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16. Abstract

Navigational buoys have been used in the United States since 1767 to warn mariners of impending dangers. It is rather odd, therefore, that some 200 years later there is no collection of material in one place that might shed some light upon buoy technology. Undoubtedly, the state-of-the-art is much more sophisticated, and it is the intention of this paper to present a buoy reference library. The library consists of all known books and unclassified papers that were possible to obtain in a four-week period. The subjects of both fixed and floating breakwaters were included in the searches for written material, but not in as much detail as buoys. Along with this reference material, a list of buoy manufacturers is included. The amount of papers and books written will multiply, but for the present, this is the only known working buoy reference library in existence.

The subject is broken down into seven categories alphabetically filed. These are (1) mooring systems, (2) power sources, (3) development and design, (4) applications and uses, (5) instrumentation, math and computer models, (6) characteristics, and (7) miscellaneous. Two additional categories were made for fixed and floating breakwaters.

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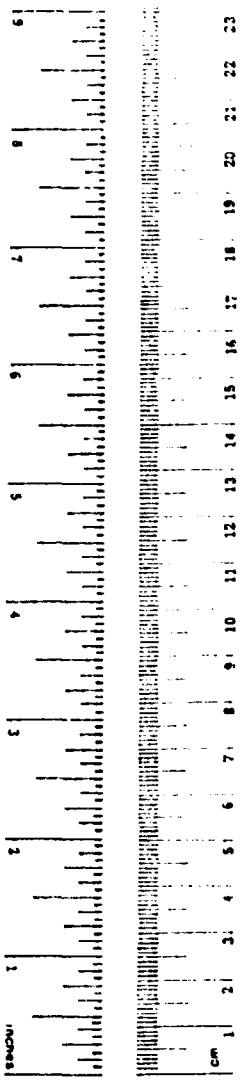
METRIC CONVERSION FACTORS

Approximate Conversions to Metric Measures

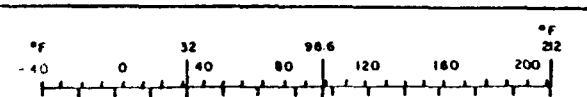
Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
in	inches	*2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
		AREA		
in^2	square inches	6.5	square centimeters	cm^2
ft^2	square feet	0.09	square meters	m^2
yd^2	square yards	0.8	square meters	m^2
mi^2	square miles	2.6	square kilometers	km^2
	acres	0.4	hectares	ha
		MASS (weight)		
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
		VOLUME		
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.96	liters	l
gal	gallons	3.8	liters	l
ft^3	cubic feet	0.03	cubic meters	m^3
yd^3	cubic yards	0.76	cubic meters	m^3
		TEMPERATURE (exact)		
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

*1 in = 2.54 (exactly). For other exact conversions and more detailed tables, see NBS Misc. Publ. 286, Units of Weights and Measures, Price $2.25, SD Catalog No. C13.10:286.



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
		LENGTH		
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
		AREA		
cm^2	square centimeters	0.16	square inches	in^2
m^2	square meters	1.2	square yards	yd^2
km^2	square kilometers	0.4	square miles	mi^2
ha	hectares (10,000 m^2)	2.5	acres	
		MASS (weight)		
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
		VOLUME		
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m^3	cubic meters	35	cubic feet	ft^3
m^3	cubic meters	1.3	cubic yards	yd^3
		TEMPERATURE (exact)		
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



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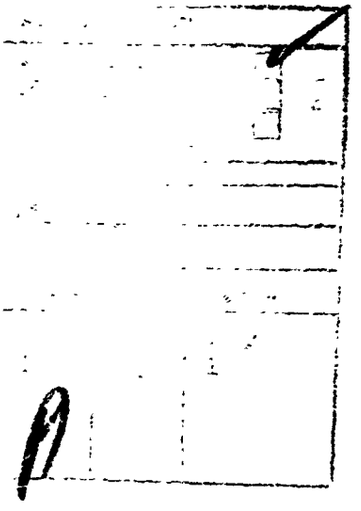

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MANUFACTURERS

ARBEN ENGINEERING CORPORATION
935 West 18th Street
Costa Mesa, California 92627

AUTOMATIC POWER DIVISION
Penwalt Corporation
P.O. Box 18738
Houston, Texas 77023

BENTHOS INCORPORATED
North Falmouth, Massachusetts 02556

BORG-WARNER

CURD ENTERPRISES
211 Iracuois Street
North Charleston, South Carolina 29406

DANCO INSTRUMENTS INCORPORATED
195 West Hills Road
Huntington Station
New York, New York

FOSS COMPANY
1751 Placentia Avenue
Costa Mesa, California 92627

INTERNATIONAL PLASTICS, INCORPORATED
10 Innovation Lane - Box 278
Colwich, Kansas 67030

OCEAN RESEARCH EQUIPMENT
Falmouth, Massachusetts

OCEAN SYSTEMS, INCORPORATED
9090 Park West Drive, Suite 100
Houston, Texas 77042

PENNWALT AUTOMATIC POWER, INCORPORATED
P.O. Box 18738
Houston, TExas 77023

PRECISION RUBBER AND PLASTIC COMPANY
Oklahoma City, Oklahoma

ROLYON MANUFACTURING COMPANY
14635 Commerce Drive
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