



TECHNICAL NOTE 100-10

STACKING AND RACKING OF C-FLOAT RISER BUOYANCY MODULES

GENERAL

C-FLOAT syntactic foam riser buoyancy modules are made of strong plastic and fiberglass materials, rugged enough for normal handling under most offshore conditions; however, accidental damage may occur. Following these guidelines will reduce the chance of damage and ensure long service life. This advice is *general* in nature, and may not apply in every case. Consult our engineers with any questions about specific applications. It would also be helpful to read Technical Note 100-9, *Handling, Installation, and Maintenance*.

STACKING AND RACKING

The two principal rules to be followed in stacking modules are:

- keep the contact bearing stress at or below 1,000 psi, and
- avoid large bending loads. As long as these two rules are followed, modules and suited riser joints may be stacked as high as practical and desirable.

C-FLOAT modules are normally made with 12" wide stacking flats molded into their O.D. surfaces. These flats not only prevent rolling,

but also provide a large bearing area for stacking. *C-FLOAT* modules are also equipped with molded-in flexure lugs on their I.D. surfaces. The flexure lugs isolate the modules from any bending of the riser. It is very important to locate deck beams or other supports as close as possible to points directly under the flexure lugs so as to avoid putting large bending loads on the modules, particularly when riser joints are stacked many layers high.

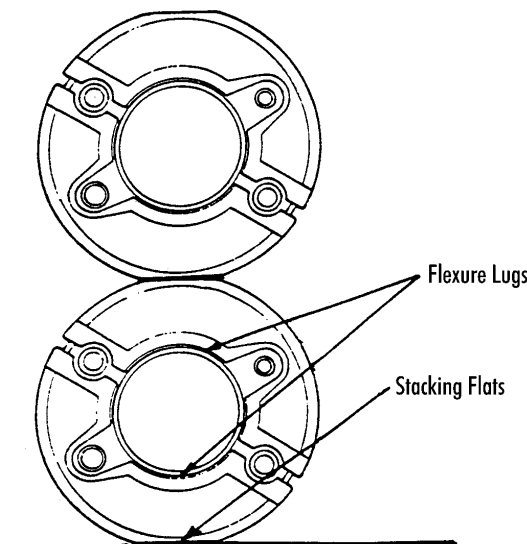
TYPES OF DAMAGE

The most common types of handling damage suffered by buoyancy modules are:

- punctures in the fiberglass skin by sharp objects, such as forklift truck forks;
- broken edges caused by dropping or rough handling; and
- cracks resulting from excessive bending loads.

None of these types of damage are necessarily serious, and often have little immediate effect on hydrostatic performance, but an ongoing program of inspection and maintenance is required to prevent any damage from accumulating and possibly worsening over time.

Rule #1 Limit stack height so that direct bearing stress on either the stacking flats or the flex lugs does not exceed 1,000 psi.



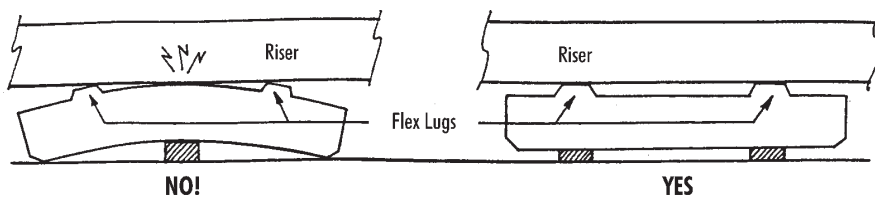
HANDLING PRECAUTIONS

Personnel involved in handling buoyancy modules should be trained to exercise reasonable precautions to avoid the types of damage described above. Modules should be lifted with soft slings instead of chains or wire ropes. When modules are shored on wood or metal beams, the support points must be located so that modules are not subjected to large bending loads. Extra care should be taken when handling modules under extreme temperature conditions, either very hot or very cold.

MAINTENANCE AND REPAIR

Minor damage to C-FLOAT modules can be easily repaired in the field using the special repair kits available from Cuming Corporation (see Technical Bulletins 127-1 and 127-2). More extensive damage is best repaired at factory-trained and authorized facilities to be found near most major offshore centers. Contact our customer service department for the repair facility located nearest you.

Rule #2 Locate supports under flex lugs to avoid placing large bending loads on modules.



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