For organisations that want to purchase energy-efficient products and save money

IT and office equipment
White goods
Water coolers
Food and drink vending machines
Consumer electronics
Lighting
Ventilation
Pumps
Motors
Server equipment

By purchasing equipment featured in the Danish Electricity Saving Trust’s “Purchasing Guidelines 2006”, purchasers are fulfilling the requirements of the “Circular on Improving Energy Efficiency in Danish Public Sector Institutions” and the conditions for being a member of the Trust’s A-club.
Energy-efficient purchasing is profitable

Choose energy-efficient electrical equipment and save substantial amounts on the electricity bill over the life of the equipment. It is often not any more expensive to buy, and if it is, the money is soon recouped. Therefore it is advantageous to purchase only energy-efficient equipment. Now it is also mandatory for all public sector institutions. Furthermore, members of the Danish Electricity Saving Trust’s A-club have voluntarily agreed to adhere to the purchasing requirements.

How to buy energy-efficient electrical equipment

Wherever possible, only purchase energy-efficient electrical equipment that fulfills the requirements described in the “Purchasing Guidelines 2006”, which are valid for 12 months at a time. This applies to the purchase of both new equipment and new components for existing systems – a new ventilator for an existing ventilation system, for example. The requirements also cover equipment that you plan to install on your premises that is supplied under other types of agreements, such as leasing contracts.

The easiest way to do this is to ask suppliers or stores to ensure that the equipment fulfills the purchasing requirements. Show them the “Purchasing Guidelines 2006” or refer them to www.sparel.dk/indkoeb. When preparing tenders, you can incorporate the requirements set out in the “Purchasing Guidelines 2006” into the tender documents to highlight that you only wish to receive offers on products that fulfill the requirements of the Trust’s “Purchasing Guidelines 2006”.

If you want a more in-depth choice of products, you can check the Danish Electricity Saving Trust’s approved lists covering a range of energy-efficient products. You can also look at the technical specifications for the equipment and see if they conform to the purchasing policy requirements.

Purchasing requirements

On the following pages we present purchasing requirements – Monitors

<table>
<thead>
<tr>
<th>Type</th>
<th>On/Standby/Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desk and notebooks</td>
<td>80/5/2</td>
</tr>
<tr>
<td>Screen resolution (O) less than 1 megapixel</td>
<td>103/5/2</td>
</tr>
<tr>
<td>Screen resolution (O) greater than/equal to 1 megapixel</td>
<td>80 + 28-O</td>
</tr>
</tbody>
</table>

The requirements apply to standard types of personal computers connected to the network, including types with internal power supply, and types that can operate with rechargeable batteries. Power consumption and times displayed in the table are the maximum permitted for energy-efficient equipment. See www.sparel.dk/computers for a full description and scope of the definitions.

- If your computer is in idle mode immediately after power-up with the computer running the operating system, drives, etc., but excluding user activity, the computer must automatically switch to sleep mode/power save a maximum of 120 minutes without user activity. Computers must be able to return to the last active state.

- If your computer is inidle mode/standby power when the user switches off the computer and monitor after a maximum of 30 minutes.

Further information

- View the in-depth purchasing requirement with a comprehensive description of the definitions and scope at: www.sparel.dk/computers
- View the product lists covering computers and monitors from suppliers that have entered into a voluntary agreement with the Danish Electricity Saving Trust on the basis that they fulfill the requirements relating to energy-efficient purchasing: www.it.sparel.dk/computers
- View more on the power saving plug bank: www.it.sparel.dk/kaerber
- View the power consumption in the energy declaration displayed in advertisements, technical data, etc., by suppliers bound by the Danish Electricity Saving Trust’s voluntary agreement: www.sparel.dk
- Read more on the power saving plug bank, and where it can be sourced: www.sparel.dk/kaerber
- View the performance of Danish Electricity Saving Trust’s fact sheet on IT and office equipment at: www.it.sparel.dk
- Contact the Danish Electricity Saving Trust: E-mail: sparel@sparel.dk or Tel: (+45) 70 26 90 09.

The Danish Electricity Saving Trust’s Purchasing Guidelines 2006

Good advice on purchasing and operating equipment

- Choose notebooks and flat panel monitors. Typically, these consume less than half as much power compared with desktop computer and conventional CRT monitors.
- Choose computers and monitors with the lowest power consumption costs over their lifetimes. The most efficient examples use less than half as much power compared with the most inefficient. Check running costs over their operational lifetime at www.it.sparel.dk.
- Choose products with external power supplies that conform to the requirements for power supplies listed on page 5.
- Buy auto power saving plug banks (elsparskruvar) that automatically power down any connected equipment (monitor, printer, etc.) when the computer is switched off.
- Make sure that computers and monitors are programmed to switch to sleep mode/low power after 5 to 30 minutes of inactivity using the operating system’s “Control Panel” power management options. It is possible, use special server software that can do this on a networked computer when it is not in use.
- Make users aware that they need to remember to switch off the computer and monitor when they go home, and switch off the monitor when they go to meetings or to lunch.
- If everyone has an auto power saving plug bank, then it is only necessary to switch off the computer, because all the attached equipment is powered down automatically.

Any comments or questions?

Please contact us. E-mail: sparel@sparel.dk or Tel: (+45) 70 26 90 09.
Photocopiers and printers in the office are often hidden power guzzlers inasmuch that most of the time they stand around wasting without producing anything. If equipment is not configured to switch to energy-saving mode, or if the power consumption is too high in the energy-saving mode, one can easily waste several thousand kroner per machine annually on the electricity bill.

### Photocopiers and printers

#### Purchasing requirements – Printers and printer/fax combinations

<table>
<thead>
<tr>
<th>Type</th>
<th>Sleep Watt</th>
<th>Off Watt</th>
<th>Delay before sleep</th>
<th>Off Watt</th>
<th>Delay before Off Watt</th>
<th>Other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black ink and colour</td>
<td>1.5-3</td>
<td>1</td>
<td>0.25</td>
<td>0.5</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Printing speed &gt; 10 ppm</td>
<td>1</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Printing speed &lt; 40 ppm</td>
<td>1</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional colour (laser, LCD, thermal transfer etc)</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to printers and printer/fax combinations according to the size and cost and as defined in §4 - Off power. Power consumption and times shown in the table are the maximum permissible for energy-efficient equipment. See www.sparel.dk/printers for a full description and scope of the definitions.

1. (1) The maximum delay time for switching to off mode/low power should not exceed four hours in total for both modes.
2. (2) The maximum delay time for switching to off mode/standby power and deep sleep mode/low power should not exceed four hours in total for both modes.
3. (3) Requirement not applicable to multifunction machines with built-in fax.
4. (4) Requirement not applicable to multifunction machines with built-in fax.
5. (5) If the machine has a duplex function, make sure this feature is enabled.
6. (6) Recommended but not required.
7. (7) The machine goes automatically into off mode/standby power (special type).

#### Purchasing requirements – Photocopiers and multifunction machines

<table>
<thead>
<tr>
<th>Type</th>
<th>Sleep Watt</th>
<th>Auto-off Watt</th>
<th>Delay before sleep</th>
<th>Off Watt</th>
<th>Delay before Off Watt</th>
<th>On/active power</th>
<th>Other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal format (up to A3+)</td>
<td>1.5-3</td>
<td>1</td>
<td>0.25</td>
<td>0.3</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed (S) &lt; 20 ppm</td>
<td>1</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Speed (S) &gt; 20 ppm</td>
<td>3</td>
<td>1</td>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional colour (laser, LCD, thermal transfer etc)</td>
<td>5-10</td>
<td>5</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to analogue and digital photocopiers and multifunction machines connected to the mains and using normal paper. Power consumption and times shown in the table are the maximum permissible for energy-efficient equipment. See www.sparel.dk/kopi/maskiner for a full description and scope of the definitions.

1. (1) The maximum delay time for switching to off mode/standby power and sleep mode/low power should not exceed four hours in total for both modes.
2. (2) Requirement not applicable to multifunction machines with built-in fax.
3. (3) Requirement not applicable to multifunction machines with built-in fax.

#### Purchasing requirements – External power supplies and battery chargers

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum output power</th>
<th>Watt</th>
<th>On/active power</th>
<th>Watt</th>
<th>Other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power &lt; 1.5</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 2.5</td>
<td>15</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 4.5</td>
<td>20</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 6.0</td>
<td>25</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 10.0</td>
<td>30</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 15.0</td>
<td>35</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 25.0</td>
<td>40</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 50.0</td>
<td>50</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 100.0</td>
<td>60</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to external power supplies and battery chargers used in normal circumstances in the office and at home. Power consumption and times shown in the table are the maximum permissible for energy-efficient equipment. See www.sparel.dk/netfor over for a full description and scope of the definitions.

1. (1) Average efficiency at 25%, 50%, 75%, and 100% load.
2. (2) No appliance connected.

#### Purchasing requirements – Fax machines

<table>
<thead>
<tr>
<th>Type</th>
<th>Standby Watt</th>
<th>Off Watt</th>
<th>Delay before sleep</th>
<th>Off Watt</th>
<th>Delay before off Watt</th>
<th>On/active power</th>
<th>Other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>1</td>
<td>0.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to fax machines, including types with integrated phone, telephone answering facility, etc. Power consumption and times shown in the table are the maximum permissible for energy-efficient equipment. See www.sparel.dk/telefaxer for a full description and scope of the definitions.

1. (1) Phone is switched off and is not connected to charger or base station.
2. (2) Phone is switched off and is not connected to charger or base station.

#### Purchasing requirements – Scanners

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum output power</th>
<th>Watt</th>
<th>On/active power</th>
<th>Watt</th>
<th>Other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power &lt; 1.5</td>
<td>10</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 2.5</td>
<td>15</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 4.5</td>
<td>20</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 6.0</td>
<td>25</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 10.0</td>
<td>30</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 15.0</td>
<td>35</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 25.0</td>
<td>40</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 50.0</td>
<td>50</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power &lt; 100.0</td>
<td>60</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to scanners used in normal circumstances in the office and at home. Power consumption and times shown in the table are the maximum permissible for energy-efficient equipment. See www.sparel.dk/scannere for a full description and scope of the definitions.

1. (1) The machine goes automatically into off mode/standby power and sleep mode/low power should not exceed four hours in total for both modes.
2. (2) Requirement not applicable to multifunction machines with built-in fax.
3. (3) Requirement not applicable to multifunction machines with built-in fax.

### Good advice on purchasing and operating equipment

- Play a part in choosing equipment that meets rather than exceeds your needs.
- Check the data for power consumption in ready mode, and, whenever possible, choose equipment with low consumption.
- Choose machines with good energy-saving functions, which also warm up quickly to ready mode.
- Choose products with external power supplies that conform to the requirements for power supplies listed on page 5.
- Whenever possible, choose a model with duplex (two-sided printing) capability. Configure the equipment to automatically print or copy in duplex, or periels are connected to the duplex feature. Several tons of paper can be saved over the machine’s life-time, with twice as much space available on the shelves.
- Make sure that the machines are configured to switch to sleep mode/low power and auto-off mode/standby power in the shortest possible time acceptable in relation to warm-up time.
- Set the timer control on the machine to auto-off based on the office’s closing time, or involves users so the last person leaving the office switches off all the machines.

### Further information

- View the in-depth purchasing requirement with a comprehensive description of the definitions and scope at: www.sparel.dk/printers
- www.sparel.dk/kopi/maskiner
- Download the Danish Electricity Saving Trust’s fact sheet on IT and office equipment at: www.it.sparel.dk
- Contact the Danish Electricity Saving Trust.
  
E-mail: sparel@sparel.dk or Tel: (+45) 70 26 90 09.

**Photocopiers and printers**

- The Danish Electricity Saving Trust’s Purchasing Guidelines 2006
Purchasing requirements – Large domestic appliances (white goods)

<table>
<thead>
<tr>
<th>Type</th>
<th>Energy label</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fridges and freezers</td>
<td>A or A++</td>
</tr>
<tr>
<td>Washing machines, dishwashers, tumble-dryers, ovens, cookers</td>
<td>A</td>
</tr>
</tbody>
</table>

The requirements apply to white goods covered by the European Union energy labelling directive for household appliances and their combinations. See www.sparel.dk/hvidevarer for a full description and scope of the definitions.

Purchasing requirements – Commercial refrigeration and freezer equipment

<table>
<thead>
<tr>
<th>Type</th>
<th>Power consumption kWh/48h/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fridges 400–600 litres</td>
<td>15</td>
</tr>
<tr>
<td>1300 litres</td>
<td>12</td>
</tr>
<tr>
<td>Freezers 400–600 litres</td>
<td>40</td>
</tr>
<tr>
<td>1300 litres</td>
<td>36</td>
</tr>
</tbody>
</table>

The requirements apply to fridges and freezer units suitable for professional use. Power consumption displayed in the table is the maximum permitted for energy-efficient equipment and fulfills the criteria required for inclusion on the Danish Electricity Saving Trust’s recommended list. See www.sparel.dk/koelemoebler for a full description and scope of the definitions.

Good advice on purchasing and operating equipment

- **Play a part in choosing equipment that meets rather than exceeds your needs.**
- **Some white goods appliances have a standby consumption which is not included in the energy label.** Check how much power is used and choose a type with low consumption.
- **Consider a natural gas powered tumble-dryer if natural gas is available.**
- **Consider washing machines and dishwashers with both cold and hot water feeds, as this can save electricity used to heat up the water.**
- **Before signing a contract, talk to your supplier about power consumption of food and drink vending machines, and consider whether there are alternative less power-hungry solutions.**
- **Wherever possible, install food and drink vending machines that have sleep mode/low power functionality which is activated when the machines are not in use for a predetermined period.**
- **Wherever possible, install soft drinks vending machines conforming to Energy Star specifications (see www.energystar.gov).**
- **Consider whether it is possible to use a tap water flow cooler instead of a water feeds, as this can save electricity used to heat up the water.**
- **Before signing a contract, talk to your supplier about power consumption of food and drink vending machines, and consider whether there are alternative less power-hungry solutions.**
- **Wherever possible, install food and drink vending machines that have sleep mode/low power functionality which is activated when the machines are not in use for a predetermined period.** However, this does not apply to machines that have to keep products cold.

Further information

- View the in-depth purchasing requirement with a comprehensive description of the definitions and scope at:
  - www.sparel.dk/hvidevarer
  - www.sparel.dk/koelemoebler
- Check www.energystar.gov/products for approved lists covering all large domestic appliances and the market’s lowest prices.
- Check the approved lists covering commercial fridges and freezers that fulfill the energy-efficient purchasing requirements:
  - www-prof-hvidevarer.sparel.dk/koelemoebler
  - www-prof-hvidevarer.sparel.dk/fryser
- Download the Danish Electricity Saving Trust’s fact sheet on commercial refrigeration and freezer equipment: www-prof-hvidevarer.sparel.dk
- Contact the Danish Electricity Saving Trust. E-mail: sparel@sparel.dk or Tel. (+45) 70 26 90 99.

Purchasing requirements – TVs

<table>
<thead>
<tr>
<th>Type</th>
<th>Active Watt</th>
<th>Standby Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional analogue</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>With digital receiver and decoder</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>MPEG Auidovisual Cable network</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Satellite</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>With VCR and/or DVD</td>
<td>2.5</td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to TVs connected to the mains with visible screen size exceeding 25 cm (9 inches). Power consumption displayed in the table is the maximum permitted for energy-efficient equipment. See www.sparel.dk/televisj for a full description and scope of the definitions.

Purchasing requirements – VCRs and DVDs

<table>
<thead>
<tr>
<th>Type</th>
<th>On Watt</th>
<th>Standby Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Playing and recording</td>
<td>16</td>
<td>2.5</td>
</tr>
<tr>
<td>Playing only</td>
<td>11</td>
<td>1</td>
</tr>
</tbody>
</table>

The requirements apply to VCRs and DVDs connected to the mains. Power consumption displayed in the table is the maximum permitted for energy-efficient equipment. See www.sparel.dk/televisj for a full description and scope of the definitions.

Purchasing requirements – Satellite receivers and set-top boxes

<table>
<thead>
<tr>
<th>Type</th>
<th>On Watt</th>
<th>Active standby Watt</th>
<th>Standby Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analogue satellite receiver</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Digital set-top box terrestrial aerial, cable network, satellite</td>
<td>6 ± 15(1)</td>
<td>2(2)</td>
<td></td>
</tr>
<tr>
<td>Digital to analogue converter terrestrial aerial, cable network, satellite</td>
<td>6 ± 9(2)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to satellite receivers and set-top boxes connected to the mains. Power consumption displayed in the table is the maximum permitted for energy-efficient equipment. See www.sparel.dk/settopbokse for a full description and scope of the definitions.

- (1) Applies to traditional cassette-type VCRs.
- (2) Applies to period commencing from time that media (tape, DVD, etc.) have finished playing.

Purchasing requirements – Audio systems and separates

<table>
<thead>
<tr>
<th>Type</th>
<th>Standby Watt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated audio systems</td>
<td></td>
</tr>
<tr>
<td>Audio separates</td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to music systems and separates connected to the mains. Power consumption displayed in the table is the maximum permitted for energy-efficient equipment. See www.sparel.dk/musikanlaeg for a full description and scope of the definitions.

- (1) Power consumption depends on type (terrestrial aerial, cable network, or satellite aerial) and additional functions. See “Code of Conduct for Digital TV Services” (Applies to period commencing from time that media have finished playing).
- (2) Applies to period commencing from time that media have finished playing.

Good advice on purchasing and operating equipment

- **Play a part in choosing equipment that meets rather than exceeds your needs.**
- **Particularly on TVs, power consumption increases dramatically as screen sizes increase.**
- **Some white goods appliances have a standby consumption which is not included in the energy label.** Check how much power is used and choose a type with low consumption.
- **Consider a natural gas powered tumble-dryer if natural gas is available.**
- **Consider washing machines and dishwashers with both cold and hot water feeds, as this can save electricity used to heat up the water.**
- **Before signing a contract, talk to your supplier about power consumption of food and drink vending machines, and consider whether there are alternative less power-hungry solutions.**
- **Wherever possible, install food and drink vending machines that have sleep mode/low power functionality which is activated when the machines are not in use for a predetermined period.**
- **Wherever possible, install soft drinks vending machines conforming to Energy Star specifications (see www.energystar.gov).**
- **Consider whether it is possible to use a tap water flow cooler instead of a water feeds, as this can save electricity used to heat up the water.**
- **Before signing a contract, talk to your supplier about power consumption of food and drink vending machines, and consider whether there are alternative less power-hungry solutions.**
- **Wherever possible, install food and drink vending machines that have sleep mode/low power functionality which is activated when the machines are not in use for a predetermined period.** However, this does not apply to machines that have to keep products cold.

Further information

- View the in-depth purchasing requirement with a comprehensive description of the definitions and scope at:
  - www.sparel.dk/hvidevarer
  - www.sparel.dk/videoer
  - www.sparel.dk/settopbokse
  - www.sparel.dk/musikanlaeg
- Contact the Danish Electricity Saving Trust. E-mail: sparel@sparel.dk or Tel. (+45) 70 26 90 99.
Purchasing requirements – Lighting systems

<table>
<thead>
<tr>
<th>Type</th>
<th>Voltage and frequency</th>
<th>Other requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Offices</td>
<td>10 (3)</td>
<td></td>
</tr>
<tr>
<td>Daycare centres</td>
<td>10 (2)</td>
<td></td>
</tr>
<tr>
<td>Classrooms</td>
<td>8 (2)</td>
<td></td>
</tr>
<tr>
<td>Access areas</td>
<td>5 (2)</td>
<td></td>
</tr>
<tr>
<td>Other locations</td>
<td>(3)</td>
<td></td>
</tr>
</tbody>
</table>

The requirements apply to lighting systems installed in normal office locations, where the fittings and lighting quality are not required to be within the official standards. The power consumption displayed in the table is the maximum permitted for energy-efficient equipment. See www.sparel.dk/belysning for a full description and scope of the definitions.

1. The power consumption includes the power consumed by the components controlling the lighting, and any power losses of the area.
2. Must fulfil legal requirements covered by DS 700, and where possible the requirements for construction specified in the Danish Electricity Saving Trust’s approved lists for lighting systems (see www.belysning.sparel.dk), and must also have separate sensors and daylight sensors to ensure that lights are only switched on when there is a need. Where these requirements are not fulfilled, it is necessary to improve the SCEL factor.
3. Must have daylight sensors to ensure that the lighting system is adjusted in relation to the amount of natural light. Must have movement sensors to ensure that lights are only switched on when people are in the room. Must have energy-efficient fittings with an efficiency rating of at least 50%.

Purchasing requirements – Ventilators

<table>
<thead>
<tr>
<th>Type</th>
<th>Efficiency</th>
<th>Other requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>EFH(a)</td>
<td></td>
</tr>
</tbody>
</table>

The requirements cover all types of motors covered by the agreement between the EU Commission and CEMEP (European Committee of Manufacturers of Electrical Machines and Power Electronics). For a full description and scope of the definitions see www.sparel.dk/motorer.

1. The efficiency is the minimum value that a ventilator must achieve at the duty point, which is on the efficiency curve relative to the shaft power when the efficiency starts to fall (see www.sparel.dk/ventilation). The efficiency is based on a calculation of the motor's input power divided by its output power.
2. The efficiency is the minimum value that a ventilator must achieve at the duty point, which is on the efficiency curve relative to the shaft power when the efficiency starts to fall (see www.sparel.dk/ventilation).
3. The ventilator must have a capacity rating on the curve for maximum efficiency that, as a minimum, exceeds the duty point down to a value equivalent to the duty point minus 50%.

Purchasing requirements – Pumps

<table>
<thead>
<tr>
<th>Type</th>
<th>Efficiency class</th>
<th>Other requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>EFP(a)</td>
<td></td>
</tr>
</tbody>
</table>

The requirements include all types of pumps covered by the agreement between the EU Commission and CEMEP (European Committee of Manufacturers of Electrical Machines and Power Electronics). For a full description and scope of the definitions see www.sparel.dk/pumper.

1. The efficiency requirements for the pump are based on the motor's efficiency requirements. The efficiency is based on a calculation of the motor's input power divided by its output power.
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Further information

- View the in-depth purchasing requirement with a comprehensive description of the definitions and scope at: www.sparel.dk/ventilation
- www.sparel.dk/pumper
- www.sparel.dk/motorer
- www.elsparepumpe.dk
- www.sparepumpe.dk
- www.ventilation.sparel.dk
- www.sparel.dk/belysning
- www.sparel.dk/ventilation
- www.sparel.dk/belysning
- www.belysning.sparel.dk
- www.elsparepumpe.dk
- www.sparepumpe.dk
- www.sparel.dk/belysning
- www.sparel.dk/ventilation
- www.sparel.dk/belysning
Server equipment

The Danish Electricity Saving Trust’s Purchasing Guidelines

Server room power consumption represents a large proportion of the total consumption in office buildings because equipment in a server room is always ‘on’. In the average Danish workplace, the server room costs DKK 100,000–200,000 per year to operate: servers account for 60% of the consumption, with air conditioners (30%) and other equipment (10%) making up the balance. In some server rooms it is possible to save up to half the electricity used through energy-efficient purchasing and layout of the server room without compromising operational and IT security.

Good advice on purchasing and operating equipment

- Check the power consumption of server equipment and choose a version with low consumption. Typically, by saving 1 kWh on the server equipment, you can save 1.5 kWh for the whole server room, including electricity saved by the cooling system.
- Implement server consolidation, where programmes and functions are combined on fewer servers and disk drives so that the total number of servers and disk drives can be reduced.
- Switch off the equipment that is not in use, and move equipment that does not require cooling out of the room.
- Locate the server room in a naturally cool room which is not heated by warm air from outside, but vertically with the possibility of using the warm air from the server room to heat colder surrounding areas.
- Use the free cooling principle, where external cold air is used to cool the server room. Typically, power consumption in this situation can be halved.
- Ensure that the cold air from the cooling system is ducted as directly as possible to the equipment that requires cooling, without it being mixed with the warm air given off by the equipment. This cold air can be circulated through ducts in the floor set between the server racks, and vented through the racks from front to back.
- Ensure that the outer element of the cooling system is placed in a suitably cool and shaded area that allows the air to circulate freely.
- Use the heat dissipated from the server room to heat rooms in other places by ducting the warm air into the building’s heating recirculation system.
- Increase the temperature in the server room to the maximum allowable in terms of safety margins. Power savings of 1–3% can be achieved for every degree that the temperature is increased.

Further information

- Use the Danish Electricity Saving Trust’s www selvtilskuserverum sparel. dk website to get an estimate of the power consumption in your server room, as well as advice on savings tailored to your situation.
- View more recommendations about the server room at www serverun sparel. dk where you can also see the results of detailed analyses of ten server rooms.
- Download the Danish Electricity Saving Trust’s fact sheet on the server room at: www serverum sparel. dk
- Download the Danish Electricity Saving Trust’s guide “Good advice for saving electricity in the server room” at: www serverum sparel. dk
- Contact the Danish Electricity Saving Trust, E-mail: sparel@sparel. dk or Tel: (+45) 70 28 90 09.

The Government only purchases energy-efficient equipment

Public sector institutions are taking the lead and must now only purchase energy-efficient electrical equipment. This equipment must either conform to the Danish Electricity Saving Trust’s purchasing requirements or be featured on other recommended lists and schemes referred to on the Trust’s www. sparel. dk website. From now on this will be the main gateway to energy-efficient purchasing under the terms laid out in the “Circular on Improving Energy Efficiency in Danish Public Sector Institutions” of April 2005.

Institutions must also formally report and publicise their power consumption. If power consumption exceeds 100,000 kWh, it must be displayed on the Danish Electricity Saving Trust’s www. se-efforbrug sparel. dk website. These public sector institutions must also undertake financially-viable energy-saving schemes that have a payback period of under 5 years.

Membership requirements for the Danish Electricity Saving Trust’s A-club

For some time, about 200 members of the Danish Electricity Saving Trust’s A-club have been voluntarily purchasing equipment based on the requirements laid down by the Trust’s “Purchasing Guidelines”. The members have entered a partnership agreement with the Trust on energy-efficient purchasing because they want to make a positive contribution to reduce electricity consumption and improve the environment.

Calculate the lifetime costs

When comparing the purchase prices of different equipment, you should calculate the lifetime costs to arrive at the cheapest buy. Remember that when purchasing equipment you are also buying the power costs over the equipment’s total lifetime. Lifetime costs are the sum of the purchase price plus the annual electricity costs multiplied by the anticipated lifetime of the equipment.

Purchasing via SKI (National Procurement Ltd – Denmark)

SKI offers framework contracts to the public sector which not only provide easy access to lower prices but also enables organisations to avoid having to put bids out to tender under EU rules. SKI’s electronic purchasing system provides help with sourcing products that fulfil the purchasing requirements of the Danish Electricity Saving Trust.

Good for the environment

Purchasing energy-efficient equipment is also good for the environment. If you want to do even more, you can specify additional environmental requirements by using the Danish Environmental Protection Agency’s (www. miljovejdskjerger dk) environmental guidelines.

The Ministry of Transport and Energy recommends that all public sector institutions enter into a partnership agreement with the Danish Electricity Saving Trust and become members of the A-club. Read more about the A-club on the club’s www. a klubben. dk website.

Also for private industry

There are also many private companies that have seen the benefits of purchasing energy-efficient products. Purchasing requirements are just as applicable to the private sector as they are to the public sector.

Background to the requirements

The requirements for energy-efficient purchasing laid down in the Danish Electricity Saving Trust’s “Purchasing Guidelines” have been compiled from a number of sources including energy labeling schemes (European Union energy labelling), GEEA (Group for Energy Efficient Appliances) and Energy Star. Thus you can be sure that there are enough electrical appliances to choose from, and that the appliances that fulfil the requirements are most energy-efficient available. The requirements are reviewed annually.

Good advice

- There is a list of environmentally preferable electrical appliances on the Danish Electricity Saving Trust’s A-club on the club’s www. a klubben. dk website.
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The Danish Electricity Saving Trust helps eliminate wasteful consumption of electricity

Government and public sector institutions can save many millions of kroner on their electricity bills. For example, more than one-third of all electricity consumption in public sector workplaces occurs after all employees have gone home.

The Danish Electricity Saving Trust has a range of offerings within the power consumption area covered by the “Purchasing Guidelines”. The main portal to the offerings can be found at www.sparel.dk which links you to additional web sites featuring information on how you can reduce power consumption in real terms.

Publicise your electricity consumption
A good place to start is to publicise your electricity consumption on www.se-elforbrug.sparel.dk This service is completely free for organisations that consume in excess of 100,000 kWh per electricity meter per year. This allows you to track your consumption in real time and compare it with others. Subscribers also receive a consumption report detailing the electricity used, which makes it easy to identify waste.

Subscribe at www.se-elforbrug.sparel.dk

The Danish Electricity Saving Trust
The Danish Electricity Saving Trust is an independent trust led by a Board appointed by the Danish Ministry of Transport and Energy. The Trust was established in 1997 for the purpose of ensuring electricity savings in the household and public sectors.

Further information

- www.sparel.dk
- www.se-elforbrug.sparel.dk
- www.a-klubben.dk
- www.it.sparel.dk
- www.hvidevarepriser.dk
- www.prof-hvidevarer.sparel.dk
- www.belysning.sparel.dk
- www.boliglys.dk
- www.a-paere.dk
- www.serverum.sparel.dk
- www.selvtjekserverrum.sparel.dk
- www.ventilation.sparel.dk
- www.elsparepumpe.dk
- www.farvelel.dk
- www.selvtjek.sparel.dk
- www.elsparefonden.dk
- Contact the Danish Electricity Saving Trust. E-mail: sparel@sparel.dk or Tel: (+45) 70 26 90 09.