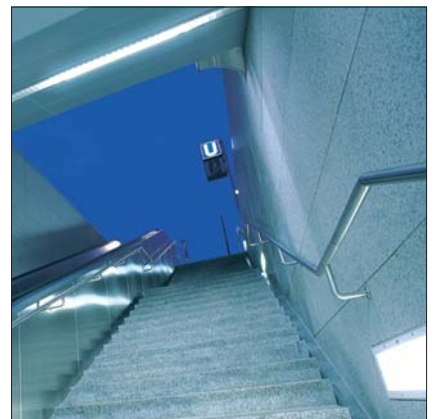
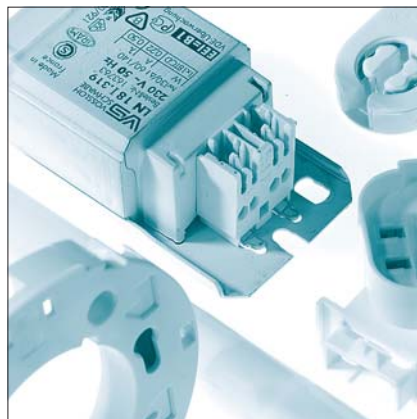




A New Lighting Experience



EU-Compliant Magnetic Ballasts

Situation with effect from 21 November 2005

1. Aims of the EU's Energy Policies and Directives

By becoming a signatory of the Kyoto Protocol, the European Union agreed to a set of aims designed to reduce the generation of greenhouse gases. The governments of EU member states have since used these aims as guidelines for their national policies, in which context a network of EU directives will serve to achieve an 8 percent reduction of greenhouse gases and encourage the use of eco-friendly materials. This environmental action programme rests on the three pillars shown below.

Within the framework of this programme the following EU directives have been adopted and transposed into national laws within the EU member states:

- 94/62/EC (**Packaging & Packaging Waste**),
- 98/11/EC (**Energy Labelling for Household Lamps**) and
- 2000/55/EC (**Energy Efficiency Requirements for Fluorescent Lamp Circuits**)

Directive 2002/91/EC – **Energy Efficiency Requirements for Buildings** – will further supplement the EU's targeted reduction of CO₂ emissions. This directive sets forth primary guideline values for the energy requirements of lighting in buildings upwards of a certain floor space and also serves to foster the use of energy-optimised lighting systems.

The topic of environmental protection is particularly reflected in EU Directives 2002/95/EC – **Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment** – and 2002/96/EC – **Waste Electrical and Electronic Equipment**.

The EU directive governing Energy using Products (EuP), which is currently in preparation, will lay down requirements for the environmentally-compatible design of products (provisions on energy consumption are also to be expected).

The EU directive on Energy using Products (EUP) lays down requirements for the environmentally-compatible design of products.



Climate protection	Environmental	
	Environmental requirements	Waste requirements
<p>Kyoto-Protocol: Reduction of CO₂ for the EU 8%, for DE 21% until 2012</p>		<ul style="list-style-type: none"> • Directive 94/62/EC Packaging & Packaging Waste directive
<ul style="list-style-type: none"> • Directive 98/11/EC Energy labelling of household lamps • Directive 2000/55/EC Energy efficiency requirements for ballasts for fluorescent lighting 		
<ul style="list-style-type: none"> • Directive 2002/91/EC Energy efficiency requirements for buildings <p>Transposition in EU member states: 04.01.2006</p>	<ul style="list-style-type: none"> • Directive 2002/95/EC Restriction on the use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) Article 95/ Directive i.e. harmonized <p>Transposition in EU member states: 01.07.2006</p>	<ul style="list-style-type: none"> • Directive 2002/96/EC Waste Electrical and Electronic Equipment (WEEE) Article 175/ Directive (min. requirements) <p>Transposition in EU member states: 13.08.2005</p>
<ul style="list-style-type: none"> • Directive 200./../EC Proposal for a Directive on establishing a framework for the setting of ECO-design requirements for energy using products and amending Council Directive 92/42/EEC, Article 95 / Directive (for all EU member states the same requirements); no fixed timing yet 		
<ul style="list-style-type: none"> • Possible implementing Directive: Energy efficiency requirements for lamps 	<ul style="list-style-type: none"> • Possible Framework Directive Environmental Product Declaration schemes (EPD) zerostage 	
<ul style="list-style-type: none"> • Possible implementing Directive: Stand-by losses, mandate by CENELEC 	<ul style="list-style-type: none"> • Green Paper IPP (White Paper 3/2003 – Directive not before 2007) • ISO TR 14 062: Environmental Management – Integrating environmental aspects into product design and development • ECO Labelling (Regulation 1980/2000) • Green Paper PVC • EMAS (Standard ISO 14 001) Environmental (Management & Audit Scheme) • Integration of environmental aspects into standardisation (EC Discussion Paper) 	
<ul style="list-style-type: none"> • GreenLight Programme (Voluntary Programme initiated by Commission) 		

Aims and tasks taken from the EU's 6th Environmental Programme

2. CELMA Energy Efficiency Index

The Committee of EU Luminaire Manufacturers' Associations – **CELMA** – has developed an **Energy Efficiency Index** for the total input power of fluorescent lamp circuits. The Index defines seven energy classes:

- Class D
High-loss magnetic ballasts
- Class C
Moderate-loss magnetic ballasts
- Class B2
Low-loss magnetic ballasts
- Class B1
Very low-loss magnetic ballasts
- Class A3
Electronic ballasts
- Class A2
Low-loss electronic ballasts
- Class A1
Dimmable electronic ballasts

Energy classes D, C and B cover magnetic ballasts, while electronic ballasts are defined in Class A.



It should be noted that the ballast types are not so much allocated to the respective classes, but that these serve to stipulate maximum values for total input power.

Labelling ballasts with their EEI class is voluntary.



Ballasts are thus marked with their EEI class, for instance B2. This declaration of the EEI class is entirely voluntary and is not required by any standard or EU directive.

The total input power is measured in line with European standard EN 50294.



3. EU Directive 2000/55/EC for Fluorescent Lamp Circuits

EU Directive 2000/55/EC stipulates maximum values for input power of fluorescent lamp circuits. As fluorescent lamps are the most widespread source of lighting for industrial applications, office space and retail outlets in Europe and over 1.50 million new fluorescent lamp circuits are installed in Europe every year, the stipulated maximum values are set to result in a substantial reduction of CO₂ emissions. Lighting systems featuring fluorescent lamps already number among the most economic solutions known today; the implementation of EU Directive 2000/55/EC will make a further contribution to improving the efficiency of such circuits.

The maximum values stipulated in EU Directive 2000/55/EC will result in a substantial reduction of CO₂ emissions.

In line with the directive, CELMA class D ballasts were already phased out with effect from 21 May 2002 and class C ballasts will be prohibited on the European market as of 21 November 2005. From this time on, it will only be permitted to introduce ballasts to the EU market that comply with CELMA energy classes A1, A2, A3, B1 and B2. Luminaire manufacturers and/or users can then select the best ballast for the respective application from the remaining energy classes. This is of major importance as electromagnetic ballasts are not only the most popular, but also constitute the best technical and most cost-effective solution for most applications.

4. CE Identification for Magnetic Ballasts

CE identification is a sign of conformity with EU Directive 2000/55/EC and denotes that the requirements of all European directives that affect the product have been met. The onus is on the manufacturer or importer to apply the CE mark to the ballasts and the packaging. Trade supervisory offices or regulatory authorities are responsible for checking that the directives are adhered to within the territory of the European Union.

Ballasts that fail to meet the maximum energy values of EU Directive 2000/55/EC by the set deadlines will be unsuitable for CE identification. This equally applies to devices that are destined for export as they could otherwise re-enter the EU in the form of integrated luminaire components.

This regulation is also applicable to ballasts that are produced in non-EU member states. Such devices are only permitted to feature the CE mark if they comply with all relevant European directives.

Ballasts are only permitted to feature the CE mark if they comply with all relevant European directives.



5. CELMA Statement on the Use of Magnetic Ballasts

European directives constitute action guidelines for the governments of EU member states, but are not immediately legally binding and first have to be transposed into national laws by the individual member states. This process can result in differing jurisdictional interpretations.

With regard to EU Directive 2000/55/EC, differing laws were thus enacted in the various member states. The regulations on putting CELMA class C luminaires with built-in ballasts into circulation were not defined in a uniform manner. In the interest of clarification, CELMA has provided the following unambiguous definition.

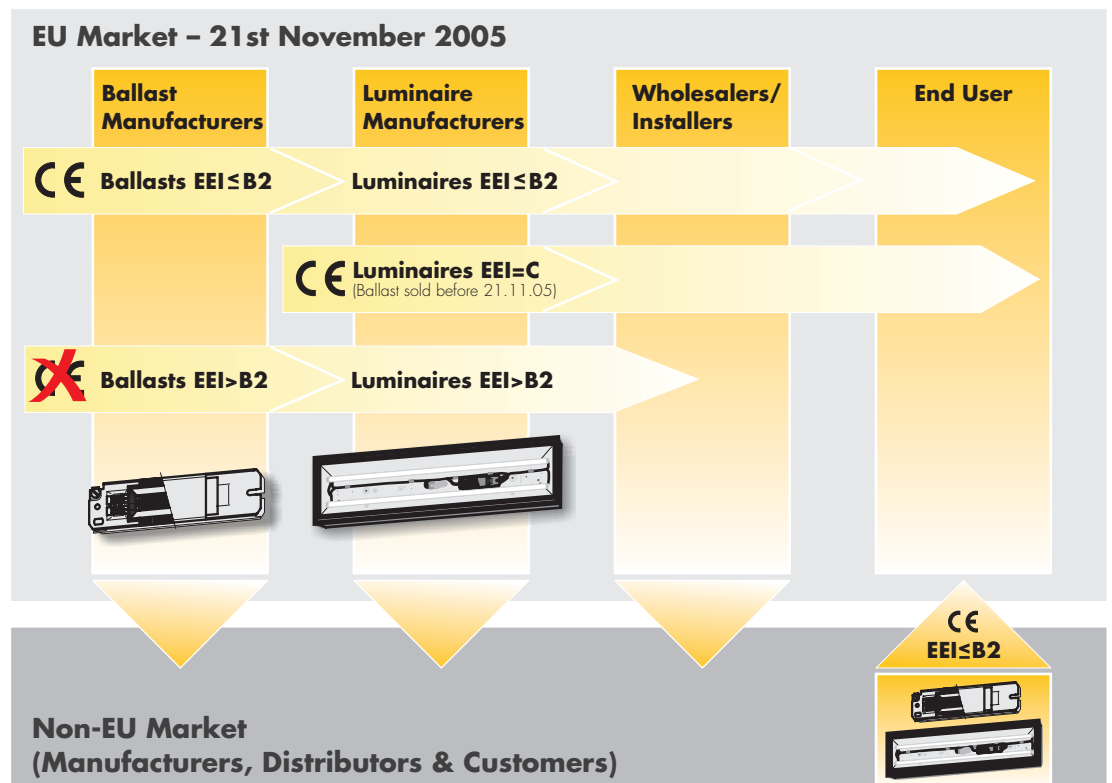
The regulations on putting CELMA class C luminaires with built-in ballasts into circulation were not defined in a uniform manner.

Ballasts are only permitted to be labelled with the CE mark if they meet the stipulated maximum energy values at the time they are introduced to the market.

The following sentence from the directive is decisive for the differing jurisdictional interpretations.

"The member states must take the necessary measures to ensure that ballasts – during a first (and second) stage – are only permitted to be introduced to the market as individual components or as built-in components of luminaires if the input power of the ballast does not exceed the ... maximum input power of the ballast-lamp circuit as stipulated for the respective ballast category."

According to CELMA the CE mark makes it perfectly clear whether or not ballasts and/or luminaires with these ballasts may be marketed within the EU.



EEI ≤ B2: Losses better or identical with CELMA class B2
 EEI > B2: Losses higher than CELMA class B2, that means C or D
 EEI = C: Losses identical with CELMA class C



This passage of the directive refers to ballasts that are introduced to the market in the form of individual components for the first time by a ballast manufacturer or to built-in ballasts that are introduced to the market for the first time along with the luminaire by a luminaire manufacturer that also produces ballasts. This statement is equally applicable to luminaires with built-in ballasts that are put on the European market.

As long as a ballast bears the CE mark, a luminaire manufacturer is free to introduce this ballast to the European market along with the luminaire. This also applies to ballasts that were purchased by a luminaire manufacturer prior to 21.11.2005 and of which stocks are still held after 21.11.2005 and may possibly still correspond to CELMA class C. This CELMA statement is also decisive with regard to ensuring trading equality for luminaires and ballasts within the European market.

Moreover, removing and scrapping ballasts from luminaires that have already been produced and warehoused would lead to an increase of CO₂ emissions and thus be counterproductive with regard to the EU's aims.

Ballasts without CE identification can only be used for export purposes – in the form of individual or built-in devices.

Ballasts without CE identification can only be used for export purposes (outside EU) – in the form of individual or built-in devices.

The European ballast manufacturers are in the process of clearing their stocks of class C ballasts with CE identification by 20 November 2005.

CELMA recommends that luminaire manufacturers should also adjust their product ranges by 20 November 2005. In line with the sales frequency of the individual luminaire types, the changeover to the permitted energy classes should be completed in a timely manner.

Ballast manufacturers that are organised under CELMA will continue to accept orders for class C ballasts with CE identification until the beginning of September 2005.

After this time, energy-class C ballasts will only be supplied without a CE mark. Devices of this kind can then no longer be retailed within the European Union.

6. VS Product Features

The main materials used to manufacture magnetic ballasts are copper wire and electromagnetic steel.

VS attaches great importance to the following when using magnetic wire:

- a special, heat-resistant and multi-layer polyamide-imide coating and
- a particularly smooth, low-friction surface.

This guarantees high thermal resistance, a high winding density and also means the winding can be installed in the ballast without damaging the coating.

The following points are of paramount importance when selecting magnetic steels:

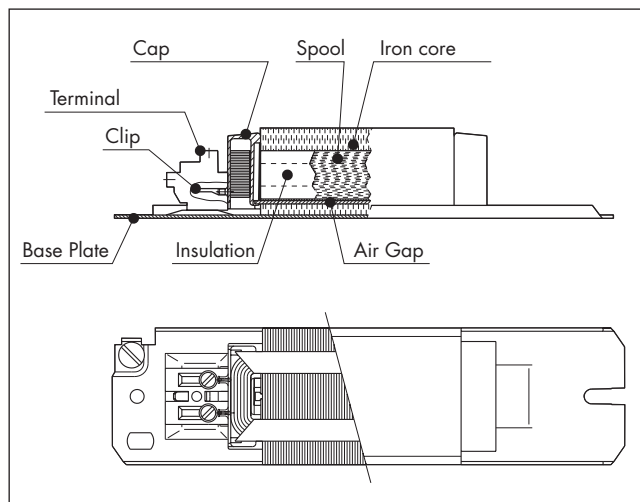
- high permeability,
- high thermal conductivity and
- high punching quality.

Thanks to the above-mentioned material selection and the sophisticated manufacturing process (which includes impedance calibration during production), VS ballasts are fully EEL-compliant. In addition, ballasts are fitted with a central combination terminal and are thus suitable for automated and manual wiring within the luminaire.

The life time of magnetic ballasts is mainly determined by the insulation system and its degree of heat resistance. Thanks to the use of highly heat-resistant and tear-proof insulation foils along with proven processes for impregnating magnetic ballasts and insulating magnetic wires, VS ballasts ensure an extended life time with unchanging product features.

VS magnetic ballasts can be expected to operate for a period of over 100,000 hours, which corresponds to a 25-year period of operation with an annual operating time of 4,000 hours (roughly 12 hours a day). The failure rate during this time remains below 0.02 percent per 1,000 hours. This long life time is due to the fact that the maximum temperature values of the devices are never exceeded. Furthermore, magnetic ballasts are resistant to a large number of environmental influences and also capable of withstanding voltage fluctuations, i.e. temporarily over- or under-shooting mains voltage tolerances, to which industrial grids are particularly prone.

VS magnetic ballasts guarantee a life time of more than 100,000 hours.



7. VS Product Overview of Magnetic Ballasts, EU-compliant as of 21.11.2005

7.1 Magnetic Ballasts for Compact Fluorescent Lamps – 230 V

Lamp output W	Lamp type	Ref. no.	Type	Shape mm	V, Hz	EEL class
Standard Shape 28x41 mm						
7	TC-S	163694	L7/9/11.307	28x41	230, 50	B2
9	TC-S	163694	L7/9/11.307	28x41	230, 50	B1
10	TC-D/TC-DD	169647	LN 13.805	28x41	230, 50	B1
10	TC-D/TC-DD	163711	LN 13.313	28x41	230, 50	B2
11	TC-S	163694	L7/9/11.307	28x41	230, 50	B1
13	TC-D/TC-T	169647	LN 13.805	28x41	230, 50	B1
13	TC-D/TC-T	163711	LN 13.313	28x41	230, 50	B2
16	TC-DD	163730	LN 16.316	28x41	230, 50	B2
18	TC-D/TC-T	163763	LN 181.319	28x41	230, 50	B1
18	TC-D/TC-T	503871	LN 181.850	28x41	230, 50	B2
18	TC-F/TC-L	169822	LN 18.569	28x41	230, 50	B1
18	TC-F/TC-L	508183	LN 18.114	28x41	230, 50	B2
21	TC-DD	169651	LN 21.803	28x41	230, 50	B1
22	TR	164680	LN 30.530	28x41	230, 50	B2
24	TC-F/TC-L	179659	LN 24/26.829	28x41	230, 50	B2
26	TC-D/TC-T	509502	LN 26.813	28x41	230, 50	B2
28	TC-DD	169822	LN 18.569	28x41	230, 50	B1
28	TC-DD	508183	LN 18.114	28x41	230, 50	B1
32	TR	172436	LN 36.824	28x41	230, 50	B2
36	TC-F/TC-L	169779	LN 36.570	28x41	230, 50	B1
36	TC-F/TC-L	508185	LN 36.115	28x41	230, 50	B2
38	TC-DD	169779	LN 36.570	28x41	230, 50	B1
38	TC-DD	508185	LN 36.115	28x41	230, 50	B2
40	TR	169779	LN 36.570	28x41	230, 50	B1
40	TR	508185	LN 36.115	28x41	230, 50	B2
Super-thin Shape 18x41 mm						
7	TC-S	163052	L7/9/11.141	18x41	230, 50	B2
9	TC-S	163052	L7/9/11.141	18x41	230, 50	B2
10	TC-D/TC-DD	163071	LN 13.143	18x41	230, 50	B2
11	TC-S	163052	L7/9/11.141	18x41	230, 50	B2
13	TC-D/TC-T	163071	LN 13.143	18x41	230, 50	B2
16	TC-DD	163084	LN 16.145	18x41	230, 50	B2
18	TC-D	163102	LN 181.147	18x41	230, 50	B2
18	TC-F/TC-L	526592	LN 18.220	18x41	230, 50	B2
24	TC-F/TC-L	526592	LN 18.220	18x41	230, 50	B2
26	TC-D	526592	LN 18.220	18x41	230, 50	B1
28	TC-DD	526592	LN 18.220	18x41	230, 50	B1
36	TC-F/TC-L	526593	LN 36.221	18x41	230, 50	B2
38	TC-DD	526593	LN 36.221	18x41	230, 50	B2
40	TR	526593	LN 36.221	18x41	230, 50	B2
Slim Shape 28x28 mm						
7	TC-S	179409	L7/9/11.131	28x28	230, 50	B2
9	TC-S	179409	L7/9/11.131	28x28	230, 50	B1
10	TC-D/TC-DD	179466	LN 13.134	28x28	230, 50	B2
11	TC-S	179409	L7/9/11.131	28x28	230, 50	B1
13	TC-D/TC-T	179466	LN 13.134	28x28	230, 50	B2
16	TC-DD	505607	LN 16.135	28x28	230, 50	B2
18	TC-D/TC-T	179231	LN 181.130	28x28	230, 50	B1
18	TC-F/TC-L	526596	LN 18.127	28x28	230, 50	B2
24	TC-F/TC-L	526596	LN 18.127	28x28	230, 50	B2
26	TC-D/TC-T	526596	LN 18.127	28x28	230, 50	B1
28	TC-DD	526596	LN 18.127	28x28	230, 50	B1
36	TC-F/TC-L	526597	LN 36.172	28x28	230, 50	B2
38	TC-DD	526597	LN 36.172	28x28	230, 50	B2
40	TR	526597	LN 36.172	28x28	230, 50	B2

7.2 Magnetic Ballasts for Compact Fluorescent Lamps – 240 V

Lamp output W	Lamp type	Ref. no.	Type	Shape mm	V, Hz	EEL class
Standard Shape 28x41 mm						
7	TC-S	164335	L7/9/11.411	28x41	240, 50	B2
9	TC-S	164335	L7/9/11.411	28x41	240, 50	B1
10	TC-D/TC-DD	164342	LN 13.413	28x41	240, 50	B2
11	TC-S	164335	L7/9/11.411	28x41	240, 50	B1
13	TC-D/TC-T	164342	LN 13.413	28x41	240, 50	B1
16	TC-DD	164358	LN 16.417	28x41	240, 50	B1
18	TC-D/TC-T	164353	LN 18.418	28x41	240, 50	B1
18	TC-F/TC-L	164566	LN 18.507	28x41	240, 50	B1
18	TC-F/TC-L	507952	LN 18.194	28x41	240, 50	B2
22	TR	163405	LN 30.231	28x41	240, 50	B2
24	TC-F/TC-L	164566	LN 18.507	28x41	240, 50	B1
24	TC-F/TC-L	507952	LN 18.194	28x41	240, 50	B2
26	TC-D/TC-T	508909	LN 26.140	28x41	240, 50	B2
28	TC-DD	164566	LN 18.507	28x41	240, 50	B1
28	TC-DD	507952	LN 18.194	28x41	240, 50	B1
36	TC-F/TC-L	164555	LN 36.505	28x41	240, 50	B1
36	TC-F/TC-L	527196	LN 36.201	28x41	240, 50	B2
38	TC-DD	164555	LN 36.505	28x41	240, 50	B1
38	TC-DD	527196	LN 36.201	28x41	240, 50	B2
40	TR	527196	LN 36.201	28x41	240, 50	B2
Super-thin Shape 18x41 mm						
7	TC-S	162958	L7/9/11.110	18x41	240, 50	B2
9	TC-S	162958	L7/9/11.110	18x41	240, 50	B2
10	TC-D/TC-DD	162966	L 13.111	18x41	240, 50	B2
11	TC-S	162958	L7/9/11.110	18x41	240, 50	B2
13	TC-D/TC-T	162966	L 13.111	18x41	240, 50	B2
16	TC-DD	162976	L 16.113	18x41	240, 50	B2
18	TC-D/TC-T	163031	L 18.132	18x41	240, 50	B2
18	TC-F/TC-L	529272	LN 18.121	18x41	240, 50	B2
24	TC-F/TC-L	529272	LN 18.121	18x41	240, 50	B2
26	TC-D/TC-T	529272	LN 18.121	18x41	240, 50	B1
28	TC-DD	529272	LN 18.121	18x41	240, 50	B1
36	TC-F/TC-L	529273	LN 36.124	18x41	240, 50	B2
38	TC-DD	529273	LN 36.124	18x41	240, 50	B2
40	TR	529273	LN 36.124	18x41	240, 50	B2
Slim Shape 28x28 mm						
7	TC-S	505609	L7/9/11.137	28x28	240, 50	B2
9	TC-S	505609	L7/9/11.137	28x28	240, 50	B1
10	TC-D/TC-DD	179258	L 13.129	28x28	240, 50	B2
11	TC-S	505609	L7/9/11.137	28x28	240, 50	B1
13	TC-D/TC-T	179258	L 13.129	28x28	240, 50	B2
16	TC-DD	505629	LN 16.146	28x28	240, 50	B2
18	TC-F/TC-L	529066	LN 18.173	28x28	240, 50	B2
18	TC-D/TC-T	505630	LN 18.147	28x28	240, 50	B2
24	TC-F/TC-L	529066	LN 18.173	28x28	240, 50	B2
26	TC-D/TC-T	529066	LN 18.173	28x28	240, 50	B1
28	TC-DD	529066	LN 18.173	28x28	240, 50	B1
36	TC-F/TC-L	529071	LN 36.174	28x28	240, 50	B2
38	TC-DD	529071	LN 36.174	28x28	240, 50	B2
40	TR	529071	LN 36.174	28x28	240, 50	B2

The energy classification assessment is also carried out at 230 V for 240 V ballasts (voltage harmonisation within the EU). The provisions of EN 50294 and amendments A1 and A2 cover this requirement.

7. VS Product Overview of Magnetic Ballasts, EU-compliant as of 21.11.2005

7.3 Magnetic Ballasts for Tubular Fluorescent Lamps – 230 V

Lamp output W	Lamp type	Ref. no.	Type	Shape mm	V, Hz	EEL class
Standard Shape 28x41 mm						
4	T5	163683	L 4/6/8.304	28x41	230, 50	B2
6	T5	163683	L 4/6/8.304	28x41	230, 50	B1
8	T5	163683	L 4/6/8.304	28x41	230, 50	B1
13	T5	163711	LN 13.313	28x41	230, 50	B1
15	T8	163852	L 15.329	28x41	230, 50	B2
18	T8	169822	LN 18.569	28x41	230, 50	B1
18	T8	508183	LN 18.114	28x41	230, 50	B2
30	T8	169646	LN 30.802	28x41	230, 50	B1
30	T8	169645	LN 30.801	28x41	230, 50	B2
36	T8	169779	LN 36.570	28x41	230, 50	B1
36	T8	508185	LN 36.115	28x41	230, 50	B2
38	T8	169779	LN 36.570	28x41	230, 50	B1
38	T8	508185	LN 36.115	28x41	230, 50	B2
58	T8	169389	LN 58.568	28x41	230, 50	B1
58	T8	508186	LN 58.116	28x41	230, 50	B2
Super-thin Shape 18x41 mm						
4	T5	163062	L 4/6/8.142	18x41	230, 50	B2
6	T5	163062	L 4/6/8.142	18x41	230, 50	B2
8	T5	163062	L 4/6/8.142	18x41	230, 50	B1
13	T5	163071	LN 13.143	18x41	230, 50	B2
15	T8	526594	LN 15.144	18x41	230, 50	B2
18	T8	526592	LN 18.220	18x41	230, 50	B2
30	T8	525809	LN 30.148	18x41	230, 50	B2
36	T8	526593	LN 36.221	18x41	230, 50	B2
38	T8	526593	LN 36.221	18x41	230, 50	B2
Slim Shape 28x28 mm						
4	T5	505712	L 4/6/8.132	28x28	230, 50	B2
6	T5	505712	L 4/6/8.132	28x28	230, 50	B2
8	T5	505712	L 4/6/8.132	28x28	230, 50	B1
13	T5	179466	LN 13.134	28x28	230, 50	B2
15	T8	162860	LN 15.107	28x28	230, 50	B2
18	T8	526596	LN 18.127	28x28	230, 50	B2
30	T8	526595	LN 30.128	28x28	230, 50	B2
36	T8	526597	LN 36.172	28x28	230, 50	B2
38	T8	526597	LN 36.172	28x28	230, 50	B2



Shape 28x41 mm



Shape 18x41 mm

7.4 Magnetic Ballasts for Tubular Fluorescent Lamps – 240 V

Lamp output W	Lamp type	Ref. no.	Type	Shape mm	V, Hz	EEL class
Standard Shape 28x41 mm						
4	T5	164326	L 4/6/8.404	28x41	240, 50	B2
6	T5	164326	L 4/6/8.404	28x41	240, 50	B1
8	T5	164326	L 4/6/8.404	28x41	240, 50	B1
13	T5	164342	LN 13.413	28x41	240, 50	B1
15	T8	163330	LN 15.211	28x41	240, 50	B2
18	T8	164566	LN 18.507	28x41	240, 50	B1
18	T8	507952	LN 18.194	28x41	240, 50	B2
30	T8	163405	LN 30.231	28x41	240, 50	B2
36	T8	164555	LN 36.505	28x41	240, 50	B1
36	T8	527196	LN 36.201	28x41	240, 50	B2
38	T8	164555	LN 36.505	28x41	240, 50	B1
38	T8	527196	LN 36.201	28x41	240, 50	B2
58	T8	164560	LN 58.506	28x41	240, 50	B1
58	T8	507936	LN 58.192	28x41	240, 50	B2
70	T8	508028	L 75.277	28x41	240, 50	B2
Super-thin Shape 18x41 mm						
4	T5	169414	L 4/6/8.109	18x41	240, 50	B2
6	T5	169414	L 4/6/8.109	18x41	240, 50	B2
8	T5	169414	L 4/6/8.109	18x41	240, 50	B1
13	T5	162966	L 13.111	18x41	240, 50	B2
15	T8	529268	LN 15.119	18x41	240, 50	B2
18	T8	529272	LN 18.121	18x41	240, 50	B2
30	T8	529269	LN 30.120	18x41	240, 50	B2
36	T8	529273	LN 36.124	18x41	240, 50	B2
38	T8	529273	LN 36.124	18x41	240, 50	B2
Slim Shape 28x28 mm						
4	T5	179414	L 4/6/8.133	28x28	240, 50	B2
6	T5	179414	L 4/6/8.133	28x28	240, 50	B1
8	T5	179414	L 4/6/8.133	28x28	240, 50	B1
13	T5	179258	L 13.129	28x28	240, 50	B2
15	T8	528753	LN 15.116	28x28	240, 50	B2
18	T8	529066	LN 18.173	28x28	240, 50	B2
30	T8	528755	LN 30.117	28x28	240, 50	B2
36	T8	529071	LN 36.174	28x28	240, 50	B2
38	T8	529071	LN 36.174	28x28	240, 50	B2

The energy classification assessment is also carried out at 230 V for 240 V ballasts (voltage harmonisation within the EU). The provisions of EN 50294 and amendments A1 and A2 cover this requirement.



Shape 28x41 mm



Shape 18x41 mm



Subsidiaries

Vossloh-Schwabe Deutschland GmbH

P.O. Box 28 69 · D-58478 Lüdenscheid

Germany:

Phone: +49/(0) 23 51/10 10

Fax: +49/(0) 23 51/10 12 17

Export:

Phone: +49/(0) 23 51/10 10

Fax: +49/(0) 23 51/10 13 84

Belgium, Netherlands

Vossloh-Schwabe vbr

Molstraat 30

3001 Leuven, Belgium

Phone: +32/(0) 16/25 33 30

Fax: +32/(0) 16/25 50 30

China

Vossloh-Schwabe Electrical Appliances

Trading (Shanghai) Co., Ltd.

705# room, D building,

80# CaoBao Road

Shanghai Everbright

Convention & Exhibition Center

Shanghai, China P.C. 200235

Phone: +86/21/6432 64 10

Fax: +86/21/6432 67 90

East Europe

Vossloh-Schwabe Deutschland GmbH

Sales office East Europe

Brunnerova ul. 4

16300 Prague 6, Czech Republic

Phone: +4 20/(0)2/35 31 22 88

Fax: +4 20/(0)2/35 31 22 61

France

Vossloh-Schwabe France S.a.r.l.

Zl.-Nord

20, rue A. Kiener

68016 Colmar, France

Phone: +33/(0)3 89/20 12 12

Telex: 880201

Fax: +33/(0)3 89/24 18 65

Great Britain, Ireland

Vossloh-Schwabe UK Ltd.

42 Tanners Drive

Blakelands

Milton Keynes, MK14 5BW

Great Britain

Phone: +44/(0) 19 08/51 78 00

Fax: +44/(0) 19 08/51 78 17

Hungary

Vossloh-Schwabe Deutschland GmbH

Sales office Hungary

Röbert Károly krt. 16/a

1138 Budapest, Hungary

Phone: +36/30/298/43 00

Fax: +36/1/270/12 62

India

Vossloh-Schwabe India Pvt. Ltd.

A-491, 12 & 13

3rd Pasta Lane, Colaba

Mumbai 400 005, India

Phone: +91/22/2 88 33 55

Fax: +91/22/2 88 13 66

Italy, Portugal, Greece

Vossloh-Schwabe Italia S.p.A.

Via Strada S. Martino 15

47027 Sarsina/Forlì, Italy

Phone: +39/05 47/9 81 11

Fax: +39/05 47/9 82 60

Korea

Vossloh-Schwabe Korea

#807, 8th Fl., Renaissance Tower

Korea Social Welfare Center

456 Gongduk-dong, Mapo-ku

Seoul, Korea

Phone: 82 2 6377 7750/-1

Fax: 82 2 6377 7752

Poland

Vossloh-Schwabe Deutschland GmbH

Sales office Poland

ul. Torowa 3 F

30435 Kraków, Poland

Phone: +48/(0) 12/2 69 06 35

Fax: +48/(0) 12/2 69 06 72

Romania

Vossloh-Schwabe Deutschland GmbH

Sales office Romania

Calea Mosilor Nr. 288, bl. 32

Sc. 1, Ap. 6, Sector 2

020895 Bucharest, Romania

Phone: +4 02/16 10 74 37

Fax: +4 02/16 10 74 37

Sweden, Denmark, Finland, Norway

Vossloh-Schwabe Skandinavien A.B.

Kungsposten 1c

42750 Billdal, Sweden

Phone: +46/(0) 31/91 49 40

Fax: +46/(0) 31/91 40 95

Serbia, Montenegro

Vossloh-Schwabe Deutschland GmbH

Sales office Belgrade/Serbia and

Montenegro

Straska Pindzura 9/1

11000 Belgrade

Phone: +381/63/286330

Fax: +381/11/3541927

Singapore

Vossloh-Schwabe Pte. Ltd.

10 Toh Guan Road

04-02 TT International Trade Park

Singapore 608838

Phone: +65/62 75 75 33

Fax: +65/62 75 76 33

Spain, South America

Vossloh-Schwabe Ibérica, S.L.

Avenida Drassanes N° 6-8, 7°, 1°

08001 Barcelona, Spain

Phone: +34/93/4 81 70 70

Fax: +34/93/4 81 70 71

Taiwan

Vossloh-Schwabe Pte. Ltd.

Taiwan Branch

9. Fl-2, No. 80

Sung Chiang Road

Taipei, Taiwan

Phone: +8 86/(0)2/25 68 36 22

Fax: +8 86/(0)2/25 68 36 20

Thailand

Vossloh-Schwabe (Trading) Ltd.

3rd Floor (Unit 1) BUI Building 1

175-177 Soi Anumarnratchathon 1

Surawong Road

Kwaeng Suriyawongse

Khet Bangrak, Bangkok 10500

Thailand

Phone: +66/(0)2/6 34-73 11

Fax: +66/(0)2/6 34-73 13

Tunisia

Vossloh-Schwabe Tunisie S.A.

Rue de l'énergie, BP. 299

Zone Industrielle de Ben Arous 2013

Tunis, Tunisia

Phone: +2 16/71/38 49 00

Fax: +2 16/71/38 49 90

USA, Canada, Mexico

Vossloh-Schwabe, Inc.

55 Mayview Road

Lawrence, PA 15055, USA

Phone: +1/7 24/7 43 47 70

Fax: +1/7 24/7 43 47 71