

# BetaJet

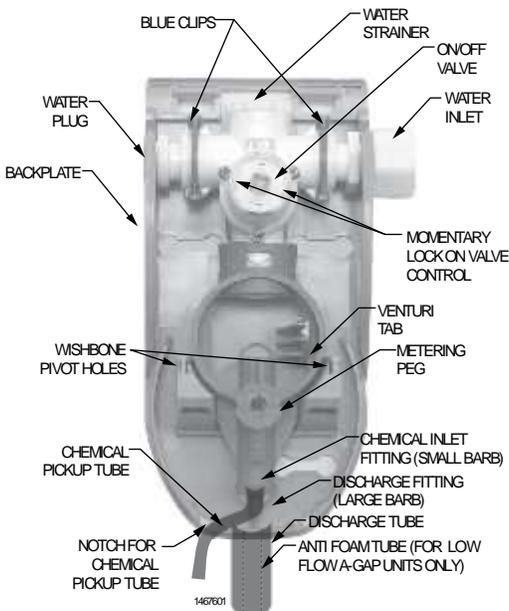
## Installation, Maintenance & Trouble Shooting



Safety clothing, including gloves and eye protection, must be worn before performing an installation. Observe specific advice on the Material Safety Data Sheet (MSDS).



## Installation



## Water Requirements

### Air Gap

H<sub>2</sub>O = 1.0 -5.5 bar

H<sub>2</sub>O = 14 – 28 psi

H<sub>2</sub>O ≤ 65°C

### R-Gap

H<sub>2</sub>O = 2.0 – 5.5 bar

H<sub>2</sub>O = 28 – 78 psi

H<sub>2</sub>O ≤ 65°C

## 1. Remove Cover

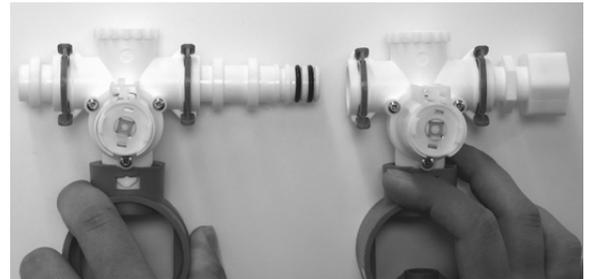
- Push metal C-clip fully into unit
- Lift up on cover
- Whenever replacing cover, first remove C-clip. Always be careful to line up the hinges at the top and attach them before lowering the cover.



## 2. Mounting the Unit

Maximum height from chemical to BetaJet: 1.5 meters (5 feet). Horizontal distance can be somewhat greater.

- A. If you are installing more than one BetaJet, connect them together before proceeding. If installing a single unit, proceed to Step B.
- Squeeze the venturi tab in to release each proportioner from its backplate and lift it out.
  - Position the backplates next to each other on a flat surface.
  - Pull blue clips out slightly.
  - Remove adjoining units' water plugs and water inlet fittings and use the interconnect (1202026) to link them together.

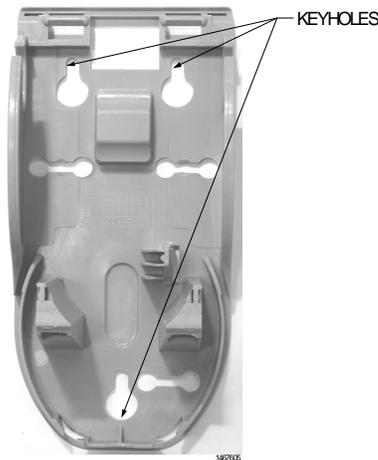


- Ensure that the units are pressed together firmly so the blue clips fit completely back in place.
- Put connected BetaJets into the backplates all at once and use the whole assembly for marking holes on the wall to ensure exact spacing between the units.



*Putting backplates against the wall without the units interconnected in them can result in incorrect hole spacing and the need to redrill.*

- B. Put the backplate(s) against the wall and mark where the holes need to be drilled as shown by the arrows..



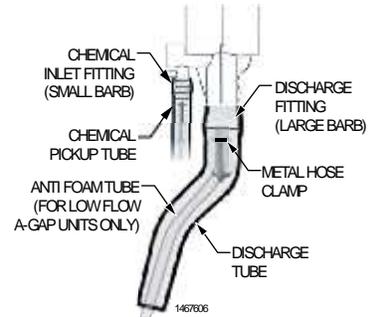
Hold a level on top of the backplate to ensure the unit won't be at an angle. Note that the bottom drill hole should be at the bottom of the keyhole and the top drill holes at the top of the keyholes.

- C. Drill 1/4-inch (6 mm) holes in the wall. For drywall use the anchors provided. For concrete use concrete screws.
- D. Put the top two keyhole screws in
- E. Hang the backplate(s)
- F. Screw the bottom keyhole screw at the bottom of the holes so the backplates can't be lifted up out of position. If the wall is uneven, make sure it is not so tight that the backplate warps. All servicing can be done with the backplate in place.
- G. Connect water supply to water inlet (often it is fastest to pull the blue clip, unplug the water inlet fitting from the QFM, screw it onto the hose and plug it back in place).
- H. Hang the valve/venturi assembly in the backplate, making sure it clicks into place under the venturi tab.
- I. Reattach wishbone to wishbone pivot holes.



### 3. Tubing

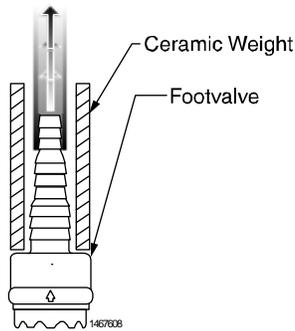
- A. For low-flow A-Gap unit: Connect the translucent anti-foam tube to the plastic spigot protruding from the bottom of the venturi. Use diagonal side cutters to cinch the metal clamp to the tube so that it will be secured on the spigot. Note the anti-foam tube is not required with low-flow R-Gap units.



- B. For bucket-fill applications: Route large discharge tube over the large barb. Secure discharge tube to the large barb with tie wrap and attach bucket spring hook to the other end of tube so it can be hung on a bucket.
- C. Connect chemical pickup tube to the small barb and secure in place with tie wrap. Route chemical pickup tube into chemical pickup tube notch in backplate. If you need a high dilution such as 516: 1 or 1000:1, an ultradilution capillary tube may need to be installed in the chemical supply line. If your chemical is thick, it may not be required.
- D. Water supply: Connect garden hose water supply to water inlet. If you want to switch the water inlet to the other side of the unit, simply pull the blue clips out a bit and you will be able to swap the water inlet fitting and the water plug. Twist the water inlet fitting to screw it onto the garden hose and water supply or adapter fitting for copper tubing. Be sure that the blue clips are pushed back into position before turning on the water supply.

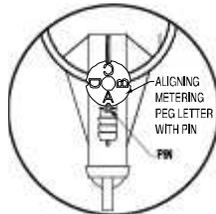
### 4. Footvalve

Place ceramic weight over the end of the chemical pickup tube. Insert footvalve at the end of the chemical pickup tube. Ceramic weight will fall into place over the top of the footvalve because without it the tube will lose prime.



## 5. Prime

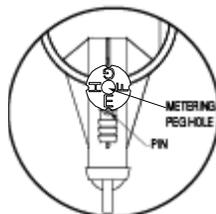
- Insert metering peg so the “A” is aligned with pin as shown.



- Turn on the water supply.
- Put wishbone on the unit, attaching the two ends to the wishbone pivot holes (refer to picture of unit at the beginning of this document).
- Push on wishbone to turn on and prime the chemical suction line, collecting water in container. Discard water. Note that the wishbone is designed to work under the cover rather than directly with hands. It is easy to dislodge it with your hands but it will work fine with the cover on.

## 6. Select Dilution Setting

- A. Select the metering peg that offers the desired dilution. Insert metering peg into metering peg hole as shown and align the letter with the pin. In the sample below, the “E” dilution setting is being used.



- B. Calibrate the dilution ratio to ensure it meets your requirements as follows:
- Fill a measuring/graduated cylinder with chemical.
  - Write down the amount of chemical that is in the cylinder.

- Turn on the proportioner, filling a gallon/2 liter jug (high flow) or 16 oz/500 ml measuring cup (low flow).
- Write down the amount of **water:chemical** to calculate the dilution.
- If necessary, repeat with a different peg setting to get the dilution you need.

## Dilution Charts



Values @ 2.5bar (40psi) pressure, 3.5GPM thru unit and water-thin viscosity

Ratios shown are for reference only. Actual dilution will depend on water pressure, chemical viscosity and dispenser height above chemical. For higher dilutions, order an ultradilution kit.

When using thick products you may need to use a tuber with a larger inside diameter to ensure adequate product volume can be drawn through.

Peg Setting	HF A-G & R-G (Blue Eductor)		
	Percent	Ratio	oz/gal
A	16.7%	5:1	25.6
B	15.2%	6:1	21.3
C	13.3%	7:1	18.3
D	5.3%	18:1	7.1
E	4.5%	21:1	6.1
F	3.8%	27:1	4.7
G	3.2%	32:1	4
H	2.8%	36:1	3.6
I	2.4%	41:1	3.1
J	1.9%	52:1	2.5
K	1.3%	76:1	1.7
L	1.0%	97:1	1.3
M	0.8%	120:1	1.1
N	0.5%	180:1	0.7
O	0.3%	315:1	0.4
P	0.1%	800:1	0.2

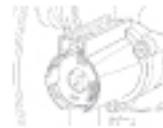
Peg Setting
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

LF A-G (Grey Eductor)		
Percent	Ratio	oz/gal
23.8%	3:1	42.7
23.3%	3:1	42.7
21.3%	4:1	32
10.8%	8:1	16
9.1%	9:1	14.2
7.1%	12:1	10.7
5.9%	15:1	8.5
5.3%	17:1	7.5
4.5%	20:1	6.4
3.6%	25:1	5.1
2.4%	37:1	3.5
2.0%	47:1	2.7
1.4%	64:1	2
1.3%	93:1	1.4
1.2%	170:1	0.8
0.8%	525:1	0.2

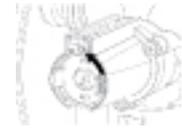
Ultradilution kit (LF A-G or R-G) using peg A with capillary	
Cut length	Ratio
10cm	250:1
20cm	450:1
30cm	650:1
40cm	850:1
50cm	1050:1
60cm	1250:1

## 7. Sink Applications: Change from Momentary “Hold-On” to “Lock-On” Activation

For sink-fill applications, users will typically want to be able to press the cover once and have the unit stay on without having to hold the cover down.



Non-latch position



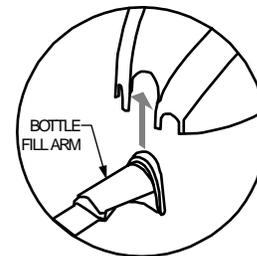
Latch-on position

Peg Setting
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

LF R-G (Grey Eductor)		
Percent	Ratio	oz/gal
27.0%	2.7:1	47.4
25.6%	2.9:1	44.1
23.8%	3.2:1	40.0
12.5%	7:1	18.3
10.5%	8.5:1	15.1
8.3%	11:1	11.6
6.9%	13:1	9.8
5.9%	17:1	7.5
5.3%	19:1	6.7
4.2%	23:1	5.6
2.9%	34:1	3.8
2.3%	42:1	3.0
1.6%	63:1	2.0
1.4%	71:1	1.8
1.3%	76:1	1.7
0.9%	110:1	1.2

## 8. Attach Bottle Fill Arm

If using a low-flow unit, align the bottom of the QFM cover opening with the bottle-fill arm and push into place as shown.



## 9. Replacing Cover

Replace the cover, taking care to position it correctly so the plastic tabs that connect it to the backplate are not damaged. If a low-flow unit, wedge bottle-fill tube into bottle-fill arm.

## Unit Operation

Press front cover to dispense chemical.

## Maintenance



*Wear gloves and safety glasses and turn off water before servicing.*

Periodic maintenance can improve system performance and prevent service calls, especially in hard-water areas where air gaps are required, old buildings or locations with debris in the water supply. We recommend the following procedure be performed about once a year, depending on the water supply:

- Check dilution rate
- Wipe or rinse metering peg clean if chemical residue has accumulated in the groove.
- Verify footvalve screen is neither clogged nor damaged.
- Check water filter sock and air gap nozzle screen for debris.



CHECK FOR SCALING



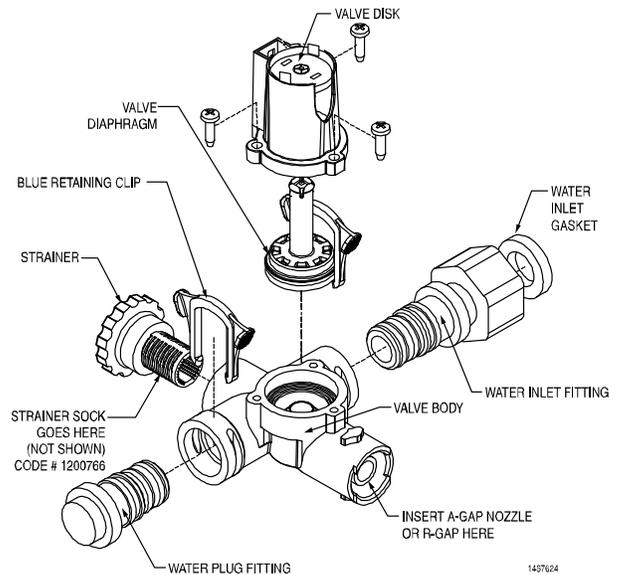
## Spare Parts

Description	Item No.
 Interconnect	1202026
Bucket fill tube hook	1202067
Hose fitting assembly, with washers	1202027
Backplate	1204098
Cover, grey	1204102
Strainer sock	1200766
Cover removal C-clip	1204103
Wire rack, 1 x 1 gallon	1203104
Wire rack, 4 x 1 gallon	1203105

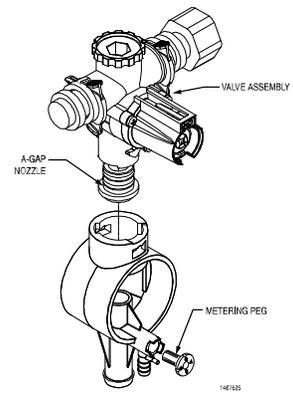
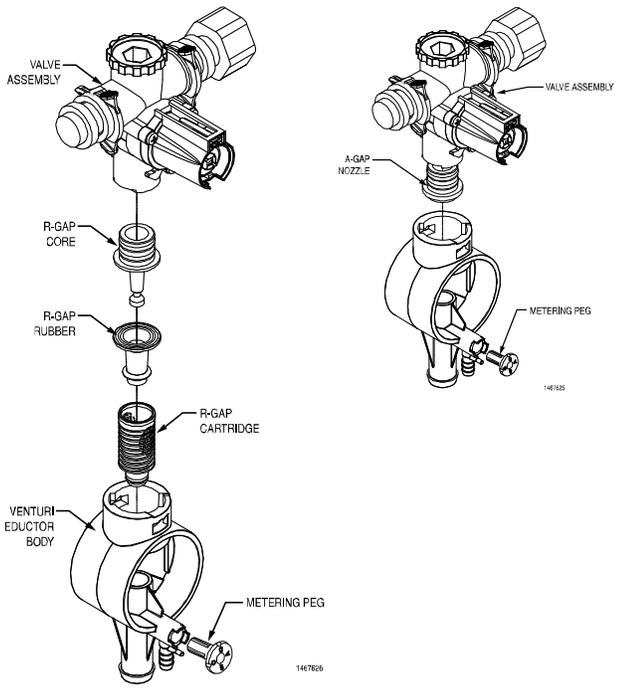
*All spares include lubricated o-rings.*

## Removing Venturi to Check Air Gap Nozzle

	1. Push in venturi tab		4. Remove venturi.
	2. Lift venturi forward.		5. Pull out nozzle.
	3. Twist venturi to the left to loosen.		6. If the screen is dirty, rinse. If scaled, remove o-ring and soak in acid for 30 minutes.

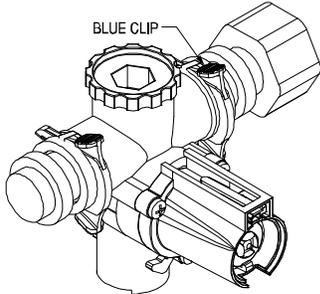


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# Troubleshooting

Problem	Cause	Solution
No discharge	<ul style="list-style-type: none"> <li>a. No water</li> <li>b. Magnetic valve not functioning</li> <li>c. Excessive water pressure</li> <li>d. Eductor clogged</li> </ul>	<ul style="list-style-type: none"> <li>a. Open water supply</li> <li>b. Install new valve</li> <li>c. Install water regulator if water pressure exceeds 5/5 bar (78 psi).</li> <li>d. Clean (descale) or replace</li> </ul>
No concentrated drawn up	<ul style="list-style-type: none"> <li>a. Blocked footvalve</li> <li>b. Metering peg or eductor has scale buildup</li> <li>c. Low water pressure</li> <li>d. Concentrate container empty</li> <li>e. Inlet hose threads not screwed into eductor tightly</li> <li>f. Clogged inlet strainer</li> <li>g. Water inlet gasket missing</li> <li>h. Wrong eductor</li> <li>i. Chemical supply goes through "Y" fitting</li> <li>j. Water temperature too high</li> </ul>	<ul style="list-style-type: none"> <li>a. Clean or replace</li> <li>b. Clean (descale) or replace</li> <li>c. Ensure water pressure meets minimum requirements. If using an R-Gap and the water pressure is insufficient for an R-Gap but sufficient A-Gap, remove R-Gap and replace with A-Gap. If using a high-flow unit and the water pressure is insufficient, switch to the low-flow unit. Another option is to move the chemical container up on the wall (in a wire rack) closer to the proportioner. To prevent siphoning, the chemical must be lower than the proportioner's chemical inlet fitting.</li> <li>d. Replace with full container.</li> <li>e. Tighten, but do not over-tighten. If using NPT fitting adapter, use Teflon pipe tape.</li> <li>f. Turn off water supply, remove strainer and clean or replace mesh sock that fits over strainer.</li> <li>g. Insert new gasket.</li> <li>h. If high-flow nozzle/R-Gap, verify that eductor is blue. If low-flow, verify eductor is gray.</li> <li>i. Have a separate chemical supply tube and footvalve for each unit because one unit will pull air from another if they are both connected to a "Y" fitting.</li> <li>j. If the water temperature is over 70-75°C, the water could boil when under vacuum in the venturi, which will prevent the unit from drawing chemical. Lower water temperature if you suspect this is a problem.</li> </ul>
Excessive concentrate draw	<ul style="list-style-type: none"> <li>a. Wrong metering peg setting</li> </ul>	<ul style="list-style-type: none"> <li>a. Check dilution chart and recalibrate with lower dilution setting.</li> </ul>
Unit will not turn off	<ul style="list-style-type: none"> <li>a. Water valve parts dirty or defective</li> <li>b. Valve disk magnet does not fully return</li> <li>c. Cabinet cover stuck</li> <li>d. Excessive water pressure</li> <li>e. Unit is set to latch on/off.</li> </ul>	<ul style="list-style-type: none"> <li>a. Clean or replace with valve parts kit</li> <li>b. Make sure valve disk moves freely</li> <li>c. Realign cabinet</li> <li>d. Install regulator if pressure exceeds 5.5 bar (78 psi)</li> <li>e. Turn the valve disk around to disable this feature per the Installation section.</li> </ul>
Excess foam in discharge	<ul style="list-style-type: none"> <li>a. Air leak in pickup tube</li> <li>b. Inner discharge tube not in place</li> <li>c. Inner discharge anti-foam tube not long enough</li> </ul>	<ul style="list-style-type: none"> <li>a. Tighten inlet hose barb and/or secure pickup tube with tie wrap or hose clamp on hose barb.</li> <li>b. Reinstall inner discharge tube (the tube inside the discharge tube)</li> <li>c. Use 4 mm bulk tubing to make the tube longer by a few inches.</li> </ul>

Splashing from A-Gap or water discharge from R-Gap vents	<ul style="list-style-type: none"> <li>a. Restricted discharge hose</li> <li>b. High water pressure</li> <li>c. Dirty A-Gap nozzle</li> <li>d. Nozzle loose</li> <li>e. R-Gap rubber problems</li> <li>f. Wrong eductor</li> </ul>	<ul style="list-style-type: none"> <li>a. Ensure discharge hose is not kinked, immersed or elevated and that no chemical is trapped in the discharge tube when dispensing begins.</li> <li>b. Install pressure regulator if pressure exceeds 5.5 bar (78 psi) with unit operating.</li> <li>c. Replace nozzle.</li> <li>d. Push nozzle firmly up into valve body.</li> <li>e. Disassemble R-Gap, checking rubber for damage. If damaged, replace. If not, put rubber on plastic cone, cartridge over rubber and insert into valve assembly. Attach the eductor last. Note that having rubber misaligned/askew between the plastic cone outer cartridge can cause leaks.</li> <li>f. If high-flow nozzle/R-Gap, verify that eductor is blue. If low flow, verify that it is gray.</li> </ul>
Cover doesn't fit on dispenser	<ul style="list-style-type: none"> <li>a. Valve/venturi assemblies are not properly locked into place.</li> </ul>	<ul style="list-style-type: none"> <li>a. Push on each valve/venturi assembly to ensure it is locked in place with the venturi tab. The tab makes a "click" sound when the proportioner is snapped into place.</li> </ul>
Water inlet fitting is leaking	<ul style="list-style-type: none"> <li>a. Fitting is not fully inserted into valve assembly</li> <li>b. Water inlet/garden hose not connected properly.</li> <li>c. Water inlet fitting threads damaged.</li> <li>d. No gasket in water inlet fitting</li> <li>e. O-rings not assembled properly.</li> </ul>	<ul style="list-style-type: none"> <li>a. Ensure fitting is fully inserted into valve assembly and blue retaining clip is in place as shown below: <ul style="list-style-type: none"> <li></li> </ul> </li> <li>b. Tighten water inlet fitting/garden hose thread connection. Do not overtighten, as this can damage the threads. If using a garden hose to NPT adapter, tighten NPT connection. Add Teflon pipe tape to male NPT threads if still leaks.</li> <li>c. Replace fitting</li> <li>d. Insert gasket</li> <li>e. Check that o-rings are on the innermost two grooves on the water inlet fitting. If they are not, reposition fitting. The third groove is for the blue clip; if the o-ring from the second groove has shifted or moved to the third groove, lift it up with a screwdriver and move it back to the middle groove.</li> </ul>
Water leak from water strainer	<ul style="list-style-type: none"> <li>a. Strainer not fully screwed in.</li> <li>b. O-ring sticking out.</li> <li>c. Valve threads stripped</li> </ul>	<ul style="list-style-type: none"> <li>a. Tighten strainer</li> <li>b. Remove strainer. Reposition o-ring and replace strainer. If o-ring is damaged, replace strainer assembly.</li> <li>c. Replace valve</li> </ul>
Inconsistent dilution	<ul style="list-style-type: none"> <li>a. Fluctuating water pressure</li> </ul>	<ul style="list-style-type: none"> <li>a. Install pressure regulator or flow washer to reduce pressure fluctuation.</li> </ul>
Wishbone does not fit into place properly	<ul style="list-style-type: none"> <li>a. Valve/venturi assemblies are not properly locked into place.</li> <li>b. Backplate installed on an uneven wall.</li> </ul>	<ul style="list-style-type: none"> <li>a. Push on each valve/venturi assembly to ensure it is locked into place with the venturi tab. The tab makes a "click" sound when the proportioner is snapped into place.</li> <li>b. Loosen screws so they do not bend the backplate. For the bottom screw, be sure to use the center keyhole behind the chemical discharge fitting instead of the slot on the right. The slot on the right can increase warping on an uneven surface.</li> </ul>

Lost key	a. Use two small screwdrivers	
Cannot turn unit off	a. Valve/venturi assemblies are not properly locked into place.	a. Push on each valve/venturi assembly to ensure it is locked in place with the venturi tab. The tab makes a "click" sound when the proportioner is snapped into place. Once the venturi is in place, the top of the wishbone should be positioned over valve disk so that pushing on the wishbone easily compresses the valve disk in the shaft, turning the unit on and off.

**Americas, Asia and Japan  
JohnsonDiversey Equipment**  
2841 Mission Street  
Santa Cruz, CA 95060 U.S.A  
(JD) Tel +1 - 831 - 457 - 5709  
(Beta) Tel +1 800 - 858 - 2382  
(Beta) Tel +1 831 - 423 - 4573  
(JD Intl) Fax +1 - 831 - 471 - 3587  
(Beta) Fax +1 800 - 221 - 8416  
(Beta) Fax +1 831 - 423 - 4644

**Europe, Middle East & Africa  
JohnsonDiversey Equipment**  
4 Finway Dallow Road  
Luton LUT1 1TR  
United Kingdom  
Tel +44 - (0) 1582 - 702191  
Fax +44 - (0) 1582 - 702173

**Global Technical Customer Service**  
Europe, Middle East and Africa : (JD) Tel: +44 - (0) 1623 - 728010  
(Beta) Tel: +1 - 630 - 513 - 9799  
Tel: +1 - 262 - 631 - 4461  
+1 - 800 - 468 - 4893 (toll-free in USA)  
Tel: +1 - 541148428270  
Latin America: Tel: +1 86 21-50509900 x 2520  
Asia Pacific: Tel: +1 090-6506-5140  
Japan:

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