

DC Driven Circulating Pump

Reliable Even Under Difficult Conditions

Extreme operational reliability, compact, leak-proof design and the capability of pumping water, antifreeze or coolants under hostile operating conditions are three of the advantages which distinguish the CM10/30 magnetic drive, seal-less pumps from conventional alternatives.

Weather-proof as well as dust-proof, both the CM10 and CM30 can be used in dirty or high humidity situations in vehicles or outdoor applications where the pump may be regularly subjected to road spray, adverse weather conditions or a profuse hosing down during routine maintenance.

The CM10/30 is well adapted for a wide range of demanding applications and operates without problem over a wide range of temperatures while reliably pumping coolants or water over extended periods of time.

Low friction impeller bearings prolong service life and make it possible for the CM10/30 to withstand dry running for up to 30 minutes. The permanently lubricated ball bearing motor also contributes to the up to 5000 hour uninterrupted service rating of this high-tech pump.

For customized OEM solutions, such as motor vehicle heating and cooling, fresh water circulation, or closed circuit solar panels, customers can count on the SPX Johnson Pump engineering staff for specially tailored CM10/30 packages.



Features & Benefits

- Maximum flow @ 0,1 bar

CM10	15l/min (4 USGPM) with connection Ø16 mm (5/8")
	18,5l/min (5 USGPM) with connection Ø20 mm (3/4")
CM30	20l/min (5,3 USGPM) with connection Ø16 mm (5/8")
	26l/min (6,9 USGPM) with connection Ø20 mm (3/4")
- Ball bearing brush motor - Enclosure IP67
- Ambient operational temperature range: -40°C to +70°C
- Liquid temperature range: -40°C to +100°C (-40°F to +212°F)
- 12V or 24V motors
- IP67 classified
- Ball bearing permanent magnet motor
- High torque for safe starts under difficult conditions
- Compact, low-weight design
- Easy, low-cost maintenance and long service
- CE-marked
- Complies with Recreational Craft Directive 94/25/EEC: (ISO 8846), (ISO 10133)
- Complies with Electromagnetic Compatibility Directive 2004/108/EC: (EN55014-1: 2006), (EN55014-2: 1997 +A1: 2001), (EN61000-6-3: 2007) (2004/104/EC: 2004 Annex 1; paragraph 6.5, 6.6, 6.8 and 6.9)

Hot or Cold, Dirty or Wet – The CM10/30 Gets the Job Done

Technical specifications:

Capacity:

CM10

16 mm (5/8") port 15 l/min (4 USGPM) at 0.1 bar
 20 mm (3/4") port 18.5 l/min (5 USGPM) at 0.1 bar

CM30

16 mm (5/8") port* 20 l/min (5.3 USGPM) at 0.1 bar
 20 mm (3/4") port 26 l/min (6.9 USGPM) at 0.1 bar

Impeller: PPS thermoplastic

O-ring: EPDM

Shaft: Stainless steel

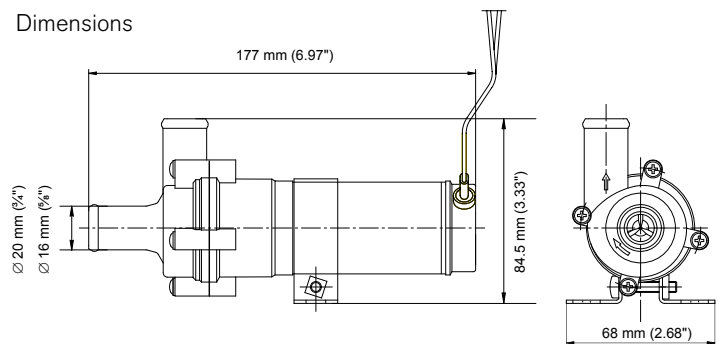
Magnet housing: PSU

Motor: 12/24V DC enclosed (as per IP67) permanent magnet, ball bearing mounted motor, designed for continuous operation

Liquid temp.: Min -40°C Max +100°C

Ports: Ø 16 mm (5/8") or 20 mm (3/4"). ***Note!**
 CM30P7-1 available standard with 20 mm (3/4") hose connection; 16 mm (5/8") hose connection by request only.

Dimensions



Weight: CM10: 0.53 kg (1.2 pounds),
 CM30: 0.6 kg (1.3 pounds)

Body: PPA thermoplastic

Directives:

Recreational Craft Directive 94/25/EEC

(ISO 8846), (ISO 10133)

Electromagnetic Compatibility Directive 2004/108/EC

(EN55014-1: 2006), (EN55014-2: 1997 +A1: 2001), (EN61000-6-3: 2007), (2004/104/EC: 2004 Annex 1; paragraph 6.5, 6.6, 6.8 and 6.9)

Order No.	Description	Hose connection	Back pressure			Flow	
			Bar	kPa	ft	l/min	USGPM
10-24501-03/-04	CM10P7-1, 12V/24V	Ø 16 mm (5/8")	0.1	10	3.3	15.0	4.0
			0.15	15	4.9	12.0	3.2
10-24502-03/-04	CM10P7-1, 12V/24V	Ø 20 mm (3/4")	0.1	10	3.3	18.5	5.0
			0.15	15	4.9	14.5	3.9

Order No.	Description	Hose connection	Back pressure			Flow	
			Bar	kPa	ft	l/min	USGPM
10-24503-03/-04	CM30P7-1, 12V/-24V	Ø 16 mm (5/8")	0.1	10	3.3	20.0	5.3
			0.15	15	6.6	17.5	4.2
10-24504-03/-04	CM30P7-1, 12V/-24V	Ø 20 mm (3/4")	0.1	10	3.3	26.0	6.9
			0.15	15	6.6	22.5	5.2

Description	Order No
CM10P7-1 12V DIA16	10-24501-03
CM10P7-1 24V DIA16	10-24501-04
CM10P7-1 12V DIA20	10-24502-03
CM10P7-1 24V DIA20	10-24502-04
CM30P7-1 12V DIA20	10-24504-03
CM30P7-1 24V DIA20	10-24504-04



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Heavy Duty, Magnetic driven, Seal-less, Circulating pumps

FLANGED TO 12/24/32 V DC MOTOR CM10P7-1, CM30P7-1

IB-301 R06 (05/2013)

ORIGINAL INSTRUCTIONS/TRANSLATION OF ORIGINAL INSTRUCTIONS
READ AND UNDERSTAND THIS MANUAL PRIOR TO OPERATING OR SERVICING THIS
PRODUCT



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Recreational Craft Directive 94/25/EEC

ISO 8846: 1990/Small Craft - Electrical devices - Protection against ignition of surrounding flammable gases
(ISO 10133: 1994/Small Craft - Electrical systems - Extra low-voltage DC installations)

Electromagnetic Compatibility Directive 2004/108/EC

EN55014-1: 2006 Electromagnetic compatibility –
Requirements for household appliances, electric tools and similar apparatus – Part 1:Emission
EN55014-2: 1997 +A1: 2001 Electromagnetic compatibility –
Requirements for household appliances, electric tools and similar apparatus – Part 2:Immunity.
EN61000-6-3: 2007 Electromagnetic compatibility (EMC) –
Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments.
2004/104/EC: 2004 Annex1; paragraph 6.5, 6.6, 6.8 and 6.9.

Made in Sweden

Garanti 1 år
Warranty 1 year
Garantie 1 Jahr
Garantie 1 an
Garantía 1 año
Garanzia 1 anno

Cirkulationspump CM10/30

Typiska användningsområden

- Cirkulation av vatten/glykolblandning i värmarsystem för bilar, båtar, husvagnar etc.
- Cirkulation vid kylning av färskvatten i fordon.
- Allround-pump där självsugningsförmåga inte krävs.

Teknisk beskrivning

Pumphus:	Glasfiberförstärkt plast (PPA, GF 30%)
Axel:	Rostfritt stål
Slitbricka:	Rostfritt stål
O-ring:	EPDM
Pumphjul:	Stomme: Glasfiber förstärkt plast (PPS, GF 40%) Magnet: Ferrit Bussning: Hartsbundet kol
Magnethus:	Glasfiberförstärkt plast (PSU, GF 30%)
Motorgavel:	Glasfiberförstärkt plast (PA66, GF 30%)
Statorrör:	Stål, järn-zinkbehandlat, svartkromaterat
Motortopp:	Glasfiberförstärkt plast (PA66, GF 30%)
Skruv:	Stål, järn-zinkbehandlad, svartkromaterad
Motor:	Kullagrad permanent magnetmotor, 12/24 V
Motorfäste:	Aluminium, lackerat
Skyddsform:	IP67 (DIN40050)
Anslutning:	CM10: 16 alt 20 mm slang CM30: 20 mm slang
Radioavstörd:	EN55014

Modellspecifikation

Pumptyp	Best nr	Anslutning
CM10P7-1, 12 V	10-24501-03	16 mm (5/8")
CM10P7-1, 24 V	10-24501-04	16 mm (5/8")
CM10P7-1, 12 V	10-24502-03	20 mm (3/4")
CM10P7-1, 24 V	10-24502-04	20 mm (3/4")
CM30P7-1, 12 V	10-24503-03	16 mm (5/8")*
CM30P7-1, 24 V	10-24503-04	16 mm (5/8")*
CM30P7-1, 12 V	10-24504-03	20 mm (3/4")
CM30P7-1, 24 V	10-24504-04	20 mm (3/4")

* CM30P7-1 med 16 mm anslutning på förfrågan

Tryck- och kapacitetsdata

(se sid 18)

Baserat på vatten vid 20°C

Reservdelar (se sid 17)

Installationsföreskrifter

CM-pumparna är normalsugande centrifugalpumpar och ska monteras med tillrinning alternativt fyllas upp före start.

Pumpen ska inte köras torr, även om den tål en kortare tids torrkörning. Max torrkörningstid 30 min. Obs! Oljud uppstår vid torrkörning.

Pumpen har medurs rotationsriktning, sett framifrån mot pumphuset (se rotationspil).

Motorerna är konstruerade för kontinuerlig drift och för en spänningsvariation på $\pm 20\%$. Kapacitetsdata (sid 18) är vid nominell spänning. Överspänning reducerar livslängden.

Temperaturområden:

Vätska: -40° – +100°C

Omgivning: -40° – +70°C

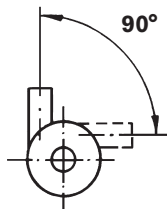
Max systemtryck: 2,5 bar.

Pumparna får ej användas till förorenade vatten som innehåller fasta partiklar.

Viktigt!

Pumparna kan installeras i valfritt läge, horisontellt eller vertikalt.

För att undvika luftfickor bör utloppet vid horisontellt montage vändas uppåt eller så att det befinner sig på övre sidan av pumpen.



Elektrisk installation

Anslut röd kabel till pluspol (+) och svart kabel till minuspol (-).

Elektrisk installation i båt

Pumpen ska installeras i enlighet med ISO 10133 (Båtar - Elektriska system - Klenspänningsinstallationer för likström). Andra elektriska styrdon, reläer och övriga strömbrytare ska placeras mellan pump och batteriets pluspol (på den röda kabeln). Obs! Säkringarna ska vara av gnistskyddad typ.

Alla elektriska anslutningar måste placeras ovanför högsta slagvattennivå. Kabelanslutningarna bör vara avtätade med ett marint tätningsmedel, t ex vaselin, silikon eller fett.

Om pumpen ansluts med separat jordningskabel ska denna vara gul/grön och anslutas till motorns fot.

Se kopplingschema för rätt installation. Negativ ledare ska vara svart.

Välj kabeldimension efter total kabellängd enligt tabell.

Kabelarea

(baserat på 3% spänningsfall)

Kabelarea	Max kabellängd*	
	12 V	24 V
1,0 mm ²	11 m	44 m
1,5 mm ²	16,5 m	
2,5 mm ²	27,4 m	

* Kabellängden är det totala avståndet från batteriet till pumpen och tillbaka till batteriet.

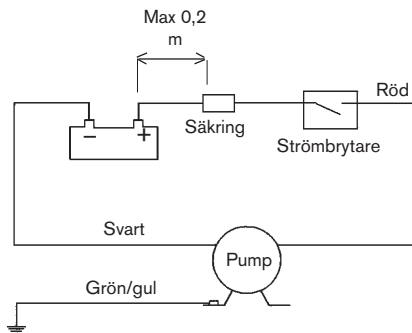
Obs! Före installation med elektriskt styrsystem kontrollera att utrustningen som ska användas har tillräcklig effekt för motorns strömstyrka.



Varning

Pumpa inte bensen, lösningsmedel, thinner eller andra lättantändliga vätskor. Om korrosiva vätskor måste pumpas, skölj pumpen med vatten efter varje användning.

Kopplingschema



Avfallshantering/ materialåtervinning

Vid avfallshantering ska produkten lämnas för destruktion/återvinning enligt gällande lagstiftning. Vid tillämpliga fall demonteras och sorteras produkten i ingående materialfraktioner.

Cirkulation pump CM10/30

Typical applications

- Circulation of water/antifreeze in heating system for cars, boats, recreation vehicles, etc.
- Circulation for cooling fresh water in vehicles.
- All-round pumps wherever self-priming is not essential.

Technical description

Body:	Glass reinforced plastic (PPA, GF 30%)
Shaft:	Stainless steel
Wear plate:	Stainless steel
O-ring:	EPDM
Impeller:	Body: Glass reinforced plastic (PPS, GF 40%) Magnet: Ferrit Bearing: Resin-bonded carbon
Magnet housing:	Glass reinforced plastic (PSU, GF 30%)
Motor flange:	Glass reinforced plastic (PA66, GF 30%)
Polletube:	Steel, el-plated zink-iron, black chromated
Motor end:	Glass reinforced plastic (PA66, GF 30%)
Screws:	Steel, el-plated zink-iron, black chromated
Motor:	Ball bearing permanent magnet motor, 12/24 V
Motorbracket:	Aluminium, painted
Motor protection:	IP67 (DIN40050)
Connection:	CM10: 16 alt 20 mm hose CM30: 20 mm hose
Radio disturbance shielded:	EN55014

Type specification

Pump type	Art. No.	Connection
CM10P7-1, 12 V	10-24501-03	16 mm (5/8")
CM10P7-1, 24 V	10-24501-04	16 mm (5/8")
CM10P7-1, 12 V	10-24502-03	20 mm (3/4")
CM10P7-1, 24 V	10-24502-04	20 mm (3/4")
CM30P7-1, 12 V	10-24503-03	16 mm (5/8")*
CM30P7-1, 24 V	10-24503-04	16 mm (5/8")*
CM30P7-1, 12 V	10-24504-03	20 mm (3/4")
CM30P7-1, 24 V	10-24504-04	20 mm (3/4")

* CM30P7-1 with 16 mm connection on request

Pressure and capacity data (see page 18)

Based on water at 20°C (68°F)

Spare parts (see page 17)

Installation recommendation

The CM-series pumps are normal-priming centrifugal pumps and should be mounted in a manner that ensures that they are always flooded or else be primed before being switched on.

The pump should not be run dry, even if it stands a shorter time of dry running. Max dry running 30 min. Note! Noise at dry running. The direction of rotation of the pump is clockwise, viewed from the front towards the body (see rotation arrow).

The motors are made for continuous duty and for voltage fluctuation of $\pm 20\%$. Capacity data (page 18) is for the rated voltage. Over-voltage reduces component life.

Temperature ranges:

Liquid: $-40^{\circ} - +100^{\circ}\text{C}$

Ambient: $-40^{\circ} - +70^{\circ}\text{C}$

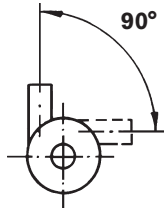
Max system pressure: 2.5 bar.

The pumps should not be used for soiled water containing hard particles.

Important!

The pumps can be installed in optional position, horizontally or vertically.

To avoid air-locks when mounted horizontally, the outlet should be turned in such a way that it is directed upwards or is placed on the upper side of the pump body.



Elektrical installation

Connect red lead to positive (+) terminal and black lead to negative (-) terminal.

Electrical installation in boat

The pump must be installed according to ISO 10133 (Small craft - Electrical system - Extra low voltage DC installation for continuous current). Other electrical devices, eg switch, circuit breaker, must be installed between the pump and the positive (+) lead on the battery (on the red wire). Note: The fuse must be ignition protected.

All electrical connections must be placed above highest bilge water level.

All wire connections ought to be sealed with a marine sealant, e g vaseline, silicon rubber or grease. If the pump is connected with separate earth lead, this should be yellow/green and connected to the motor base. See the wiring scheme for correct installation. Negative wire must be black. Choose wire size in accordance with total wire length (see table).

Note: Before installation with electrical control systems, check that equipment to be used is of sufficient rated capacity to accept ampere draw of motor.

Wiring dimensions

(based on 3% voltage drop)

Wire size	Max wire length in mm*	
	12 V	24 V
1.0 mm ²	11 m	44 m
1.5 mm ²	16.5 m	
2.5 mm ²	27.4 m	

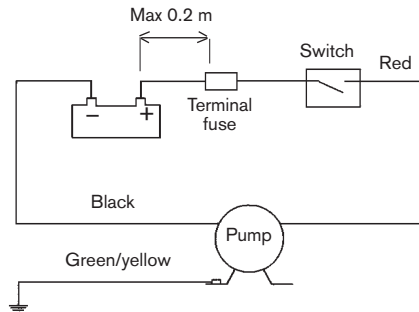
* The wire length is the total distance from the battery to the pump and back to the battery.



Caution

Do not pump gasoline, solvents, thinners, highly concentrated or organic acids. If corrosive fluids must be handled, pump life will be prolonged if flushed with water after each use or after each work day.

Wiring scheme



Waste handling material recycling

At the products end of life, please dispose of the product according to applicable law. Where applicable, please disassemble the product and recycle the parts material.

Umwälzpumpe CM10/30

Typische Einsatzbereiche

- Umwälzpumpe für Wasser, Frostschutzgemisch in Heizanlagen für Kraftfahrzeuge, Boote, Wohnwagen usw.
- Umwälzpumpe zum Kühlen des Frischwassers in Fahrzeugen
- Allzweck-Pumpe, für Einsätze wo keine Selbstansaugung erforderlich ist.

Technische Beschreibung

Pumpengehäuse:	Glasfaserverstärkter Kunststoff (PPA, GF 30 %)
Welle:	Edelstahl
Verschleißplatte:	Edelstahl
O-Ring:	EPDM
Laufrad:	Körper: Glasfaserverstärkter Kunststoff (PPS, GF 40 %) Magnet: Ferrit Lager: Harzgebundener Kohlenstoff
Magnetgehäuse:	Glasfaserverstärkter Kunststoff (PSU, GF 30 %)
Motorenflansch:	Glasfaserverstärkter Kunststoff (PA66, GF 30 %)
Motorengehäuse:	Stahl, eisenzinkbehandelt, schwarzchromatiert
Motorenabdeckung:	Glasfaserverstärkter Kunststoff (PA66, GF 30 %)
Schrauben:	Stahl, eisenzinkbehandelt, schwarzchromatiert
Motor:	Wälzgelagert Dauer-magnetmotor, 12/24 V
Motorträger:	Aluminium, lackiert
Schutzart:	IP67 (DIN40050)
Anschluß:	CM10: Für Schlauch ø 16 bzw. 20 mm CM30: Für Schlauch ø 20 mm
Funkenentstört:	EN55014

Modellbeschreibung

Pumpentyp	Artikel Nr.	Anschluß
CM10P7-1, 12 V	10-24501-03	16 mm (5/8")
CM10P7-1, 24 V	10-24501-04	16 mm (5/8")
CM10P7-1, 12 V	10-24502-03	20 mm (3/4")
CM10P7-1, 24 V	10-24502-04	20 mm (3/4")
CM30P7-1, 12 V	10-24503-03	16 mm (5/8")*
CM30P7-1, 24 V	10-24503-04	16 mm (5/8")*
CM30P7-1, 12 V	10-24504-03	20 mm (3/4")
CM30P7-1, 24 V	10-24504-04	20 mm (3/4")

* CM30P7-1 mit 16 mm Anschluß auf Anfrage

Druck- und Leistungsdaten

(Siehe Seite 18)

Die Angaben beziehen sich auf Wassertemperatur bei 20°C.

Ersatzteilliste (Siehe Seite 17)

Einbauvorschriften

Die CM-Pumpen sind normalansaugende Kreiselpumpen und müssen vor der Inbetriebnahme mit der Förderflüssigkeit aufgefüllt werden.

Die Pumpen dürfen nicht trocken-laufen.

Ein kurzzeitiger Trockenlauf beschädigt die Pumpe nicht. Beachten Sie daß mehr als 30 Minuten Trockenlauf die Pumpe unbrauchbar macht. Hinweis! Beim Trockenlauf sind Laufgeräusche hörbar.

Achtung: Die Pumpe muß immer in Drehrichtung laufen.

Die Pumpen sind für Dauerbetrieb sowie einem Spannungsfall von $\pm 20^\circ$ gefertigt.

Temperaturbereiche:

Flüssigkeit:	-40 °C bis +100 °C
Umgebung:	-40 °C bis +70 °C
Max. System-Druck:	2,5 bar

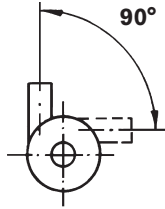
Die Pumpen dürfen nicht für Schmutzwasser, welches grobe Fremdpartikel enthält, verwendet werden.

Wichtig!

Die Pumpen können in jeder beliebigen Arbeitsstellung eingebaut werden, waagrecht oder senkrecht.

Um die Bildung von Luftsäcken zu vermeiden, ist der Pumpenauslaß bei waagrecht

Montage nach oben zu drehen oder so auszurichten das er sich an der oberen Seite der Pumpe befindet.



Elektrischer Anschluß

Das rote Kabel an den Pluspol (+), das schwarze Kabel an den Minuspol (-).

Elektrische Installation im Boot

Die Pumpe muß nach den Normregeln von ISO10133 (für Boote - Elektro-systeme von - extra niedriger Spannung bei Gleichstrominstallation - für gleichmäßigen Stromfluß) installiert werden. Weitere elektrische Komponenten, wie Schalter, Stromkreisunterbrecher, müssen zwischen der Pumpe und der positiven (+) Leitung (rot) der Batterie installiert werden. Achtung: Die Sicherung muß funkengeschützt sein.

Alle elektrischen Anschlüsse müssen immer oberhalb des Wasserniveaus angebracht werden.

Kabelanschlüsse müssen mit einem Spritzwassergeschütztem Dichtungsmittel abgedichtet werden, z.B. Vaseline, Silikon oder Fett.

Wenn die Pumpe mit einer separaten Erdleitung versehen ist, gelb/grün, muß diese mit der Motorhalterung verbunden sein.

Zur korrekten Installation beachten Sie bitte den Schaltplan unten. Minus-leitung Schwarz.

Beachten Sie die Kabelquerschnitte im Zusammenhang mit der erforderlichen Kabellänge.

Tabelle Kabelanschlüsse

(basierend auf 3% Spannungsverlust)

Kabelquerschnitt	Max. Kabellänge*	
	12 V	24 V
1,0 mm ²	11 m	44 m
1,5 mm ²	16,5 m	
2,5 mm ²	27,4 m	

* Die Kabellänge ist die komplette Länge von der Batterie zur Pumpe und zurück zur Batterie.

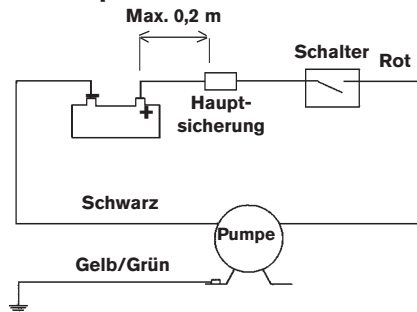
Anmerkung: Bei der Installation mit elektrischem Steuersystem ist sicherzustellen, daß die Ausrüstung für die Stromaufnahme des Motors ausgelegt ist.



Achtung

Kein Benzin, Lösungsmittel, Verdünnungsmittel, organische oder hochkonzentrierte Säuren pumpen. Wenn ätzende Flüssigkeiten gepumpt werden müssen, kann die Standzeit der Pumpe verlängert werden, wenn nach jedem Gebrauch oder mindestens einmal pro Tag mit Wasser nachgespült wird.

Schaltplan



Entsorgung/Recycling

Nach Lebensdauerende entsorgen Sie die Pumpe nach den örtlichen Vorschriften. Nach Möglichkeit demontieren Sie Teile der Pumpe um sie dem Recycling-Process zuzuführen.

Pompe de circulation CM10/30

Domaines d'utilisation typiques

- Circulation d'eau/mélange de glycol dans le système de chauffage pour les voitures, les bateaux, les caravanes, etc.
- Circulation d'eau douce dans les véhicules.
- Pompe universelle quand l'autoamorçage n'est pas nécessaire.

Description technique

Corps de pompe:	Plastique renforcé de fibres de verre (PPA, GF 30%)
Axe:	Acier inoxydable
Rondelle d'usure:	Acier inoxydable
Joint torique:	EPDM
Turbine:	Corps: plastique renforcé de fibres de verre (PPS, GF 40%)
Aimant:	ferrite
Bague:	alliage, carbone/résine
Carter d'aimant:	Plastique renforcé de fibres de verre (PSU, GF 30%)
Flasque moteur:	Plastique renforcé de fibres de verre (PA66, GF 30%)
Enveloppe moteur:	Acier zingué, chromé noir
Tête de moteur:	Plastique renforcé de fibres de verre (PA66, GF 30%)
Vis:	Acier zingué, chromé noir
Moteur:	Moteur magnétique permanent 12/24 V monté sur roulement à billes
Fixation moteur:	Aluminium, laquée
Protection:	IP67 (DIN40050)
Raccord:	CM10: flexible de 10 ou 20 mm CM30: flexible de 20 mm
Antiparasite radio:	EN55014

Les pompes ne doivent pas être utilisées pour

Caractéristiques moteur

Modèle	Référence	Raccord
CM10P7-1, 12 V	10-24501-03	16 mm (5/8")
CM10P7-1, 24 V	10-24501-04	16 mm (5/8")
CM10P7-1, 12 V	10-24502-03	20 mm (3/4")
CM10P7-1, 24 V	10-24502-04	20 mm (3/4")
CM30P7-1, 12 V	10-24503-03	16 mm (5/8")*
CM30P7-1, 24 V	10-24503-04	16 mm (5/8")*
CM30P7-1, 12 V	10-24504-03	20 mm (3/4")
CM30P7-1, 24 V	10-24504-04	20 mm (3/4")

* CM30P7-1 avec connexion 16mm sur demande

Caractéristiques de pression et de débit (voir page 19)

Basées sur de l'eau à +20°C

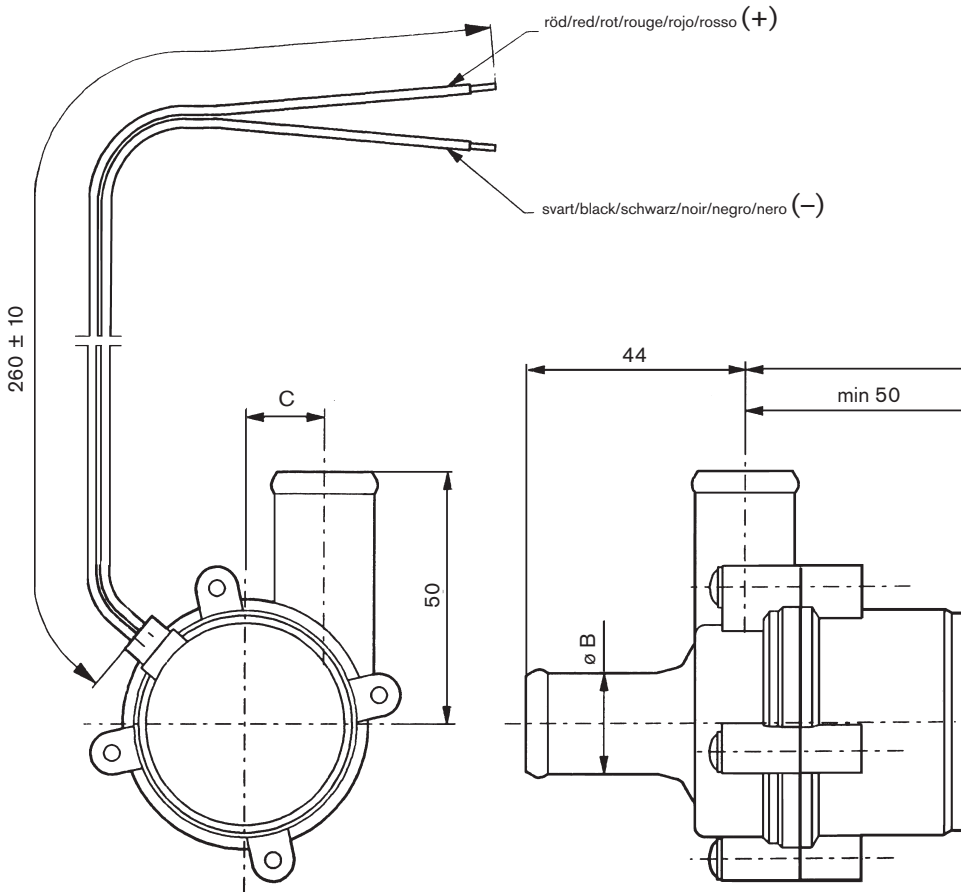
Pièces de rechange (voir page 17)

Prescriptions d'installation

Les pompes CM sont des pompes centrifuges qui doivent être installées en charge ou être amorcées avant le démarrage. La pompe ne doit pas fonctionner à sec de façon continue. Cependant elle peut supporter au maximum 30 minutes de fonctionnement à sec. Dans ce cas, le niveau de bruit peut être plus élevé. La pompe tourne dans le sens d'horloge, vue de devant vers le corps de pompe (voir flèche de rotation). Les moteurs sont prévus pour utilisation continue et pour variations de tension de $\pm 20\%$. Le tableau des débits (page 19) correspond à la tension nominale les surtensions réduisent la durée de vie des composants.

Plages de température:
 Température de liquide: -40°C à +100°C
 Température ambiante: -40°C à +70°C
 Pression maximum: 2,5 bar

Mått och vikt
Dimensions and weight
Abmessungen

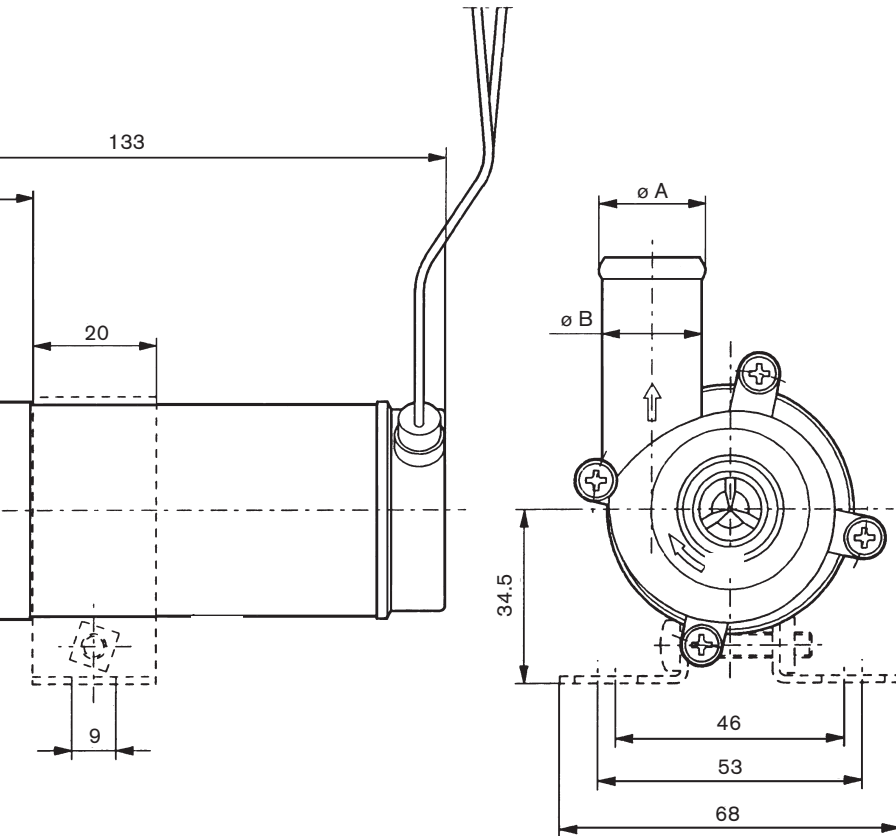


Dimensions et poids

Medidas y peso

Misura e peso

	ø A	ø B	C	Vikt/Weight/Gewicht Poids, Peso
CM10P7-1 ø 16	17.7	16.2 (5/8")	17.3	0.53 kg
CM10P7-1 ø 20	21.4	20.0 (3/4")	15.8	0.53 kg
CM30P7-1 ø 16	17.7	16.2 (5/8")	17.3	0.60 kg
CM30P7-1 ø 20	21.4	20.0 (3/4")	15.8	0.60 kg

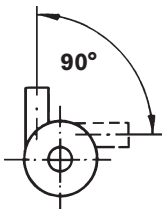


des eaux contenant des particules solides.

Important!

Les pompes peuvent être installées verticalement or ou horizontalement.

Pour éviter des poches d'air avec un montage horizontal, la sortie doit être orientée vers le haut ou vers la droite de façon à toujours être dans la partie supérieure de la pompe.



Installation électrique

Brancher le câble rouge à la borne positive (+) et le câble noir à la borne négative (-).

Installation dans un bateau

La pompe doit être installée suivant les recommandations ISO 10133 (Petits bateaux, système électrique, installation à courant continu de très basse tension). Tous les accessoires électriques tels que: Interrupteurs, disjoncteurs, doivent être installés entre la pompe et le + de la batterie (sur le fil rouge). Nota: Le fusible doit être "antideflagrant".

Tous les raccords électriques doivent être placés au-dessus du niveau maximal d'eau.

Les raccords de câble doivent être étanchés avec un produit d'étanchéité marin, par exemple de la vaseline, du silicone ou de la graisse.

Si un fil de masse est raccordé à la pompe, il doit être de couleur Jaune/Vert et doit être connecté aux pattes de fixation du moteur.

Voir schéma électrique pour une correcte installation. Le fil négatif doit être de couleur noire.

Choisir la section des fils d'alimentation en fonction de leur longueur totale.

Section des fils

(basé sur une chute de tension de 3%)

Section	Longueur maxi*	
	12 V	24 V
1,0 mm ²	11 m	44 m
1,5 mm ²	16,5 m	
2,5 mm ²	27,4 m	

* La longueur totale correspond à la distance de la batterie à la pompe et du retour de la pompe à la batterie. batterie.batterie.

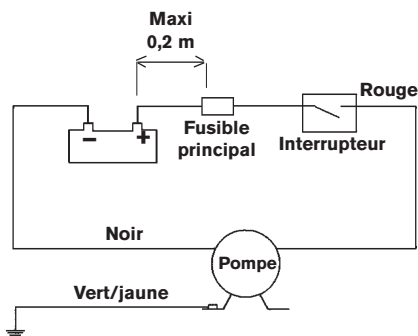
Important: Avant toute installation avec un système de commande électrique, vérifier que le matériel qui va être utilisé, peut supporter le courant demandé par le moteur.



Attention

Ne pas pomper d'essence, de solvants, de diluants, d'acides organiques ou très concentrés. Dans le cas d'un fonctionnement avec des liquides corrosifs, un rinçage à l'eau après chaque utilisation ou après chaque journée de travail prolongera sa durée de vie.

Schéma électrique



Gestion des déchets/recyclage des matériaux

Lorsque le matériel arrivera en fin de vie, veuillez le mettre au rebut en fonction des lois applicables. Lorsque c'est possible, veuillez démonter le matériel et recycler les pièces pouvant l'être

Bomba de circulación CM10/30

Aplicaciones más usuales

- Circulación de agua/mezcla de glicol en sistemas de calefacción de vehículos, embarcaciones, remolques, caravanas, etc.
- Circulación en la refrigeración por agua dulce en vehículos.
- Bomba de uso general en aplicaciones que no requieren capacidad auto-aspirante.

Descripción técnica

Cuerpo de la bomba:	Plástico reforzado con fibra de vidrio (PPA, GF 30%)
Eje:	Acero inoxidable
Arandela de desgaste:	Acero inoxidable
Aro tórico:	EPDM
Impulsor:	Cuerpo: Plástico reforzado con fibra de vidrio (PPS, GF 40%) Imán: Ferrita Casquillo: Carbonoresina
Caja imán:	Plástico reforzado con fibra de vidrio (PSU, GF 30%)
Tapa motor:	Plástico reforzado con fibra de vidrio (PA66, GF 30%)
Tubo estátor:	Acero, electrozincado, cromado negro
Tope del motor:	Plástico reforzado con fibra de vidrio (PA66, GF 30%)
Tornillos:	Acero, hierro zincado, cromado negro
Motor:	De imán permanente, cojinetes de bolas, 12/24 V
Fijaciones motor:	Aluminio, lacado
Forma de protección:	IP67 (DIN40050)
Conexiones:	CM10: manguera de 16 o 20 mm CM30: manguera de 20 mm
Protección antiparásitos radio:	EN55014

Especificación de modelos

Tipo de bomba	Pieza No	Conexión
CM10P7-1, 12 V	10-24501-03	16 mm (5/8")
CM10P7-1, 24 V	10-24501-04	16 mm (5/8")
CM10P7-1, 12 V	10-24502-03	20 mm (3/4")
CM10P7-1, 24 V	10-24502-04	20 mm (3/4")
CM30P7-1, 12 V	10-24503-03	16 mm (5/8")*
CM30P7-1, 24 V	10-24503-04	16 mm (5/8")*
CM30P7-1, 12 V	10-24504-03	20 mm (3/4")
CM30P7-1, 24 V	10-24504-04	20 mm (3/4")

* CM30P7 1 con conexión de 16 mm bajo pedido

Datos de presión y caudal

(ver página 19)

Basados con agua a 20 °C

Repuestos (ver página 17)

Instrucciones instalación

Las bombas CM son centrífugas de aspiración normal y han de montarse de forma que reciban agua o que se ceben antes de la puesta en marcha.

Las bombas no deben funcionar en seco, aunque soporten este tipo de funcionamiento durante algún tiempo.

El tiempo máximo de funcionamiento en seco no ha de ser superior a 30 minutos. Nota: Al funcionar en seco la bomba produce ruidos. El sentido de rotación es a la derecha, con el cuerpo de bomba visto frontalmente (véase la flecha indicadora).

Los motores son de funcionamiento continuo y permite una variación de $\pm 20\%$. Curvas de caudales según esquema (página 19). El sobrevoltaje reduce la vida de la bomba.

Gamas de temperatura:

Líquido: -40° - +100 °C

Ambiente: -40° - +70 °C

Presión máxima: 2,5 bar

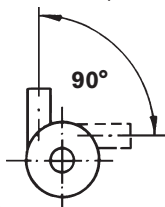
Las bombas no deben utilizarse en aguas que contengan partículas sólidas.

Importante

Las bombas pueden instalarse en cualquier posición, horizontal o vertical.

En la instalación horizontal conviene que la salida quede orientada hacia arriba o de manera que se encuentre en la parte superior de la bomba.

Se evitará así la formación de bolsas de aire.



Instalación eléctrica

Conectar el cable rojo al borne positivo (+) y el cable negro al borne negativo (-).

Instalación en embarcaciones

La bomba debe instalarse según ISO 10133 (Pequeñas embarcaciones - Artículos eléctricos. Bajo voltaje de CC para instalaciones de corriente continua.) Los demás dispositivos eléctricos, interruptor, magnetotérmico, deberán instalarse entre la bomba y el positivo de la batería (en el cable rojo). Nota: El fusible debe ser antideflagante.

Todas las conexiones eléctricas han de colocarse sobre el nivel más alto que pueda alcanzar el agua de la sentina.

Las conexiones de los cables han de estar selladas con sellador marino; por ejemplo, vaselina, silicona o grasa.

Si la bomba se instala con toma de tierra, el cable será amarillo y verde y se conecta a la base del motor.

Para su correcta instalación, ver el esquema eléctrico. El cable negativo será negro.

Instalar la sección del cable que corresponda según la distancia.

Tabla de cables

(Basada en caída de voltaje 3%)

Sección cable	Largo máx * del cable	
	12 V	24 V
1,0 mm ²	11 m	44 m
1,5 mm ²	16,5 m	
2,5 mm ²	27,4 m	

* El largo del cable, es la distancia total desde la batería a la bomba y regreso a la batería.

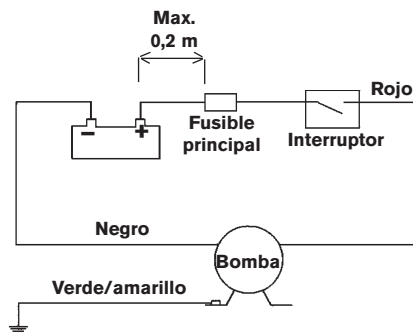
Observación: Antes de instalar sistemas eléctricos de control, comprobar que el equipo a utilizar tiene la capacidad nominal necesaria para acomodar el amperaje del motor. La tensión baja tiene como consecuencia el recalentamiento del motor.



Advertencia

No bombear gasolina, disolventes, diluyentes, ácidos orgánicos o de concentración elevada. Si es necesario bombear fluidos corrosivos, la vida útil de la bomba se protege si se hace correr agua por la bomba cada vez que se la utiliza o al final de la jornada.

Esquema eléctrico



Desguace/Reciclado

Al final de la vida del equipo disponga de este de acuerdo a la ley. Donde sea de aplicación desmonte el equipo y recicle los diferentes materiales.

Pompa di circolazione CM10/30

Campi d'impiego tipici:

- Circolazione di acqua/miscela di glicole nei circuiti di riscaldamento per autovetture, imbarcazioni, roulotte, ecc.
- Circolazione negli impianti di refrigerazione di acqua pura nei veicoli.
- Pompa multiuso in tutti gli impianti che non richiedono la funzione autoadescente.

Descrizione tecnica

Corpo pompa: Plastica rinforzata con fibra di vetro (PPA, GF 30%)

Alberino della

pompa: Acciaio inossidabile

Rondella antiusura: Acciaio inossidabile

O-ring: EPDM

Girante: Struttura: Plastica rinforzata con fibra di vetro (PPS, GF 40%)
Magnete: Ferrite

Boccola: Resina carbonica

Alloggiamento magnete: Plastica rinforzata con fibra di vetro (PPS, GF 30%)

Parete motore: Plastica rinforzata con fibra di vetro (PA66, GF 30%)

Tubo dello statore: Acciaio, trattato al ferro-zinco e cromatato nero

Involucro motore: Plastica rinforzata con fibra di vetro (PA66, GF 30%)

Vite: Acciaio, trattato al ferro-zinco e cromatato nero

Motore: Motore a magnete permanente supportato da cuscinetti, 12/24 V

Attacchi motore: Alluminio verniciato

Tipo di protezione: IP67 (DIN40050)

Conessioni: CM10: Tubo flessibile da 16 oppure 20 mm

CM30: Tubo flessibile da 20 mm

Protezione disturbi radio:

EN55014

Specifiche modelli

Tipo di pompa	Art. No.	Collegamento
CM10P7-1, 12 V	10-24501-03	16 mm (5/8")
CM10P7-1, 24 V	10-24501-04	16 mm (5/8")
CM10P7-1, 12 V	10-24502-03	20 mm (3/4")
CM10P7-1, 24 V	10-24502-04	20 mm (3/4")
CM30P7-1, 12 V	10-24503-03	16 mm (5/8")*
CM30P7-1, 24 V	10-24503-04	16 mm (5/8")*
CM30P7-1, 12 V	10-24504-03	20 mm (3/4")
CM30P7-1, 24 V	10-24504-04	20 mm (3/4")

* CM30P7-1 con attacco 16 millimetri a richiesta

Dati tecnici relativi a pressione e portata (Vedi página 19)

Basati su impiego di acqua a 20°C

Parti di ricambio (Vedi página 17)

Istruzioni per il montaggio

Le pompe CM sono pompe centrifughe ad aspirazione normale e devono essere allacciate a tubature in presenza di flusso oppure essere riempite prima dell'avviamento.

La pompa non deve essere azionata a secco, anche se è in grado di sopportare un breve periodo d'esercizio in tale condizione. Il tempo massimo d'esercizio a secco è di 30 minuti. N.B.! Il funzionamento a secco produce notevole rumorosità.

La girante ruota in senso orario, vista anteriormente verso il corpo pompa (vedere la freccia che indica il senso di rotazione).

I motori sono costruiti per lavorare in corrente continua e per sopportare una variazioni di voltaggio del $\pm 20\%$. I dati di capacità (página 19) servono per stabilire il voltaggio. Con voltaggio superiore al dovuto riduce i tempi di durata delle parti.

Temperature d'esercizio:

Fluido: -40°C + 100°C

Ambiente circostante: -40°C + 70°C

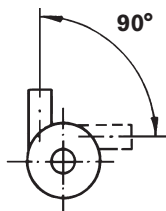
Pressione massima del sistema: 2,5 bar.

Le pompe non devono essere utilizzate con acque luride che contengano particelle solide.

Importante!

Le pompe possono essere montate sia in posizione orizzontale che verticale, come si preferisce.

Per evitare però il formarsi di bolle d'aria in caso di montaggio orizzontale, l'uscita di scarico va disposta verso l'alto o comunque in posizione sovrastante al corpo pompa.



Installazione elettrica

Collegare il cavo rosso al polo positivo (+) e quello nero al polo negativo (-).

Nell'installazione su imbarcazioni

La pompa è costruita secondo le norme ISO 10133 (funzionamento in corrente continua per piccoli circuiti).

Altre installazioni elettriche, interruttori ecc., devono essere montate tra la pompa e il polo positivo (+) della batteria (filo rosso). Nota: Il fusibile deve essere protetto dall'accensione.

Tutti i collegamenti elettrici vanno posti al di sopra della linea di livello più elevata dell'acqua di sentina.

Gli allacciamenti elettrici andrebbero isolati mediante isolante marino, ad esempio vaselina, silicone o grasso.

Per il collegamento a massa della pompa, utilizzare il filo giallo/verde (massa internazionale).

Per una corretta installazione, consultare lo schema elettrico. Il cavo del negativo deve essere nero.

La sezione dei fili è variabile a seconda della loro lunghezza.

Nota: Prima dell'installazione con i sistemi di controllo elettrici, controllare che l'attrezzatura da usare sia di capacità sufficiente da accettare il consumo di ampere del motore.

Tabella informativa per la scelta sezione cavi

(variazione = 3% V)

Sezione del filo	Max lunghezza del filo*	
	12 V	24 V
1,0 mm ²	11 m	44 m
1,5 mm ²	16,5 m	
2,5 mm ²	27,4 m	

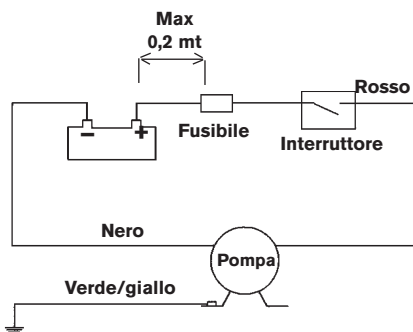
* La lunghezza del filo si trova calcolando la distanza dalla batteria alla pompa e ritorno. Si raccomanda l'utilizzo di un fusibile che abbia un collegamento elettrico che parte dall'alimentazione principale fino ad arrivare al pressostato. Si consiglia inoltre di montare il fusibile il più vicino possibile alla fonte di alimentazione principale (max 0,20 m).
batteriet.



Cautela

Non pompare benzina, solventi, diluenti, acidi altamente concentrati od organici. Se è necessario trattare fluidi corrosivi, la durata della pompa potrà essere prolungata sciacquando con acqua dopo ciascun uso o dopo ogni giorno di lavoro.

Schema elettrico



Gestione dei rifiuti/ riciclaggio dei materiali

Al termine della vita del prodotto si prega di smaltire il prodotto secondo le leggi in vigore per queste operazioni. Quando possibile, si raccomanda di smontare il prodotto e riciclare i materiali dei componenti.

Reservdelista

Parts list

Ersatzteilliste

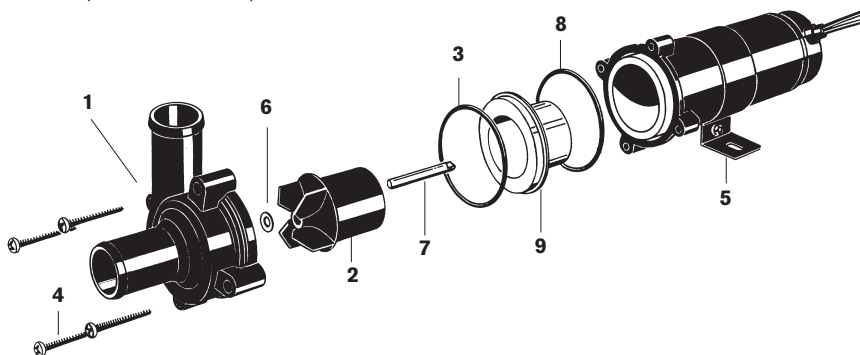
Liste des pièces

Lista de piezas

Elenco delle parti

Pos	Nos	Benämning	Description	Bezeichnung	Art No
1	1	Pumphus, ø 16	Body, ø 16	Gehäuse, ø 16	09-46549*)
		Pumphus, ø 20	Body, ø 20	Gehäuse, ø 20	09-46550*)
2	1	Pumphjul	Impeller	Laufgrad	09-46551**)
3	1	O-ring	O-ring	O-Ring	0.2173.020
4	4	Skruv	Screw	Schraube	0.0145.002
5	1	Motorfäste	Motor bracket	Motorträger	36-503-023
6	1	Bricka	Washer	Scheibe	01-46792-01
7	1	Axel	Shaft	Welle	01-46317
8	1	Packning	Gasket	Dichtung	01-46552
9	1	Magnethus	Magnet housing	Magnetgehäuse	01-35733

*) incl pos 3, 4 **) incl pos 6, 7



Pos	Nos	Description	Descripción	Descrizione	Art No
1	1	Corps de pompe, ø 16	Cuerpo, ø 16	Alloggiamento pompa, ø 16	09-46549*)
		Corps de pompe, ø 20	Cuerpo, ø 20	Alloggiamento pompa, ø 20	09-46550*)
2	1	Turbine	Impulsor	Girante	09-46551**)
3	1	Joint torique	Aro tórico	O-Ring	0.2173.020
4	4	Vis	Tornillos	Viti	0.0145.002
5	1	Fixation moteur	Fijación del motor	Attacchi motore	36-503-023
6	1	Rondelle d'usure	Arandela de desgaste	Rondella antiusura	01-46792-01
7	1	Axe	Eje	Alberino della pompa	01-46317
8	1	Joint	Junta	Guarnizione	01-46552
9	1	Boîtier d'aimant	Caja del imán	Alloggiamento magnete	01-35733

*) incl pos 3, 4 **) incl pos 6, 7

SVENSKA

Tryck- och kapacitet		Tryck			Flöde		Strömförbr.	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Slanganslutning ø 16 mm (5/8")	0.10	10	3.3	15.0	4.0	1.2	0.6
		0.15	15	4.9	12.0	3.2	1.1	0.55
		0.20	20	6.6	7.3	1.9	0.9	0.5
	Rek. säkring						1.6	0.8
CM10P7-1	Slanganslutning ø 20 mm (3/4")	0.10	10	3.3	18.5	5.0	1.2	0.6
		0.15	15	4.9	14.5	3.9	1.1	0.55
		0.20	20	6.6	9.0	2.4	1.0	0.5
	Rek. säkring						1.6	0.8
CM30P7-1	Slanganslutning ø 16 mm (5/8")*	0.10	10	3.3	20.0	5.3	1.9	0.9
		0.20	20	6.6	16.0	4.2	1.75	0.8
		0.30	30	9.8	7.5	2.0	1.4	0.75
	Rek. säkring						3.0	1.6
CM30P7-1	Slanganslutning ø 20 mm (3/4")	0.10	10	3.3	26.0	6.9	2.2	1.1
		0.20	20	6.6	19.5	5.2	2.0	1.0
		0.30	30	9.8	9.0	2.4	1.7	0.75
	Rek. säkring						3.0	1.6

* På begäran

ENGLISH

Pressure and Capacity		Back pressure			Flow		Amperage	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Hose connection ø 16 mm (5/8")	0.10	10	3.3	15.0	4.0	1.2	0.6
		0.15	15	4.9	12.0	3.2	1.1	0.55
		0.20	20	6.6	7.3	1.9	0.9	0.5
	Fuse required						1.6	0.8
CM10P7-1	Hose connection ø 20 mm (3/4")	0.10	10	3.3	18.5	5.0	1.2	0.6
		0.15	15	4.9	14.5	3.9	1.1	0.55
		0.20	20	6.6	9.0	2.4	1.0	0.5
	Fuse required						1.6	0.8
CM30P7-1	Hose connection ø 16 mm (5/8")*	0.10	10	3.3	20.0	5.3	1.9	0.9
		0.20	20	6.6	16.0	4.2	1.75	0.8
		0.30	30	9.8	7.5	2.0	1.4	0.75
	Fuse required						3.0	1.6
CM30P7-1	Hose connection ø 20 mm (3/4")	0.10	10	3.3	26.0	6.9	2.2	1.1
		0.20	20	6.6	19.5	5.2	2.0	1.0
		0.30	30	9.8	9.0	2.4	1.7	0.75
	Fuse required						3.0	1.6

* available on request

DEUTSCH

Druck- und Leistung		Druck			Fördermenge		Stromverbrauch	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Schlauchanschluß ø 16 mm (5/8")	0.10	10	3.3	15.0	4.0	1.2	0.6
		0.15	15	4.9	12.0	3.2	1.1	0.55
		0.20	20	6.6	7.3	1.9	0.9	0.5
	Empfohlene Sicherung						1.6	0.8
CM10P7-1	Schlauchanschluß ø 20 mm (3/4")	0.10	10	3.3	18.5	5.0	1.2	0.6
		0.15	15	4.9	14.5	3.9	1.1	0.55
		0.20	20	6.6	9.0	2.4	1.0	0.5
	Empfohlene Sicherung						1.6	0.8
CM30P7-1	Schlauchanschluß ø 16 mm (5/8")*	0.10	10	3.3	20.0	5.3	1.9	0.9
		0.20	20	6.6	16.0	4.2	1.75	0.8
		0.30	30	9.8	7.5	2.0	1.4	0.75
	Empfohlene Sicherung						3.0	1.6
CM30P7-1	Schlauchanschluß ø 20 mm (3/4")	0.10	10	3.3	26.0	6.9	2.2	1.1
		0.20	20	6.6	19.5	5.2	2.0	1.0
		0.30	30	9.8	9.0	2.4	1.7	0.75
	Empfohlene Sicherung						3.0	1.6

* Auf Anfrage erhältlich

FRANÇAIS

Pression et débit		Pression			Débit		Intensité	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Raccord de flexible ø 16 mm (5/8")	0.10	10	3.3	15.0	4.0	1.2	0.6
		0.15	15	4.9	12.0	3.2	1.1	0.55
		0.20	20	6.6	7.3	1.9	0.9	0.5
	Fusible nécessaire						1.6	0.8
CM10P7-1	Raccord de flexible ø 20 mm (3/4")	0.10	10	3.3	18.5	5.0	1.2	0.6
		0.15	15	4.9	14.5	3.9	1.1	0.55
		0.20	20	6.6	9.0	2.4	1.0	0.5
	Fusible nécessaire						1.6	0.8
CM30P7-1	Raccord de flexible ø 16 mm (5/8")*	0.10	10	3.3	20.0	5.3	1.9	0.9
		0.20	20	6.6	16.0	4.2	1.75	0.8
		0.30	30	9.8	7.5	2.0	1.4	0.75
	Fusible nécessaire						3.0	1.6
CM30P7-1	Raccord de flexible ø 20 mm (3/4")	0.10	10	3.3	26.0	6.9	2.2	1.1
		0.20	20	6.6	19.5	5.2	2.0	1.0
		0.30	30	9.8	9.0	2.4	1.7	0.75
	Fusible nécessaire						3.0	1.6

* Disponible sur demande

ESPAÑOL

Presión y caudal		Presión			Caudal		Amperaje	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Conexión tubo ø 16 mm (5/8")	0.10	10	3.3	15.0	4.0	1.2	0.6
		0.15	15	4.9	12.0	3.2	1.1	0.55
		0.20	20	6.6	7.3	1.9	0.9	0.5
	Fusible recomendado						1.6	0.8
CM10P7-1	Conexión tubo ø 20 mm (3/4")	0.10	10	3.3	18.5	5.0	1.2	0.6
		0.15	15	4.9	14.5	3.9	1.1	0.55
		0.20	20	6.6	9.0	2.4	1.0	0.5
	Fusible recomendado						1.6	0.8
CM30P7-1	Conexión tubo ø 16 mm (5/8")*	0.10	10	3.3	20.0	5.3	1.9	0.9
		0.20	20	6.6	16.0	4.2	1.75	0.8
		0.30	30	9.8	7.5	2.0	1.4	0.75
	Fusible recomendado						3.0	1.6
CM30P7-1	Conexión tubo ø 20 mm (3/4")	0.10	10	3.3	26.0	6.9	2.2	1.1
		0.20	20	6.6	19.5	5.2	2.0	1.0
		0.30	30	9.8	9.0	2.4	1.7	0.75
	Fusible recomendado						3.0	1.6

* Disponible bajo pedido

ITALIANO

Pressione e portata		Pressione			Portata		Amperaggio	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Sezione tubo ø 16 mm (5/8")	0.10	10	3.3	15.0	4.0	1.2	0.6
		0.15	15	4.9	12.0	3.2	1.1	0.55
		0.20	20	6.6	7.3	1.9	0.9	0.5
	Fusibile raccomandato						1.6	0.8
CM10P7-1	Sezione tubo ø 20 mm (3/4")	0.10	10	3.3	18.5	5.0	1.2	0.6
		0.15	15	4.9	14.5	3.9	1.1	0.55
		0.20	20	6.6	9.0	2.4	1.0	0.5
	Fusibile raccomandato						1.6	0.8
CM30P7-1	Sezione tubo ø 16 mm (5/8")*	0.10	10	3.3	20.0	5.3	1.9	0.9
		0.20	20	6.6	16.0	4.2	1.75	0.8
		0.30	30	9.8	7.5	2.0	1.4	0.75
	Fusibile raccomandato						3.0	1.6
CM30P7-1	Sezione tubo ø 20 mm (3/4")	0.10	10	3.3	26.0	6.9	2.2	1.1
		0.20	20	6.6	19.5	5.2	2.0	1.0
		0.30	30	9.8	9.0	2.4	1.7	0.75
	Fusibile raccomandato						3.0	1.6

* Disponibile su richiesta



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Seal-less,
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FLANGED TO 12/24/32 V DC MOTOR
CM10P7-1, CM30P7-1

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