SPXFLOW

INSTRUCTION MANUAL

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

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

IB-301 R08 (05/2020)

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

Johnson Pump®

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! Noice 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 continous duty and for voltage fluctuation of ± 20%. Capacity data (page 18) is for the rated voltage. Overvoltage reduces component life.

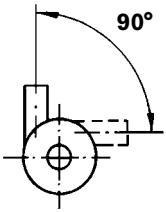
Temperature ranges:

Liquid:	-40° – +100°C
Ambient:	-40° – +70°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 the 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 lenght (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)

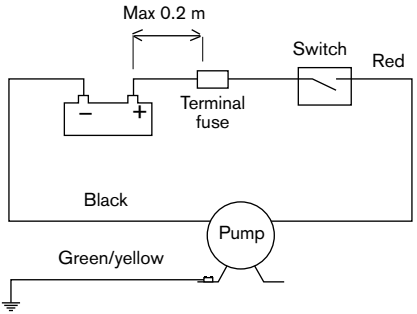
Wire size	Max wire lenght in mm*	
	12 V	24 V
1.0 mm^2	11 m	44 m
1.5 mm^2	16.5 m	
2.5 mm^2	27.4 m	

* 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.

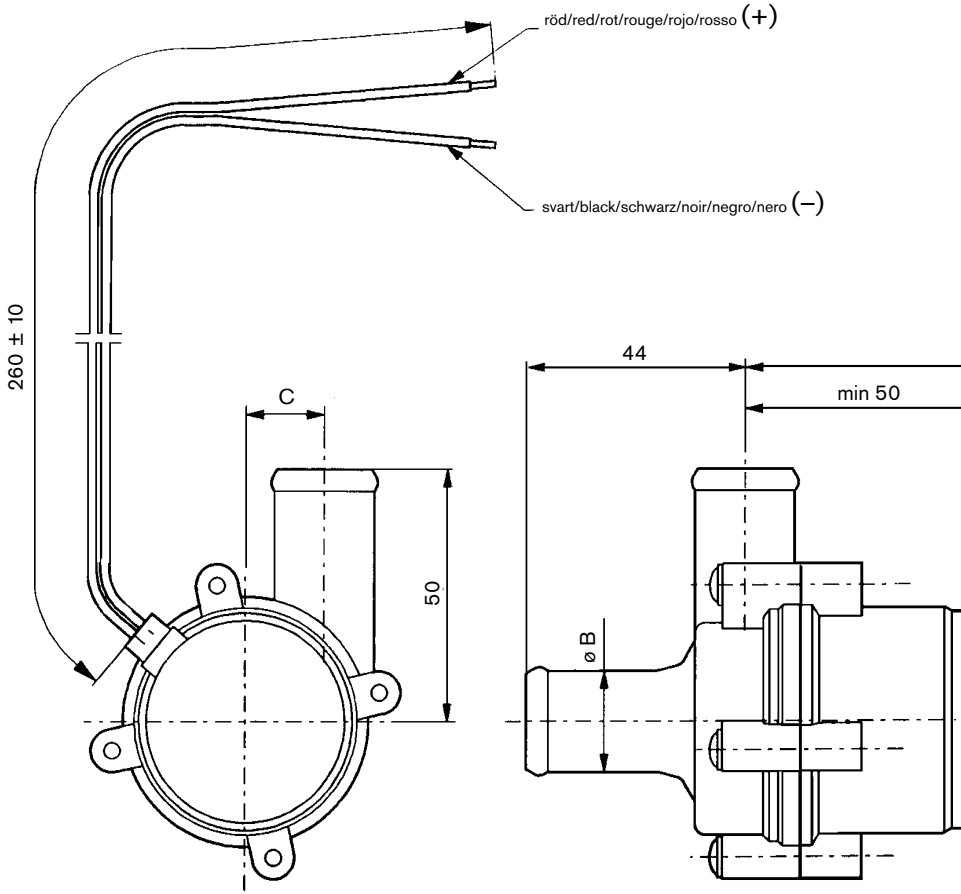
Wiring scheme



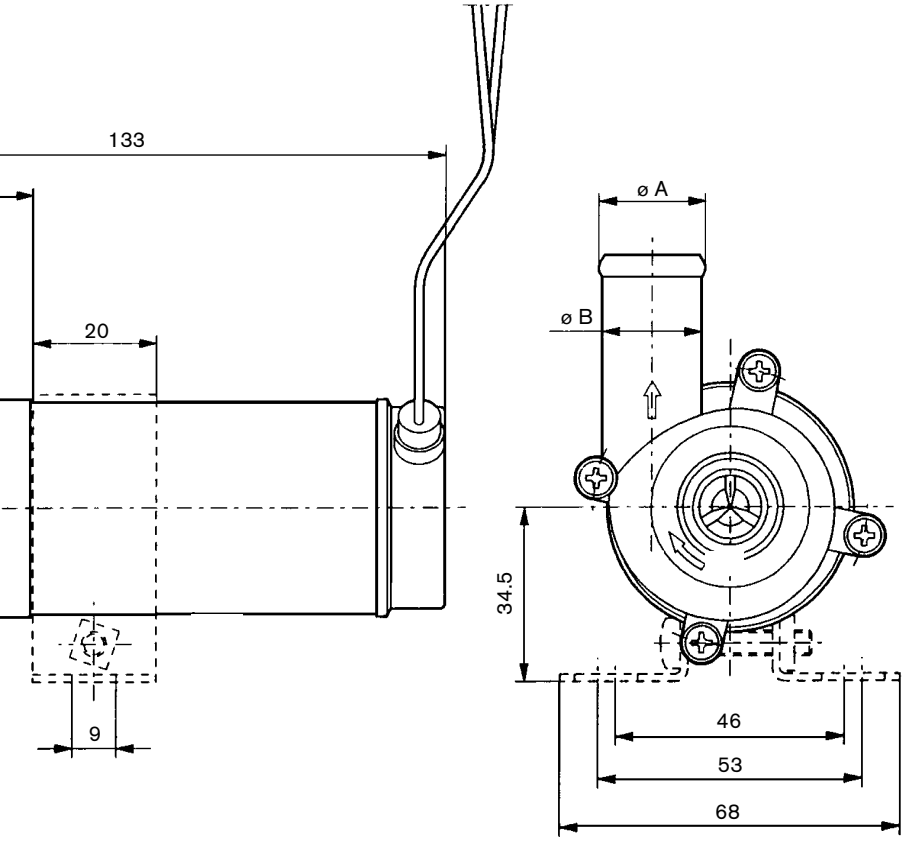
Waste handling material recycling

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.

Dimensions and weight



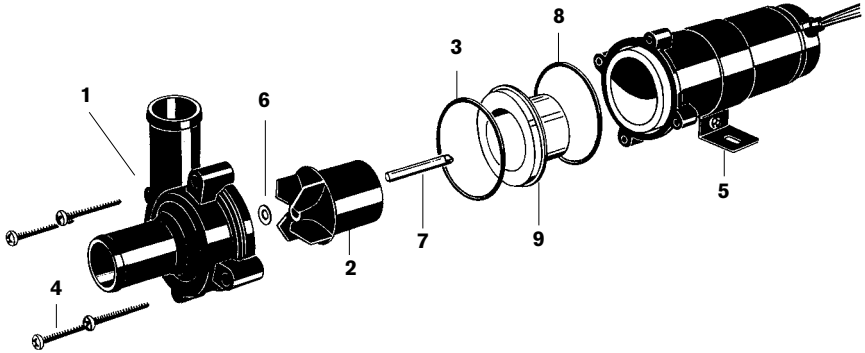
	ø A	ø B	C	Weight
CM10P7-1 ø 16	17.7	16.2 (5/8")	17.3	0.53 kg
CM10P7-1 ø 20	21.4	20.0 (3/4")	15.8	0.53 kg
CM30P7-1 ø 16	17.7	16.2 (5/8")	17.3	0.60 kg
CM30P7-1 ø 20	21.4	20.0 (3/4")	15.8	0.60 kg



Parts list

Pos	Nos	Description	Art No
1	1	Body, ø 16	09-46549*)
		Body, ø 20	09-46550*)
2	1	Impeller	09-46551**)
3	1	O-ring	0.2173.020
4	4	Screw	0.0145.002
5	1	Motor bracket	36-503-023
6	1	Washer	01-46792-01
7	1	Shaft	01-46317
8	1	Gasket	01-46552
9	1	Magnet housing	01-35733

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



Pressure and Capacity		Back pressure			Flow		Amperage	
		Bar	kPa	ft	l/min	USGPM	12 V	24 V
CM10P7-1	Hose connection	0.10	10	3.3	15.0	4.0	1.2	0.6
	ø 16 mm (5/8")	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	0.10	10	3.3	18.5	5.0	1.2	0.6
	ø 20 mm (3/4")	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	0.10	10	3.3	20.0	5.3	1.9	0.9
	ø 16 mm (5/8")*	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	0.10	10	3.3	26.0	6.9	2.2	1.1
	ø 20 mm (3/4")	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

SPXFLOW

INSTRUCTION MANUAL
CM90
(SE/EN/DE/FR/ES/IT)

Heavy duty, Magnetic driven, Seal-less, Circulation Pump

FLANGED TO 12/24/32 V DC MOTOR CM90P7-1

IB-305 R08 (10/2017)

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

Johnson Pump®

Circulation Pump CM90

Typical applications

Circulation in heating- and cooling system for buses, trains and boats, etc. All-round pump wherever selfpriming is not essential.

Features

- Centrifugal pump (must be primed)
- Magnetic drive (no shaft seal/mechanical seal)
- Long service life.
- Wide temp. range
- Built-in thermal overload protection
- EMC approved:
  12V: UN ECE R10 Rev 5.
  24V:UN ECE R10 Rev 5.
- CE 12V: EN60945, EN61000, ISO8846, ISO 10133.
- CE 24V: ISO8846, ISO 10133.

Technical description

Parts in contact with liquid

Pump housing:	PPA GF30
Impeller:	PA12 GF30
Intermediate part:	PPA GF30
Bushing:	Resin bonded carbon
Shaft:	Stainless steel, hardened
Impeller magnet:	PA12 bonded ferrite
Magnet housing:	Stainless steel
O-rings:	EPDM, peroxide cured

Driving unit incl. motor

Drive magnet:	PA6 bonded ferrite
Screws and nuts:	Stainless steel A4
Motor:	Permanent magnet brush motor with ball bearings
End bells:	Alu, painted black
Stator tube:	Steel, painted black
Bracket:	Stainless steel
Clamps:	Stainless steel
Degree of protection:	IP67 (EN60529)
Connections:	38 mm (1½") hose
	20 mm (¾") hose

Type specification

Art No	Voltage	Connection
10-24664-09	13.6 V - 12V-system	38 mm/1½"
10-24664-10	27.2 V - 24V-system	38 mm/1½"
10-24750-09	13.6 V - 12V-system	20 mm/¾"
10-24750-10	27.2 V - 24V-system	20 mm/¾"

Pressure and capacity data

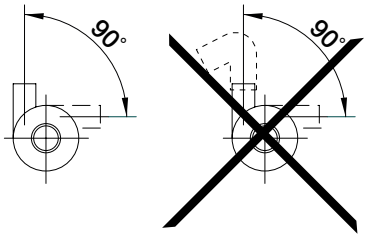
(See page 25)

Spare parts (See page 8)

Installation recommendations

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. In a closed system the pump should be placed at a low point.
The pump should not be run dry, even if it withstands a shorter time of dry running. Max dry running 30 minutes. Noise may occur. Avoid dry running because it will always cause increased wear.
Use full hose diameter at inlet. Reduced hose diameter at inlet gives reduced performance and risk of cavitations which can cause damage in the pump.
The direction of rotation is clock-wise, viewed from the front towards the body (see rotation arrow).
The pump can be installed horizontally or vertically, on a flat surface.

To avoid air-locks when mounted horizontally, the body should be turned in such a way that the outlet is directed upwards or is placed on the upper side of the pump body (see sketch). The outlet hose after the pump must be horizontal or directed upwards to evacuate air.



The pumps should not be used for sea-water or other heavy soiled liquids. The pumps are designed for continuous duty.

Temperatures

Liquid temperature:
-40°C to +100°C (-40°F to + 212°F)

Ambient temperature in operation:
-40°C to +90°C (-40°F to +194°F) -

Not in operation:
-40°C to +120°C (-40°F to +248°F)

System pressure:

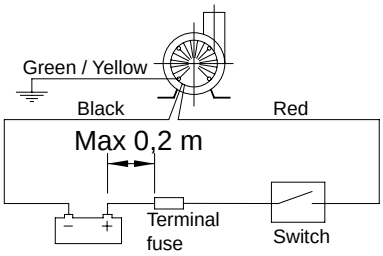
-0,2 to 2,5 bar at 100°C (212°F)
The motors are designed for a service life of 10 000 hours at nominal voltage and ambient temperature of about 30°C (86°F).

Voltage range:

10 – 16V (Nom 13.6 V)
20 – 32V (Nom 27.2 V)
The motors withstands both raised voltage and raised ambient temp within the ranges but both will have a negative influence on service life.
The pump should not be exposed to heat radiation.
Max 60% glycol for a water-glycol mixture.

Electrical installation

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



Electric 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, e.g. 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 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 rear end bell of the motor, Use a M3-screw.
See the wiring schema 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*	
	13,6V	27,2V
1,5 mm²	---	16 m
2,5 mm²	6,3 m	25 m
3 mm²	8 m	31 m
4 mm²	10m	40 m

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

Caution

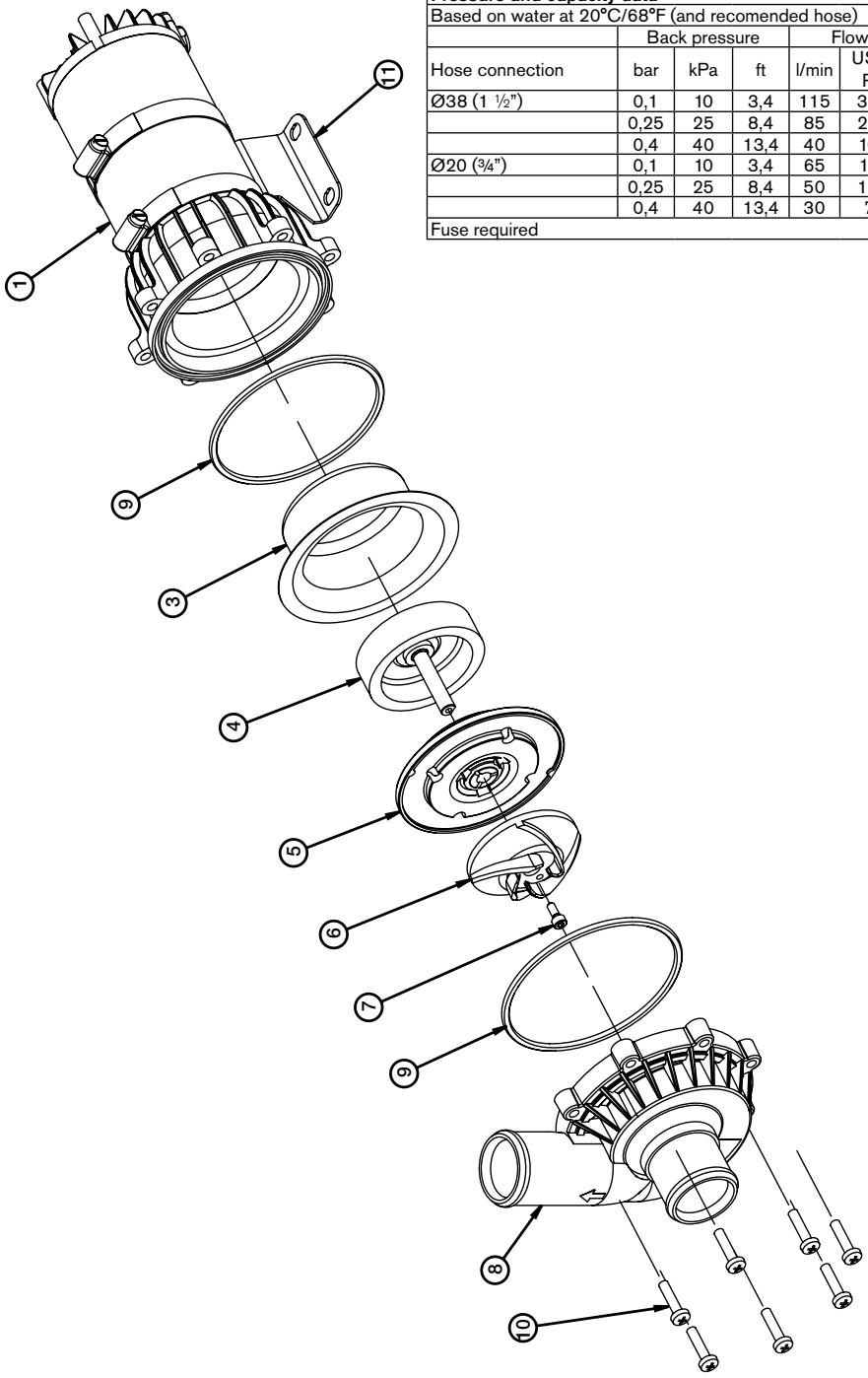
Do not pump gasoline, solvents, thinner, highly concentrated or organic acids.
If corrosive fluids must be handled, pump life will be prolonged if flushed with water after each use or after each work day.

Waste management/Recycling

Dispose of the product in accordance with existing regulations.
Where appropriate, dismantle and sort the product by its material fractions.

Spare parts (See splitview page 26)

Pos	Nos	Description	Art.nr	Comment
1	1	Motor 13,6V	09-24644-03	Incl drive magnet
1	1	Motor 27,2V	09-24644-04	Incl drive magnet
3	1	Magnet housing	01-36024	
4	1	Impeller magnet	01-36025-1	
5	1	Intermediate part	01-36027-1	
6	1	Impeller	01-35162	
7	1	Screw M4x10	01-45749	Threaded left
8	1	Pump housing Ø38 mm/1½"	01-24659-1	
	1	Pump housing Ø20mm/¾"	01-24696-1	
9	2	O-ring 91,67x3,53 EPDM	0.2173.099	
10	7	Screw M5x22	0.0256.006	
11	1	Bracket kpl	09-36275	Incl 2 pcs klamps



Pressure and capacity data							
Based on water at 20°C/68°F (and recomended hose)							
	Back pressure			Flow		Amperage	
Hose connection	bar	kPa	ft	l/min	USG-PM	13,6V	27,2V
Ø38 (1 ½")	0,1	10	3,4	115	30,4	10	4,6
	0,25	25	8,4	85	22,5	9,5	4,5
	0,4	40	13,4	40	10,6	9	4,2
Ø20 (¾")	0,1	10	3,4	65	17,2	8,5	4
	0,25	25	8,4	50	13,2	8	3,8
	0,4	40	13,4	30	7,9	7,5	3,6
Fuse required						12	6

Dimensions

Pump	Part. No.	ØA	ØB
CM90P7-1 D38	10-24664-09/-10	38mm (1½")	40mm
CM90P7-1 D20	10-24750-09/-10	20mm (¾")	21.4mm