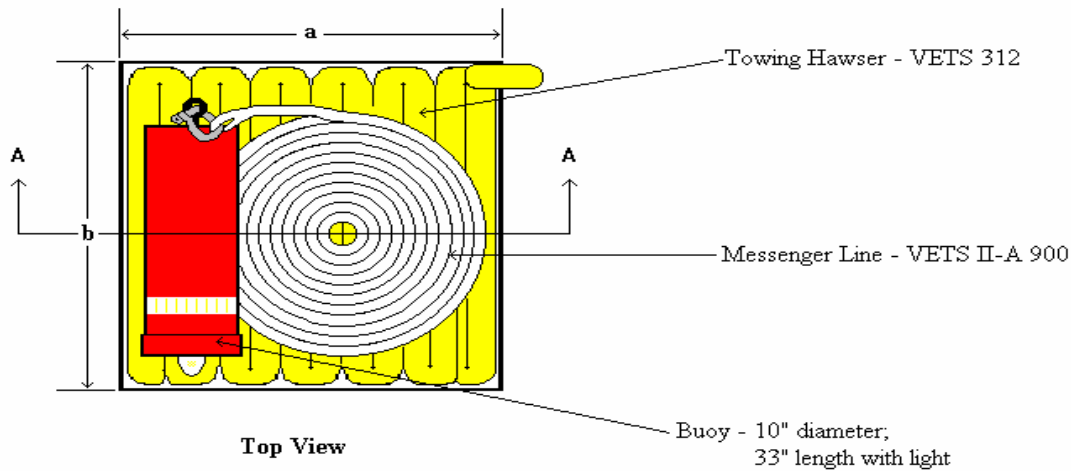


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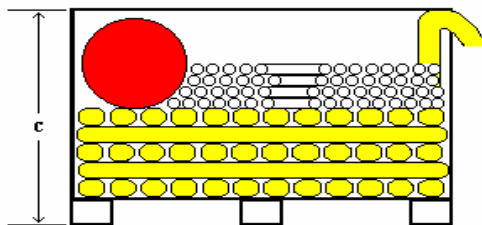
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Emergency Towing Packages MSC.35(63)

Package Parts



Top View



Section A-A

Box Dimensions - in.(cm)

Hawser	a	b	c
VETS 312-1	48 (122)	44 (112)	30 (77)
VETS 312-2	48 (122)	45 (114)	48 (122)

Parts List

1. 80 meters, VETS 312 Towing Hawser
2. 2 meters, Cordura chafe sleeve to protect eyes
3. 10 meters, braided Dacron 45,000 Denier sleeve to cover splice & 10 meters of body
4. 2 each, LBNO#9 thimbles
5. 120 meters, VETS II-A 900 7/8" Tag line
6. 1 7/8" stainless steel thimble
7. 1 or 2, buoy(s) with 7/8" shackle
8. 1 each Xytex box

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Emergency Towing Hawsers VETS 312

VETS 312 series ropes are specifically designed as Emergency Towing Hawsers. The ropes are manufactured right regular lay with Dupont Kevlar[®], a light weight, high strength Aramid fiber. Due to the “wire rope construction” of VETS 312, the hawsers have torque/strength properties that are compatible with those of steel tow-lines typically available on assist tugs. In addition, compact storage, quick deployment and easy re-packing are achieved with the distinct “compliant” character of the hawsers.

Part Number	Minimum Break Strength*		Nominal Diameter		Linear Density	
	pounds	(kn.)	inches	(mm)	lb./100'	(kg/100m)
VETS 312-1	450,000	(2,000)	2-1/2	(64)	180	(268)
VETS 312-2	900,000	(4,000)	3-3/4	(95)	360	(536)

VETS 312-1 meets the IMO resolution MSC.35(63) for tankers between 20,000 and 50,000 dwt. VETS 312-2 meets the resolution for tankers 50,000 dwt and over.

Safe rope handling procedures should always be practiced.
Working Strength is defined as one half the Minimum Breaking Strength.

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Tag Line VETS II-A 900

The following data describes a series of three strand ropes made of Spectra® 900. Each strand is protected by a braided jacket. This construction should be considered for slings, working lines, dock moorings and other applications where light weight, flexibility, ease of handling and ease of termination are important.

Eye splices can be either the "lock tuck" or "sail maker" types. Minimum of five full tucks plus two tapered tucks are required. A heavy duty steel wire rope thimble is recommended in each eye. Soft eyes should have adequate chafing protection.

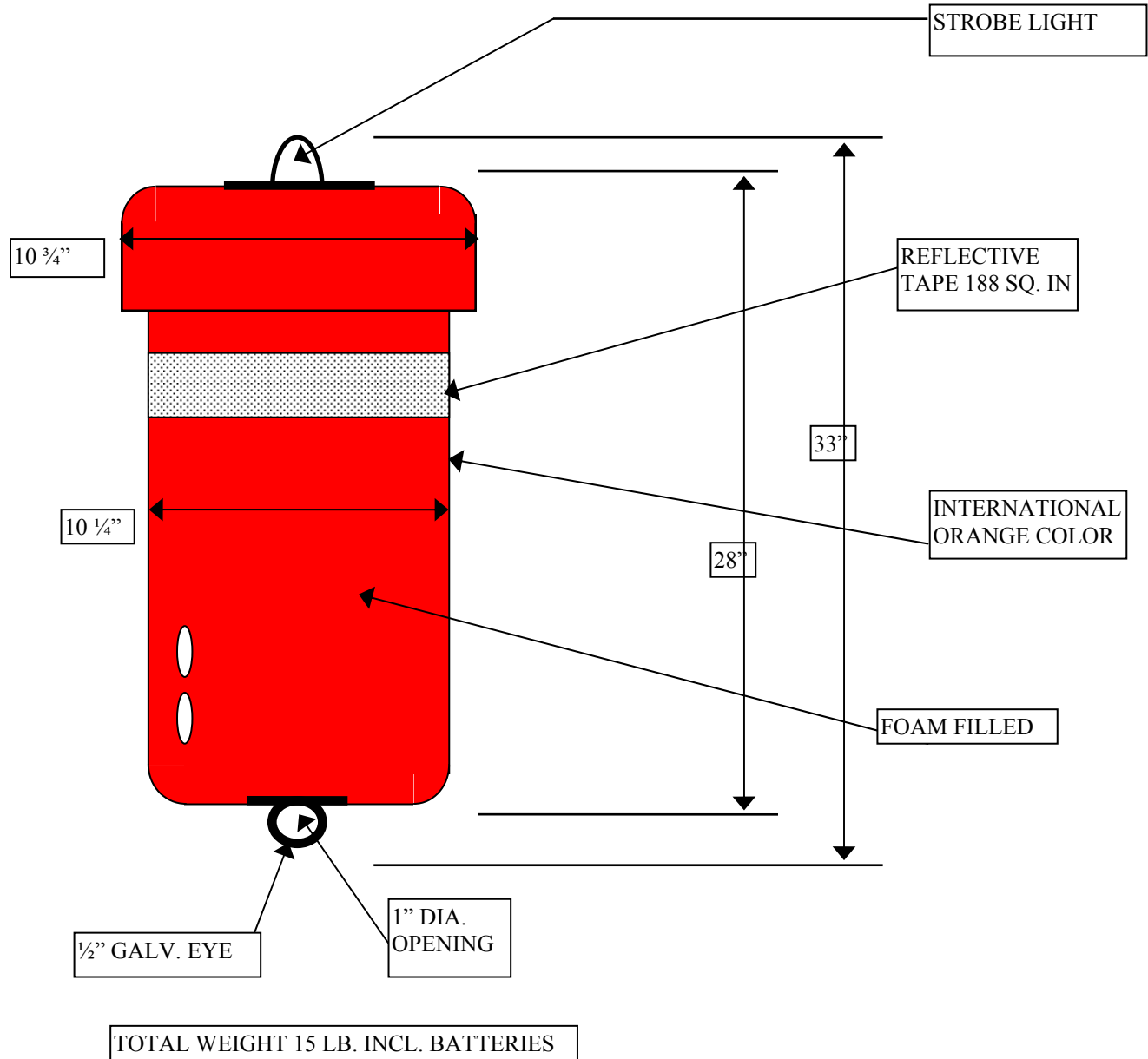
Outside Diameter ¹ (inches)	Break Strength ² (pounds)	Weight In Air ³ (lb./1000')
3/8	10,500	40
1/2	20,000	72
5/8	30,000	112
3/4	42,000	152
7/8	56,000	208
1	73,000	280
1 1/8	80,000	352
1 1/4	112,000	432

1. Outside diameter as measured over a braided polyester jacket, other jackets will increase diameter and weight.
2. Break Strength is listed as new rope, minimum breaking force.
3. Weight in sea water is approximately 28% of weight in air.

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Buoy Specifications



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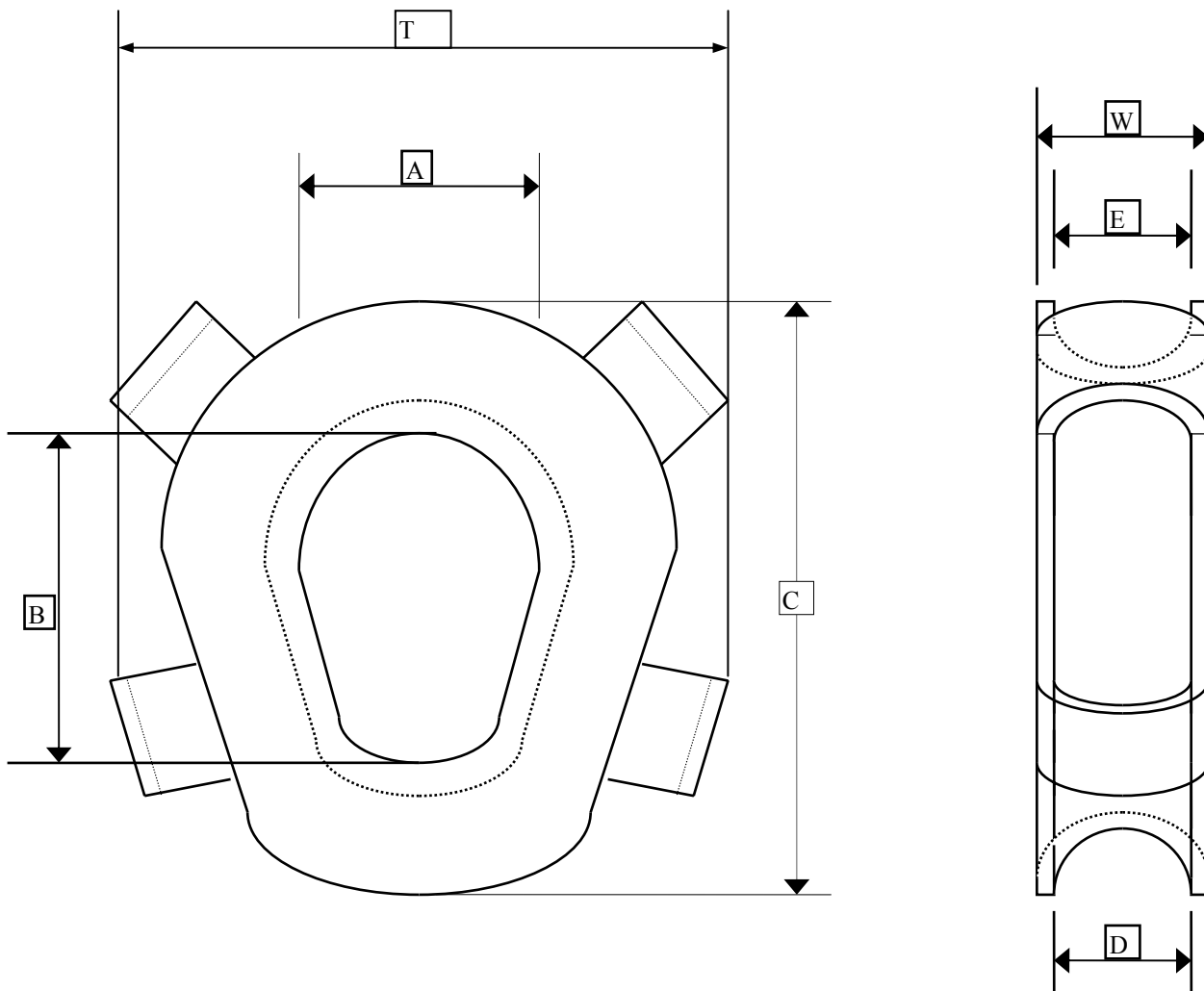
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Thimble Specifications

ROPE SIZE	A	B	C	D	E	T	W	WEIGHT
312 - 1	4 3/4"	7 5/8"	12	3 1/2"	3 1/4"	13"	4	26 POUNDS
312 - 2	6 1/8"	9 1/2"	15 1/2"	5 3/8"	4 1/2"	17"	5 1/2"	48 POUNDS



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I.M.O. REGULATIONS

Annex

GUIDELINES FOR EMERGENCY TOWING ARRANGEMENTS ON TANKERS

1. Purpose

1.1 Under regulation V/15-1 of the 1974 SOLAS Convention, as amended by resolution MSC.31(63) in 1994, new and existing tankers of 20,000 tonnes deadweight and above shall be fitted with an emergency towing arrangement, the design and construction of which shall be approved by the Administration, based on the Guidelines developed by the Organization.

1.2 The present Guidelines are intended to provide standards for the design and construction of emergency towing arrangements which Administrations are recommended to implement.

1.3 For existing tankers fitted with the emergency towing arrangements in accordance with resolution A.535(13), the existing towing arrangements forward of the ship may be retained, but the towing arrangements aft of the ship should be upgraded to comply with the requirements of the present Guidelines.

2 REQUIREMENTS FOR THE ARRANGEMENTS AND COMPONENTS

2.1 General

The emergency towing arrangements should be so designed as to facilitate salvage and emergency towing operation on tankers primarily to reduce the risk of pollution. The arrangements should at all times be capable of rapid deployment in the absence of main power on the ship to be towed and easy connection to the towing vessel. Figure 1 shows arrangements which may be used as reference.

2.2 Towing Components

The major components of the towing arrangements should consist of the following:

	Forward of ship*	Aft of ship	Strength requirements
Pick-up gear	optional	Yes	---
Towing pennant	optional	Yes	Yes
Chafing gear	Yes	Depending on design	Yes
Fairlead	Yes	Yes	Yes
Strongpoint	Yes	Yes	Yes
Roller pedestal	Yes	Depending on design	---

2.3 Strength of the towing components

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2.3.1 Towing components as specified in 2.2 for strength should have a working strength of at least 1,000 kn. for tankers of 20,000 tonnes deadweight and over but at least 2,000 kn. for tankers of 50,000 tonnes deadweight and over (working strength is defined as one half ultimate strength). The strength should be sufficient for all relevant angles of towline, i.e. up to 90 degrees from the ship's centerline to port and starboard and 10 degrees vertical downwards.

2.3.2 Other components should have a working strength sufficient to withstand the load to which such components may be subjected during the towing operation.

2.4 Length of towing pennant

The towing pennant should have a length of at least twice the lightest seagoing ballast freeboard at the fairlead plus 50 m.

2.5 Location of strongpoint and fairlead

The bow and stern strongpoint and fairleads should be located so as to facilitate towing from either side of the bow or stern and minimize the stress on the towing system.

2.6 Strongpoint

The inboard and fastening should be a stopper or bracket or other fitting of equivalent strength. The strongpoint can be designed integral with the fairlead.

2.7 Fairleads

2.7.1 Size

Fairleads should have an opening large enough to pass the largest portion of the chafing gear, towing pennant or towing line.

2.7.2 Geometry

The Fairlead should give adequate support for the towing pennant during towing operation which means bending 90 degrees to port and to starboard side and 30 degrees vertical downwards. The bending ratio (towing pennant bearing surface diameter to towing pennant diameter) should be not less than 7 to 1.

2.7.3 Vertical location

The fairlead should be located as close as possible to the deck and in any case, in such a position that the chafing chain is approximately parallel to the deck when it is under strain between the strongpoint and the fairlead.

2.8 Chafing chain

Different solutions on design of chafing gear can be used, it should have the following characteristics:

2.8.1 Type

The chafing chain should be stud link chain.

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2.8.2 Length

The chafing chain should be long enough to ensure that the towing pennant remains outside the fairlead during the towing operation. A chain extending from the strongpoint to a point at least 3 m beyond the fairlead should meet this criterion.

2.8.3 Connecting limits

One end of the chafing chain should be suitable for connection to the strongpoint. The other end should be fitted with a standard pear-shaped open link allowing connection to a standard bow shackle.

2.8.4 Stowage

The chafing chain should be stowed in such a way that it can be rapidly connected to the strongpoint.

2.9 Towing connection

The towing pennant should have a hard eye-formed termination allowing connection to a standard bow shackle.

2.10 Prototype test

Designs of emergency towing arrangements in accordance with these Guidelines should be prototype tested to the satisfaction of the Administration.

3 READY AVAILABILITY OF TOWING ARRANGEMENTS

3.1 To facilitate approval of such equipment and to ensure rapid deployment, emergency towing arrangements should comply with the following criteria:

.1 The aft emergency towing arrangement should be pre-rigged and be capable of being deployed in a controlled manner in harbor conditions in not more than 15 min.

.2 The pick-up gear the aft towing pennant should be designed at least for manual operation by one person taking into account the absence of power and the potential for adverse environmental conditions that may prevail during such emergency towing operations. The pick-up gear should be protected against the weather and other adverse conditions that may prevail.

.3 The forward emergency towing arrangement should be capable of being deployed in harbor conditions in not more than 1h.

.4 The forward emergency towing arrangement should be designed at least with a means of securing a towline to the chafing gear using a suitably positioned pedestal roller to facilitate connection of the towing pennant.

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- .5 Forward emergency towing arrangements which comply with the requirements for aft emergency towing arrangements may be accepted.

 - .6 All emergency towing arrangements should be clearly marked to facilitate safe and effective use even in darkness and poor visibility.
- 3.2 All emergency towing components should be inspected by ship personnel at regular intervals and maintained in good working order.