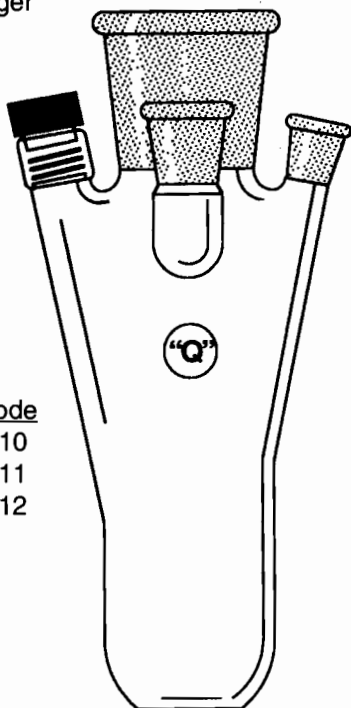


REACTION APPARATUS

QR-1000 PHOTOCHEMICAL REACTION VESSEL

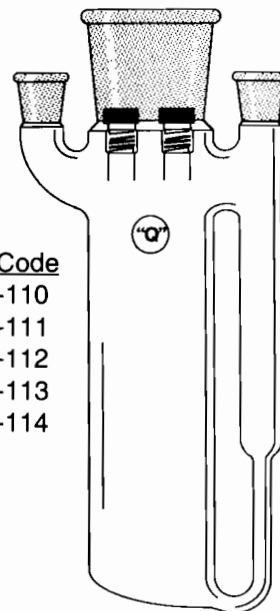
The vessel has a 60/50 outer joint at top, an angled 14/20 outer joint for sparger tube, a vertical 24/40 outer joint for condenser, and an internal threaded joint with bushing and O ring for a thermometer. Bottom of the vessel is flat.



Capacity ML	Immersion Well Size MM	Code
250	220	-110
500	220	-111
1000	290	-112

QR-1030 PHOTOCHEMICAL REACTION VESSEL

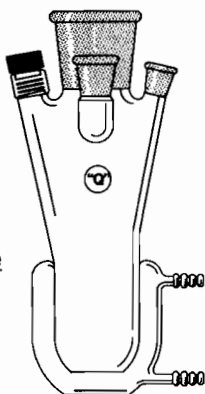
The vessel has a 60/50 outer joint at top, two internal threaded joints with bushing and O rings for thermometers or inlet tubes, a vertical 24/40 outer joint and a stirring chamber along the side with an outer joint sized to capacity.



Volume, ML With Immersion Well Inserted	Stirring Chamber Joint	Code
220MM Well	290MM Well	
150	---	24/40 -110
350	185	24/40 -111
600	440	29/42 -112
1800	1700	29/42 -113
3400	3200	34/45 -114

QR-1020 PHOTOCHEMICAL REACTION VESSEL

Similar to QR-1000, but the vessel is jacketed and has inlet and outlet connections.

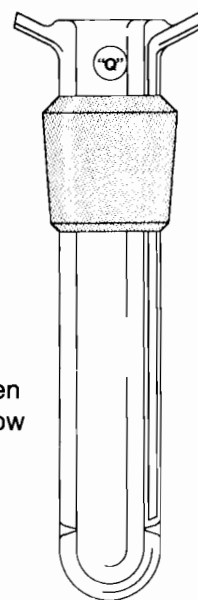


Capacity, ML	Immersion Well Size, MM	Code
250	220	-110
500	220	-111
1000	290	-112

QR-1033 PHOTOCHEMICAL IMMERSION WELL

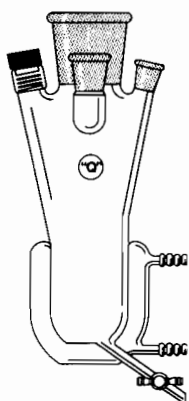
Borosilicate glass, for use with QR-1000, QR-1020, QR-1025 and QR-1030. The well has a 60/50 inner joint, an inlet and outlet connection, and a small inlet tube which extends down between the inner and outer tubes to insure flow upwards to outlet.

Length Under Joint	Code
220mm	-110
290mm	-111



QR-1025 PHOTOCHEMICAL REACTION VESSEL

Similar to QR-1020, but with the addition of a 2mm teflon stopcock at the bottom.



Capacity, ML	Immersion Well Size, MM	Code
250	220	-110
500	220	-111
1000	290	-112

QR-1035 PHOTOCHEMICAL IMMERSION WELL, QUARTZ

For use with QR-1000, QR-1020, QR-1025 and QR-1030. The quartz well has a 60/50 inner joint, an inlet and outlet connection, and a small inlet tube which extends down between the inner and outer tubes to insure flow upwards to outlet.

Length Under Joint	Code
220mm	-110
290mm	-111

REACTION APPARATUS

QR-1037 PHOTOCHEMICAL SPARGER TUBE

Sparger tube has a 14/20 drip joint tapered at the bottom. For use with QR-1000, QR-1020 and QR-1025 reaction vessels.

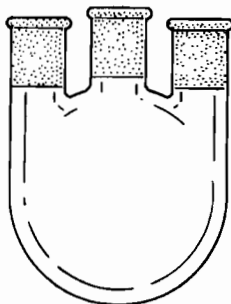
Code
-110



QR-1040 PHOTOCHEMICAL REACTION FLASK

Used for large scale reactions. A 60/50 outer joint at center with two 24/40 outer joint side necks.

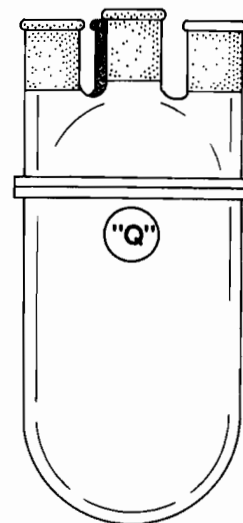
Capacity ML	Immersion Well Size, MM	Code
3000	220	-110
5000	290	-111
12000	290	-112



QR-1060 RESIN REACTION FLASK WITH COVER

Consists of a QR-1080 cylindrical reaction flask and a QR-2020 reaction cover. Flanges are ground flat to be vacuum tight. See QC-2005 for clamps.

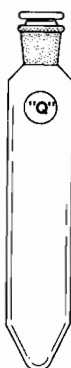
Capacity ML	Center Neck	Side Neck	Code
500	24/40	24/40	-110
1000	24/40	24/40	-111
1000	29/42	29/42	-112
2000	29/42	24/40	-113
2000	34/45	24/40	-114
3000	29/42	29/42	-115
3000	34/45	24/40	-116
4000	29/42	29/42	-117
4000	34/45	24/40	-118
5000	29/42	29/42	-119



QR-1050 REACTION VESSEL

Maizell-Gerson, #13 stopper joint at top with conical bottom. Complete with stopper.

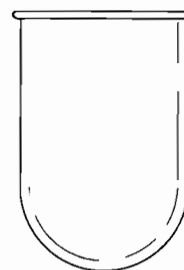
Capacity ML	Approximate Length	Code
40	125	-110
50	140	-111



QR-1080 RESIN REACTION FLASK

Round bottom, cylindrical flask with a flat ground flange.

Capacity ML	Flange OD,MM	Body OD,MM	Code
500	137	95	-110
1000	137	100	-111
2000	165	140	-112
3000	165	140	-113
4000	165	140	-114
5000	187	150	-115



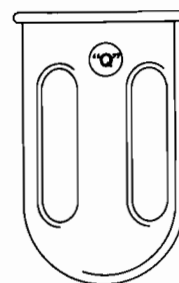
REMEMBER

"Q" Glass has been working with customers to design and build custom glass apparatus and component parts since 1946. We can do the same for you. Please write or call us with your special requirements.

QR-1090 RESIN REACTION FLASK MORTON TYPE

Round bottom, cylindrical flask. Similar to QR-1080, but with four equally spaced indentations for improved stirring. Ground flange.

Capacity ML	Flange OD,MM	Body OD,MM	Code
500	137	95	-110
1000	137	100	-111
2000	165	140	-112
3000	165	140	-113
4000	165	140	-114
5000	187	150	-115

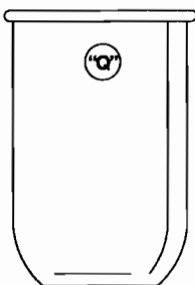


REACTION APPARATUS

QR-1095 RESIN REACTION FLASK

Flat bottom, cylindrical flask with a flat ground flange.

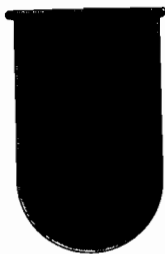
Capacity ML	Flange OD,MM	Body OD,MM	Code
500	137	95	-110
1000	137	100	-111
2000	165	140	-112
3000	165	140	-113
4000	165	140	-114
5000	187	150	-115



QR-2000 RESIN REACTION FLASK STAINLESS STEEL

Round bottom, cylindrical flask. Similar to QR-1080, but fabricated from type 304 stainless steel.

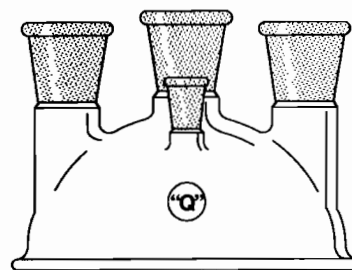
Capacity ML	Flange OD,MM	Body OD,MM	Code
500	137	95	-110
1000	137	100	-111
2000	165	140	-112
3000	165	140	-113
4000	165	140	-114
5000	187	150	-115



QR-2010 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2005, but with the addition of a 10/30 outer joint as fourth neck, for a thermometer.

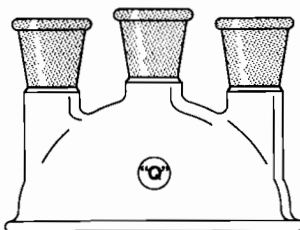
Flange OD,MM	Center Neck	Side Necks	Code
137	24/40	24/40	-110
	29/42	24/40	-111
	29/42	29/42	-112
	34/45	24/40	-113
165	24/40	24/40	-114
	29/42	24/40	-115
	29/42	29/42	-116
	34/45	24/40	-117
187	24/40	24/40	-118
	29/42	24/40	-119
	29/42	29/42	-120
	34/45	24/40	-121



QR-2005 RESIN REACTION FLASK COVER

3 neck, covers with flat ground flange. Interchangeable with reaction flasks that have the same ground flange diameter.

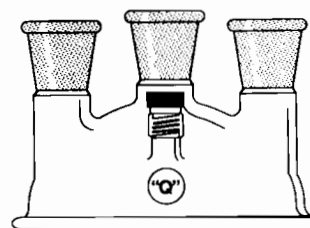
Flange OD,MM	Center Neck	Side Necks	Code
137	24/40	24/40	-110
	29/42	24/40	-111
	29/42	29/42	-112
	34/45	24/40	-113
165	24/40	24/40	-114
	29/42	24/40	-115
	29/42	29/42	-116
	34/45	24/40	-117
187	24/40	24/40	-118
	29/42	24/40	-119
	29/42	29/42	-120
	34/45	24/40	-121



QR-2015 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2005, but with the addition of an internal threaded joint with bushing and O ring as fourth neck for a thermometer or inlet tube.

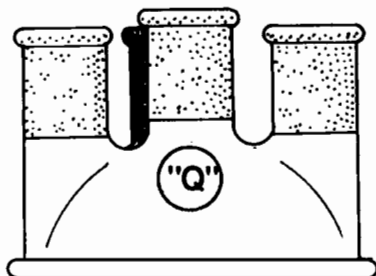
Flange OD,MM	Center Neck	Side Necks	Code
137	24/40	24/40	-110
	29/42	24/40	-111
	29/42	29/42	-112
	34/45	24/40	-113
165	24/40	24/40	-114
	29/42	24/40	-115
	29/42	29/42	-116
	34/45	24/40	-117
187	24/40	24/40	-118
	29/42	24/40	-119
	29/42	29/42	-120
	34/45	24/40	-121



REACTION APPARATUS

QR-2020 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2005, but with the addition of a fourth neck. All side necks are the same size.

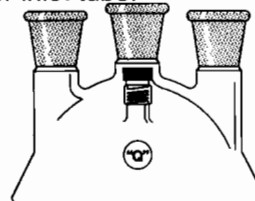


Flange OD.MM	Center Neck	Side Necks	Code
137	24/40	24/40	-110
	29/42	24/40	-111
	29/42	29/42	-112
	34/45	24/40	-113
165	24/40	24/40	-114
	29/42	24/40	-115
	29/42	29/42	-116
	34/45	24/40	-117
187	24/40	24/40	-118
	29/42	24/40	-119
	29/42	29/42	-120
	34/45	24/40	-121

QR-2055 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2040, but with the addition of an internal threaded joint with bushing and O ring as fourth neck for a thermometer or inlet tube.

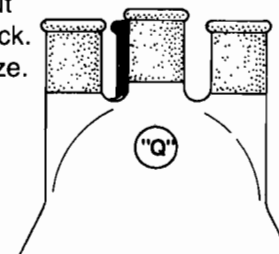
Center Neck	Side Necks	Code
24/40	24/40	-110
29/42	24/40	-111
29/42	29/42	-112
45/50	24/40	-113



QR-2060 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2040, but with the addition of a fourth neck. All side necks are the same size.

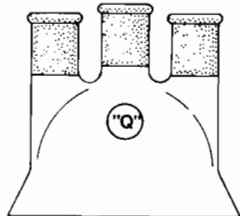
Center Neck	Side Necks	Code
24/40	24/40	-110
29/42	24/40	-111
29/42	29/42	-112
45/50	24/40	-113



QR-2040 RESIN REACTION FLASK COVER

3 neck covers with a 4" ID ground conical flange interchangeable with reaction flasks that have 4" ID conical flanges. See QC-2004 for clamps.

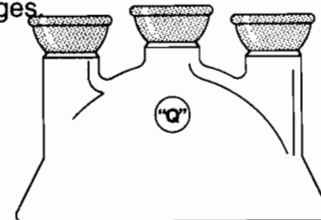
Center Neck	Side Necks	Code
24/40	24/40	-110
29/42	24/40	-111
29/42	29/42	-112
45/50	24/40	-113



QR-2065 RESIN REACTION FLASK COVER

3 neck covers with socket joints and a 4" ID ground conical flange, interchangeable with reaction flasks that have 4" ID conical flanges.

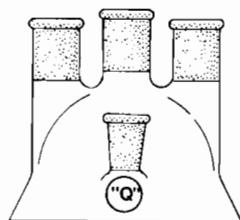
Center Neck	Side Necks	Code
28/15	28/15	-110
35/25	28/15	-111
35/25	35/25	-112
65/40	35/25	-113



QR-2050 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2040, but with the addition of a 10/30 outer joint as fourth neck for a thermometer.

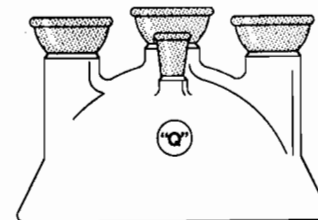
Center Neck	Side Necks	Code
24/40	24/40	-110
29/42	24/40	-111
29/42	29/42	-112
45/50	24/40	-113



QR-2068 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2065, but with the addition of a 10/30 outer joint as a fourth neck for a thermometer.

Center Neck	Side Necks	Code
28/15	28/15	-110
35/25	28/15	-111
35/25	35/25	-112
65/40	35/25	-113

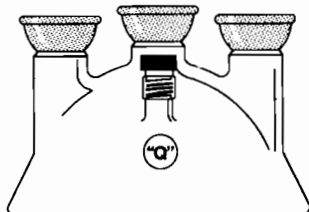


REACTION APPARATUS

QR-2070 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2065, but with the addition of an internal threaded joint with bushing & O ring as fourth neck for thermometer or inlet tube.

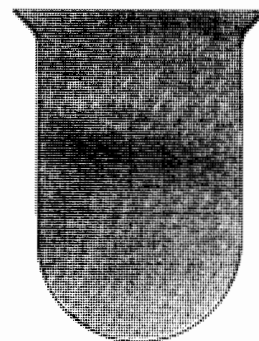
Center neck	Side necks	Code
28/15	28/15	-110
35/25	28/15	-111
35/25	35/25	-112
65/40	35/25	-113



QR-3020 RESIN REACTION FLASK STAINLESS STEEL

Round bottom, cylindrical flask. Similar to QR-2080, but type 304 stainless steel.

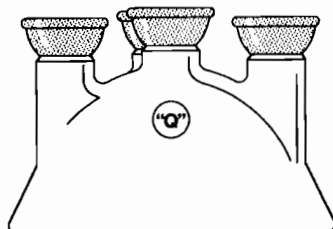
Capacity, ML	Code
500	-110
1000	-111
1500	-112
2000	-113
3000	-114



QR-2075 RESIN REACTION FLASK COVER

4 neck. Similar to QR-2065, but with the addition of a fourth neck. All side necks are the same size.

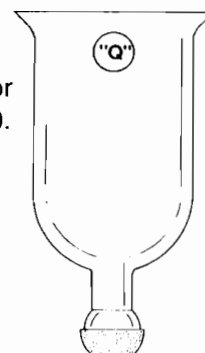
Center neck	Side necks	Code
28/15	28/15	-110
35/25	28/15	-111
35/25	35/25	-112
65/40	35/25	-113



QR-3040 RESIN REACTION FLASK

Round bottom, cylindrical flask with 4"ID ground conical flange and a 28/15 ball joint as a bottom outlet. For use with stopcock adapters QR-4050.

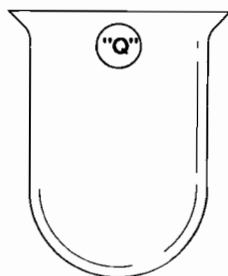
Capacity, ML	Code
500	-110
1000	-111
1500	-112
2000	-113
3000	-114



QR-2080 RESIN REACTION FLASK

Round bottom, cylindrical flask with a 4"ID ground conical flange. See QC-2004 for clamp.

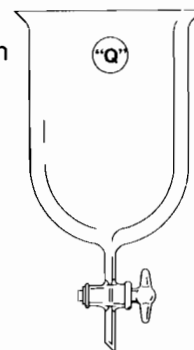
Capacity, ML	Code
500	-110
1000	-111
1500	-112
2000	-113
3000	-114



QR-3050 RESIN REACTION FLASK

Round bottom, cylindrical flask with 4"ID ground conical flange and a 6mm stopcock at the bottom. Available with glass or teflon stopcock.

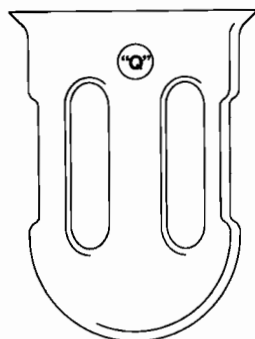
Capacity ML	Glass Stopcock	Teflon Stopcock
	Code	Code
1000	-110	-213
2000	-111	-214
3000	-112	-215



QR-3000 RESIN REACTION FLASK

Round bottom, cylindrical flask. Similar to QR-2080, but with four equally spaced indentations for improved stirring.

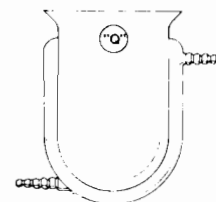
Capacity, ML	Code
500	-110
1000	-111
1500	-112
2000	-113
3000	-114



QR-3055 RESIN REACTION FLASK JACKETED

Round bottom, cylindrical flask with 4"ID ground conical flange. Jacket is sealed on below the conical flange with inlet and outlet hose connections. See QC-2004 for clamp.

Capacity, ML	Code
500	-110
1000	-111
1500	-112
2000	-113
3000	-114

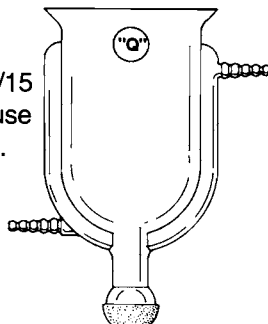


REACTION APPARATUS

QR-3060 RESIN REACTION FLASK JACKETED

Round bottom, cylindrical flask. Similar to QR-3055 but with a 28/15 ball joint as a bottom outlet. For use with stopcock adapters QR-4050.

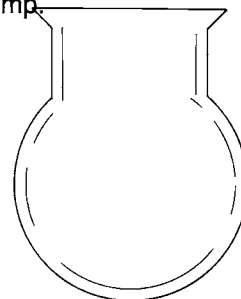
Capacity, ML	Code
1000	-110
1500	-111
2000	-112
3000	-113



QR-3080 RESIN REACTION FLASK

Spherical body flask with a 4"ID ground conical flange. See QC-2004 for clamp.

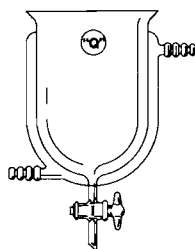
Capacity, ML	Code
2000	-110
3000	-111
5000	-112
12000	-113
22000	-114
50000	-115
72000	-116



QR-3070 RESIN REACTION FLASK JACKETED

Round bottom, cylindrical flask. Similar to QR-3055, but with a 6mm stopcock at the bottom. Available with a glass or teflon stopcock.

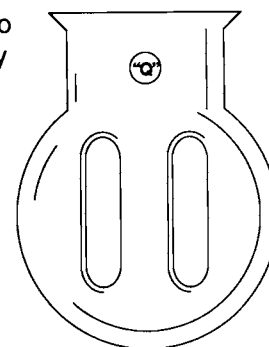
Capacity ML	Glass Stopcock Code	Teflon Stopcock Code
1000	-110	-214
1500	-111	-215
2000	-112	-216
3000	-113	-217



QR-3085 RESIN REACTION FLASK

Spherical body flask. Similar to QR-3080, but with four equally spaced indentations for improved stirring.

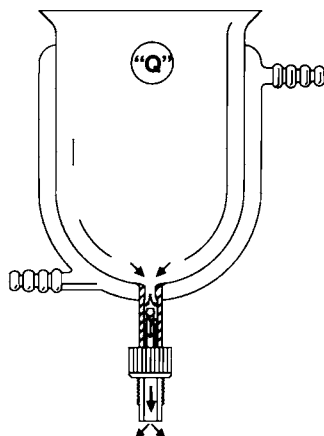
Capacity, ML	Code
2000	-110
3000	-111
5000	-112
12000	-113



QR-3075 RESIN REACTION FLASK JACKETED

Round bottom, cylindrical flask. Similar to QR-3055, but with a teflon drain valve at the bottom. A teflon plunger allows the contents of the flask to be drained directly through the bore of the plunger. When closed, the tip of the teflon plug seals into the lower radius of the flask. Available with a 6mm or 12mm ID plunger.

Capacity ML	6MM ID Valve Code	12MM ID Valve Code
1000	-110	-214
1500	-111	-215
2000	-112	-216
3000	-113	-217

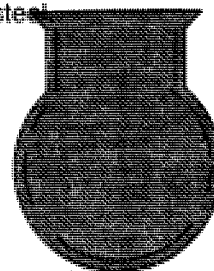


Note: The teflon drain valve can be used on all flasks and vessels. Please call with your requirements.

QR-3090 RESIN REACTION FLASK STAINLESS STEEL

Spherical body flask. Similar to QR-3080, but fabricated from type 304 stainless steel.

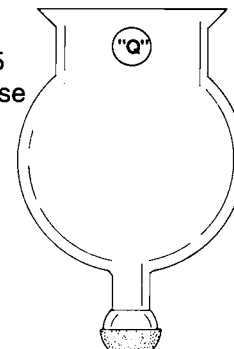
Capacity, ML	Code
1000	-110
2000	-111
3000	-112
5000	-113
12000	-114
22000	-115



QR-4000 RESIN REACTION FLASK

Spherical body flask with a 4"ID ground conical flange and a 28/15 ball joint as a bottom outlet. For use with stopcock adapters QR-4050.

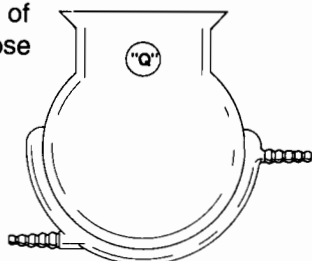
Capacity, ML	Code
2000	-110
3000	-111
5000	-112
12000	-113
22000	-114



REACTION APPARATUS

QR-4020 RESIN REACTION FLASK JACKETED

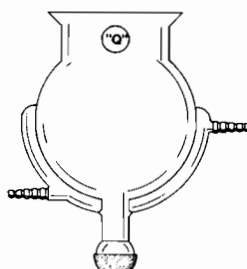
Spherical body flask with a 4"ID ground flange. Jacket is just above the midsection of body with inlet and outlet hose connections. See QC-2004 for clamp.



Capacity, ML	Code
3000	-110
5000	-111
12000	-112

QR-4040 RESIN REACTION FLASK JACKETED

Spherical body flask. Similar to QR-4020, but with a 28/15 ball joint as a bottom outlet. For use with stopcock adapters QR-4050.

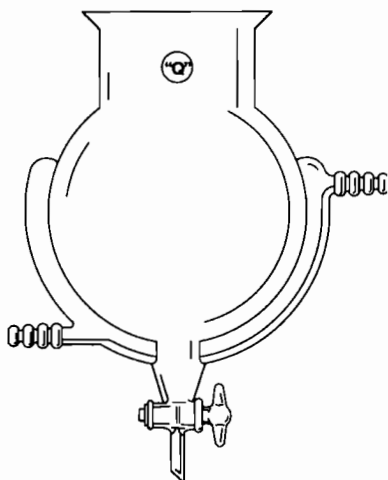


Capacity, ML	Code
3000	-110
5000	-111
12000	-112

QR-4045 RESIN REACTION FLASK JACKETED

Spherical body flask. Similar to QR-4020, but with a stopcock at the bottom. Available with a glass or teflon stopcock.

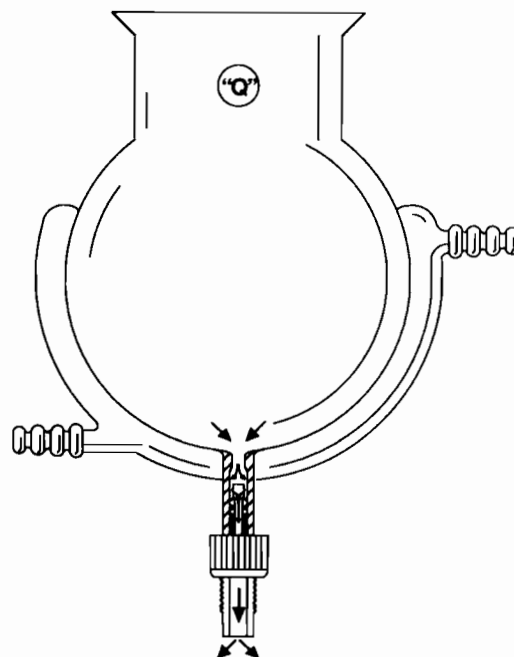
Capacity ML	Stopcock Bore	Glass Stopcock Code	Teflon Stopcock Code
3000	6	-110	-213
5000	8	-111	-214
12000	10	-112	-215



QR-4047 RESIN REACTION FLASK JACKETED

Spherical body flask. Similar to QR-4020, but with a teflon drain valve at the bottom. A teflon plunger allows the contents of the flask to be drained directly through the bore of the plunger. When closed, the tip of the teflon plug seals into the lower radius of the flask. Available with a 6mm or 12mm ID plunger.

Capacity ML	6MM ID Valve Code	12MM ID Valve Code
3000	-110	-213
5000	-111	-214
12000	-112	-215

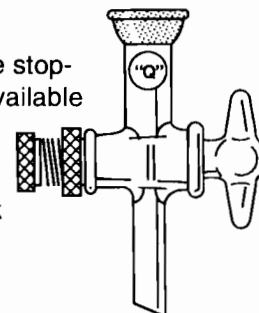


Note: The teflon drain valve can be used on all flasks and vessels. Please call with your requirements.

QR-4050 RESIN REACTION FLASK ADAPTER

Take off adapter with a pressure stopcock and a 28/15 socket joint. Available with a glass or teflon stopcock.

Stopcock Bore, MM	Glass Stopcock Code	Teflon Stopcock Code
4	-110	-213
6	-111	-214
8	-112	-215

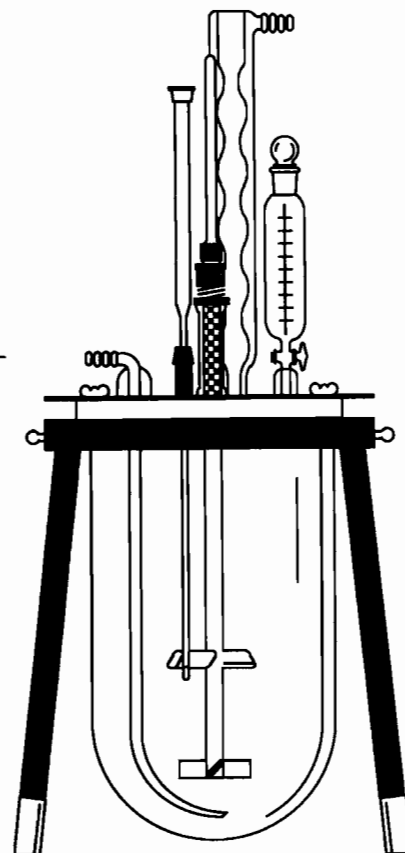


REACTION APPARATUS

QR-4060 RESIN REACTION APPARATUS

Designed for pilot plant use. The apparatus is listed complete under each capacity. All covers are 3/4" thick plates with a 45/25 center neck, 3 29/26 side necks and a 19/22 side neck. The condenser is fully jacketed and has a 29/26 inner joint. The separatory funnel is graduated and has teflon stopcock and a 29/26 inner joint. The stirring rod has attached blades and is precision ground for a stirrer bearing with a 45/25 inner joint. The inlet tube is curved at the bottom and has a 29/26 inner joint. The clamp and stand assembly have adjustable feet.

	8500ML	12000ML	18000ML	33000ML	40000ML	50000ML
	7"x	8 1/4"x	10 1/4"x	12 1/2"x	12 1/2"x	12 1/2"x
<u>Description</u>	<u>17 1/2"</u>	<u>17 1/2"</u>	<u>17 1/2"</u>	<u>17 1/2"</u>	<u>23 1/2"</u>	<u>29 1/2"</u>
Complete	-110	-221	-332	-443	-554	-665
Flask Only	-111	-222	-333	-444	-555	-666
Cover Only	-112	-223	-334	-445	-556	-667
Funnel Only	-113	-224	-335	-446	-557	-668
Condenser Only	-114	-225	-336	-447	-558	-669
Inlet Adapter Only	-115	-226	-337	-448	-559	-670
Stirring Rod Only	-116	-227	-338	-449	-560	-671
Stirrer Bearing Only	-117	-228	-339	-450	-561	-672
Thermometer Only	-118	-229	-340	-451	-562	-673
Thermometer Adapter						
with Sleeve Only	-119	-230	-341	-452	-563	-674
Clamp & Stand						
Assembly Only	-120	-231	-342	-453	-564	-675



SEPTUMS

QS-3000 SEPTUM HOLDER

Tooled to hold a QS-3020. 7mm OD x 2.5mm ID tube approximately 6" long. Sold in packages of 12 each.

Code
-110



QS-3020 SEPTUM STOPPER

Red rubber sleeve style stopper, puncture seals automatically after needle is withdrawn. Sold in packages of 12 each.

<u>To Fit</u>	<u>Code</u>
QS-3000 Septum Holder or	
QS-3010 Septum Adapter	-110
14/20 or 14/35	-111
19/22 or 19/38	-112
24/25 or 24/40	-113

QS-3010 SEPTUM ADAPTER

For use when sampling air sensitive materials. Supplied with septum.

<u>Joint Size</u>	<u>Code</u>
14/20	-110
19/22	-111
24/40	-112

