



Quad-Z 215 Liquid Handler Disposable Tips Option Installation Instructions (Part Number 250616)

The Quad-Z 215 Liquid Handler Disposable Tips Option requires some installation procedures different from or in addition to those described in the *Quad-Z 215 Liquid Handler User's Guide*. Follow all installation procedures in the *user's guide*, then refer to the following instructions.

The Quad-Z with Tips Adaptation Kit (part number 250616) includes the following:

- Four shafts
- Sixteen washers
- Four A tip holders
- Four B tip holders
- Four 2.7 mm probe guide inserts
- Two spanner wrenches
- One tip chute
- One rinse station
- One 5/32 ball driver

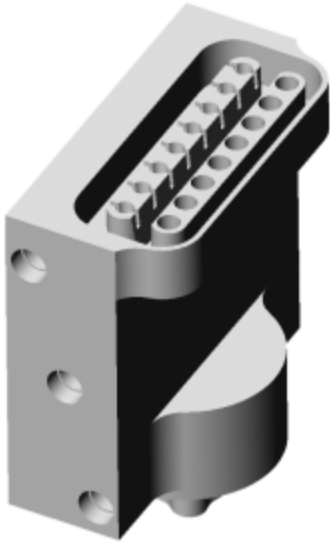
Order Tipack™ and/or TOWER PACK™ and racks separately (refer to page 6 for part numbers).

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Installing the rinse station (part number 25045523)



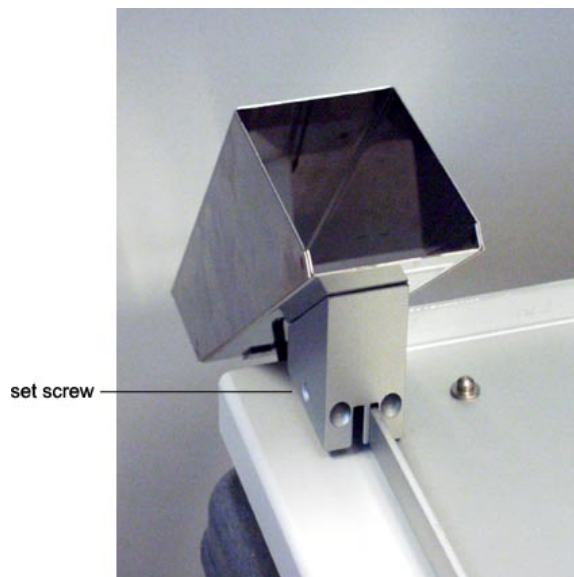
If you've followed the instructions in the *user's guide*, you have already secured the locator plate and installed a rinse station at the rear of the locator plate. Before installing the rinse station for use with the disposable tips, remove the installed rinse station. To install the rinse station for use with the disposable tips onto the base, follow these steps:

- 1 Align the triangle on the bottom of the rinse station with the base.
- 2 With the rinse station's fittings facing you, insert the rinse station into the base.
- 3 Press down and turn the rinse station clockwise. The rinse station is secure when you feel the rinse station snap into place. When installed correctly, the fittings point toward the control cabinet.

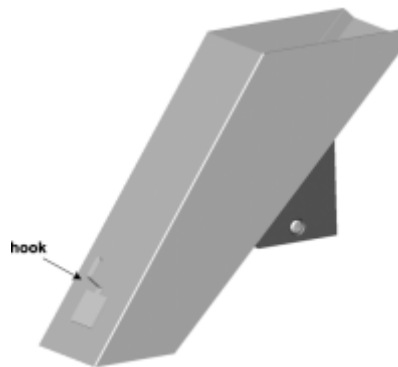
Installing the tip chute (part number 2507743)

The tip chute is installed on the front right corner of the locator plate. To install the tip chute onto the Quad-Z 215 Liquid Handler, refer to the instructions below:

- 1 The tip chute is designed with two grooves. The smaller groove positions the chute on the edge of the locator plate. Fit the right front edge of the locator plate in the smaller groove.
- 2 Using the supplied 5/32" ball driver, tighten the set screw.

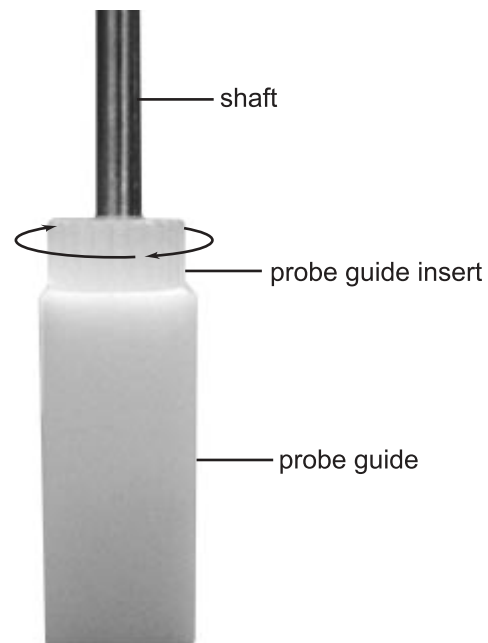


A disposable bag can be attached to the hooks on the front and back of the tip chute to collect ejected tips.



Installing the probe guide inserts

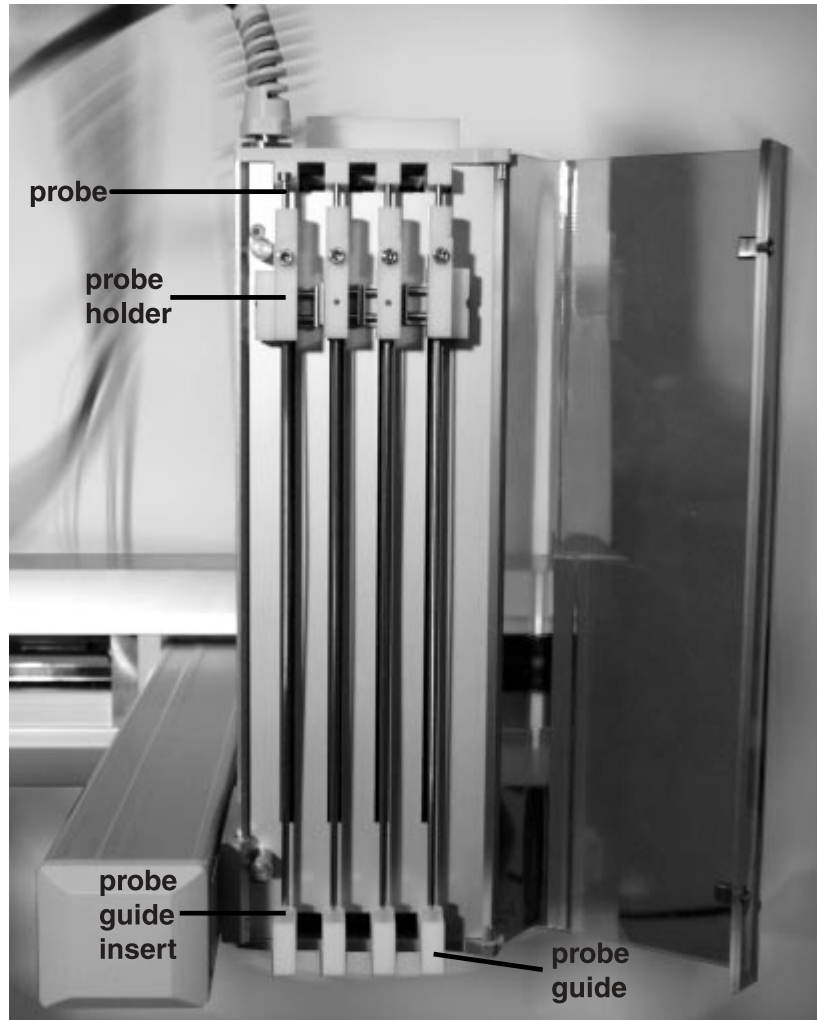
Your Quad-Z is delivered with 1.5 mm probe guide inserts installed. The disposable tips option requires 2.7 mm probe guide inserts (supplied, part number 25064475). To install the probe guide inserts for use with the disposable tips, first remove the current probe guide insert by turning it counterclockwise. Then place the probe guide insert for use with the disposable tips into the probe guide and secure it by turning it clockwise.



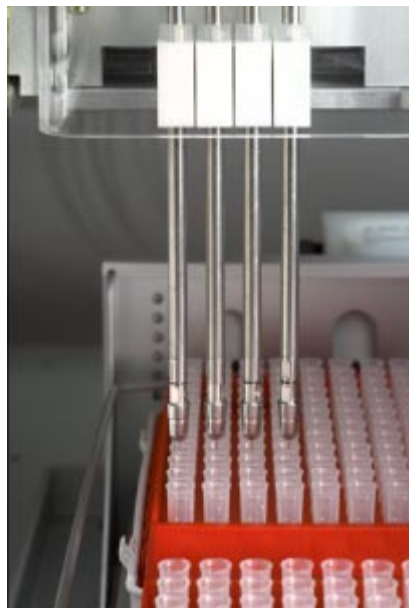
Installing the shafts for the probes

Locate the supplied shafts (part number 25061601).

For each of the four probes, insert the shaft into the top of the isolation probe holder then pull it through the holder and the probe guide insert until the tip of the shaft is in the probe guide.

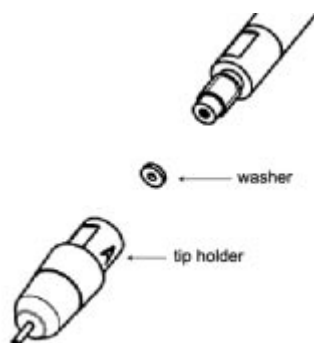


Assembling the probes



There are different tip holders available for use with the Quad-Z 215 Liquid Handler. Depending upon your application, you have purchased the appropriate tip holders and disposable tips. When assembling the probes, refer to the following procedures.

- 1 Locate the supplied tip holders and washers. Tip holder A is labeled with an “A”, tip holder B is not labeled.
- 2 Place one washer inside each tip holder. Ensure that only one washer is placed into each tip holder. Refer to the drawing below.
- 3 Lower the shaft, if necessary, so that you have access to the ends of the shafts where the tip holders will be installed.
- 4 Finger-tighten the tip holder to the shaft, then using the supplied spanner wrenches, tighten an additional 1/8 turn. Ensure that you have used the same type of tip holder for each shaft. Refer to the tables below for more information.



Tip Holder	Compatible Tips
A	DL 10
	D200
B	DL 10

Tips	Part Number	Description	Tip Holder	Rack	Part Number
DL 10	F161452	Tipack™ (10 boxes of 96 tips)	A or B	Code 234	2504634
	F161455	Tipack™ sterilized (10 boxes of 96 tips)	A or B	Code 234	2504634
	F167102	TOWER PACK™ (10 boxes of 96 tips)	A or B	Code 235	2504635
D200	F161932	Tipack™ (10 boxes of 96 tips)	A	Code 234	2504634
	F161937	Tipack™ sterilized (10 boxes of 96 tips)	A	Code 234	2504634
	F167103	TOWER PACK™ (10 boxes of 96 tips)	A	Code 235	2504635

Rack installation



Code 234 Rack for Tipack™ Code 235 Rack for TOWER PACK™

The Quad-Z 215 Liquid Handler is equipped to locate Code 200-, Code 20- and Code 30-series racks. See **Appendix B** in the *Quad-Z 215 Liquid Handler User's Guide* for a list of the racks available for the liquid handler. The Quad-Z Disposable Tips Option is compatible with all of the same racks as the standard Quad-Z with the following exceptions:

- The racks listed below cannot be used on the Quad-Z Disposable Tips Option

Rack Code

202	801
208	802
211	803
225	VR
228	

- Some racks are only compatible with certain tips:

Rack Code	Compatible with Tips	Not Compatible with Tips
205	DL 10	D200 (use rack 205H with D200 tips)
505	DL 10	D200
201	DL 10	D200 (use rack 201H with D200 tips)

Install the Code 234, Code 235, and other Code-200 Series racks directly on the locator plate. Orient the rack so the code number is facing forward.

Fit the rack on the locator plate so that the slots and holes on the underside of the rack align with the pins on the locator plate.

Refer to the *Quad-Z 215 Liquid Handler User's Guide* for installation instructions for the other types of racks.

Tipack™ installation

The Code 234 Rack locates up to two Tipacks.



- 1 Place a Tipack in one of the two positions with the label on the Tipack facing left.
- 2 Flip the lid removal tool to the left side of the rack.
- 3 Open the Tipack Cover.
- 4 Flip the lid removal tool to the cover side of the rack.

Close the cover, then easily remove it.

TOWER PACK™ installation

The Code 235 Rack locates up to two TOWER PACKS.

- 1 Place the Universal Reload Box (part number F167100, ordered separately) in one of the two positions on the rack.
- 2 Place a TOWER PACK on top of the clear plastic box.
- 3 Cover the box and press down.



- 4 Remove the tower and put it back in the protective case.



GSIOC commands

Refer to the *Quad-Z 215 Liquid Handler User's Guide* for the GSIOC command set. There are two commands that are affected by the use of disposable tips. Refer to command descriptions below.

<i>Command</i>	<i>Type</i>	<i>Description</i>
Z	I	<p>Reads probe Z-positions in integral units of 0.1 mm. Returns aaaa,bbbb,cccc,dddd where:</p> <p>aaaa is the Z-position of probe A bbbb is the Z-position of probe B cccc is the Z-position of probe C dddd is the Z-position of probe D</p> <p>Subtract 58 mm if tip holder A and D200 tips are installed. Subtract 54 mm if tip holder A and DL 10 tips are installed. Subtract 37 mm if tip holder B and DL 10 tips are installed.</p>
Zsp	B	<p>Sets new Z-position where:</p> <p>s = the selected probe(s) p = the new position in integral units of 0.1 mm</p> <p>If s is not specified, the default is abcd.</p> <p>Add 58 mm if tip holder A and D200 tips are installed. Add 54 mm if tip holder A and DL 10 tips are installed. Add 37 mm if tip holder B and DL 10 tips are installed.</p>

Appendix A Technical Specifications

<i>Technical Specification</i>	<i>Definition</i>		
Liquid contact materials	316L stainless steel, polypropylene, FEP, PTFCE (Kel F)		
Pipetting modes	<p>Aspirate:</p> <ul style="list-style-type: none"> • Wet Tip: The first liquid is aspirated then dispensed back into the vial and re-aspirated before being processed according to the task definition. Wetting the tip may allow a better reproducibility with some liquids. • Extra Volume: An extra volume is aspirated in addition to the desired solution volume. The extra volume remains in the tip after dispensing the requested volume and is delivered into the drain. It allows for better accuracy. <p>Dispense:</p> <ul style="list-style-type: none"> • In liquid: The tip moves 2 mm below the surface of the liquid before dispensing. • In air droplet less: The tip moves 2 mm above liquid level for dispensing, then moves down to the liquid surface to remove the droplet at the end of the tip. • In air touch off auto: The tip moves 2 mm above liquid level for dispensing, then moves to the edge of the vial to remove the droplet at the end of the tip. The Z Adjust and X Adjust are automatically determined from the vial being used. • In air touch off: The same as In air touch off auto, except the X Adjust is defined by the user. This mode may be useful for complex vial shapes designed by the user. 		
Probe rinse without tips	Probe rinsing occurs through a dedicated rinse station for rinsing the inside and outside of the probe.		
Software control	<ul style="list-style-type: none"> • 735 Sampler Software • RS/232, GSIOC 		
Volume range	<i>Tip</i>	<i>Tip Holder</i>	<i>Volume Range</i>
	D200	A	10–200 µL
	DL 10	A	5–60 µL
	DL 10	B	1–8 µL

Volumetric accuracy and precision

Tip Holder B with DL 10 Tips

	<i>Volume (μL)</i>			
	1	2	5	8
<i>RSD (%)</i>	3.5	2.5	2.0	1.0
<i>Accuracy (%)</i>	<10	<5	<4	<3

Tip Holder A with DL 10 Tips

	<i>Volume (μL)</i>			
	5	10	20	50
<i>RSD (%)</i>	2.5	1.5	1.0	0.6
<i>Accuracy (%)</i>	<4	<3	<3	<2

Tip Holder A with D200 Tips

	<i>Volume (μL)</i>				
	10	20	50	100	200
<i>RSD (%)</i>	1.5	1.0	0.6	0.5	0.5
<i>Accuracy (%)</i>	<3	<3	<2	<1	<1

The above specifications were determined using the following method:

- Liquid
Degassed Water
- 735 method
Add With Tips task

The following options were selected in 735:

Tip Holder B with DL 10 Tips:

Aspirate: No Wet Tip, Extra Volume 2 μL
Dispense: In air droplet less

Tip holder A with DL 10 Tips

Aspirate: No Wet Tip, No Extra Volume
Dispense: In air touch off

Tip Holder A with D200 Tips

Aspirate: Wet Tip, Extra Volume 2 μL
Dispense: In liquid

Appendix B Replacement Parts and Accessories

Syringes for 444 QuadDilutor

25025341	100 µL syringe
25025342	250 µL syringe

Disposable Tips

F161452	DL 10 Tipack™ (ten boxes of 96 tips)
F161455	DL 10 Tipack™ sterilized (ten boxes of 96 tips)
F167102	DL 10 TOWER PACK™ (ten boxes of 96 tips)
F161932	D200 Tipack™ (ten boxes of 96 tips)
F161937	D200 Tipack™ sterilized (ten boxes of 96 tips)
F167103	D200 TOWER PACK™ (ten boxes of 96 tips)
F167100	Universal Reload Box

Transfer Tubing

250531734	Transfer tubing assembly for four probe 100 µL–1.0 mL syringes (1.5 mL volume), bundle of four
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Control Software

2106773532	A Windows®-based relational database software that controls Gilson automated liquid handlers and samplers via a graphical user interface. Compatible with Microsoft® Windows NT® and Windows® 2000, and requires a serial cable. The recommended computer requirements are: Pentium 4>2 GHz, 512 MB RAM, 80 GB Hard Drive.
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Racks

2504634	Code 234 rack for two Tipack™ boxes
2504635	Code 235 rack for two TOWER PACK™ boxes

Replacement Parts

4340321	Spanner wrench
43115621	5/32 ball driver
25045523	Rinse station for Quad-Z 215 with disposable tips
25061601	Needle and Shaft holder (tips)
25061656	Tip holder B (includes two washers)
25061655	Tip holder A (includes two washers)
25061657	Kit of ten Washers
25064475	2.7 mm probe guide insert
2507743	Tip Chute
25245512	Rinse station base; attaches directly to 215 locator plate