

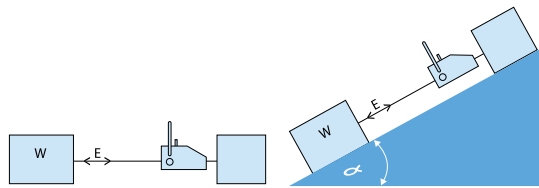
# The Tirfor Principle

## A Tirfor has neither wheels nor gears



- Two jaws alternately pull the wire rope and the load in the required direction, just like pulling on a rope with both hands
- The jaws are self clamping, providing immediate and gradual safety
- The heavier the load, the tighter they clamp
- A release mechanism allows the wire rope to be inserted between the jaws

Mathematical method of calculating the effort required to move a given load



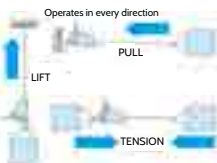
|       |       |  |
|-------|-------|--|
| Where | E     | Is the effort required to pull a load lying on the ground  |
|       | W     | Is the weight of the load  |
|       | $\mu$ | Is the friction between load and ground which depends upon the area of contact of the load with the ground (presence of wheels, rollers, sand, mud concrete, etc...) is the angle of the slope |

The value of  $\mu$  the coefficient of friction, must be known or estimated. Here are some general values of this coefficient.

|                  |         |                                  |           |
|------------------|---------|----------------------------------|-----------|
| Steel on steel   | 0.4-0.6 | Iron on stone                    | 0.3-0.7   |
| Leather on metal | 0.6     | Continuously lubricated surfaces | 0.15      |
| Wood on stone    | 0.4     | Load on wheels                   | 0.02-0.05 |

### Multifunction:

- Work can be performed in any position; horizontal, vertical or at an angle
- There is no limit to the length of wire rope
- The capacity can be increased



### Safe and Reliable

- Constant control of the load during lifting and lowering with accuracy
- When stationary the load is automatically distributed between the two jaw units
- Overload safety device



### Increased Capacity:

- Using the sheave block technique, the capacity of the Tirfor can be increased by a factor of 2, 3, 4 or more by sheaving (see diagrams)
- The figures given must be multiplied by the nominal capacity of the device
- When calculating the working load limit, include a loss of around 4% per sheave, due to the friction of the sheaves