C-Series

AIR-OPERATED DOUBLE-DIAPHRAGM PUMPS | PRODUCT BROCHURE

PSG a DOVER company

ALMATEC

Where Innovation Flows

The Almatec® C-Series Air-Operated Double-Diaphragm (AODD) Pump is a cost-effective, reliable and superior-built alternative and features a solid design suitable for a wide array of pumping tasks. The distinctive and proven solid design provides the mass needed for an oscillating pump. The suction and discharge ports are available as separate housing parts. In addition to the standard connection, two further connection footprints are available to match existing installations. The ring tightening structure, good suction head, self-priming and dry run capability as well as the absence of drives, rotating parts and shaft seals are further features.

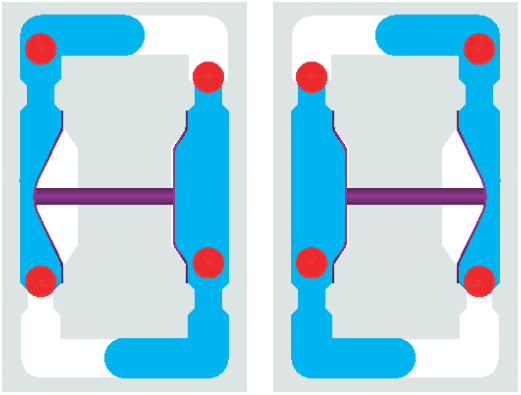
Almatec® C-Series

A Cost-Effective Plastic AODD Pump with Almatec Quality

C-Series sizes
C 10, C 15 and C 25
in conductive version.

- Air-operated double-diaphragm pump available in five sizes: C 10 (3/8"), C 15 (1/2"), C 25 (1"), C 40 (1-1/2"), and C 50 (2")
- Reliable ALMATEC solid-design construction
- Manifolds as separate housing parts
- High level of pump safety due to innovative ring-tightening structure
- Wetted housing materials PE or PTFE, also conductive (ATEX conformity)
- Diaphragms and ball valves made of EPDM and PTFE
- Maintenance and lubrication-free PERSWING P® air control system
- Wear parts compatible with other ALMATEC pumps
- Good suction head, self-priming, and dry-run capability
- No drives, no rotating parts, no shaft seals within fluid
- Stroke counting and diaphragm monitoring available as accessories
- Different connection options available to match to existing installations

FUNCTIONAL PRINCIPLE



The ALMATEC C-Series is based on the functional principle of double diaphragm pumps. The basic configuration consists of two external side housings with a center housing between them. Each of the side housings contains a product chamber which is separated from the center housing by a diaphragm. The two diaphragms are interconnected by a piston rod. Directed by an air control system, they are alternately subjected to compressed air so that they move back and forth. In the first figure, the compressed air has forced the left-hand diaphragm towards the product chamber and displaced the liquid from that chamber through the open valve at the top to the discharge port. Liquid is simultaneously drawn in by the right-hand diaphragm, thus refilling the second product chamber. When the end of the stroke is reached, it reverses automatically and the cycle is repeated in the opposite direction. In the second figure, liquid is drawn in by the left-hand diaphragm and displaced by the right-hand diaphragm. The liquid is displaced – and thus conveyed – by the compressed air. The diaphragms merely serve as barriers and are not pressurized, this is of critical importance for the service life of the diaphragms.

APPLICATIONS

- Sludges
- Acids
- Alkalis
- Solvents
- Slurries
- Emulsions
- Mixtures of liquids and solids
- Resins
- Powders
- Aqueous solutions
- Paints, inks
- Chemical industry
- Ceramics
- Surface treatment
- Mechanical engineering
- Textile industry
- Water processing
- Waste disposal
- Paper industry
- Electroplating
- Refineries

CODE SYSTEM

Optional equipment:
A = Center block made of PA conductive
AN = NPT-female threaded air inlet
C = Stroke counting
D = Diaphragm monitoring
FP = Seals in FEP instead of FKM

C-Series | **Pump size**

C 25 EVT - A - 1

Housing material:
E = Wetted PE / non-wetted PE
F = Wetted PE conductive / non-wetted PE conductive
T = Wetted PTFE / non-wetted PE
U = Wetted PTFE conductive / non-wetted PE conductive

Diaphragms / Seal material:
E = EPDM / EPDM
V = PTFE / FKM

Ball valves material:
E = EPDM
T = PTFE

Connection footprints:
Without number = Standard
1 = Footprint 1
2 = Footprint 2

Components of the Almatec® C-Series Pump

BALL VALVES

- Robust and insensitive to solids
- Form a linear seal with the valve seat
- Available materials:
  – EPDM
  – PTFE

SUCTION AND DISCHARGE PORTS

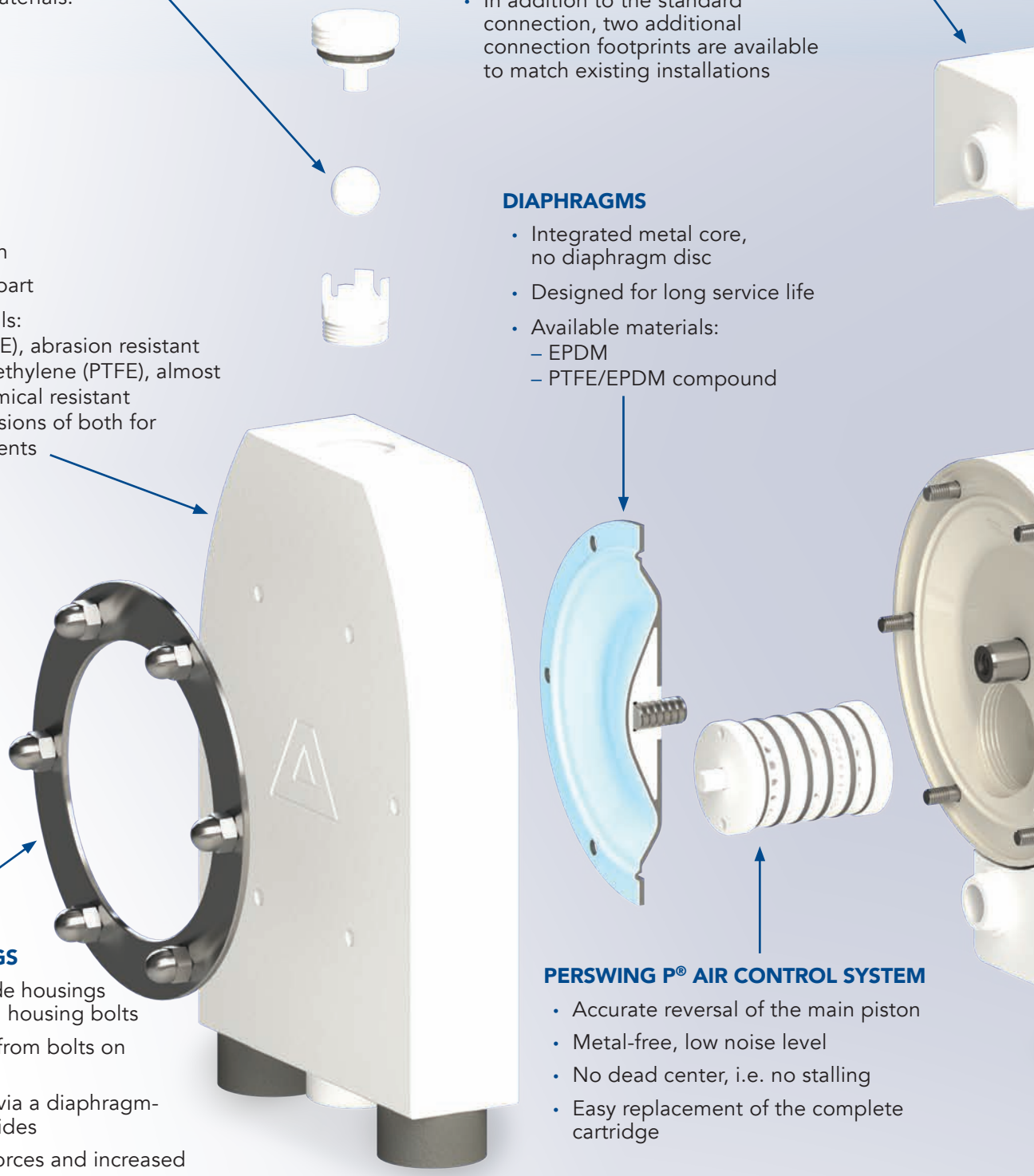
- Solid construction with form fit to center block
- Separate wetted housing parts
- Available materials according to the material of the side housings
- In addition to the standard connection, two additional connection footprints are available to match existing installations

SIDE HOUSINGS

- Solid construction
- Wetted housing part
- Available materials:
  – Polyethylene (PE), abrasion resistant
  – Polytetrafluoroethylene (PTFE), almost universally chemical resistant
  – Conductive versions of both for ATEX requirements

DIAPHRAGMS

- Integrated metal core, no diaphragm disc
- Designed for long service life
- Available materials:
  – EPDM
  – PTFE/EPDM compound



CONSTRUCTION RINGS

- Tightening of the side housings and center block via housing bolts
- No punctually load from bolts on to housing
- Collective pressing via a diaphragm-sized ring on both sides
- Consistent flow of forces and increased bolt torque
- High level of pump safety

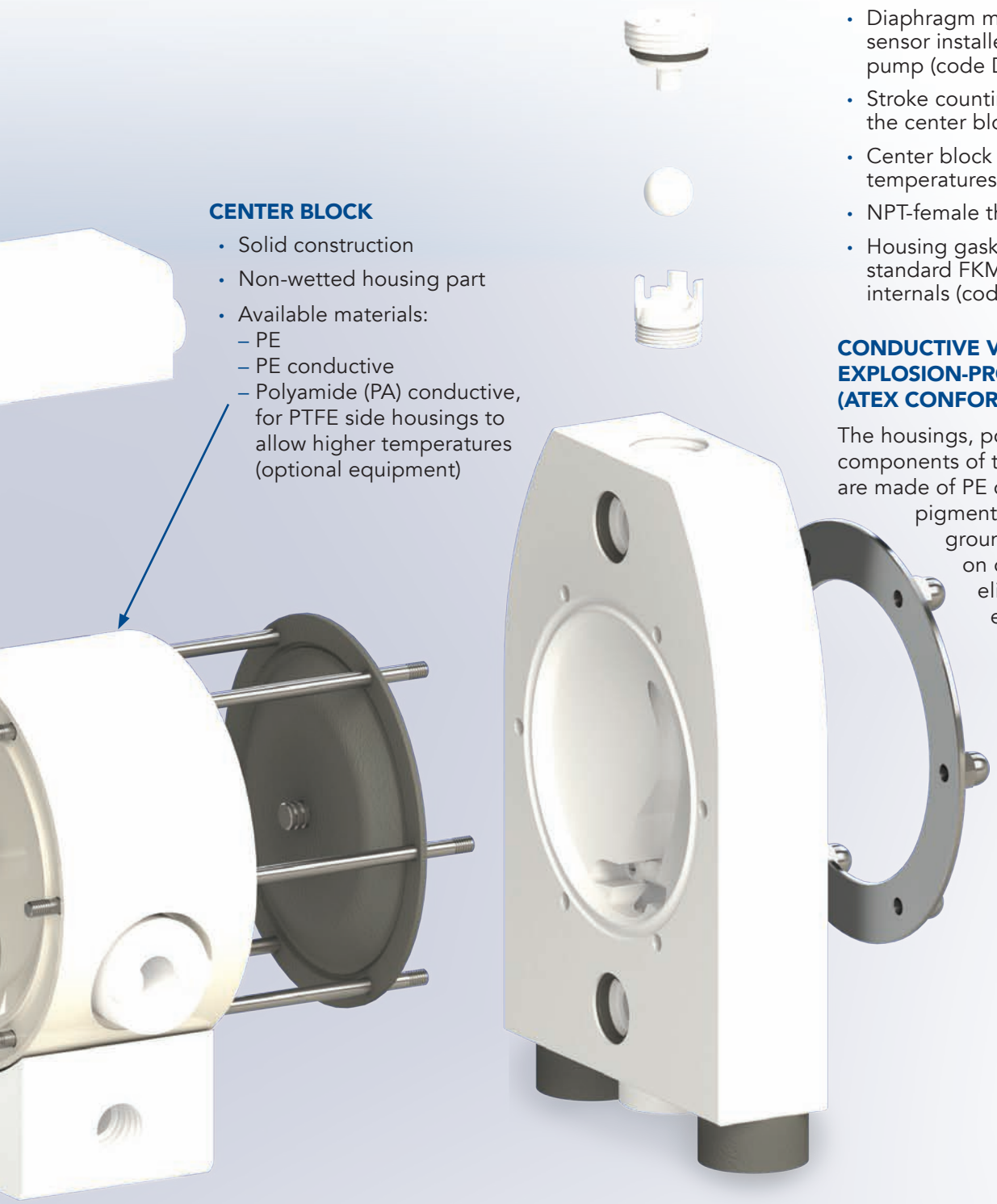
PERSWING P® AIR CONTROL SYSTEM

- Accurate reversal of the main piston
- Metal-free, low noise level
- No dead center, i.e. no stalling
- Easy replacement of the complete cartridge

The Almatec® Advantage

CENTER BLOCK

- Solid construction
- Non-wetted housing part
- Available materials:
  – PE
  – PE conductive
  – Polyamide (PA) conductive, for PTFE side housings to allow higher temperatures (optional equipment)

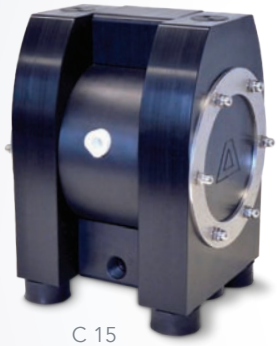


OPTIONAL EQUIPMENT

- Diaphragm monitoring via a capacitive sensor installed in the muffler of the pump (code D)
- Stroke counting by a sensor installed in the center block of the pump (code C)
- Center block in PA conductive for higher temperatures (code A)
- NPT-female threaded air inlet (code AN)
- Housing gaskets in FEP instead of standard FKM for pumps with PTFE internals (code FP)

CONDUCTIVE VERSIONS FOR EXPLOSION-PROOF AREAS (ATEX CONFORMITY)

The housings, ports and internal components of the conductive versions are made of PE or PTFE with conductivity pigments. Pumps should be grounded via a connection on one of the side housings, eliminating the risk of electrostatic charges. Conductive C-Series pumps comply to ATEX conformity. They can consequently be used without issue in explosive gas and dust atmospheres and for flammable liquids.



C 15
Conductive Pump

SUMMARY OF CHEMICAL RESISTANCE

				HYDROCARBONS											
	WATER	MINERAL OILS	VEG. ANIMAL FATS	ALIPHATIC	AROMATIC	HALOGENATED	CHLORINATED	ALCOHOLS	KETONES	ESTERS	ACIDS, DILUTED	ACIDS, CONCENTRATED	ALKALIS, DILUTED	ALKALIS, CONCENTRATED	SALTS
PE	+	+	+	+	0	–	0	+	+	+	+	0	+	+	+
PTFE	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
EPDM	+	–	–	–	–	–	–	0	+	+	+	+	+	+	+

+ = Resistant, **0** = Fairly Resistant, **–** = Not Resistant; *All Entries are merely intended for guidance!*

C-Series Pump | Technical Data

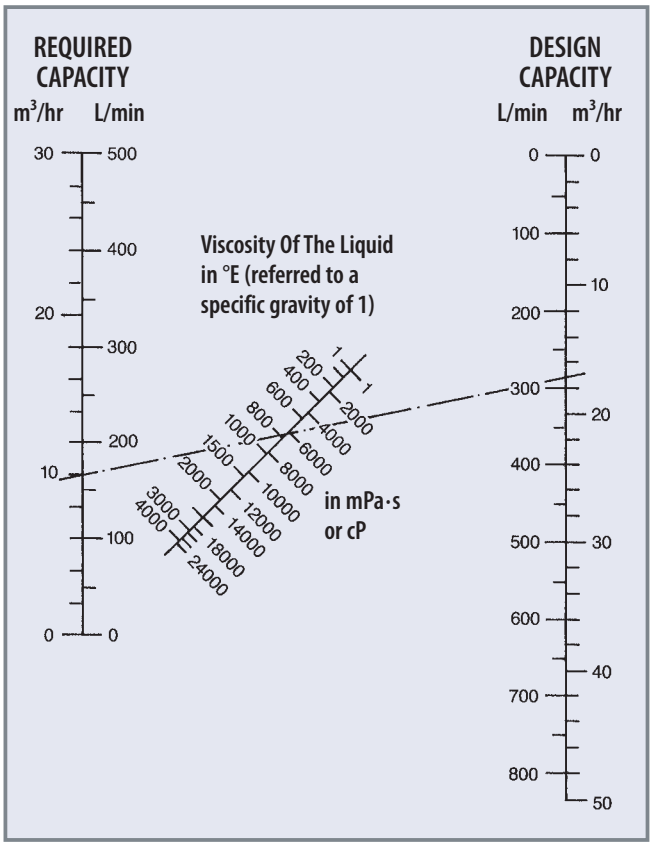
Pump Size		C 10	C 15	C 25	C 40	C 50
Dimensions – mm (inch):	Length	110 (4.3)	156 (6.1)	206 (8.1)	272 (10.7)	352 (13.8)
	Width	155 (6.1)	203 (8.0)	273 (10.8)	368 (14.5)	452 (17.7)
	Height	181 (7.1)	253 (10.0)	353 (13.9)	453 (17.8)	567 (22.3)
Nominal port size (NPT)		3/8"	1/2"	1"	1 1/2"	2 "
Air connection (BSP)		1/8"	1/4"	1/4"	1/2"	1/2"
Weight – kg (lbs):	PE	2 (4.4)	6 (13.2)	14 (30.9)	30 (66)	57 (126)
	PTFE	4 (8.8)	10 (22.1)	23 (50.7)	57 (126)	104 (229)
Max. particle size of solids – mm (inch)		3 (0.12)	4 (0.16)	6 (0.24)	9 (0.35)	11 (0.43)
Suction head, dry – mWC (ftWC)		1 (3.3)	2 (6.6)	3 (9.8)	4 (13.1)	5 (16.4)
Suction head, wet – mWC (ftWC)		9 (29.5)	9 (29.5)	9 (29.5)	9 (29.5)	9 (29.5)
Max. permissible driving pressure – bar (psig)		7 (100)	7 (100)	7 (100)	7 (100)	7 (100)
Max. permissible operating temperature - °C (°F):						
	PE	70 (158)	70 (158)	70 (158)	70 (158)	70 (158)
	PTFE (with center block, PE)	80 (176)	80 (176)	80 (176)	80 (176)	80 (176)
	PTFE (with center block, PA conductive)	100 (212)	100 (212)	100 (212)	100 (212)	100 (212)
Max. capacities						
	m^3/h	1.3	3.1	7	18	32
	l/min	22	52	117	300	530
	gpm	6	14	31	80	140

VISCOSITY AND PUMP CAPACITY

The capacity specified in the pump performance charts generally refer to water (1 mPa·s).

The value must be reduced correspondingly when pumping liquids with higher viscosity. The design capacity can be read off directly from the graph and the corresponding pump size selected.

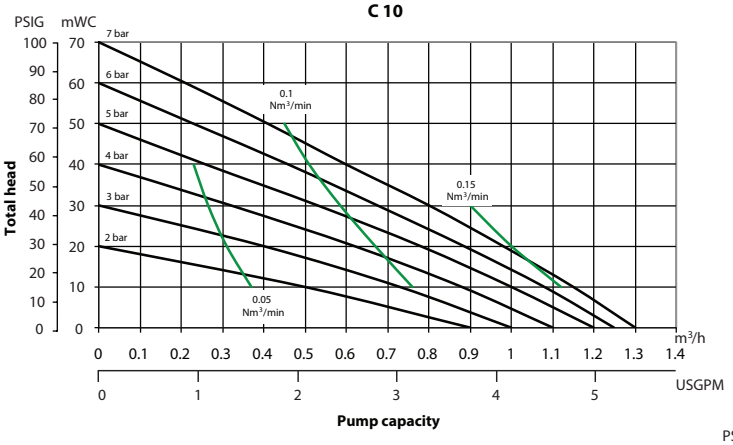
The example shown here is based on a required capacity of 10 m^3/h with a product viscosity of 6000 mPa·s. The dash-dotted line intersects the design capacity scale at 17 m^3/h.



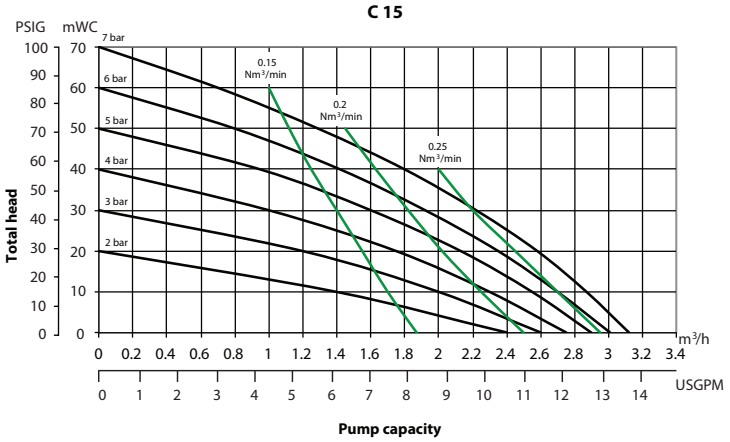
C-Series Pump | Performance Charts

The following data refer to water at 20°C / 68°F (referring to DIN EN ISO 9906).

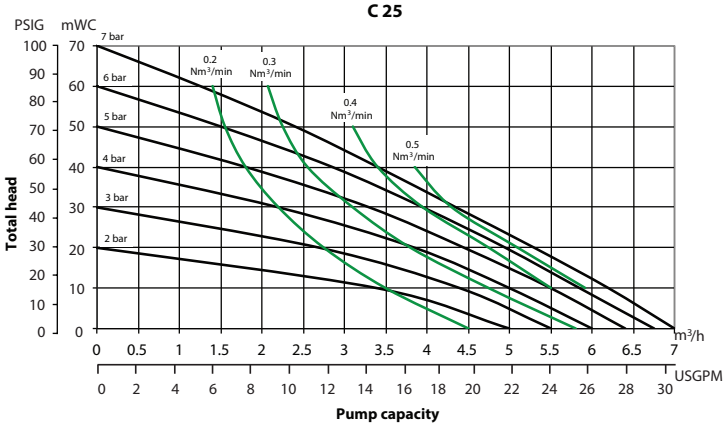
C 10



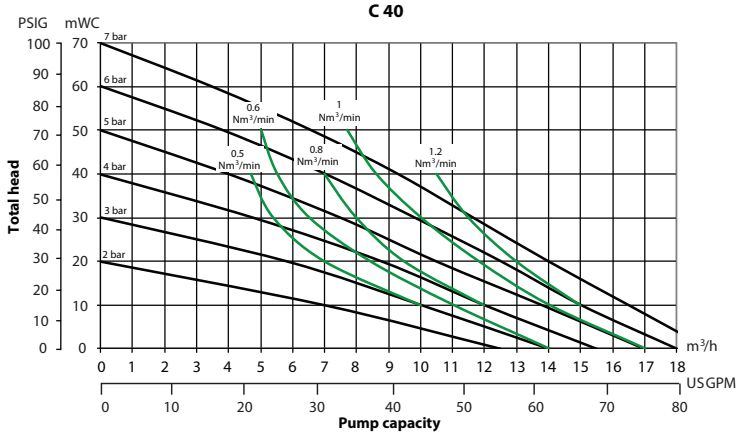
C 15



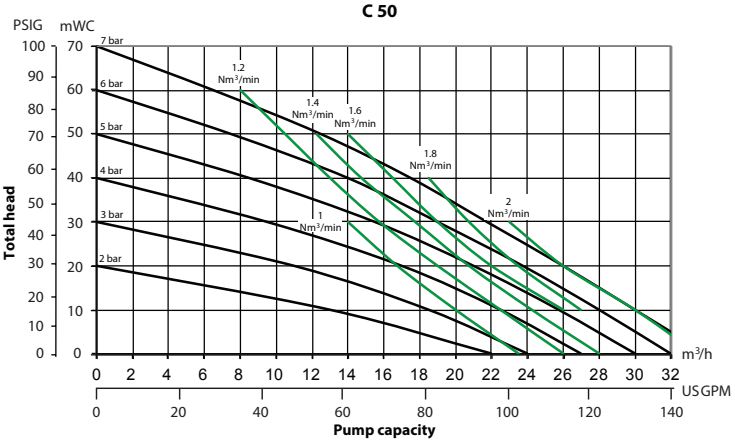
C 25



C 40



C 50



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