



These instructions provide information for installation, operation and maintenance of the RAM Sampling System (RSS).

The SENSOR RAM Sample System (RSS) is designed to attach directly to the side of a tank or pipeline without the need to utilize, or create, a pressure differential to take a sample. The RSS uses a Piston Type Ram Sample Valve which works very well in high viscosity or high particulate applications which are prone to plugging. As the valve is rotated the piston draws back and allows the liquid to flow through to the sample port. When the Piston Ram Valve is rotated to close, it pushes back any remaining product to ensure no cross contamination between samples and zero dead volume.

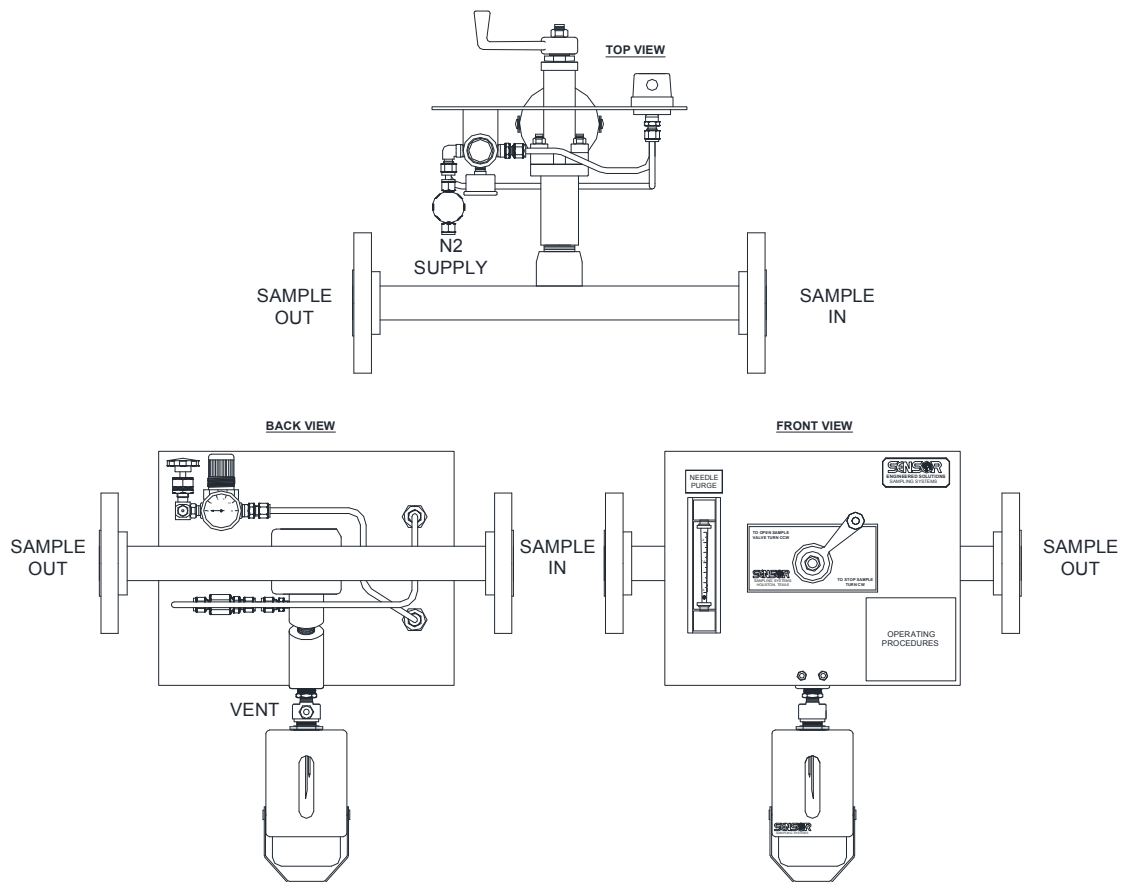
Design and specifications are subject to change without notice.

*For latest revision, go to
SENSOReng.com*

Table of Contents

Installation	2
Operating Procedures.....	3
Dimensions.....	4
Parts List	5
Needle Specs and Replacement.....	6
Container Data Sheet	7
Container Information Chart.....	8

Installation

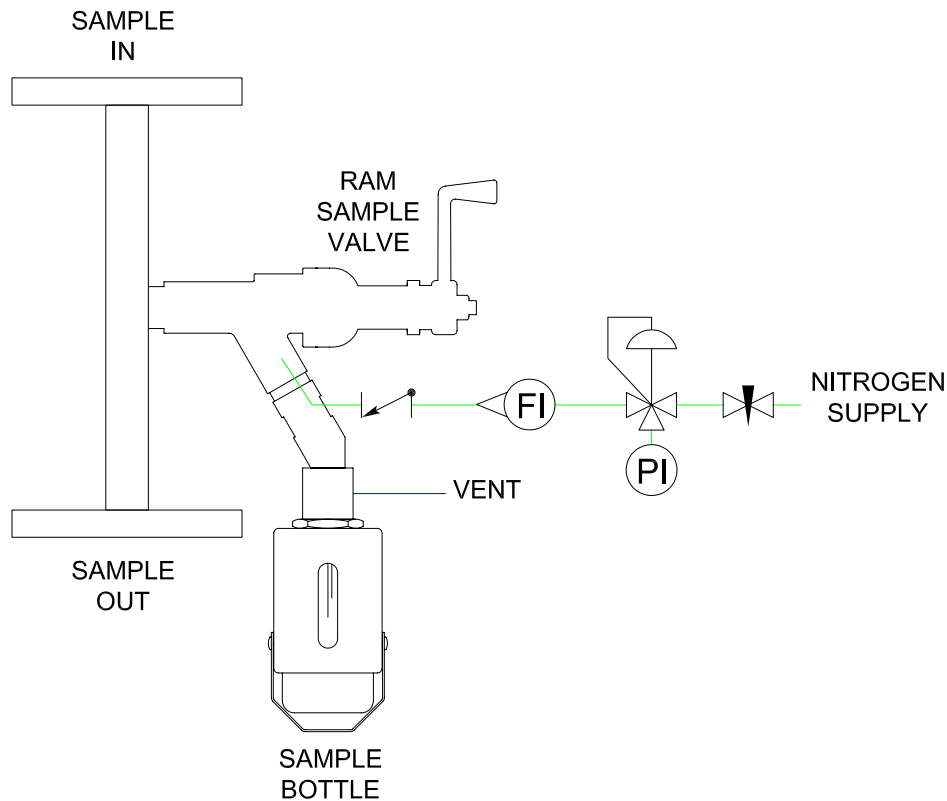


- 1 Visually inspect unit for broken or missing components.
- 2 Install plate on pipe stand with clamps as provided.
- 3 Check all fittings; tighten if needed using 9/16" open-end wrench for 1/4" 7/8" open-end wrench for 1/2"



DO NOT OVER TIGHTEN

- 4 Before connecting Sample In, Sample Out, Vent or N2 Supply lines; Make sure:
SAMPLE valve is **CLOSED**
N2 SUPPLY valve is **CLOSED**
- 5 Connect **SAMPLE IN** and **SAMPLE OUT** lines as labeled.
- 6 Connect **VENT** and **N2 SUPPLY** as labeled on fittings.
- 7 System is ready for sampling.



❶ Verify: **SAMPLE** valve is **CLOSED**
SAMPLE BOTTLE IN SHROUD

❷ Observe rotameter for proper indicated flow. (.5-1.0 SCFH)



DO NOT CONTINUE WITHOUT NEEDLE PURGE FLOW

❸ Turn **SAMPLE** valve **CCW** to **OPEN** and observe liquid flowing into sample bottle.

❹ **CLOSE SAMPLE** valve when desired amount of sample is in bottle.

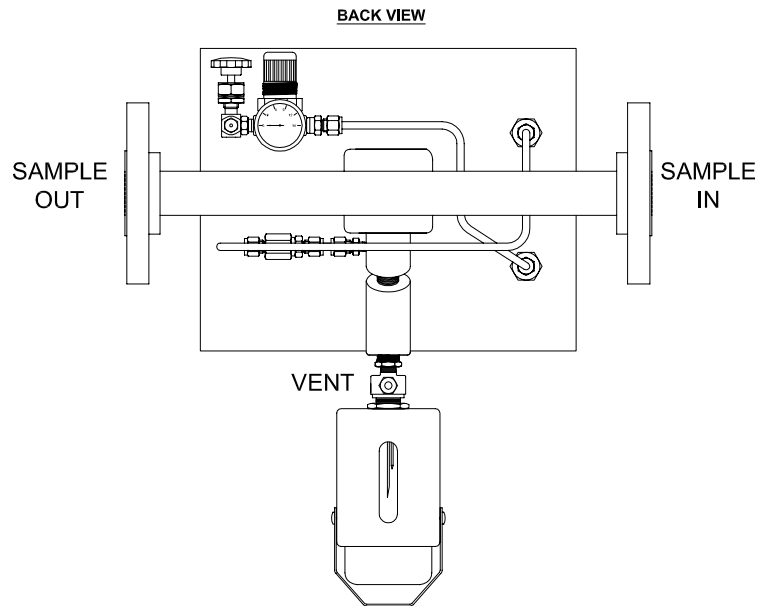
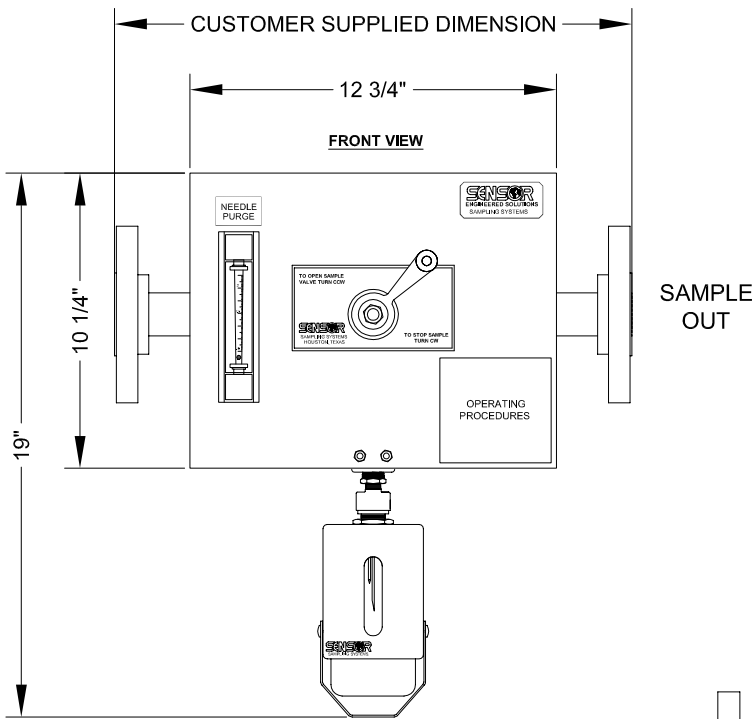
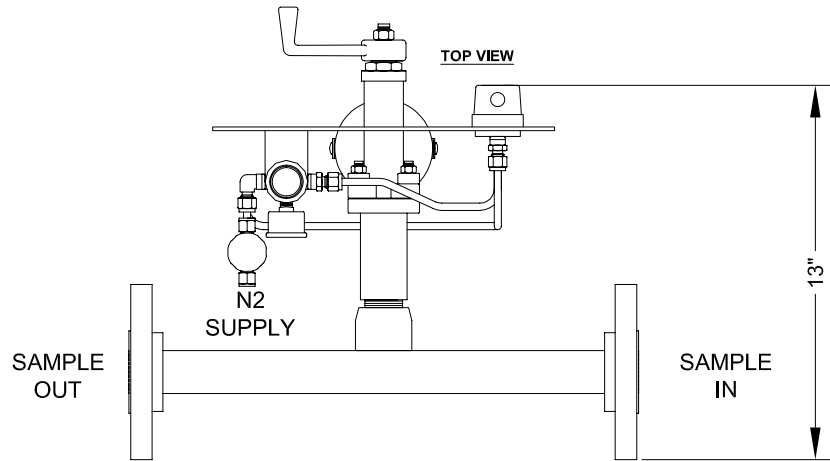
❺ Remove sample bottle by opening strap and pulling bottle out of shroud.

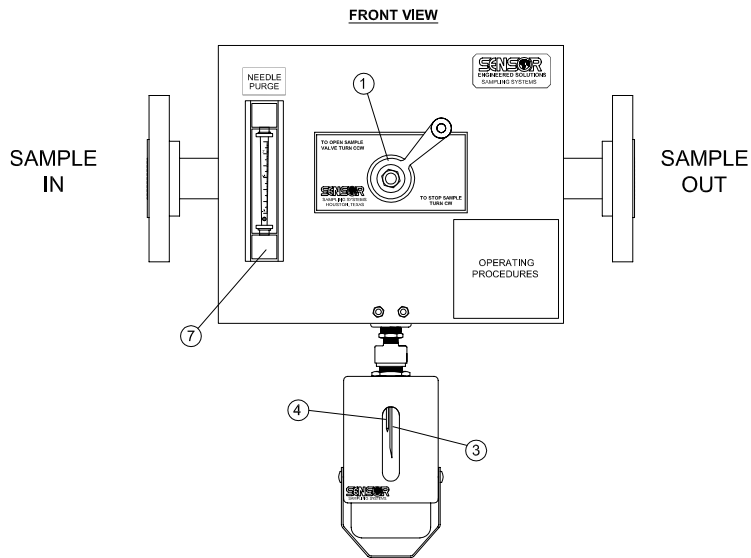
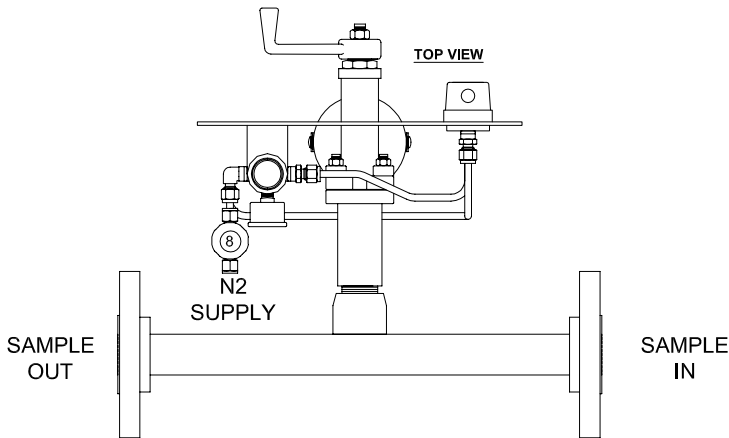
❻ Install new sample bottle into shroud until snug, then close strap.



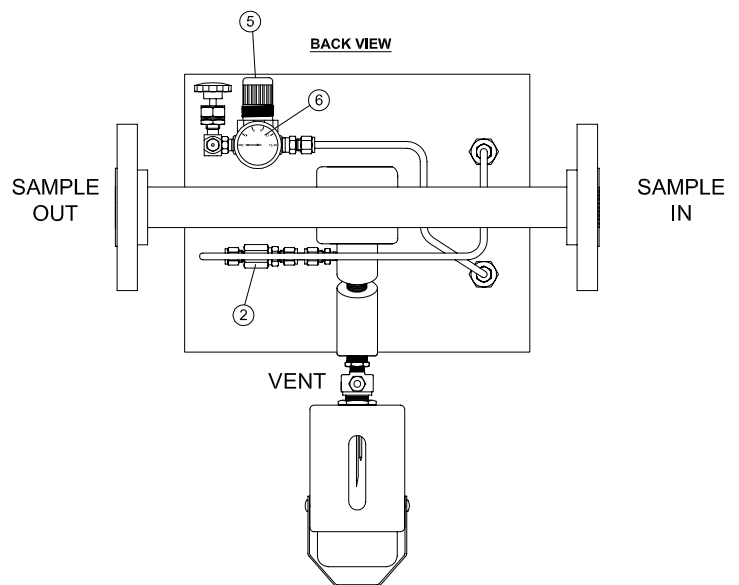
DO NOT ROTATE BOTTLE WHEN IN SHROUD

Dimension Drawings





*Dimensions are for reference only.
Contact the factory for certified drawings.*



SPARE PARTS		
SYM.	PART NUMBER	SPARE PARTS DESCRIPTION
①	SMPV2SEDSSV700	SAMPLE VALVE
②	SMPV1SSWKC4T1	VALVE CHECK
③	SMPNDSPROC.109	PROCESS NEEDLE S .109
④	SMPNDSVENT.083	VENT NEEDLE S .083
⑤	SMPRGAUNF4F2F	REGULATOR 0-10PSI
⑥	SMPGABSSP15CB	GAUGE 0-15PSI
⑦	SMPROSKINGF474C	ROTAMETER
⑧	SMPV2SSWK4JB	N2 NEEDLE VALVE

Needle Specs



PROCESS NEEDLE SPECIFICATIONS

PART #	SIZE	MATL	O.D.	WALL	I.D.
SMPNDVITP.083	.083	316SS	.083	.010	.063
SMPNDVITP.109	.109	316SS	.109	.012	.085
SMPNDVITP.148	.148	316SS	.148	.015	.118

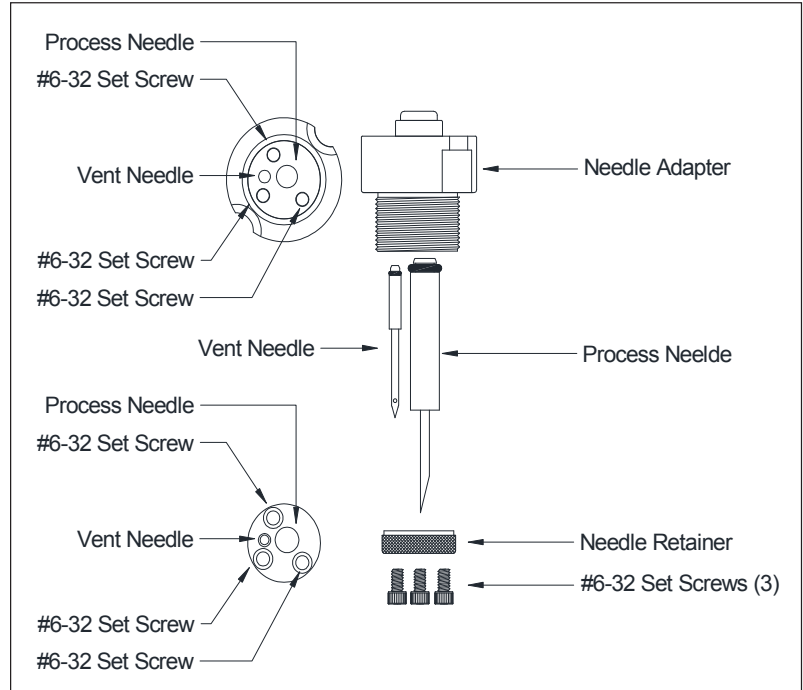


VENT NEEDLE SPECIFICATIONS

PART #	SIZE	MATL	O.D.	WALL	I.D.
SMPNDVITV.083	.083	316SS	.083	.010	.063

Needle Replacement

- ❶ Loosen jam nut on shroud assembly.
- ❷ Unscrew shroud assembly and remove.
- ❸ Remove the (3) set screws (#6-32 SHCS) with 7/64" allen wrench from needle retainer, remove retainer.
- ❹ Remove process needle by pulling it down, gently holding the barrel of the needle.
- ❺ Remove vent needle the same way as process needle.
- ❻ Make sure new process needle has o-ring installed on needle barrel, then install process needle in proper port.
- ❼ Inspect new vent needle for o-ring, then install
- ❽ Replace needle retainer and (3) set screws.
- ❾ Replace shroud by screwing in onto the needle adapter, then tighten jam nut.



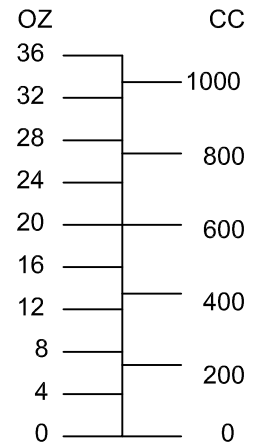
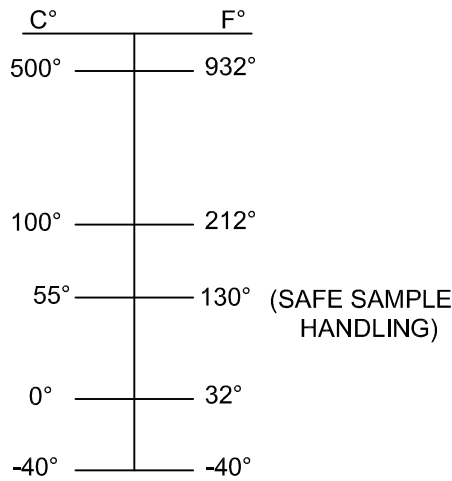
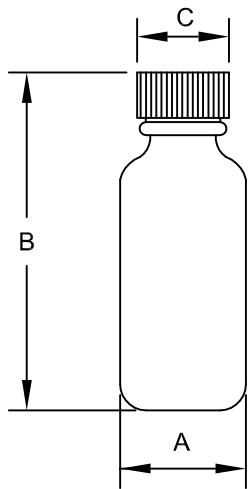
DATA SHEET

SAMPLE CONTAINER MATERIALS

CLEAR GLASS	Clear sodocalcic glass has an excellent corrosion resistance to most chemicals. Its thickness enables a slight mechanical shock resistance. It has only medium thermal properties given by a 140°C maximum temperature and a 40°C thermal shock resistance.
AMBER GLASS	Amber sodocalcic glass has an excellent corrosion resistance to most chemicals. Its thickness enables a slight mechanical shock resistance. It has only medium thermal properties given by a 140°C maximum temperature and a 40°C thermal shock resistance. This glass has the property of totally protecting the bottle content from ultraviolet rays.
BOROSILICATE GLASS	Clear borosilicate glass is highly resistant to water, neutral and acid solutions, concentrated acids and their mixtures, chlorine, bromine, iodine and organic materials. It is considered to be an all-around industrial glass in all fields of applications where maximal thermal (shock) resistance are required.
POLYETHYLENE	High density polyethylene is the most versatile and widely used plastic. It is translucent to opaque, robust enough to be virtually unbreakable, at the same time slightly flexible. Polyethylene is resistant to a great many chemicals at room temperature (strong oxidizing agents being the main exception). The (low) temperature resistance gives a maximum temperature of 120°C.
SS-316 Opt. teflon coated	Steel (AISI SS 316) cylinders have the highest thermal and mechanical resistance, and are totally unbreakable. The chemical resistance is high or very good for most chemicals. The major disadvantage is the non-visibility of the contents. Other materials such as Monel, Hastelloy, etc. are also available.
COATED GLASS	Glass bottles can be coated with vinyl or surlyn material to provide a safety feature against breakage. In case the container drops, the coating makes it less likely for the bottle to break. If eventually it does break, the contents are seldom spilled because contents and glass fragments are caught inside the protective coating.

Container Information Chart

MATERIAL	PART NO.	VOLUME	DIMENSIONS			CAP SIZE	SEPTA SIZE	TEMPERATURE °C	
			A	B	C			MAX	SHOCK
AMBER GLASS	B001-20100A	01 OZ.	1.21	3.25	0.884	20 MM	100 ML	150	40
	B002-20100A	02 OZ.	1.54	3.82	0.877	20 MM	100 ML	150	40
	B004-22100A	04 OZ.	1.91	4.55	0.983	22 MM	100 ML	150	40
	B008-24125A	08 OZ.	2.39	5.63	1.05	24 MM	120 ML	150	40
	B016-28100A	16 OZ.	2.93	6.875	1.20	28 MM	100 ML	150	40
	B032-33125A	32 OZ.	3.65	8.25	1.38	33 MM	100 ML	150	40
CLEAR GLASS	B001-20100C	01 OZ.	1.21	3.25	0.884	20 MM	100 ML	150	40
	B002-20100C	02 OZ.	1.54	3.82	0.877	20 MM	100 ML	150	40
	B004-22100C	04 OZ.	1.91	4.55	0.983	22 MM	100 ML	150	40
	B008-24125C	08 OZ.	2.39	5.63	1.05	24 MM	120 ML	150	40
	B016-28100C	16 OZ.	2.93	6.875	1.20	28 MM	100 ML	150	40
	B032-33125C	32 OZ.	3.65	8.25	1.38	33 MM	100 ML	150	40
VINYL COATED CLEAR	B004-22100V	04 OZ.	1.97	4.58	0.95	22 MM	100 ML	130	40
	B008-24125V	08 OZ.	2.49	5.64	1.05	24 MM	120 ML	130	40
	B016-28100V	16 OZ.	2.96	6.875	1.20	28 MM	100 ML	130	40
	B032-33125V	32 OZ.	3.71	8.25	1.38	33 MM	100 ML	130	40
CLEAR GLASS	B004-33125Q	04 OZ.	1.77	4.58	1.36	33 MM	125 ML	150	40
BOROSILICATE	B125-33100B	125 ML.	2.15	4.81	1.39	33 MM	100 ML	500	400
BOROSILICATE	B250-28125B	250 ML.	2.76	5.80	1.20	28 MM	100 ML	500	400
POLYETHYLENE HDPE	B016-28100E	16 OZ.	2.64	7.25	1.20	28 MM	100 ML	120	120



$$F^{\circ} = 9/5(^{\circ}C) + 32$$



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