

MARINE INDUSTRY STANDARDS FOR ENCAPSULATED FLOTATION

ASTM D1998-06 Falling Dart Impact Test

Calibrated, Tank-Tested Buoyancy Ratings

7-Day Hunt Water Absorption Test

Encasement Wall Thickness Standard

US Army Corp of Engineers Regulation 33CFR Part 327.30

WHY ARE THESE STANDARDS IMPORTANT TO YOU?

✓ BUOYANCY = (\$) SAVINGS*

- Buoyancy is based on tank-testing, not calculations. These ratings prevent you from over or underbuying floats which leads to a savings of up to 20%.

✓ STRUCTURAL STRENGTH = (\$) SAVINGS*

- The encasement shall provide 100% protection to all surfaces of the flotation material and allow zero water to enter the unit.
- The encasement shall be 100% virgin grade linear low density polyethylene, black in color.
- The flotation material shall be 100% virgin grade polystyrene, expanded in place in the encasement.

✓ ADDED LONGEVITY = (\$) SAVINGS*

- Ensures the molding process is complete and properly done.
- Indicates float wall strength meets or exceeds standards.
- Contributes to 40-year life expectancy of the float.

✓ DOCUMENTATION = YOUR INSURANCE POLICY TO SAVINGS*

- The float manufacturer shall furnish test results for each size float furnished showing wall thickness, water absorption, falling dart test, and certified buoyancy rating.
- These results must be of the furnished models meeting the required specifications.
- Test documentation serves as your insurance policy that the above standards have been met.



*SAVINGS: SUPERIOR STANDARDS FOR BUOYANCY, STRENGTH AND LONGEVITY LEAD TO A 40-YEAR LIFE EXPECTANCY WITHOUT MAINTENANCE COSTS AND A POTENTIAL SAVINGS OF 20 TO 100%

FALLING DART IMPACT TEST

Validates that virgin grade resin is being used and that the molding process is complete and properly done. It is also an indication that the float wall strength meets or exceeds standards and contributes to 40-year life expectancy.

Ace Roto-Mold Float Drum

When punctured, the floats do not crack or shatter.



Others

When punctured, other floats crack and shatter

ENCASEMENT WALL THICKNESS STANDARD

Eliminates weak wall floats with early failure potential and provides an insurance policy against unnecessary repair costs. Ensures floats will hold up to pre and post install abuse.

Ace Roto-Mold Float Drum

Ace Roto-Mold Float Drums have a consistent wall thickness.



Others

The inconsistent wall thickness of this float creates weak spots that could crack easily.

7-DAY HUNT WATER ABSORPTION TEST

Foam fill will aid in maintaining buoyancy if float becomes damaged. Properly steamed foam creates a tight seal which will prevent waterlogged floats and sinking docks. Void-free foam also supports outer shell walls, adding strength.

Ace Roto-Mold Float Drum

A proper steaming process creates an even foam fill.



Others

Improper steaming and loose foam beads create voids that jeopardize the strength of the float.

WHY BUY 170 FLOATS WHEN 140 WILL DO?

FLOAT QUANTITY AND BUOYANCY COMPARISON

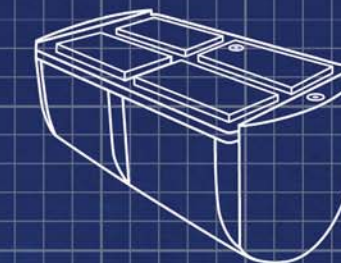
Using a Typical 14 Slip Pier Design and Tank-Tested Versus Calculated Buoyancy Ratings for Same Float Size

| Manufacturer | Float Size | Published Buoyancy | Float Qty if Published Buoyancy Used | Actual Tank-Tested Rating Used | Float Qty if Tank-Tested Rating Used | Variance % |
|--------------------------|------------|--------------------|--------------------------------------|--------------------------------|--------------------------------------|------------|
| Ace Roto-Mold Float Drum | 3648-12 | 656 lbs. | 140 | 656 lbs. | 140 | 0% |
| Competitor | 3648-12 | 679 lbs. | 136 | 542 lbs. | 170 | +21.4% |

Also using 135 of the competitor's floats at the actual tank-tested rating of 542 lbs. covers only 79% (73,170 lbs.) of designed load capacity of 92,070 lbs.

SAVE UP TO 20% BY RECEIVING THE PROPER SIZE AND QUANTITY OF FLOATS TO MEET YOUR DESIRED FREEBOARD. THIS IS ACCOMPLISHED BY HAVING CALIBRATED, TANK-TESTED BUOYANCY FLOATS.

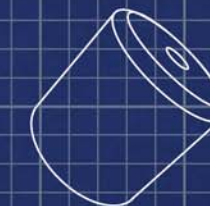
ADDITIONAL FLOATS AND ACCESSORIES AVAILABLE FROM DEN HARTOG INDUSTRIES



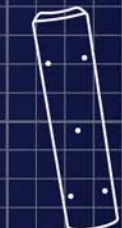
AIR TANK AND BOAT LIFT FLOATS



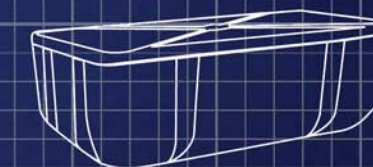
BUOYS
12"-42" DIAMETERS



CYLINDRICAL FLOATS FOR BREAKWATERS, BARRIERS & BOOMS



CUSHIONS
2'-4' SIZES



VERSAFLOAT BLOW MOLDED FLOAT DRUMS

DETAILED LITERATURE AVAILABLE BY CALLING 800.342.3408

SETTLING FOR LESS TODAY WILL ONLY COST YOU MORE TOMORROW.

FLOTATION SPECIFICATION CHECKLIST

When purchasing floats, follow this checklist to ensure maximum value, maximum quality and maximum savings.



FLOTATION UNITS

- Shall be positively attached to the structural frame by minimum 3/8 inch mounting hardware with a life expectancy as long as the flotation units itself. Shall have a minimum of six mounting slots molded in float with 1.50" thick mounting flanges.
- The float manufacturer shall furnish test results for each size float furnished showing wall thickness, water absorption, falling dart test, and certified buoyancy rating. These results must be of the furnished models meeting the required specifications.
- The manufacturer must provide a minimum of 15 Year Warranty with the first 10 years non-prorated.

FLOTATION ENCASEMENT

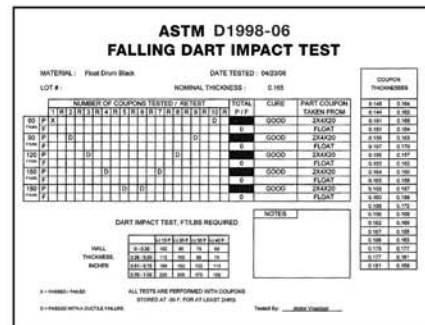
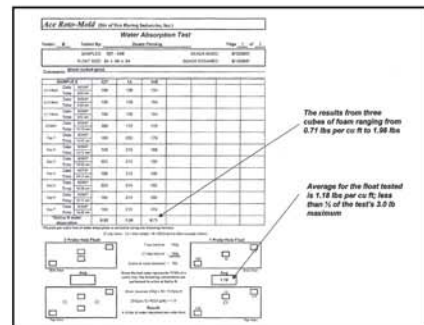
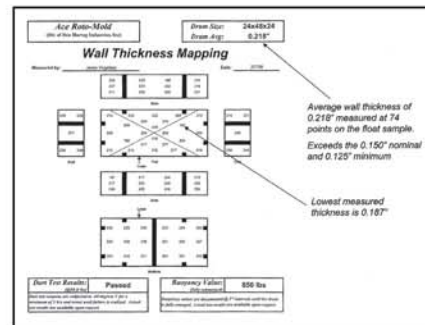
- The encasement shall provide 100% protection to all surfaces of the flotation material and allow zero water to enter the unit.
- The encasement shall be 100% virgin grade linear low density polyethylene, black in color, with a nominal wall thickness of 0.150 inches and a minimum wall thickness of 0.125 inches.
- The encasement shall also have the following minimum characteristics:
 - Density by ASTM D-1505 of 0.937
 - Tensile strength by ASTM D-638 of 2750 PSI
 - Flexural modulus by ASTM D-790 of 109,000 PSI
- The encasement shall meet the ASTM D1998-06 Falling Dart Test to assure the material quality and molding process.

FLOTATION MATERIAL

- The flotation material shall be 100% virgin grade polystyrene, pre-expanded, placed in encasement, and final steamed in place.
- It shall have a density of 0.8 to 0.937 lb. g/cc based on ASTM D-1505
- It will not sink or contaminate the water if the encasement is punctured
- The material will meet "The Seven Day Hunt Absorption Test" of less than 3.0 lbs per cubic foot water absorption in seven days per the test requirements.

TEST DOCUMENTS REQUIRED (WITHIN THE LAST 90 DAYS)

- Digital reading of wall thickness based on a minimum of 6 locations per side of encasement
- The "Seven Day Hunt Absorption Test" on all models of flotation units
- The Falling Dart Test based on ASTM D1998-06 for each model unit supplied
- Calibrated Tank Tested Buoyancy for each model unit supplied.



Den Hartog Industries, Inc. Hospers, IA
800.342.3408 • www.acefloatdrums.com

MORE THAN 60 SIZES AVAILABLE

Here is a list of our standard sizes for dock floats. Float sizes marked by an asterisk can be shipped in the US by UPS or FedEx Ground

| Size in inches/cm (W X L X H) | Cubic Feet | Weight (lbs) | Tank-Tested Buoy (lbs) (+0%/-5%) | Size in inches/cm (W X L X H) | Cubic Feet | Weight (lbs) | Tank-Tested Buoy (lbs) (+0%/-5%) |
|-------------------------------|------------|--------------|----------------------------------|-------------------------------|------------|--------------|----------------------------------|
| 12 x 48 x 20* | 6.7 | 26 | 345 | 36 x 96 x 12 | 24 | 89 | 1300 |
| 30.48 x 121.92 x 50.8 | | | | 91.4 x 243.84 x 30.48 | | | |
| 18 x 48 x 36 | 18 | 53 | 920 | 36 x 96 x 16 | 32 | 104 | 1733 |
| 45.7 x 121.92 x 91.4 | | | | 91.4 x 243.84 x 40.64 | | | |
| 20 x 72 x 08* | 6.7 | 33 | 343 | 36 x 96 x 20 | 40 | 114 | 2170 |
| 50.8 x 182.88 x 20.32 | | | | 91.4 x 243.84 x 50.8 | | | |
| 20 x 96 x 10 | 11.1 | 49 | 591 | 36 x 96 x 24 | 48 | 129 | 2594 |
| 50.8 x 243.84 x 25.4 | | | | 91.4 x 243.84 x 60.96 | | | |
| 24 x 36 x 08* | 4 | 20 | 215 | 36 x 96 x 32 | 64 | 152 | 3409 |
| 60.96 x 91.44 x 20.32 | | | | 91.4 x 243.84 x 81.28 | | | |
| 24 x 36 x 12* | 6 | 26 | 316 | 38 x 78 x 12 | 20.6 | 69 | 1135 |
| 60.96 x 91.4 x 30.48 | | | | 96.52 x 198.12 x 30.48 | | | |
| 24 x 36 x 16* | 8 | 29 | 424 | 42 x 72 x 12 | 21 | 70 | 1159 |
| 60.96 x 91.4 x 40.64 | | | | 106.68 x 182.88 x 30.48 | | | |
| 24 x 36 x 20* | 10 | 31 | 538 | 42 x 72 x 16 | 28 | 81 | 1536 |
| 60.96 x 91.4 x 50.8 | | | | 106.68 x 182.88 x 40.64 | | | |
| 24 x 48 x 08* | 5.3 | 26 | 285 | 48 x 48 x 12 | 16 | 53 | 890 |
| 60.96 x 121.92 x 20.32 | | | | 121.92 x 121.92 x 30.48 | | | |
| 24 x 48 x 12* | 8 | 31 | 433 | 48 x 48 x 16 | 21.3 | 65 | 1215 |
| 60.96 x 121.92 x 30.48 | | | | 121.92 x 121.92 x 40.64 | | | |
| 24 x 48 x 16* | 10.7 | 37 | 585 | 48 x 48 x 20 | 26.7 | 75 | 1478 |
| 60.96 x 121.92 x 40.64 | | | | 121.92 x 121.92 x 50.8 | | | |
| 24 x 48 x 20 | 13.3 | 42 | 730 | 48 x 48 x 24 | 32 | 83 | 1741 |
| 60.96 x 121.92 x 50.8 | | | | 121.92 x 121.92 x 60.96 | | | |
| 24 x 48 x 24 | 16 | 49 | 850 | 48 x 48 x 32 | 42.7 | 106 | 2191 |
| 60.96 x 121.92 x 60.96 | | | | 121.92 x 121.92 x 81.28 | | | |
| 24 x 48 x 36 | 24 | 70 | 1314 | 48 x 60 x 12 | 20 | 69 | 1100 |
| 60.96 x 121.92 x 91.4 | | | | 121.92 x 152.4 x 30.48 | | | |
| 24 x 96 x 08 | 10.7 | 52 | 555 | 48 x 60 x 16 | 26.7 | 79 | 1488 |
| 60.96 x 243.84 x 20.32 | | | | 121.92 x 152.4 x 40.64 | | | |
| 24 x 96 x 12 | 16 | 64 | 839 | 48 x 60 x 20 | 33.3 | 91 | 1855 |
| 60.96 x 243.84 x 30.48 | | | | 121.92 x 152.4 x 50.8 | | | |
| 24 x 96 x 16 | 21.3 | 75 | 1140 | 48 x 60 x 24 | 40 | 103 | 2174 |
| 60.96 x 243.84 x 40.64 | | | | 121.92 x 152.4 x 60.96 | | | |
| 36 x 48 x 08 | 8 | 36 | 468 | 48 x 60 x 32 | 53.3 | 130 | 2800 |
| 91.4 x 121.92 x 20.32 | | | | 121.92 x 152.4 x 81.28 | | | |
| 36 x 48 x 12 | 12 | 43 | 656 | 48 x 72 x 16 | 24 | 77 | 1350 |
| 91.4 x 121.92 x 30.48 | | | | 121.92 x 182.88 x 40.64 | | | |
| 36 x 48 x 16 | 16 | 51 | 860 | 48 x 72 x 12 | 32 | 95 | 1769 |
| 91.4 x 121.92 x 40.64 | | | | 121.92 x 182.88 x 30.48 | | | |
| 36 x 48 x 18 | 18 | 52 | 982 | 48 x 72 x 20 | 40 | 108 | 2266 |
| 91.4 x 121.92 x 45.7 | | | | 121.92 x 182.88 x 50.8 | | | |
| 36 x 48 x 20 | 20 | 59 | 1066 | 48 x 72 x 24 | 48 | 118 | 2660 |
| 91.4 x 121.92 x 50.8 | | | | 121.92 x 182.88 x 60.96 | | | |
| 36 x 48 x 24 | 24 | 64 | 1270 | 48 x 72 x 28 | 56 | 141 | 3042 |
| 91.4 x 121.92 x 60.96 | | | | 121.92 x 182.88 x 71.12 | | | |
| 36 x 48 x 32 | 32 | 88 | 1609 | 48 x 72 x 32 | 64 | 153 | 3365 |
| 91.4 x 121.92 x 81.28 | | | | 121.92 x 182.88 x 81.28 | | | |
| 36 x 72 x 12 | 18 | 60 | 980 | 48 x 96 x 12 | 32 | 102 | 1803 |
| 91.4 x 182.88 x 30.48 | | | | 121.92 x 243.84 x 30.48 | | | |
| 36 x 72 x 16 | 24 | 76 | 1320 | 48 x 96 x 16 | 42.7 | 124 | 2420 |
| 91.4 x 182.88 x 40.64 | | | | 121.92 x 243.84 x 40.64 | | | |
| 36 x 72 x 20 | 30 | 86 | 1638 | 48 x 96 x 20 | 53.3 | 141 | 2990 |
| 91.4 x 182.88 x 50.8 | | | | 121.92 x 243.84 x 50.8 | | | |
| 36 x 72 x 24 | 36 | 94 | 1915 | 48 x 96 x 24 | 64 | 157 | 3414 |
| 91.4 x 182.88 x 60.96 | | | | 121.92 x 243.84 x 60.96 | | | |
| 36 x 72 x 32 | 48 | 107 | 2544 | 48 x 96 x 32 | 85.3 | 188 | 4585 |
| 91.4 x 182.88 x 81.28 | | | | 121.92 x 243.84 x 81.28 | | | |

1) 0.150" (.381cm) nominal wall thickness (not less than 0.125"; .3175cm) on all floats except 32" deep at 0.175" and 20 x 96 x 10 at 0.180". 2) Black is the standard float color, white floats are available. 3) All buoyancy ratings have been tank tested and calibrated to be within -5%/+0% of published ratings.

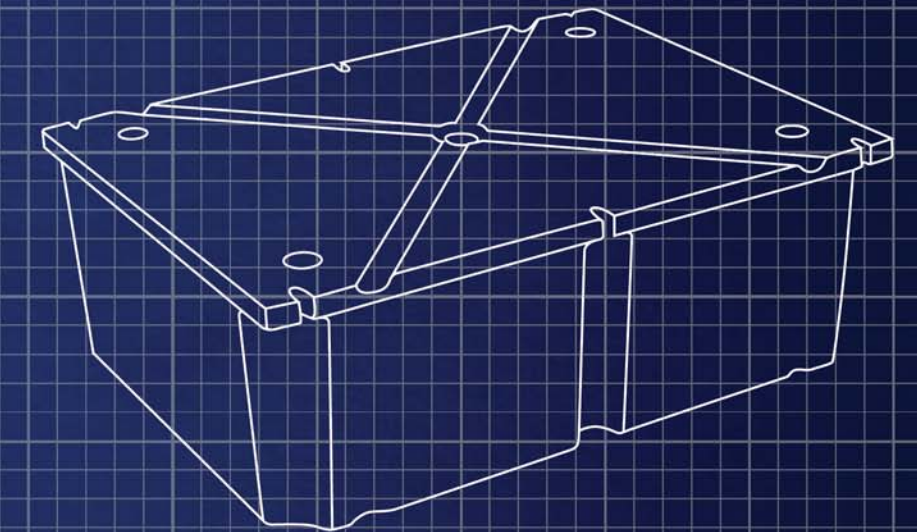
Manufactured by Den Hartog Industries. www.denhartogindustries.com



Ace Roto-Mold Float Drums • Hospers, IA • 800.342.3408 • 1.712.752.8432
 sales@acefloatdrums.com • www.acefloatdrums.com



YOU CAN JUDGE A FLOAT



BY ITS COVER

SETTING QUALITY STANDARDS - INSIDE & OUT



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