TP A.25

The relationship between spin-rate-factor and percent-English

supporting:
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Refer to the drawings in TP A.12 and A.22 for an illustration of the variables.

From TP A.12, defining the "natural roll" rate as $\omega_r = v/R$, the spin rate factor (SRF) is defined by:

$$SRF = \frac{\omega}{\omega_r} = \frac{5}{2} \left( \frac{x}{R} \right)$$

$R_{max} = \frac{2.25\text{-in}}{2}$

$SRF(x) := \frac{5}{2} \left( \frac{x}{R} \right)$

From TP A.22, the maximum recommended tip offset for maximum English is $x = R/2$, and the percentage English (PE) is defined by:

$$PE = 2 \left( \frac{x}{R} \right) \cdot 100\%$$

Therefore, SRF and PE are related by:

$$PE = \frac{4}{5} \cdot SRF \cdot 100\%$$

$$SRF(x) = \frac{5}{4} \cdot \frac{PE}{100\%}$$

At the maximum recommended tip offset:

$$x := \frac{R}{2} \quad PE(x) = 100\% \quad SRF(x) = 1.25$$