

Corrosion Modeling Software and Corrosion Prediction Software Series  
**FC-Compass®: A Software Tool for Modeling and Prediction of Fretting Corrosion**

*The Ultimate Software Solution to Costly Corrosion*

Version 13.5

★ **Performance** ★ **Functionality** ★ **Usability**



Anytime

Anywhere

Any Device

Any OS

No USB dongles

No installation

No Browser Plug-ins

**Contact Us for Licensing Details**

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[Why WebCorr](#) | [Performance Guarantee](#) | [Unparalleled Functionality](#) | [Unmatched Usability](#) | [Any Device Any OS](#) | [Free Training & Support](#) | [CorrCompass](#)

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### Overview of FC-Compass: Software Tool for Modeling and Prediction of Fretting Corrosion

**Fretting** or **Fretting Corrosion** refers to corrosion occurring at contact areas between materials under load subjected to vibration and slip. Fretting is also called friction oxidation, wear oxidation, or chafing. Fretting corrosion is very detrimental because of the destruction of metallic components and the production of oxide debris. Seizing and galling often occur, together with loss of tolerances and loosening of mating parts. Further, fretting causes fatigue fracture since the loosening of components permits excessive strain, and the pits formed by fretting act as stress raisers. FC-Compass is the only device and OS independent software tool on the market for the modeling and prediction of fretting corrosion. Designers, engineers, architects, consultants, or maintenance and inspection personnel can quickly assess and quantify the impact of fretting corrosion on the performance and remaining life of their components or systems anytime, anywhere, on any device running any OS without the need to install or download anything (Figure 1).

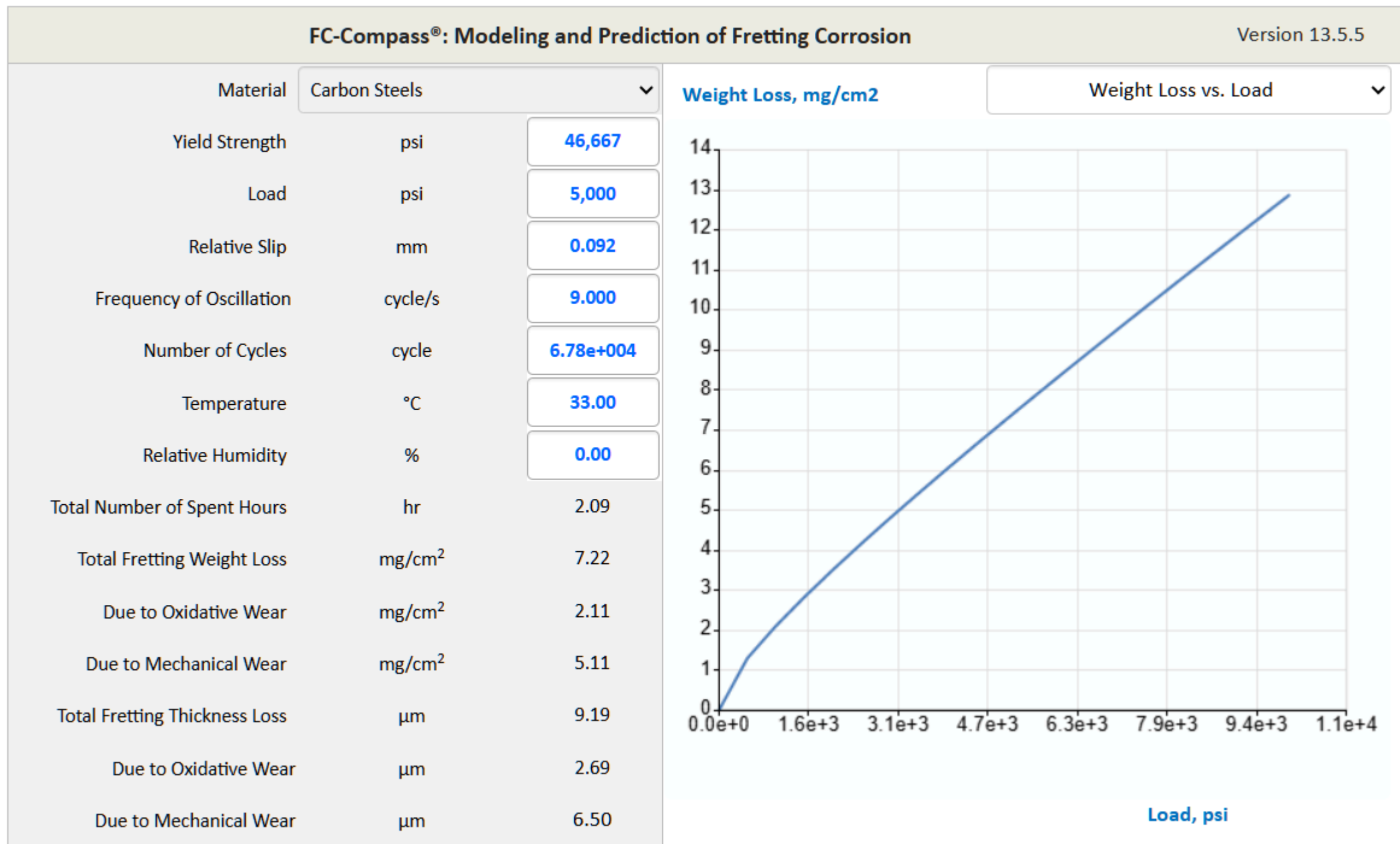


Figure 1 FC-Compass Models and Predicts Fretting Corrosion.

FC-Compass models the effect of the following input parameters on the weight loss and thickness loss (Figure 1):

- (a) the material
- (b) the yield strength of the selected material
- (c) the contact load
- (d) the relative slip between the mating surfaces
- (e) the frequency of oscillation
- (f) the number of cycles
- (g) the temperature

(h) the relative humidity

The outputs from FC-Compass include:

- (a) the total fretting weight loss
- (b) the portion of the weight loss due to oxidative wear
- (c) the portion of the weight loss due to mechanical wear
- (d) the total fretting thickness loss
- (e) the portion of the thickness loss due to oxidative wear
- (f) the portion of the thickness loss due to mechanical wear

Figures 2-3 show the materials list and the plot option in the software.

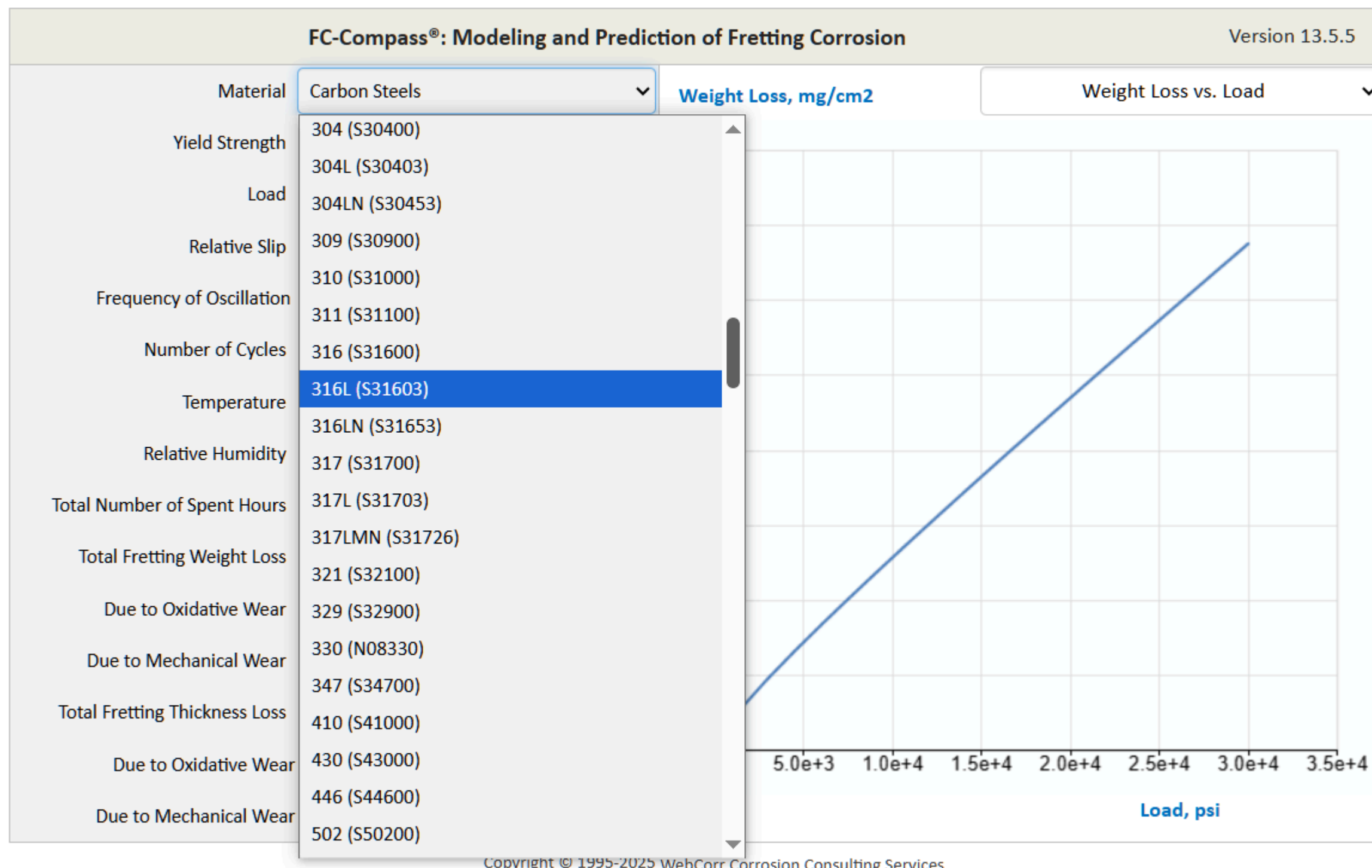


Figure 2 FC-Compass Models and Predicts Fretting Corrosion of Metals and Alloys.

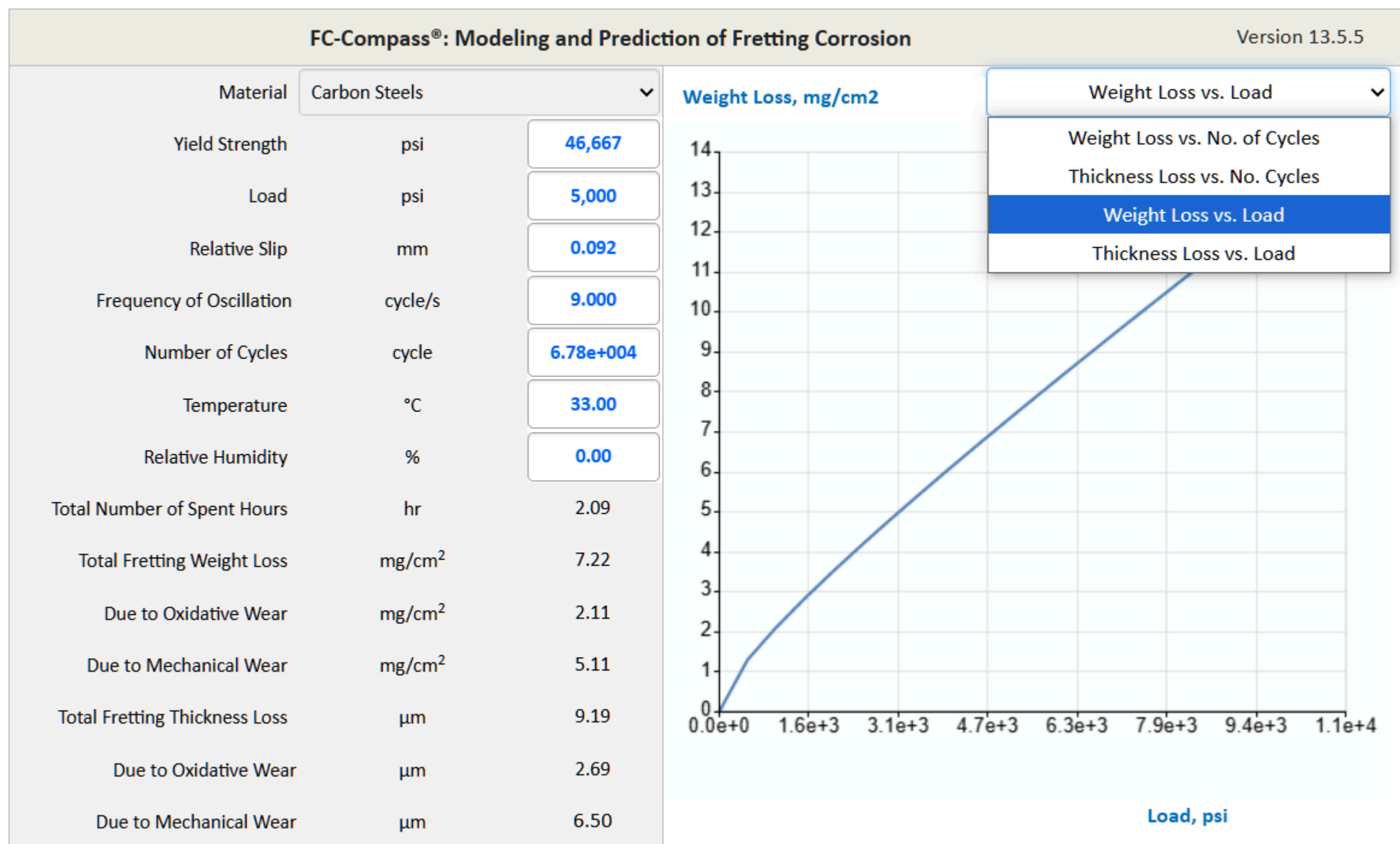


Figure 3 FC-Compass Predicts Fretting Corrosion with Plotting Options for the Prediction Results.

There are approximately 200 metals and alloys are included in the software:

**Aluminium Alloys:**

AA1100 (A91100)

AA1199 (A91199)

AA2024 (A92024)

AA2219 (A92219)

AA2060 (A92060)

AA3003 (A93003)

AA3004 (A93004)

AA5005 (A95005)

AA5050 (A95050)

AA5052 (A95052)

AA5083 (A95083)

AA5086 (A95086)

AA5154 (A95154)

AA5357 (A95357)

AA5454 (A95454)

AA5456 (A95456)

AA6061 (A96061)

AA6062 (A96062)

AA6070 (A96070)

AA6101 (A96101)

AA7050 (A97050)

AA7072 (A97072)

AA7075 (A97075)

AA7079 (A97079)

AA7178 (A97178)

**Copper Alloys:**

CDA110 (C11000)

CDA220 (C22000)

CDA230 (C23000)

CDA260 (C26000)

CDA280 (C28000)

CDA442 (C44200)

CDA443 (C44300)

CDA444 (C44400)

CDA510 (C51000)

CDA524 (C52400)

CDA608 (C60800)

CDA612 (C61200)

CDA655 (C65500)

CDA687 (C68700)

CDA706 (C70600)

CDA710 (C71000)

CDA715 (C71500)

CDA752 (C75200)

**Stainless Steels and Alloys:**

201 (S20100)

202 (S20200)

302 (S30200)

304 (S30400)

304L (S30403)

304LN (S30453)

309 (S30900)

310 (S31000)

311 (S31100)

316 (S31600)

316L (S31603)

316LN (S31653)

317 (S31700)

317L (S31703)

317LMN (S31726)

321 (S32100)

329 (S32900)

330 (N08330)

347 (S34700)

410 (S41000)

430 (S43000)

446 (S44600)

502 (S50200)

PH13-8 (S13800)

PH15-5 (S15500)

PH17-4 (S17400)

254SMO (S31254)

654SMO (S32654)

Nicrofer 3228 NbCe (S33228)

Nicrofer 2509 Si7 (S70003)

Ferralium 255 (S32550)

Zeron 100 (S32760)

7Mo Plus (S32950)

2RE69 (S31050)

3RE60 (S31500)

44LN (S31200)

IN-744 (S31100)

Uranus 50 (S32404)

Uranus B66 (S31266)

DP-3W (S39274)

Monit (S44635)

2205 (S31803)

2304 (S32304)

2507 (S32750)

2707 HD (S32707)

Sea-Cure (S44660)

**Nickel Alloys:**



200 (N02200)

400 (N04400)

600 (N06600)

Inconel 625 (N06625)

Inconel 718 (N07718)

Incoloy 825 (N08825)

Hastelloy B (N10001)

Hastelloy B-2 (N10665)

Hastelloy C (N10002)

Hastelloy C-4 (N06455)

Hastelloy C-22 (N06022)

Hastelloy C-2000 (N02000)

Hastelloy C-276 (N10276)

Alloy 20 (N08020)

Hastelloy G (N06007)

Hastelloy G-3 (N06985)

Hastelloy G-30 (N06030)

Hastelloy N (N10003)

20Cb-3 (N08020)

20Mo-4 (N08024)

20Mo-6 (N08026)

Al-6X (N08366)

AL-6XN (N08367)

904L (N08904)

Allcorr (N06110)

Sanicro 28 (N08028)

Cronifer 1925 hMo (N08925)

Nicrofer 5923 hMo (N06059)

Inconel 686 (N06686)

Inconel 690 (N06690)

JS700 (N08700)

**Carbon Steels, Low Alloy Steels and Cast Irons:**

Carbon Steels

Low Alloy Steels

Gray Cast Iron

Silicon Cast Iron

Titanium and Alloys

Titanium (unalloyed)

Ti-3Al-2.5V

Ti-5Al-2.5Sn

Ti-6Al-2Sn-4Zr-2Mo

Ti-6Al-6V-2Sn

Ti-6Al-4V

Ti-6Al-7Nb

Ti-5Al-2Zr-2Sn-4Mo-4Cr

Ti-6Al-2Sn-4Zr-6Mo

Ti-4.5Al-3V-2Mo-2Fe

Ti-4Al-4Mo-2Sn-0.5Si

Ti-10V-2Fe-3Al

Ti-3Al-8V-6Cr-4Mo-4Zr

**Pure Metals:**

Aluminium

Cadmium

Copper

Chromium

Iron

Lead

Magnesium

Molybdenum

Nickel

Silver

Gold

Palladium

Platinum

Tantalum

Tin

Zinc

Zirconium

**Magnesium Alloys:**

AZ63

AZ31

AZ33

AZ81

AZ91

AM60

AM50

AM20

AS41

AS21

ZK51

ZK61

ZE41

ZC63

EZ33

HK31

HZ32

QE22

QH21

WE54

WE43

M1

AZ31

AZ61

AZ80

ZM21

ZMC711

LA141

ZK31

ZK61

HK31

HM21

HZ11

If you cannot find the metal or alloy of your interest in the above list, do let us know through the [Contact Us link](#) and we will conduct the necessary research to generate the required data for inclusion in the software, free of charge for licensed users of FC-Compass.

The powerful applications of FC-Compass are truly unlimited in engineering design, fretting corrosion prediction and modeling, materials compatibility assessment, trouble-shooting process-related issues and failure analysis of components and systems.

**Click here to contact us for licensing details and experience the power of FC-Compass.**

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*FC-Compass, giving you the right directions in Modeling and Prediction of Fretting Corrosion.*