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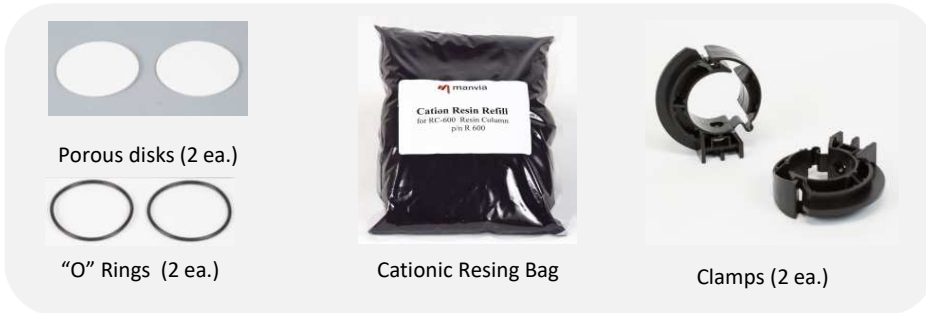
COLUMN, RESIN BAG, CLAMPS (x2) and QUICKS CONNECTORS (x2)

REGENERATION

⚠️ HCl must be handled with care since there is a risk of serious burns from contact with it.

- 1) Install column in a regeneration system or open one of the caps by rotating it counter-clockwise and discharge resin in a vessel or bucket.
- 2) Wash resins with demineralized water in counter-current flow or by adding the water in the vessel or bucket.
- 3) Wash resins counter-current with HCl 5-10% or introduce it in the vessel up to color of all resins have change.
- 4) Recharge the resin inside column and reinstall it as mentioned in filling chapter.

SPARE PARTS



CR-600 SPARE PARTS

Part #	Name
DO-600	"O" Rings (2) and porous disks (2)
R-600	Cationic Resin Bag
CL-600	Clamps (2)



STANDARD WARRANTY

MANVIA warrants products manufactured and supplied by it, to be free from defects in workmanship and, to the extent materials are selected by Seller, to be free from defects in materials, for a period of twelve months from shipment.

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MA-CR-600r00

MANVIA CATIONIC RESIN COLUMN CR-600

INSTALLATION, OPERATION & MAINTENANCE MANUAL



⚠️ CAUTION

CAUTION, indicates a hazardous situation which, if materialized, could result in material damage or a moderate injury.

⚠️ DANGER

DANGER indicates a hazardous situation which, if materialized, could result in a serious injury and even in death.

SAFETY INFORMATION

Please pay attention to all Warnings and Cautions in this manual. Failure to do so could result in serious personal injury and/or equipment damage. It is mandatory to read the entire manual unpack, install or operate this product.

⚠️ DANGER: Installation, operation and maintenance must only be carried out by suitably trained personnel and in accordance with this manual. Safety precautions must be taken to avoid the possibility of an accident when operating in conditions of high pressure and/or high temperature.

CR-600 SPECIFICATION

TECHNICAL SPECIFICATIONS	
Volume:	600 cm ³
Weight:	1 kg (2.2 lb)
Materials:	Polycarbonate, Polyethylene
Connections:	2 x 1/8" NPTF
Max. Temp:	70 °C
Pressure:	5 bar(g) @ 70 °C
Flow:	50 - 250 cm ³ /min
Dimensions (HxD)	430 x 56 mm. (16.9 x 2.2")

PRODUCT DESCRIPTION

The function of the cationic resin columns is the removal of cations in a sample mainly from some dosing compound. The most commonly removed cations are NH_4^+ from the amine dosage.

In this exchange mechanism, the cations that need to be removed are exchanged for H^+ ions, which pass from the active sites of the resin to the sample stream.

The columns have a bed depth sufficient to ensure adequate residence time which allows a high efficiency of the process. Also includes suitable retention filters, incorporated in both the bottom and top of the column, its purpose is to retain the resin in the column, allowing passage of the sample and not affecting the exchange process.

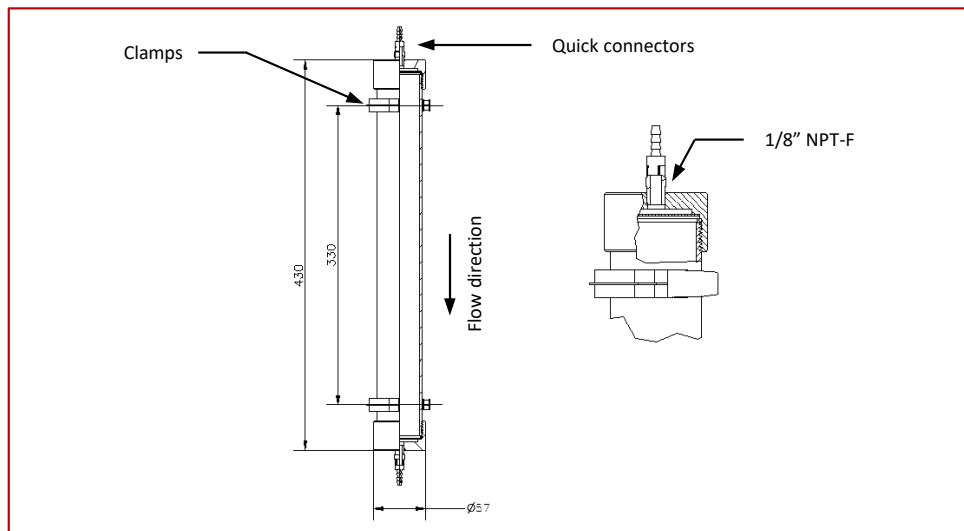
To regenerate the resin, the exchange process must be inverted, which is achieved by washing them with HCl 5%.

INSTALLATION

⚠ CAUTION: The necessary protective equipment must be used in order to avoid knocks, cuts and entrapments during installation. Follow this procedure for correct installation:

- ✓ Install the two clamps by means of M-6 screws with a separation length as shown in dimensional and interconnecting drawing. Clamps must be installed horizontally and aligned between them in a smooth and bare wall, in order to get a vertical position for resin column.
- ✓ Remove the two quick connection fittings from the plastic bag and install them in the column using a sealant. Install two sides of fitting for each connection.
- ✓ Introduce column inside the two clamps.
- ✓ Tight in barbed connections flexible tubing (polyamide or nylon).

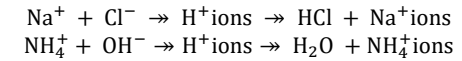
DIMENSIONAL AND CONNECTION DRAWING



OPERATION BASIS

The operating principle of Cationic Resin Column, is same as in any ion exchange process. This column is used to eliminate masking effects of known chemicals such as ammonia or dissolved amines.

The typical reaction on the cation column will be:



Resins are present charged with ions (H^+). These ions replace the positive ions of any salt or dissolved impurity as it dissociates in water. Depending on the reaction:

- a) The cations replace Na^+ ions and the result is HCl (i.e. the corresponding acid). The conductivity is at 3 times as that imparted by the salt (NaCl).
- b) The cations replace NH_4^+ ions and the result is H_2O (i.e. pure water). The conductivity imparted by the chemical (NH_4OH) gets eliminated as the result is pure H_2O .
- c) By measuring the conductivity of the solution immediately before and after the sample has passed through the resin column, comparisons can be made between specific conductivity (before) and cation conductivity (after). Hence the conductivity measured after the cation column is the real, accurate and reliable method of measuring conductivity.

MAINTENANCE

Is needed to check colour indicator label in order to verify if a resin change or regeneration is required, when colour change reach the indicator.

Furthermore, when resin is regenerated or changed, o-rings and porous discs replacement is recommended.

FILLING

- 1) Disconnect one quick connect fittings in the top of column and in bottom.
- 2) Open clamps and remove the column from them.
- 3) Open one of the caps by rotating it counter-clockwise and discharge resin.
- 4) Open resin refill bag.
- 5) Empty contents of the bag into the resin column.
- 6) Close the cap by rotating it clockwise .
- 7) Shake column to settle resin.
- 8) Open column again and add additional resin until it is approximately 1/5" from the top. Do not fill to the top.
- 9) Remove any resin from the sealing surface and the threads.
- 10) Replace resin column cap o-ring and porous disk and close the cap by rotating it clockwise up to cap is correctly tightened.
- 11) Finally, secure the resin column in the clamps and reconnect one quick connect fittings in the top of column and in bottom.