

Pumpen mit System

Planung

Beratung

Vertrieb

MAGNA3

Abwasser - Verfahrenstechnik GmbH Großkopfstraße 5 13403 Berlin

Installation and operating instructions



Declaration of conformity

GB: EC declaration of conformity

We, Grundfos, declare under our sole responsibility that the products MAGNA3, 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 (2006/42/EC).
Standard used: EN 809:1998.
- Low Voltage Directive (2006/95/EC).
Standards used: EN 60335-2-51:2003 and EN 60950-1:2006/A12:2011.
- EMC Directive (2004/108/EC).
Standards used: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 and EN 61800-3-3:2008.
- Ecodesign Directive (2009/125/EC).
Circulators:
Commission Regulation Nos 641/2009 and 622/2012.
Applies only to circulators marked with the energy efficiency index EEI. See the pump nameplate.
Standards used: EN 16297-1:2012 and EN 16297-2:2012.
- R&TTE Directive (1999/5/EC).
Standards used: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) and EN 62209-2:2010.

This EC declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions (publication number 98091805 0313).

CZ: ES prohlášení o shodě

My firma Grundfos prohlašujeme na svou plnou odpovědnost, že výrobky MAGNA3, na něž se toto prohlášení vztahuje, jsou v souladu s ustanoveními směrnice Rady pro sblížení právních předpisů členských států Evropského společenství v oblastech:

- Směrnice pro strojní zařízení (2006/42/ES).
Použitá norma: EN 809:1998.
- Směrnice pro nízkonapěťové aplikace (2006/95/ES).
Použitá norma: EN 60335-2-51:2003 a EN 60950-1:2006/A12:2011.
- Směrnice pro elektromagnetickou kompatibilitu (EMC) (2004/108/ES).
Použité normy: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 a EN 61800-3-3:2008.
- Směrnice o požadavcích na ekodesign (2009/125/ES).
Oběhová čerpadla:
Nařízení Komise č. 641/2009 a 622/2012.
Platí pouze pro oběhová čerpadla s vyznačeným indexem energetické účinnosti EEI. Viz typový štítek čerpadla.
Použité normy: EN 16297-1:2012 a EN 16297-2:2012.
- R&TTE směrnice (1999/5/ES).
Použité normy: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) a EN 62209-2:2010.

Toto ES prohlášení o shodě je platné pouze tehdy, pokud je zveřejněno jako součást instalačních a provozních návodů Grundfos (publikace číslo 98091805 0313).

DE: EG-Konformitätserklärung

Wir, Grundfos, erklären in alleiniger Verantwortung, dass die Produkte MAGNA3, auf die sich diese Erklärung bezieht, mit den folgenden Richtlinien des Rates zur Angleichung der Rechtsvorschriften der EU-Mitgliedsstaaten übereinstimmen:

- Maschinenrichtlinie (2006/42/EG).
Norm, die verwendet wurde: EN 809:1998.
- Niederspannungsrichtlinie (2006/95/EG).
Normen, die verwendet wurden: EN 60335-2-51:2003 und EN 60950-1:2006/A12:2011.
- EMV-Richtlinie (2004/108/EG).
Normen, die verwendet wurden: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 und EN 61800-3-3:2008.
- Ökodesign-Richtlinie (2009/125/EG).
Umwälzpumpen:
Verordnung der EU-Kommission Nr. 641/2009 und 622/2012.
Gilt nur für Umwälzpumpen, bei denen das Kennzeichen EEI auf dem Typenschild aufgeführt ist. EEI steht für Energieeffizienzindex.
Normen, die verwendet wurden: EN 16297-1:2012 und EN 16297-2:2012.
- Richtlinie über Funkanlagen und Telekommunikationsendeinrichtungen (1999/5/EG).
Normen, die verwendet wurden: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) und EN 62209-2:2010.

Diese EG-Konformitätserklärung gilt nur, wenn sie in Verbindung mit der Grundfos Montage- und Betriebsanleitung (Veröffentlichungsnummer 98091805 0313) veröffentlicht wird.

BG: ЕС декларация за съответствие

Ние, фирма Grundfos, заявяваме с пълна отговорност, че продуктите MAGNA3, за които се отнася настоящата декларация, отговарят на следните указания на Съвета за уеднаквяване на правните разпоредби на държавите членки на ЕС:

- Директива за машините (2006/42/EC).
Приложен стандарт: EN 809:1998.
- Директива за нисковолтови системи (2006/95/EC).
Приложени стандарти: EN 60335-2-51:2003 и EN 60950-1:2006/A12:2011.
- Директива за електромагнитна съвместимост (2004/108/EC).
Приложени стандарти: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 и EN 61800-3-3:2008.
- Директива за екодизайн (2009/125/EC).
Циркулатори:
Наредба No 641/2009 и 622/2012 на Европейската комисия.
Прилага се само за циркулатори, маркирани с индекс за енергийна ефективност EEI. Вижте табелата с данни на помпата.
Приложени стандарти: EN 16297-1:2012 и EN 16297-2:2012.
- R&TTE Директива (1999/5/EC).
Приложени стандарти: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) и EN 62209-2:2010.

Тази ЕС декларация за съответствие е валидна само когато е публикувана като част от инструкциите за монтаж и експлоатация на Grundfos (номер на публикацията 98091805 0313).

DK: EF-overensstemmelseserklæring

Vi, Grundfos, erklærer under ansvar at produkterne MAGNA3 som denne erklæring omhandler, er i overensstemmelse med disse af Rådets direktiver om indbyrdes tilnærmelse til EF-medlemsstaternes lovgivning:

- Maskindirektivet (2006/42/EF).
Anvendt standard: EN 809:1998.
- Lavspændingsdirektivet (2006/95/EF).
Anvendte standarder: EN 60335-2-51:2003 og EN 60950-1:2006/A12:2011.
- EMC-direktivet (2004/108/EF).
Anvendte standarder: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 og EN 61800-3-3:2008.
- Ecodesigndirektivet (2009/125/EF).
Cirkulationspumper:
Kommissionens forordning nr. 641/2009 og 622/2012.
Gælder kun cirkulationspumper der er mærket med energieffektivitetsindeks EEI. Se pumpens typeskilt.
Anvendte standarder: EN 16297-1:2012 og EN 16297-2:2012.
- R&TTE-direktiv (1999/5/EF).
Anvendte standarder: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) og EN 62209-2:2010.

Denne EF-overensstemmelseserklæring er kun gyldig når den publiceres som en del af Grundfos-monterings- og driftsinstruktionen (publikationsnummer 98091805 0313).

EE: EL vastavusdeklaratsioon

Meie, Grundfos, deklareerime enda ainuvastutusel, et tooted MAGNA3, mille kohta käesolev juhend käib, on vastavuses EÜ Nõukogu direktiividega EMÜ liikmesriikide seaduste ühitamise kohta, mis käsitlevad:

- Masinate ohutus (2006/42/EC).
Kasutatud standard: EN 809:1998.
- Madalpinge direktiiv (2006/95/EC).
Kasutatud standardid: EN 60335-2-51:2003 ja EN 60950-1:2006/A12:2011.
- Elektromagnetilise ühilduvuse (EMC direktiiv) (2004/108/EC).
Kasutatud standardid: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 ja EN 61800-3-3:2008.
- Ökodesaini direktiiv (2009/125/EC).
Ringluspumpad:
Komisjoni määrus nr 641/2009 ja 622/2012.
Rakendub ainult ringluspumpadele, mis on tähistatud energiatõhususe märgistusega EEI. Vt pumba andmeplaat.
Kasutatud standardid: EN 16297-1:2012 ja EN 16297-2:2012.
- R&TTE direktiiv (1999/5/EC).
Kasutatud standardid: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) ja EN 62209-2:2010.

Käesolev EL-i vastavusdeklaratsioon kehtib ainult siis, kui see avaldatakse Grundfosi paigaldus- ja kasutusjuhendi (avaldamisnumber 98091805 0313) osana.

GR: Δήλωση συμμόρφωσης EC

Εμείς, η Grundfos, δηλώνουμε με αποκλειστικά δική μας ευθύνη ότι τα προϊόντα MAGNA3 στα οποία αναφέρεται η παρούσα δήλωση, συμμορφώνονται με τις εξής Οδηγίες του Συμβουλίου περί προσέγγισης των νομοθεσιών των κρατών μελών της ΕΕ:

- Οδηγία για μηχανήματα (2006/42/EC).
Πρότυπο που χρησιμοποιήθηκε: EN 809:1998.
- Οδηγία χαμηλής τάσης (2006/95/EC).
Πρότυπα που χρησιμοποιήθηκαν: EN 60335-2-51:2003 και EN 60950-1:2006/A12:2011.
- Οδηγία Ηλεκτρομαγνητικής Συμβατότητας (EMC) (2004/108/EC).
Πρότυπα που χρησιμοποιήθηκαν: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 και EN 61800-3-3:2008.
- Οδηγία Οικολογικού Σχεδιασμού (2009/125/EC).
Κυκλοφορητές:
Κανονισμός Αρ. 641/2009 και 622/2012 της Επιτροπής.
Ισχύει μόνο για κυκλοφορητές που φέρουν τον δείκτη ενεργειακής απόδοσης EEI. Βλέπε πινακίδα κυκλοφορητή.
Πρότυπα που χρησιμοποιήθηκαν: EN 16297-1:2012 και EN 16297-2:2012.
- R&Oδηγία TTE (1999/5/EC).
Πρότυπα που χρησιμοποιήθηκαν: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) και EN 62209-2:2010.

Αυτή η δήλωση συμμόρφωσης EC ισχύει μόνον όταν συνοδεύει τις οδηγίες εγκατάστασης και λειτουργίας της Grundfos (κωδικός εντύπου 98091805 0313).

FR: Déclaration de conformité CE

Nous, Grundfos, déclarons sous notre seule responsabilité, que les produits MAGNA3, auxquels se réfère cette déclaration, sont conformes aux Directives du Conseil concernant le rapprochement des législations des Etats membres CE relatives aux normes énoncées ci-dessous:

- Directive Machines (2006/42/CE).
Norme utilisée: EN 809:1998.
- Directive Basse Tension (2006/95/CE).
Normes utilisées: EN 60335-2-51:2003 et EN 60950-1:2006/A12:2011.
- Directive Compatibilité Electromagnétique CEM (2004/108/CE).
Normes utilisées: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 et EN 61800-3-3:2008.
- Directive sur l'éco-conception (2009/125/CE).
Circulateurs:
Règlement de la Commission N° 641/2009 et 622/2012.
S'applique uniquement aux circulateurs marqués de l'indice de performance énergétique EEI. Voir plaque signalétique du circulateur.
Normes utilisées: EN 16297-1:2012 et EN 16297-2:2012.
- Directive sur les équipements radioémetteurs TTE (1999/5/CE).
Normes utilisées: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) et EN 62209-2:2010.

Cette déclaration de conformité CE est uniquement valide lors de sa publication dans la notice d'installation et de fonctionnement Grundfos (numéro de publication 98091805 0313).

IT: Dichiarazione di conformità CE

Grundfos dichiara sotto la sua esclusiva responsabilità che i prodotti MAGNA3, ai quali si riferisce questa dichiarazione, sono conformi alle seguenti direttive del Consiglio riguardanti il riavvicinamento delle legislazioni degli Stati membri CE:

- Direttiva Macchine (2006/42/CE).
Norma applicata: EN 809:1998.
- Direttiva Bassa Tensione (2006/95/CE).
Norme applicate: EN 60335-2-51:2003 e EN 60950-1:2006/A12:2011.
- Direttiva EMC (2004/108/CE).
Norme applicate: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 e EN 61800-3-3:2008.
- Direttiva Ecodesign (2009/125/CE).
Circolatori:
Regolamento della Commissione N. 641/2009 e 622/2012.
Applicabile solo ai circolatori dotati di indice di efficienza EEI. Vedi la targhetta identificativa del circolatore.
Norme applicate: EN 16297-1:2012 e EN 16297-2:2012.
- Direttiva R&TTE (1999/5/CE).
Norme applicate: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) e EN 62209-2:2010.

Questa dichiarazione di conformità CE è valida solo quando pubblicata come parte delle istruzioni di installazione e funzionamento Grundfos (pubblicazione numero 98091805 0313).

ES: Declaración CE de conformidad

Nosotros, Grundfos, declaramos bajo nuestra entera responsabilidad que los productos MAGNA3, a los cuales se refiere esta declaración, están conformes con las Directivas del Consejo en la aproximación de las leyes de los Estados Miembros del EM:

- Directiva de Maquinaria (2006/42/CE).
Norma aplicada: EN 809:1998.
- Directiva de Baja Tensión (2006/95/CE).
Normas aplicadas: EN 60335-2-51:2003 y EN 60950-1:2006/A12:2011.
- Directiva EMC (2004/108/CE).
Normas aplicadas: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 y EN 61800-3-3:2008.
- Directiva sobre diseño ecológico (2009/125/CE).
Bombas circuladoras:
Reglamento de la Comisión n° 641/2009 y 622/2012.
Aplicable únicamente a las bombas circuladoras marcadas con el índice de eficiencia energética IEE. Véase la placa de características.
Normas aplicadas: EN 16297-1:2012 y EN 16297-2:2012.
- R&TTE Directiva (1999/5/CE).
Normas aplicadas: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) y EN 62209-2:2010.

Esta declaración CE de conformidad sólo es válida cuando se publique como parte de las instrucciones de instalación y funcionamiento de Grundfos (número de publicación 98091805 0313).

HR: EZ izjava o usklađenosti

Mi, Grundfos, izjavljujemo pod vlastitom odgovornošću da je proizvod MAGNA3, na koji se ova izjava odnosi, u skladu s direktivama ovog Vijeća o usklađivanju zakona država članica EU:

- Direktiva za strojeve (2006/42/EZ).
Korištena norma: EN 809:1998.
- Direktiva za niski napon (2006/95/EZ).
Korištene norme: EN 60335-2-51:2003 i EN 60950-1:2006/A12:2011.
- Direktiva za elektromagnetsku kompatibilnost (2004/108/EZ).
Korištene norme: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 i EN 61800-3-3:2008.
- Direktiva o ekološkoj izvedbi (2009/125/EZ).
Optočne crpke:
Regulativa komisije br. 641/2009 i 622/2012.
Odnosi se samo na optočne crpke označene indeksom energetske učinkovitosti EEI. Pogledajte natpisnu pločicu crpke.
Korištene norme: EN 16297-1:2012 i EN 16297-2:2012.
- R&TTE Direktiva (1999/5/EZ).
Korištene norme: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) i EN 62209-2:2010.

Ova EZ izjava o sukladnosti važeća je jedino kada je izdana kao dio Grundfos montažnih i pogonskih uputa (broj izdanja 98091805 0313).

LV: EK paziņojums par atbilstību prasībām

Sabiedrība GRUNDFOS ar pilnu atbildību dara zināmu, ka produkti MAGNA3, uz kuriem attiecas šīs paziņojums, atbilst šādām Padomes direktīvām par tuvināšanas EK dalībvalstu likumdošanas normām:

- Mašīnbūves direktīva (2006/42/EK).
Piemērotais standarts: EN 809:1998.
- Zema sprieguma direktīva (2006/95/EK).
Piemērotie standarti: EN 60335-2-51:2003 un EN 60950-1:2006/A12:2011.
- Elektromagnētiskās saderības direktīva (2004/108/EK).
Piemērotie standarti: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 un EN 61800-3-3:2008.
- Ekodizaina direktīva (2009/125/EK).
Cirkulācijas sūkņi:
Komisijas Regula Nr. 641/2009 un 622/2012.
Attiecas tikai uz tādiem cirkulācijas sūkņiem, kuriem ir energoefektivitātes indeksa EEI marķējums. Sk. sūkņa pases datu plāksnītē.
Piemērotie standarti: EN 16297-1:2012 un EN 16297-2:2012.
- RTTI direktīva (1999/5/EK).
Piemērotie standarti: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) un EN 62209-2:2010.

Šī EK atbilstības deklarācija ir derīga vienīgi tad, ja ir publicēta kā daļa no GRUNDFOS uzstādīšanas un ekspluatācijas instrukcijām (publikācijas numurs 98091805 0313).

LT: EB atitikties deklaracija

Mes, Grundfos, su visa atsakomybe pareiškiame, kad gaminiai MAGNA3, kuriems skirta ši deklaracija, atitinka šias Tarybos Direktyvas dėl Europos Ekonominės Bendrijos šalių narių įstatymų suderinimo:

- Mašinų direktyva (2006/42/EB).
Taikomas standartas: EN 809:1998.
- Žemų įtampų direktyva (2006/95/EB).
Taikomi standartai: EN 60335-2-51:2003 ir EN 60950-1:2006/A12:2011.
- EMS direktyva (2004/108/EB).
Taikomi standartai: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 ir EN 61800-3-3:2008.
- Ekologinio projektavimo direktyva (2009/125/EB).
Cirkuliaciniai siurbliai:
Komisijos reglamentas Nr. 641/2009 ir 622/2012.
Galiauja tik cirkuliaciniams siurbliams, pažymėtiems energijos efektyvumo indeksu EEI. Žr. siurblio vardinę plokštelę.
Taikomi standartai: EN 16297-1:2012 ir EN 16297-2:2012.
- R&TTE direktyva (1999/5/EB).
Taikomi standartai: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) ir EN 62209-2:2010.

Ši EB atitikties deklaracija galioja tik tuo atveju, kai yra pateikta kaip "Grundfos" įrengimo ir naudojimo instrukcijos (leidinio numeris 98091805 0313) dalis.

NL: EC overeenkomstigheidsverklaring

Wij, Grundfos, verklaren geheel onder eigen verantwoordelijkheid dat de producten MAGNA3 waarop deze verklaring betrekking heeft, in overeenstemming zijn met de Richtlijnen van de Raad in zake de onderlinge aanpassing van de wetgeving van de EG Lidstaten betreffende:

- Machine Richtlijn (2006/42/EC).
Gebruikte norm: EN 809:1998.
- Laagspannings Richtlijn (2006/95/EC).
Gebruikte normen: EN 60335-2-51:2003 en EN 60950-1:2006/A12:2011.
- EMC Richtlijn (2004/108/EC).
Gebruikte normen: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 en EN 61800-3-3:2008.
- Ecodesign Richtlijn (2009/125/EC).
Circulatiepompen:
Verordening van de Commissie nr. 641/2009 en 622/2012.
Alleen van toepassing op circulatiepompen gemarkeerd met de energie efficiëntie index EEI. Zie het typeplaatje van de pomp.
Gebruikte normen: EN 16297-1:2012 en EN 16297-2:2012.
- R&TTE Richtlijn (1999/5/EC).
Gebruikte normen: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) en EN 62209-2:2010.

Deze EC overeenkomstigheidsverklaring is alleen geldig wanneer deze gepubliceerd is als onderdeel van de Grundfos installatie- en bedieningsinstructies (publicatienummer 98091805 0313).

PL: Deklaracja zgodności WE

My, Grundfos, oświadczamy z pełną odpowiedzialnością, że nasze wyroby MAGNA3, których deklaracja niniejsza dotyczy, są zgodne z następującymi wytycznymi Rady d/s ujednolicenia przepisów prawnych krajów członkowskich WE:

- Dyrektywa Maszynowa (2006/42/WE).
Zastosowana norma: EN 809:1998.
- Dyrektywa Niskonapięciowa (LVD) (2006/95/WE).
Zastosowane normy: EN 60335-2-51:2003 oraz EN 60950-1:2006/A12:2011.
- Dyrektywa EMC (2004/108/WE).
Zastosowane normy: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 oraz EN 61800-3-3:2008.
- Dyrektywa Ekoprojektowa (2009/125/WE).
Pompy obiegowe:
Rozporządzenie Komisji (WE) Nr 641/2009 oraz 622/2012.
Dotyczy tylko pomp obiegowych oznaczonych sprawnością energetyczną EEI. Patrz tabliczka znamionowa na pompie.
Zastosowane normy: EN 16297-1:2012 oraz EN 16297-2:2012.
- R&Dyrektywa TTE (1999/5/WE).
Zastosowane normy: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) oraz EN 62209-2:2010.

Deklaracja zgodności WE jest ważna tylko i wyłącznie wtedy kiedy jest opublikowana przez firmę Grundfos i umieszczona w instrukcji montażu i eksploatacji (numer publikacji 98091805 0313).

HU: EK megfeleléségi nyilatkozat

Mi, a Grundfos, egyedüli felelősséggel kijelentjük, hogy a MAGNA3 termékek, amelyekre jelen nyilatkozik vonatkozik, megfelelnek az Európai Unió tagállamainak jogi irányelveit összehangoló tanács alábbi előírásainak:

- Gépek (2006/42/EK).
Alkalmazott szabvány: EN 809:1998.
- Kisfeszültségű Direktíva (2006/95/EK).
Alkalmazott szabványok: EN 60335-2-51:2003 és EN 60950-1:2006/A12:2011.
- EMC Direktíva (2004/108/EK).
Alkalmazott szabványok: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 és EN 61800-3-3:2008.
- Környezetbarát tervezésre vonatkozó irányelv (2009/125/EK).
Keringető szivattyúk:
Az Európai Bizottság 641/2009 és 622/2012. számú rendelete. Kizárólag azokra a keringető szivattyúkra vonatkozik, amelyek adattábláján szerepel az EEI. energiahatékonysági index.
Alkalmazott szabványok: EN 16297-1:2012 és EN 16297-2:2012.
- R&TTE Direktíva (1999/5/EK).
Alkalmazott szabványok: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) és EN 62209-2:2010.

Ez az EK megfeleléségi nyilatkozat kizárólag akkor érvényes, ha Grundfos telepítési és üzemeltetési utasítás (kiadvány szám 98091805 0313) részeként kerül kiadásra.

UA: Свідчення про відповідність вимогам ЄС

Компанія Grundfos заявляє про свою виключну відповідальність за те, що продукти MAGNA3, на які поширюється дана декларація, відповідають таким рекомендаціям Ради з уніфікації правових норм країн - членів ЄС:

- Механічні прилади (2006/42/ЄС).
Стандарти, що застосовувалися: EN 809:1998.
- Низька напруга (2006/95/ЄС).
Стандарти, що застосовувалися: EN 60335-2-51:2003 та EN 60950-1:2006/A12:2011.
- Електромагнітна сумісність (2004/108/ЄС).
Стандарти, що застосовувалися: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 та EN 61800-3-3:2008.
- Директива з екодизайну (2009/125/ЄС).
Циркулятори:
Регламент Комісії № 641/2009 та 622/2012.
Застосовується тільки для циркуляторів, позначених індексом енергоефективності EEI. Див. заводську таблицю на насосі.
Стандарти, що застосовувалися: EN 16297-1:2012 та EN 16297-2:2012.
- R&норми TTE (1999/5/ЄС).
Стандарти, що застосовувалися: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) та EN 62209-2:2010.

Ця декларація відповідності ЄС дійсна тільки в тому випадку, якщо публікується як частина інструкцій Grundfos з монтажу та експлуатації (номер публікації 98091805 0313).

PT: Declaração de conformidade CE

A Grundfos declara sob sua única responsabilidade que os produtos MAGNA3, aos quais diz respeito esta declaração, estão em conformidade com as seguintes Directivas do Conselho sobre a aproximação das legislações dos Estados Membros da CE:

- Directiva Máquinas (2006/42/CE).
Norma utilizada: EN 809:1998.
- Directiva Baixa Tensão (2006/95/CE).
Normas utilizadas: EN 60335-2-51:2003 e EN 60950-1:2006/A12:2011.
- Directiva EMC (compatibilidade electromagnética) (2004/108/CE).
Normas utilizadas: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 e EN 61800-3-3:2008.
- Directiva de Concepção Ecológica (2009/125/CE).
Circuladores:
Disposição Regulamentar da Comissão n.º 641/2009 e 622/2012.
Aplica-se apenas a circuladores marcados com o Índice de Eficiência Energética EEI. Ver chapa de características do circulador.
Normas utilizadas: EN 16297-1:2012 e EN 16297-2:2012.
- Directiva R&TTE (1999/5/CE).
Normas utilizadas: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) e EN 62209-2:2010.

Esta declaração de conformidade CE é apenas válida quando publicada como parte das instruções de instalação e funcionamento Grundfos (número de publicação 98091805 0313).

RU: Декларация о соответствии ЕС

Мы, компания Grundfos, со всей ответственностью заявляем, что изделия MAGNA3, к которым относится настоящая декларация, соответствуют следующим Директивам Совета Евросоюза об унификации законодательных предписаний стран-членов ЕС:

- Механические устройства (2006/42/EC).
Применявшийся стандарт: EN 809:1998.
- Низковольтное оборудование (2006/95/EC).
Применявшиеся стандарты: EN 60335-2-51:2003 и EN 60950-1:2006/A12:2011.
- Электромагнитная совместимость (2004/108/EC).
Применявшиеся стандарты: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 и EN 61800-3-3:2008.
- Директива по экологическому проектированию энергопотребляющей продукции (2009/125/EC).
Циркуляционные насосы:
Постановление Комиссии № 641/2009 и 622/2012.
Применяется только по отношению к циркуляционным насосам, промаркированным и имеющим индекс энергоэффективности EEI. См. фирменную табличку насоса.
Применявшиеся стандарты: EN 16297-1:2012 и EN 16297-2:2012.
- Директива по средствам радиосвязи и телекоммуникационному окончному оборудованию (1999/5/EC).
Применявшиеся стандарты: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) и EN 62209-2:2010.

Данная декларация о соответствии ЕС имеет силу только в случае публикации в составе инструкции по монтажу и эксплуатации на продукцию производства компании Grundfos (номер публикации 98091805 0313).

SK: Prehlásenie o konformite ES

My firma Grundfos prehlasujeme na svoju plnú zodpovednosť, že výrobky MAGNA3, na ktoré sa toto prehlásenie vzťahuje, sú v súlade s ustanovením smernice Rady pre zblíženie právnych predpisov členských štátov Európskeho spoločenstva v oblastiach:

- Smernica pre strojové zariadenie (2006/42/ES).
Použitá norma: EN 809:1998.
- Smernica pre nízkonapäťové aplikácie (2006/95/ES).
Použité normy: EN 60335-2-51:2003 a EN 60950-1:2006/A12:2011.
- Smernica pre elektromagnetickú kompatibilitu (2004/108/ES).
Použité normy: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 a EN 61800-3-3:2008.
- Smernica o ekodizajne (2009/125/ES).
Obehové čerpadlá:
Nariadenie Komisie č 641/2009 a 622/2012.
Platí iba pre obehové čerpadlá s vyznačeným indexom energetickej účinnosti EEI. Viď typový štítok čerpadla.
Použité normy: EN 16297-1:2012 a EN 16297-2:2012.
- R&TTE Smernica (1999/5/ES).
Použité normy: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) a EN 62209-2:2010.

Toto prehlásenie o konformite ES je platné iba vtedy, ak je zverejnené ako súčasť montážnych a prevádzkových pokynov Grundfos (publikácia číslo 98091805 0313).

RS: EC deklaracija o usaglašenosti

Mi, Grundfos, izjavljujemo pod vlastitom odgovornošću da je proizvod MAGNA3, na koji se ova izjava odnosi, u skladu sa direktivama Saveta za usklađivanje zakona država članica EU:

- Direktiva za mašine (2006/42/EC).
Korišćen standard: EN 809:1998.
- Direktiva niskog napona (2006/95/EC).
Korišćeni standardi: EN 60335-2-51:2003 i EN 60950-1:2006/A12:2011.
- EMC direktiva (2004/108/EC).
Korišćeni standardi: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 i EN 61800-3-3:2008.
- Direktiva o ekološkom projektovanju (2009/125/EC).
Cirkulacione pumpe:
Propis Komisije br. 641/2009 i 622/2012.
Odnosi se samo na cirkulacione pumpe označene indeksom energetske efikasnosti EEI. Pogledajte natpisnu pločicu pumpe.
Korišćeni standardi: EN 16297-1:2012 i EN 16297-2:2012.
- R&TTE Direktiva (1999/5/EC).
Korišćeni standardi: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) i EN 62209-2:2010.

Ova EC deklaracija o usaglašenosti važeća je jedino kada je izdata kao deo Grundfos uputstava za instalaciju i rad (broj izdanja 98091805 0313).

RO: Declarație de conformitate CE

Noi, Grundfos, declarăm pe propria răspundere că produsele MAGNA3, la care se referă această declarație, sunt în conformitate cu aceste Directive de Consiliu asupra armonizării legilor Statelor Membre CE:

- Directiva Utilaje (2006/42/CE).
Standard utilizat: EN 809:1998.
- Directiva Tensiune Joasă (2006/95/CE).
Standarde utilizate: EN 60335-2-51:2003 și EN 60950-1:2006/A12:2011.
- Directiva EMC (2004/108/CE).
Standarde utilizate: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 și EN 61800-3-3:2008.
- Directiva Ecodesign (2009/125/CE).
Circulatorii:
Regulamentul Comisiei nr. 641/2009 și 622/2012.
Se aplică numai pompelor de circulație marcate cu indexul de eficiență energetică EEI. Vezi plăcută de identificare a pompei.
Standarde utilizate: EN 16297-1:2012 și EN 16297-2:2012.
- R&Directiva TTE (1999/5/CE).
Standarde utilizate: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) și EN 62209-2:2010.

Această declarație de conformitate CE este valabilă numai când este publicată ca parte a instrucțiunilor Grundfos de instalare și funcționare (număr publicație 98091805 0313).

SI: ES izjava o skladnosti

V Grundfosu s polno odgovornostjo izjavljamo, da so naši izdelki MAGNA3, 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 (2006/42/ES).
Uporabljen norma: EN 809:1998.
- Direktiva o nizki napetosti (2006/95/ES).
Uporabljeni normi: EN 60335-2-51:2003 in EN 60950-1:2006/A12:2011.
- Direktiva o elektromagnetni združljivosti (EMC) (2004/108/ES).
Uporabljeni normi: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 in EN 61800-3-3:2008.
- Eco-design direktiva (2009/125/ES).
Črpalke:
Uredba Komisije št. 641/2009 in 622/2012.
Velja samo za obtočne črpalke označene z indeksom energetske učinkovitosti EEI. Poglejte napisno ploščico črpalke.
Uporabljeni normi: EN 16297-1:2012 in EN 16297-2:2012.
- R direktiva (1999/5/ES).
Uporabljeni normi: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) in EN 62209-2:2010.

ES izjava o skladnosti velja samo kadar je izdana kot del Grundfos instalacije in navodil delovanja (publikacija številka 98091805 0313).

FI: EY-vaatimusten mukaisuusvakuutus

Me, Grundfos, vakuutamme omalla vastuullamme, että tuotteet MAGNA3, joita tämä vakuutus koskee, ovat EY:n jäsenvaltioiden lainsäädännön yhdenmukaistamiseen tähtäävien Euroopan neuvoston direktiivien vaatimusten mukaisia seuraavasti:

- Konedirektiivi (2006/42/EY).
Sovellettu standardi: EN 809:1998.
- Pienjännitedirektiivi (2006/95/EY).
Sovellettavat standardit: EN 60335-2-51:2003 ja EN 60950-1:2006/A12:2011.
- EMC-direktiivi (2004/108/EY).
Sovellettavat standardit: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 ja EN 61800-3-3:2008.
- Ekologista suunnittelua koskeva direktiivi (2009/125/EY).
Kiertovesipumput:
Komission asetus (EY) N:o 641/2009 ja 622/2012.
Koskee vain kiertovesipumppuja, jotka on merkitty energiatehokkuusindeksillä EEI. Ks. pumpun tyyppikilpi.
Sovellettavat standardit: EN 16297-1:2012 ja EN 16297-2:2012.
- R&TTE-direktiivi (1999/5/EY).
Sovellettavat standardit: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) ja EN 62209-2:2010.

Tämä EY-vaatimusten mukaisuusvakuutus on voimassa vain, kun se julkaistaan osana Grundfosin asennus- ja käyttöohjeita (julkaisun numero 98091805 0313).

SE: EG-försäkran om överensstämmelse

Vi, Grundfos, försäkrar under ansvar att produkterna MAGNA3, som omfattas av denna försäkran, är i överensstämmelse med rådets direktiv om inbördes närmande till EU-medlemsstaternas lagstiftning, avseende:

- Maskindirektivet (2006/42/EG).
Tillämpad standard: EN 809:1998.
- Lågspänningsdirektivet (2006/95/EG).
Tillämpade standarder: EN 60335-2-51:2003 och EN 60950-1:2006/A12:2011.
- EMC-direktivet (2004/108/EG).
Tillämpade standarder: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 och EN 61800-3-3:2008.
- Ekodesigndirektivet (2009/125/EG).
Cirkulationspumpar:
Kommissionens förordning nr 641/2009 och 622/2012.
Gäller endast cirkulationspumpar märkta med energieffektivitetsindex EEI. Se pumpens typskylt.
Tillämpade standarder: EN 16297-1:2012 och EN 16297-2:2012.
- R&TTE Direktiv (1999/5/EG).
Tillämpade standarder: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) och EN 62209-2:2010.

Denna EG-försäkran om överensstämmelse är endast giltig när den publiceras som en del av Grundfos monterings- och driftsinstruktion (publikation nummer 98091805 0313).

TR: EC uygunluk bildirgesi

Grundfos olarak bu beyannameye konu olan MAGNA3 ürünlerinin, AB Üyesi Ülkelerin kanunlarını birbirine yaklaştırma üzerine Konsey Direktifleriyle uyumlu olduğunun yalnızca bizim sorumluluğumuz altında olduğunu beyan ederiz:

- Makineler Yönetmeliği (2006/42/EC).
Kullanılan standart: EN 809:1998.
- Düşük Voltaj Yönetmeliği (2006/95/EC).
Kullanılan standartlar: EN 60335-2-51:2003 ve EN 60950-1:2006/A12:2011.
- EMC Direktifi (2004/108/EC).
Kullanılan standartlar: EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 ve EN 61800-3-3:2008.
- Çevreye duyarlı tasarım (Ecodesign) Yönetmeliği (2009/125/EC).
Sirkülasyon pompaları:
641/2009 ve 622/2012 sayılı Komisyon Yönetmeliği.
Yalnızca enerji verimlilik endeksi (EEI) ile işaretlenen sirkülasyon pompaları için geçerlidir. Pompa üzerindeki bilgi etiketine bakın.
Kullanılan standartlar: EN 16297-1:2012 ve EN 16297-2:2012.
- R&TTE Yönetmeliği (1999/5/EC).
Kullanılan standartlar: ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) ve EN 62209-2:2010.

İşbu EC uygunluk bildirgesi, yalnızca Grundfos kurulum ve çalıştırma talimatlarının (basım numarası 98091805 0313) bir parçası olarak basıldığı takdirde geçerlilik kazanmaktadır.

CN: EC 产品合格声明书

我们格兰富在我们的全权责任下声明，产品 MAGNA3，即该合格证所指之产品，符合欧共体使其成员国法律趋于一致的以下欧共理事会指令：

- 机械设备指令 (2006/42/EC).
所用标准：EN 809:1998.
- 低电压指令 (2006/95/EC).
所用标准：EN 60335-2-51:2003 和 EN 60950-1:2006/A12:2011.
- 电磁兼容性指令 (2004/108/EC).
所用标准：EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 和 EN 61800-3-3:2008.
- 生态化设计指令 (2009/125/EC).
循环泵：
委员会规定第 641/2009 和 622/2012 号。
仅适用于具有节能指标 (EEI) 标志的循环泵。见水泵铭牌。
所用标准：EN 16297-1:2012 和 EN 16297-2:2012.
- R&TTE 指令 (1999/5/EC).
所用标准：ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) 和 EN 62209-2:2010.

本 EC 合格性声明仅在作为格兰富安装与操作指导手册 (98091805 0313) 的一部分时有效。

JP: EC 適合宣言

Grundfos は、その責任の下に、MAGNA3 製品が EC 加盟諸国の法規に関連する、以下の評議会指令に適合していることを宣言します：

- 機械指令 (2006/42/EC).
適用規格：EN 809:1998.
- 低電圧指令 (2006/95/EC).
適用規格：EN 60335-2-51:2003 および EN 60950-1:2006/A12:2011.
- EMC 指令 (2004/108/EC).
適用規格：EN 55014-1:2006, EN 55014-2:1998, EN 61000-3-2:2006 および EN 61800-3-3:2008.
- エコデザイン指令 (2009/125/EC).
循環ポンプ：
委員会規定 No 641/2009 および 622/2012。
エネルギー効率指数 EEI (ポンプ銘板参照) のマーク付き循環ポンプのみに適用。
適用規格：EN 16297-1:2012 および EN 16297-2:2012.
- R&TTE 指令 (1999/5/EC).
適用規格：ETSI EN 300 328 V1.7.1 (2006-10), ETSI EN 301 489-17 (2009-05) および EN 62209-2:2010.

この EC 適合宣言は、グルンドフォス取扱説明書 (出版番号 98091805 0313) の一部に掲載される場合のみ有効です。

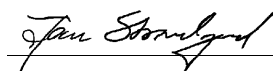
KO: EC

Grundfos
EC

MAGNA3

Bjerringbro, 15th February 2013

- (2006/42/EC).
: EN 809:1998.
 - (2006/95/EC).
: EN 60335-2-51:2003
EN 60950-1:2006/A12:2011.
 - EMC (2004/108/EC).
: EN 55014-1:2006, EN 55014-2:1998,
EN 61000-3-2:2006 EN 61800-3-3:2008.
 - (2009/125/EC).
: 641/2009 622/2012.
EEI
, EEI
: EN 16297-1:2012 EN 16297-2:2012.
 - R&TTE (1999/5/EC).
Standards used: ETSI EN 300 328 V1.7.1 (2006-10),
ETSI EN 301 489-17 (2009-05) EN 62209-2:2010.
- EC (98091805 0313).



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Person authorised to compile technical file and
empowered to sign the EC declaration of conformity.



Декларация о соответствии на территории РФ

Насосы серии MAGNA3 сертифицированы в системе ГОСТ Р.

Сертификат соответствия:

№ РОСС ДК.АЯ56.В43661, срок действия до 24.04.2014г.

Истра, 1 октября 2012г.

Касаткина В. В.
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дер. Лешково, д.188

English (GB) Installation and operating instructions

Original installation and operating instructions.

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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.

**Warning**

The use of this product requires experience with and knowledge of the product. Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety. Children must not use or play with this product.

1. Symbols used in this document**Warning**

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

**Warning**

If these instructions are not observed, it may lead to electric shock with consequent risk of serious personal injury or death.

**Warning**

The surface of the product may be so hot that it may cause burns or personal injury.

**Warning**

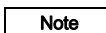
Risk of dropping objects which may cause personal injury.

**Warning**

Escaping vapour involves the risk of 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.

2. General information



The Grundfos MAGNA3 is a complete range of circulator pumps with integrated controller enabling adjustment of pump performance to the actual system requirements. In many systems, this will reduce the power consumption considerably, reduce noise from thermostatic radiator valves and similar fittings and improve the control of the system.

The desired head can be set on the pump control panel.

2.1 Applications

The Grundfos MAGNA3 is designed for circulating liquids in the following systems:

- heating systems
- domestic hot-water systems
- air-conditioning and cooling systems.

The pump can also be used in the following systems:

- ground source heat pump systems
- solar-heating systems.

2.2 Pumped liquids

The pump is suitable for thin, clean, non-aggressive and non-explosive liquids, not containing solid particles or fibres that may attack the pump mechanically or chemically.

In heating systems, the water should meet the requirements of accepted standards on water quality in heating systems, for example the German standard VDI 2035.

In domestic hot-water systems, we recommend to use MAGNA3 pumps only for water with a degree of hardness lower than approx. 14 °dH.

In domestic hot-water systems, we recommend to keep the liquid temperature below +65 °C to eliminate the risk of lime precipitation.



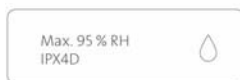
Warning

Do not use the pump for flammable liquids, such as diesel oil and petrol.



Warning

Do not use the pump for aggressive liquids, such as acids and sea water.



TM05 2857 0612

Fig. 1 Pumped liquids

2.2.1 Glycol

The pump can be used for pumping water/glycol mixtures up to 50 %.

Example of a water/ethylene glycol mixture:

Maximum viscosity: 50 cSt ~ 50 % water/50 % ethylene glycol mixture at -10 °C.

The pump has a power-limiting function that protects against overload.

The pumping of glycol mixtures will affect the max. curve and reduce the performance, depending on the water/ethylene glycol mixture and the liquid temperature.

To prevent the ethylene glycol mixture from degrading, avoid temperatures exceeding the rated liquid temperature and minimise the operating time at high temperatures.

It is important to clean and flush the system before the ethylene glycol mixture is added.

To prevent corrosion or lime precipitation, check and maintain the ethylene glycol mixture regularly. If further dilution of the supplied ethylene glycol is required, follow the glycol supplier's instructions.

Note

Additives with a density and/or kinematic viscosity higher than those/that of water will reduce the hydraulic performance.

2.3 Operating conditions

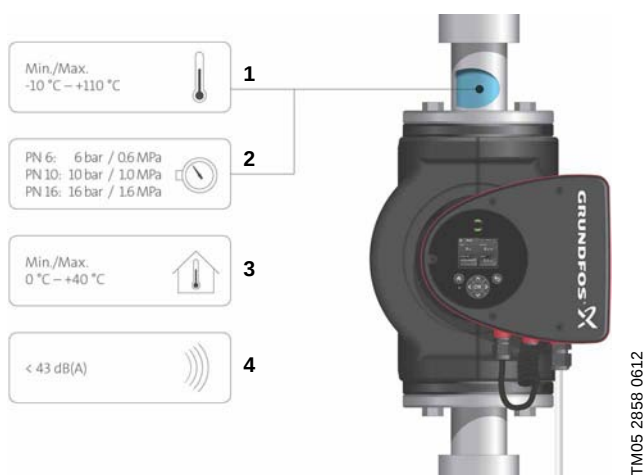


Fig. 2 Operating conditions

2.3.1 Liquid temperature

See fig. 2, pos. 1.

Continuously: -10 °C to +110 °C.

Domestic hot-water systems: up to +65 °C.

2.3.2 System pressure

See fig. 2, pos. 2.

The maximum permissible system pressure is stated on the pump nameplate.

2.3.3 Test pressure

The pumps can withstand test pressures as indicated in EN 60335-2-51. See below.

- PN 6: 7.2 bar
- PN 10: 12 bar
- PN 6/10: 12 bar
- PN 16: 19.2 bar.

During normal operation, the pump should not be used at higher pressures than those stated on the nameplate.

Pumps tested with water containing anti-corrosive additives are taped on the flanges to prevent residual test water from leaking into the packaging. Remove the tape before installing the pump.

The pressure test has been made with water containing anti-corrosive additives at a temperature of +20 °C.

2.3.4 Ambient temperature

See fig. 2, pos. 3.

0 °C to +40 °C.

The control box is air-cooled. Therefore, it is important that the maximum permissible ambient temperature is not exceeded during operation.

During transport: -40 °C to +70 °C.

2.3.5 Sound pressure level

See fig. 2, pos. 4.

The sound pressure level of the pump is lower than 43 dB(A).

2.4 Frost protection

Caution If the pump is not used during periods of frost, necessary steps must be taken to prevent frost bursts.

Note Additives with a density and/or kinematic viscosity higher than those/that of water will reduce the hydraulic performance.

2.5 Insulating shells

Insulating shells are available for single-head pumps only.

Note Limit the heat loss from the pump housing and pipework.

The heat loss from the pump and pipework can be reduced by insulating the pump housing and the pipework. See figs 3 and 15.

- Insulating shells for pumps in heating systems are supplied with the pump.
- Insulating shells for pumps in air-conditioning and cooling systems (down to -10 °C) are available as accessories and must be ordered separately. See section 17.6 *Insulating kits for air-conditioning and cooling systems*.

The fitting of insulating shells will increase the pump dimensions.

Note Pumps for heating systems are factory-fitted with insulating shells. Remove the insulating shells before installing the pump.

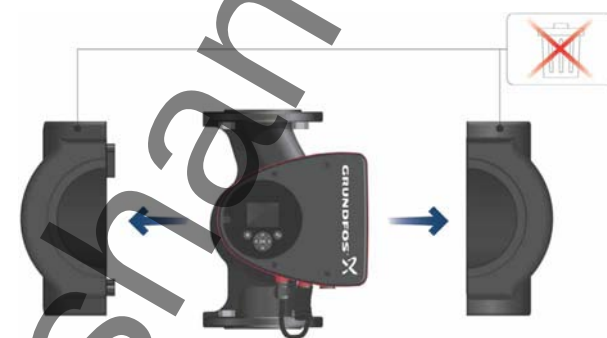


Fig. 3 Insulating shells

2.6 Non-return valve

If a non-return valve is fitted in the pipe system (fig. 4), ensure that the set minimum discharge pressure of the pump is always higher than the closing pressure of the valve. This is especially important in proportional-pressure control mode (reduced head at low flow). The first non-return valve is included in the pump setting as the minimum setpoint is 1.0 metre.

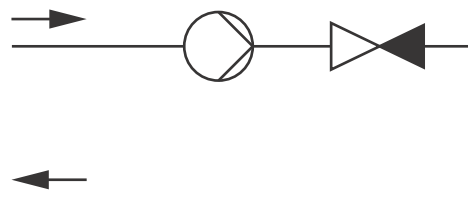


Fig. 4 Non-return valve

2.7 Nameplate

The pump nameplate provides the following information:

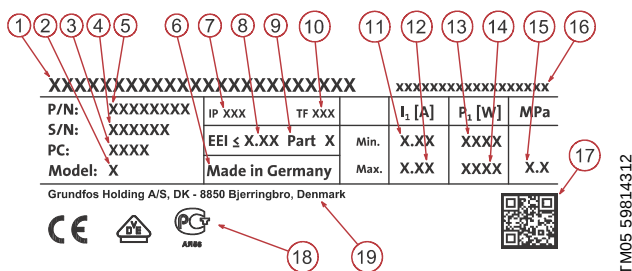


Fig. 5 Example of nameplate

Pos.	Description
1	Product name
2	Model
3	Production code (year and week)
4	Serial number
5	Product number
6	Country of manufacture
7	Enclosure class
8	Energy Efficiency Index (EEI)
9	Part (according to EEI)
10	Temperature class
11	Minimum current [A]
12	Maximum current [A]
13	Minimum power [W]
14	Maximum power [W]
15	Maximum system pressure
16	Voltage [V] and frequency [Hz]
17	QR (Quick Response) code
18	CE mark and approvals
19	Manufacturer's name and address

2.8 Radio communication

The radio part of this product is a class 1 device and can be used anywhere in the EU member states without restrictions.

Intended use

This product incorporates a radio for remote control.

The product can communicate with the Grundfos Go Remote and with other MAGNA3 pumps of the same type via the built-in radio.

2.9 Tools

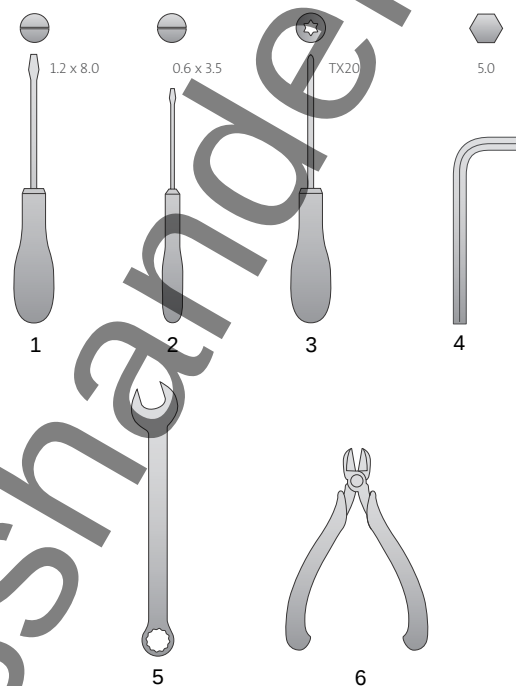


Fig. 6 Recommended tools

Pos.	Tool	Size
1	Screwdriver, straight slot	1.2 x 8.0 mm
2	Screwdriver, straight slot	0.6 x 3.5 mm
3	Screwdriver, torx bit	TX20
4	Hexagon key	5.0 mm
5	Open-end spanner	Depending on DN size
6	Side cutter	

3. Mechanical installation



3.1 Lifting the pump



Warning
Observe local regulations setting limits for manual lifting or handling.

Always lift directly on the pump head or the cooling fins when handling the pump. See fig. 7.

For large pumps, it may be necessary to use lifting equipment. Position the lifting straps as illustrated in fig. 7.



Fig. 7 Correct lifting of pump

Caution *Do not lift the pump head by the control box (red area of the pump). See fig. 8.*



Fig. 8 Incorrect lifting of pump

3.2 Installing the pump

The MAGNA3 is designed for indoor installation.

The pump must be installed in such a way that it is not stressed by the pipework. The maximum permissible forces and moments from pipe connections acting on the pump flanges or threaded connections can be found on page 48.

The pump may be suspended direct in the pipes, provided that the pipework can support the pump.

Twin-head pumps are prepared for installation on a mounting bracket or base plate.

To ensure adequate cooling of motor and electronics, the following must be observed:

- Position the pump in such a way that sufficient cooling is ensured.
- The ambient temperature must not exceed +40 °C.

Step	Action	Illustration
1	Arrows on the pump housing indicate the liquid flow direction through the pump. The liquid flow direction can be horizontal or vertical, depending on the control box position.	
2	Close the isolating valves and make sure that the system is not pressurised during the installation of the pump.	
3	Mount the pump with gaskets in the pipework.	
4	Fit bolts and nuts. Use the right size of bolts according to system pressure. For recommended tightening torque for the bolts used in the flanged connection, see page 48.	

Caution

Twin-head pumps installed in horizontal pipes must be fitted with an automatic air vent (Rp 1/4) in the upper part of the pump housing. See fig. 9.



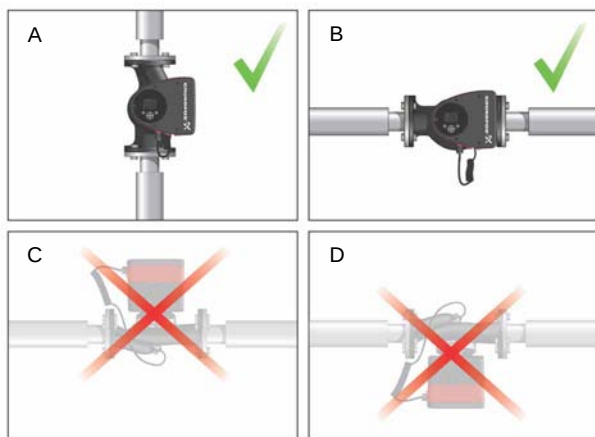
TM05 6061 4412

Fig. 9 Twin-head pump with automatic air vent

3.3 Positioning

Always install the pump with horizontal motor shaft.

- Pump installed correctly in a vertical pipe. See fig. 10, pos. A.
- Pump installed correctly in a horizontal pipe. See fig. 10, pos. B.
- Do not install the pump with vertical motor shaft. See fig. 10, pos. C and D.

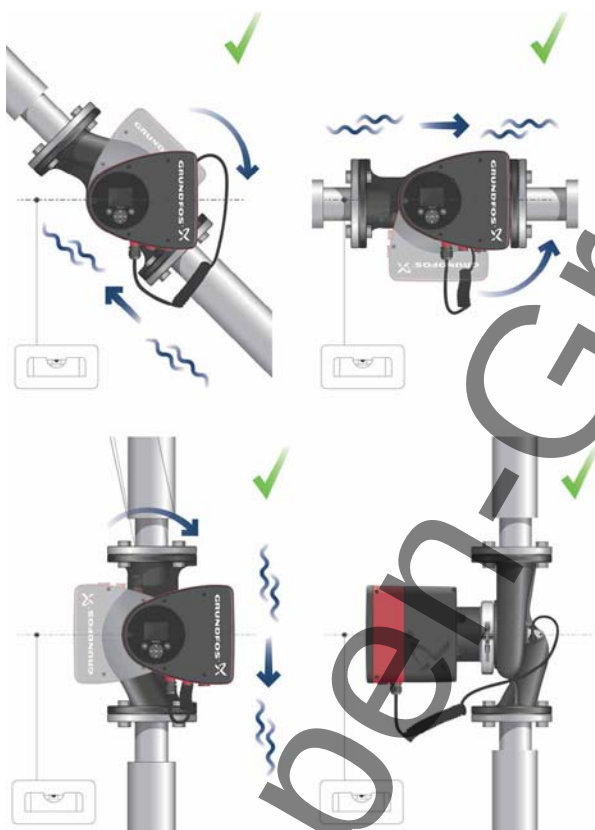


TM05 2866 0712

Fig. 10 Pump installed with horizontal motor shaft

3.4 Control box positions

To ensure adequate cooling, the control box must be in horizontal position with the Grundfos logo in vertical position. See fig. 11.



TM05 2915 0612

Fig. 11 Pump with control box in horizontal position

3.5 Pump head position

If the pump head is removed before the pump is installed in the pipework, pay special attention when fitting the pump head to the pump housing:

1. Visually check that the floating ring in the sealing system is centred. See figs 12 and 13.
2. Gently lower the pump head with rotor shaft and impeller into the pump housing.
3. Make sure that the contact face of the pump housing and that of the pump head are in contact before the clamp is tightened. See fig. 14.



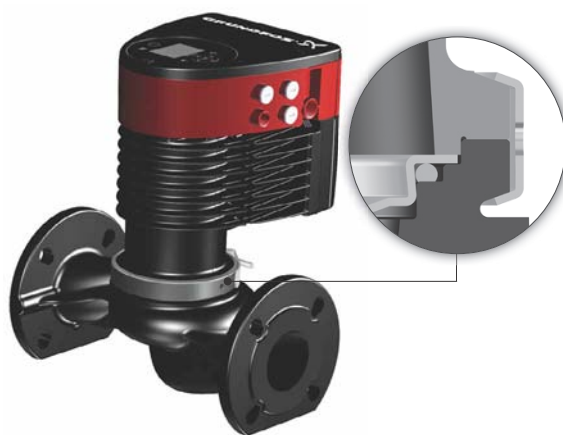
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Fig. 12 Correctly centred sealing system



TM05 6651 5012

Fig. 13 Incorrectly centred sealing system



TM05 5837 4112

Fig. 14 Fitting the pump head to the pump housing

3.6 Changing the control box position



Warning

The warning symbol on the clamp holding the pump head and pump housing together indicates that there is a risk of personal injury. See specific warnings below.



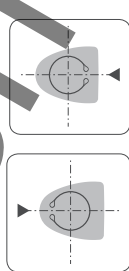
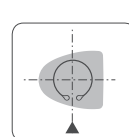
Warning

When loosening the clamp, do not drop the pump head.



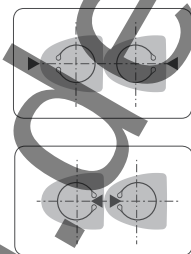
Warning

Risk of escaping vapour.

Step	Action	Illustration	
1	Loosen the screw in the clamp holding the pump head and pump housing together. Warning: If the screw is loosened too much, the pump head will be completely disconnected from the pump housing.		TM05 2867 0612
2	Carefully turn the pump head to the desired position. If the pump head is stuck, loosen it with a light blow of a rubber mallet.		TM05 2868 0612
3	Place the control box in horizontal position so that the Grundfos logo is in vertical position. The motor shaft must be horizontal.		TM05 2869 0612
4	Due to the drain hole in the stator housing, position the gap of the clamp as shown in step 4a, 4b, 4c or 4d.		TM05 2870 0612
4a	Single-head pump. Position the clamp so that the gap points towards the arrow. It can be in position 3 or 9 o'clock.		TM05 2918 0612 - TM05 2871 0612
4b	Single-head pump. Note: The gap of the clamp can also be in position 6 o'clock for the following pump sizes: • DN 65 • DN 80 • DN 100.		TM05 2899 1912

4c

Twin-head pump.
Position the clamps so that the gaps point towards the arrows. They can be in position 3 or 9 o'clock.

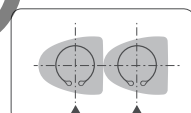


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4d

Twin-head pump.
Note: The gap of the clamp can also be in position 6 o'clock for the following pump sizes:

- DN 65
- DN 80
- DN 100.



TM05 2897 1912

5

Fit and tighten the screw holding the clamp to $8 \text{ Nm} \pm 1 \text{ Nm}$.

Note: Do not retighten the screw if condensed water is dripping from the clamp.



TM05 2872 0612

6

Fit the insulating shells.
Note: Insulating shells for pumps in air-conditioning and cooling systems must be ordered separately.



TM05 2874 0412

Caution

Do not insulate the control box or cover the control panel.



Fig. 15 Insulation of pump housing and pipework

TM05 2889 0612

4. Electrical installation



Carry out the electrical connection and protection according to local regulations.

Check that the supply voltage and frequency correspond to the values stated on the nameplate.



Warning

Switch off the power supply before making connections.

Warning

The pump must be connected to an external mains switch with a minimum contact gap of 3 mm in all poles.

Earthing or neutralisation must be used for protection against indirect contact.

If the pump is connected to an electric installation where an earth leakage circuit breaker (ELCB) is used as an additional protection, this circuit breaker must trip when earth fault currents with DC content (pulsating DC) occur.

The earth leakage circuit breaker must be marked with the first or both of the symbols shown below:



- The pump requires no external motor protection.
- The motor incorporates thermal protection against slow overloading and blocking (IEC 34-11: TP 211).
- When switched on via the power supply, the pump will start pumping after approx. 5 seconds.

Note

The number of starts and stops via the power supply must not exceed four times per hour.

4.1 Supply voltage

1 x 230 V ± 10 %, 50/60 Hz, PE.

The voltage tolerances are intended for mains voltage variations. They should not be used for running pumps at other voltages than those stated on the nameplate.

4.2 Connection to the power supply

Step	Action	Illustration
1	Remove the front cover from the control box. Note: Do not remove the screws from the cover.	
2	Locate the power supply plug and cable gland in the small paper bag supplied with the pump.	

TM05 2875 0612

TM05 2876 0612

- 3 Connect the cable gland to the control box.

TM05 2877 0612

- 4 Pull the power supply cable through the cable gland.

TM05 2878 0612

- 5 Strip the cable conductors as illustrated.

TM05 2879 0612

- 6 Connect the cable conductors to the power supply plug.

TM05 2880 0612

- 7 Insert the power supply plug into the male plug in the pump control box.

TM05 2881 0612

- 8 Tighten the cable gland. Refit the front cover.

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4.3 Connection diagram

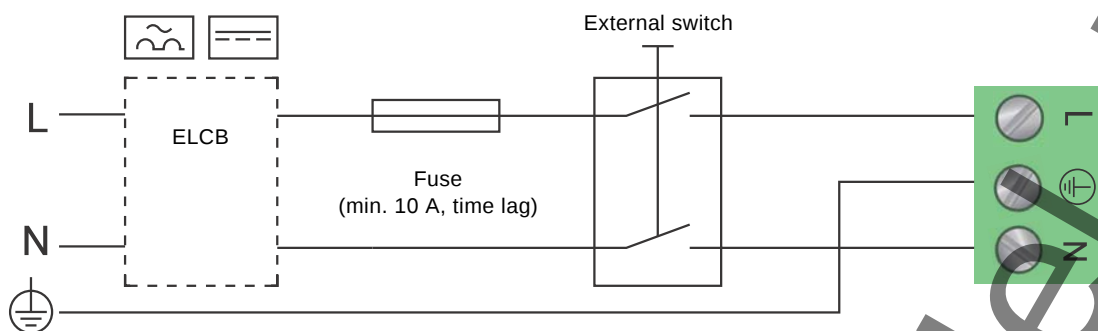


Fig. 16 Example of typical connection, 1 x 230 V $\pm$ 10 %, 50/60 Hz, PE

4.4 Connection to external controllers

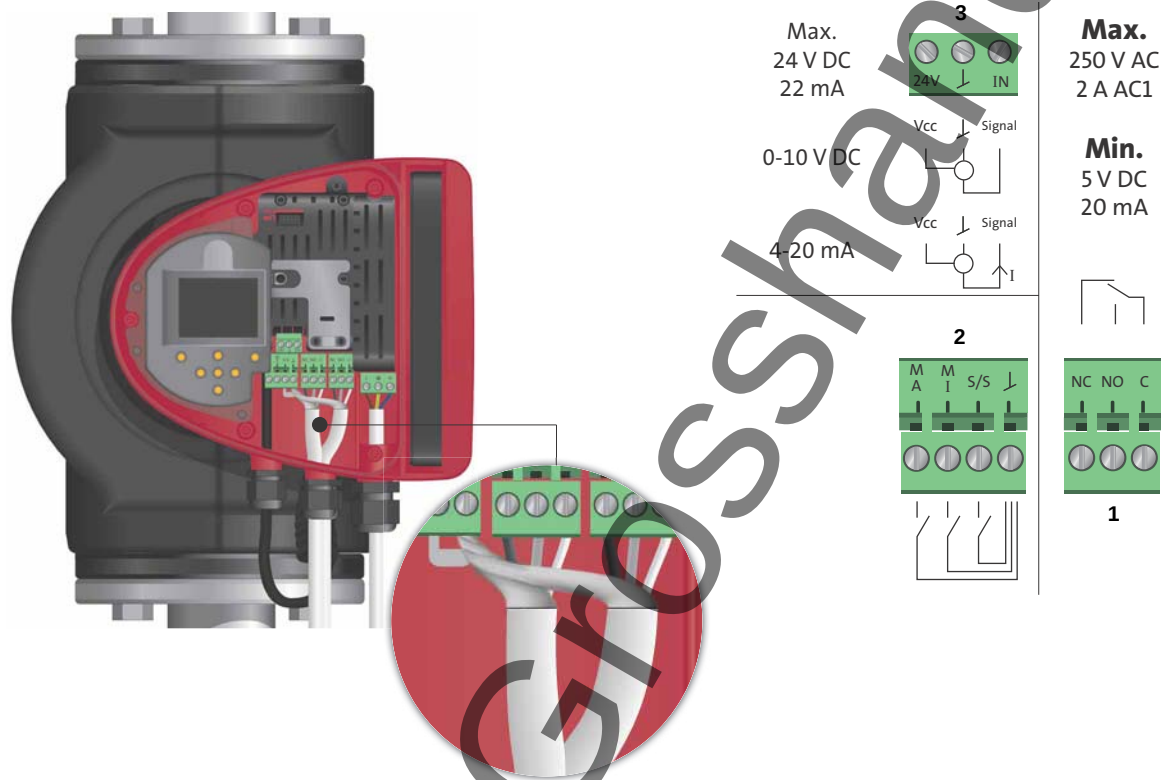


Fig. 17 Connection diagram



Warning

Wires connected to supply terminals, outputs NC, NO, C and start/stop input must be separated from each other and from the supply by reinforced insulation.

Concerning demands on signal wires and signal transmitters, see section 18. *Technical data.*

Use screened cables for external on/off switch, digital input, sensor and setpoint signals.

All cables used must be heat-resistant up to +85 °C.

Note

All cables used must be installed in accordance with EN 60204-1 and EN 50174-2:2000.

4.5 Input/output communication

- Relay outputs
Alarm, ready and operating indication via signal relay.
- Digital input
 - Start/Stop (S/S)
 - Min. curve (MI)
 - Max. curve (MA).
- Analog input
0-10 V or 4-20 mA control signal.
To be used for external control of the pump or as sensor input for the control of the external setpoint.
The 24 V supply from pump to sensor is optional and is normally used when an external supply is not available.

4.5.1 Relay outputs

See fig. 17, pos. 1.

The pump incorporates two signal relays with a potential-free changeover contact for external fault indication.

The function of the signal relay can be set to "Alarm", "Ready" or "Operation" on the pump control panel or with the Grundfos GO Remote.

The relays can be used for outputs up to 250 V and 2 A.

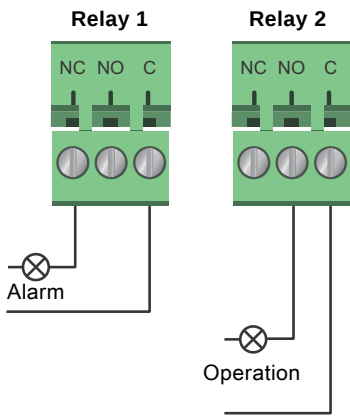


Fig. 18 Relay output

Contact symbol	Function
NC	Normally closed
NO	Normally open
C	Common

The functions of the signal relays appear from the table below:

Signal relay	Alarm signal
	Not activated: - The power supply has been switched off. - The pump has not registered a fault.
	Activated: The pump has registered a fault.
Signal relay	Ready signal
	Not activated: The pump has registered a fault and is unable to run.
	Activated: - The pump has been set to stop, but is ready to run. - The pump is running.
Signal relay	Operating signal
	Not activated: The pump is not running.
	Activated: The pump is running.

4.5.2 Digital inputs

See fig. 17, pos. 2.

The digital input can be used for external control of start/stop or forced max. or min. curve.

If no external on/off switch is connected, the jumper between terminals Start/Stop (S/S) and frame (⌊) should be maintained. This connection is the factory setting.

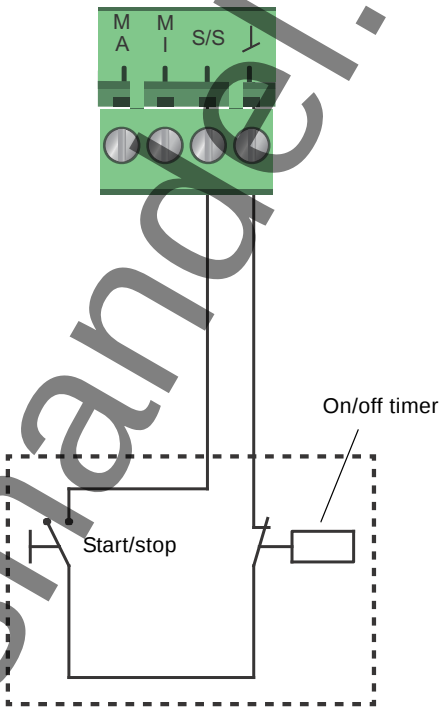


Fig. 19 Digital input

Contact symbol	Function
M	Max. curve
A	100 % speed
M	Min. curve
I	25 % speed
S/S	Start/Stop
⌊	Frame connection

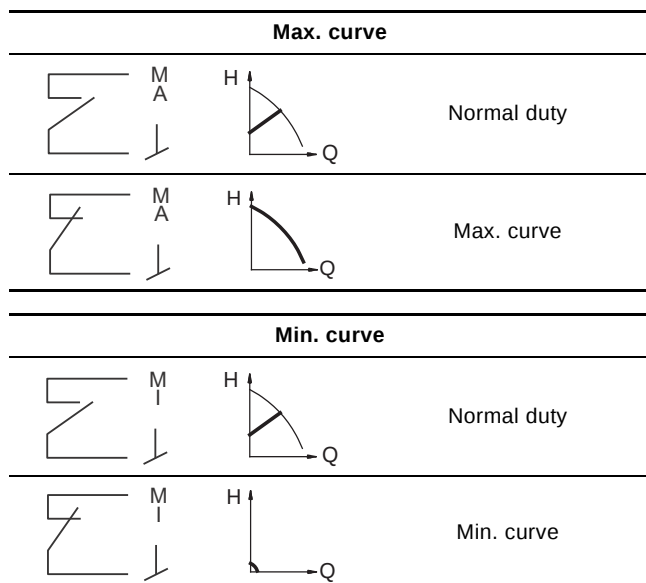
External start/stop

The pump can be started or stopped via the digital input.

Start/stop	

External forced max. or min. curve

The pump can be forced to operate on the max. or min. curve via the digital input.



Select the function of the digital input on the pump control panel or with the Grundfos GO Remote.

4.5.3 Analog input

See fig. 17, pos. 3.

The analog input can be used for the connection of an external sensor for measuring temperature or pressure. See fig. 22.

It is possible to use sensor types with 0-10 V or 4-20 mA signal.

The analog input can also be used for an external signal for the control from a BMS system or similar control system. See fig. 23.

- When the input is used for the heat energy meter, a temperature sensor must be installed in the return pipe.
- If the pump is installed in the return pipe of the system, the sensor must be installed in the flow pipe.
- If the constant-temperature control mode has been enabled and the pump is installed in the flow pipe of the system, the sensor must be installed in the return pipe.
- If the pump is installed in the return pipe of the system, the internal temperature sensor can be used.

The selection of sensor type (0-10 V or 4-20 mA) can be changed on the pump control panel or with the Grundfos GO Remote.

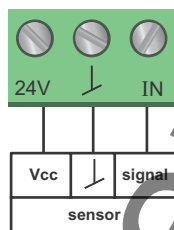


Fig. 20 Analog input for external sensor, 0-10 V

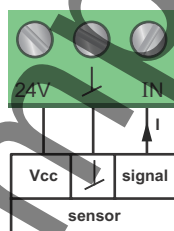


Fig. 21 Analog input for external sensor, 4-20 mA

In order to optimise the pump performance, external sensors can be used with advantage in the following cases:

Function/control mode	Sensor type
Heat energy meter	Temperature sensor
Constant temperature	Temperature sensor
Proportional pressure	Pressure sensor

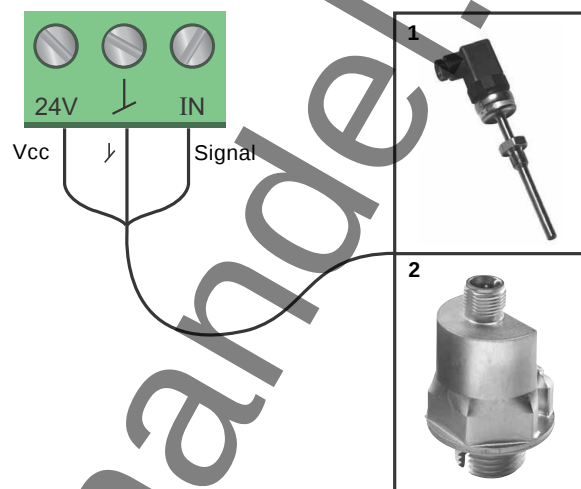


Fig. 22 Examples of external sensors

Pos.	Sensor type
1	Temperature sensor, Danfoss type MBT 3560. 1/2" connection and 4-20 mA signal.
2	Pressure sensor, Grundfos type RPI. 1/2" connection and 4-20 mA signal.

For further details, see section 17.4 External sensors.

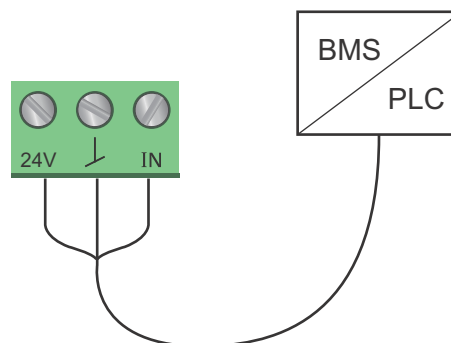


Fig. 23 Examples of external signal for the control via BMS/PLC

4.6 Priority of settings

The external forced-control signals will influence the settings available on the pump control panel or with the Grundfos GO Remote. However, the pump can always be set to max. curve duty or to stop on the pump control panel or with the Grundfos GO Remote.

If two or more functions are enabled at the same time, the pump will operate according to the setting with the highest priority.

The priority of the settings is as shown in the table below.

Example: If the pump has been forced to stop via an external signal, the pump control panel or the Grundfos GO Remote can only set the pump to max. curve.

Priority	Possible settings		
	Pump control panel or Grundfos GO Remote	External signals	Bus signal
1	Stop		
2	Max. curve		
3		Stop	
4			Stop
5			Max. curve
6			Min. curve
7			Start
8		Max. curve	
9	Min. curve		
10		Min. curve	
11	Start		

As illustrated in the table, the pump does not react to external signals (max. curve and min. curve) when it is controlled via bus.

For further details, contact Grundfos.

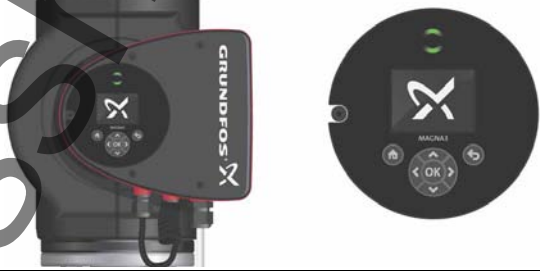
5. First start-up

Do not start the pump until the system has been filled with liquid and vented. Furthermore, the required minimum inlet pressure must be available at the pump inlet. See section 18. *Technical data*.

The system cannot be vented through the pump. The pump is self-venting.

Caution

The discharge valve must be opened immediately after start-up of the pump. Otherwise the temperature of the pumped liquid may become too high and cause damage to the equipment.

Step	Action	Illustration
1	Switch on the power supply to the pump. Note: When switched on, the pump will start in AUTO _{ADAPT} after approx. 5 seconds.	
2	Pump display at first start-up. After a few seconds, the pump display will change to the start-up guide.	
3	The start-up guide will guide you through the general settings of the pump, such as language, date and time. If the buttons on the pump control panel are not touched for 15 minutes, the display will go into sleep mode. When a button is touched, the "Home" display will appear.	
4	When the general settings have been made, select the desired control mode or let the pump run in AUTO _{ADAPT} . For additional settings, see section 6. <i>Settings</i> .	

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6. Settings



6.1 Overview of settings

All settings can be made on the pump control panel or with the Grundfos GO Remote.

Menu	Submenu	Further information
Setpoint		See section 12.1 Setpoint.
Operating mode	• Normal • Stop • Min. • Max.	See section 12.2 Operating mode.
Control mode	• AUTO_{ADAPT} • FLOW_{ADAPT} • Prop. press. • Const. press. • Const. temp. • Constant curve	See section 12.3 Control mode. See section 12.3.1 AUTOADAPT. See section 12.3.2 FLOWADAPT. See section 12.3.3 Proportional pressure. See section 12.3.4 Constant pressure. See section 12.3.5 Constant temperature. See section 12.3.6 Constant curve.
FLOW _{LIMIT}	• Set FLOWLIMIT	See section 12.4 FLOWLIMIT.
Automatic Night Setback	• Not active • Active	See section 12.5 Automatic Night Setback.
Relay outputs	• Relay output 1 • Relay output 2	See section 12.6 Relay outputs.
Setpoint influence	• External setpoint function • Temperature influence	See section 12.7 Setting values for control modes. See section 12.8.1 External setpoint function. See section 12.8.2 Temperature influence.
Bus communication	• Pump number	See section 12.9 Bus communication. See section 12.9.1 Pump number.
General settings	• Language • Set date and time • Units • Enable/disable settings • Delete history • Define Home display • Display brightness • Return to factory settings • Run start-up guide	See section 12.10 General settings. See section 12.10.1 Language. See section 12.10.2 Set date and time. See section 12.10.3 Units. See section 12.10.4 Enable/disable settings. See section 12.10.5 Delete history. See section 12.10.6 Define Home display. See section 12.10.7 Display brightness. See section 12.10.8 Return to factory settings. See section 12.10.9 Run start-up guide.

7. Menu overview

Status	Settings	Assist
Operating status	Setpoint	Assisted pump setup
Operating mode, from	Operating mode	Setting of pump
Control mode	Control mode	Setting of date and time
Pump performance	FLOW _{LIMIT}	Date format, date and time
Max. curve and duty point	Enable FLOWLIMIT function	Date only
Resulting setpoint	Set FLOWLIMIT	Time only
Liquid temperature	Automatic Night Setback	Multi-pump setup
Speed	Relay outputs	Setup, analog input
Operating hours	Relay output 1	Description of control mode
Power and energy consumption	Relay output 2	AUTO _{ADAPT}
Power consumption	Not active	FLOW _{ADAPT}
Energy consumption	Ready	Prop. press.
Warning and alarm	Alarm	Const. press.
Actual warning or alarm	Operation	Const. temp.
Warning log	Setpoint influence	Constant curve
Warning log 1 to 5	External setpoint function	Assisted fault advice
Alarm log	Temperature influence	Blocked pump
Alarm log 1 to 5	Bus communication	Pump communication fault
Heat energy meter	Pump number	Internal fault
Heat power	General settings	Internal sensor fault
Heat energy	Language	Dry running
Flow rate	Set date and time	Forced pumping
Volume	Select date format	Undervoltage
Hours counter	Set date	Overvoltage
Temperature 1	Select time format	External sensor fault
Temperature 2	Set time	
Differential temp.	Units	
Work log	SI or US units	
Operating hours	Customised units	
Trend data	Pressure	
Duty point over time	Differential pressure	
3D showing (Q, H, t)	Head	
3D showing (Q, T, t)	Level	
3D showing (Q, P, t)	Flow rate	
3D showing (T, P, t)	Volume	
Fitted modules	Temperature	
Date and time	Differential temp.	
Date	Power	
Time	Energy	
Pump identification	Enable/disable settings	
Multi-pump system	Delete history	
Operating status	Delete work log	
Operating mode, from	Delete heat energy data	
Control mode	Delete energy consumption	
System performance	Define Home display	
Duty point	Select Home display type	
Resulting setpoint	List of data	
System identification	Graphical illustration	
Power and energy consumption	Define Home display contents	
Power consumption	List of data	
Energy consumption	Graphical illustration	
Other pump 1, multi-pump sys.	Display brightness	
	Brightness	
	Return to factory settings	
	Run start-up guide	

8. Control panel

Warning

At high liquid temperatures, the pump housing may be so hot that only the control panel should be touched to avoid burns.



Fig. 24 Control panel

Button	Function
	Goes to the "Home" menu.
	Returns to the previous action.
	Navigates between main menus, displays and digits. When the menu is changed, the display will always show the top display of the new menu.
	Navigates between submenus.
	Saves changed values, resets alarms and expands the value field.

9. Menu structure

The pump incorporates a start-up guide which is started at the first start-up. After the start-up guide, the four main menus will appear in the display. See section 5. *First start-up*.

1. Home

This menu shows up to four user-defined parameters with shortcuts or a graphical illustration of a Q/H performance curve. See section 10. *"Home" menu*.

2. Status

This menu shows the status of the pump and system as well as warnings and alarms. See section 11. *"Status" menu*.

Note

No settings can be made in this menu.

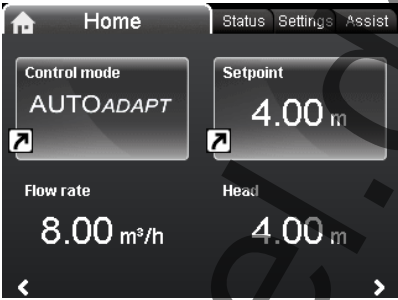
3. Settings

This menu gives access to all setting parameters. A detailed setting of the pump can be made in this menu. See section 12. *"Settings" menu*.

4. Assist

This menu enables assisted pump setup, provides a short description of the control modes and offers fault advice. See section 13. *"Assist" menu*.

10. "Home" menu



Navigation

Home

Press to go to the "Home" menu.

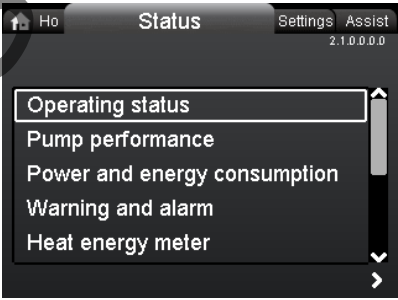
"Home" menu (factory setting)

- Shortcut to control mode settings
- Shortcut to setpoint settings
- Flow rate
- Head.

Navigate in the display with or and change between the two shortcuts with or .

The "Home" display can be defined by the user. See section 12.10.6 *Define Home display*.

11. "Status" menu



Navigation

Home > Status

Press and go to the "Status" menu with .

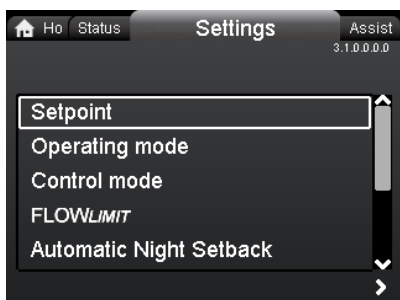
"Status" menu

This menu offers the following status information:

- Operating status
- Pump performance
- Power and energy consumption
- Warning and alarm
- Heat energy meter
- Work log
- Fitted modules
- Date and time
- Pump identification
- Multi-pump system.

Navigate between submenus with or .

12. "Settings" menu



Navigation

Home > Settings

Press and go to the "Settings" menu with .

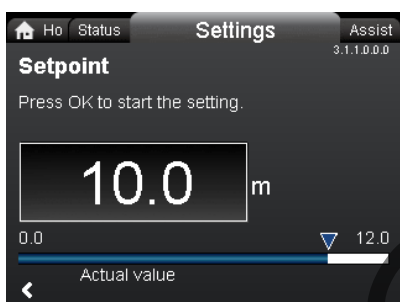
"Settings" menu

This menu offers the following setting options:

- Setpoint
- Operating mode
- Control mode
- FLOW_{LIMIT}
- Automatic Night Setback
- Relay outputs
- Setpoint influence
- Bus communication
- General settings.

Navigate between submenus with or .

12.1 Setpoint



Navigation

Home > Settings > Setpoint

Setpoint

Set the setpoint so that it matches the system.

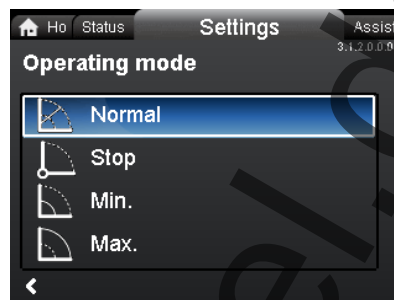
Setting:

1. Press [OK] to start the setting.
2. Select digit with and and adjust with or .
3. Press [OK] to save.

A too high setting may result in noise in the system whereas a too low setting may result in insufficient heating or cooling in the system.

Control mode	Measuring unit
Proportional pressure	m, ft
Constant pressure	m, ft
Constant temperature	°C, °F, K
Constant curve	%

12.2 Operating mode



Navigation

Home > Settings > Operating mode

Operating mode

- Normal (control mode)
- Stop
- Min. (min. curve)
- Max. (max. curve).

Setting:

1. Select operating mode with or .
2. Press [OK] to save.

The pump can be set to operate according to the max. or min. curve, like an uncontrolled pump. See fig. 25.

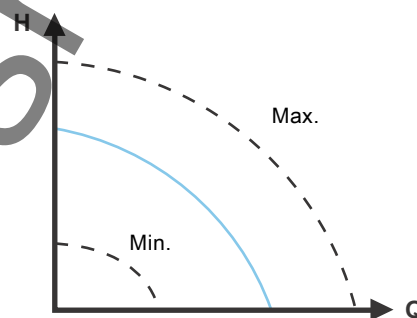


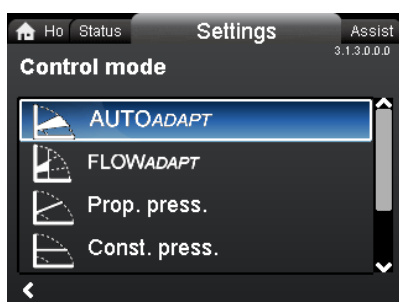
Fig. 25 Max. and min. curves

- **Normal:** The pump runs according to the selected control mode.
- **Stop:** The pump stops.
- **Min.:** The min. curve mode can be used in periods in which a minimum flow is required. This operating mode is for instance suitable for manual night setback if Automatic Night Setback is not desired.
- **Max.:** The max. curve mode can be used in periods in which a maximum flow is required. This operating mode is for instance suitable for hot-water priority.

3.1.2.0.0 Operating mode

TM05 2446 5.111

12.3 Control mode



Navigation

Home > Settings > Control mode

Control mode

- AUTO_{ADAPT}
- FLOW_{ADAPT}
- Prop. press. (proportional pressure)
- Const. press. (constant pressure)
- Const. temp. (constant temperature)
- Constant curve.

Note The operating mode must be set to "Normal" before a control mode can be enabled.

Setting:

1. Select control mode with ∇ or $\blacktriangle$.
2. Press [OK] to enable.

The setpoint for all control modes, except AUTO_{ADAPT} and FLOW_{ADAPT}, can be changed in the "Setpoint" submenu under "Settings" when the desired control mode has been selected.

All control modes, except "Constant curve", can be combined with Automatic Night Setback. See section 12.5 Automatic Night Setback.

The FLOW_{LIMIT} function can also be combined with the last four control modes mentioned above. See section 12.4 FLOW_{LIMIT}.

12.3.1 AUTO_{ADAPT}

The AUTO_{ADAPT} control mode continuously adapts the pump performance according to the actual system characteristic.

Note Manual setting of the setpoint is not possible.

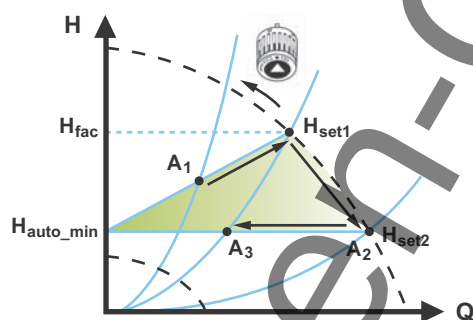


Fig. 26 AUTO_{ADAPT}

When the AUTO_{ADAPT} control mode has been enabled, the pump will start with the factory setting, $H_{fac} = H_{set1}$, corresponding to approx. 55 % of its maximum head, and then adjust its performance to A_1 . See fig. 26.

When the pump registers a lower head on the max. curve, A_2 , the AUTO_{ADAPT} function will automatically select a correspondingly lower control curve, H_{set2} . If the valves in the system close, the pump will adjust its performance to A_3 .

- A_1 : Original duty point.
- A_2 : Lower registered head on the max. curve.
- A_3 : New duty point after AUTO_{ADAPT} control.
- H_{set1} : Original setpoint setting.
- H_{set2} : New setpoint after AUTO_{ADAPT} control.
- H_{fac} : See section 12.7 Setting values for control modes.
- H_{auto_min} : A fixed value of 1.5 m.

The AUTO_{ADAPT} control mode is a form of proportional-pressure control where the control curves have a fixed origin, H_{auto_min} .

The AUTO_{ADAPT} control mode has been developed specifically for heating systems and is not recommended for air-conditioning and cooling systems.

To reset AUTO_{ADAPT}, see section 12.10.8 Return to factory settings.

12.3.2 FLOW_{ADAPT}

When FLOW_{ADAPT} is selected, the pump will run AUTO_{ADAPT} and ensure that the flow never exceeds the entered FLOW_{LIMIT} value. The setting range for the FLOW_{LIMIT} is 25 to 90 % of the Q_{max} of the pump.

The factory setting of the FLOW_{LIMIT} is the flow where the AUTO_{ADAPT} factory setting meets the max. curve. See fig. 27.

Note Do not set the FLOW_{LIMIT} lower than the dimensioned duty point.

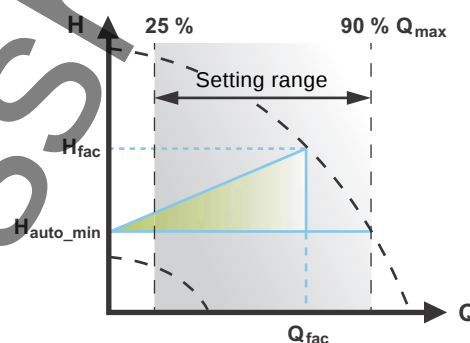


Fig. 27 FLOW_{ADAPT}

12.3.3 Proportional pressure

The pump head is reduced at decreasing water demand and increased at rising water demand. See fig. 28.

The setpoint can be set with an accuracy of 0.1 metre. The head against a closed valve is half the setpoint H_{set} .

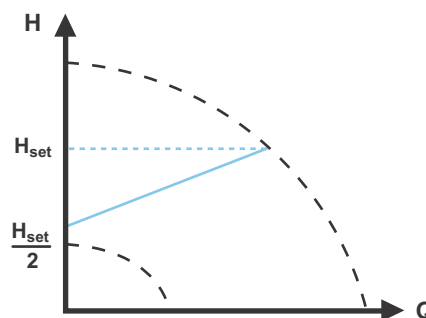


Fig. 28 Proportional pressure

12.3.4 Constant pressure

The pump maintains a constant pressure, irrespective of water demand. See fig. 29.

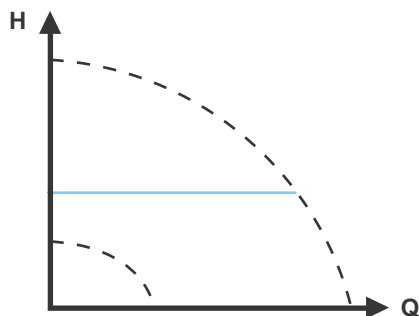


Fig. 29 Constant pressure

TM05 2449 0312

12.3.5 Constant temperature

This control mode ensures a constant temperature. Constant temperature is a comfort control mode that can be used in domestic hot-water systems to control the flow to maintain a fixed temperature in the system. See fig. 30. When this control mode is used, no balancing valves must be installed in the system.

If the pump is installed in the flow pipe, an external temperature sensor must be installed in the return pipe of the system. The sensor must be installed as close as possible to the consumer (radiator, heat exchanger, etc.).

Note We recommend to install the pump in the flow pipe.

If the pump is installed in the return pipe of the system, the internal temperature sensor can be used. In this case, the pump must be installed as close as possible to the consumer (radiator, heat exchanger, etc.).

The constant-temperature control mode also reduces the risk of bacterial growth (for example Legionella) in the system.

It is possible to set the sensor range:

- min. -10 °C
- max. +130 °C.

Note To ensure that the pump is able to control, we recommend to set the sensor range between -5 and +125 °C.

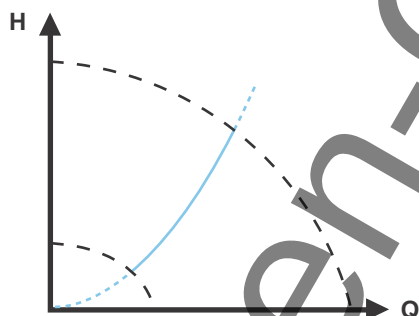


Fig. 30 Constant temperature

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12.3.6 Constant curve

The pump can be set to operate according to a constant curve, like an uncontrolled pump. See fig. 31.

The desired speed can be set in % of maximum speed in the range from 25 to 100 %.

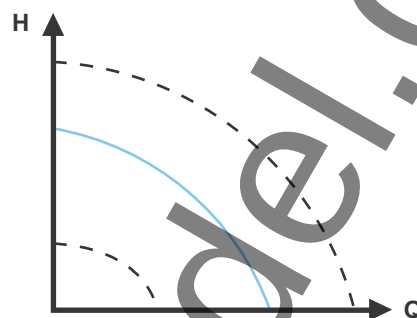


Fig. 31 Constant curve

TM05 2446 0312

Depending on the system characteristic and the duty point, the 100 % setting may be slightly smaller than the pump's actual max. curve even though the display shows 100 %. This is due to power and pressure limitations built into the pump. The deviation varies according to pump type and pressure loss in the pipes.

Note

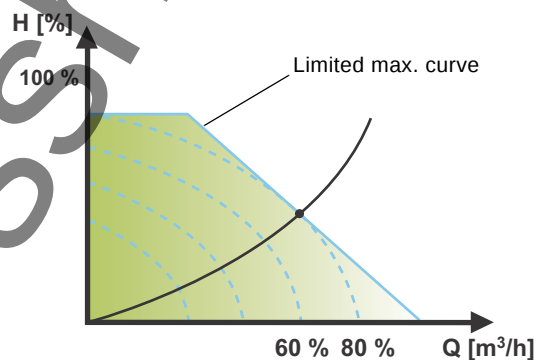
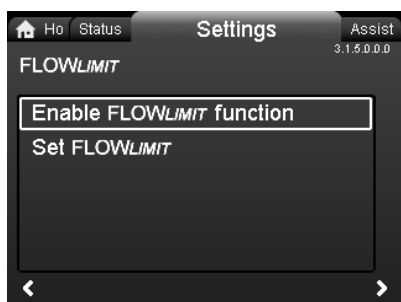


Fig. 32 Power and pressure limitations influencing the max. curve

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12.4 FLOW_{LIMIT}



Navigation

Home > Settings > FLOW_{LIMIT}

FLOW_{LIMIT}

- Enable FLOWLIMIT function
- Set FLOWLIMIT.

Setting:

1. To enable the function, select "Active" with ∇ or $\blacktriangle$ and press [OK].
2. To set the FLOW_{LIMIT}, press [OK] to start the setting.
3. Select digit with $\leftarrow$ and $\rightarrow$ and adjust with ∇ or $\blacktriangle$.
4. Press [OK] to save.

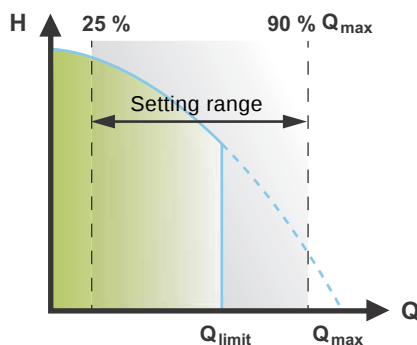


Fig. 33 FLOW_{LIMIT}

The FLOW_{LIMIT} function can be combined with the following control modes:

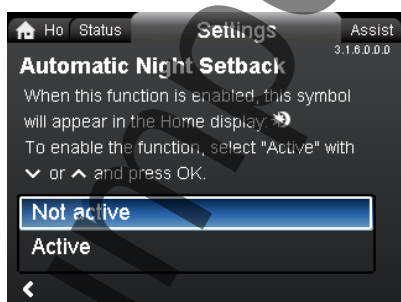
- Prop. press.
- Const. press.
- Const. temp.
- Constant curve.

A flow-limiting function ensures that the flow never exceeds the entered FLOW_{LIMIT} value.

The setting range for FLOW_{LIMIT} is 25 to 90 % of the Q_{max} of the pump.

The factory setting of the FLOW_{LIMIT} is the flow where the AUTO_{ADAPT} factory setting meets the max. curve. See fig. 27.

12.5 Automatic Night Setback



Navigation

Home > Settings > Automatic Night Setback

Automatic Night Setback

To enable the function, select "Active" with ∇ or $\blacktriangle$ and press [OK].

Once Automatic Night Setback has been enabled, the pump automatically changes between normal duty and night setback (duty at low performance).

Changeover between normal duty and night setback depends on the flow-pipe temperature.

The pump automatically changes over to night setback when the built-in sensor registers a flow-pipe temperature drop of more than 10 to 15 °C within approx. two hours. The temperature drop must be at least 0.1 °C/min.

Changeover to normal duty takes place without a time lag when the temperature has increased by approx. 10 °C.

Note

Automatic Night Setback cannot be enabled when the pump is in constant-curve mode.

12.6 Relay outputs



Navigation

Home > Settings > Relay outputs

Relay outputs

- Relay output 1
- Relay output 2.

The relay outputs can be set to the following:

- Not active
- Ready
- Alarm
- Operation.

The pump incorporates two signal relays, terminals 1, 2 and 3, for a potential-free alarm signal, ready signal and operating signal. For further information, see section 4.5.1 *Relay outputs*.

Set the function of the signal relays, alarm signal (factory setting), ready signal and operating signal, on the pump control panel.

The output, terminals 1, 2 and 3, is electrically separated from the rest of the controller.

The signal relay is operated as follows:

- Not active
The signal relay is deactivated.
- Ready
The signal relay is active when the pump is running or has been set to stop, but is ready to run.
- Alarm
The signal relay is activated together with the red indicator light on the pump.
- Operation
The signal relay is activated together with the green indicator light on the pump.

12.7 Setting values for control modes

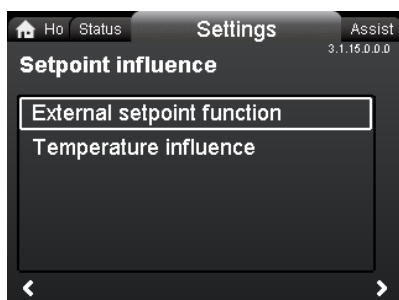
The setting values for $FLOW_{ADAPT}$ and $FLOW_{LIMIT}$ are indicated as percent of Q_{max} , but the value has to be entered in m^3/h in the "Settings" menu.

Pump type	AUTO H_{fac} [m]	Q_{max} [m ³ /h]	FLOW _{ADAPT} / FLOW _{LIMIT}		
			Q_{fac} [m ³ /h]	Q_{min} 25 % [m ³ /h]	Q_{max} 90 % [m ³ /h]
MAGNA3 (D) 32-120 F (N)	6.5	19.5	12	4.9	17.5
MAGNA3 (D) 40-80 F (N)	4.5	21.5	13	5.4	19.4
MAGNA3 (D) 40-100 F (N)	5.5	23.5	15	5.9	21.2
MAGNA3 (D) 40-120 F (N)	6.5	25.5	16	6.4	23.0
MAGNA3 (D) 40-150 F (N)	8.0	28.5	18	7.1	25.7
MAGNA3 (D) 40-180 F (N)	9.5	28.5	15	7.1	25.7
MAGNA3 (D) 50-40 F (N)	2.5	21.5	13	5.4	19.4
MAGNA3 (D) 50-60 F (N)	3.5	26.5	17	6.6	23.9
MAGNA3 (D) 50-80 F (N)	4.5	29.5	17	7.4	26.6
MAGNA3 (D) 50-100 F (N)	5.5	31.5	18	7.9	28.4
MAGNA3 (D) 50-120 F (N)	6.5	35.5	19	8.9	32.0
MAGNA3 (D) 50-150 F (N)	8.0	37.5	20	9.4	33.8
MAGNA3 (D) 50-180 F (N)	9.5	39.5	19	9.9	35.6
MAGNA3 (D) 65-40 F (N)	2.5	29.5	18	7.4	26.6
MAGNA3 (D) 65-60 F (N)	3.5	36.5	24	9.1	32.9
MAGNA3 (D) 65-80 F (N)	4.5	40.5	25	10.1	36.5
MAGNA3 (D) 65-100 F (N)	5.5	43.5	26	10.9	39.2
MAGNA3 (D) 65-120 F (N)	6.5	47.5	30	11.9	42.8
MAGNA3 (D) 65-150 F (N)	8.0	56.5	40	14.1	50.9
MAGNA3 (D) 80-40 F	2.5	41.5	32	10.4	37.4
MAGNA3 (D) 80-60 F	3.5	48.5	37	12.1	43.7
MAGNA3 (D) 80-80 F	4.5	54.5	40	13.6	49.1
MAGNA3 (D) 80-100 F	5.5	67.5	47	16.9	60.8
MAGNA3 (D) 80-120 F	6.5	72.5	48	18.1	65.3
MAGNA3 (D) 100-40 F	2.5	52.5	40	13.1	47.3
MAGNA3 (D) 100-60 F	3.5	59.5	43	14.9	53.6
MAGNA3 (D) 100-80 F	4.5	67.5	50	16.9	60.8
MAGNA3 (D) 100-100 F	5.5	73.5	52	18.4	66.2
MAGNA3 (D) 100-120 F	6.5	78.5	57	19.6	70.7

The duty ranges for proportional-pressure and constant-pressure control appear from the individual data sheet in the *MAGNA3 data booklet*.

Constant-curve duty: 0 to 100 % speed.

12.8 Setpoint influence



Navigation

Home > Settings > Setpoint influence

Setpoint influence

- External setpoint function
- Temperature influence.

12.8.1 External setpoint function

Range		
4-20 mA	[0-100 %]	
0-10 V	[0-100 %]	
Control		
0-20 %	(e.g. 0-2 V)	Setpoint = Min.
20-100 %	(e.g. 2-10 V)	Setpoint = Min. ↔ setpoint

The external setpoint function is an external 0-10 V or 4-20 mA signal that will control the pump speed in a range from 0 to 100 % in a linear function. See fig. 34.

Before the "External setpoint function" can be enabled, the analog input must be set to "External setpoint influence" via the "Assist" menu. See section 4.5.3 Analog input.

Note

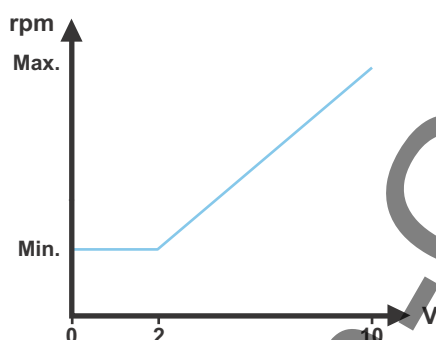


Fig. 34 External setpoint function, 0-10 V

12.8.2 Temperature influence

When this function is enabled in proportional- or constant-pressure control mode, the setpoint for head will be reduced according to the liquid temperature.

Temperature influence can be set to function at liquid temperatures below 80 °C or 50 °C. These temperature limits are called $T_{max.}$. The setpoint is reduced in relation to the head set (= 100 %) according to the characteristics below.

3.1.15.0.0.0 Setpoint influence

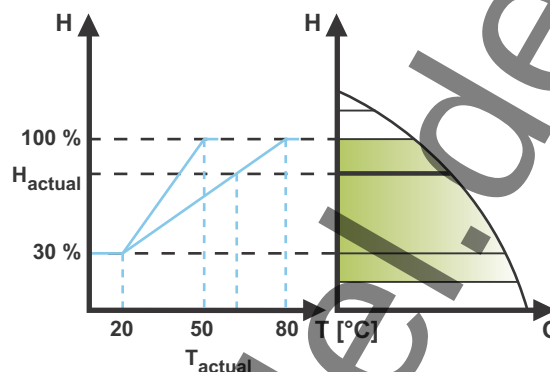


Fig. 35 Temperature influence

In the above example, $T_{max.} = 80\text{ °C}$ has been selected. The actual liquid temperature T_{actual} causes the setpoint for head to be reduced from 100 % to H_{actual} .

The temperature influence function requires the following:

- proportional-pressure, constant-pressure or constant-curve control mode
- pump installed in flow pipe
- system with flow-pipe temperature control.

Temperature influence is suitable for the following systems:

- Systems with variable flows (for example two-pipe heating systems) in which the enabling of the temperature influence function will ensure a further reduction of the pump performance in periods with small heating demands and consequently a reduced flow-pipe temperature.
- Systems with almost constant flows (for example one-pipe heating systems and underfloor heating systems) in which variable heating demands cannot be registered as changes in the head as is the case with two-pipe heating systems. In such systems, the pump performance can only be adjusted by enabling the temperature influence function.

Selection of $T_{max.}$

In systems with a dimensioned flow-pipe temperature of:

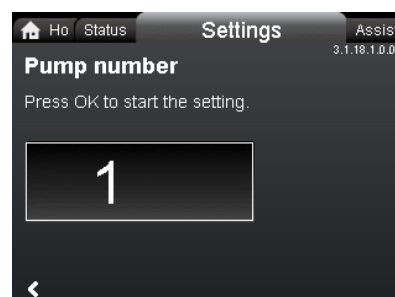
- up to and including 55 °C, select $T_{max.} = 50\text{ °C}$
- above 55 °C, select $T_{max.} = 80\text{ °C}$.

Note

The temperature influence function cannot be used in air-conditioning and cooling systems.

12.9 Bus communication

12.9.1 Pump number



Navigation

Home > Settings > Bus communication > Pump number

Pump number

A unique number can be allocated to the pump. This makes it possible to distinguish between pumps in connection with bus communication.

TM05 3022 1212

TM05 3219 1212

3.1.18.1.0.0 Pump number

12.10 General settings

12.10.1 Language



3.1.19.1.0.0 Language

Navigation

Home > Settings > General settings > Language

Language

The display can be shown in any of the following languages:

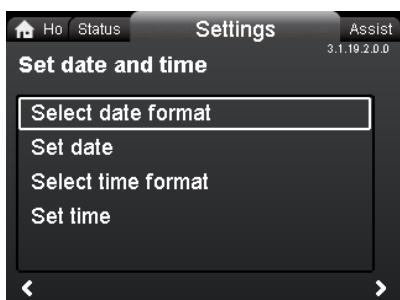
GB, BG, CZ, DK, DE, EE, GR, ES, FR, HR, IT, LV, LT, HU, NL, UA, PL, PT, RU, RO, SK, SI, RS, FI, SE, TR, CN, JP or KO.

Measuring units are automatically changed according to selected language.

Setting:

1. Select language with ▼ and ▲.
2. Press [OK] to enable.

12.10.2 Set date and time



3.1.19.2.0.0 Set date and time

Navigation

Home > Settings > General settings > Set date and time

Set date and time

- Select date format
- Set date
- Select time format
- Set time.

Set the real-time clock in this menu.

Select date format

- YYYY-MM-DD
- DD-MM-YYYY
- MM-DD-YYYY.

Setting:

1. Select "Set date".
2. Press [OK] to start the setting.
3. Select digit with ◀ and ▶ and adjust with ▼ or ▲.
4. Press [OK] to save.

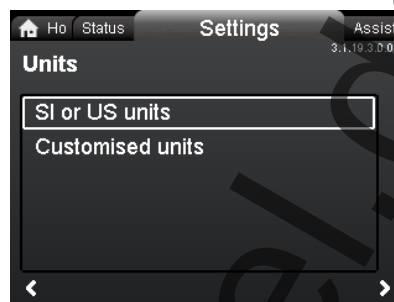
Select time format

- HH:MM 24-hour clock
- HH:MM am/pm 12-hour clock.

Setting:

1. Select "Set time".
2. Press [OK] to start the setting.
3. Select digit with ◀ and ▶ and adjust with ▼ or ▲.
4. Press [OK] to save.

12.10.3 Units



3.1.19.3.0.0 Units

Navigation

Home > Settings > General settings > Units

Units

- SI or US units
- Customised units.

Select whether the display should show SI or US units or select the desired units for the parameters below.

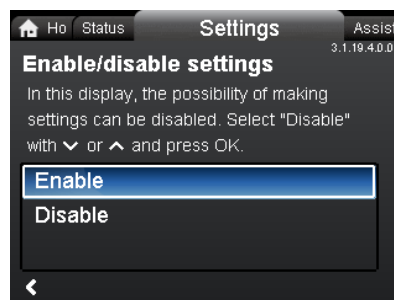
- Pressure
- Differential pressure
- Head
- Level
- Flow rate
- Volume
- Temperature
- Differential temp.
- Power
- Energy.

Setting:

1. Select parameter and press [OK].
2. Select unit with ▼ or ▲.
3. Press [OK] to enable.

If "SI or US units" is selected, the customised units will be reset.

12.10.4 Enable/disable settings



3.1.19.4.0.0 Enable/disable settings

Navigation

Home > Settings > General settings > Enable/disable settings

Enable/disable settings

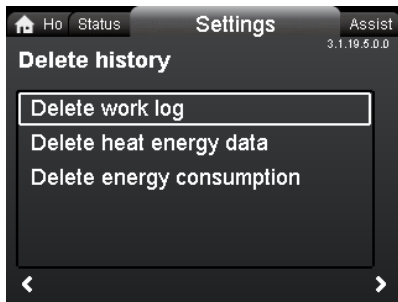
In this display, the possibility of making settings can be disabled for protective reasons.

Select "Disable" with ▼ or ▲ and press [OK].

The pump will now be locked for settings. Only the "Home" display will be available.

To unlock the pump and allow settings, press ▼ and ▲ simultaneously for at least 5 seconds.

12.10.5 Delete history



3.1.19.5.0.0 Delete history

Navigation

Home > Settings > General settings > Delete history

Delete history

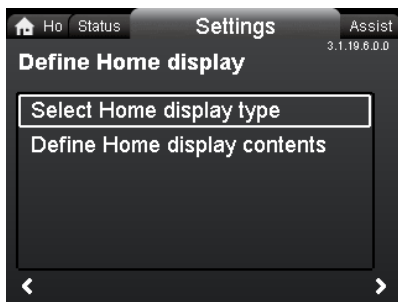
- Delete work log
- Delete heat energy data
- Delete energy consumption.

It is possible to delete data from the pump, for example if the pump is moved to another system or if new data are required due to changes to the system.

Setting:

1. Select the relevant submenu and press [OK].
2. Select "Yes" with ▼ or ▲ and press [OK] or press ⏻ to cancel.

12.10.6 Define Home display



3.1.19.6.0.0 Define Home display

Navigation

Home > Settings > General settings > Define Home display

Define Home display

- Select Home display type
- Define Home display contents.

The "Home" display can be set to show up to four user-defined parameters or a graphical illustration of a performance curve.

Select Home display type

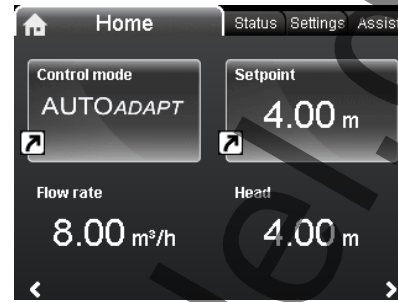
1. Select "List of data" or "Graphical illustration" with ▼ or ▲.
2. Press [OK] to save.

To specify the contents, go to "Define Home display contents".

Define Home display contents

1. To set "List of data", press [OK] to start the setting. A list of parameters will appear in the display.
2. Select or deselect with [OK]. Up to four parameters can be selected.

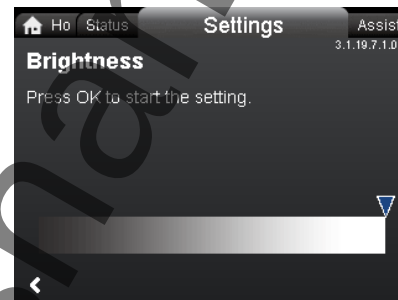
The selected parameters will be shown as illustrated below. The arrow icon indicates that the parameter links to the "Settings" menu and works as a shortcut for quick settings.



Define Home display contents

1. To set "Graphical illustration", press [OK] to start the setting.
2. Select the desired curve and press [OK] to save.

12.10.7 Display brightness



3.1.19.7.1.0 Brightness

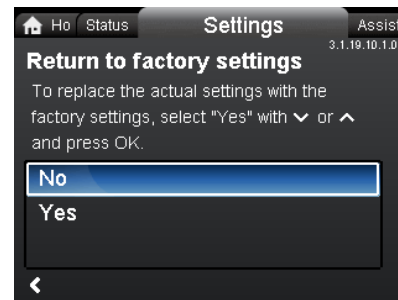
Navigation

Home > Settings > General settings > Display brightness

Brightness

1. Press [OK] to start the setting.
2. Set brightness with ◀ and ▶.
3. Press [OK] to save.

12.10.8 Return to factory settings



3.1.19.10.1.0 Return to factory settings

Navigation

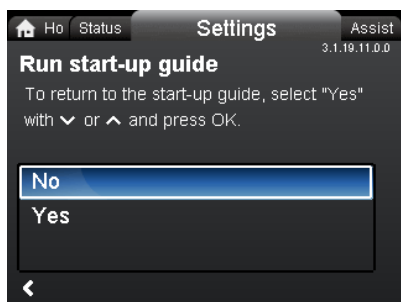
Home > Settings > General settings > Return to factory settings

Return to factory settings

It is possible to recall the factory settings and overwrite the current settings. All user settings in the "Settings" and "Assist" menus will be set back to the factory settings. This also includes language, units, possible setup of analog input, multi-pump function, etc.

To overwrite the current settings with the factory settings, select "Yes" with ▼ or ▲ and press [OK].

12.10.9 Run start-up guide



3.1.19.11.0.0 Run start-up guide

Navigation

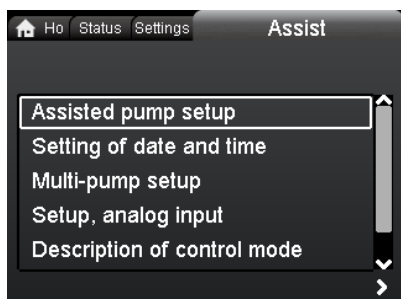
Home > Settings > General settings > Run start-up guide

Run start-up guide

It is possible to run the start-up guide again. The start-up guide will guide the user through the general settings of the pump, such as language, date and time.

To run the start-up guide, select "Yes" with ▼ or ▲ and press [OK].

13. "Assist" menu



Assist

Navigation

Home > Assist

Press and go to the "Assist" menu with >.

"Assist" menu

This menu offers the following:

- Assisted pump setup
- Setting of date and time
- Multi-pump setup
- Setup, analog input
- Description of control mode
- Assisted fault advice.

The "Assist" menu guides the user through the setting of the pump. In each submenu, the user is presented with a guide that helps throughout the setting.

13.1 Assisted pump setup

This submenu is a step-by-step guide to complete pump setup, starting with a presentation of the control modes and ending with the setpoint setting.

13.2 Setting of date and time

See section 12.10.2 *Set date and time*.

13.3 Multi-pump setup

This submenu assists the user in setting up a multi-pump system. See section 13.8 *Multi-pump function*.

13.4 Setup, analog input

This submenu assists the user in setting up the analog input.

13.5 Description of control mode

This submenu gives a short description of each control mode.

13.6 Assisted fault advice

This submenu provides information about faults and corrective actions.

13.7 Wireless GENlair

The pump is designed for multi-pump connection via the wireless GENlair connection or wired via a bus system (Building Management System).

The built-in wireless GENlair module enables communication between pumps and with the Grundfos Go Remote without the use of add-on modules:

- Multi-pump function.
See section 13.8 *Multi-pump function*.
- Grundfos GO Remote.
See section 17.1 *Grundfos GO Remote*.

13.8 Multi-pump function

The multi-pump function enables the control of single-head pumps connected in parallel and twin-head pumps without the use of external controllers. The pumps in a multi-pump system communicate with each other via the wireless GENlair connection.

A multi-pump system is set up via a selected pump, i.e. the master pump (first selected pump). All Grundfos pumps with a wireless GENlair connection can be connected to the multi-pump system.

The multi-pump functions are described in the following sections.

13.8.1 Alternating operation

Only one pump is operating at a time. The change from one pump to the other depends on time or energy. If a pump fails, the other pump will take over automatically.

Pump system:

- Twin-head pump.
- Two single-head pumps connected in parallel. The pumps must be of the same type and size. Each pump requires a non-return valve in series with the pump.

13.8.2 Back-up operation

One pump is operating continuously. The back-up pump is operated at intervals to prevent seizing up. If the duty pump stops due to a fault, the back-up pump will start automatically.

Pump system:

- Twin-head pump.
- Two single-head pumps connected in parallel. The pumps must be of the same type and size. Each pump requires a non-return valve in series with the pump.

13.8.3 Cascade operation

Cascade operation ensures that the pump performance is automatically adapted to the consumption by switching pumps on or off. The system thus runs as energy-efficiently as possible with a constant pressure and a limited number of pumps.

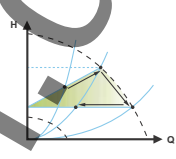
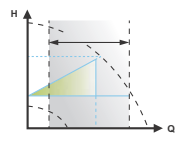
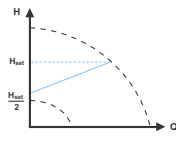
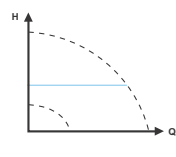
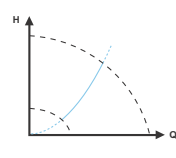
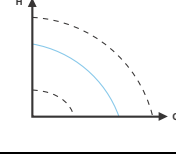
When a twin-head pump is running in constant-pressure control mode, the second pump head will start at 90 % and stop at 50 % performance.

All pumps in operation will run at equal speed. Pump changeover is automatic and depends on energy, operating hours and fault.

Pump system:

- Twin-head pump.
- Two single-head pumps connected in parallel. The pumps must be of the same type and size. Each pump requires a non-return valve in series with the pump.
- The control mode must be set to "Const. press." or "Constant curve".

14. Selection of control mode

System application	Select this control mode
Recommended for most heating systems, especially in systems with relatively large pressure losses in the distribution pipes. See description under proportional pressure. In replacement situations where the proportional-pressure duty point is unknown. The duty point has to be within the $AUTO_{ADAPT}$ operating range. During operation, the pump automatically makes the necessary adjustment to the actual system characteristic. This setting ensures minimum energy consumption and noise level from valves, which reduces operating costs and increases comfort.	$AUTO_{ADAPT}$ 
The $FLOW_{ADAPT}$ control mode is a combination of $AUTO_{ADAPT}$ and $FLOW_{LIMIT}$. This control mode is suitable for systems where a maximum flow limit, $FLOW_{LIMIT}$, is desired. The pump continuously monitors and adjusts the flow, thus ensuring that the selected $FLOW_{LIMIT}$ is not exceeded. Main pumps in boiler applications where a steady flow through the boiler is required. No extra energy is used for pumping too much liquid into the system. In systems with mixing loops, the control mode can be used to control the flow in each loop. Benefits: • Enough water for all loops at peak load conditions if each loop has been set to the right maximum flow. • The dimensioned flow for each zone (required heat energy) is determined by the flow from the pump. This value can be set precisely in the $FLOW_{ADAPT}$ control mode without the use of pump throttling valves. • When the flow is set lower than the balancing valve setting, the pump will ramp down instead of losing energy by pumping against a balancing valve. • Cooling surfaces in air-conditioning systems can operate at high pressure and low flow.	$FLOW_{ADAPT}$ 
In systems with relatively large pressure losses in the distribution pipes and in air-conditioning and cooling systems. • Two-pipe heating systems with thermostatic valves and – very long distribution pipes – strongly throttled pipe balancing valves – differential-pressure regulators – large pressure losses in those parts of the system through which the total quantity of water flows (for example boiler, heat exchanger and distribution pipe up to the first branching). • Primary circuit pumps in systems with large pressure losses in the primary circuit. • Air-conditioning systems with – heat exchangers (fan coils) – cooling ceilings – cooling surfaces.	Proportional pressure 
In systems with relatively small pressure losses in the distribution pipes. • Two-pipe heating systems with thermostatic valves and – dimensioned for natural circulation – small pressure losses in those parts of the system through which the total quantity of water flows (for example boiler, heat exchanger and distribution pipe up to the first branching) or – modified to a high differential temperature between flow pipe and return pipe (for example district heating). • Underfloor heating systems with thermostatic valves. • One-pipe heating systems with thermostatic valves or pipe balancing valves. • Primary circuit pumps in systems with small pressure losses in the primary circuit.	Constant pressure 
In heating systems with a fixed system characteristic, for example domestic hot-water systems, the control of the pump according to a constant return-pipe temperature may be relevant. $FLOW_{LIMIT}$ can be used with advantage to control the maximum circulation flow.	Constant temperature 
If an external controller is installed, the pump is able to change from one constant curve to another, depending on the value of the external signal. The pump can also be set to operate according to the max. or min. curve, like an uncontrolled pump: • The max. curve mode can be used in periods in which a maximum flow is required. This operating mode is for instance suitable for hot-water priority. • The min. curve mode can be used in periods in which a minimum flow is required. This operating mode is for instance suitable for manual night setback if Automatic Night Setback is not desired.	Constant curve 
In systems with pumps operating in parallel. The multi-pump function enables the control of single-head pumps connected in parallel (two pumps) and twin-head pumps without the use of external controllers. The pumps in a multi-pump system communicate with each other via the wireless GENlair connection.	"Assist" menu "Multi-pump setup"

15. Fault finding



Warning

Before dismantling the pump, drain the system or close the isolating valve on either side of the pump. The pumped liquid may be scalding hot and under high pressure.

15.1 Grundfos Eye operating indications

Grundfos Eye	Indication	Cause
	No lights on.	Power off. Pump not running.
	Two opposite green indicator lights running in the direction of rotation of the pump.	Power on. Pump running.
	Two opposite green indicator lights permanently on.	Power on. Pump not running.
	One yellow indicator light running in the direction of rotation of the pump.	Warning. Pump running.
	One yellow indicator light permanently on.	Warning. Pump stopped.
	Two opposite red indicator lights flashing simultaneously.	Alarm. Pump stopped.
	One green indicator light in the middle permanently on (in addition to another indication).	Remote-controlled. The pump is currently being accessed by the Grundfos GO Remote.

15.2 Signalling communication with remote control

The centre indicator light in the Grundfos Eye will indicate communication with the Grundfos GO Remote.

The table below describes the desired function of the centre indicator light.

Case	Description	Signalling by the centre indicator light
Wink	The pump in question is highlighted in the Grundfos GO Remote display. To inform the user of the location of the highlighted pump, the centre indicator light will flash four or five times once to signal "I am here".	Four or five quick flashes once to signal "I am here".
Push me	The pump in question is selected/opened in the Grundfos GO Remote menu. The pump will signal "Push me" to ask the user to select the pump/allow the pump to exchange data with the Grundfos GO Remote. The indicator light will flash continuously until a pop-up window asks the user to press [OK] to allow communication with the Grundfos GO Remote.	Flashing continuously with 50 % duty cycle.
I am connected	The indicator light is signalling that the pump is connected to Grundfos GO Remote. The indicator light is permanently on as long as the pump is selected in the Grundfos GO Remote.	Indicator light permanently on.

15.3 Fault finding

A fault indication can be reset in one of the following ways:

- When the fault cause has been eliminated, the pump will revert to normal duty.
- If the fault disappears by itself, the fault indication will automatically be reset.
- The fault cause will be stored in the pump alarm log.

Warning and alarm codes	Fault	Automatic reset and restart?	Corrective actions
Pump communication fault (10) Alarm	Communication fault between different parts of the electronics.	Yes	Replace the pump, or call GRUNDFOS SERVICE for assistance.
Forced pumping (29) Alarm	Other pumps or sources force flow through the pump even if the pump is stopped.	Yes	Check the system for defective non-return valves and replace, if necessary. Check the system for correct position of non-return valves, etc.
Undervoltage (40, 75) Alarm	Supply voltage to the pump too low.	Yes	Check that the power supply is within the specified range.
Blocked pump (51) Alarm	The pump is blocked.	No	Dismantle the pump, and remove any foreign matter or impurities preventing the pump from rotating.
Dry running (57) Alarm	No water at the pump inlet or the water contains too much air.	No	Prime and vent the pump before a new start-up. Check that the pump is operating correctly. If not, replace the pump, or call GRUNDFOS SERVICE for assistance.
High motor temperature (64) Alarm	Temperature in stator windings too high.	No	Check the winding resistance according to the <i>MAGNA3 service instructions</i> .
Internal fault (72, 84, 155, 157) Warning/alarm	Internal fault in the pump electronics.	Yes	Replace the pump, or call GRUNDFOS SERVICE for assistance.
Overvoltage (74) Alarm	Supply voltage to the pump too high.	Yes	Check that the power supply is within the specified range.
Communication fault, twin-head pump (77) Warning	Communication between pump heads disturbed or broken.	Yes	Check that the second pump head is powered or connected to the power supply.
Internal sensor fault (88) Warning	The pump is receiving a signal from the internal sensor which is outside the normal range.	Yes	Check that the plug and cable are connected correctly in the sensor. The sensor is located on the back of the pump housing. Replace the sensor, or call GRUNDFOS SERVICE for assistance.
External sensor fault (93) Warning	The pump is receiving a signal from the external sensor which is outside the normal range.	Yes	Does the electrical signal set (0-10 V or 4-20 mA) match the sensor output signal? If not, change the setting of the analog input, or replace the sensor with one that matches the setup. Check the sensor cable for damage. Check the cable connection at the pump and at the sensor. Correct the connection, if required. The sensor has been removed, but the analog input has not been disabled. Replace the sensor, or call GRUNDFOS SERVICE for assistance.

Caution

If the power supply cable is damaged, it must be replaced by the manufacturer, the manufacturer's service partner or a similarly qualified person.

16. Differential-pressure and temperature sensor

The MAGNA3 incorporates a differential-pressure and temperature sensor. The sensor is located in the pump housing in a channel between the suction and discharge ports. The sensors of twin-head pumps are connected to the same channel and the pumps therefore register the same differential pressure and temperature.

Via a cable, the sensor sends an electrical signal for the differential pressure across the pump and for the liquid temperature to the controller in the control box.

In case of missing sensor signal, the pump will run at maximum speed. When the fault has been corrected, the pump will continue operating according to the parameters set.

The differential-pressure and temperature sensor offers substantial benefits:

- direct feedback in the pump display
- complete pump control
- measurement of the pump load for precise and optimum control resulting in higher energy efficiency.

After maintenance or replacement of the sensor, it is important that the sealing cap is fitted correctly on the sensor housing.

Tighten the screw holding the clamp to 5 Nm.



Warning

Before replacing the sensor, make sure that the pump is stopped and that the system is not pressurised.

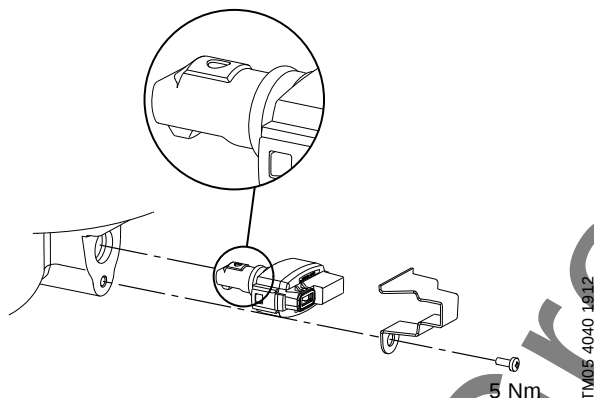


Fig. 36 Correct position of sensor

16.1 Sensor specifications

16.1.1 Pressure

Maximum differential pressure during operation	2 bar / 0.2 MPa
Accuracy (0 to +85 °C)	2 % (full scale)
Accuracy (-10 to 0 °C and +85 to +130 °C)	3 % (full scale)

16.1.2 Temperature

Temperature range during operation	-10 to +130 °C
Accuracy	± 2 °C

16.2 Sensor condition

If the sensor fails, the pump will continue to operate like an uncontrolled pump. This means that the pump will run in simulated operation where the voltage and current determine the duty point resulting in a reduced accuracy of the flow value.

Note

The pump will continue to operate, but the sensor must be checked for defects by measuring the sensor. See MAGNA3 service instructions in WebCAPS.

17. Accessories



17.1 Grundfos GO Remote

The MAGNA3 is designed for wireless communication with the Grundfos GO Remote app. The Grundfos GO Remote app communicates with the pump via radio communication (wireless GENIair).

Note *The radio communication between the pump and the Grundfos GO Remote is encrypted to protect against misuse.*

The Grundfos GO Remote app is available from Apple AppStore and Android market.

The Grundfos GO Remote concept replaces the Grundfos R100 remote control. This means that all products supported by the R100 are supported by the Grundfos GO Remote.

The Grundfos GO Remote can be used for the following:

- Reading of operating data.
- Reading of warning and alarm indications.
- Setting of control mode.
- Setting of setpoint.
- Selection of external setpoint signal.
- Allocation of pump number making it possible to distinguish between pumps that are connected via Grundfos GENIbus.
- Selection of function for digital input.
- Generation of reports (PDF).
- Assist function.
- Multi-pump setup.
- Display of relevant documentation.

For function and connection to the pump, see separate installation and operating instructions for the desired type of Grundfos GO Remote setup.

17.2 CIM modules

The pump can communicate via the wireless GENIair connection or a CIM module.

This enables the pump to communicate with other pumps and with different types of network solutions.

The Grundfos CIM modules (CIM = Communication Interface Module) enable the pump to connect to standard fieldbus networks.

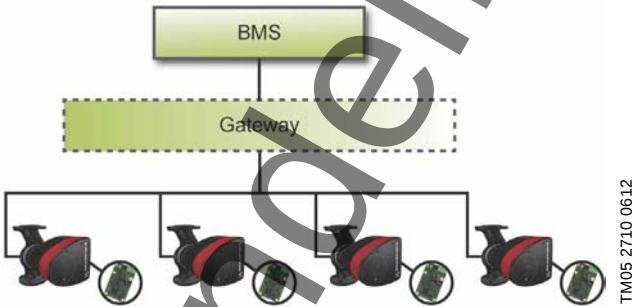


Fig. 37 Building management system (BMS) with four pumps connected in parallel

A CIM module is an add-on communication interface module. The CIM module enables data transmission between the pump and an external system, for example a BMS or SCADA system.

The CIM module communicates via fieldbus protocols.

Note *A gateway is a device that facilitates the transfer of data between two different networks based on different communication protocols.*

The following CIM modules are available:

Module	Fieldbus protocol	Product number
CIM 050	GENIbus	96824631
CIM 100	LonWorks	96824797
CIM 150	Profibus DP	96824793
CIM 200	Modbus RTU	96824796
CIM 250	GSM/GPRS	96787106
CIM 270	GRM	96898815
CIM 300	BACnet MS/TP	96893770

17.2.1 Description of CIM modules

Module	Fieldbus protocol	Description	Functions
CIM 050 	 TM05 3812 1612 GENIbus	The CIM 050 is a Grundfos communication interface module used for communication with a GENIbus network.	The CIM 050 has terminals for the GENIbus connection.
CIM 100 	 TM05 3813 1612 LonWorks	The CIM 100 is a Grundfos communication interface module used for communication with a LonWorks network.	The CIM 100 has terminals for the LonWorks connection. Two LEDs are used to indicate the actual status of the CIM 100 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate LonWorks communication status.
CIM 150 	 TM05 3814 1612 Profibus DP	The CIM 150 is a Grundfos communication interface module used for communication with a Profibus network.	The CIM 150 has terminals for the Profibus DP connection. DIP switches are used to set line termination. Two hexadecimal rotary switches are used to set the Profibus DP address. Two LEDs are used to indicate the actual status of the CIM 150 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate Profibus communication status.
CIM 200 	 TM05 3815 1612 Modbus RTU	The CIM 200 is a Grundfos communication interface module used for communication with a Modbus RTU network.	The CIM 200 has terminals for the Modbus connection. DIP switches are used to select parity and stop bits, to select transmission speed and to set line termination. Two hexadecimal rotary switches are used to set the Modbus address. Two LEDs are used to indicate the actual status of the CIM 200 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate Modbus communication status.
CIM 250 	 TM05 4432 2212 GSM/GPRS	The CIM 250 is a Grundfos communication interface module used for GSM/GPRS communication. The CIM 250 is used to communicate via a GSM network.	The CIM 250 has a SIM-card slot and an SMA connection to the GSM antenna. The CIM 250 also has an internal backup battery. Two LEDs are used to indicate the actual status of the CIM 250 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate GSM/GPRS communication status. Note: The SIM card is not supplied with the CIM 250. The SIM card from the service provider must support data/fax service to use call service from PC Tool or SCADA. The SIM card from the service provider must support GPRS service to use Ethernet service from PC Tool or SCADA.

Module	Fieldbus protocol	Description	Functions
CIM 270 	Grundfos Remote Management	The CIM 270 is a Grundfos GSM/GPRS modem used for communication with a Grundfos Remote Management system. It requires a GSM antenna, a SIM card and a contract with Grundfos.	With the CIM 270 you have wireless access to your account anywhere, anytime when you have an internet connection, for example via a smartphone, tablet PC, laptop or computer. Warnings and alarms can be sent by e-mail or SMS to your mobile phone or computer. You will get a complete status overview of the entire GRM system. It allows you to plan maintenance and service based on actual operating data.
CIM 300 	BACnet MS/TP	The CIM 300 is a Grundfos communication interface module used for communication with a BACnet MS/TP network.	The CIM 300 has terminals for the BACnet MS/TP connection. DIP switches are used to set transmission speed and line termination and to select the custom Device Object Instance Number. Two hexadecimal rotary switches are used to set the BACnet address. Two LEDs are used to indicate the actual status of the CIM 300 communication. One LED is used for indication of correct connection to the pump, and the other is used to indicate BACnet communication status.

17.2.2 Grundfos Remote Management

Grundfos Remote Management is an easy-to-install, low-cost solution for wireless monitoring and management of Grundfos products. It is based on a centrally hosted database and a web server with wireless data collection via GSM/GPRS modem. The system only requires an internet connection, a web browser, a GRM modem and an antenna as well as a contract with Grundfos allowing you to monitor and manage Grundfos pump systems. You have wireless access to your account anywhere, anytime when you have an internet connection, for example via a smartphone, tablet PC, laptop or computer. Warnings and alarms can be sent by e-mail or SMS to your mobile phone or computer.

17.2.3 Reuse of CIM modules

A CIM module in a CIU unit used together with GRUNDFOS MAGNA can be reused in MAGNA3. The CIM module has to be re-configured before it is used in a MAGNA3 pump. Contact your nearest Grundfos company.



Fig. 38 Reuse of CIM module

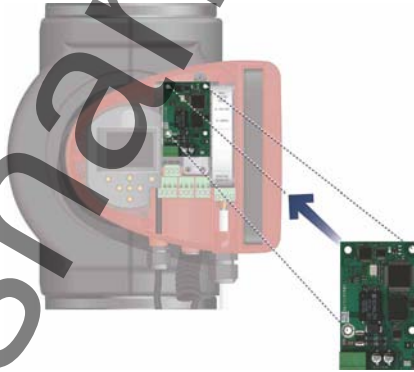
Application	Description	Product number
CIM 270	Grundfos Remote Management (requires a contract with Grundfos and a SIM card).	96898815
GSM antenna for roof-mounting	Antenna for use on top of metal cabinets. Vandal-proof. 2-metre cable. Quad band (global use).	97631956
GSM antenna for desk-mounting	Antenna for general-purpose application, for example inside plastic cabinets. To be fixed with the double-adhesive tape supplied. 4-metre cable. Quad band (global use).	97631957

For GRM contract, contact your local Grundfos company.

17.2.4 Fitting the CIM module



Warning
Before fitting the module, switch off the power supply. Make sure that the power supply cannot be accidentally switched on.

Step	Action	Illustration
1	Remove the front cover from the control box.	 TM05 2875 0912
2	Fit the CIM module as illustrated and click it on.	 TM05 2914 1112
3	Fit and tighten the screw holding the CIM module and secure the earth connection.	 TM05 2912 1112
4	For connection to fieldbus networks, see separate installation and operating instructions for the desired CIM module.	 TM05 2913 1112

17.3 Counter-flanges

Counter-flange kits consist of two flanges, two gaskets and bolts and nuts which makes it possible to install the pump in any pipework. See *MAGNA3 data booklet*, section Accessories, for the right dimension and product number.

17.4 External sensors

17.4.1 Temperature sensor

Sensor	Type	Supplier	Measuring range [°C]	Sensor output [mA]	Pocket insertion length [mm]	Process connection	Protection tube [mm]	Product number
Temperature sensor	MBT 3560	Danfoss	-50 to +150	4-20	37.5	G 1/2 A	Ø11	98355521

17.4.2 Pressure sensor

Sensor	Type	Supplier	Measuring range [bar]	Sensor output [mA]	Power supply [VDC]	Process connection	Product number
Pressure sensor	RPI	Grundfos	0 - 0.6	4-20	12-30	G 1/2	97748907
			0 - 1.0				97748908
			0 - 1.6				97748909
			0 - 2.5				97748910
			0 - 4.0				97748921
			0 - 6.0				97748922
			0 - 12				97748923
			0 - 16				97748924

17.5 Blanking flange

A blanking flange is used to blank off the opening when one of the pump heads of a twin-head pump is removed for service to enable uninterrupted operation of the other pump. See fig. 39.

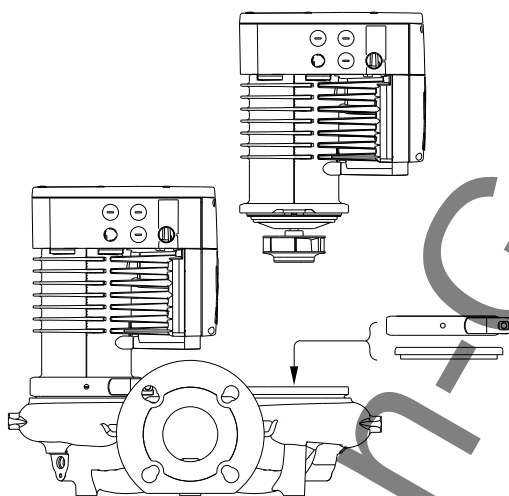


Fig. 39 Position of blanking flange

Pump type	Product number
All pumps	98159372

17.6 Insulating kits for air-conditioning and cooling systems

Single-head pumps for air-conditioning and cooling systems can be fitted with insulating shells. A kit consists of two shells made of polyurethane (PUR) and a self-adhesive seal to ensure tight assembly.

Note

The dimensions of the insulating shells for pumps in air-conditioning and cooling systems differ from those of the insulating shells for pumps in heating systems.

Pump type	Product number
MAGNA3 32-120 F	98063287
MAGNA3 40-80/100 F	98063288
MAGNA3 40-120/150/180 F	98145675
MAGNA3 50-40/60/80 F	98063289
MAGNA3 50-100/120/150/180 F	98145676
MAGNA3 65-40/60/80/100/120/150 F	96913593
MAGNA3 80-40/60/80/100/120 F	98134265
MAGNA3 100-40/60/80/100/120 F	96913589

Note

Insulating shells for single-head pumps for heating systems are supplied with the pump. The insulating shells cannot be ordered as accessories.

18. Technical data

Supply voltage

1 x 230 V ± 10 %, 50/60 Hz, PE.

Motor protection

The pump requires no external motor protection.

Enclosure class

IPX4D (EN 60529).

Insulation class

F.

Relative air humidity

Maximum 95 %.

Ambient temperature

0 °C to +40 °C.

During transport: -40 °C to +70 °C.

Temperature class

TF110 (EN 60335-2-51).

Liquid temperature

Continuously: -10 °C to +110 °C.

Stainless-steel pumps in domestic hot-water systems:

In domestic hot-water systems, we recommend to keep the liquid temperature below +65 °C to eliminate the risk of lime precipitation.

System pressure

The maximum permissible system pressure is stated on the pump nameplate:

PN 6: 6 bar / 0.6 MPa

PN 10: 10 bar / 1.0 MPa

PN 16: 16 bar / 1.6 MPa.

Inlet pressure

The following relative minimum inlet pressure must be available at the pump inlet during operation to avoid cavitation noise and damage to the pump bearings.

Note

The values in the table below apply to single-head pumps and twin-head pumps in single-head operation.

MAGNA3 DN	Liquid temperature		
	75 °C	95 °C	110 °C
	Inlet pressure [bar] / [MPa]		
32-120	0.90 / 0.09	1.30 / 0.13	1.9 / 0.19
40-40/60	0.10 / 0.01	0.35 / 0.03	1.0 / 0.10
40-80/100	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
40-120/150/180	0.10 / 0.01	0.40 / 0.04	1.0 / 0.10
50-40/60/80	0.10 / 0.01	0.10 / 0.01	0.7 / 0.07
50-100	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
50-120	0.10 / 0.01	0.40 / 0.04	1.0 / 0.10
50-150/180	0.20 / 0.02	0.60 / 0.06	1.2 / 0.12
65-40/60/80/100	0.20 / 0.02	0.60 / 0.06	1.2 / 0.12
65-120	0.10 / 0.01	0.50 / 0.05	1.1 / 0.11
65-150	0.40 / 0.04	0.80 / 0.08	1.2 / 0.12
80-40/60/80/100/120	0.50 / 0.05	0.90 / 0.09	1.5 / 0.15
100-40/60/80/100/120	0.50 / 0.05	0.90 / 0.09	1.5 / 0.15

In the case of twin-head operation, the required relative inlet pressure must be increased by 0.1 bar / 0.01 MPa compared to the stated values for single-head pumps or twin-head pumps in single-head operation.

Note

The actual inlet pressure plus pump pressure against a closed valve must be lower than the maximum permissible system pressure.

The relative minimum inlet pressures apply to pumps installed up to 300 metres above sea level. For altitudes above 300 metres, the required relative inlet pressure must be increased by 0.01 bar / 0.001 MPa per 100 metres altitude. The MAGNA3 pump is only approved for an altitude of 2000 metres above sea level.

EMC (electromagnetic compatibility)

EN 55014-1:2006, EN 55014-2:1998, EN 61800-3-3:2008 and EN 61000-3-2:2006.

Sound pressure level

The sound pressure level of the pump is lower than 43 dB(A).

Leakage current

The pump mains filter will cause a discharge current to earth during operation. $I_{\text{leakage}} < 3.5 \text{ mA}$.

Consumption when the pump is stopped

1 to 10 W, depending on activity, i.e. reading the display, use of Grundfos GO Remote, interaction with modules, etc.

4 W, when the pump is stopped and there is no activity.

Input/output communication

Two digital inputs	External potential-free contact. Contact load: 5 V, 10 mA. Screened cable. Loop resistance: Maximum 130 Ω.
	4-20 mA (load: 150 Ω). 0-10 VDC (load: > 10 kΩ).
	Internal potential-free changeover contact. Maximum load: 250 V, 2 A, AC1. Minimum load: 5 VDC, 20 mA. Screened cable, depending on signal level.

cos φ

The MAGNA3 has built-in active PFC (Power Factor Correction) which gives a cos φ from 0.98 to 0.99, i.e. very close to 1.

19. Disposal

This product has been designed with focus on the disposal and recycling of materials. The following average disposal values apply to all variants of Grundfos MAGNA3 pumps:

- 85 % recycling
- 10 % incineration
- 5 % depositing.

This product or parts of it must be disposed of in an environmentally sound way according to local regulations.

Subject to alterations.

Dimensions

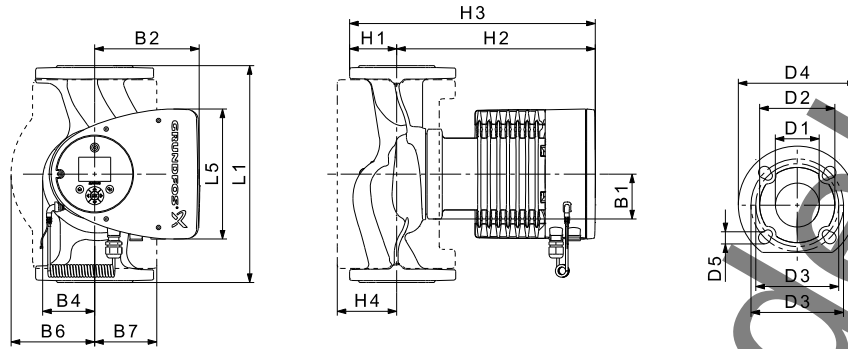


Fig. 40 Dimensions, single-head pumps

TM05 2204 4611

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 32-120 F (N)	220	204	84	164	73	106	116	65	301	366	86	32	76	90/100	140	14/19
MAGNA3 40-80 F (N)	220	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19
MAGNA3 40-100 F (N)	220	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19
MAGNA3 40-120 F (N)	250	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19
MAGNA3 40-150 F (N)	250	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19
MAGNA3 40-180 F (N)	250	204	84	164	73	106	128	65	304	369	83	40	84	100/110	150	14/19
MAGNA3 50-40 F (N)	240	204	84	164	73	127	127	71	304	374	97	50	102	110/125	165	14/19
MAGNA3 50-60 F (N)	240	204	84	164	73	127	127	71	304	374	97	50	102	110/125	165	14/19
MAGNA3 50-80 F (N)	240	204	84	164	73	127	127	71	304	374	97	50	102	110/125	165	14/19
MAGNA3 50-100 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19
MAGNA3 50-120 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19
MAGNA3 50-150 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19
MAGNA3 50-180 F (N)	280	204	84	164	73	127	127	72	304	376	97	50	102	110/125	165	14/19
MAGNA3 65-40 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19
MAGNA3 65-60 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19
MAGNA3 65-80 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19
MAGNA3 65-100 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19
MAGNA3 65-120 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19
MAGNA3 65-150 F (N)	340	204	84	164	73	133	133	74	312	386	94	65	119	130/145	185	14/19

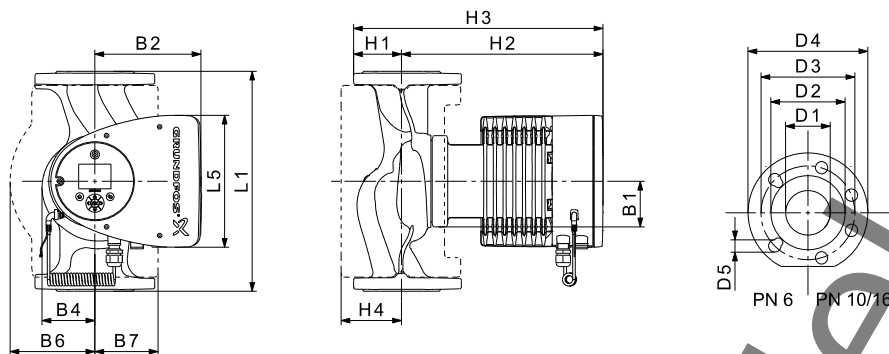
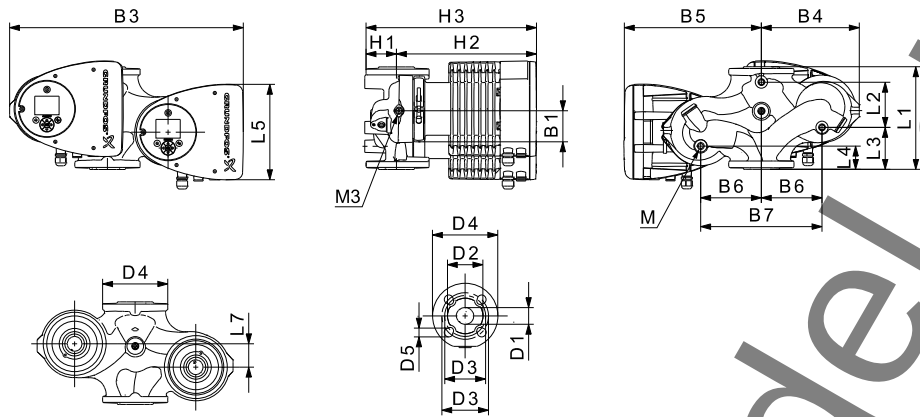


Fig. 41 Dimensions, single-head pumps

Pump type	Dimensions [mm]															
	L1	L5	B1	B2	B4	B6	B7	H1	H2	H3	H4	D1	D2	D3	D4	D5
MAGNA3 80-40 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19
MAGNA3 80-60 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19
MAGNA3 80-80 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19
MAGNA3 80-100 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19
MAGNA3 80-120 F	360	204	84	164	73	163	163	96	318	413	115	80	128	150/160	200	19
MAGNA3 100-40 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19
MAGNA3 100-60 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19
MAGNA3 100-80 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19
MAGNA3 100-100 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19
MAGNA3 100-120 F	450	204	84	164	73	178	178	103	330	433	120	100	160	170	220	19

TM05 5291 3612



TM05 5294 3612

Fig. 42 Dimensions, twin-head pumps

Pump type	Dimensions [mm]																					
	L1	L2	L3	L4	L5	L7	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 32-120 F	220	97	90	50	204	50	84	502	210	294	130	260	68	300	368	32	76	90/100	140	14/19	M12	Rp 1/4
MAGNA3 D 40-80 F	220	53	140	60	204	15	84	502	210	294	130	260	76	303	379	40	84	100/110	150	14/19	M12	Rp 1/4
MAGNA3 D 40-100 F	220	53	140	60	204	15	84	502	210	294	130	260	76	303	379	40	84	100/110	150	14/19	M12	Rp 1/4
MAGNA3 D 50-40 F	240	48	160	45	204	45	84	515	221	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4
MAGNA3 D 50-60 F	240	48	160	45	204	45	84	515	221	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4
MAGNA3 D 50-80 F	240	48	160	45	204	45	84	515	221	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4

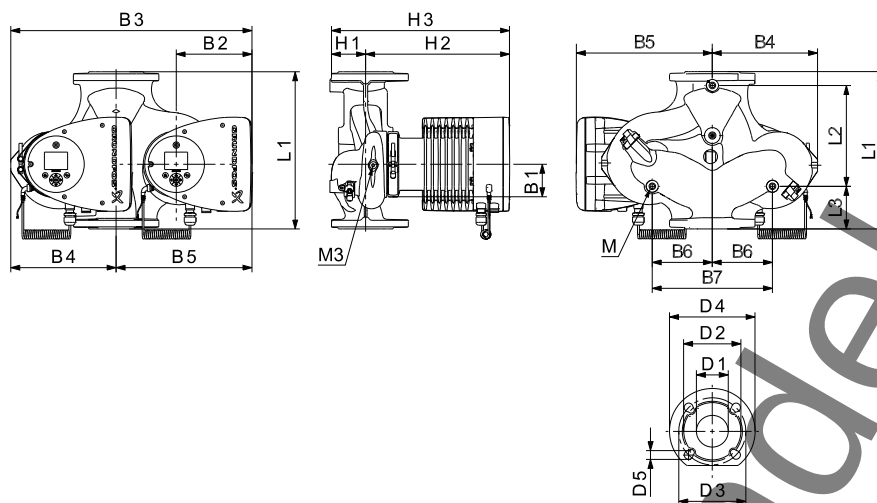


Fig. 43 Dimensions, twin-head pumps

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 40-120 F	250	58	155	75	204	84	512	220	294	130	260	69	303	372	40	84	100/110	150	14/19	M12	Rp 1/4
MAGNA3 D 40-150 F	250	58	155	75	204	84	512	220	294	130	260	69	303	372	40	84	100/110	150	14/19	M12	Rp 1/4
MAGNA3 D 40-180 F	250	58	155	75	204	84	512	220	294	130	260	69	303	372	40	84	100/110	150	14/19	M12	Rp 1/4
MAGNA3 D 50-100 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4
MAGNA3 D 50-120 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4
MAGNA3 D 50-150 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4
MAGNA3 D 50-180 F	280	175	75	75	204	84	517	223	294	130	260	75	304	379	50	102	110/125	165	14/19	M12	Rp 1/4
MAGNA3 D 65-40 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4
MAGNA3 D 65-60 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4
MAGNA3 D 65-80 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4
MAGNA3 D 65-100 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4
MAGNA3 D 65-120 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4
MAGNA3 D 65-150 F	340	218	92	92	204	84	522	228	294	130	260	77	312	389	65	119	130/145	185	14/19	M12	Rp 1/4

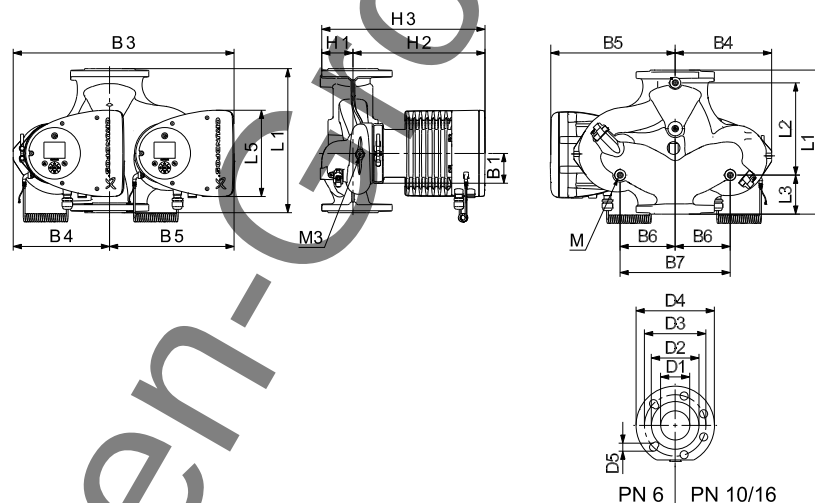


Fig. 44 Dimensions, twin-head pumps

Pump type	Dimensions [mm]																				
	L1	L2	L3	L4	L5	B1	B3	B4	B5	B6	B7	H1	H2	H3	D1	D2	D3	D4	D5	M	M3
MAGNA3 D 80-40 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4
MAGNA3 D 80-60 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4
MAGNA3 D 80-80 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4
MAGNA3 D 80-100 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4
MAGNA3 D 80-120 F	360	218	102	102	204	84	538	244	294	130	260	97	318	415	80	128	150/160	200	19	M12	Rp 1/4
MAGNA3 D 100-40 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4
MAGNA3 D 100-60 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4
MAGNA3 D 100-80 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4
MAGNA3 D 100-100 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4
MAGNA3 D 100-120 F	450	243	147	147	204	84	551	252	299	135	270	103	330	434	100	160	170	220	19	M12	Rp 1/4

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TM05 5366 3612

20. Flange forces and moments

Maximum permissible forces and moments from the pipe connections acting on the pump flanges or threaded connections are indicated in fig. 37.

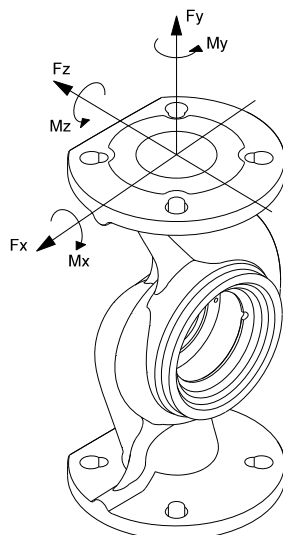


Fig. 45 Forces and moments from the pipe connections acting on the pump flanges or threaded connections

Diameter DN	Force [N]			Moment [Nm]				
	Fy	Fz	Fx	ΣF_b	My	Mz	Mx	ΣM_b
25*	350	425	375	650	300	350	450	650
32*	425	525	450	825	375	425	550	800
40	500	625	550	975	450	525	650	950
50	675	825	750	1300	500	575	700	1025
65	850	1050	925	1650	550	600	750	1100
80	1025	1250	1125	1975	575	650	800	1175
100	1350	1675	1500	2625	625	725	875	1300

* The values also apply to pumps with threaded connection.

The above values apply to cast-iron versions. For stainless-steel versions, the values can be multiplied by two according to the ISO 5199 standard.

21. Tightening torques for bolts

Recommended tightening torques for bolts used in flanged connections:

Bolt dimension	Torque
M12	27 Nm
M16	66 Nm

98091805 0313
ECM: -