the IK and IP protection ratings. The IK protection rating is designed for impact protection and specifies the mechanical resistance of a housing. The IP protection rating describes the protection provided by the housing, such as touch and moisture protection, and the protection of the installation against foreign bodies. This test is carried out according to EN 60529. However, a simple IK/IP number on the product is only half the truth. Much more important in this context is the determination of the actual protection rating: the test is carried out on brand-new products straight from the factory. The product is aged before the test, in order to simulate the influence of time on plastic products. When testing the protection against the ingress of water, a defined quantity of ingressed water is permitted. The quantity is relative to the product size. The protection rating determined during the test only then applies when the product is installed, used and maintained according to the specifications of the manufacturer. Care in daily work is often negligent. In the worst case, this means that there is no guarantee of the protection rating.

Figure 1: Load testing of a heavy-duty cassette with 20 kN

Load capacities

Installation systems must be able to cope with various loads. For example, installation systems for walls are filled with cables and these loads may not cause stretching/bending beyond a specified dimension. Underfloor systems are subjected to traffic loads and must maintain their function, even under load conditions. However, the standard only tests the behaviour of the products. It does not deal with detailed installation conditions, such as fastening on the wall or routing in the floor.

Areas of application

Area of application are defined by ambient temperatures or the type of floor care, for example. As with DIN VDE 0634 (underfloor installation systems), two types of floor care are defined – dry care and wet care. Moisture protection is directly linked to the IP protection rating. Floor care types may primarily affect underfloor systems, but also have an impact on skirting trunking systems and service pole systems.

Figure 2: Load testing of a metal service outlet with 3 kN and a permitted bend of less than 6 mm

Summary

The new standard describes the requirements for electrical installation systems in detail. The user can make a simple, safe product choice based on the product classifications. Products become safer and easier to compare on a European scale. However, the classification on its own is not a "panacea". The testing requirements of the standard always specifies certain bandwidths of permitted product properties. For example, in the case of underfloor systems, a maximum bend of 6 mm is permitted for loads. However, when combined with hard floor coverings, such a bend is not without consequences. It is therefore wise to read the small print in catalogues carefully and to interpret them accordingly.

European classification

Classification to EN 50085-1

		WDK Cable trunking	LKM Cable trunking	SKL Skirting trunking	VK Wiring trunking	GEK-K Device installation trunking Rapid 45	GEK-A Device installation trunking Rapid 45	GK Device installation trunking	GS Device installation trunking	GEK-A Device installation trunking	ISS Service pole
6.1	According to material	*2	*2	*2	*2	*2	*2	*2	*2	*2	*2
6.2	According to impact resistance for installation and application		*1								
6.2.1	Electrical installation duct systems for impact energy 0.5 J	x	*1								
6.2.2	Electrical installation duct systems for impact energy 1 J		*1								
6.2.3	Electrical installation duct systems for impact energy 2 J		*1	x							
6.2.4	Electrical installation duct systems for impact energy 5 J		*1			x		x			
6.2.5	Electrical installation duct systems for impact energy 20 J		*1				x		x	x	x
6.3	According to temperature, as specified in the Tables 1, 2 and 3										
	Table 1: Minimum storage and transport temperatures ± 2 °C										
	-45										
	-25		x				x		x	x	x
	-15			x		x		x			
	-5	x			x						
	Table 2: Minimum installation and application temperatures ± 2 °C										
	-25		x				x		x	x	x
	-15					x		x			
	-5	x		x							
	+5										
	+15				x						
	Table 3: Maximum application temperatures ± 2 °C										
	+60	x		x	x	x	x	x	x	x	x
	+90										
	+105										
	+120										
6.4	According to the resistance against fire spread										
6.4.1	Electrical installation trunking systems which allow the spread of fire	x			x	x		x			
6.4.2	Electrical installation trunking systems which do not permit the spread of fire		x	x			x		x	x	x

x Appropriate classification, *1 in test, *2 under consultation

European classification

Classification to EN 50085-1

		WDK Cable trunking	LKM Cable trunking	SKL Skirting trunking	VK Wiring trunking	GEK-K Device installation trunking Rapid 45	GEK-A Device installation trunking Rapid 45	GK Device installation trunking	GS Device installation trunking	GEK-A Device installation trunking	ISS Service pole
6.5	According to the electrical conductivity										
6.5.1	Electrical installation trunking system with electrical conductivity		x				x		x	x	x
6.5.2	Electrical installation trunking system without electrical conductivity	x		x	x	x		x			
6.6	According to the electrical insulation property										
6.6.1	Electrical installation trunking system without electrical insulation property		x				x		x	x	x
6.6.2	Electrical installation trunking system with electrical insulation property	x		x	x	x		x			
6.7	According to the protection ratings offered by the housing or casing to EN 60529:1991										
6.7.1	According to protection against ingress of solid foreign bodies	IP20	IP30	IP41		IP40	IP40	IP30	IP30	IP30	IP30
6.7.2	According to protection against ingress of water										
6.7.3	According to protection against contact with dangerous parts										
6.8	According to protection against corrosive or impure substances	-	-	-	-	-	-	-	-	-	-
6.9	According to the fastening type of the system trunking cover										
6.9.1	Only open the trunking cover of the electrical installation trunking system without tools	x	x		x						
6.9.2	Only open the trunking cover of the electrical installation trunking system with tools					x	x	x	x	x	
6.10	According to the electrical protection separation										
6.10.1	Electrical installation trunking systems without internal protection separation element		x		x		x		x	x	
6.10.2	Electrical installation trunking systems with internal protection separation element	x		x		x		x			

x Appropriate classification, *2 under consultation

European classification

Classification to EN 50085-2-1

		WDK Cable trunking	LKM Cable trunking	SKL Skirting trunking	VK Wiring trunking	GEK-K Device installation trunking Rapid 45	GEK-A Device installation trunking Rapid 45	GK Device installation trunking	GS Device installation trunking	GEK-A Device installation trunking	ISS Service pole
6.101.3	Concealed/surface-mounded electrical installation trunking on the wall or ceiling.										
6.101.3.1	Concealed/surface-mounded electrical installation trunking on the wall.	x	x			x	x	x	x	x	
6.101.3.2	Concealed/surface-mounded electrical installation trunking on the ceiling.	x	x			x	x	x	x	x	
6.101.3.3	Electrical installation trunking on the wall and supported by the base.			x							
6.101.3.4	Electrical installation trunking on the wall and supported by a different horizontal surface to the floor.										
6.101.4	Electrical installation trunking system, mounted at a distance to the wall or ceiling with fastenings.					x	x	x	x	x	
6.102	According to the protection against contact between liquids and insulated cables and parts carrying voltage in the case of skirting trunking and wet cleaning of the floor										
6.102.1	No data										
6.102.2	Add to the instructions of the manufacturer, which limit the installation position of the electrical installation trunking system.					x	x				
6.102.3	Add to the instructions of the manufacturer, which allow all the installations of the electrical installation duct system, but limits the layers of insulated cables and parts carrying voltage in the electrical installation duct system.										
6.102.4	Add to the instructions of the manufacturer, which allow all the installations of the electrical installation trunking system and allows the layers of insulated cables and parts carrying voltage in the electrical installation trunking system.										
6.103	According to type										
6.103.1	Type 1 Electrical installation trunking system			x							
6.103.2	Type 2 Electrical installation trunking system (distribution electrical installation trunking system)	x	x								
6.103.3	Type 3 Electrical installation trunking system (installation electrical installation trunking system)				x	x	x	x	x	x	

x Appropriate classification

Classification to EN 50085-1

		Screed-covered: EÜK ducts	Screed-flush: EÜK sockets, DUG, etc.	Screed-flush systems, OKA	Screed-flush systems, EBK	On-floor systems	GES service outlets	Height-adjustable cassettes	Frame cassettes	Heavy-duty support (UZD + cassettes)
		EÜK	**UZD**	**OKA**	**EBK**	**AIK**	**GES**	**RK.N**	**RK**	**.SL**
6.1	According to material									
	Under consultation									
6.2	According to impact resistance for installation and application									
6.2.1	Electrical installation duct systems for impact energy 0.5 J.									
6.2.2	Electrical installation duct systems for impact energy 1 J.									
6.2.3	Electrical installation duct systems for impact energy 2 J.									
6.2.4	Electrical installation duct systems for impact energy 5 J.						x	x	x	x
6.2.5	Electrical installation duct systems for impact energy 20 J.	x	x	x	x	x				
6.3	According to temperature, as specified in the Tables 1, 2 and 3									
Table 1	Minimum storage and transport temperatures ± 2 °C									
	-45									
	-25	x	x	x	x	x				
	-15						x	x	x	x
	-5									
Table 2	Minimum installation and application temperatures ±2 °C									
	-25									
	-15									
	-5									
	+5	x	x	x	x	x	x	x	x	x
	+15									
Table 3	Maximum application temperatures ±2 °C									
	+60	x	x	x	x	x	x	x	x	x
	+90									
	+105									
	+120									

Classification to EN 50085-1

		Screed-covered: EÜK ducts	Screed-flush: EÜK sockets, DUG, etc.	Screed-flush systems, OKA	Screed-flush systems, EBK	On-floor systems	GES service outlets	Height-adjustable cassettes	Frame cassettes	Heavy-duty support (UZD + cassettes)
		EÜK	**UZD**	**OKA**	**EBK**	**AIK**	**GES**	**RK.N**	**RK**	**.SL**
6.4	According to the resistance against fire spread									
6.4.1	Electrical installation duct systems which allow the spread of fire						x	(x)	(x)	
6.4.2	Electrical installation duct systems which do not permit the spread of fire	x	x	x	x	x				x
6.5	According to the electrical conductivity									
6.5.1	Electrical installation duct system with electrical conductivity	x	x	x	x	x	x	x	x	x
6.5.2	Electrical installation duct system without electrical conductivity									
6.6	According to the electrical insulation property									
6.6.1	Electrical installation duct system without electrical insulation property	x	x	x	x	x				x
6.6.2	Electrical installation duct system with electrical insulation property						x	x	x	
6.7	According to the protection ratings offered by the housing or casing to EN 60529:1991									
6.7.1	According to protection against ingress of solid foreign bodies	x	x	x	x	x	x	x	x	x
6.7.2	According to protection against ingress of water		x	x				x	x	x
6.7.3	According to protection against contact with dangerous parts						x	x	x	x

Classification to EN 50085-2-2

		Screed-covered: EÜK ducts	Screed-flush: EÜK sockets, DUG, etc.	Screed-flush systems, OKA	Screed-flush systems, EBK	On-floor systems	GES service outlets	Height-adjustable cassettes	Frame cassettes	Heavy-duty support (UZD + cassettes)
		EÜK	**UZD**	**OKA**	**EBK**	**AIK**	**GES**	**RK.N**	**RK**	**.SL**
6.101	Depending on the type of floor care									
6.101.1	Electrical installation duct systems for dry floor cleaning									
6.101.2	Electrical installation duct systems for wet floor cleaning when the service outlet is not in use		x					x	x	x
6.101.3	Electrical installation duct systems for wet floor cleaning when the service outlet is in use		x					x	x	x
6.102	According to resistance to vertical loads affecting a small surface area									
6.102.1	Electrical installation duct systems for 500 N									
6.102.2	Electrical installation duct systems for 750 N	x								
6.102.3	Electrical installation duct system for 1000 N									
6.102.4	Electrical installation duct system for 1500 N					x				
6.102.5	Electrical installation duct system for 2000 N						x			
6.102.6	Electrical installation duct systems for 2500 N									
6.102.7	Electrical installation duct system for 3000 N		x	x	x			x	x	
6.103	According to resistance to vertical loads affecting a large surface area									
6.103.1	Electrical installation duct systems for 2000 N									
6.103.2	Electrical installation duct systems for 3000 N							x		
6.103.3	Electrical installation duct systems for 5000 N						x		x	
6.103.4	Electrical installation duct systems for 10000 N									
6.103.5	Electrical installation duct systems for 15000 N		x		x					x

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