

SHRINKAGE OF CASTINGS

Patternmakers' rule should be for	{	Cast Iron 1-8			
		Brass 3-16			
		Lead 1-8			
		Tin 1-12			
		Zinc 8-16			
					of an inch longer per lineal foot.

To Find the Weight of Casting by the Weight of a Pine Pattern

Multiply the Weight of Pattern by	{	12 for Cast Iron.
		13 for Brass.
		19 for Lead.
		12.2 for Tin.
		11.4 for Zinc.

Reduction for Round Core and Core Prints

RULE.—Multiply the square of the diameter by the length of the core in inches, and the product by 0.017 is the weight of the pine core, to be deducted from the weight of the pattern.

General Rules

FOR DETERMINING THE WEIGHT OF ANY PIECE OF WROUGHT IRON.

One cubic foot of wrought iron	- - - -	= 480 lbs.
One square foot, one inch thick	- - - -	= $4\frac{1}{2}$ = 40 lbs.
One square inch, one foot long	- - - -	= $\frac{1}{16}$ = $3\frac{1}{4}$ lbs.
One square inch, one yard long	- - - -	= $3\frac{1}{4} \times 3$ = 10 lbs.

Hence it appears that the weight of any piece of wrought iron in pounds per yard is equal to 10 times its area in square inches.

EXAMPLE.—The area of a bar of 3" x 1" = 3 square inches, and its weight is 30 lbs. per yard.

For round iron the weight per foot may be found by taking the diameter in quarter inches, squaring it and dividing by 6.

EXAMPLE.—What is the weight of 2" round iron?

2" = 8 quarter inches. $8^2 = 64$

$\frac{64}{6} = 10\frac{2}{3}$ lbs. per foot of 2" round.

EXAMPLE.—What is the weight of $\frac{3}{4}$ " round iron?

$\frac{3}{4}$ " = 3 quarter inches. $3^2 = 9$

$\frac{9}{6} = 1\frac{1}{2}$ lbs. per foot of $\frac{3}{4}$ " round.

The above rules are highly convenient, and enable mental calculations of weight to be quickly obtained with accuracy.

Different Colors of Iron Caused by Heat

POUILLET.

C.	FAHR.	COLOR.
210°	410°	Pale Yellow.
221	430	Dull Yellow.
256	493	Crimson.
261	502	{ Violet, Purple and Dull Blue; between 261°C. to 370°C. it passes to Bright Blue, to Sea Green and then disappears. Commences to be covered with a light coating of oxide; loses a good deal of its hardness, becomes much more impressible to the hammer, and can be twisted with ease.
370	680	
500	932	
525	977	Becomes Nascent Red.
700	1292	Sombre Red.
800	1472	Nascent Cherry.
900	1657	Cherry.
1000	1832	Bright Cherry.
1100	2012	Dull Orange.
1200	2192	Bright Orange.
1300	2372	White.
1400	2552	Brilliant White—Welding Heat.
1500	2732	{ Dazzling White.
1600	2912	