

Carbinite

METAL COATINGS

Application: Jaws

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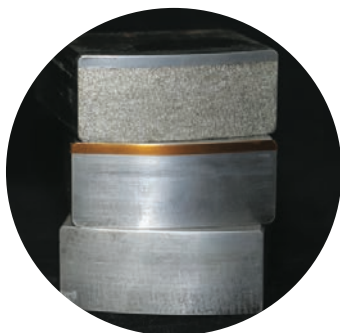


Since Carbinite Metal Coatings was founded in 1997, workholding applications have accounted for over 80% of our orders, with 2/3 of those from long-term, repeat customers. While these statistics are impressive, our current and prospective customers want more than sales figures to prove that Carbinite is an effective solution for improving workholding grip.

Carbinite's engineering team has been busy conducting a series of tests to show how our tungsten-carbide coatings effect the coefficient of friction in various workholding applications. The increase in COF reduces or eliminates material slippage, leading to improved cycle times, reduced waste, and ultimately increasing productivity. We are excited to share these test results with you.

Application: Jaws

The purpose of this test was to determine the static coefficient of friction for each grade of Carbinite in a controlled situation. These results can be applied across a variety of applications. However, deciding which grade to choose for your application depends



on many variables. What is best for one type of workholding may not be for another. Our experienced staff is here to help you decide which grade would best improve the grip of your workholding.

Testing Parameters

1

**Mill
Vise**

Kurt
D675

2

**Load
Cell**

Anyload
266AH-2t

3

**Torque
Wrench**

AC Delco
ARM602-4

4

**Hydraulic
Piston**

Westward
12-ton Short

5

**Dial
Indicator**

Starret "The
Last Word"

6

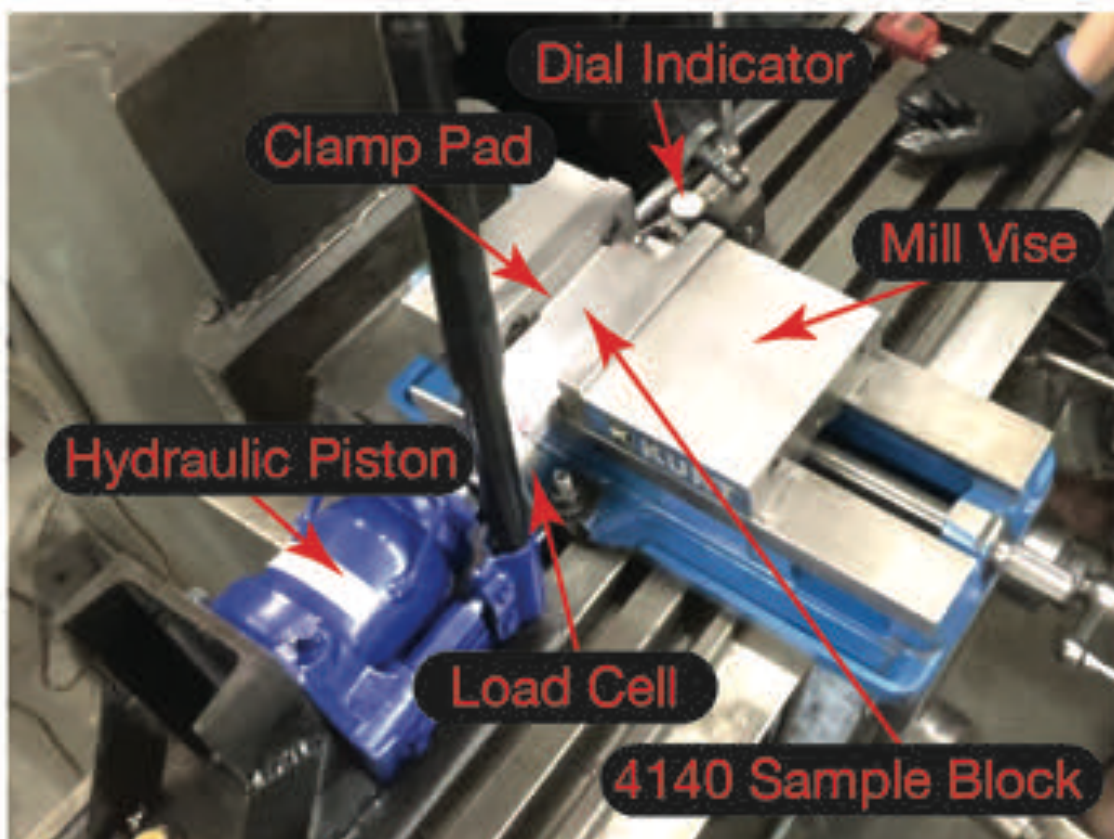
**Sample
Blocks**

Hardened 4140 Alloy Steel
A36 Mild Steel
6061 Aluminum
Delrin® Acetal Plastic
Painted A36 Mild Steel

7

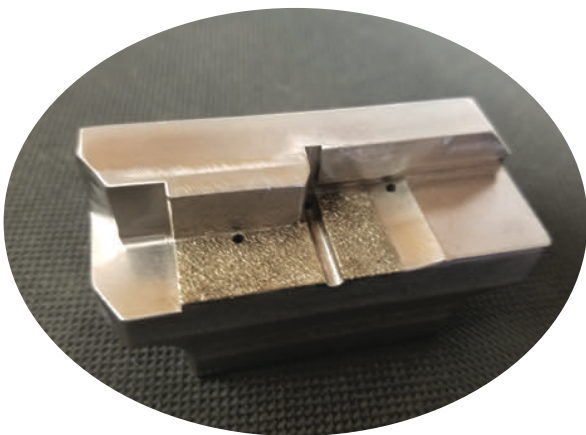
**Clamp
Pads**

Hardened 4140 Alloy Steel
Control - Uncoated Pad
(2) pad sets, each coated
with Carbinite grades
W through #5



Procedure

- A. Calibrate equipment.
- B. Determine the standard for 1000 lb and 4000 lb clamping force using the torque wrench.
- C. Place the smooth, uncoated clamp pads in the Kurt mill vise.
- D. Attach the load cell to the hydraulic piston.
- E. Clamp the hardened 4140 steel alloy sample block in the vise between the clamp pads in contact with the load cell.
- F. Tighten the vise until reaching the torque standard for 1000 lb.
- G. Position the dial indicator.
- H. Pump the hydraulic piston until the dial indicator registers slippage of the sample block.
- I. Record the SCOF reading.
- J. Repeat a total of three times.
- K. Calculate the average SCOF.



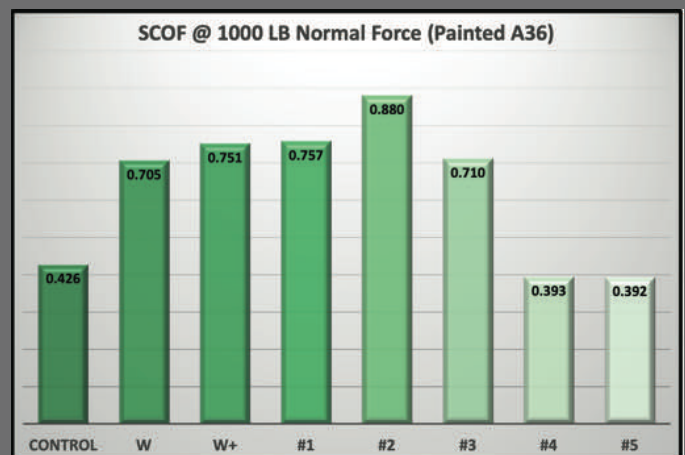
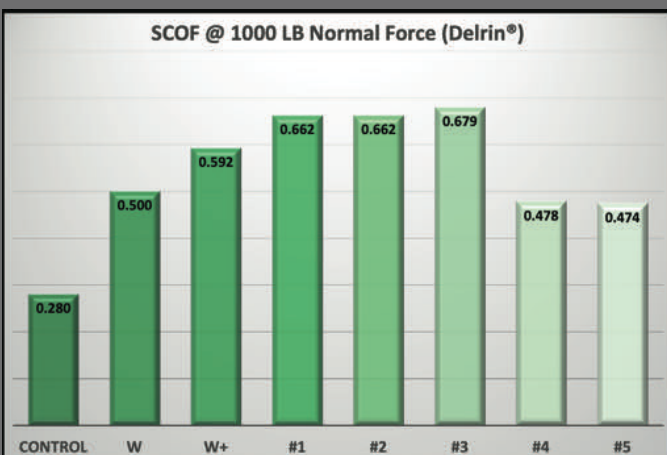
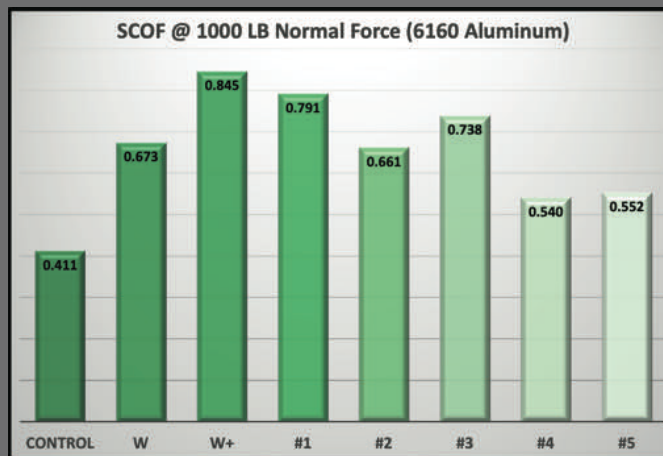
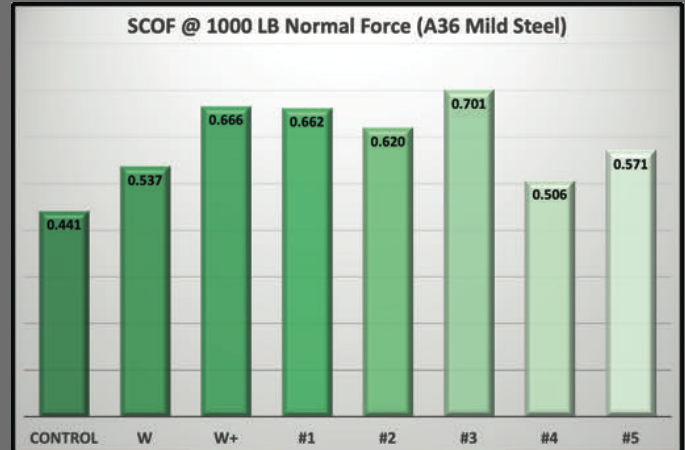
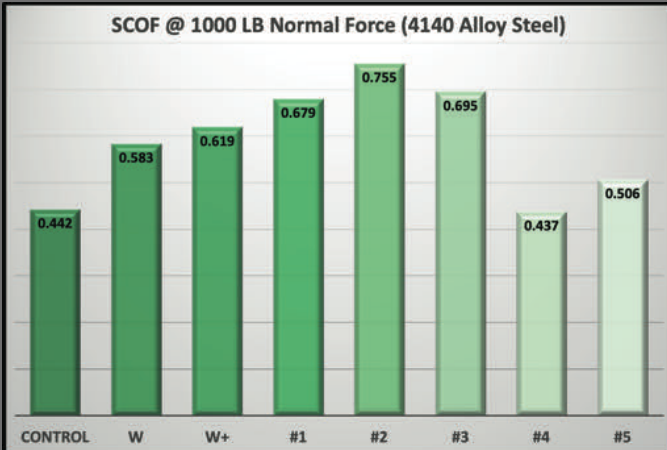
Steps C through K were repeated at 1000 lb clamping force using the clamp pads coated with Carbinite Grade W and the 4140 steel alloy sample.

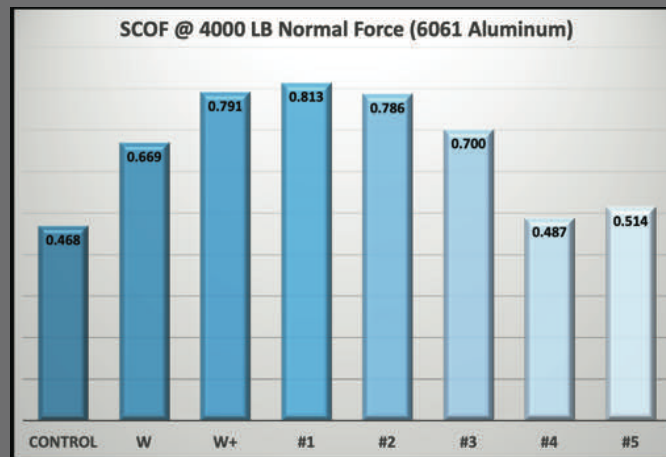
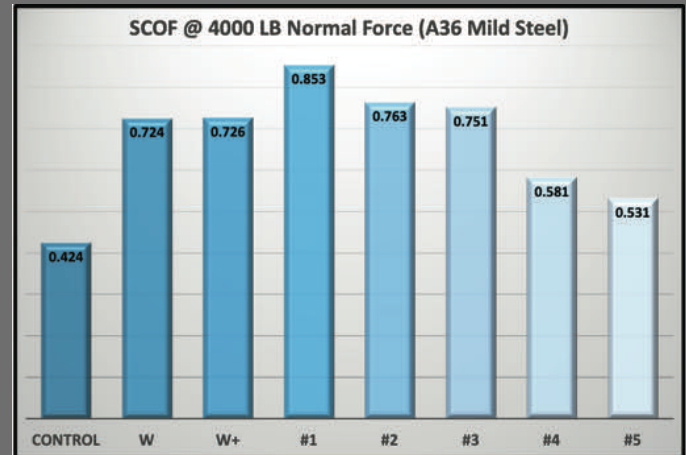
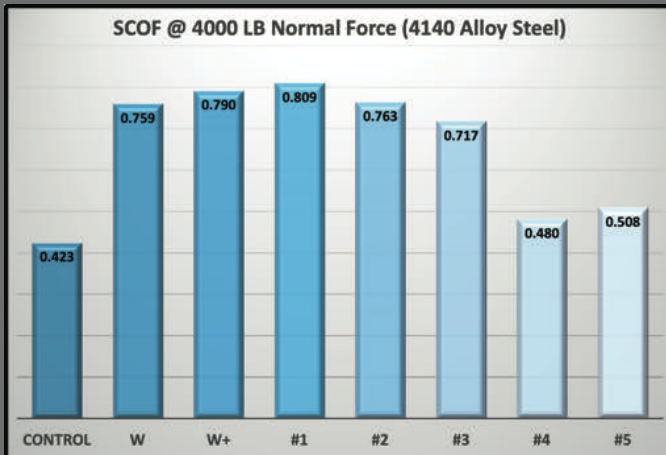
Steps C through K were repeated with each grade of Carbinite for each of the five sample block materials.

The test was then conducted at 4000 lb clamping force using the top three sample block materials, the smooth uncoated control clamp pad, clamp pads with each grade of Carbinite.

Results

*Average of three torque readings needed to cause the Sample Block to slip





Notice that under the test conditions, Carbinite grades W, W+, #1, #2, and #3 perform best in terms of friction, with #1 repeatedly achieving coefficients above 0.8. Its high peak count and consistent texture apply pressure evenly against the work piece. Grades #4 and #5 add a coarse texture that may be too aggressive for most workholding applications. It holds rough surfaces well, and excels as a non-slip floor coating in wet or slippery environments. Carbinite's Safety Flooring (#4 or #5) has been tested and certified as high-traction by the National Flooring Safety Institute.



Contact



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