MTB

Installation and operating instructions

GB D F I E P GR NL S FIN DK
PL RU H SI HR SER RO BG CZ SK TR
EE LT UA

(GB) Declaration of Conformity

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

– Machinery Directive (98/37/EC).
  Standard used: EN 809: 1998.
– Low Voltage Directive (2006/95/EC).
  Standards used: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC Directive (2004/108/EC).
  Standards used: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX Directive (94/9/EC).
  (applies only to products with the ATEX mark, Ex II 3G or Ex II 3D, on the nameplate).
  Standards used: EN 13463-1: 2001 and EN 13463-5: 2003.
  (Declaration of conformity and installation and operating instructions of the motor are enclosed.)

Bare shaft pump

We **Grundfos** declare under our sole responsibility that the bare shaft pump **MTB**, to which this declaration relates, are in conformity with this Council Directive on the approximation of the laws of the EC Member States:

– Machinery Directive (98/37/EC) and Annex II B.
  Standard used: EN 809: 1998.

Before the pump is put into operation, the complete machinery into which the pump is to be incorporated must be declared in conformity with all relevant regulations.

(D) Konformitätserklärung

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

– Maschinenrichtlinie (98/37/EG).
  Verwendete Normen: EN 809: 1998.
– Niederspannungsrichtlinie (2006/95/EG).
  Verwendete Normen: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMV-Richtlinie (2004/108/EG).
  Verwendete Normen: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX-Richtlinie (94/9/EG).
  (gilt nur für Produkte mit der ATEX-Kennzeichnung, Ex II 3G oder Ex II 3D, auf dem Leistungsschild).
  Verwendete Normen: EN 13463-1: 2001 und EN 13463-5: 2003. (Die Konformitätsbescheinigung und Bedienungsanleitung vom Motor sind beigefügt.)

Pumpe mit freiem Wellenende

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

– Maschinenrichtlinie (98/37/EG) mit Verweis auf Anhang II B.
  Verwendete Normen: EN 809: 1998.

Bevor die Pumpe in Betrieb genommen wird, ist für das komplette Aggregat, in das die Pumpe mit freiem Wellenende eingebaut wird, eine Konformitätserklärung auszustellen, in der die Übereinstimmung mit allen geltenden Vorschriften bestätigt wird.

(F) Déclaration de Conformité

Nous **Grundfos** déclarons sous notre seule responsabilité que les produits **MTB**, auxquels se réfère cette déclaration sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives à/au(x):

– Machines (98/37/EC).
  Norme utilisée: EN 809: 1998.
– Directive de basse tension (2006/95/EC).
  Normes utlisées: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Compatibilité électromagnétique (2004/108/EC).
  Normes utlisées: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Directive ATEX (94/9/EC).
  (s'applique uniquement aux produits avec norme ATEX, Ex II 3G ou Ex II 3D, citée sur la plaque signalétique).
  Normes utlisées: EN 13463-1: 2001 et EN 13463-5: 2003.
  (Declaration de conformité et notice d'installation et d'entretien du moteur incluses.)

Pompe à arbre nu

Nous **Grundfos** déclarons sous notre seule responsabilité que les produits **MTB**, auxquels se réfère cette déclaration sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives à/au(x):

– Relatif aux machines (98/37/EC) et conforme à l'Annexe II B.
  Norme utilisée: EN 809: 1998.

Avant que la pompe ne soit mise en service, la machine complète, dans laquelle sera intégrée la pompe, doit être en accord avec toutes les réglementations en vigueur.

(I) Dichiarazione di Conformità

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti **MTB**, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

– Direttiva Macchine (98/37/CE).
  Norma applicata: EN 809: 1998.
– Direttiva Bassa Tensione (2006/95/CE).
  Norme applicate: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Direttiva EMC (2004/108/CE).
  Norme applicate: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Direttiva ATEX (94/9/CE).
  (si applica solo ai prodotti che riportano la sigla ATEX, Ex II 3G o Ex II 3D, sull'etichetta).
  Norme applicate: EN 13463-1: 2001 e EN 13463-5: 2003. (In allegato la dichiarazione di conformità e il manuale di installazione e funzionamento.)

Pompa ad asse nudo

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti **MTB**, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

– Direttiva Macchine (98/37/CE) e Allegato II B.
  Norma applicata: EN 809: 1998.

Prima di mettere in funzione la pompa, l'intero macchinario in cui deve essere incorporata la pompa deve essere dichiarato conforme alle rispettive normative.

(E) Declaración de Conformidad

Nosotros **Grundfos** declaramos bajo nuestra única responsabilidad que los productos **MTB**, a los que se refiere esta declaración, están en conformidad con estas Directivas del Consejo en armonía con las legislaciones de los Estados Miembros de la CE sobre:

– Directiva de Maquinaria (98/37/EC).
  Norma aplicada: EN 809: 1998.
– Directiva de Baja Tansión (2006/95/EC).
  Normas aplicadas: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Directiva EMC (2004/108/EC).
  Normas aplicadas: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Directiva ATEX (94/9/EC).
  (se refiere sólo a productos con la marca ATEX, Ex II 3G o Ex II 3D, en la placa de características).
  Normas aplicadas: EN 13463-1: 2001 y EN 13463-5: 2003.
  (Se adjuntan la declaración de conformidad e instrucciones de instalación y funcionamiento del motor.)

Bomba a eje libre

Nosotros **Grundfos** declaramos bajo nuestra única responsabilidad que los productos **MTB**, a los que se refiere esta declaración, están en conformidad con estas Directivas del Consejo en armonía con las legislaciones de los Estados Miembros de la CE sobre:

– Directiva de Maquinaria (98/37/EC) y Anexo II B.
  Norma aplicada: EN 809: 1998.

Antes de que la bomba se ponga en marcha, la máquina entera en la cual la bomba debe ser incorporada tiene que declararse de conformidad con todas las normas pertinentes.

(P) Declaração de Conformidade

Nós **Grundfos** declaramos sob nossa única responsabilidade que os produtos **MTB**, 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 a:

– Máquinas (98/37/CE).
  Norma utilizada: EN 809: 1998.
– Directiva baixa tensão (2006/95/EC).
  Normas utilizadas: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Directiva EMC (2004/108/EC).
  Normas utilizadas: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Directiva ATEX (94/9/EC).
  (Aplica-se apenas a produtos com a referência a ATEX, Ex II 3G o Ex II 3D, na chapa de características.)
  Normas utilizadas: EN 13463-1: 2001 e EN 13463-5: 2003.
  (Em anexo encontra a Declaração de conformidade e instruções de instalação e funcionamento do motor.)

Bomba com ponta de veio livre

Nós **Grundfos** declaramos sob nossa única responsabilidade que os produtos **MTB**, 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 a:

– Máquinas (98/37/EC) e Anexo II B.
  Norma utilizada: EN 809: 1998.

Antes de colocar a bomba em operação, o equipamento no qual a mesma irá ser incorporada deve ser declarado de acordo com todas as regulamentações relevantes.

(GR) Δήλωση Συμμόρφωσης

μείς η Grundfos δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα **MTB,** στα οποία αναφέρεται η δήλωση αυτή, συμμορφώνονται με την Οδηγία του Συμβουλίου επί της σύγκλισης των νόμων των Κρατών Μελών της ΕΕ όσον αφορά τα:

– Οδηγία για μηχανήματα (98/37/EC).
  Πρότυπο που χρησιμοποιήθηκε: EN 809: 1998.
– Οδηγία χαμηλής τάσης (2006/95/EC).
  Πρότυπα που χρησιμοποιήθηκαν: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Οδηγία Ηλεκτρομαγνητικής Συμβατότητας (EMC) (2004/108/EC).
  Πρότυπα που χρησιμοποιήθηκαν: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Οδηγία ATEX (94/9/EC).
  (εφαρμόζεται μόνο σε προϊόντα με το σήμα ATEX, Ex II 3G ή Ex II 3D, στην πινακίδα τους.)
  Πρότυπα που χρησιμοποιήθηκαν: EN 13463-1: 2001 και EN 13463-5: 2003. (Περιλαμβάνονται δήλωση συμμόρφωσης και οδηγίες εγκατάστασης και λειτουργίας του κινητήρα.)

Αντλία με ελεύθερο άξονα

Εμείς η Grundfos δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα **MTB,** στα οποία αναφέρεται η δήλωση αυτή, συμμορφώνονται με την Οδηγία του Συμβουλίου επί της σύγκλισης των νόμων των Κρατών Μελών της ΕΕ όσον αφορά τα:

– Οδηγία για μηχανήματα (98/37/EC) και κεφάλαιο II B.
  Πρότυπο που χρησιμοποιήθηκε: EN 809: 1998.

Πριν η αντλία τεθεί σε λειτουργία, όλο το μηχάνημα στο οποίο η αντλία πρόκειται να ενσωματωθεί πρέπει να δηλωθεί σύμφωνα με όλους τους σχετικούς κανονισμούς.

(NL) Overeenkomstigheidsverklaring

Wij Grundfos verklaren, geheel onder eigen verantwoordelijkheid, dat de producten **MTB**, waarop deze verklaring betrekking heeft, in overeenstemming zijn met de Richtlijnen van de Raad inzake onderlinge aanpassing van de wetgevingen van de Lidstaten.

– Machine Richtlijn (98/37/EC).
  Norm: EN 809: 1998.
– Laagspannings Richtlijn (2006/95/EC).
  Gebruikte normen: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC Richtlijn (2004/108/EC).
  Gebruikte normen: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX Richtlijn (94/9/EC).
  (alleen van toepassing voor producten met de ATEX markering, Ex II 3G of Ex II 3D, op de typeplaat).
  Gebruikte normen: EN 13463-1: 2001 en EN 13463-5: 2003.
  (Overeenkomstigheidsverklaring is ingesloten in de bedienings- en installatievoorschriften van de motor.)

Pomp met vrije aseinde

Wij Grundfos verklaren, geheel onder eigen verantwoordelijkheid, dat de producten **MTB**, waarop deze verklaring betrekking heeft, in overeenstemming zijn met de Richtlijnen van de Raad inzake onderlinge aanpassing van de wetgevingen van de Lidstaten.

– Machine Richtlijn (98/37/EC) en Annex II B.
  Norm: EN 809: 1998.

Voordat de pomp in bedrijf wordt genomen, moet er verklaard zijn dat de complete installatie waar de pomp deel van uit maakt conform alle relevante regels is.

(S) Försäkran om överensstämmelse

Vi, **Grundfos**, försäkrar under ansvar att produkterna **MTB**, som omfattas av denna försäkran, överensstämmer med rådets direktiv om tillnärmning av EU-medlemsstaternas lagstiftning, avseende

- Maskindirektivet (98/37/EG).
  Tillämpad standard: EN 809: 1998.
- Lågspänningsdirektivet (2006/95/EG).
  Tillämpade standarder: MG, MMG, Siemens, Teco:
  EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
- EMC-direktivet (2004/108/EG).
  Tillämpade standarder: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
- ATEX-direktivet (94/9/EG).
  (endast för produkter med ATEX-märkning, Ex II 3G eller Ex II 3D, på typskylten).
  Tillämpade standarder: EN 13463-1: 2001 och EN 13463-5: 2003.
  (Försäkran om överensstämmelse samt monterings- och driftsinstruktion medföljer medlevererad motor.)

Pump med öppen axel

Vi, **Grundfos**, försäkrar under ansvar att produkterna **MTB**, som omfattas av denna försäkran, överensstämmer med rådets direktiv om tillnärmning av EU-medlemsstaternas lagstiftning, avseende

- Maskindirektivet (98/37/EG) och bilaga II B.
  Tillämpad standard: EN 809: 1998.

Innan pumpen tas i drift ska hela den anläggning i vilken pumpen igår förklaras uppfylla relevanta förordningar.

(FIN) Vastaavuusvakuutus

Me **Grundfos** vakuutamme omalla vastuullamme, että tuotteet **MTB**, joita tämä vakuutus koskee, ovat EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti:

- Konedirektiivi (98/37/EY).
  Käytetty standardi: EN 809: 1998.
- Pienjännitedirektiivi (2006/95/EY).
  Käytetyt standardit: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
- EMC-direktiivi (2004/108/EY).
  Käytetyt standardit: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
- ATEX-direktiivi (94/9/EY).
  (soveltuu vain tuotteisiin, joissa on ATEX-merkintä, Ex II 3G tai Ex II 3D, arvokilvessä).
  Käytetyt standardit: EN 13463-1: 2001 ja EN 13463-5: 2003.
  (Moottorin vaatimustenmukaisuusvakuutus ja käyttöohjeet sisältyvät toimitukseen.)

Pelkkä erillinen pumppu

Me **Grundfos** vakuutamme omalla vastuullamme, että tuotteet **MTB**, joita tämä vakuutus koskee, ovat EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti:

- Konedirektiivi (98/37/EY) ja liite II B.
  Käytetty standardi: EN 809: 1998.

Ennen kuin pumppu otetaan käyttöön, koko laitteistolla, johon pumppu asennetaan, on oltava vaatimustenmukaisuusvakuutus kaikkien soveltuvien säädösten osalta.

(DK) Overensstemmelseserklæring

Vi **Grundfos** erklærer under ansvar at produkterne **MTB**, som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF medlemsstaternes lovgivning:

- Maskindirektivet (98/37/EC).
  Anvendt standard: EN 809: 1998.
- Lavspændingsdirektivet (2006/95/EC).
  Anvendte standarder: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
- EMC-direktivet (2004/108/EC).
  Anvendte standarder: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
- ATEX-direktivet (94/9/EC).
  (Gælder kun for produkter med ATEX-mærkningen, Ex II 3G eller Ex II 3D, på pumpens typeskilt).
  Anvendte standarder: EN 13463-1: 2001 og EN 13463-5: 2003.
  (Motorens overensstemmelseserklæring og monterings- og driftsinstruktion er vedlagt.).

Pumpe uden kobling og motor

Vi **Grundfos** erklærer under ansvar at produkterne **MTB**, som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF medlemsstaternes lovgivning:

- Maskindirektivet (98/37/EC) og Bilag II B.
  Anvendt standard: EN 809: 1998.

Før pumpen tages i brug, skal det komplette maskinanlæg hvori den skal inkorporeres, erklæres i overensstemmelse med alle relevante bestemmelser.

(PL) Deklaracja zgodności

My **Grundfos**, oświadczamy z pełną odpowiedzialnością, że nasze wyroby **MTB**, których deklaracja niniejsza dotyczy, są zgodne z następującymi wytycznymi Rady d/s ujednolicenia przepisów prawnych krajów WE:

- Maszyny (98/37/WE).
  Zastosowane normy: EN 809: 1998.
- Dyrektywa Niskich Napięć (2006/95/WE).
  Zastosowane normy: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
- Dyrektywa EMC (2004/108/WE).
  Zastosowane normy: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
- Dyrektywa ATEX (94/9/WE).
  (dotyczy tylko wyrobów ze znakiem ATEX, Ex II 3G lub Ex II 3D, na tabliczce znamionowej), zastosowane normy: EN 13463-1: 2001 i EN 13463-5: 2003, (deklaracja zgodności oraz instrukcja obsługi i eksploatacji silnika są załączone.)

Pompa z wolnym wałem

My **Grundfos**, oświadczamy z pełną odpowiedzialnością, że nasze wyroby **MTB**, których deklaracja niniejsza dotyczy, są zgodne z następującymi wytycznymi Rady d/s ujednolicenia przepisów prawnych krajów WE:

- Dyrektywa Maszynowa (98/37/WE) i Aneks II B.
  Zastosowane normy: EN 809: 1998.

Przed uruchomieniem pompy, nale¿y sprawdziæ czy wszystkie urz¹dzenia, z którymi pompa wspó³pracuje posiadaj¹ zgodnoœæ z odpowiednimi przepisami.

(RU) Декларация о соответствии

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

– Механические устройства (98/37/EC).
  Применявшийся стандарт: EN 809: 1998.
– Низкое напряжение (2006/95/EC).
  Применявшиеся стандарты: MG, MMG, Siemens, Teco:
  EN 60204- 1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Электромагнитная совместимость (2004/108/EC).
  Применявшиеся стандарты: MG, MMG, Siemens, Teco:
  EN 61000- 6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX (94/9/EC).
  (применимо только к изделиям с маркировкой ATEX, Ex II 3G или Ex II 3D, на фирменной табличке).
  Применявшиеся стандарты: EN 13463-1: 2001 и
  EN 13463-5: 2003. (Заявление о соответствии и руководство по монтажу и эксплуатации электродвигателя прилагаются.)

Насос со свободным концом вала

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

– Механические устройства (98/37/EC) и Приложение II B.
  Применявшийся стандарт: EN 809: 1998.

Перед пуском насоса в эксплуатацию на комплектное механическое устройство, в которое встраивается насос, должна быть оформлена декларация о соответствии всем необходимым нормативным документам

(H) Konformitási nyilatkozat

Mi, a **Grundfos**, egyedüli felelősséggel kijelentjük, hogy a **MTB** termékek, amelyekre jelen nyilatkozat vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi irányelveinek:

– Gépek (98/37/EC).
  Alkalmazott szabvány: EN 809: 1998.
– Kisfeszültségű direktíva (2006/95/EC).
  Alkalmazott szabvány: MG, MMG, Siemens, Teco:
  EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC direktíva (2004/108/EC).
  Alkalmazott szabvány: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX direktíva (94/9/EC).
  (csak az – adattáblán - ATEX Ex II 3G vagy Ex II 3D jelöléssel rendelkező termékekre vonatkozik).
  Alkalmazott szabványok: EN 13463-1: 2001 és EN 13463-5: 2003.
  (A motor kezelési utasítása és megelelőségi nyilatkozata mellékelve.)

Szivattyú szabad tengelyvéggel

Mi, a **Grundfos**, egyedüli felelősséggel kijelentjük, hogy a **MTB** termékek, amelyekre jelen nyilatkozat vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi irányelveinek:

– Gépek (98/37/EC) és II B függeléke.
  Alkalmazott szabvány: EN 809: 1998.

A szivattyú üzembehelyezése előtt, a teljes berendezésre vonatkozóan, amelybe a szivattyú beépítésre került, nyilatkozni kell a kapcsolódó előírásoknak való megfelelőségről.

(SI) Izjava o ustreznosti

V Grundfosu s polno odgovornostjo izjavljamo, da so naši izdelki **MTB**, na katere se ta izjava nanaša, v skladu z naslednjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic ES:

– Direktiva o strojih (98/37/ES).
  Uporabljeni standard: EN 809: 1998.
– Direktiva o nizki napetosti (2006/95/ES).
  Uporabljeni standardi: MG, MMG, Siemens, Teco:
  EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Direktiva o elektromagnetni združljivosti (EMC) (2004/108/ES).
  Uporabljeni standardi: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Direktiva o potencialno eksplozivnem okolju (ATEX) (94/9/ES).
  (velja samo za izdelke z oznako ATEX, Ex II 3G ali Ex II 3D, na tipski ploščici).
  Uporabljeni standardi: EN 13463-1: 2001 in EN 13463-5: 2003.
  (Izjava o ustreznosti ter navodila za montažo in obratovanje motorja sta priložena.)

Črpalka s prosto osjo

V Grundfosu s polno odgovornostjo izjavljamo, da so naši izdelki **MTB**, na katere se ta izjava nanaša, v skladu z naslednjimi direktivami Sveta o približevanju zakonodaje za izenačevanje pravnih predpisov držav članic ES:

– Direktiva o strojih (98/37/ES) in Priloga II B.
  Uporabljeni standard: EN 809: 1998.

Pred zagonom črpalke mora biti celotno postrojenje, katerega del je črpalka, v skladu z vsemi relevantnimi regulativami.

(HR) Izjava o usklađenosti

Mi u **Grundfosu** izjavljujemo pod vlastitom odgovornošću da proizvodi **MTB**, na koje se ova izjava odnosi, zadovoljavaju uredbe ovoga vijeća o usklađivanju zakona država članica EU:

– Direktiva o strojevima (98/37/ES).
  Korištene norme: EN 809: 1998.
– Niskonaponska direktiva (2006/95/EC).
  Korištene norme: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC direktiva (2004/108/EC).
  Korištene norme: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX direktiva (94/9/EC).
  (vrijedi samo za proizvode s ATEX-znakom, Ex II 3G ili Ex II 3D, na natpisnoj pločici).
  Korištene norme: EN 13463-1: 2001 i EN 13463-5: 2003.
  (Deklaracija o usklađenosti te motažne i pogonske upute priloženi su uz motor.)

Crpka bez motora

Mi u **Grundfosu** izjavljujemo pod vlastitom odgovornošću da proizvodi **MTB**, na koje se ova izjava odnosi, zadovoljavaju uredbe ovoga vijeća o usklađivanju zakona država članica EU:

– Direktiva o strojevima (98/37/ES) i Aneks II B.
  Korištene norme: EN 809: 1998.

Prije puštanja crpke u rad, kompletno postrojenje u koje će crpka biti ugrađena mora biti proglašeno sukladnim važećim propisima.

(SER) Izjava o konformitetu

Mi, **Grundfos**, pod punom odgovornošću izjavljujemo, da su naši proizvodi **MTB**, na koje se ova izjava odnosi, u skladu sa direktivama Saveta za izjednačavanje pravnih propisa država članica Evropske zajednice:

– Mašinska direktiva (98/37/EC).
  Korišćeni standardi: EN 809: 1998.
– Direktiva niskog napona (2006/95/EC).
  Korišćeni standardi: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC direktiva (2004/108/EC).
  Korišćeni standardi: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX direktiva (94/9/EC).
  (odnosi se samo na proizvode sa natpisom ATEX na natpisnoj pločici), korišćeni standardi: EN 13463-1 i EN 13463-5, (deklaracija konformiteta i uputstva za instalaciju i rad motora su priloženi.)

Pumpni deo

Mi, **Grundfos**, pod punom odgovornošću izjavljujemo, da su naši proizvodi **MTB**, na koje se ova izjava odnosi, u skladu sa direktivama Saveta za izjednačavanje pravnih propisa država članica Evropske zajednice:

– Mašinska direktiva (98/37/EC) i Anex II B.
  Korišćeni standardi: EN 809: 1998.

Pre nego što se pumpa pusti u rad kompletna mašinerija u koju je pumpa inkorporisana mora biti u skladu sa lokalnim bitnim regulativama.

(RO) Declarație de conformitate

Noi **Grundfos** declarăm pe propria răspundere că produsele **MTB**, la care se referă această declarație, sunt în conformitate cu aceste Directive ale Consiliului asupra armonizării legilor Statelor Membre CE:

– Directiva Utilaje (98/37/EC).
  Standard utilizat: EN 809: 1998.
– Directiva Tensiune Joasă (2006/95/EC).
  Standarde utilizate: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Directiva EMC (2004/108/EC).
  Standarde utilizate: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Directiva ATEX (94/9/EC).
  (se aplică numai la produsele cu marca ATEX, Ex II 3G sau Ex II 3D, pe plăcuța de înmatriculare).
  Standarde utilizate: EN 13463-1: 2001 şi EN 13463-5: 2003.
  (Declarația de conformitate şi instrucțiunile de instalare şi operare ale motorului sunt incluse.)

Pompă fără motor

Noi **Grundfos** declarăm pe propria răspundere că produsele **MTB**, la care se referă această declarație, sunt în conformitate cu aceste Directive ale Consiliului asupra armonizării legilor Statelor Membre CE:

– Directiva Utilaje (98/37/EC) şi Anexa II B.
  Standard utilizat: EN 809: 1998.

Înainte ca pompa să fie pusă în funcțiune, întregul ansamblu în care va fi încorporată pompa trebuie declarat în conformitate cu toate normativele relevante.

(BG) Декларация за съответствие

Ние, фирма **Grundfos** заявяваме с пълна отговорност, че продуктите **MTB**, за които се отнася настоящата декларация, отговарят на следните указания на Съвета за уеднаквяване на правните разпоредби на държавите членки на ЕС:

– Машини (98/37/EC).
  Приложена норма: EN 809: 1998.
– Директива ниско напрежение (2006/95/EC).
  Приложени норми: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Електро магнитна съвместимост (2004/108/EC).
  Приложени норми: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX Директива (94/9/EC).
  (Приложим само за продукти означени със знак ATEX, класове Ex II 3G или Ex II 3D).
  Приложени норми: EN 13463-1: 2001 и EN 13463-5: 2003.
  (Приложени са също и Декларацията за съответствие и инструкциите за монтаж и експлоатация на двигателя.)

Помпа със "свободен" вал

Ние, фирма **Grundfos** заявяваме с пълна отговорност, че продуктите **MTB**, за които се отнася настоящата декларация, отговарят на следните указания на Съвета за уеднаквяване на правните разпоредби на държавите членки на ЕС:

– Машини (98/37/EC) и анекс II B.
  Приложена норма: EN 809: 1998.

Преди помпата да бъде пусната в експлоатация, цялата машина в която помпата ще бъде вградена трябва да се съгласува с всички съответните норми.

(CZ) Prohlášení o shodě

My, firma **Grundfos**, prohlašujeme na svou plnou odpovědnost, že výrobky **MTB**, na něž se toto prohlášení vztahuje, odpovídají ustanovením následujících směrnic Rady EU pro sblížení právních předpisů členských zemí EU:

– Směrnice pro strojní zařízení (98/37/EC).
  Použitá norma: EN 809: 1998.
– Směrnice pro nízkonapěťové aplikace (2006/95/EC).
  Použitá norma: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Směrnice pro elektromagnetickou kompatibilitu (2004/108/EC).
  Použitá norma: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Směrnice pro ATEX (94/9/EC).
  (týká se pouze výrobků nesoucích na typovém štítku značku ATEX, Ex II 3G nebo Ex II 3D), použité normy: EN 13463-1: 2001 a EN 13463-5: 2003, (prohlášení o konformitě a instalační a provozní předpisy motoru jsou přiloženy.)

Čerpadlo s volným koncem hřídele

My, firma **Grundfos**, prohlašujeme na svou plnou odpovědnost, že výrobky **MTB**, na něž se toto prohlášení vztahuje, odpovídají ustanovením následujících směrnic Rady EU pro sblížení právních předpisů členských zemí EU:

– Směrnice pro strojní zařízení (98/37/EC) a příloha II B.
  Použitá norma: EN 809: 1998.

Před uvedením čerpadla do provozu musí být kompletní strojní instalace, do níž má být čerpadlo začleněno, v souladu se všemi příslušnými předpisy.

(SK) Prehlásenie o konformite

My, firma **Grundfos**, prehlasujeme na svoju plnú zodpovednosť, že výrobky **MTB**, na ktoré sa toto prehlásenie vzťahuje, zodpovedajú ustanoveniam nasledujúcich smerníc Rady EU pre zblíženie právnych predpisov členských štítov EÚ:

– Smernica pre strojové zariadenie (98/37/EC).
  Použitá norma: EN 809: 1998.
– Smernica pre nízkonapäťové aplikácie (2006/95/EC).
  Použité normy: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– Smernica pre elektromagnetickú kompatibilitu (2004/108/EC).
  Použité normy: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– Smernica pre ATEX (94/9/EC).
  (týka sa iba výrobkov nesúcich na typovom štítku značku ATEX, Ex II 3G alebo Ex II 3D).
  Použité normy: EN 13463-1: 2001a EN 13463-5: 2003. (Prehlásenie o konformite a montážny a prevádzkový návod motora sú priložené.)

Čerpadlo s voľným koncom hriadeľa

My, firma **Grundfos**, prehlasujeme na svoju plnú zodpovednosť, že výrobky **MTB**, na ktoré sa toto prehlásenie vzťahuje, zodpovedajú ustanoveniam nasledujúcich smerníc Rady EU pre zblíženie právnych predpisov členských štítov EÚ:

– Smernica pre strojové zariadenie (98/37/EC) a príloha II B.
  Použitá norma: EN 809: 1998.

Pred uvedením čerpadla do prevádzky musí byť vykonaná kompletná strojová inštalácia, do ktorej má byť čerpadlo začlenené, v súlade so všetkými príslušnými predpismi.

(TR) Uygunluk Bildirgesi

Grundfos olarak bu beyannameye konu olan **MTB** ürünlerinin, AB Üyesi Ülkelerin kanunlarını birbirine yaklaştırma üzerine Konsey Direktifleriyle uyumlu olduğunun yalnızca bizim sorumluluğumuz altında olduğunu beyan ederiz.

– Makineler Yönetmeliği (98/37/EC).
  Kullanılan standart: EN 809: 1998.
– Düşük Voltaj Yönetmeliği (2006/95/EC).
  Kullanılan standartlar: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC Direktifi (2004/108/EC).
  Kullanılan standartlar: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX Direktifi (94/9/EC).
  (sadece üzerinde ATEX işareti bulunan, Ex II 3G veya Ex II 3D, etiketi olan ürünler için geçerlidir).
  Kullanılan standartlar: EN 13463-1: 2001 ve EN 13463-5: 2003. (Motorun uygunluk beyannamesi ve montaj ve kullanım bilgileri arkaya eklenmiştir.)

Motorsuz ve kaidesiz pompa

Grundfos olarak bu beyannameye konu olan **MTB** motorsuz ve kaidesiz pompalarının, AB Üyesi Ülkelerin kanunlarını birbirine yaklaştırma üzerine Konsey Direktifleriyle uyumlu olduğunun yalnızca bizim sorumluluğumuz altında olduğunu beyan ederiz.

– Makineler Yönetmeliği (98/37/EC) ve Annex II B.
  Kullanılan standart: EN 809: 1998.

Pompa iþletime alýnmadan önce, pompanýn dahil edileceði tüm mekanizmanýn þartlarýyla uyumlu olduðu belirtilmelidir.

(EE) Vastavuse deklaratsioon

Meie, **Grundfos,** deklareerime enda ainuvastutusel, et tooted **MTB**, mille kohta käesolev deklaratsioon käib, on vastavuses EL nõukogu Direktiividega EMÜ liikmesriikide seaduste ühitamise kohta, mis käsitlevad:

– Masinaehituse direktiiv (98/37/EC).
  Kasutatud standard: EN 809: 1998.
– Madalpinge direktiiv (2006/95/EC).
  Kasutatud standardid: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMC direktiiv (2004/108/EC).
  Kasutatud standardid: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX direktiiv (94/9/EC).
  (kehtib ainult toodetele, mille sildikul on ATEX tähistus Ex II 3G või Ex II 3D).
  Kasutatud standardid: EN 13463-1: 2001 ja EN 13463-5: 2003. (Mootori vastavuse deklaratsioon ning paigaldus- ja kasutusjuhend on lisatud.)

Vabavõlliga pump

Meie, **Grundfos,** deklareerime enda ainuvastutusel, et vabavõlliga pump **MTB**, mille kohta käesolev deklaratsioon käib, on vastavuses EL nõukogu Direktiividega EMÜ liikmesriikide seaduste ühitamise kohta, mis käsitlevad:

– Masinaehituse direktiiv (98/37/EC) ja Lisa II B.
  Kasutatud standard: EN 809: 1998.

Enne pumba töössevõtmist peab kogu seadmestik, millesse pump kuulub, olema tunnistatud vastavaks asjakohastele nõudmistele.

(LT) Atitikties deklaracija

Mes, **Grundfos**, su visa atsakomybe pareiškiame, kad **MTB** gaminiai, kuriems skirta ši deklaracija, atitinka šias Tarybos Direktyvas dėl Europos Ekonominės Bendrijos šalių narių įstatymų suderinimo:

– Mašinų direktyva (98/37/EB).
  Taikomas standartas: EN 809: 1998.
– Žemų įtampų direktyva (2006/95/EB).
  Taikomi standartai: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2.
– EMS direktyva (2004/108/EB).
  Taikomi standartai: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX direktyva (94/9/EB).
  (galioja tik produktams, kurių vardinėje plokštelėje yra ATEX, Ex II 3G arba Ex II 3D ženklas)
  Taikomi standartai: EN 13463-1: 2001 ir EN 13463-5: 2003. (Variklio atitikties deklaracija bei įrengimo ir naudojimo instrukcija pridedama)

Siurblys su laisvu velenu

Mes, **Grundfos**, su visa atsakomybe pareiškiame, kad **MTB** siurblys su laisvu velenu, kuriam skirta ši deklaracija, atitinka šią Tarybos Direktyvą dėl Europos Ekonominės Bendrijos šalių narių įstatymų suderinimo:

– Mašinų direktyva (98/37/EB) ir priedas II B.
  Taikomas standartas: EN 809: 1998.

Prieš pradedant siurblį eksploatuoti, visa įranga, kurioje montuojamas siurblys, turi būti deklaruota, kaip atitinkanti visus galiojančius reikalavimus.

(UA) Свідчення про відповідність вимогам

Компанія **Grundfos** засвідчує свою виключну відповідальність за те, що продукти моделі **MTB**, на які поширюється дана декларація, відповідають таким рекомендаціям Ради з уніфікації правових норм країн - членів ЕС:

– Механічні прилади (98/37/EC).
  Стандарти, що застосовувалися: EN 809: 1998.
– Низька напруга (2006/95/EC).
  Стандарти, що застосовувалися: MG, MMG, Siemens, Teco: EN 60204-1: 1997, EN 60034-1, EN 60034-5; MMGE: EN 61800-2..
– Електромагнітна сумісність (2004/108/EC).
  Стандарти, що застосовувалися: MG, MMG, Siemens, Teco: EN 61000-6-2, EN 61000-6-3; MGE, MMGE: EN 61800-3.
– ATEX (94/9/EC).
  (застосовується тільки для обладнання з маркуванням ATEX, Ex II 3G або Ex II 3D, на шильдику).
  Стандарти, що застосовувалися: EN 13463-1: 2001 та EN 13463-5: 2003. (Декларація відповідності і установки і операційних інструкцій двигуна додається)

Насос з вільним кінцем валу

Компанія **Grundfos** засвідчує свою виключну відповідальність за те, що продукти моделі MTB, на які поширюється дана декларація, відповідають таким рекомендаціям Ради з уніфікації правових норм країн - членів ЕС:

– Механічні прилади (98/37/EC) та Додатки II B.
  Стандарти, що застосовувалися: EN 809: 1998.
– Перед запуском насоса в експлуатацію на комплектний механічний пристрій, в який вбудовано насос, має бути оформлена декларація про відповідність усім необхідним нормативним документам.

Bjerringbro, April 2008

Jan Strandgaard
Technical Director

MTB

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Warning

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

1. Symbols used in this document

Warning

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

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

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

These instructions apply to MTB pumps fitted with Grundfos motors, type MG or Siemens. If the pump is fitted with a motor make other than Grundfos, please note that the motor data may differ from the data stated in these instructions.

2. Delivery and handling

2.1 Delivery

The pump is delivered from the factory in a carton with a wooden bottom, which is specially designed for transport by fork-lift truck or a similar vehicle.

2.2 Handling

Pump motors of 5.5 kW and up are supplied with a lifting eye which can be used for lifting the pump head (motor, motor stool and impeller).

Warning

The lifting eye must not be used for lifting the entire pump.
The lifting facility must be of sufficient capacity.

Pumps fitted with motors should be lifted by means of nylon straps and shackles, if required. See fig. 1.

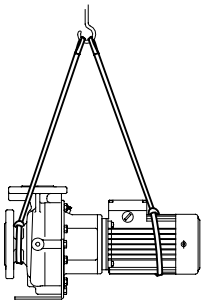

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Fig. 1 Handling of pump and motor

3. Applications

The Grundfos MTB single-stage end-suction pumps are designed specifically for the transfer of liquids containing solid particles. The pumps are suitable for industrial machine tool applications such as:

- machining centres
- cooling systems
- grinding machines
- lathes
- parts cleaning systems.

4. Identification

4.1 Pump nameplate

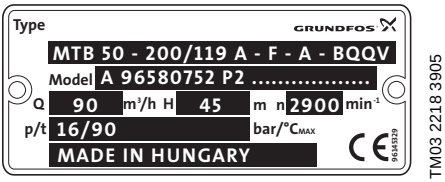

Fig. 2 Example of nameplate

4.2 Type key

Example	**MTB 65 -200 /199 A -F -A -BQQV**
Pump range	
Nominal diameter of discharge port (DN)	
Pump housing size [mm]	
Actual impeller diameter [mm]	
Code for pump version	
Code for pipework connection	
Code for materials	
Code for shaft seal and rubber pump parts	

The example describes an MTB 65-200 pump with an actual impeller diameter of 199 mm, of the basic version, with DIN flanges, made of cast iron and with a BQQV shaft seal.

4.2.1 Codes

Example	**A - F - A - B Q Q V**
Pump version A: Basic version	
Pipe connection F: DIN flange	
Materials A: Cast iron	
Shaft seal B: Rubber bellows seal Q: Silicon carbide (SiC) V: FKM P: NBR (nitrile)	

The pump is fitted with FKM O-rings as standard.

5. Pumped liquids

The MTB pump is capable of pumping liquids with particles up to 20 mm in size and a weight percentage of up to 1.5 wt%.

When pumping abrasive particles, a reduced life of pump parts can be expected.

Warning

The pump must not be used for the pumping of inflammable liquids such as diesel fuel, petrol or similar liquids.

The liquid must not attack the pump materials chemically.

The pumping of liquids with densities or kinematic viscosities higher than those of water will cause a drop in the hydraulic performance and an increase in power consumption.

If in doubt, contact Grundfos.

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6. Operating conditions

6.1 Inlet pressure

The minimum inlet pressure is according to the NPSH curve plus a safety allowance of at least 2 m. The maximum inlet pressure is limited by the maximum operating pressure.

6.1.1 Minimum inlet pressure - NPSH

Calculation of the inlet pressure "H" is recommended when

- the liquid temperature is high
- the flow is significantly higher than the rated flow
- water is drawn from depths
- water is drawn through long pipes
- inlet conditions are poor.

To avoid cavitation, make sure that there is a minimum pressure on the suction side of the pump. The maximum suction lift "H" in metres head can be calculated as follows:

$H = p_b \times 10.2 - NPSH - H_f - H_v - H_s$

p_b	Barometric pressure in bar. (Barometric pressure can be set to 1 bar.) In closed systems, p_b indicates the system pressure in bar.
NPSH	Net Positive Suction Head in metres head. (To be read from the NPSH curve at the highest flow the pump will be delivering. See page 285.)
H_f	Friction loss in suction pipe in metres head. (At the highest flow the pump will be delivering.)
H_v	Vapour pressure in metres head. (To be read from the vapour pressure scale. "H_v" depends on the liquid temperature "T_m". See page 285.)
H_s	Safety margin = minimum 2 metres head.

If the "H" calculated is positive, the pump can operate at a suction lift of maximum "H" metres head.

If the "H" calculated is negative, an inlet pressure of minimum "H" metres head is required.

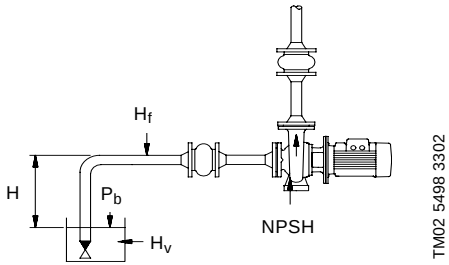

Fig. 3 Schematic drawing of an open system

Caution ***Check that the pump is not and will not be exposed to cavitation.***

6.2 Ambient temperature, motor

Ambient temperature: Maximum +60°C.

If the ambient temperature exceeds +60°C or if the motor is installed more than 3500 metres above sea level, the rated motor output (P2) will fall due to the low density and consequently low cooling effect of the air. In such cases, it may be necessary to use a motor with a higher output.

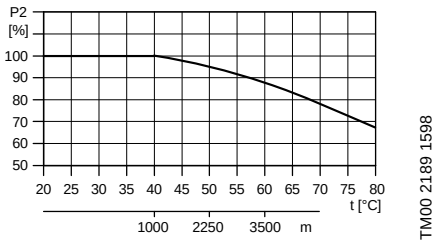

Fig. 4 Motor P2 depends on temperature/altitude

6.3 Liquid temperature

0°C to +90°C.

The maximum liquid temperature is marked on the pump nameplate.

6.4 Operating pressure

At +90°C: Max. 1.6 MPa (16 bar).

The maximum operating pressure depends on the liquid temperature.

6.5 Minimum flow rate

A minimum flow rate equal to 10% of the flow rate at maximum efficiency is needed at all times. Flow rate and head at maximum efficiency are stated on the pump nameplate.

6.6 Maximum flow rate

To prevent cavitation and overload, the maximum flow rate must be according to the NPSH curve and must not exceed the values for each individual pump stated on page 285.

6.7 Frequency of starts and stops

Maximum 20 per hour.

7. Installation

7.1 Pump location

The pump should be sited in a dry, well ventilated, but frost-free location.

Warning

When pumping hot liquids, care should be taken to ensure that persons cannot accidentally come into contact with hot surfaces.

For inspection, the following clearance is recommended:

Vertical installation

- 300 mm above the motor for motors of 3-4 kW
- 1 metre above the motor for motors of 5.5 kW and up to permit the use of lifting equipment, if required.

See fig. 5.

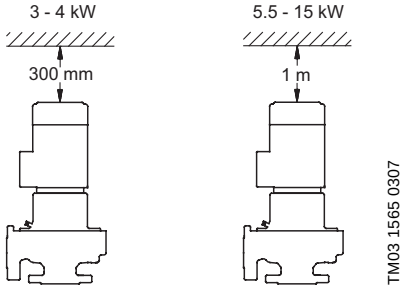

Fig. 5 Vertical installation

Horizontal installation

- 300 mm behind the motor for motors of 3-4 kW
- 300 mm behind the motor and at least 1 metre above the motor for motors of 5.5 kW and up to permit the use of lifting equipment, if required.

See fig. 6.

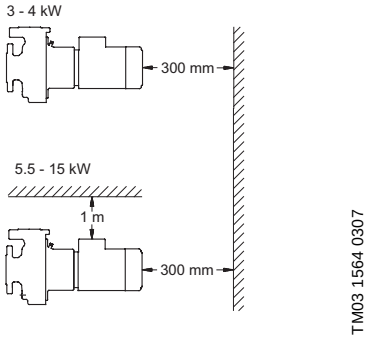

Fig. 6 Horizontal installation

Minimum clearance

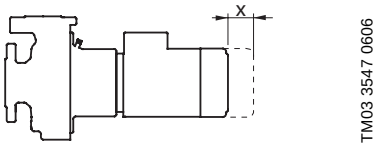

Fig. 7 Motor/pump head removal

	Pump	P2 [kW]	Minimum clearance, x [mm]	
			Motor only	Motor and pump head
50 Hz	MTB 50-200	3.0	60	140
	MTB 65-160	5.5 7.5	80	100
	MTB 65-200	11 15	110	100
60 Hz	MTB 50-200	3.0 4.0	60	140
		5.5	80	
	MTB 65-125	7.5	80	100
	MTB 65-160	11 15	110	100

7.2 Connection

The pump should **never** be installed with the motor pointing downwards.

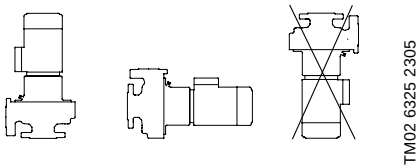

Fig. 8 Connection

If the pump has been installed with the terminal box pointing downwards, turn the motor to the required position.

The terminal box can be turned in 90° steps.

Proceed as follows:

1. Remove the coupling guards. Do *not* remove the coupling.
2. Remove the bolts securing the motor to the pump.
3. Turn the motor to the required position.
4. Replace and tighten the bolts.
5. Replace the coupling guards.

Discharge isolating valves should be fitted on either side of the pump to avoid draining the system in connection with cleaning or repair of the pump.

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7.3 Foundation

Note ***Grundfos is not liable for any faulty foundation of the pump. This section should be considered as a guideline only.***

Grundfos recommends that you install the pump on a plane and rigid concrete foundation which is heavy enough to provide permanent support for the entire pump. As a rule of thumb, the weight of the concrete foundation should be 1.5 times the pump weight. See fig. 9.

7.4 Elimination of noise and vibration

To achieve optimum operation and reduce noise and vibration to a minimum, consider vibration dampening of the pump. Generally, always consider this for pumps with motors above 7.5 kW. Smaller motor sizes, however, may also cause undesirable noise and vibration.

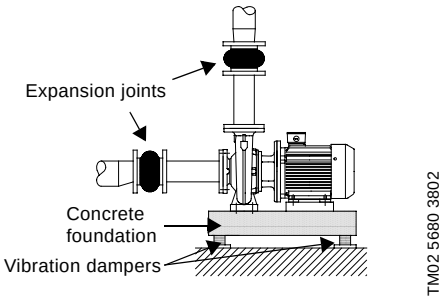


Fig. 9 Expansion joints and vibration dampers

Noise and vibration are generated by the revolutions of the motor and pump and by the flow in pipes and fittings. The effect on the environment is subjective and depends on correct installation and the state of the remaining system.

Elimination of noise and vibrations is best achieved by means of vibration dampers and expansion joints. See fig. 9.

7.4.1 Vibration dampers

To prevent the transmission of vibrations to buildings, we recommend you to isolate the pump foundation from building parts by means of vibration dampers.

The selection of the right vibration damper requires these data:

- forces transmitted through the damper
- motor speed considering speed control, if any
- required dampening in % (suggested value, 70%).

Which is the right damper varies from installation to installation, and a wrong damper may increase the vibration level. Vibration dampers should therefore be sized by the supplier.

7.4.2 Expansion joints

If you install the pump on a foundation with vibration dampers, always fit expansion joints on the pump flanges. This is important to prevent the pump from "hanging" in the flanges.

Install expansion joints for these reasons:

- to absorb expansions/contractions in the pipework caused by changing liquid temperature
- to reduce mechanical strains in connection with pressure surges in the pipework
- to isolate mechanical structure-borne noise in the pipework (only rubber bellows expansion joints).

Caution ***Do not install expansion joints to compensate for inaccuracies in the pipework such as centre displacement of flanges.***

Fit expansion joints at a distance of minimum 1 to 1½ times the nominal flange diameter from the pump, both on the suction and the discharge sides. This prevents the development of turbulence in the expansion joints, resulting in better suction conditions and a minimum pressure loss on the pressure side. At high water velocities (> 5 m/s), we recommend you to install larger expansion joints corresponding to the pipework.

We always recommend expansion joints with limiting rods for flanges larger than DN 100.

Caution ***Check expansion joints regularly for brittleness or cracks.***

7.5 Piping

When installing the pipes, ensure that the pump housing is not stressed by the pipework.

The suction and discharge pipes must be of an adequate size, taking the pump inlet pressure into account.

Make sure the pipes are adequately supported as close to the pump as possible, both on the suction and the discharge side. Install the pipes so that air locks are avoided, especially on the suction side of the pump.

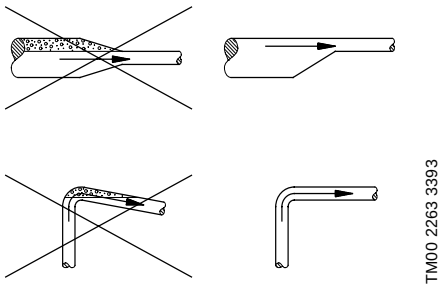


Fig. 10 Pipelines

7.5.1 Pipeline mounting

Pumps fitted with motors up to and including 7.5 kW are suitable for direct mounting in pipes. See fig.11.

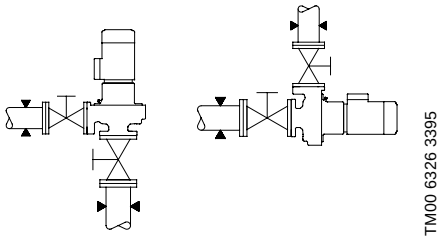


Fig. 11 Pump mounted in suspended pipelines

Note

This type of installation does not allow the use of anti-vibration mountings. To ensure quiet operation, suspend the pipes from suitable pipe hangers.

7.6 Bypass

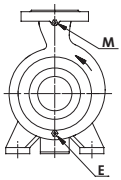
Warning

The pump is not allowed to run against a closed discharge valve as this will cause an increase in temperature/ formation of steam in the pump which may cause damage to the pump.

If there is any risk that the pump may be running against a closed discharge valve, connect a bypass/ drain to the discharge pipe to ensure a minimum liquid flow through the pump.The drain can for instance be connected to a tank.

7.7 Measuring instruments

To ensure monitoring of operation, we recommend that a pressure gauge is installed on the discharge side. See fig. 12.



M: Pressure gauge connection

E: Drain plug

TM01 8362 0100

Fig. 12 Position of pressure gauge connection

The measuring range of the gauge should be 20% above the maximum pump discharge pressure.

7.8 Electrical connection

The electrical connection should be carried out by an authorized electrician in accordance with local regulations.

Warning

Before removing the terminal box cover and before any removal/dismantling of the pump, make sure that the electricity supply has been switched off.

The motor must be connected to an external mains switch.

Note

To comply with European standard EN 809, a motor-protective circuit breaker must be installed to ensure that the motor switches off during normal operation or in case of emergency.

The need for installation of an emergency stop device must be considered by the installer.

The operating voltage and frequency are marked on the motor nameplate. Make sure that the motor is suitable for the electricity supply on which it will be used.

All three-phase Grundfos MG and Siemens motors of 3 kW and up incorporate a thermistor, TP 211. See the instructions in the motor terminal box.

The electrical connection should be carried out as shown in the diagram inside the terminal box cover.

7.9 Frequency converter operation

All three-phase Grundfos motors can be connected to a frequency converter.

Caution

We recommend that you protect MG and Siemens motors against voltage peaks higher than 850 V.

Depending on the type, the frequency converter may cause increased acoustic noise from the motor. Furthermore, it may cause the motor to be exposed to detrimental voltage peaks.

The above disturbances, i.e. both increased acoustic noise and detrimental voltage peaks, can be eliminated by fitting an LC filter between the frequency converter and the motor.

For further information, please contact the frequency converter supplier or Grundfos.

8. Start-up and operation

Warning

Do not start the pump until the coupling guard is fitted.

Caution ***Do not start the pump until it has been filled with liquid and vented.***

8.1 Priming

The suction pipe and the pump must be filled with liquid before the pump is started.

If the liquid level is below the pump inlet or there are airlocks in the suction pipe, proceed as follows:

1. Close the discharge isolating valve and open the isolating valve in the suction pipe.
2. Loosen the air vent screw.
3. Remove the plug from one of the pump flanges, depending on the pump location.
4. Pour liquid through the priming port.
5. Make sure the suction pipe and the pump are completely filled with liquid.
6. Replace the plug and tighten securely.
7. Tighten the air vent screw.

The suction pipe can to some extent be filled with liquid and vented before it is connected to the pump. A priming device can also be installed before the pump.

8.2 Checking the direction of rotation

Caution ***Do not start the pump to check the direction of rotation until it has been filled with liquid.***

Caution ***Do not remove the motor from the pump to check the direction of rotation, as this may damage the shaft seal.***

The correct direction of rotation is shown by an arrow on the pump housing. See fig. 12. When seen from the motor fan, the pump should rotate clockwise.

Start the motor only for a short moment.

8.3 Starting

1. Before starting the pump, completely open the suction isolating valve and leave the discharge isolating valve almost closed.
2. Start the pump.

Caution Sudden, major pressure changes in the discharge pipe may damage the pump.

3. Vent the pump during starting by loosening the air vent screw in the pump head until a steady stream of liquid runs out of the vent hole.

Warning

Pay attention to the direction of the vent hole and take care to ensure that the escaping water does not cause injury to persons or damage to the motor or other components.
In hot-water installations, pay special attention to the risk of injury caused by scalding hot water.

4. When the piping system has been filled with liquid, slowly open the discharge isolating valve until it is completely open.
5. In the event of motor overload, throttle the discharge isolating valve until the motor is no longer overloaded.
6. If the pump does not build up pressure at once, stop it and repeat the starting procedure.

Caution ***Never operate the pump for long periods if the isolating valve on the discharge side is closed.***

8.4 Restarting

Do not restart the pump until the pump shaft stands still.

Caution ***Backflow of the pumped liquid must not result in a change in the direction of rotation of the pump.***

8.5 Stopping

Backflow is stopped by means of the non-return valve or counter pressure in the pipeline.

Switch off the motor and check that it slows down smoothly.

9. Storage

All pumps are preserved and can be stored for 6 to 12 months. If the storage time is longer or the pumps are not in operation, they must receive additional preservation on the inside.

The storage room must be roofed and well ventilated. Avoid temperatures below 0°C and high humidity.

10. Frost protection

Pumps which are not being used during periods of frost should be drained to avoid damage.

Drain the pump by loosening the air vent screw in the motor stool/cover plate and by removing the drain plug from the pump housing. See fig. 13.

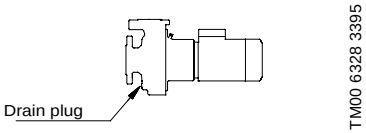


Fig. 13 Location of drain plug

Replace the drain plug. Do not tighten the air vent screw until the pump is to be used again.

11. Maintenance

Warning

Before starting work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

11.1 Pump

The pump is maintenance-free.

If the pump is to be drained for a long period of inactivity, inject a few drops of silicone oil on the shaft between the motor stool and the coupling. This will prevent the shaft seal faces from sticking.

11.2 Motor

The motor should be checked at regular intervals. It is important to keep the motor clean in order to ensure adequate ventilation. If the pump is installed in a dusty environment, the motor must be cleaned and checked regularly.

Lubrication

The bearings of motors up to 11 kW are greased for life.

The bearings of motors of 11 kW and up must be greased in accordance with the indications on the motor nameplate.

The motors should be lubricated with a lithium-based grease meeting the following specifications:

- NLGI grade 2 or 3
- Viscosity of basic oil: 70 to 150 cSt at +40°C (~ +104°F)
- Temperature range: –30°C (~ –22°F) to +140°C (~ +284°F) during continuous operation.

12. Technical data

12.1 Mechanical data

See pump nameplate.

12.2 Electrical data

See motor nameplate.

12.3 Weights

See label on the packing.

12.4 Sound pressure level

See page 288.

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13. Fault finding

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Warning

Before removing the terminal box cover and before any removal/dismantling of the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

Fault	Cause	Remedy
1. Motor does not run when started.	a) Electrical supply failure.	Connect the electricity supply.
	b) Fuses blown.	Replace the fuses.
	c) Motor starter overload has tripped out.	Reactivate the motor starter.
	d) Main contacts in motor starter are not making contact or the coil is faulty.	Replace the contacts or magnetic coil.
	e) Impeller blocked. The motor cannot rotate.	Clean the inside of the pump and inspect for damages.
	f) Control circuit fuses are defective.	Repair the control circuit.
	g) Motor is defective.	Replace the motor.
2. Motor starter overload trips out immediately when supply is switched on.	a) One fuse is blown.	Replace the fuse.
	b) Contacts in motor starter overload are faulty.	Replace the motor starter contacts.
	c) Cable connection is loose or faulty.	Fasten or replace the cable.
	d) Motor winding is defective.	Replace the motor.
	e) Pump mechanically blocked.	Remove the blocking.
	f) Overload setting too low.	Set the motor starter correctly.
3. Motor starter overload trips out occasionally.	a) Overload setting too low.	Set the motor starter correctly.
	b) Supply voltage periodically too low or too high.	Check the supply voltage.
	c) Differential pressure across pump too low.	Vent the pump. See section *8.3 Starting*.
4. Motor starter has not tripped out but the pump does not run.	a) Check 1 a), b), d) and e).	
5. Pump capacity not constant.	a) Pump inlet pressure is too low.	Increase the inlet pressure.
	b) Suction pipe/pump partly blocked by impurities.	Clean the pipe/pump.
	c) Pump draws in air: - Leakage in pipe - Water level in tank too low.	- Repair the leakage. - Increase the water level in the tank. Vent the system.
6. Pump runs but gives no liquid.	a) Suction pipe/pump blocked by impurities.	Clean the pipe/pump.
	b) Foot or non-return valve blocked in closed position.	Clean/repair the foot or non-return valve.
	c) Leakage in suction pipe.	Repair the leakage.
	d) Air in suction pipe or pump.	Vent the pump.
	e) Motor rotates in the wrong direction.	Change the direction of rotation.
7. Pump runs backwards when switched off.	a) Leakage in suction pipe.	Repair the leakage.
	b) Foot or non-return valve defective.	Replace the defective foot or non-return valve.
	c) Foot or non-return valve blocked in open or partly open position.	Clean/repair the foot or non-return valve.

Fault	Cause	Remedy
8. Leakage in shaft seal.	a) Adjustment of pump shaft in coupling is incorrect.	Adjust the shaft and check the shaft seal.
	b) Shaft seal is defective.	Replace the shaft seal.
9. Noise.	a) Cavitation occurs in the pump.	Increase the inlet pressure or reduce the liquid temperature.
	b) Pump does not rotate freely (frictional resistance) because of incorrect pump shaft position.	Adjust the shaft and check the shaft seal.
	c) Frequency converter operation.	See section *7.9 Frequency converter operation.*
	d) Resonance in the installation.	Consider vibration dampening, see section *7.3 Foundation*.
	e) Foreign bodies in the pump.	Clean the pump and inspect for damages.
10. Pump runs constantly (applies only to pumps with automatic start/stop).	a) The stop pressure has been set too high.	Reduce the selected stop pressure.
	b) Leakage in discharge pipe.	Repair the leakage.
	c) The direction of rotation of the pump is incorrect.	Change the direction of rotation.
	d) Pipes, valves or strainer blocked by impurities.	Clean the pipes, valves or strainer.
	e) Pump controller, if fitted, is defective.	Replace the pump controller.
11. Period of operation is too long (applies only to pumps with automatic start/stop).	a) The stop pressure has been set too high.	Reduce the selected stop pressure.
	b) Pipes, valves or strainer blocked by impurities.	Clean the pipes, valves or strainer.
	c) Pump partly blocked.	Clean the pump and inspect for damages.
	d) Leakage in discharge pipe.	Repair the leakage.

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14. Service

Warning

If a pump has been used for a liquid which is injurious to health or toxic, the pump will be classified as contaminated.

If Grundfos is requested to service the pump, Grundfos must be contacted with details about the pumped liquid, etc. *before* the pump is returned for service. Otherwise, Grundfos can refuse to accept the pump for service.

Possible costs of returning the pump are paid by the customer.

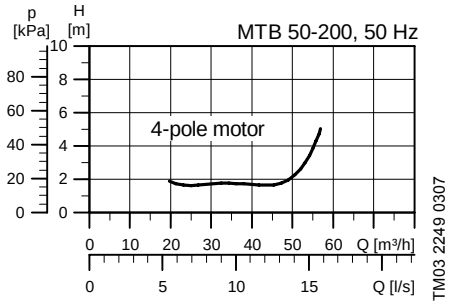
15. Disposal

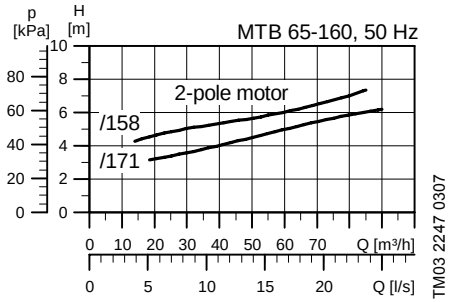
This product or parts of it must be disposed of in an environmentally sound way:

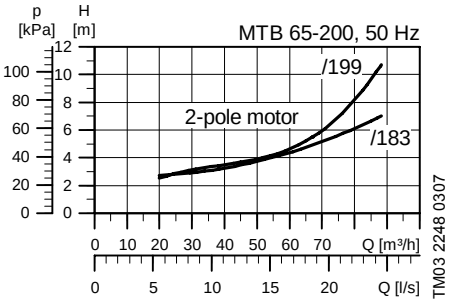
1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

NPSH curves

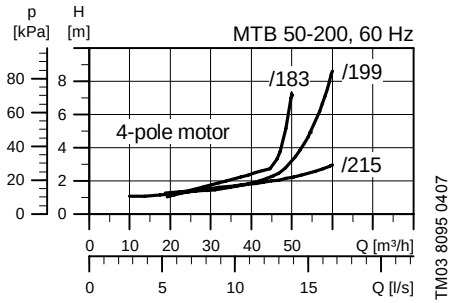
50 Hz

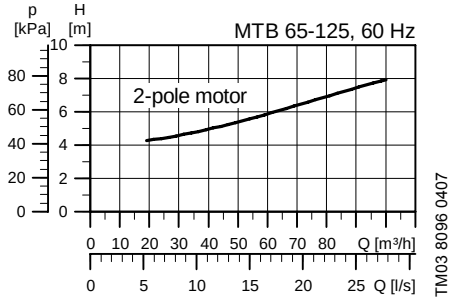


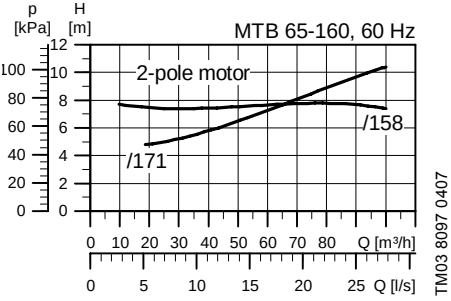




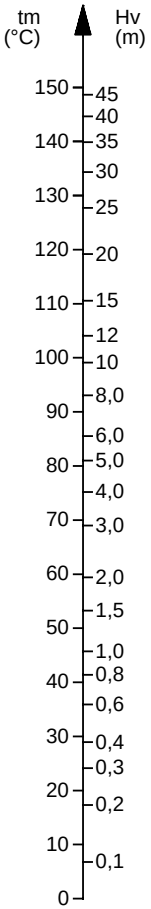
60 Hz







Vapour pressure scale



TM00 3037 0798

Maximum flow rate

50 Hz

2-pole: n = 2900 min^{-1}	
Pump type	**Max. Q [m³/h] ***
MTB 65-160/158 MTB 65-160/171	90
MTB 65-200/183 MTB 65-200/199	90

4-pole: n = 1450 min^{-1}	
Pump type	**Max. Q [m³/h] ***
MTB 50-200/215	60

60 Hz

2-pole: n = 3500 min^{-1}	
Pump type	**Max. Q [m³/h] ***
MTB 65-125/144	100
MTB 65-160/158 MTB 65-160/171	100

4-pole: n = 1750 min^{-1}	
Pump type	**Max. Q [m³/h] ***
MTB 50-200/183	50
MTB 50-200/199 MTB 50-200/215	60

*)

GB The values are based on a water temperature of 20°C (1 mm²/s).

D Die Werte basieren auf einer Wassertemperatur von 20°C (1 mm²/s)

F Les valeurs sont basées sur une température de l'eau de 20°C (1 mm²/s).

I I valori si basano su una temperatura dell'acqua di 20°C (1 mm²/s).

E Los valores están basados en una temperatura del agua de 20°C (1 mm²/s).

GR Οι τιμές βασίζονται σε θερμοκρασία νερού 20°C (1 mm²/s).

NL De waarden zijn gebaseerd op een watertemperatuur van 20°C (1 mm²/s).

S Värdena är baserade på vattentemperaturen 20°C (1 mm²/s).

FIN Arvot perustuvat veden lämpötilaan 20°C (1 mm²/s).

DK Værdierne er baseret på en vandtemperatur på 20°C (1 mm²/s).

PL Wartości odnoszą się do wody o temperaturze 20°C (1 mm²/s).

RU Эти значения базируются на температуре воды 20°C (1 мм²/с).

H A megadott értékek 20°C hőmérsékletű vízre vonatkoznak (1 mm²/s).

SI Vrednosti temeljijo na temperaturi vode 20°C (1 mm²/s).

HR Vrijednosti su bazirane na temperaturi vode od 20°C (1 mm²/s).

SER Vrednosti su bazirane na temperaturi vode od 20°C (1 mm²/s).

RO Valorile sun bazate pe o temperatură a apei de 20°C (1 mm²/s).

BG Стойностите са базирани на температура на водата 20°C (1 mm²/s).

CZ Tyto hodnoty jsou stanoveny na základě teploty vody 20°C (1 mm²/s).

SK Hodnoty sú založené na teplote vody 20°C (1 mm²/s).

TR Değerler 20°C' su sıcaklığına göre belirlenmiştir (1 mm²/s).

EE Väärtused põhinevad vee temperatuuril 20°C (1 mm²/s).

LT Tos vertės galioja 20°C vandens temperatūrai (klampumas 1 mm²/s).

UA Значення приведені для температури води 20°C (1 mm²/s).

Airborne noise emitted by pumps fitted with MG and Siemens motors

Standard range

	Motor [kW]	Sound pressure level [dB(A)]			
		MG model D		Simens	
		2-pole	4-pole	2-pole	4-pole
50 Hz	3		55		
	5.5	63			
	7.5	68			
	11			70	
	15			70	

60 Hz	3		57		
	4		56		
	5.5				62
	7.5	78			
	11			70	
	15			70	

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