

# GT

## Installation and operating instructions

GB D F I E P GR NL S FIN DK  
RU RO TR



## **(GB)** Declaration of Conformity

We **Grundfos** declare under our sole responsibility that the products **GT**, to which this declaration relates, are in conformity with the Council Directives on the approximation of the laws of the EC Member States relating to

- Pressure equipment (97/23/EC).  
Modules used for conformity assessment to categories I, II and III: A, A1 and B + C1.  
Notified Body identification number: CE 0041 and CE 0044.

## **(F)** Déclaration de Conformité

Nous **Grundfos** déclarons sous notre seule responsabilité que les produits **GT** auxquels se réfère cette déclaration sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives à

- Équipements sous pression (97/23/CE).  
Les modules utilisés pour l'évaluation de la conformité des catégories I, II et III : A, A1 et B + C1.  
Numéro d'identification du corps spécifique: CE 0041 et CE 0044.

## **(E)** Declaración de Conformidad

Nosotros **Grundfos** declaramos bajo nuestra única responsabilidad que los productos **GT** a los cuales se refiere esta declaración son conformes con las Directivas del Consejo relativas a la aproximación de las legislaciones de los Estados Miembros de la CE sobre

- Equipos a presión (97/23/CE).  
Módulos utilizados para evaluación de conformidad según categorías I, II y III: A, A1 y B + C1.  
Número de identificación del organismo competente: CE 0041 y CE 0044.

## **(GR)** Δήλωση Συμμόρφωσης

Εμείς η **Grundfos** δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα **GT** συμμορφώνονται με την Οδηγία του Συμβουλίου επί της σύγκλισης των νόμων των Κρατών Μελών της Ευρωπαϊκής Ένωσης σε σχέση με τα

- Εξαρτήματα πίεσης (97/23/ΕC).  
Μονάδες που χρησιμοποιούνται για βεβαίωση συμβατότητας με τις κατηγορίες I, II και III: Α, Α1 και Β + C1.  
Κωδικός αριθμός Αρμόδιας Αρχής: CE 0041 και CE 0044.

## **(S)** Försäkran om överensstämmelse

Vi **Grundfos** försäkrar under ansvar, att produkterna **GT**, som omfattas av denna försäkran, är i överensstämmelse med Rådets Direktiv om inbördes närmande till EU-medlemsstaternas lagstiftning, avseende

- Tryckbärande utrustning (97/23/EC).  
Moduler som använts till överensstämmelse efter kategorierna I, II och III: A, A1 och B + C1.  
Det bemyndigande organets identifikationsnummer: CE 0041 och CE 0044.

## **(DK)** Overensstemmelseserklæring

Vi **Grundfos** erklærer under ansvar, at produkterne **GT**, som denne erklæring omhandler, er i overensstemmelse med Rådets direktiver om indbyrdes tilnærmede til EF medlemsstaternes lovgivning om

- Trykbærende udstyr (97/23/EF).  
Moduler, som er anvendt til overensstemmelsesvurdering efter kategoriene I, II og III: A, A1 og B + C1.  
Det bemyndigede organs identifikationsnummer: CE 0041 og CE 0044.

## **(D)** Konformitätserklärung

Wir **Grundfos** erklären in alleiniger Verantwortung, dass die Produkte **GT**, auf die sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EG-Mitgliedstaaten übereinstimmen

- Druckgeräte (97/23/EG).  
Verwendete Module bei der Konformitätsbeurteilung nach den Kategorien I, II und III: A, A1 und B + C1.  
Kennnummer der benannten Stelle: CE 0041 und CE 0044.

## **(I)** Dichiarazione di Conformità

Noi **Grundfos** dichiariamo sotto la nostra esclusiva responsabilità che i prodotti **GT** ai quali questa dichiarazione se riferisce sono conformi alle Direttive del Consiglio concernente il ravvicinamento delle legislazioni degli Stati membri CE relative a

- Apparecchi in pressione (97/23/EC).  
Moduli utilizzati per la verifica delle categorie I, II e III: A, A1 e B + C1.  
Ento notificato numero: CE 0041 e CE 0044.

## **(P)** Declaração de Conformidade

Nós **Grundfos** declaramos sob nossa única responsabilidade que os produtos **GT** aos quais se refere esta declaração estão em conformidade com as Directivas do Conselho das Comunidades Europeias relativas à aproximação das legislações dos Estados Membros respeitantes à

- Equipamentos sob pressão (97/23/CE).  
Módulos utilizados de acordo com o disposto de conformidade para as categorias I, II e III: A, A1 e B + C1.  
Número de identificação do conjunto: CE 0041 e CE 0044.

## **(NL)** Overeenkomstigheidsverklaring

Wij **Grundfos** verklaren geheel onder eigen verantwoordelijkheid dat de producten **GT** waarop deze verklaring betrekking heeft in overeenstemming zijn met de Richtlijnen van de Raad inzake de onderlinge aanpassing van de wetgevingen van de Lid-Staten betreffende

- Apparaten onder druk (97/23/EC).  
Gebruikte modules voor overeenkomstigheid beoordeling categorie I, II en III: A, A1 en B + C1.  
Bekend onder instantie identificatie nummer: CE 0041 en CE 0044.

## **(FIN)** Vastaa vuutus

Me **Grundfos** vakuutamme yksin vastuullisesti, että tuotteet **GT**, jota tämä vakuutus koskee, noudattavat direktiivejä jotka käsittelevät EY:n jäsenvaltioiden koneellisia laitteita koskevien lakien yhdenmukaisuutta seura:

- Painelaitteet (97/23/EY).  
Vaatimustenmukaisuuden arvioinnissa käytetyt moduulit luokkia I, II ja III varten: A, A1 ja B + C1.  
Ilmoitetun laitoksen tunnusnumero: CE 0041 ja CE 0044.

## **(RU)** Декларация о соответствии

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия - баки GT, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Оборудование, работающее под давлением (97/23/EC).  
Модули, применяемые для оценки соответствия категориям I, II и III: A, A1 и B + C1.  
Идентификационный номер нотификационного органа: CE 0041 и CE 0044.

## **(RO) Declarație de conformitate**

Noi, **Grundfos**, declarăm asumându-ne întreaga responsabilitate că produsele **ProductName1**, **ProductName2** la care se referă această declarație sunt în conformitate cu Directivele Consiliului în ceea ce privește alinierea legislațiilor Statelor Membre ale CE, referitoare la:

- Utilaje (98/37/CE).
- Echipamente electrice destinate utilizării între limite exacte de tensiune (2006/95/CE).  
Standarde aplicate: EN 60335-1: 2002 și EN 60335-2-51: 2003.
- Compatibilitate electromagnetică (2004/108/CE).  
Standarde aplicate: EN 61000-6-2 și EN 61000-6-3.

## **(TR) Uygunluk Bildirgesi**

Biz **Grundfos** olarak, bu beyanda belirtilen **ProductName1** ve **ProductName2** ürünlerinin,

- Makina (98/37/EC).
- Belli voltaj sınırlarında kullanılmak üzere üretilmiş elektrik donanımı (2006/95/EC).  
Kullanılan standartlar: EN 60335-1: 2002 ve EN 60335-2-51: 2003.
- Elektromanyetik uyumluluk (2004/108/EC).  
Kullanılan standartlar: EN 61000-6-2 ve EN 61000-6-3.

ile ilgili olarak Avrupa topluluğu'na Üye Devletlerin yasalarında yer alan Belediye Yönetmeliklerine uygun olduğunu, tüm sorumluluğu bize ait olmak üzere beyan ederiz.

Bjerringbro, 15th April 2008



Svend Aage Kaae  
Technical Director



# GT

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GB



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

## 1. Operating principle

The Grundfos GT tanks of the GT-H and GT-D types have a sealed-in, heavy-duty diaphragm separating air and water. This allows the tanks to be pre-pressurised before leaving the factory.

The Grundfos GT tanks of the GT-U type has a replaceable bladder separating nitrogen and water. This allows the tanks to be pre-pressurised before leaving the factory.

Figures 1, 2 and 3 show the three types of GT tanks.

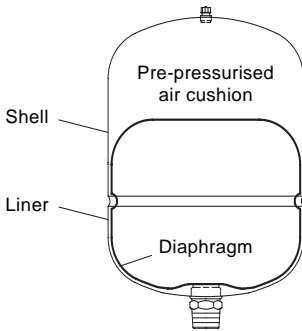


Fig. 1 GT-H

TM02 9078 1804

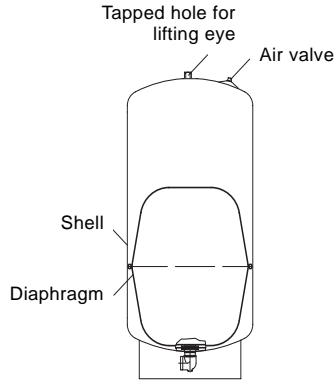


Fig. 2 GT-D

TM02 9082 1804

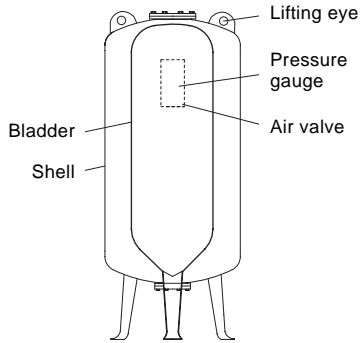


Fig. 3 GT-U

TM02 9096 1804

The GT tanks are supplied with their total volume filled with air/nitrogen pressured to a standard pre-charge, fig. 4.

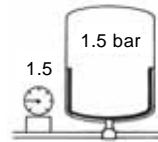


Fig. 4

TM02 9079 1804

As water enters the GT, the diaphragm/bladder is flexed, compressing the air/nitrogen cushion, reducing its volume by the same volume of water that enters. As the volume of air/nitrogen decreases, the pressure in the GT increases so that it always equals the pressure exerted by the pump. Since air/nitrogen pressure and water pressure are always equal, the diaphragm/bladder is never under any strain. It merely flexes or floats between the water and air/nitrogen.

When properly sized, the air/nitrogen cushion in the GT will be of sufficient volume at minimum pressure (pump cut-in) to allow a desired volume of water to enter the GT with the subsequent pressure increase within the specified operating pressure range as set by the pressure switch.

This volume of water is equal to the average flow of the pump during its minimum running time per start as specified by the manufacturer.

The operation of the GT then ensure that once the pump starts, it will run at least the specified minimum time before the pressure in the air/nitrogen cushion of the GT reaches the pump switch cut-out level, fig. 5.

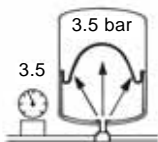


Fig. 5

TM02 9080 1804

When this pressure is reached, the pump stops and the system is fully pressurised. Further demand is supplied by water in the GT. As water leaves the GT, the air/nitrogen volume increases in the air/nitrogen cushion and the pressure decreases, always equalising the dropping system pressure, fig. 6.

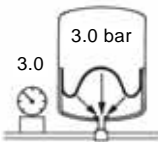


Fig. 6

TM02 9081 1804

When the pressure in the GT reaches the minimum point of the operating range (pump cut-in), the pump switch actuates the pump and the operating cycle begins again.

### 1.1 Recommended operating pressure ranges

The GT tanks operate at any pressure range (pump cut-in to pump cut-out) when properly sized.

The recommended pressure range for today's average residential system is 2.0/3.5 bar, fig. 7.

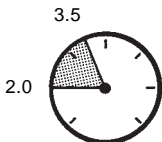


Fig. 7

TM01 0497 1297

## 1.2 Maximum operating pressure

The maximum operating pressure of the pump plus the actual inlet pressure must not exceed the maximum operating pressure of the GT.

See nameplate.

## 1.3 Relief valve

A relief valve must be installed. The relief valve is set to open at the maximum operating pressure. This will protect the GT and other system components should the pressure switch malfunction and fail to shut off the pump. The relief valve should be installed at the connection of the GT to the system piping and have a discharge equal to the pump capacity at maximum operating pressure.

## 1.4 Standard precharge pressure

See nameplate.

## 1.5 Pressure gauge

It is recommended to fit a pressure gauge to the piping system at the pressure switch.

## 2. Installation

### 2.1 Lifting the GT

The GT-D tanks have a tapped hole for the attachment of a lifting eye.

The GT-U tanks have lifting eyes attached to the top of the tank.

### 2.2 Proper GT location

The GT should be installed as close as possible to the pressure switch. This will reduce the adverse effects of added friction loss and differences in elevation between GT and/or water main and switch.

### 2.3 Adjusting GT precharge pressure

This precharge pressure should be slightly below the pump cut-in setting of the pressure switch.

The following steps should be taken:

1. Using a suitable pressure gauge, check precharge pressure prior to assembling in system.
2. Release or add air/nitrogen as necessary to make precharge pressure equal to pressure switch pump cut-in setting.

**Note:** Check precharge pressure annually, but ensure there is no water in the tank (switch off the pump and open a tap).

3. Replace protective air valve cap and seal with the air valve label provided. This will enable you to determine if valve has been tampered with in case of future service calls.

## 2.4 System connection

1. Locate the GT in final desired location.
2. Level as necessary.
3. Connect to pump supply line with a short pipe and eliminate unnecessary friction loss.
4. All piping should be in accordance with prevailing local codes and standards.

## 2.5 Fine-tuning procedure

The actual pressure switch settings will often vary from the standard pressure range indicated. These variations could cause a momentary lag of water delivery as the pressure switch is not "tuned" to the precharge pressure of the GT.

To "fine-tune", proceed as follows:

1. Fill the system and GT until the pump cuts out.
2. Open one or more taps to drain the GT.
3. If there is a momentary pause in the water flow before the pump starts, adjust pump switch cut-in setting slightly upward, fig. 8.  
See adjustment instructions by switch manufacturer.
4. Close taps and refill the GT until the pump cuts out.
5. Open taps and see if pause is eliminated. If not, continue adjusting pressure switch until there is no pause in water flow before the pump cuts in.

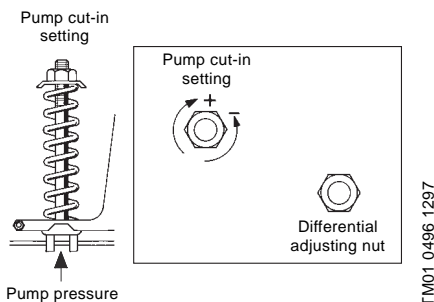


Fig. 8

## 2.6 Replacing plain steel tanks with GT

Grundfos recommends that defective plain steel tanks are replaced with GT tanks.

It is a simple procedure and the line drawing, page 51, should be followed for correct connection to the system.

It is recommended that a relief valve be installed at the GT connection.

Also be sure to plug the air port on a jet pump, as air is no longer required to be supplied to the tank.

## 2.7 Installation examples

See page 51.

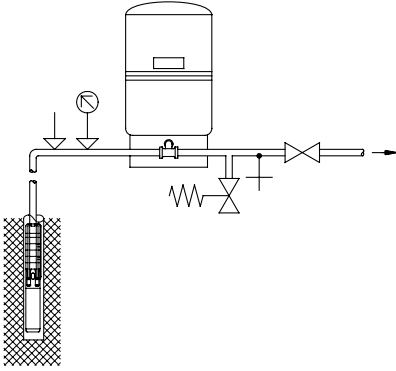
## 3. Disposal

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

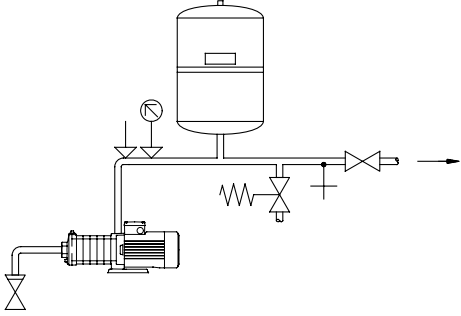
1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.



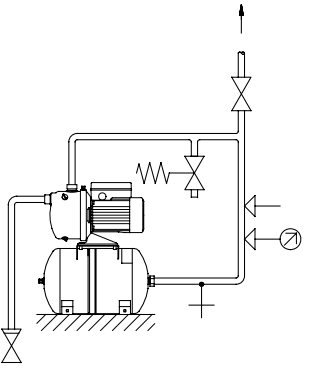
# Installation examples



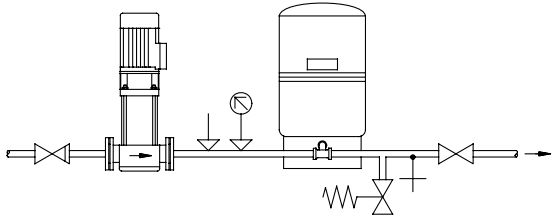
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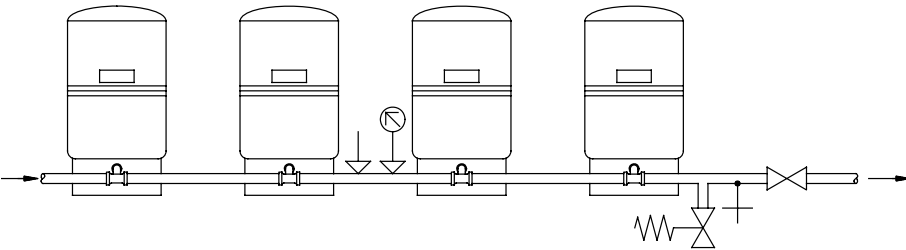
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TM01 0502 1297





TM01 0500 1297



TM01 0501 1297

	<b>(GB)</b> Isolating valve
	<b>(D)</b> Absperrventil
	<b>(F)</b> Vanne d'isolement
	<b>(I)</b> Valvola di intercettazione
	<b>(E)</b> Válvula de corte
	<b>(P)</b> Válvula de isolamento
	<b>(GR)</b> Βαλβίδα απομόνωσης
	<b>(NL)</b> Afsluiter
	<b>(S)</b> Avstängningsventil
	<b>(FIN)</b> Sulkuventtiili
	<b>(DK)</b> Afspærringsventil
	<b>(RU)</b> Клиновая задвижка
	<b>(RO)</b> Vană de izolare
	<b>(TR)</b> Kapama vanası

	<b>(GB)</b> Relief valve
	<b>(D)</b> Sicherheitsventil
	<b>(F)</b> Soupape de décharge
	<b>(I)</b> Valvola di sfioro
	<b>(E)</b> Válvula de seguridad
	<b>(P)</b> Válvula de segurança
	<b>(GR)</b> Ανακουφιστική βαλβίδα
	<b>(NL)</b> Overstortventiel
	<b>(S)</b> S�akerhetsventil
	<b>(FIN)</b> Varoventtiili
	<b>(DK)</b> Sikkerhedsventil
	<b>(RU)</b> Предохранительный клапан
	<b>(RO)</b> Supapă de siguranță
	<b>(TR)</b> Boşaltma valfi

	<b>(GB)</b> Pressure gauge
	<b>(D)</b> Manometer
	<b>(F)</b> Manomètre
	<b>(I)</b> Manometro
	<b>(E)</b> Manómetro
	<b>(P)</b> Manómetro
	<b>(GR)</b> Μανόμετρο
	<b>(NL)</b> Manometer
	<b>(S)</b> Manometer
	<b>(FIN)</b> Painemittari
	<b>(DK)</b> Manometer
	<b>(RU)</b> Манометр
	<b>(RO)</b> Manometru
	<b>(TR)</b> Manometre

	<b>(GB)</b> Non-return valve
	<b>(D)</b> R�uckschlagventil
	<b>(F)</b> Clapet de retenue
	<b>(I)</b> Valvola di non ritorno
	<b>(E)</b> Válvula de retención
	<b>(P)</b> Válvula de retenção
	<b>(GR)</b> Αντεπίστροφη βαλβίδα
	<b>(NL)</b> Terugslagklep
	<b>(S)</b> Backventil
	<b>(FIN)</b> Takaiskuventtiili
	<b>(DK)</b> Kontraventil
	<b>(RU)</b> Обратный клапан
	<b>(RO)</b> Clapetă de reținere
	<b>(TR)</b> �ek valf



- Ⓒ Pressure switch
- Ⓓ Druckschalter
- Ⓕ Contacteur manométrique
- Ⓘ Pressostato
- Ⓔ Presostato
- Ⓟ Pressostato
- Ⓖ Πιεζοστάτης
- Ⓝ Drukschakelaar
- Ⓢ Tryckbrytare
- Ⓕ Paineatkaisija
- Ⓓ Pressostat
- Ⓔ Реле давления
- Ⓓ Presostat
- Ⓓ Basınç şalteri



- Ⓒ Drain
- Ⓓ Ablasshahn
- Ⓕ Robinet de vidange
- Ⓘ Drenaggio
- Ⓔ Drenaje
- Ⓟ Descarga
- Ⓖ Αποστράγγιση
- Ⓝ Aftap
- Ⓢ Dränering
- Ⓕ Tyhjennystulppa
- Ⓓ Dræntappeded
- Ⓔ Слив
- Ⓓ Purjare
- Ⓓ Boşaltma



**Argentina**

Bombas GRUNDFOS de Argentina S.A.  
Ruta Panamericana km. 37.500 Lote 34A  
1619 - Garin  
Pcia. de Buenos Aires  
Phone: +54-3327 414 444  
Telefax: +54-3327 411 111

**Australia**

GRUNDFOS Pumps Pty. Ltd.  
P.O. Box 2040  
Regency Park  
South Australia 5942  
Phone: +61-8-8461-4611  
Telefax: +61-8-8340 0155

**Austria**

GRUNDFOS Pumpen Vertrieb Ges.m.b.H.  
Grundfosstraße 2  
A-5082 Grödig/Salzburg  
Tel.: +43-6246-883-0  
Telefax: +43-6246-883-30

**Belgium**

N.V. GRUNDFOS Bellux S.A.  
Boomssteenvweg 81-83  
B-2630 Aartselaar  
Tél.: +32-3-870 7300  
Telefax: +32-3-870 7301

**Belorussia**

Представительство ГРУНДФОС в  
Минске  
220090 Минск ул.Олешева 14  
Телефон: (8632) 62-40-49  
Факс: (8632) 62-40-49

**Bosnia/Herzegovina**

GRUNDFOS Sarajevo  
Paromlinska br. 16,  
BIH-71000 Sarajevo  
Phone: +387 33 713290  
Telefax: +387 33 231795

**Brazil**

Mark GRUNDFOS Ltda.  
Av. Humberto de Alencar Castelo Branco,  
630  
CEP 09850 - 300  
São Bernardo do Campo - SP  
Phone: +55-11 4393 5533  
Telefax: +55-11 4343 5015

**Bulgaria**

GRUNDFOS Pumpen Vertrieb  
Representative Office - Bulgaria  
Bulgaria, 1421 Sofia  
Loznetz District  
105-107 Arsenalski Blvd.  
Phone: +359 2963 3820, 2963 5653  
Telefax: +359 2963 1305

**Canada**

GRUNDFOS Canada Inc.  
2941 Brighton Road  
Oakville, Ontario  
L6H 6C9  
Phone: +1-905 829 9533  
Telefax: +1-905 829 9512

**China**

GRUNDFOS Pumps (Shanghai) Co. Ltd.  
51 Floor, Raffles City  
No. 268 Xi Zang Road. (M)  
Shanghai 200001  
PRC  
Phone: +86-021-612 252 22  
Telefax: +86-021-612 253 33

**Croatia**

GRUNDFOS predstavništvo Zagreb  
Cebini 37, Buzin  
HR-10000 Zagreb  
Phone: +385 1 6595 400  
Telefax: +385 1 6595 499

**Czech Republic**

GRUNDFOS s.r.o.  
Čajkovského 21  
779 00 Olomouc  
Phone: +420-585-716 111  
Telefax: +420-585-716 299

**Denmark**

GRUNDFOS DK A/S  
Martin Bachs Vej 3  
DK-8850 Bjerringbro  
Tlf.: +45-87 50 50 50  
Telefax: +45-87 50 51 51  
E-mail: info\_GDK@grundfos.com  
www.grundfos.com/DK

**Estonia**

GRUNDFOS Pumps Eesti OU  
Peterburi tee 92G  
11415 Tallinn  
Tel: + 372 606 1690  
Fax: + 372 606 1691

**Finland**

OY GRUNDFOS Pumput AB  
Mestarientie 11  
FIN-01730 Vantaa  
Phone: +358-3066 5650  
Telefax: +358-3066 5650

**France**

Pompes GRUNDFOS Distribution S.A.  
Parc d'Activités de Chesnes  
57, rue de Malacombe  
F-38290 St. Quentin Fallavier (Lyon)  
Tél.: +33-4 74 82 15 15  
Télecoipe: +33-4 74 94 10 51

**Germany**

GRUNDFOS GMBH  
Schlüterstr. 33  
40699 Erkrath  
Tel.: +49-021 121 929 69-0  
Telefax: +49-021 121 929 69-3799  
e-mail: info@service@grundfos.de  
Service in Deutschland:  
e-mail: kundendienst@grundfos.de

**Greece**

GRUNDFOS Hellas A.E.B.E.  
20th km. Athinon-Markopoulou Av.  
P.O. Box 71  
GR-19002 Peania  
Phone: +0030-210-66 83 400  
Telefax: +0030-210-66 46 273

**Hong Kong**

GRUNDFOS Pumps (Hong Kong) Ltd.  
Unit 1, Ground floor  
Siu Wai Industrial Centre  
29-33 Wing Hong Street &  
68 King Lam Street, Cheung Sha Wan  
Kowloon  
Phone: +852-27861706 / 27861741  
Telefax: +852-27858664

**Hungary**

GRUNDFOS Hungaria Kft.  
Park u. 8  
H-2045 Törökbalánt,  
Phone: +36-23 511 110  
Telefax: +36-23 511 111

**India**

GRUNDFOS Pumps India Private Limited  
118 Old Mahabalipuram Road  
Thoraiakkam  
Chennai 600 096  
Phone: +91-44 2496 6800

**Indonesia**

PT GRUNDFOS Pompa  
Jl. Rawa Sumur III, Blok III / CC-1  
Kawasan Industri, Pulogadung  
Jakarta 13930  
Phone: +62-21-460 6909  
Telefax: +62-21-460 6910 / 460 6901

**Ireland**

GRUNDFOS (Ireland) Ltd.  
Unit A, Merrywell Business Park  
Ballymount Road Lower  
Dublin 12  
Phone: +353-1-4089 800  
Telefax: +353-1-4089 830

**Italy**

GRUNDFOS Pompe Italia S.r.l.  
Via Gran Sasso 4  
I-20060 Trussuzzano (Milano)  
Tel.: +39-02-95838112  
Telefax: +39-02-95309290 / 95838481

**Japan**

GRUNDFOS Pumps K.K.  
Gotanda Metalon Bldg., 5F,  
5-21-15, Higashi-gotanda  
Shiagawa-ku, Tokyo  
141-0022 Japan  
Phone: +81 35 448 1391  
Telefax: +81 35 448 9619

**Korea**

GRUNDFOS Pumps Korea Ltd.  
6th Floor, Aju Building 679-5  
Yeoksam-dong, Kangnam-ku, 135-916  
Seoul, Korea  
Phone: +82-2-5317 600  
Telefax: +82-2-5633 725

**Latvia**

SIA GRUNDFOS Pumps Latvia  
Deglava biznesa centrs  
Augusta Deglava iela 60, LV-1035, Rīga,  
Tālr.: + 371 714 9640, 7 149 641  
Fakss: + 371 914 9646

**Lithuania**

GRUNDFOS Pumps UAB  
Smolensko g. 6  
LT-03201 Vilnius  
Tel.: + 370 52 395 430  
Fax: + 370 52 395 431

**Malaysia**

GRUNDFOS Pumps Sdn. Bhd.  
7 Jalan Peguam U1/25  
Glenmarie Industrial Park  
40150 Shah Alam  
Selangor  
Phone: +60-3-5569 2922  
Telefax: +60-3-5569 2866

**México**

Bombas GRUNDFOS de México S.A. de  
C.V.  
Boulevard TLC No. 15  
Parque Industrial Stiva Aeropuerto  
Apodaca, N.L. 66600  
Phone: +52-81-8144 4000  
Telefax: +52-81-8144 4010

**Netherlands**

GRUNDFOS Netherlands  
Veluwezoom 35  
1326 AE Almere  
Postbus 22015  
1302 CA ALMERE  
Tel.: +31-88-478 6336  
Telefax: +31-88-478 6332  
e-mail: info\_gnl@grundfos.com

**New Zealand**

GRUNDFOS Pumps NZ Ltd.  
17 Beatrice Tinsley Crescent  
North Harbour Industrial Estate  
Albany, Auckland  
Phone: +64-9-415 3240  
Telefax: +64-9-415 3250

**Norway**

GRUNDFOS Pumper A/S  
Strømsveien 34L  
Postboks 235, Leirdal  
N-1011 Oslo  
Tlf.: +47-22 90 47 00  
Telefax: +47-22 32 21 50

**Poland**

GRUNDFOS Pompy Sp. z o.o.  
ul. Klonowa 23  
Baranowo k. Poznania  
PL-62-081 Przeźmierowo  
Tel: (+48-61) 650 13 50  
Fax: (+48-61) 650 13 50

**Portugal**

Bombas GRUNDFOS Portugal, S.A.  
Rua Calvet de Magalhães, 241  
Apartado 1079  
P-2770-153 Paços de Arcos  
Tel.: +351-21-440 76 00  
Telefax: +351-21-440 76 90

**România**

GRUNDFOS Pompe România SRL  
Bd. Biruintei, nr 103  
Pantelimon county Ifov  
Phone: +40 21 200 4100  
Telefax: +40 21 200 4101  
E-mail: romania@grundfos.ro  
OOO ГРУНДФОС  
Россия, 109544 Москва, ул. Школьная 39  
Тел. (+7) 495 737 30 00, 564 88 00  
Факс (+7) 495 737 75 36, 564 88 11  
E-mail grundfos.moscow@grundfos.com

**Serbia**

GRUNDFOS Predstavništvo Beograd  
Dr. Milutina Ivkovića 2a/29  
YU-11000 Beograd  
Phone: +381 11 26 47 877 / 11 26 47 496  
Telefax: +381 11 26 48 340

**Singapore**

GRUNDFOS (Singapore) Pte. Ltd.  
24 Tuas West Road  
Jurong Town  
Singapore 638381  
Phone: +65-6865 1222  
Telefax: +65-6861 8402

**Slovenia**

GRUNDFOS PUMPEN VERTRIEB  
Ges.m.b.H.,  
Podružnica Ljubljana  
Biatnica 1, SI-1236 Trzin  
Phone: +386 1 563 5338  
Telefax: +386 1 563 2098  
E-mail: slovenia@grundfos.si

**Spain**

Bombas GRUNDFOS España S.A.  
Camino de la Fuenteclia, s/n  
E-28110 Algete (Madrid, s/r)  
Tel.: +34-91-848 8800  
Telefax: +34-91-628 0465

**Sweden**

GRUNDFOS AB  
Box 333 (Lunnagårsgatan 6)  
431 24 Mölndal  
Tel.: +46(0)771-32 23 00  
Telefax: +46(0)31-331 94 60

**Switzerland**

GRUNDFOS Pumpen AG  
Bruggacherstrasse 10  
CH-8117 Fallanden/ZH  
Tel.: +41-1-806 8111  
Telefax: +41-1-806 8115

**Taiwan**

GRUNDFOS Pumps (Taiwan) Ltd.  
7 Floor, 219 Min-Chuan Road  
Taichung, Taiwan, R.O.C.  
Phone: +886-4-2305 0860  
Telefax: +886-4-2305 0878

**Thailand**

GRUNDFOS (Thailand) Ltd.  
92 Chaloem Phrakiat Rama 9 Road,  
Dokmai, Pravej, Bangkok 10250  
Phone: +66-2-725 8999  
Telefax: +66-2-725 8998

**Turkey**

GRUNDFOS POMPA San. ve Tic. Ltd. Sti.  
Gezbe Organize Sanayi Bölgesi  
İhsan dede Caddesi,  
2. yol 200. Sokak No. 204  
14190 Gebze/ Kocaeli  
Phone: +90 - 262-679 7979  
Telefax: +90 - 262-679 7905  
E-mail: sats@grundfos.com

**Ukraine**

ТОВ ГРУНДФОС УКРАЇНА  
01010 Київ, Вул. Московська 86,  
Тел.: (+38 044) 390 40 50  
Факс: (+38 044) 390 40 59  
E-mail: ukraine@grundfos.com

**United Arab Emirates**

GRUNDFOS Gulf Distribution  
P.O. Box 16768  
Jebel Ali Free Zone  
Dubai  
Phone: +971-4- 8815 166  
Telefax: +971-4- 8815 136

**United Kingdom**

GRUNDFOS Pumps Ltd.  
Grovebury Road  
Leighton Buzzard/Beds, LU7 8TL  
Phone: +44-1525-850000  
Telefax: +44-1525-850011

**U.S.A.**

GRUNDFOS Pumps Corporation  
17100 West 118th Terrace  
Olathe, Kansas 66061  
Phone: +1-913-227-3400  
Telefax: +1-913-227-3500

**Usbekistan**

Представительство ГРУНДФОС в  
Ташкенте  
700000 Ташкент ул.Усмана Носира 1-й  
тулик 5  
Телефон: (3712) 55-66-15  
Факс: (3712) 53-36-35

<b>96550312</b> 0408	<b>273</b>
Repl. 96550312 0405	