

## Wilo-Stratos PICO

- D** Einbau- und Betriebsanleitung
- GB** Installation and operating instructions
- F** Notice de montage et de mise en service
- I** Istruzioni di montaggio, uso e manutenzione

Fig. 1:

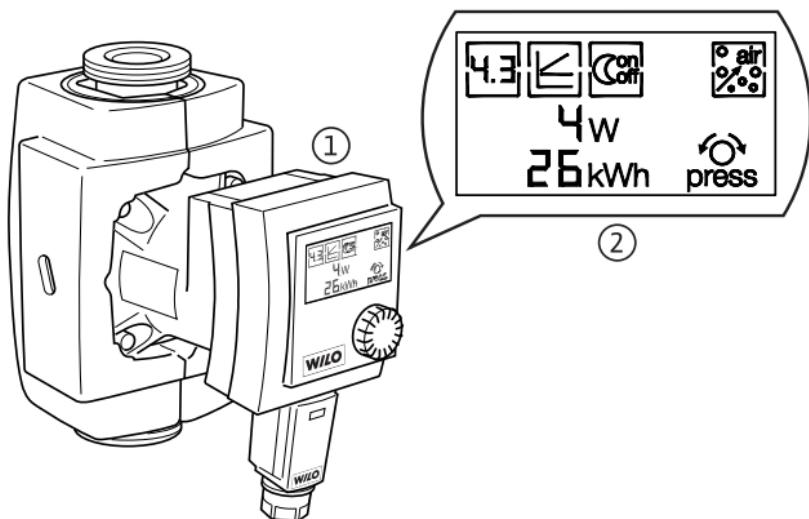
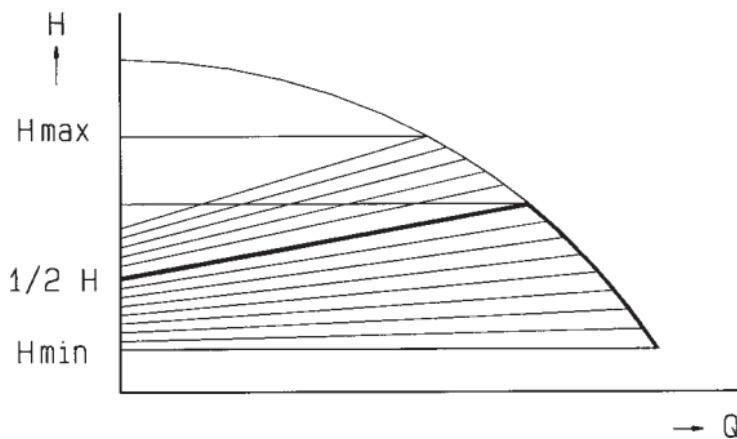
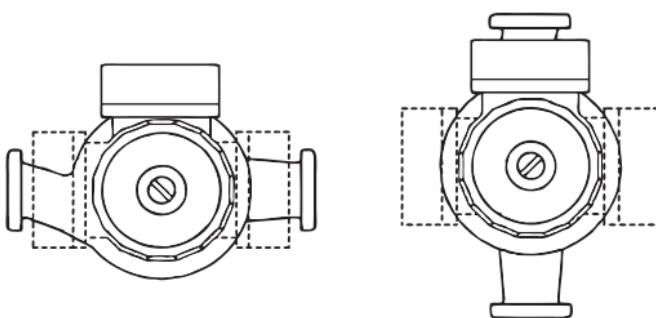


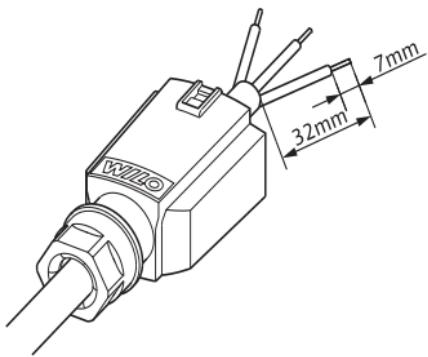
Fig. 2:



**Fig. 3:**



**Fig. 4a:**



**Fig. 4b:**

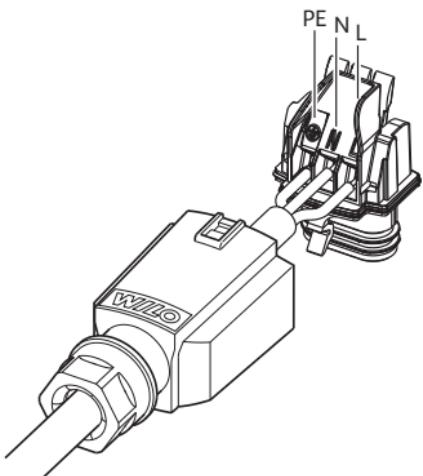


Fig. 4c:

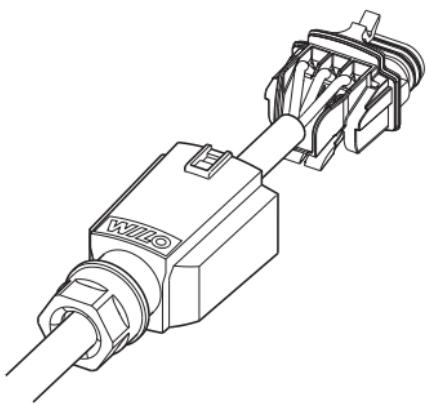


Fig. 4d:

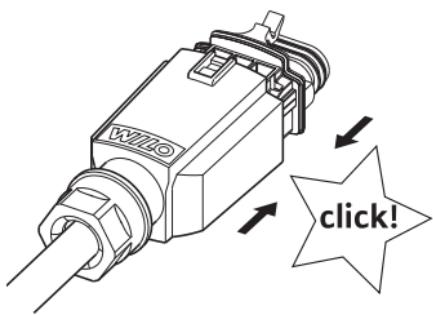


Fig. 4e:

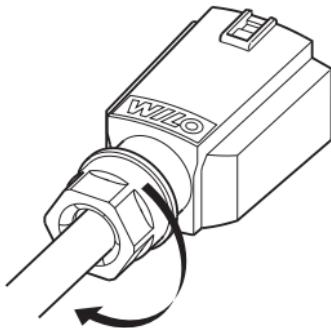
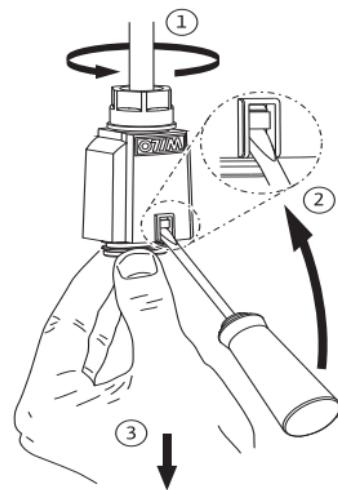


Fig.5:



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## 1 General notes

### About this document

The language of the original operating instructions is German. All other languages of these instructions are translations of the original operating instructions.

These installation and operating instructions are an integral part of the product. They must be kept readily available at the place where the product is installed. Strict adherence to these instructions is a precondition for the proper use and correct operation of the unit.

These installation and operating instructions correspond to the relevant version of the product and the underlying safety standards valid at the time of going to print.

EC declaration of conformity:

A copy of the EC declaration of conformity is a component of these operating instructions.

If a technical modification is made on the designs named there without our agreement, this declaration loses its validity.

## 2 Safety

These operating instructions contain basic information which must be adhered to during installation and operation. For this reason, these operating instructions must, without fail, be read by the service technician and the responsible operator before installation and commissioning.

It is not only the general safety instructions listed under the main point "safety" that must be adhered to but also the special safety instructions with danger symbols included under the following main points.

## 2.1 Indication of instructions in the operating instructions

**Symbols:**



**General danger symbol**



**Danger from electrical voltage**



**Useful note:**

**Signal words:**

**DANGER!**

**Acutely dangerous situation.**

**Non-observance results in death or the most serious of injuries.**

**WARNING!**

**The user can suffer (serious) injuries. 'Warning' implies that (serious) injury to persons is probable if this information is disregarded.**

**CAUTION!**

**There is a risk of damage to the product/system. 'Caution' implies that damage to the product is likely if this information is disregarded.**

**NOTE:** Useful information on handling the product. It draws attention to possible problems.

## 2.2 Personnel qualifications

The installation personnel must have the appropriate qualifications for this work.

## **2.3 Danger in the event of non-observance of the safety instructions**

Non-observance of the safety instructions can result in risk of injury to persons and damage to product/unit. Non-observance of the safety instructions can result in the loss of any claims to damages.

In particular, lack of care may lead to problems such as:

- Failure of important product/unit functions
- Failure of required maintenance and repair procedures
- Danger to persons from electrical, mechanical and bacteriological influences,
- Property damage

## **2.4 Safety instructions for the operator**

The existing directives for accident prevention must be adhered to.

Danger from electrical current must be eliminated. Local directives or general directives [e.g. IEC, VDE etc.] and local power supply companies must be adhered to.

This device is not intended to be operated by persons (including children) with impaired physical, sensory or mental capacities or lack of experience and/or lack of knowledge, except in cases where they are supervised by a person responsible for their safety or where they receive instructions from such a person as to how the device is to be operated.

Children must be kept under supervision in order to ensure that they do not play with the device.

## **2.5 Safety instructions for inspection and installation work**

The operator must ensure that all inspection and installation work is carried out by authorised and qualified personnel, who are sufficiently informed from their own detailed study of the operating instructions.

Work on the product/unit should only be carried out when it has been brought to a standstill. It is mandatory that the procedure described in the installation and operating instructions for shutting down the product/unit be complied with.

## **2.6 Unauthorised modification and manufacture of spare parts**

Modifications to the pump/system are only permitted after consultation with the manufacturer. Original spare parts and accessories authorised by the manufacturer ensure safety. The use of other parts can nullify the liability from the results of their usage.

## **2.7 Improper use**

The operating safety of the supplied product is only guaranteed for conventional use in accordance with Section 4 of the operating instructions. The limit values must on no account fall under or exceed those specified in the catalogue/data sheet.

### 3 Transport and interim storage

Immediately check the product for any transit damage on arrival. If damage is found, the necessary procedure involving the forwarding agent must be taken within the specified period.



**CAUTION! Risk of damage to the pump!**

**Danger of damage due to incorrect handling during transport and storage.**

- **The pump should be protected from moisture, frost and mechanical damage due to impact during transport and interim storage.**
- **The device must not be exposed to temperatures outside the range of -10 °C to +50 °C.**

### 4 Intended use

The circulation pumps in the Wilo-Stratos PICO series are designed for warm water heating systems and similar systems with constantly changing volume flows. Approved fluids are heating water in accordance with VDI 2035, water/glycol mixture at a mixing ratio of max. 1:1. If glycol is added, the delivery data of the pump must be corrected according to the higher viscosity, depending on the percentage mixing ratio.

## 5 Product information

### 5.1 Type key

#### Example: Wilo-Stratos PICO 25/1-6

Stratos PICO	High-efficiency pump
25	Threaded connection DN 25 (Rp 1)
1-6	<p>1 = Minimum delivery head in m (adjustable down to 0.5 m)</p> <p>6 = Maximum delivery head in m at <math>Q = 0 \text{ m}^3/\text{h}</math></p>

### 5.2 Technical data

Connected voltage	1 ~ 230 V ± 10 %, 50/60 Hz
Protection class IP	44
Water temperatures*	+ 2°C to + 110°C
Max. operating pressure	10 bar
Max. ambient temperature*	+ 40°C
Min. inlet pressure	0.3 bar / 1.0 bar

\* Water temperature:

- Max. 110°C at an ambient temperature of max. 25°C
- Max. 95°C at an ambient temperature of max. 40°C

### 5.3 Scope of delivery

- Circulation pump complete including thermal insulation shell
- Installation and operating instructions

## 6 Description and function

The pump (Fig. 1/1) consists of a hydraulic system, a glandless pump motor with permanent magnet rotor and an electronic control module with integrated frequency converter. The control module includes a display (Fig. 1/2) for setting all parameters and for displaying the current electricity consumption in W and the cumulative electricity consumption in kWh since commissioning.

## 7 Installation and electrical connection

**Installation and electrical connection must be carried out in accordance with local regulations and only by qualified personnel!**



**WARNING! Risk of personal injury!**

**The existing directives for accident prevention must be adhered to.**



**WARNING! Danger of electric shock!**

**Danger from electrical current must be eliminated.**

**Local directives or general directives [e.g. IEC, VDE etc.] and local power supply companies must be adhered to.**

## 7.1 Installation

- Only install the pump after all welding and soldering work has been completed and, if necessary, the pipe system has been flushed through.
- Mount the pump in a readily accessible place for easy inspection and dismantling.
- When installing in the supply leg of open systems, the safety supply must branch off upstream of the pump (DIN 4751).
- Install check valves upstream and downstream of the pump to facilitate a possible pump replacement.
  - Perform installation so that any leaking water cannot drip onto the control module.
  - To do this, align the upper gate valve laterally.
- In thermal insulation work, make sure that the pump motor and the module are not insulated. The condensate drain openings must remain uncovered.
- Install without tension and with the pump motor in the horizontal position. See fig. 3 for installation positions of the pump.
  - Other installation positions on request.
- Direction arrows on the pump housing and the insulation indicate the direction of flow.
- If the installation position of the module is changed, the motor housing has to be turned as follows:
  - Lever up the thermal insulation shell with a screwdriver and remove it,
  - Loosen the internal hexagon screws,
  - Turn the motor housing, including control module.



### **CAUTION! Risk of damage to the pump!**

**The gasket may be damaged when the motor housing is turned. Replace defective gaskets immediately.**

- Twist the internal hexagon screws back in and tighten them,
- Fit the thermal insulation shell.

## 7.2 Electrical connection



**WARNING! Danger of electric shock!**

**Electrical connection must be carried out by an electrician authorised by the local electricity supply company and in accordance with the applicable local regulations [e.g. VDE regulations].**

- The current type and voltage must correspond to the details on the name plate.
- Connect the Wilo-Connector (Fig. 4a to 4e).
  - Mains connection: L, N, PE.
  - Maximum back-up fuse: 10 A, slow
  - Earth the pump according to the regulations.
- Dismantle the Wilo-Connector in accordance with Fig. 5.  
A screwdriver is required for this.
- The electrical connection must be made in accordance with VDE 0700/part 1 via a fixed connecting cable, which is provided with a plug device or an all-pole switch with a contact opening width of at least 3 mm.
- For drip protection and strain relief at the PG screwed connection, a connecting cable with an adequate outside diameter is necessary (e.g. H05W-F3G1.5 or AVMH-3x1.5).
- When pumps are used in systems with water temperatures above 90°C, a suitably heat-resistant connection line must be laid.
- The connection line is to be placed in such a way that it can under no circumstances come into contact with the pipe and/or the pump and motor housing.

## 8 Commissioning



### **WARNING! Risk of burns!**

Depending on the pump/system operating conditions (fluid temperature), the entire pump/system can become very hot. Touching the pump can cause burns.

### **8.1 Filling and bleeding**

Fill and bleed the system correctly. The pump rotor chamber normally bleeds automatically after a short time in operation. However, if direct bleeding of the rotor chamber is required, the bleeding routine can be started.



To do this, press and turn the red button to select the symbol for bleeding and press it to activate. Then turn the red button to activate the function (ON appears in the display). The duration of the bleeding routine is 10 minutes; it is shown with a countdown in the display. Noises may be heard during the bleeding routine. The process can be stopped if desired by turning and pressing the red button (OFF appears in the display).

### **8.2 Setting the delivery head**



To set the delivery head press the red button to select the symbol for the pump output. Press it again and turn the red button to increase or reduce the value of the delivery head.

**Factory setting: Stratos PICO ... 1-4: 2 m**

**Stratos PICO ... 1-6: 3 m**

### 8.3 Setting the control mode (Fig. 2)



Press and turn the red button to select the symbol of the control mode. Press and turn it again to select between the control modes.

#### **Variable differential pressure ( $\Delta p-v$ ): Factory settings**

The differential pressure setpoint is increased linearly over the permitted volume flow range between  $\frac{1}{2}H$  and H. The differential pressure generated by the pump is adjusted to the corresponding differential pressure setpoint. This control mode is especially useful in heating systems with radiators, since the flow noises at the thermostatic valves are reduced.

#### **Constant differential pressure ( $\Delta p-c$ ):**

The differential pressure setpoint is kept constant over the permitted volume flow range at the set differential pressure setpoint up to the maximum pump curve. Wilo recommends this control mode for underfloor heating circuits or older heating systems with large-sized pipes.

### 8.4 Activation of the setback operation



Press and turn the red button to select the symbol for the setback operation. Press and turn it again to activate (ON) or deactivate (OFF) the setback operation.

When setback operation is enabled, the pump follows the setback operation of the heating system with electronic evaluation of a temperature sensor. It then switches to minimum speed. When the heat generator heats up again, the pump switches back to the pre-set setpoint stage.

**Factory setting: Setback operation OFF**

## 9 Maintenance

**Only allow qualified specialist staff to perform maintenance and repair work.**



**WARNING! Danger of electric shock!**

**Any danger from electrical current should be ruled out.**

- The pump should be electrically isolated and secured against unauthorised switch-on during any maintenance or repair work.**
- Any damage to the connection cable should always be rectified by a qualified electrician only.**

## 10 Faults, causes and remedies

Faults	Causes	Remedy
Pump is not running although the current entry is switched on	Electrical fuse defective	Check fuses.
	Pump has no voltage	Resolve the power interruption
Pump is making noises	Cavitation due to insufficient suction pressure	Increase the system suction pressure within the permissible range
		Check the delivery head and set it to a lower height if necessary.
Building does not get warm	Thermal output of the heating surfaces is too low	Increase setpoint (see 8.2)
		Switch off setback operation (see 8.2)
		Set control mode to $\Delta p-c$

## 10.1 Fault signals

Code no.	Faults	Causes	Remedy
E04	Undervoltage	Power supply too low on mains side	Check mains voltage
E05	Oversupply	Power supply too high on mains side	Check mains voltage
E10	Blocking	Rotor blocked	Ask After-Sales
E11	Dry run	Air in the pump	Check water quantity/pressure
E21	Overload	Sluggish motor	Ask After-Sales
E23	Short-circuit	Motor current too high	Ask After-Sales
E25	Contacting / winding	Winding defective	Ask After-Sales
E30	Module over-temperature	Module interior too warm	Check operating conditions in chapter 5.2
E36	Out-of-step	Motor errors	Ask After-Sales

If the fault cannot be remedied, please consult a specialist technician or the Wilo factory after-sales service.

Subject to change without prior notice!

- D      EG – Konformitätserklärung**  
**GB     *EC – Declaration of conformity***  
**F      *Déclaration de conformité CE***

Hiermit erklären wir, dass die Bauarten der Baureihe : **Stratos PICO**  
*Herewith, we declare that this product:*  
*Par le présent, nous déclarons que cet agrégat :*

in der gelieferten Ausführung folgenden einschlägigen Bestimmungen entspricht:  
*in its delivered state complies with the following relevant provisions:*  
*est conforme aux dispositions suivants dont il relève:*

**Elektromagnetische Verträglichkeit – Richtlinie                    2004/108/EG**  
**Electromagnetic compatibility – directive**  
**Compatibilité électromagnétique- directive**

**Niederspannungsrichtlinie    2006/95/EG**  
**Low voltage directive**  
**Directive basse-tension**

und entsprechender nationaler Gesetzgebung.  
*and with the relevant national legislation.*  
*et aux législations nationales les transposant.*

Angewendete harmonisierte Normen, insbesondere:  
*Applied harmonized standards, in particular:*  
*Normes harmonisées, notamment:*                                    **EN 60335-2-51**  
    **EN 61000-3-2**  
    **EN 61000-3-3**  
    **EN 55014-1&2**

Bei einer mit uns nicht abgestimmten technischen Änderung der oben genannten Bauarten, verliert diese Erklärung ihre Gültigkeit.  
If the above mentioned series are technically modified without our approval, this declaration shall no longer be applicable.  
Si les gammes mentionnées ci-dessus sont modifiées sans notre approbation, cette déclaration perdra sa validité.

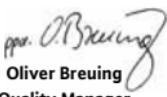
Dortmund, 15.04.2009

  
Oliver Breuing  
Quality Manager



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44263 Dortmund  
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<b>NL EG-verklaring van overeenstemming</b> Hiermede verklaren wij dat dit aggregaat in de geleverde uitvoering voldoet aan de volgende bepalingen:  Elektromagnetische compatibiliteit 2004/108/EG EG-laagspanningsrichtlijn 2006/95/EG Gebruikte geharmoniseerde normen, in het bijzonder: <b>1)</b>	<b>I Dichiaraione di conformità CE</b> Con la presente si dichiara che i presenti prodotti sono conformi alle seguenti disposizioni e direttive rilevanti: Compatibilità elettromagnetica 2004/108/EG Direttiva bassa tensione 2006/95/EG Norme armonizzate applicate, in particolare: <b>1)</b>	<b>E Declaración de conformidad CE</b> Por la presente declaramos la conformidad del producto en su estado de suministro con las disposiciones pertinentes siguientes: Directiva sobre compatibilidad electromagnética 2004/108/EG Directiva sobre equipos de baja tensión 2006/95/EG Normas armonizadas adoptadas, especialmente: <b>1)</b>
<b>P Declaração de Conformidade CE</b> Pela presente, declaramos que esta unidade no seu estado original, está conforme os seguintes requisitos:  Compatibilidade electromagnética 2004/108/EG Directiva de baixa voltagem 2006/95/EG Normas harmonizadas aplicadas, especialmente: <b>1)</b>	<b>S CE-försäkran</b> Härmed förklarar vi att denna maskin i levererat utförande motsvarar följande tillämpliga bestämmelser: EG-Elektromagnetisk kompatibilitet – riktlinje 2004/108/EG EG-Lågspänningssdirektiv 2006/95/EG Tillämpade harmoniseraade normer, i synnerhet: <b>1)</b>	<b>N EU-Overensstemmelseserklæring</b> Vi erklærer hermed at denne enheten i utførelse som levert er i overensstemmelse med følgende relevante bestemmelser: EG-EMV-Elektromagnetisk kompatibilitet 2004/108/EG EG-Lavspenningsdirektiv 2006/95/EG Anvendte harmoniserte standarder, særlig: <b>1)</b>
<b>FIN CE-standardinmukaisuusseloste</b> Ilmoitamme täten, että tämä laite vastaa seuraavia asiaankuuluvia määritelyksiä:  Sähkömäagiennetin soveltuvuus 2004/108/EG Matalajännitte direktiivit: 2006/95/EG Käytetyt yhteensovitetut standardit, erityisesti: <b>1)</b>	<b>DK EF-overensstemmelseserklæring</b> Vi erklærer hermed, at denne enhed ved levering overholder følgende relevante bestemmelser: Elektromagnetisk kompatibilitet: 2004/108/EG Lavvolts-direktiv 2006/95/EG Anvendte harmoniserede standarder, særligt: <b>1)</b>	<b>H EK. Azonossági nyilatkozat</b> Ezennel kijelentjük, hogy az berendezés az alábbiaknak megfelel: Elektromágneses zavarás/türés: 2004/108/EG Kisfeszültségű berendezések irány-Elve: 2006/95/EG Felhasznált harmonizált szabványok, különösen: <b>1)</b>
<b>CZ Prohlášení o shodě EU</b> Prohlašujeme tímto, že tento agregát v dodaném provedení odpovídá následujícím příslušným ustanovením:  Směrnicí EU-EMV 2004/108/EG Směrnicí EU-nízké napětí 2006/95/EG Použité harmonizační normy, zejména: <b>1)</b>	<b>PL Deklaracja Zgodności CE</b> Niniejszym deklarujemy z pełną odpowiedzialnością że dostarczony wyrób jest zgodny z następującymi dokumentami: Odpowiedniość elektromagnetyczna 2004/108/EG Normie niskich napięć 2006/95/EG Wyroby są zgodne ze szczególnymi normami zharmonizowanymi: <b>1)</b>	<b>RUS Декларация о соответствии Европейским нормам</b> Настоящим документом заявляем, что данный агрегат в его объеме поставки соответствует следующим нормативным документам: Электромагнитная устойчивость 2004/108/EG Директивы по низковольтному напряжению 2006/95/EG Используемые согласованные стандарты и нормы, в частности: <b>1)</b>
<b>GR Δήλωση προσαρμογής της Ε.Ε.</b> Δηλώνουμε ότι το προϊόν αυτό σ' αυτή την κατάσταση παρέδοσης ικανοποιεί τις ακόλουθες διατάξεις: Ηλεκτρομαγνητική συμβατότητα EG-2004/108/EG Οδηγία χαμηλής τάσης EG-2006/95/EG Εναρμονισμένα χρησιμοποιούμενα πρότυπα, ιδιαίτερα: <b>1)</b>	<b>TR EC Uygunluk Teyid Belgesi</b> Bu cihazın teslim edildiği şekilde aşağıdaki standartlara uygun olduğunu teyid ederiz: Elektromanyetik Uyumluluk 2004/108/EG Alçak gerilim direktifi 2006/95/EG Kismen kullanılan standartlar: <b>1)</b>	<b>1) EN 60335-2-51, EN 61000-3-2, EN 61000-3-3, EN 55014-1&amp;2.</b>

  
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June 2009



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Stand Februar 2009