



This operating instructions contains safety information that if ignored can endanger life or result in serious injury. They are indicated by this icon.



Use of this pump with radioactive chemicals is forbidden!



OPERATING INSTRUCTIONS MANUAL FOR "RACP" PNEUMATIC DOSING PUMP



Keep the pump protected from sun and water.
Avoid water splashes.

Please read it carefully!



English language



GENERAL SAFETY GUIDELINES

Danger!

In emergencies the pump should be switched off immediately! Disconnect the power cable from the power supply!

When using pump with aggressive chemicals observe the regulations concerning the transport and storage of aggressive fluids!

When installing always observe national regulations!

Manufacturer is not liable for any unauthorized use or misuse of this product that may cause injury, damage to persons or materials.

Caution!

Pump must be accessible at all times for both operating and servicing. Access must not be obstructed in any way!

Feeder should be interlocked with a no-flow protection device.

Pump and accessories must be serviced and repaired by qualified and authorized personnel only!

Always discharge the liquid end before servicing the pump!

Empty and rinse the liquid end before work on a pump which has been used with hazardous or unknown chemicals!

Always read chemical safety datasheet!

Always wear protective clothing when handling hazardous or unknown chemicals!

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The "RACP" series dosing pumps are the ideal solution for small and medium dosing of liquid products by compressed air.

Functioning mode:

Pneumatic functioning mode. In the pneumatic area of the pump, the compressed air produces a diaphragm's movement that pushes out the liquid through the delivery hose. The vacuum created by the diaphragm movement takes the liquid inside the pump head from the suction hose.

Solenoid valve opens and closes air that operates the diaphragm. The solenoid valve should be driven by a PLC or any other equipment that can operate it with a direct voltage supplied in pulses, the valve is driven to open to push the diaphragm and then closed to let the diaphragm go back.

Technical features:

Air consumption: 0,020 liters per injection

Air supply (pressure): 6÷8 bar

Max injection per minute: 120

Working temperature: 0÷50 °C (32÷122°F)

Ceramic or Stainless Steel double ball valves (Ø6mm)

Liquid ends: PP, Orings (on demand: Viton, EP, WAX)

PP glass filled case box

PTFE membrane

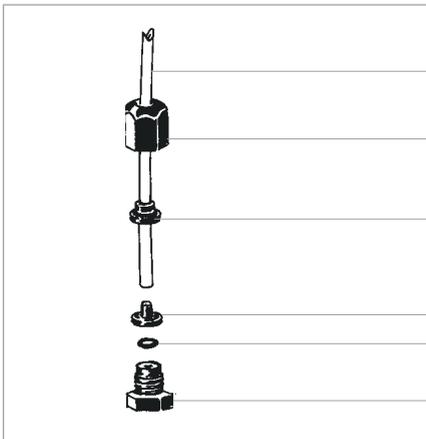
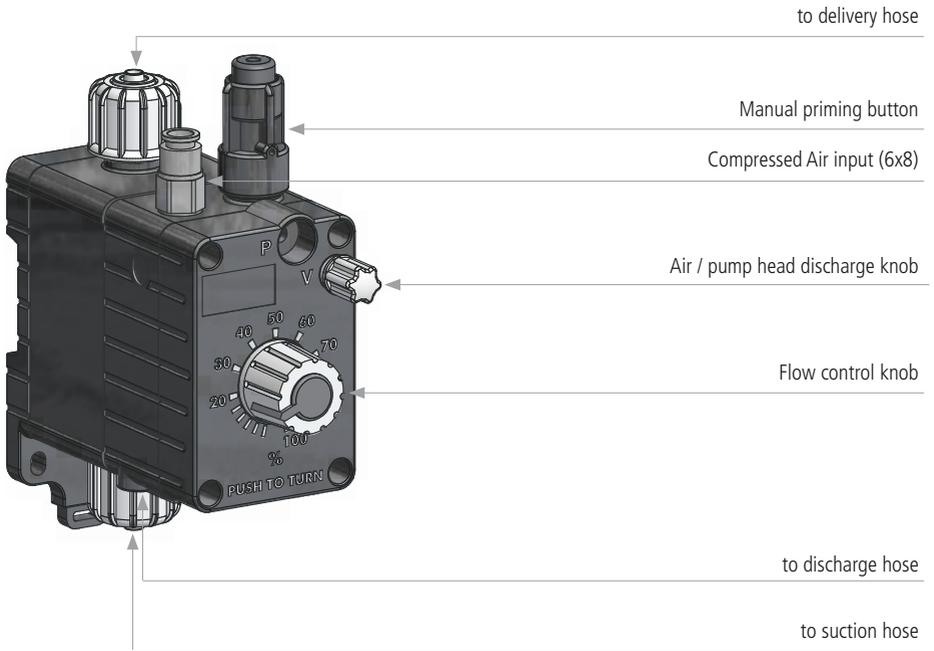
Stroke lenght adjustment

Solenoid valve: 24VAC, 48VDC, 115VAC, 230VAC / 8W (specify)



Wear always protective clothes as masks, gloves, safety glasses, ear plugs or ear muffs, and further security devices during ALL installation procedure and while handling chemicals.

Pumps connections



Delivery hose (PE hard)

Hose nut

Clamping ring

Nozzle

O-ring

Discharge valve connection

Pump's package

Included into package::

n.1	1/2" 4x6 or 6x8 foot filter + valve
n.1	1/2" 4x6 or 6x8 injection valve
m 2	delivery hose
m 2	suction hose
m 2	discharge hose
n.1	this operating instruction manual



PLEASE DO NOT TRASH PACKAGING.
IT CAN BE USED TO RETURN THE PUMP.

Commissioning the pump:



Make sure that the pump is fastened into place firmly and will not vibrate during use!



Ensure that the pump is accessible at all times for operating and maintenance purposes!



Suction and discharge valves must be in vertical position!



The metering pump must be installed with the pump's basement on horizontal position!

Assembly and install hoses:

The suction hose (PVC flexible) should be short and placed vertical to avoid air bubble collecting!

Calculate cross section and length to ensure that negative pressure in the suction hose does not reach the vapour pressure for chemical's feed!



FREE END OF SUCTION HOSE SHOULD BE INSERTED
JUST ABOVE THE BASE OF NOZZLE!



USE ONLY HOSES COMPATIBLES WITH PRODUCT TO DOSE.
PLEASE REFERS TO "CHEMICAL COMPATIBILITY TABLE" OF
PRODUCT TO DOSE!

3 installing modes:

- Horizontal (with bracket) mounting
- Wall mouting
- "DIN" mounting

Multiple pumps installation (side by side)

PRIMING

To prime the pump without touching chemicals please perform these operations:

- connect all hoses into proper places (delivery hose, suction hose, outgassing hose).
- open outgassing valve and turn on the pump.
- set pump's single injection at 100%;
- press the priming button until the pump head is filled up.

Connect the pump to the compressed air hose. Let compressed air enter into the pump.

All air inside the pump head will exit through the outgassing outlet. When product will leak from it, close immediately the outgassing valve. If dosing product is particularly dense, to facilitate the priming, insert on vent pipe a syringe of 20 cc and suck inside.

DOSING

Pump's technical features are printed on a label located on pump's box: model, supply voltage, working counterpressure (Kpa/bar) and pump capacity (l/h). All these dosing information are calculated by dosing water at 20 °C temperature, at the maximum counterpressure reported on the label, using the injection valve and the % knob set to maximum. Dosing accuracy is $\pm 2\%$ l/h at constant maximum counterpressure and 1 cps flow (max viscosity: 60 cps).



Caution: injection capacity is a constant value but a variation in counterpressure or product's viscosity may cause some changes. For further details see "Delivery curves" paragraph.

HOW DOES IT WORK?

"RACP" pneumatic dosing pump works only with compressed air without lubricant and/or condensed water. Air supply pressure range must be at 6bar (87PSI) ($\pm 10\%$).

At the max injection/min value, 120 injection/min, the pump has a 0.5 seconds working cycle: 0.25 seconds active (compressed air is in the pump) and 0.25 passive (compressed air is not in the pump).

Solenoid valve and PLC for compressed air control must be regulated on this values.

O-rings, maintenance and repair operations

The valve sealings are provided in 4 different types to satisfy different chemical compatibility issues. The elastomer that will best fit the requested needing can be found on the manufacturer compatibility table. Get in touch with customer support if needed.

Elastomer	Suggested Usage	Manufacturer Code
Fluorocarbon	acid based product	FP
Ethyleneppropylene	alkali based product	EP
Nitrile	wax based product	WAX

MAINTENANCE

Every month (when in normal use) pump and accessories should be checked for proper operation.
For a correct maintenance, please perform following tasks:

- check electrical connections
- check liquid end screws
- check discharge line connections
- check discharge and suction valve connections
- check the entire liquid end for leakage

REPAIR



All repair measures must be performed by authorized and qualified personnel. If pump needs to be repaired in manufacturer's factory send it only if it has been cleaned and after the liquid end has been rinsed!

If, despite pump's emptying and cleaning, there are still possible safety hazards the information must be declared on return's form!



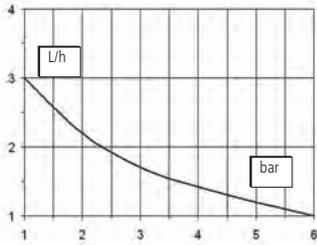
If pump needs a replacement use only ORIGINAL spare parts!

Single injection 0,14

06 01

l/h 01

bar 06

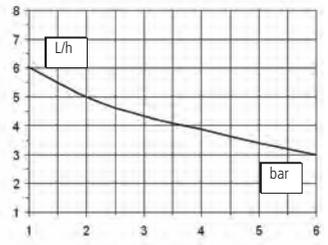


Single injection 0,42

06 03

l/h 03

bar 06

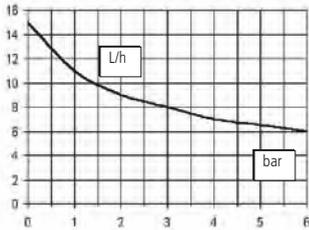


Single injection 0,83

06 06

l/h 06

bar 06

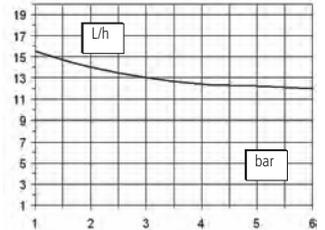


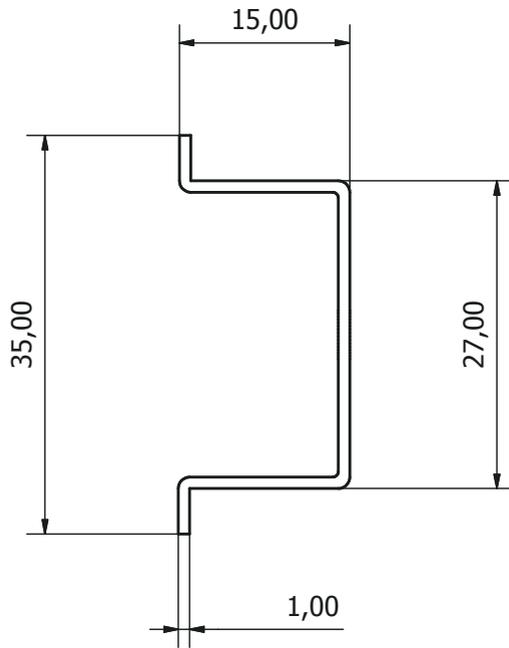
Single injection 1,66

06 12

l/h 12

bar 06





PRECAUTIONS RELATING TO DIRECTIVES, REGULATIONS AND STANDARDS

§ CE/EU and UKCA marking

EMEC S.r.l. guarantees that this product meets the essential requirements of the applicable Directives and Regulations based on the following specifications. Please carefully consider the following specifications for use of the product in European Union member countries and the United Kingdom.

• CE/EU harmonized directives and standards

Directives

DIRECTIVE 2006/42/EC
DIRECTIVE 2014/35/EU
DIRECTIVE 2014/30/EU
DIRECTIVE 2011/65/EU
DELEGATED DIRECTIVE (EU) 2015/863

Harmonized standards

EN ISO 12100
EN 809
EN ISO 20361
EN IEC 61326-1
EN 61010-1
EN IEC 63000

• UKCA harmonized regulations and standards

Regulations

2008 No. 1597
2008 2016 No. 1091
2016 No. 1101
2012 No. 3032

Harmonized standards

BS EN ISO 12100
BS EN 809
BS EN ISO 20361
BS EN IEC 61326-1
BS EN 61010-1
BS EN IEC 63000

§ Other compliances

Decree 6 April 2004, n. 174 of the Ministry of Health (Gazzetta Ufficiale n. 166 of 17-7-2004)
Decree 7 February 2012, n.25 of the Ministry of Health (Gazzetta Ufficiale n. 166 of 17-7-2004)

EC/EU declaration of conformity model



DICHIARAZIONE DI CONFORMITA' CE DECLARATION OF CONFORMITY EC

La Società
The Company
Indirizzo della Società
Company Address

EMEC S.r.l.
Via Donatori di Sangue, 1
02100 Rieti (RI) - Italia

DICHIARA, sotto la propria responsabilità che il prodotto:
DECLARES, under its own responsibility, that the product:

Descrizione Prodotto
Product Description
Pompa dosatrice elettromagnetica, serie R
Electromagnetic dosing pump, R series

Codici Identificativi Prodotto
(i simboli " _ " completano il codice del
prodotto in base alla configurazione delle
varianti)

RAC _____
RAP _____
RAV _____

Product Identification Codes
(the " _ " symbols complete the product code
based on the configuration of the variants)

Numero di Serie
Serial Number

Si veda l'etichetta sul prodotto
See the label on the product

È conforme a quanto previsto dalle seguenti direttive comunitarie:
It complies with the provisions of the following community directives:

- **DIRETTIVA 2006/42/CE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO** del 17 maggio 2006 relativa alle macchine e che modifica la direttiva 95/16/CE;
DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 relating to machinery and amending Directive 95/16/EC;
- **DIRETTIVA 2014/35/UE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO** del 26 febbraio 2014 concernente l'armonizzazione delle legislazioni degli Stati membri relative alla messa a disposizione sul mercato del materiale elettrico destinato a essere adoperato entro taluni limiti di tensione (LVD);
DIRECTIVE 2014/35/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 concerning the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment intended for use within certain voltage limits (LVD);
- **DIRETTIVA 2014/30/UE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO** del 26 febbraio 2014 concernente l'armonizzazione delle legislazioni degli Stati membri relative alla compatibilità elettromagnetica (EMC);
DIRECTIVE 2014/30/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 26 February 2014 concerning the harmonization of the laws of the Member States relating to electromagnetic compatibility (EMC);
- **DIRETTIVA 2011/65/UE DEL PARLAMENTO EUROPEO E DEL CONSIGLIO** dell'8 giugno 2011 sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche (RoHS);
DIRECTIVE 2011/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS);
- **DIRETTIVA DELEGATA (UE) 2015/863 DELLA COMMISSIONE** del 31 marzo 2015 recante modifica dell'allegato II della direttiva 2011/65/UE del Parlamento europeo e del Consiglio per quanto riguarda l'elenco delle sostanze con restrizioni d'uso (RoHS 3);
COMMISSION DELEGATED DIRECTIVE (EU) 2015/863 of 31 March 2015 amending Annex II to Directive 2011/65/EU of the European Parliament and of the Council as regards the list of substances with restricted use (RoHS 3);

Autorizza:

Authorizes:

Ing. Fabio Farina

Via Donatori di Sangue, 1 – 02100 Rieti (RI) - Italia – EMEC S.r.l.

A costituire il fascicolo tecnico per suo conto (punto 2, allegato II, Direttiva 2006/42/CE)

To compile the technical file on its behalf (point 2, annex II, Directive 2006/42/EC)

Data
Date 18/12/2024

Firma del fabbricante
Manufacturer's signature


SIMPLE AS WATER
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Codice SDI: KRRH6B9
PIVA e Cod. Fisc.: 00620840579
Registro imprese Milano REA MI - 2050351

UKCA declaration of conformity model



DECLARATION OF CONFORMITY
DICHIARAZIONE DI CONFORMITA'
In accordance with UK Government guidance
In conformità con le linee guida del governo del Regno Unito



The Company
La Società
Company Address
Indirizzo della Società

EMEC S.r.l.

Via Donatori di Sangue, 1
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This declaration is issued under the sole responsibility of the manufacturer
La presente dichiarazione è rilasciata sotto la sola responsabilità del produttore

Product Description
Descrizione Prodotto Electromagnetic dosing pump, R series
Pompa dosatrice elettromagnetiche, serie R

Product Identification Codes
(the " _ " symbols complete the product code based on the configuration of the variants)
RAC -----
RAP -----
RAV -----
Codici Identificativi Prodotto
(i simboli " _ " completano il codice del prodotto in base alla configurazione delle varianti)

Serial Number
Numero Seriale See the label on the product
Si veda l'etichetta sul prodotto

The object of the declaration described above is in conformity with the relevant UK Statutory Instruments (and their amendments):

L'oggetto della dichiarazione sopra descritta è conforme ai pertinenti strumenti normativi del Regno Unito (e ai loro emendamenti):

- | | |
|---------------------------|---|
| 2008 No. 1597 | The Supply of Machinery (Safety) Regulations
<i>Regolamento sulla sicurezza della fornitura di macchine del 2008</i> |
| 2008 2016 No. 1091 | The Electromagnetic Compatibility Regulations 2016
<i>Regolamento sulla compatibilità elettromagnetica del 2016</i> |
| 2016 No. 1101 | The Electrical Equipment (Safety) Regulations 2016
<i>Regolamento sull'equipaggiamento elettrico (Sicurezza) del 2016</i> |
| 2012 No. 3032 | The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
<i>Regolamento sulla restrizione dell'uso di determinate sostanze pericolose nelle apparecchiature elettriche ed elettroniche del 2012</i> |



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DECLARATION OF CONFORMITY DICHIARAZIONE DI CONFORMITA'

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and complies with the following technical standards:
ed è conforme alle seguenti norme tecniche:

BS EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
BS EN 809:1998+A1:2009/AC:2010	Pumps and pump units for liquids - Common safety requirements
BS EN ISO 20361:2019+A11:2020	Liquid pumps and pumps units - Noise test code - Grades 2 and 3 of accuracy (ISO 20361:2019)
BS EN IEC 61326-1:2021	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
BS EN 61010-1:2010+A1:2019	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements
BS EN IEC 63000:2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Authorizes:

Autorizza:

Ing. Fabio Farina

Via Donatori di Sangue, 1 – 02100 Rieti (RI) - Italia – EMEC S.r.l.

To compile the technical file on its behalf (point 2, PART 2, The Supply of Machinery (Safety) Regulations 2008)

A costituire il fascicolo tecnico per suo conto (punto 2, PARTE 2, Regolamento sulla sicurezza della fornitura di macchine del 2008)

Date 18/12/2024

Signed for and on behalf of EMEC

Firmato per conto e a nome di EMEC

Via Donatori di Sangue 1 02100 Rieti - P.IVA 020840579
Sede legale: Corso Vittorio Emanuele II 15 20122 Milano Italia
Cioffi Claudio - Presidente EMEC S.r.l.



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Disposal of end-of-life equipment by users

This symbol warns you not to dispose of the product with normal waste. Respect human health and the environment by giving the discarded equipment to a designated collection center for the recycling of electronic and electrical equipment. For more information visit the online site.



When dismantling a pump please separate material types and send them according to local recycling disposal requirements. We appreciate your efforts in supporting your local Recycle Environmental Program. Working together we'll form an active union to assure the world's invaluable resources are conserved.