The new, extremely low-loss VS system consists of a magnetic ballast made by Vossloh-Schwabe and an electronic starter made by PALM STEP.

The completely new cross-sectional design of the low-loss ballasts for T8 lamps and the standard cross-section for T5 lamps both already meet the A2 energy efficiency requirements of the 3rd step of the ErP Directive (due to become effective in 2017). With the aim of creating particularly energy-efficient systems with a long service life, VS is starting out with ballasts for standard 36 W and 58 W T8 lamps as well as ballasts specifically developed to suit the high-quality, long-life T5 lamps made by AURA with an output of 21, 35 and 54 W. Development work has already begun on further models to suit almost all T5 lamp outputs.

Some examples of typical applications:
- Stations, multi-level car parks
- Industrial buildings, supermarkets
- Heat-sensitive luminaires and luminaires used in aggressive environments

System Benefits
- **LONG SERVICE LIFE**: VS ballast plus starter > 100,000 hours
  - AURA T5 lamp: approx. 50,000 hours
- **EXTREMELY RELIABLE**: due to the control gear’s ultralow failure rate of only 0.023% per 1,000 operating hours
- **LOW MAINTENANCE COSTS**: thanks to the extremely long service life of the components
Super-low-loss
Electromagnetic
Ballasts T8

For fluorescent lamps T8

Shape: 36x58 mm
Vacuum-impregnated with polyester resin
Push-in terminal for leads: 0.5–1 mm²
Protection class I
Energy efficiency class A2

<table>
<thead>
<tr>
<th>Lamp Ballast Capacitor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Type Base Current Type</td>
</tr>
<tr>
<td>Ref. No. Voltage a b c Weight</td>
</tr>
<tr>
<td>V, Hz mm mm mm kg</td>
</tr>
<tr>
<td>2x18 T8 G13 0.40 LNN 36.170 544974 230, 50 155 137.5 54 1.2 25/50 A2 4.5 210</td>
</tr>
<tr>
<td>36 T8 G13 0.43 LNN 36.170 544974 230, 50 155 137.5 54 1.2 25/50 A2 4.5 210</td>
</tr>
<tr>
<td>58 T8 G13 0.67 LNN 58.172 544975 230, 50 195 178 88 1.8 20/55 A2 7.0 320</td>
</tr>
</tbody>
</table>

Parallel Capacitor
250 V, 50/60 Hz

Capacitor type A

Casing: plastics, white
Push-in twin terminals: 0.5–1 mm²
Temperature range: –40 to 85 °C
Fastening: male nipple M8x10
with nut and washers included
Discharge resistance

Capacity: 4.5 μF
Dimensions: Ø 25 mm, length: 70 mm
Weight: 29 g
Ref. No.: 500303

Capacity: 7 μF
Dimensions: Ø 30 mm, length: 70 mm
Weight: 35 g
Ref. No.: 506495
**G13 Lampholders**

For fluorescent lamps T8 (T26), T12 (T38)

- Pin support for reliable contact
- Max. permitted temperature $T_m$ on the rear side of the lampholder: 110 °C

**G13 built-in lampholders for lamps T8 and T12**

- Casing: PC, white, rotor: PBT GF, white
- Nominal rating: 2/500
- Lampholder thickness: 9.5 mm
- Base push-in terminals: 0.5 – 1 mm²
- Rear split pins for wall thickness up to 1.2 mm
- Weight: 5/5.5/8/8.5 g
- Type: 49505/49506
- T-Marking: T140
- Ref. No.: 537174
- Ref. No.: 537175 with spring adjustment
- Type: 47605/47606
- With starter attachment, T-Marking: T130
- Ref. No.: 101769
- Ref. No.: 101773 with spring adjustment

**G13 push-through lampholders**

- For lamps T8 and T12
- Lamp axis: 23 mm
- Casing: PC, white, frontplate: PBT GF, white
- T140, nominal rating: 2/500
- Push-in terminals: 0.5 – 1 mm²
- Lateral fixing clips for wall thickness 0.4 – 2 mm
- Weight: 6/10.4 g
- Type: 27700/27800 with stop
- Ref. No.: 546641
- Ref. No.: 546647 with starter attachment

Further lampholders – in standard and watertight versions – can be found at [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com).

**Electronic Starter ÖKO6 – 230 V**

For fluorescent lamps T5 and T8

- 4 to 125 W single circuit

- Casing: polycarbonate, translucent green
- Printing: gold, contact plate: polycarbonate, contacts: nickel-plated brass
- Voltage: 200–250 V AC, 50/60 Hz
- Preheat time: 2.3 sec. at 20 °C

- Pulse height: 1,500 V max
- Safety shutdown: < 3 sec. at 20 °C
- Operating temperature: –20 to +100 °C
- Storage temperature: –50 to +105 °C
- Type: EIST41255230
- Ref. No.: 509235

Additional information on the starter is available at [www.palmstep.com](http://www.palmstep.com)

---

**Vossloh-Schwabe Deutschland GmbH**
Hohe Steinert 8 · 58509 Lüdenscheid · Germany · Phone +49 2351/10 10 · Fax +49 2351/10 12 17 · [www.vossloh-schwabe.com](http://www.vossloh-schwabe.com)

A Member of the Panasonic Group
Super-low-loss
Electromagnetic
Ballasts T5

For fluorescent lamps T5 ECO SAVER

Shape: 28x41 mm
Vacuum-impregnated with polyester resin
Push-in terminal for leads: 0.5 – 1 mm²
For the automatic luminaire wiring: IDC terminals for leads H05V-U 0.5
Protection class I
Energy efficiency class A2

<table>
<thead>
<tr>
<th>Lamp Ballast Capacitor</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal Type Base</td>
<td>Current Type</td>
<td>Ref. No.</td>
</tr>
<tr>
<td>T5 G5 0.20 LN</td>
<td>25/75 A2</td>
<td>21.297</td>
</tr>
<tr>
<td>T5 G5 0.20 LN</td>
<td>40/80 A2</td>
<td>54.299</td>
</tr>
</tbody>
</table>

Parallel Capacitor
250 V, 50/60 Hz

Capacitor type A
Casing: plastics, white
Push-in twin terminals: 0.5 – 1 mm²
Temperature range: –40 to 85 °C
Fastening: male nipple M8x10
with nut and washer included
Discharge resistance
Capacity: 2.5 μF
Dimensions: Ø 25 mm, length: 57 mm
Weight: 22 g
Ref. No.: 500299
G5 Lampholders

For fluorescent lamps T5 (T16)

- Casing: PBT GF, white; rotor: PBT GF, white
- T140, nominal rating: 2/500
- Push-in terminals: 0.5 - 1 mm²
- Max. permitted temperature $T_m$ on the rear side of the lampholder: 110 °C

G5 built-in lampholders
- Rear split pins for wall thickness up to 1.2 mm
- Weight: 2.9/3.3 g
- Type: 09405/09406 and 09415/09416
- Ref. No.: 505733
- Ref. No.: 505734 with spring adjustment
- Ref. No.: 505735
- Ref. No.: 505736 with spring adjustment

G5 push-through lampholders
- With stop
- Lateral fixing clips for wall thickness 0.5 – 1.5 mm
- Weight: 3.5/3.7 g, type: 09420/09422
- Ref. No.: 505737 lamp axis: 15 mm
- Ref. No.: 505740 lamp axis: 20 mm

G5 push-fit lampholders
- Rear fixing clips for wall thickness 0.6 – 1 mm
- Base or lateral wiring
- Weight: 3.3/3.5 g, type: 09440/09441
- Ref. No.: 505747 lamp axis: 14 mm
- Ref. No.: 505748 lamp axis: 18 mm

Starter Holders

For starters acc. to DIN VDE 0712 part 101, IEC 60155
- Material: PC, white, T110, nominal rating 2/250
- Push-in terminals: 0.5 - 1 mm²
- Rear split pins for wall thickness up to 1.2 mm
- Weight: 2.1/3.7 g, type: 09440/09441
- Ref. No.: 535131
- Ref. No.: 109792

Electronic Starter ÖKO6 – 230 V

For fluorescent lamps T5 and T8
- 4 to 125 W single circuit
- Casing: polycarbonate, translucent-green
- Printing: gold, contact plate: polycarbonate, contacts: nickel-plated brass
- Voltage: 200 - 250 V AC, 50/60 Hz
- Preheat time: 2.3 sec. at 20 °C
- Pulse height: 1500 V max.
- Safety shutdown: < 3 sec. at 20 °C
- Operating temperature: -20 to +100 °C
- Storage temperature: -50 to +105 °C
- Type: ELST4-125-230
- Ref. No.: 509235

Additional information on the starter is available at www.vossloh-schwabe.com
Super-low-loss
Electromagentic
Ballasts T5

For fluorescent lamps T5 ECO SAVER HE

Shape: 28x41 mm
Vacuum-impregnated with polyester resin
Push-in terminal for leads: 0.5–1 mm²
For the automatic luminaire wiring:
IDC terminals for leads H05V-U 0.5
Protection class I
Energy efficiency class A2

The VS auto-transformer (No. 545617, p. 8) is available for 230V circuits.

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage</th>
<th>Ref. No.</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 T5 G5</td>
<td>350 V, 50 Hz</td>
<td>545625</td>
<td>0.80 kg</td>
</tr>
</tbody>
</table>

Parallel Capacitor mit FPU-Schutz
380–450 V, 50/60 Hz

Capacitor type B

Casing: aluminium
Filling material: based on vegetable oil
Push-in twin terminals: 0.5–1 mm²
Fastening: male nipple M8x10
Discharge resistance
Overpressure protection

Capacity: 1.5 μF
Dimensions: Ø 25 mm, length: 48 mm
Weight: 70 g
Ref. No.: 546406
**G5 Lampholders**

For fluorescent lamps T5 (T16)

- Casing: PBT GF, white, rotor: PBT GF, white
- T140, nominal rating: 2/500
- Max permitted temperature T<sub>m</sub> on the rear side of the lampholder: 110 °C

G5 built-in lampholders
- Rear split pins for wall thickness up to 1.2 mm
- Weight: 2.9/3.3 g
- Type: 09405/09406 and 09415/09416
- Ref. No.: 505733
- Ref. No.: 505734 with spring adjustment
- Ref. No.: 505735
- Ref. No.: 505736 with spring adjustment

G5 push-through lampholders
- With stop
- Lateral fixing clips for wall thickness 0.5 – 1.5 mm
- Lamp axis: 15 mm
- Weight: 3.5/3.7 g, type: 09420/09422
- Ref. No.: 505737
- Ref. No.: 505741 lamp axis: 20 mm

G5 push-fit lampholders
- Rear fixing clips for wall thickness 0.6 – 1 mm
- Base or lateral wiring
- Lamp axis: 14 mm
- Weight: 3.3/3.5 g, type: 09440/09441
- Ref. No.: 505747
- Ref. No.: 505748 lamp axis: 18 mm

**Electronic Starter ÖKOS – 400 V**

For fluorescent lamps T5 and T8
4 to 125 W single circuit

- Casing: polycarbonate, blue
- Printing: gold, greating: epoxy resin UL-V0
- Leads: PTFE (red), LiFs, AWG 20
- Voltage: 400 V AC, 50/60 Hz
- Preheat time: 2.3 sec. at 20 °C

- Pulse height: 1500 V max.
- Safety shutdown: < 3 sec. at 20 °C
- Operating temperature: -20 to +70 °C
- Storage temperature: -40 to +85 °C
- Type: ELST4-125-400
- Ref. No.: 546237

Additional information on the starter is available at www.palmstep.com
Auto-transformer for T5 Lamps 35 W

For fluorescent lamps T5 ECO SAVER HE

By converting 230 V mains voltage to 400 V, the auto-transformer enables 35 W T5 lamps (400 V) to be operated in 230 V circuits. In addition, VS ballast No. 545625 and starter No. 546237 (p. 7 of this brochure) are also needed to operate the lamp.

Shape: 28x41 mm
Vacuum impregnated with polyester resin
Screw terminals for leads: 0.5–2.5 mm²
Protection class I

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Voltage a/c 30/60 Hz</th>
<th>Current a</th>
<th>Weight</th>
<th>Ambient temperature</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td>545617</td>
<td>230/400 V, 50/60 Hz</td>
<td>SpT 35</td>
<td>0.61</td>
<td>80/B</td>
<td></td>
</tr>
</tbody>
</table>

T5 Lamps – 21, 35 and 54 W

Fluorescent lamps T5 ECO SAVER LONG LIFE

Specifically developed for luminaires operated in high ambient temperature, the T5 ECO SAVER LONG LIFE fluorescent lamp stands out by combining energy efficiency with a long service life and high brightness.

Colours: 830 Warm white, 840 white
Colour rendering index: Ra 85
Lamp diameter: Ø 16 mm
The lamp is operated using an electromagnetic ballast plus electronic starter
Lamp service life: approx. 50,000 hrs (at 12 operation hours per day)
Dimming of the lamp is possible
IEC/EN 60081

<table>
<thead>
<tr>
<th>Ref. No.</th>
<th>Colour</th>
<th>Luminous flux at 35 °C</th>
<th>Luminous efficacy at 35 °C</th>
<th>Luminous flux at 25 °C</th>
<th>Luminous efficacy at 25 °C</th>
<th>Pinless</th>
</tr>
</thead>
<tbody>
<tr>
<td>554023</td>
<td>Warm white</td>
<td>111 3300</td>
<td>100 3600</td>
<td>111 3300</td>
<td>100 3600</td>
<td>103 369</td>
</tr>
<tr>
<td>554024</td>
<td>White</td>
<td>114 4000</td>
<td>100 4450</td>
<td>114 4000</td>
<td>100 4450</td>
<td>103 460</td>
</tr>
<tr>
<td>554053</td>
<td>Warm white</td>
<td>116 4450</td>
<td>111 5000</td>
<td>116 4450</td>
<td>111 5000</td>
<td>113 508</td>
</tr>
<tr>
<td>554054</td>
<td>White</td>
<td>118 5000</td>
<td>114 5600</td>
<td>118 5000</td>
<td>114 5600</td>
<td>118 560</td>
</tr>
<tr>
<td>557033</td>
<td>Warm white</td>
<td>118 5600</td>
<td>114 6200</td>
<td>118 5600</td>
<td>114 6200</td>
<td>118 620</td>
</tr>
<tr>
<td>557034</td>
<td>White</td>
<td>120 6200</td>
<td>116 6800</td>
<td>120 6200</td>
<td>116 6800</td>
<td>120 680</td>
</tr>
</tbody>
</table>

Further information on the lamp is available at www.auralight.com.