FRICTION
IN HYDRAULIC SKIDDING

HYDRA-SLIDE

First, some definitions:

Friction is defined as the force resisting the relative motion of two surfaces sliding against each other.

The **Coefficient of Friction (CoF)** is the ratio between the force of friction and the force pressing the surfaces together (the weight of the load).

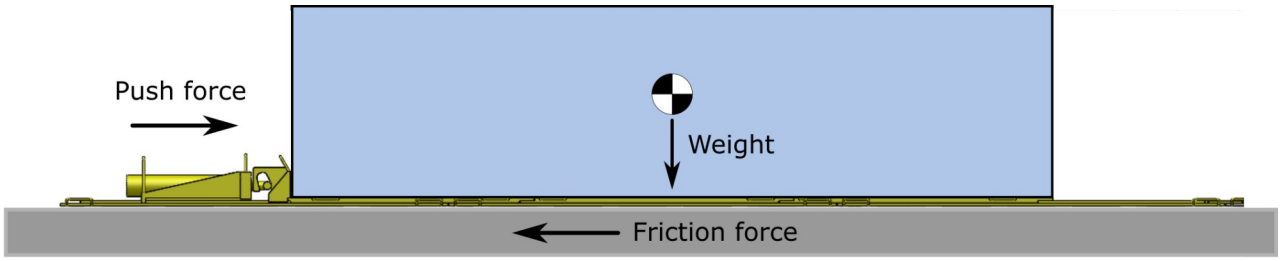
The **CoF** between two surfaces is a number ranging from 0 to 1; the larger the number, the greater the resistance to sliding, and the more force is required to move a load.

At first glance you might assume that a lower coefficient of friction is better, because less force will be required to move the load; however, this assumption doesn't account for **safety**.

In many cases the field conditions are not perfect and we need to account for factors like slight out-of-levelness, uneven ground conditions, and load momentum. No matter the conditions, we still need to maintain precise control over the direction and speed of movement, and have the ability to stop the load precisely.

This is where a higher coefficient of friction is actually beneficial. With a known CoF we can plan for how much push or pull force will be required, while still maintaining this precise control over direction and speed, and most importantly preventing the load from running away.

Our skidding systems use an engineered lubricating material at the sliding surface which provides a consistent CoF in the range of 0.10 to 0.20, with very little variance, while the relatively high forces required to move the load are provided by hydraulic push or pull cylinders. The cylinders exert their forces internally and keep the speed of movement slow and controlled, while the track acts as a guide ensuring the load always goes where it is intended to.



Referring to the diagram above:

If the load is 300 tons and the known CoF is 0.15, the push force required is **300 x 0.15 = 45 tons.**

Our HT300 system provides this push force using two 30-ton hydraulic cylinders.

If the load is 500 tons and the known CoF is 0.20, the push force required is **500 x 0.20 = 100 tons.**

Our HT500 system provides this push force using two 55-ton hydraulic cylinders.

In moving heavy loads with hydraulic skidding systems, friction ensures that the movement of loads is always under precise control, and keeps the job safe for everyone around.

Make FRICTION Your Friend