

3-11-10

BEOs Modern test threaded

2

36"

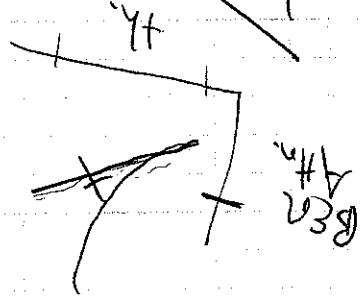
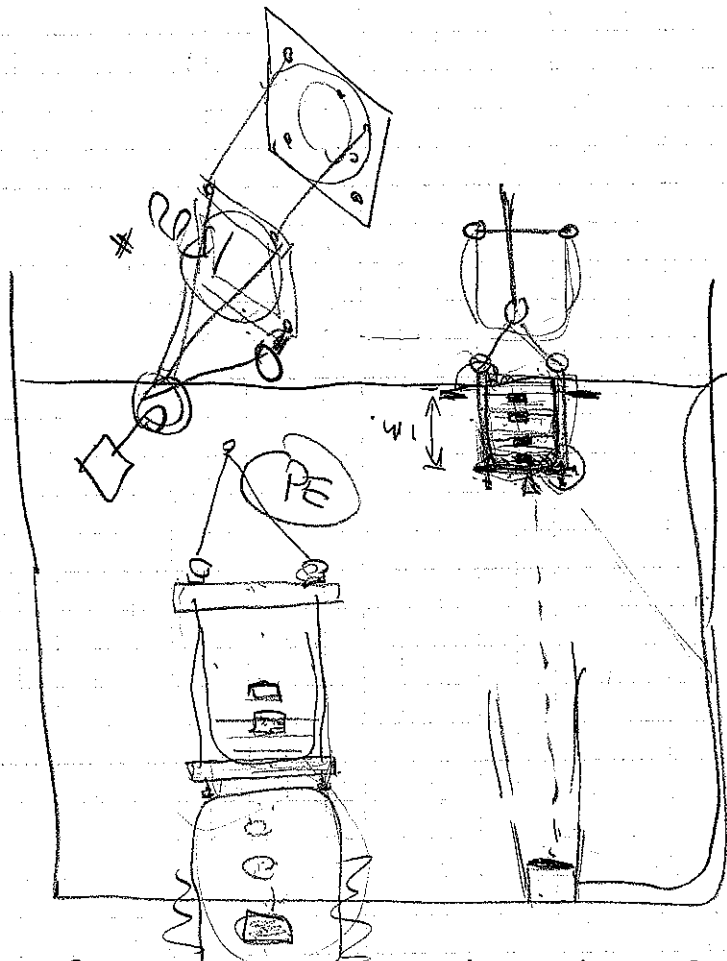
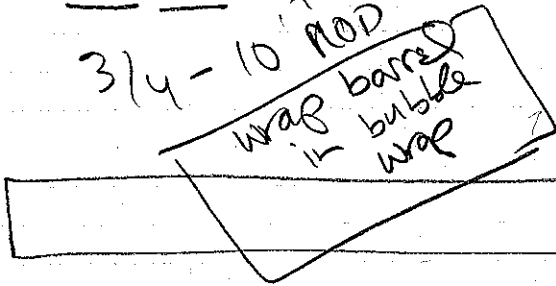
plates

1 1/2" th. UHMW

Cut out top

60° sling 12

eyenur



range
gate
+ user
travel time

① weight of wet sand in blue barrel
empty ~ 20 lbs.

Volume 55 gallons

1 gal = 0.134 cu ft.

$$\text{cu ft} = 55 \left(\frac{0.134}{1} \right) \frac{\text{cu ft}}{\text{gal}} = 7.37 \text{ cu ft.}$$

seawater = 64 lbs/cu ft.

$$\frac{2.6 \text{ (sand)}}{1.025 \text{ seawater}} = 2.54$$

3.11.10

 $\frac{1}{2}$ sand $\frac{1}{2}$ seawater

7.37 cu ft.

$$\frac{2.6}{1.025} = 2.54$$

$$\frac{162 \text{ lbs.}}{\text{cu ft.}} \times 100 \text{ lbs/cu ft} = 64 \text{ lbs/cu ft.}$$

dry
sand

$$\left[\frac{2700 \text{ lbs.}}{\text{cu yd}} \Rightarrow \frac{2700}{27} = 100 \text{ lbs/cu ft.} \right]$$

$$0.5 \left((7.37 \text{ cu ft.}) \frac{100 \text{ lbs}}{\text{cu ft.}} \right) + 0.5 \left((7.37 \text{ cu ft.}) \left(\frac{64 \text{ lbs}}{\text{cu ft.}} \right) \right)$$

$$368.5 \text{ lbs.} + 236 \text{ lbs.}$$

$$= 605 \text{ lbs.}$$

$$\text{need } \frac{7.37}{2} = 3.7 \text{ cu ft.}$$

$$100 \text{ lbs/cu ft.} = 370 \text{ lbs.}$$

independent calculation

wet
sand

$$\frac{3,500 \text{ lbs.}}{\text{cu yd}} \Rightarrow \frac{3500}{27} = 130 \text{ lbs/cu ft.}$$

$$(7.37) \frac{130 \text{ lbs}}{\text{cu ft.}} = 955 \text{ lbs.}$$

(*)

estimate 1,000 lbs. in barrel if completely filled.

how much dry sand?

3-11-10

1000 lbs. wet sand

$$x \left(\frac{100 \text{ lbs.}}{\text{cu ft.}} \right) 7.37 + (1-x) \left(\frac{64 \text{ lbs.}}{\text{cu ft.}} \right) 7.37$$

$$= \left(\frac{130 \text{ lbs.}}{\text{cu ft.}} \right) 7.37$$

$$x(737) + (1-x)472 = 958$$

$$x(737) + 472 - 472x = 958$$

$$x(265) = 486 \quad x = \frac{486}{265}$$

?

gas undersaturated

turn off ozonation
O₃ bubbles (we)

3-11-10

- NO sand exp.

NO bubble wrap

- NO sand

bubble wrap

Spatial Survey

off-center

~~active~~ / interference (

constructive
destructive

) interference

quiet zone

second barrel

$$E = 2A$$

E

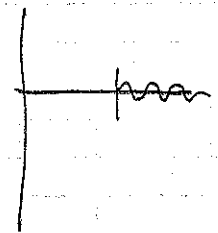
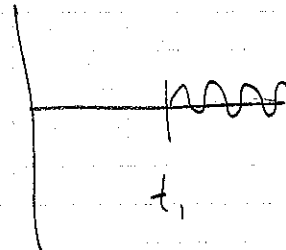
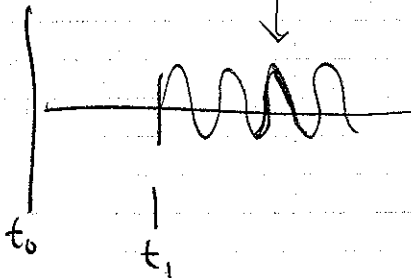
thickness

bubble wrap

acoustic cone

bubble wrap

interference

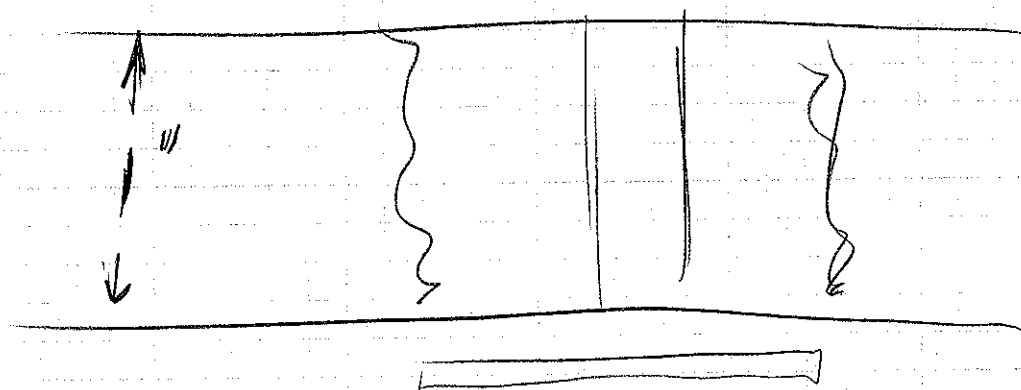
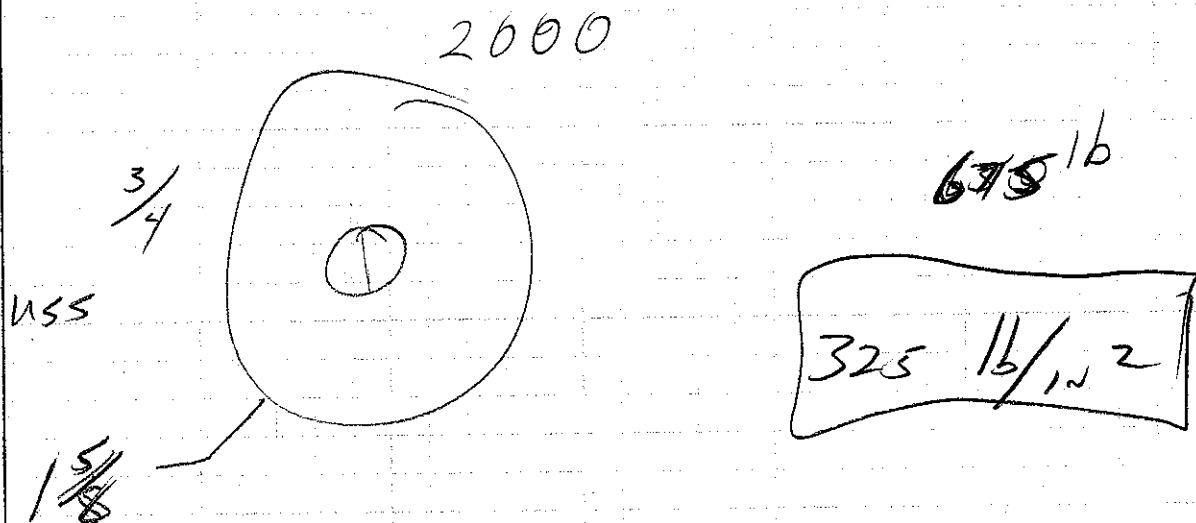


$$\left(\frac{1 \text{ s}}{1500 \text{ m}} \right)$$

$$10 \text{ m} = 6 \text{ msec}$$

300 bps

$$(0.006) 300 = 2 \text{ bits}$$



$$S_s = 4800 \text{ psi}$$

$$M = \frac{2000(18)}{2} = 18,000 \text{ lb}\cdot\text{in}$$

132 psi = τ_s

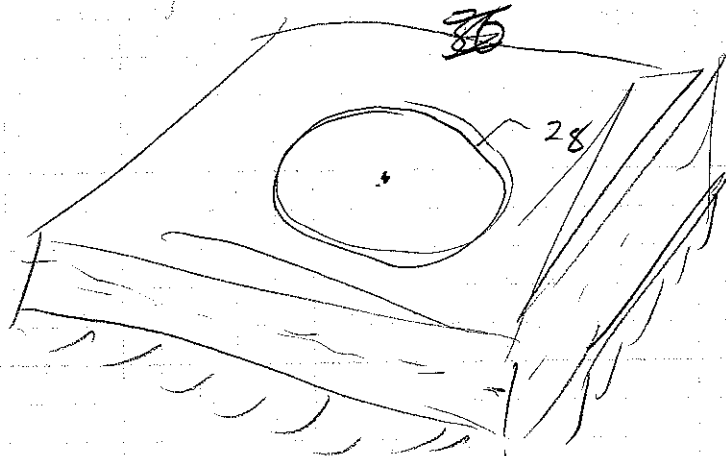
36

~~28~~

$$I = \frac{36(15)^2}{12} = .375$$

$$\sigma = \frac{Mc}{I} = \frac{(18,000)(\frac{1}{2})}{.375}$$

$$\sigma = 24,000 \text{ psi}$$



$$\begin{array}{r} 453 \\ 57 \\ \hline 510 \\ 70 \end{array}$$

$$\begin{array}{r} 19 \\ 12 \\ \hline 38 \\ 195 \\ \hline 228 \\ 40 \end{array}$$

$$\begin{array}{r} 41 \\ 18 \\ \hline 33 \\ 11 \cancel{4} 12 \\ 4 \end{array}$$

$$\begin{array}{r} 54, 21 \\ 64 \overline{) 3470} \\ \underline{320} \\ 270 \\ \underline{256} \\ 140 \\ \underline{128} \\ 120 \end{array}$$

$$\begin{array}{r} 32 \\ 12 \\ \hline 20 \end{array} \quad \begin{array}{r} 57 \\ 10 \\ \hline 114 \\ 26 \end{array}$$

$$\begin{array}{r} 51 \\ 80.5 \\ 51.0 \\ \hline 9.5 \end{array} \quad \begin{array}{r} 9.5 \\ 20 \end{array} \quad \begin{array}{r} 19 \\ 40 \end{array}$$

$$\sigma_{max} = \frac{3W}{2\pi t^2} \left[(1+\nu) \ln \frac{2b}{\pi r_0} + \beta \right]$$

$$\sigma_{max} = \frac{3(2000)}{2\pi (1)^2} \left[(1+.38) \ln \left(\frac{2(36)}{\pi (28)} \right) + .435 \right]$$

$$\sigma_{max} = 224 \text{ psi}$$

$$y_{max} = \frac{\alpha W b^2}{Et^3} = \frac{(.1267)(2000)(36)^2}{(7.0 \times 10^5)(1)^3}$$

$$y_m = 3.28 \text{ in @ } 1 \text{ in}$$

$$y_m = .973 \text{ @ } 1 \frac{1}{2}$$

USDA-Compliant Stainless Steel Drums

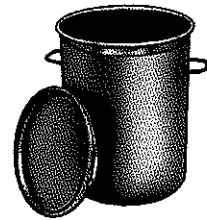
In addition to being corrosion resistant, these drums have smooth, welded seams to prevent food and chemicals from collecting in crevices. The top rim is reinforced with a 1/2" dia. rod and sealed.

Drums with protective bottom ring—Bottom ring minimizes wear and tear on the bottom of the drum when sliding drum along the floor.

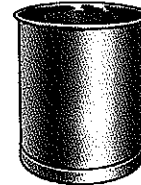
Optional covers are 16-gauge stainless steel and loose fitting.

Optional covers with leverlock closing ring are 16-gauge stainless steel and include an FDA-compliant sponge-rubber gasket.

Cap., gal.	Top OD	O'all Ht.	Gauge	Drums Each	Optional Covers Each	Optional Covers with Leverlock Closing Ring Each			
Drums with Two Handles									
Type 304 Stainless Steel									
58	25 1/4"	30"	16	4562T25	\$486.48	4562T35	\$171.57	4562T46	\$269.67
49	23 1/4"	30"	16	4562T24	460.65	4562T34	163.84	4562T45	249.96
40	21 3/4"	30"	16	4562T23	440.69	4562T33	158.68	4562T42	249.87
33	19 1/4"	30"	16	4562T22	419.23	4562T32	152.14	4562T41	234.94
Type 316 Stainless Steel									
58	25 1/4"	30"	16	4562T51	565.17	4562T61	241.98	4562T71	339.10
Drums with Protective Bottom Ring									
Type 304 Stainless Steel									
55	23 1/4"	34"	14	4562T27	813.10	4562T34	163.84	4562T45	249.96
30	19 1/4"	30"	14	4562T26	708.58	4562T32	152.14	4562T41	234.94
Type 316 Stainless Steel									
55	23 1/4"	34"	14	4562T52	894.11	4562T62	235.53	4562T72	324.79



Drum with Two Handles and Optional Cover with Leverlock Closing Ring



Drum with Protective Bottom Ring

Polyethylene Drums

All drums and covers are made of FDA-compliant resins. All drums have one 3/4" NPT and one 2" NPT opening that come with polyethylene plugs. Max. temperature is 140° F. **To Order:** Please specify color, where applicable.

Open-head drums come with a cover that has an EPDM gasket and a steel closing ring.

Note: In hot-fill applications, allow contents to cool to ambient temperature before stacking.

Open-Head Drums

Cap., gal.	Top OD	O'all Ht.	Wall Thick.	Available Colors	With Nut-and-Bolt Closing Ring		With Leverlock Closing Ring	
						Each		Each
55	23 1/2"	36 1/4"	3/16"	Black, Blue, Translucent White	4319T913	\$102.38	4319T964	\$102.38
35	20 3/4"	31 3/4"	3/16"	Black, Blue, Translucent White	4319T56	91.27	4319T57	91.27
30	19 3/8"	29 3/4"	3/16"	Translucent White	4319T814	73.63	4319T867	73.63
20	17 1/4"	26 3/8"	3/16"	Translucent White	4319T714	55.36	4319T767	55.36
15	16"	22 3/4"	3/16"	Translucent White	4319T616	46.59	4319T665	46.59



Open-Head Drum with Nut-and-Bolt Closing Ring

Closed-Head Drums

Cap., gal.	Top OD	O'all Ht.	Wall Thick.	Available Colors	Each	
55	23 1/2"	36 1/4"	3/16"	Black, Blue, Red, Translucent White, Yellow.	4319T36	\$83.72
35	20 3/4"	31 3/4"	3/16"	Black, Blue, Translucent White	4319T49	74.69
30	19 3/8"	29 3/4"	3/16"	Black, Blue, Red, Translucent White, Yellow.	4319T37	55.87
20	17 1/4"	26 3/8"	3/16"	Black, Blue, Translucent White	4319T2	42.45
15	16"	22 3/4"	3/16"	Black, Blue, Red, Translucent White, Yellow.	4319T38	35.33



Closed-Head Drum

UN-Compliant Polyethylene Drums

Choose these UN-compliant drums for shipping hazardous materials. All drums have two openings with polypropylene plugs, unless otherwise specified. All are made of FDA-compliant resins, except the black models. Max. temperature is 160° F. **To Order:** Please specify color, where applicable.

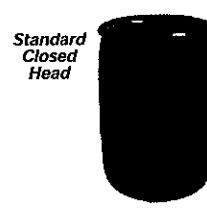
Open-head drums come with a cover with steel leverlock closing ring. Cover has a urethane gasket.

Closed-head drums with one or two handles are easy to move when empty.

Note: In hot-fill applications, allow contents to cool to ambient temperature before stacking.



Standard Open Head



Standard Closed Head



Closed Head with Two Handles

Cap., gal.	Top OD	O'all Ht.	Wall Thick.	Top Openings, Thread Size (Qty.)	Specifications Met	Available Colors	Each
Open-Head Drums							
Standard							
55	22 ⁷ / ₈ "	36 ¹ / ₄ "	1 ¹ / ₈ "	2" NPS (2)	UN1H2/Y250/S; UN1H2/X150/S	Black, Blue	43235T7\$87.82
30	19 ³ / ₈ "	29 ³ / ₈ "	1 ¹ / ₈ "	3 ⁴ / ₄ " NPS (1), 2" NPS (1)	UN1H2/Y180/S	Blue, Translucent White	43235T1159.69
Nestable							
55	23 ¹ / ₁₆ "	38 ¹ / ₁₆ "	1 ¹ / ₈ "	2" NPS (2)	UN1H2/Y185/S	Blue	43235T1590.48
30	21 ⁵ / ₁₆ "	30 ¹ / ₈ "	1 ¹ / ₈ "	2" NPS (2)	UN1H2/Y180/S	Black, Blue	43235T959.54
15	14 ⁷ / ₈ "	27 ¹ / ₈ "	1 ¹ / ₈ "	2" NPS (1)	UN1H2/Y100/S; UN1H2/X65/S	Black, Blue	43235T1338.24
Closed-Head Drums							
Standard							
55	23 ³ / ₁₆ "	34 ¹ / ₁₆ "	1 ¹ / ₈ "	2" NPS (1), 2" BTR★ (1)	UN1H1/Y1.9/150	Black, Blue, Translucent White	43235T563.40
30	19 ¹ / ₂ "	29 ⁵ / ₈ "	1 ¹ / ₈ "	2" NPS (1), 2" BTR★ (1)	UN1H1/Y1.9/150	Black, Blue, Translucent White	43235T853.29
With One Handle							
15	14 ³ / ₈ "	26 ⁵ / ₁₆ "	1 ¹ / ₈ "	3 ⁴ / ₄ " NPS (1), 2" NPT (1)	UN1H1/Y1.9/100	Translucent White	4119T829.18
With Two Handles							
15	16"	20 ⁵ / ₈ "	1 ¹ / ₈ "	2" NPS (1), 2" BTR★ (1)	UN1H1/Y2.0/150	Black, Blue, Translucent White	4119T535.68
15	15 ⁵ / ₈ "	25 ¹ / ₂ "	1 ¹ / ₈ "	2" BTR★ (1)	UN1H1/X1.9/320	Black	4119T239.74
★ BTR = Buttress thread							

* BTR = Buttress thread.

Material Density Chart

Material	Density (Loose)	Material	Density (Loose)
Ashes	1,100 lb/yd ³	Gypsum—Crushed	2,700 lb/yd ³
Caliche	2,100 lb/yd ³	Kaolin	1,730 lb/yd ³
Cement—Portland	2,550 lb/yd ³	Limestone—Broken	2,600 lb/yd ³
Cereals—Wheat, Bulk	1,300 lb/yd ³	Salt—Coarse	1,350 lb/yd ³
Clay (natural bed)	2,800 lb/yd ³	Sand—Dry	2,700 lb/yd ³
Clay (Dry Lumps)	1,820 lb/yd ³	Sand—Wet	3,500 lb/yd ³
Clay (Wet Lumps)	2,700 lb/yd ³	Sand with gravel—Dry	2,900 lb/yd ³
Clay with Gravel (Dry)	2,700 lb/yd ³	Sand with gravel—Wet	3,400 lb/yd ³
Clay with Gravel (Wet)	3,080 lb/yd ³	Sandstone—Broken	2,550 lb/yd ³
Coal—Anthracite(Broken)	1,850 lb/yd ³	Sawdust	550 lb/yd ³
Coal—Bituminous(Broken)	1,400 lb/yd ³	Shale	2,100 lb/yd ³
Coke	875 lb/yd ³	Silage	865 lb/yd ³
Earth—Dry, Packed	2,550 lb/yd ³	Slag—Broken	2,950 lb/yd ³
Earth—Wet, Excavated	2,700 lb/yd ³	Snow—Dry	400 lb/yd ³
Earth, Loam	2,100 lb/yd ³	Snow—Wet	600 lb/yd ³
Garbage—Wet	1,350 lb/yd ³	Stone—Crushed	2,700 lb/yd ³
Granite—Broken	2,800 lb/yd ³	Sugar—Raw, Refined	1,750 lb/yd ³
Gravel—Dry	2,550 lb/yd ³	Topsoil	1,600 lb/yd ³
Graveled Sand	3,250 lb/yd ³	Wood Chips (Dry)	600 lb/yd ³
Gravel—Dry (½" to 2")	2,850 lb/yd ³	Wood Chips (Wet)	900 lb/yd ³
Gravel—Wet (½" to 2")	3,375 lb/yd ³		

*Actual material density may vary from these standard values.

Corporate Office:
330-678-2511
800-321-2348
Fax: 330-678-0859

Northwest:
360-474-1940
800-688-6266
Fax: 360-474-9941

www.acs-coupler.com