

# Servomotors

Installation and operating instructions



# English (GB) Installation and operating instructions

## Original installation and operating instructions

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#### Warning



In addition to these instructions, observe all installation and operating instructions supplied with the pump.

Observe the supplier manual "TBasic\_BA" for the servomotor provided with the product.

## 1. Symbols used in this document



#### Warning

If these safety instructions are not observed, it may result in personal injury.



If these safety instructions are not observed, it may result in malfunction or damage to the equipment.



Notes or instructions that make the job easier and ensure safe operation.

## 2. General information

If you require further information or if any problems arise, which are not described in detail in this manual, please contact the nearest Grundfos Water Treatment company.

Observe the supplier manual "TBasic\_BA" for the servomotor provided with the product.

### 2.1 Service documentation

If you have any questions, please contact the nearest Grundfos company or service workshop.

## 3. Applications

### 3.1 Appropriate, acceptable and correct usage

Servomotors from Grundfos, series 384, are intended for automatically setting the stroke length and, thus, the dosing flow of Grundfos DMX and DMH series dosing pumps, as described in these instructions.



#### Warning

Only use the servomotor for the specified pump types!



No other applications are approved or permitted. Grundfos is not liable for damage resulting from incorrect use.

#### Warning

These installation and operating instructions are also available on [www.grundfos.com](http://www.grundfos.com).



Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

## 4. Safety

This manual contains general instructions that must be observed during installation, operation and maintenance of the servomotor. This manual must therefore be read by the installation engineer and the relevant qualified personnel/operators prior to installation and start-up, and must be available at the installation location of the servomotor at all times.

It is not only the general safety instructions given in this "Safety" section that must be observed, but also all the specific safety instructions given in other sections.

Information provided directly on the servomotor must be observed and must be maintained in a readable condition at all times.

### 4.1 Qualification and training of personnel

The personnel responsible for the operation, maintenance, inspection and installation must be appropriately qualified for these tasks. Areas of responsibility, levels of authority and the supervision of the personnel must be precisely defined by the operator.

If the personnel do not have the necessary knowledge, the necessary training and instruction must be given. If necessary, training can be performed by the manufacturer/supplier at the request of the operator of the servomotor. It is the responsibility of the operator to make sure that the contents of this manual are understood by the personnel.

### 4.2 Risks when safety instructions are not observed

Non-observance of the safety instructions may have dangerous consequences for the personnel, the environment and the device. If the safety instructions are not observed, all rights to claims for damages may be lost.

Non-observance of the safety instructions may lead to the following hazards:

- failure of important functions of the pump/system
- failure of specified methods for maintenance
- harm to humans from exposure to electrical, mechanical and chemical influences
- damage to the environment from leakage of harmful substances.

### 4.3 Safety-conscious working

The safety instructions in this manual, applicable national health and safety regulations and any operator internal working, operating and safety regulations must be observed.

### 4.4 Safety instructions for the operator/ user

Hazardous hot or cold parts on the servomotor must be protected to prevent accidental contact.

Damage caused by electrical energy must be prevented (for more details, see for example the regulations of the VDE and the local electricity supply company).

### 4.5 Safety instructions for maintenance, inspection and installation work

The operator must ensure that all maintenance, inspection and installation work is carried out by authorised and qualified personnel, who have been adequately trained by reading this manual.

All work on the servomotor should only be carried out when the device is stopped.

All safety and protective equipment must be immediately restarted or put into operation once work is complete.

Observe the points described in the initial start-up section prior to subsequent start-up.



#### Warning

Electrical connections must only be carried out by qualified personnel.

Repairs must only be carried out by authorised and qualified personnel.



#### Warning

When dosing dangerous media, the corresponding safety data sheets must be observed.

Wear protective clothing (gloves and protective glasses) if required.

Before installing the servomotor, switch off the pump and disconnect it from the mains.



#### Caution

The stroke length of a DMX pump must only be set when the pump is running.

### 4.6 Unauthorised modification and manufacture of spare parts

Modification or changes to the device are only permitted following agreement with the manufacturer. Original spare parts and accessories authorised by the manufacturer are safe to use.

Using other parts can result in liability for any resulting consequences.

### 4.7 Improper operating methods

The operational safety of the supplied device is only ensured if it is used in accordance with section [6. Technical data](#). The specified limit values must under no circumstances be exceeded.

## 5. Device description

### 5.1 Versions

If a servomotor is ordered together with a dosing pump, the servomotor is fitted onto the pump at the factory and subjected to a function test. Once on site, qualified specialist staff must establish the relevant electrical connection.

Servomotors can also be supplied for retrofitting on a dosing pump, together with the necessary mounting material. Such servomotors also undergo testing at the factory prior to delivery. Qualified specialist staff must fit the servomotor onto the dosing pump and establish the electrical connection.

### 5.2.3 Versions, servomotor product numbers and corresponding pump types

A servomotor kit includes servomotor and mounting material. A spare servomotor is delivered without mounting material.

Servomotor series	for pump type	Pump type key, control variant	Control variant	Power supply	Servo-motor kit	Spare servomotor
384-511	DMH 251-257, DMH 280-288	D3	analogue control	115-230 V, 50/60 Hz	95721977	98721200
384-511	DMH 251-257, DMH 280-288	D4	analogue control	24 VDC, 50/60 Hz	95736296	98721222
384-711	DMX 221	D3	analogue control	115-230 V, 50/60 Hz	95725108	98721200
384-711	DMX 221	D4	analogue control	24 VDC, 50/60 Hz	95736495	98721222
384-712	DMX 226L	D3	analogue control	115-230 V, 50/60 Hz	95725109	98721200
384-712	DMX 226L	D4	analogue control	24 VDC, 50/60 Hz	95736497	98721222
384-714	DMX 226L/2	D3	analogue control	115-230 V, 50/60 Hz	95736502	98721200
384-714	DMX 226L/2	D4	analogue control	24 VAC, 50/60 Hz	95736503	98721222
384-715	DMX 226M	D3	analogue control	115-230 V, 50/60 Hz	95725666	98721200
384-715	DMX 226M	D4	analogue control	24 VDC, 50/60 Hz	95736504	98721222
384-717	DMX 226M/2	D3	analogue control	115-230 V, 50/60 Hz	95736511	98721200
384-717	DMX 226M/2	D4	analogue control	24 VAC, 50/60 Hz	95736513	98721222

### 5.2.4 Spare servomotor, control variant: reversing potentiometer

Servomotor series	for pump type	Power supply	Control variant	Spare servomotor
384-all	DMH 251-257, DMH 280-288, DMX 221/226L+M	230 V 50/60 Hz	reversing potentiometer	98721196
		115 V 50/60 Hz	reversing potentiometer	98721198
		24 V 50/60 Hz	reversing potentiometer	98721199

## 5.2 Variants

### 5.2.1 Variants according to pump type

#### For DMX 221

- 1 servomotor for single pump

#### For DMX 226, DMH 25x/28x

- 1 servomotor for single pump

### 5.2.2 Control variants

- With analogue control 4 (0) - 20 mA

## DMX 226 groups

DMX 226 group M	DMX 226 group L
DMX 24-8	DMX 67-10
DMX 37-5	DMX 95-8
DMX 52-8	DMX 132-10
DMX 60-3	DMX 152-6
DMX 82-5	DMX 190-8
DMX 100-8	DMX 190-10
DMX 130-3	DMX 199-8
DMX 142-8	DMX 249-3
DMX 160-5	DMX 280-6
DMX 224-5	DMX 280-8
DMX 255-3	DMX 321-4
DMX 380-3	DMX 321-6
-	DMX 460-3.5
-	DMX 460-6
-	DMX 315-3
-	DMX 525-3
-	DMX 765-3

### 5.2.5 Function of a servomotor with analogue control

The microprocessor controller is integrated in the drive housing. The controller positions the drive based on a guide value (setpoint in mA signal) and compares the specified setpoint with the actual drive position (actual value). If the two values differ, the drive is moved to the position determined by the setpoint. The actual value is generated by a potentiometer integrated in the drive.

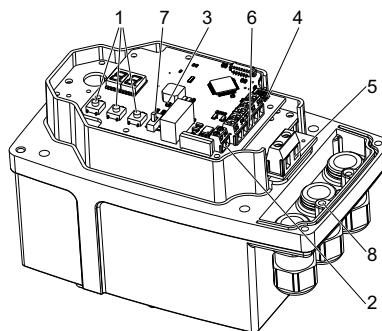
Any positions can be assigned to 4 (0) mA and 20 mA at any time. The lower and upper current limits (4 (0)/20 mA) are pre-programmed and cannot be changed. The control direction can also be reversed using a DIP switch " /inv".

### 5.2.6 Function of a spare servomotor with reversing potentiometer

The drive is positioned at the relevant terminals (motor control open/closed) for the corresponding direction of rotation by switching the supply voltage on/off. The reversing potentiometer returns the current position of the servomotor to the controller; the position is held when the setpoint is reached.

Observe the supplier manual for the servomotor provided with the product.

## 6. Technical data



TM07 5417 4019

Fig. 1 Servomotor with analogue control

Item	Description
1	Programming buttons
2	Alarm output
3	LEDs
4	DIP switch
5	Mains connection terminals
6	Analogue signal connection terminals
7	Manual adjusting switch
8	Earth terminal

## 6.1 General data

### Ambient and operating conditions

- Permissible ambient temperature: 0 °C to +55 °C.
- Permissible air humidity: max. relative humidity: 70 % at 40 °C, 90 % at 35 °C.

### Housing

- Materials:
  - Housing: Die-cast zinc
  - Hood: Plastic
- Colour: Black
- Degree of protection in acc. with DIN EN 60529: IP65

### Power supply

- 115-230 V  $\pm$  10 %, 50/60 Hz  $\pm$  5 %, 100 % on time (standard)
- 24 VDC  $\pm$  10 %, 50/60 Hz  $\pm$  5 %
- Insulation class E in acc. with EN60085

### Adjustment angle

- 270 °

### Power consumption

- Max. 2 VA

### Actuating time

- 90 seconds (50 Hz), 75 seconds (60 Hz) for DMH pumps
- > 90 seconds for DMX 221 and DMX 226 pumps. The exact actuating time cannot be specified for DMX pumps, as it will depend on the technical properties of the pump in question.

### Weight

- Approximately 2.6 kg

### 6.1.1 Servomotor with analogue control

#### Control variant

- Analogue control
- Input/output
  - 4-20 mA (standard setting)
  - 0-20 mA (switchable)

#### Setpoint input

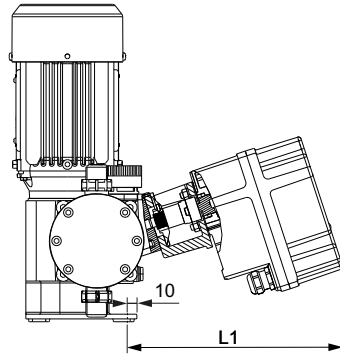
- 4 (0) - 20 mA (DC)
- Load 250  $\Omega$
- Overload protection 25 mA
- Protection against reverse polarity to -25 mA
- ESD protection, input filter
- Resolution: 12 bits

#### Actual value output

- Fixed limits: 0-20 mA or 4-20 mA
- Current sink: Max. load 500  $\Omega$
- Resolution: 10 bits

## 6.2 Dimensional drawings

### Servomotor series 384-511 to 513



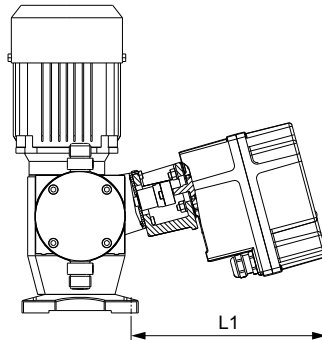
TM07 6220 1120

Fig. 2 Servomotor series 384-511 to 513

Servomotor series	L1
384-511	228
384-512	215
384-513	227

Dimensions in mm

### Servomotor series 384-711 to 717



TM07 6221 1120

Fig. 3 Servomotor series 384-711 to 717

Servomotor series	L1
384-711	208
384-712 - 384-714	227
384-715 - 384-717	228

Dimensions in mm

## 7. Transport and storage

### Caution

Only transport drives in their original packaging. Do not use the protective packaging as packaging for transport.

Do not subject drives to severe vibrations. Do not throw or drop the servomotor.

### Note

If a pump is ordered together with a servomotor, the servomotor is fitted onto the dosing pump so that it is ready for connection.

### 7.1 Unpacking

- Retain the packaging for future storage or return, or dispose of the packaging in accordance with local regulations.
- Fit the servomotor as soon as possible after unpacking it.

### 7.2 Storage/Downtimes

- Store the servomotor in a well ventilated, dry room on a pallet or rack (protected from moisture). Cover it with foil to protect it from dust and dirt.
- Prevent condensation from forming (e.g. if the temperature fluctuates).

If the servomotor is to be stored for longer than 4 months, observe the following points too:

- Insert a layer of absorbent material underneath the drive's cover.

Keep the servomotor in a dry, cool place.

## 8. Installation

### 8.1 General notes

#### Warning



It is a basic fact that certain parts will carry a dangerous voltage whenever electrical devices are operated. Only electricians or trained persons instructed and supervised by a specialist electrician may carry out work on electrical installations or equipment and the relevant electrotechnical rules must be observed.

#### Warning



When undertaking installation, commissioning and testing work, all applicable safety and accident prevention regulations must always be observed.

#### Warning



Before you start any (installation) work of any kind on the drive, make sure that all affected machines/installations are switched off.

### Note

It is essential that you read this instruction manual prior to carrying out installation and commissioning.



#### Warning

The servomotor may only be fitted by a qualified specialist.

### Note

If a pump is ordered together with a servomotor, the servomotor is fitted onto the dosing pump so that it is ready for connection.

## 8.2 Retrofitting a dosing pump with an electrical servomotor

#### Warning



When retrofitting a dosing pump with an electrical servomotor, you must observe the instructions and warnings contained in section 9. *Electrical connections*, section 10. *Commissioning* and section 11. *Operation*.

### Scope of delivery of the electrical servomotor

Lantern, front plate, scale ring with screw, coupling (three parts) with two grub screws. Holding screws for lantern and servomotor.

### Required tools

Hexagon socket wrench 2 mm, 2.5 mm, 5 mm, screwdriver

### Checking the 0 % position

The servomotor is set to the 0 % position prior to delivery. However, for safety's sake this 0 % position must be checked and, if necessary, corrected.

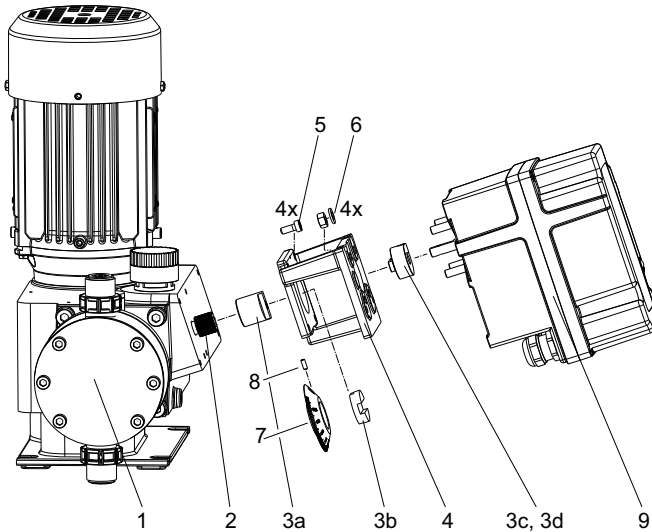
Observe the supplier manual "TBasic\_BA" for the servomotor provided with the product.

1. Connect the pump to the electrical mains.
2. Switch on the mains.
3. Turn the pump's stroke adjustment button to the 0 % position.
4. Switch off the mains.

### Removing the pump's front plate

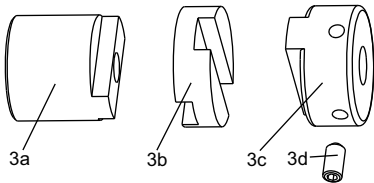
1. Remove the cap from the adjustment button.
2. For DMX: Unscrew the locking screw on the side of the adjustment button.
3. Remove the holding screw and pull the adjustment button straight out.
  - Make sure that you do not alter the 0 % position.
4. Remove the front plate.

Installation sketch for the electrical servomotor



TM07 6222 1120

Fig. 4 Installing the servomotor (using the example of a DMH pump)



TM04 1392 3909

Fig. 5 Coupling

Item	Description
1	Pump
2	Adjusting spindle (grooved dowel)
3	Coupling
4	Lantern
5	Screw
6	Nut and intermediate disk
7	Scale ring
8	Grub screw
9	Servomotor

**Fitting the servomotor to the lantern**

1. Push the coupling section (3c) onto the shaft of the servomotor (9) and screw the grub screw (3d) in loosely.
2. Use four nuts and intermediate disks (6) to fix the lantern onto the servomotor's grub screws.

**Fitting the servomotor and lantern to the pump**

1. For DMX: Attach the front plate supplied.
2. Fit the coupling section (3a) onto the adjusting spindle (2).
3. Hold the servomotor and lantern on the pump.
4. Insert the scale ring (7) and coupling section (3b) (carrier) through the side of the lantern. Push one coupling section (3b) onto the other coupling section (3a) so it is in the correct position (see fig. 4) and hold it in place with one hand.

**Caution** The spindle must not rotate during this process.

5. Turn coupling section (3c) on the shaft so that it engages in the groove on coupling section (3b).
6. Use the grub screw (3d) to fix the coupling section (3c) onto the shaft of the servomotor.
7. Fit the lantern using three screws (DMX) or four screws (DMH) (5).
8. Match up the 0 % position of the scale ring (7) with the marking pin on the lantern and tighten the grub screw (8).

**Connecting and commissioning the servomotor**

Establish the servomotor's electrical connections as described in section 9. *Electrical connections*.

Commission the pump and servomotor, observing the information contained in the instruction manual; see also section 10. *Commissioning*.



## 8.3 Installation



Warning

Never install a damaged drive.

Note

Observe the installation and operating instructions for the dosing pump.

### 8.3.1 General notes on installation

- Remove any anti-corrosion agent (that may have been used for storage purposes) and apply grease instead.
- Check the cable entries and dummy plugs for tightness.
- Tighten the hood screws so they are all equally tight.
- Protect the drive from the effects of the weather (by means of a canopy, for example).
- Do not attach any ropes, hooks or similar directly to the drive.
- Continuously overloading and blocking the drive will damage it.
- Spark-quenching capacitors may adversely affect the drives' direction of rotation stability and result in damage.

#### Cable entries

- When storing, installing and commissioning the servomotor, care must be taken to ensure that the cable entries have been properly sealed. Only cables appropriate for the diameter of the cable entries must be used.

#### Installing the hood

- When installing the hood, you must ensure that the O-rings underneath the hood screws and the O-ring in the drive housing are properly seated.
- The connection face of the hood must not show any signs of damage.
- Tighten the hood screws equally.

#### Housing/Hood

- No additional bores may be drilled into the drive housing or the hood.

## 9. Electrical connections

### 9.1 General warnings and notes on the electrical connection

Observe the supplier manual "TBasic\_BA" for the servomotor provided with the product.

Warning

Electrical connections may only be established by qualified staff.



Before opening housing, disconnect the servomotor from the power supply.

Observe the local safety regulations.

Protect the cable connections and plugs from corrosion and moisture.



Warning

The applicable regulations must be observed when carrying out electrical installation and commissioning work.



Warning

Protective measures must be put in place in accordance with the relevant VDE guidelines and power supply company regulations. In particular, VDE guideline 0105, "Working on live installations", must be taken into account.



Warning

All elements, such as switch cams, switches, potentiometers, relays, etc., are wired at the factory. The internal wiring must never be modified.



Warning

The terminals at the limit switches are live when the switch closes.



Warning

The following must be taken into account for explosion-protection servomotors and pumps.

Danger of explosion!

Only use high-strength cable glands appropriate for the cable size.

Attach suitable caps to unused openings.

Caution

Switch cams and limit switches are set at the factory and must not be modified.

Caution

Before connecting the mains cable, check whether the type of current, the supply voltage and the frequency stated on the type plate match the local conditions.

An incorrect supply voltage may destroy the servomotor.

Caution

To ensure electromagnetic compatibility (EMC), the signal cables must be shielded.

The screen must be connected on one side to PE (earth) or to the housing earth (earth terminal).

Lay signal and mains cables in separate cable channels.

Caution

For parallel operation: If several drives are controlled via a shared contact, e.g. if there are two servomotors on one duplex pump, every drive must be equipped with a relay for parallel operation.

Note

Lay the mains supply lines with cross-sections that conform to the relevant VDE guidelines.

**Note**

Use separate, shielded lines for low voltages (e.g. potentiometers, analogue signals).

Use screwed cable joints appropriate for the connection line.

**Note**

The stated degree of protection can only be ensured if suitable screwed cable joints are used.

**Warning**

The internal wiring of the drive must never be modified.

## 10. Commissioning

**Warning**

The drive may only be commissioned if the hood and cable entries are properly closed.

**Warning**

Please note that the process of commissioning the drive will cause associated fittings/levers/rodding to move.

**Warning**

Check that all emergency equipment/functions on your machine/installation are working correctly.

**Warning**

Once all adjustment work has been completed, check that the drive and the fittings/levers, etc. operated by it are working correctly.

**Warning**

Never work with a damaged drive.

**Caution**

When commissioning, all the installation's components must be ready for operation.

**Note**

Follow the installation and operating instructions for the components used.

### 10.1 Checks before commissioning

**Caution**

Before setting the servomotor to automatic operation, check the min./max. position and the direction of rotation.

#### 10.1.1 Checking the direction of rotation

The servomotor is controlled by an external controller. This means that the servomotor's direction of rotation depends on the controller's cabling and settings being correct.

**Note**

Observe the installation and operating instructions for the controller and the dosing pump.

## 11. Operation

Observe the supplier manual "TBasic\_BA" for the servomotor provided with the product.

**Warning**

The terminals at the limit switches are live when the switch closes.

**Caution**

Switch cams and limit switches are set at the factory and must not be modified.

**Warning**

Do not touch bare wires or clamping screws.

## 12. Maintenance

**Note**

The servomotor features permanent lubrication and is maintenance-free.

**Warning**

Switch off the entire installation before any repair work is carried out.

Disconnect the supply voltage before opening the housing.

## 13. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.



The crossed-out wheellie bin symbol on a product means that it must be disposed of separately from household waste. When a product marked with this symbol reaches its end of life, take it to a collection point designated by the local waste disposal authorities. The separate collection and recycling of such products will help protect the environment and human health.

See also end-of-life information at [www.grundfos.com/product-recycling](http://www.grundfos.com/product-recycling).

# Declaration of conformity

## GB: EC/EU manufacturer's declaration

We, Grundfos, declare under our sole responsibility that the product Servomotor 384, to which the declaration below relates, is in conformity with the Council Directives listed below on the approximation of the laws of the EC/EU member states.

## CZ: Prohlášení výrobce EU

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobek Servomotor 384, na který se toto prohlášení vztahuje, je v souladu s níže uvedenými ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství.

## DE: EG-/EU-Herstellererklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass das Produkt Servomotor 384, auf das sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EG-/EU-Mitgliedsstaaten übereinstimmt.

## ES: Declaración del fabricante CE/UE

Grundfos declara, bajo su exclusiva responsabilidad, que el producto Servomotor 384 al que hace referencia la siguiente declaración cumple lo establecido por las siguientes Directivas del Consejo sobre la aproximación de las legislaciones de los Estados miembros de la CE/UE.

## FR: Déclaration du fabricant CE/UE

Nous, Grundfos, déclarons sous notre seule responsabilité, que le produit Servomotor 384, auquel se réfère cette déclaration, est conforme aux Directives du Conseil concernant le rapprochement des législations des États membres CE/UE relatives aux normes énoncées ci-dessous.

## GR: Δήλωση του κατασκευαστή ΕΚ/ΕΕ

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι το προϊόν Servomotor 384, στο οποίο αναφέρεται η παρακάτω δήλωση, συμμορφώνεται με τις παρακάτω Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΚ/ΕΕ.

## HR: EC/EU Izjava proizvođača

Mi, Grundfos, izjavljujemo s punom odgovornošću da je proizvod Servomotor 384, na koja se izjava odnosi u nastavku, u skladu s direktivama Vijeća dolje navedenih o uskladjivanju zakona država članica EZ-a / EU-a.

## HU: EC/EU Gyártó nyilatkozata

Mi, a Grundfos vállalat, teljes felelősséggel kijelentjük, hogy a(z) Servomotor 384 termék, amelyre az alábbi nyilatkozat vonatkozik, megfelel az Európai Közösség/Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak.

## IT: Dichiarazione del produttore CE/UE

Grundfos dichiara sotto la sua esclusiva responsabilità che il prodotto Servomotor 384, al quale si riferisce questa dichiarazione, è conforme alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE/UE.

## NL: EG/EU Verklaring van de fabrikant

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat product Servomotor 384, waarop de onderstaande verklaring betrekking heeft, in overeenstemming is met de onderstaande Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgeving van de EG-/EU-lidstaten.

## PL: Deklaracja producenta WE/UE

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasz produkt Servomotor 384, którego deklaracja niniejsza dotyczy, jest zgodny z następującymi dyrektywami Rady w sprawie zbliżenia przepisów prawnych państw członkowskich.

## PT: Declaração do fabricante CE/UE

A Grundfos declara sob sua única responsabilidade que o produto Servomotor 384, ao qual diz respeito a declaração abaixo, está em conformidade com as Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE/UE.

## RU: Декларация производителя ЕЭС/ЕС

Мы, компания Grundfos, со всей ответственностью заявляем, что изделие Servomotor 384, к которому относится нижеприведённая декларация, соответствует нижеприведённым Директивам Совета Евросоюза о тождественности законов стран-членов ЕЭС/ЕС.

## SE: EG/EU Tillverkardeklaration

Vi, Grundfos, försäkrar under ansvar att produkten Servomotor 384, som omfattas av nedanstående försäkran, är i överensstämmelse med de rådsdirektiv om inbördes närmande till EG/EU-medlemsstaternas lagstiftning som listas nedan.

## TR: EC/AB İmalatçı beyanı

Grundfos olarak, aşağıdaki bildirim konusu olan Servomotor 384 ürününün, EC/AB üye ülkelerinin direktiflerinin yakınlaştırılmasıyla ilgili durumun aşağıdaki Konsey Direktifleriyle uyumlu olduğunu ve bununla ilgili olarak tüm sorumluluğun bize ait olduğunu beyan ederiz.

## CN: 欧共体 / 欧盟符合性声明

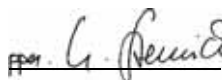
我们，格兰富，在我们的全权责任下声明，产品 Servomotor 384，即该合格证所指之产品，符合欧共体 / 欧盟使其成员国法律趋于一致的以下理事会指令。

- 
- EMC Directive (2014/30/EU).  
Standards used:  
EN 61000-6-2:2006, EN 61000-6-3:2011,  
EN 61000-3-2:2015, EN 61000-3-3:2014.
  - Low Voltage Directive (2014/35/EU).  
Standard used:  
EN 61010-1:2011-07.
  - RoHS Directives (2011/65/EU and 2015/863/EU).  
Standard used: EN 50581:2012.

**This product must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the Machinery Directive (2006/42/EC).**

This EC/EU manufacturer's declaration is only valid when published as part of the Grundfos installation and operating instructions (publication number 99559293).

Pfinztal, 1st March 2018



Ulrich Stemick  
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