POWERFUL: TIRFOR TU machines are in daily operation on construction sites around the world putting power where it is needed for lifting, pulling and handling a wide variety of loads. Only the TU models are approved for man-riding. (Please refer to your local safety regulations).

The TU and T-500 ranges of versatile TIRFOR lifting and pulling machines are safe, reliable and efficient. Suitable for many applications, TIRFOR machines are lever operated hoists using a separate wire rope. One-man operated, using a telescopic operating handle, they can work in any position and over any height of lift. They can replace conventional winches and other hoists for many applications.

The TIRFOR principle
The principle may be described as 'hand-to-hand', like a sailor pulling on a rope. While one hand pulls the other changes position to pull in turn. The two hands represent the 2 jaws of the TIRFOR. They grip the wire rope without damaging it, and alternately pull it during forward operation and hold it during reverse operation. The effort is transferred to the jaws by two levers: one for forward operation and the other for reverse operation. The load is held securely at all times.

TIRFOR wire rope
The wire rope for the TIRFOR machine is not a standard production rope. It has been developed specially to suit the TIRFOR machine. TIRFOR wire ropes are supplied on a reeler for ease of transport and storage.

CHOICE: Smaller and lighter, the TIRFOR T-500 machines are even easier to handle, whilst still giving a high mechanical advantage and complete operating safety.
in complete safety...

the main advantages of the TIRFOR

multiple operation
- works in any position
  - horizontal, vertical or angled
- unlimited length of wire rope
- increase the nominal capacity with multiple sheave blocks

simple
- fast and easy installation
- simple to feed in
  - or remove the wire rope
- continuous operation without snatching
- reduced maintenance by simple cleaning and regular lubrication
- changeover from forward to reverse operation by transferring the operating handle from one lever to another

robust
- high mechanical advantage
- both ranges will operate in the most difficult conditions

safe and reliable
- whether lifting or lowering, the load is permanently controlled with the utmost precision; when operation stops, the load is spread between the two jaw blocks
- safety device to prevent overloading
- TU range approved for man-riding applications

the original TIRFOR...
even better than ever
The TIRFOR, the right tool for the job. Here is a selection of the many applications.

Construction, public works, civil engineering
- moving and positioning formwork horizontally or vertically (Fig. 9)
- positioning sections of precast concrete beams
- lifting work platforms or suspended working platforms
- dragging, general lifting, guying, tensioning, etc.

Pipe laying and jointing
- positioning of pipes for welding and jointing
- laying concrete pipes and pulling them together
- underwater pipeline assembly

Bridges
- positioning formwork (Fig. 16)
- guying (Fig. 8)
- pulling pre-cast concrete beams
- suspending inspection and maintenance platforms

Steel structures
- plumbing or aligning steel structures (Fig. 7)
- erecting steel silos

Industry
- installation and removal of machine tools and presses (Fig. 10)
- loading and unloading of heavy equipment
- lifting and pulling during maintenance operations

Escalators, elevators
- loading, unloading and rigging of prefabricated escalators (Fig. 27)
- lifting and positioning the cabins and drawing mechanisms

Electricity and telecommunications
- positioning transformers (Fig. 15)
- erection of mobile aerials and antennas (Fig. 25)
- tensioning underground and overhead cables
- guying operations

... and wherever there is a need for lifting, or pulling heavy loads
The TIRFOR, the right tool for the job. Here is a selection of the many applications.

- Oil and chemical industries
  - controlled positioning and assembly of pipes and ducting
  - guyling silos and tanks during construction
  - inspection and maintenance work

- Mines and quarries
  - handling and positioning equipment and underground machinery
  - tensioning conveyors

- Shipbuilding and marine engineering
  - centering ships in dry dock (Fig. 13)
  - anchoring barges and pushers

- Rail and road transport
  - lifting and removal of pylons and signals (Fig. 11)
  - maintenance and tensioning of catenaries
  - load binding heavy and difficult loads
  - loading and unloading
  - de-bogging equipment

- Armed forces
  - many applications in the different sections of the Armed Forces (Engineering, Air Force, Artillery, Navy and Marines, signals and transportation)

- Fire services and civil defence
  - removing crash wreckage (Fig. 14)
  - handling and siting of emergency bridges

- Agriculture
  - controlling the direction of fall of a tree (Fig. 12)
  - clearing trees and fences
  - de-bogging lorries, tractors and all mobile equipment
  - tensioning fences

... and wherever there is a need for lifting, or pulling heavy loads
## Technical Specification

<table>
<thead>
<tr>
<th>Model</th>
<th>Nominal Capacity daN/kg</th>
<th>Weight (kg) w.r. 20 m</th>
<th>Dimensions (mm)</th>
<th>Special TRFOR w.r. break strain kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>TU-8</td>
<td>800</td>
<td>8.4</td>
<td>528 x 284 x 113</td>
<td>730 x 450</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8.3</td>
</tr>
<tr>
<td>TU-16</td>
<td>1600</td>
<td>20</td>
<td>660 x 360 x 145</td>
<td>1147 x 648</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.5</td>
<td></td>
<td>11.5</td>
</tr>
<tr>
<td>TU-32</td>
<td>3200</td>
<td>27</td>
<td>685 x 365 x 156</td>
<td>1147 x 648</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26</td>
<td></td>
<td>16.3</td>
</tr>
<tr>
<td>T-508</td>
<td>800</td>
<td>6.6</td>
<td>420 x 250 x 99</td>
<td>690 x 405</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7</td>
<td></td>
<td>8.3</td>
</tr>
<tr>
<td>T-516</td>
<td>1600</td>
<td>13.5</td>
<td>530 x 315 x 127</td>
<td>1147 x 648</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.5</td>
<td></td>
<td>11.5</td>
</tr>
<tr>
<td>T-532</td>
<td>3200</td>
<td>24</td>
<td>631 x 357 x 148</td>
<td>1147 x 648</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26</td>
<td></td>
<td>16.3</td>
</tr>
</tbody>
</table>

### Increase the capacity of the TIRFOR

The lifting and pulling power of TIRFOR machines can be greatly increased by the use of multiple sheave blocks. These can increase the nominal capacity of the TIRFOR machine by 2, 3 or 4 times or more (see diagram opposite). For most applications, an allowance must be made for friction in the sheaves. Ensure that the capacity of the blocks and fittings and anchor points are suitable for the load. When using the TIRFOR for pulling purposes it should be remembered that the necessary pulling effort is not equal to the weight of the load to be moved.

---

**Fig. 1:**

1. [Diagram of TIRFOR setup with one sheave block]
2. [Diagram of TIRFOR setup with two sheave blocks]
3. [Diagram of TIRFOR setup with three sheave blocks]
To make the best use of the TIRFOR machine, choose from the range of specially developed accessories.

**Sheave blocks**
to increase the capacity of TIRFOR machines in complete safety as described on the previous page. The following standard blocks are available:
- single side opening snatch block (Fig. 19)
- single snatch block, non-opening
- double blocks (Fig. 18)
- lightweight opening blocks

**CONI-KLAM, wire rope gripper** (Fig. 20)
to quickly lengthen a wire rope or sling. The wire rope is held by a pair of serrated jaws, operated by a self-gripping wedge.

<table>
<thead>
<tr>
<th>type</th>
<th>max. load (kg)</th>
<th>suitable for wire rope dia. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC 10</td>
<td>1000</td>
<td>5 - 10</td>
</tr>
<tr>
<td>EC 14</td>
<td>2000</td>
<td>10.5 - 14</td>
</tr>
<tr>
<td>EC 21</td>
<td>3000</td>
<td>15 - 21</td>
</tr>
</tbody>
</table>

**Slings** (Fig. 21)
for anchoring the TIRFOR or the load.
Manufactured in steel wire rope. The diagram shows the standard types, which are available in the length required.
Any other type on request.

**Ground anchor with spikes** (Fig. 22)
to provide a fixed anchor point in the ground.
Powered TIRFOR... a winning hand!

The powered models of the TIRFOR machines complement the manual units for heavy loads, such as operating large work platforms, lifting shuttering, moving machinery, etc...

Depending on the application, the working conditions and the power available, powered operation can be electro-hydraulic or pneumatic.

- saves time and labour
- no operator fatigue
- continuous operation
- increased safety

Hydraulic TIRFOR
The TIRFOR hydraulic system includes a hydraulic power pack which allows remote operation (individually or simultaneously) of one, two or four machines: TIRFOR TU-16H (1600 kg) or TU-32H (3200 kg), each fitted with a self-reciprocating hydraulic ram.

Pneumatic TIRFOR
This machine (model TU-32P) is particularly suitable for operating on construction sites and in industries where there is a danger of explosions or in industries already provided with compressed air facilities.

For additional information, please ask for descriptive documentation on motorised TIRFOR.

TIRAK
the fast powered winch
As with the TIRFOR machine, the TIRAK also operates on a wire rope which passes through the mechanism. The originality and dependability of its wire rope drive mechanism make it a powered mobile winch which can replace conventional winches in a large number of applications.

Mounted in a frame with its wire rope reeler, the TIRAK assembly is very compact and easily moved from site to site.

The TIRAK has been approved as a man-riding hoist by safety organisations in the majority of industrialised countries.