We Rig It Right!

THE PROFESSIONAL RIGGER

Volume 22 Number 1 January 2007

TECHNICAL WORKSHOP

Load Weight Estimation

Estimating a load's approximate weight is always an important part of any rigger's checklist and must be done before choosing the rigging system.

Have some fun and estimate the weight of the half circle of solid steel at the right. To help you in your calculations we have reprinted Section 6 of ITI's Journeyman Rigger's Reference Card, which details weights of various materials and quick estimation formulas. Check your answers in Column 3 on Page 2.

The workshop at the right was taken from Mike's Rigging Mysteries, White Book.

All 110 workshops are available at: www.mikesriggingmysteries.com.

The Professional Rigger is a publication of Industrial Training International, Inc. It is distributed to those whose occupations require the safe and proper use of lifting and rigging equipment.

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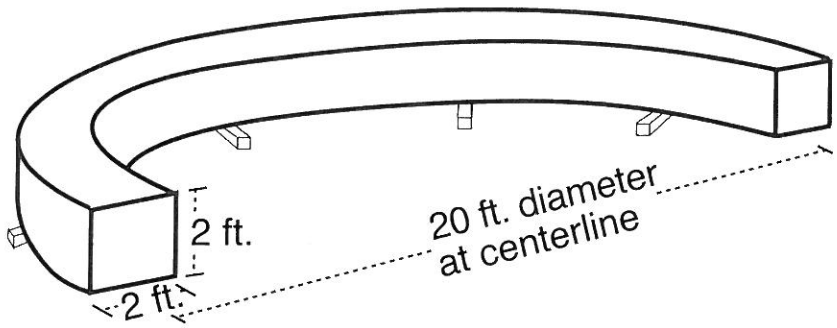
Half circle of solid steel



The weight is approximately _____#

A) 61,440 B) 122,880 C) 30,720

Hint: Refer to JRRC-P6 (area of circle is approx. 80% of diameter times diameter). Consider converting this piece temporarily to a solid ring or a solid disk, then arrive at a final solution.

JRRC Section 6

Load Weights - Calculating ⑤

Materials and Liquids - Pounds / cu. ft.			
Aluminum	165	Iron Casting	450
Asbestos	153	Lead	708
Asphalt	81	Lumber - Fir	32
Brass	524	Lumber - Oak	62
Brick	120	Lumber - RR Ties	50
Bronze	534	Oil, Motor	58
Coal	56	Paper	58
Concrete, Reinf.	150	Portland Cement	94
Crushed Rock	95	River Sand	120
Diesel	52	Rubber	94
Dry Earth, Loose	75	Steel	480
Gasoline	45	Water	63
Glass	162	Zinc	437

Pounds / sq. ft.	
Steel plate	
• 1/8"	5
• 1/4"	10
• 1/2"	20
• 1"	40
Aluminum plate	
• 1/8"	1.75
• 1/4"	3.50
Lumber	
• 3/4" Fir	2
• 3/4" Oak	4

Pounds / gal.	
Gas	6.0
Diesel	7.0
Water	8.3

- 7.5 gallons of liquid to a cubic foot
- 27 cubic feet to a cubic yard
- 2,000 lbs = 1 U.S. ton

Formulas and Information

- H = Height • W = Width • L = Length • d = diameter • r = 1/2 diameter • π = 3.2 (approx.)
- Area of square or rectangle = LW • Vol. of cube = HWL • Area of circle = πr^2 • Circumference = πd
- The area of a circle is approx. 80% of its diameter squared (diameter x diameter)
- Load Weight (to estimate) ⟶ Volume in cu. ft. x 500 lbs. x density factor .02, .05, .10, .20, .30 etc.

NEWS • NEWS • NEWS • NEWS • NEWS

ASME B30 Committee

The B30 Main Committee will meet January 15-16, 2007 in Salt Lake City.

The B30.1 Subcommittee received approval to add Air Bags for Lifting. The following are the six chapters which will make up the next B30.1 revision:

Chapter 1 Mechanical Jacks
Chapter 2 Hydraulic Jacks
Chapter 3 Air Bags for Lifting
Chapter 4 Industrial Rollers
Chapter 5 Air Casters
Chapter 6 Telescopic Hydraulic Gantry Systems

The B30.9 Sling and B30.29 Rigging Hardware Standards will undergo revision review at an October 2007 meeting in Dallas, TX.

For more details about upcoming meetings go to www.asme.org.

CEU Credits Now Available!

We are pleased to announce that Industrial Training International, Inc. has become certified as an Authorized Provider by the International Association for Continuing Education and Training (IACET). ITI is certified to offer IACET Continuing Education Units (CEU's) for all current training programs.

NCCCO Certification Available!

ITI is now offering NCCCO certification for Mobile and Overhead Crane Operators. See our 2006/2007 Training Schedule for a list of these programs.

Association of Crane & Rigging Professionals (ACRP)

The 2007 ACRP National Assembly will be held May 15-18 at the Horton Grand Hotel in San Diego, CA.

Association of Crane & Rigging Professionals

Mark your calendars and plan to attend the 2007 ACRP National Assembly.

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Workshop Answer Key (for page 1)

Half circle of solid steel =
22 x 22 x .8 = 387.2 sq. ft.
18 x 18 x .8 = 259.2 sq. ft.
387.2 - 259.2 = 128 sq. ft. / 2 = 64 sf
64 x 2 ft. thick = 128 cubic ft.
128 x 480 lbs/cubic ft. = 61,440 lbs.

ITI's Training Center Programs

RIGGING
- Journeyman Rigger
- Master Rigger
- Crane & Rigging Management

INSPECTION
- Rigging Inspection Basics
- Rigging Gear Inspector Level I
- Rigging Gear Inspector Level III
- Mobile Crane Inspector

CRANE OPERATOR
- Boom Truck Operator
- Mobile Crane Basics
- Mobile Crane Operator
- NCCCO Mobile Crane Operator Certification

See ITI's "Training Schedule" or visit www.wrrc.com for more program details and registration.

Two Training Locations

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