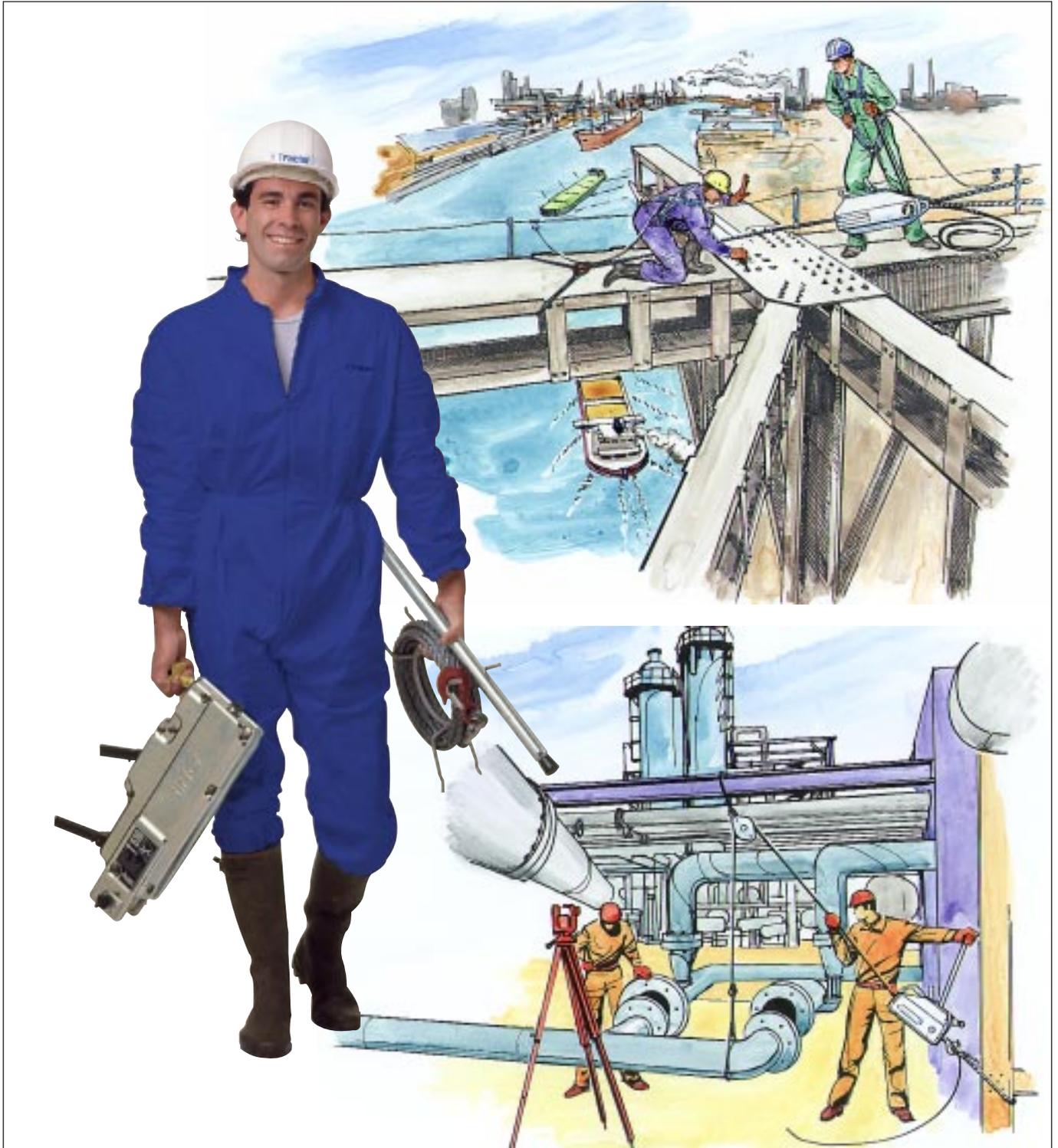


tirfor®

lifting and pulling machines
with unlimited wire rope



 **Tractel** Group

TIRFOR. . . lift, pull, lower and position



Fig. 1 - TIRFOR TU standard range

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).

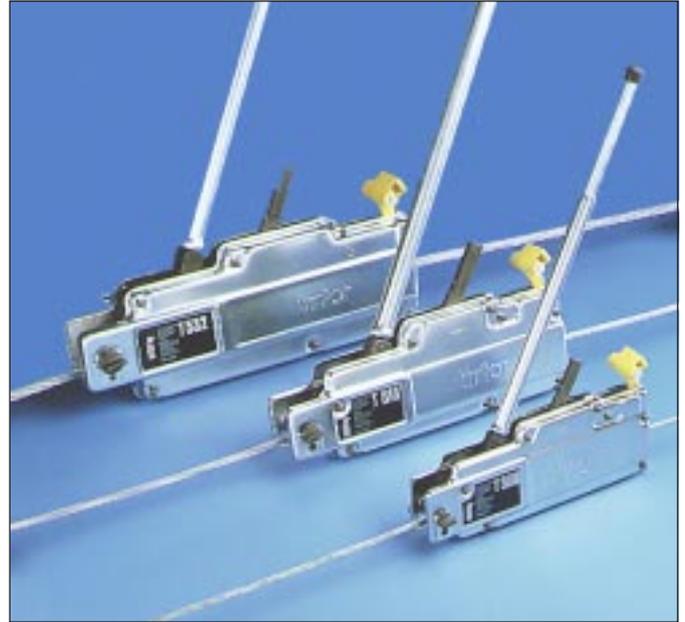


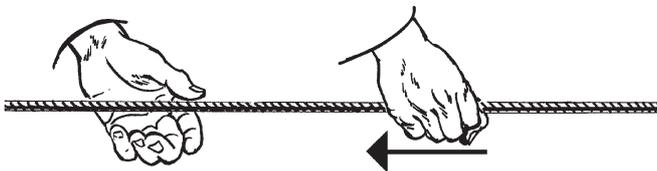
Fig. 2 - TIRFOR T-500 light duty range

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.

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

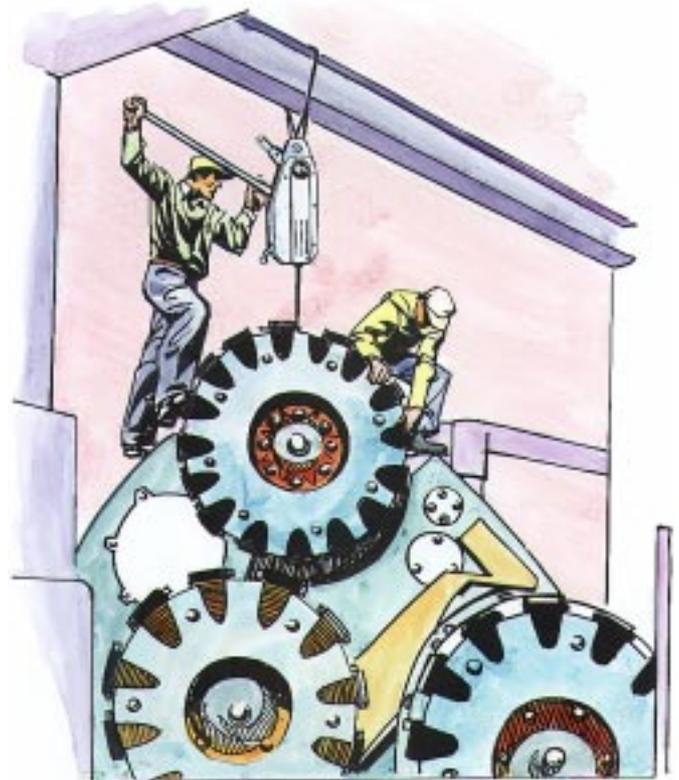
The principle may be described as "hand-to-hand", like a sailor pulling on a rope. While one hand pulls the other changes position to pull in turn. The two hands represent the 2 jaws of the TIRFOR. They grip the wire rope without damaging it, and alternately pull it during forward operation and hold 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.

Fig. 3 - Standard 20 m wire rope on reeler



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

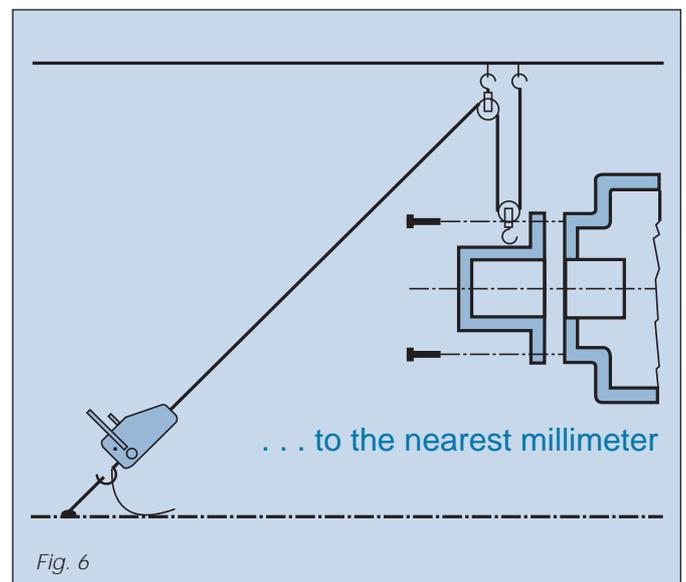
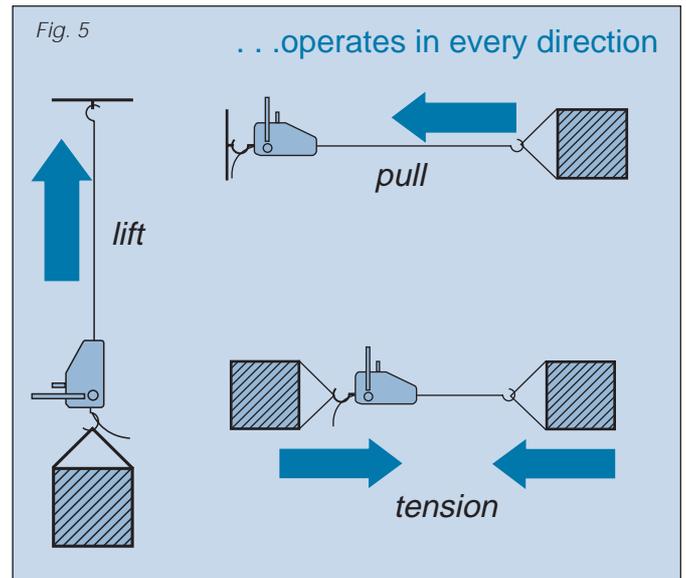
robust

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

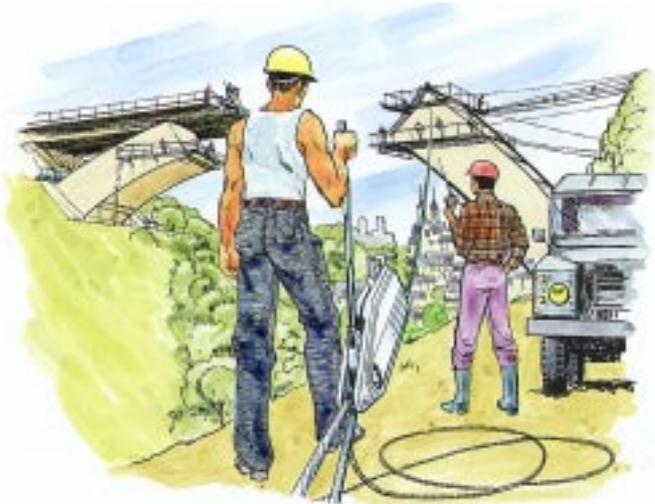
safe and reliable

- 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. . .

Pipelaying 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

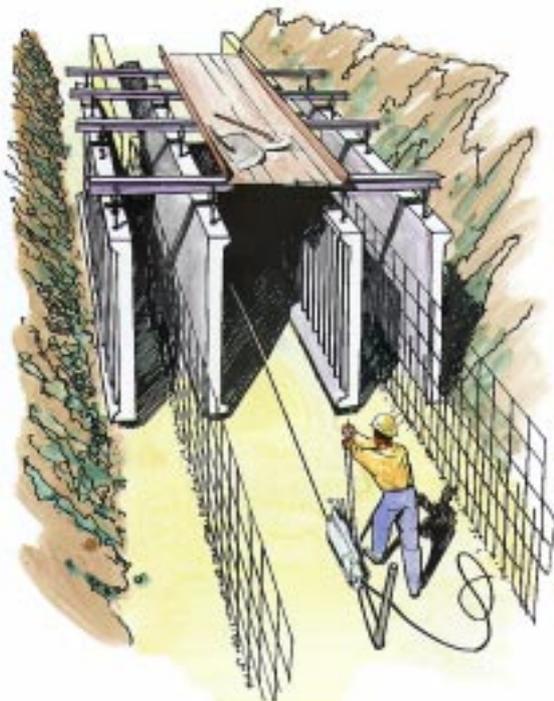
Escalators, elevators

- 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



Fi.

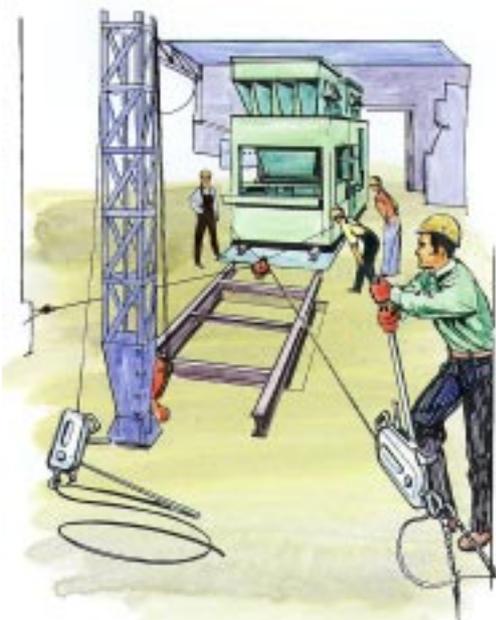


Fig.

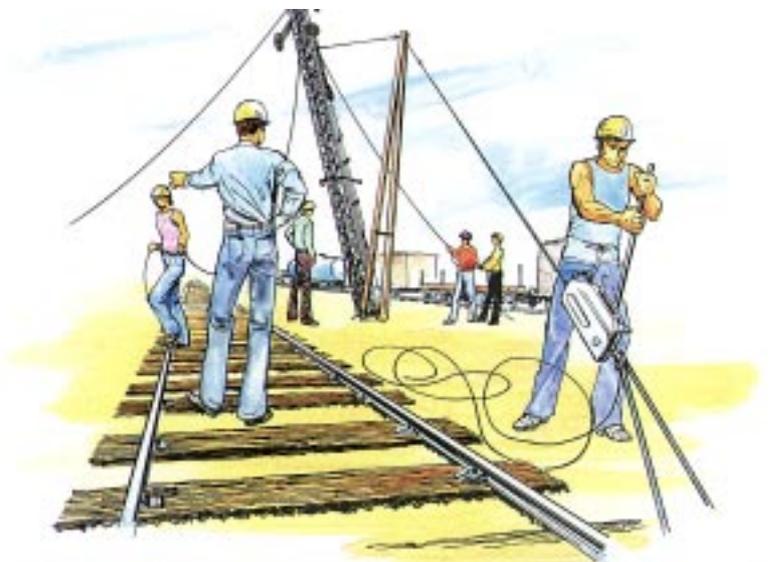


Fig. 11

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 (See front cover)
- guying 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
- debogging lorries, tractors and all mobile equipment
- tensioning fences

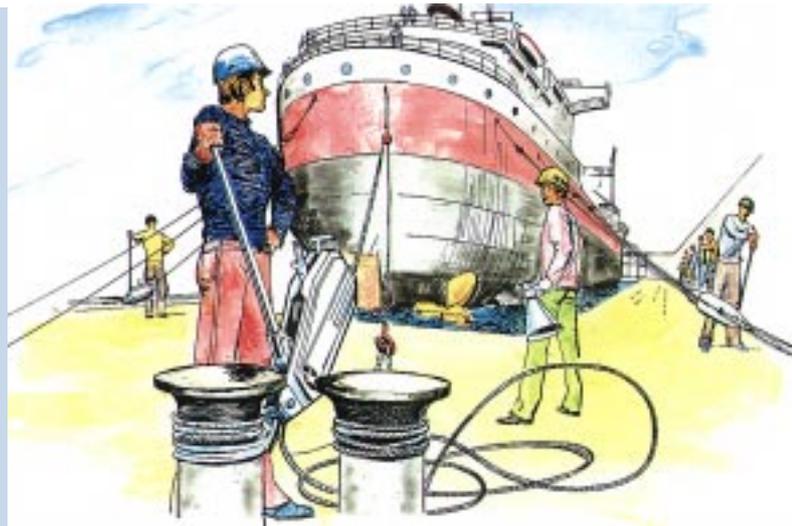


Fig. 13



Fig. 14

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

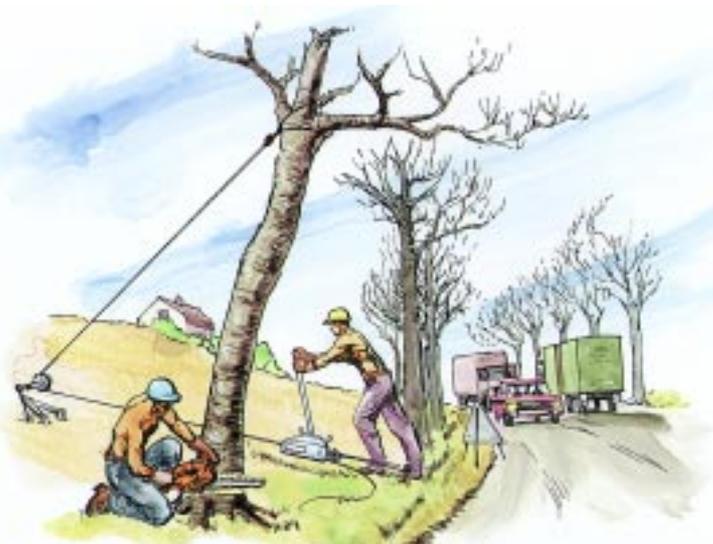


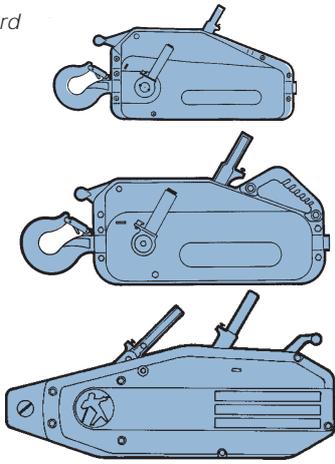
Fig. 12



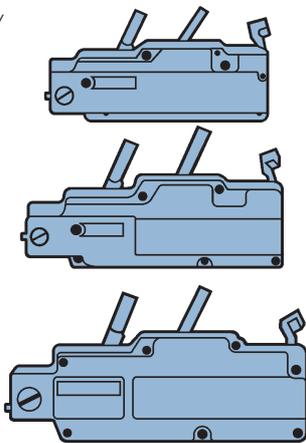
Fig. 15

Technical specification

standard range



light-duty range



model	nominal capacity daN/kg	weight (kg)		dimensions (mm)		special TIRFOR w. r.	
		machine	w. r. 20 m	machine	handle ext./closed	dia. mm	break. strain kg
TU-8	800	8.4	7	528 x 284 x 113	730 450	8.3	4800
TU-16	1600	20	12.5	660 x 360 x 145	1147 648	11.5	9600
TU-32	3200	27	26	685 x 365 x 156	1147 648	16.3	19200
T-508	800	6.6	7	420 x 250 x 99	690 405	8.3	4800
T-516	1600	13.5	12.5	530 x 315 x 127	1147 648	11.5	9600
T-532	3200	24	26	631 x 357 x 148	1147 648	16.3	19200

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.

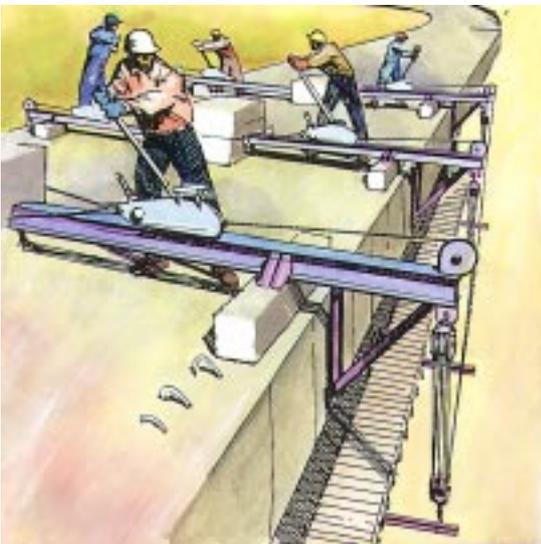
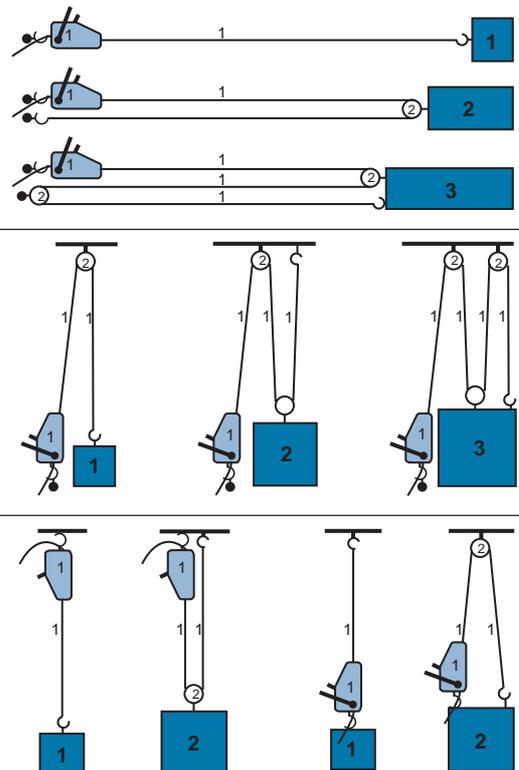
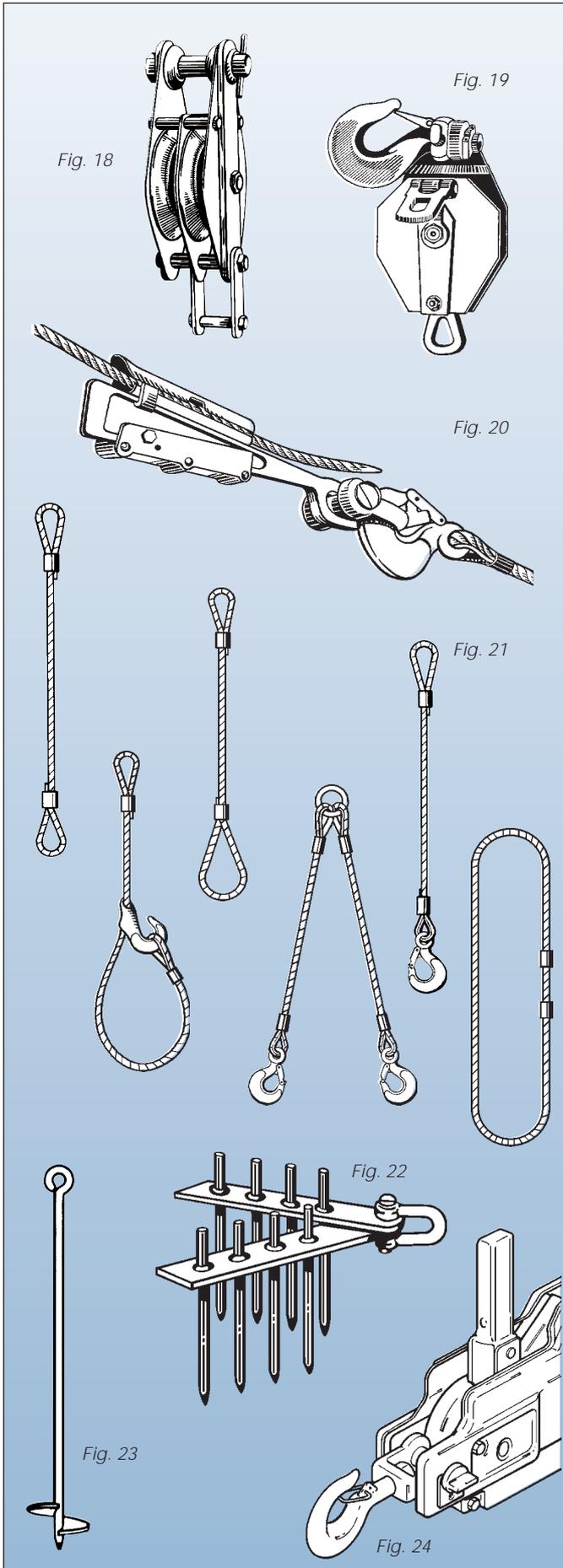


Fig. 16

Fig. 17



Accessories



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

type	max. load (kg)	suitable for wire rope dia. (mm)
EC 10	1000	5 - 10
EC 14	2000	10.5 - 14
EC 21	3000	15 - 21

Slings (Fig. 21)

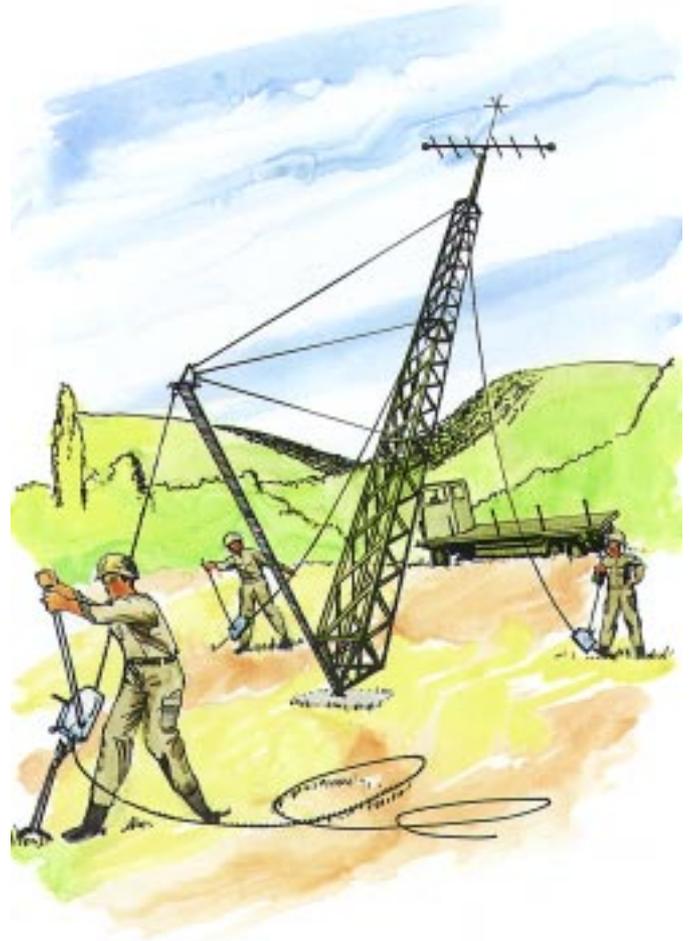
for anchoring the TIRFOR or the load.

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

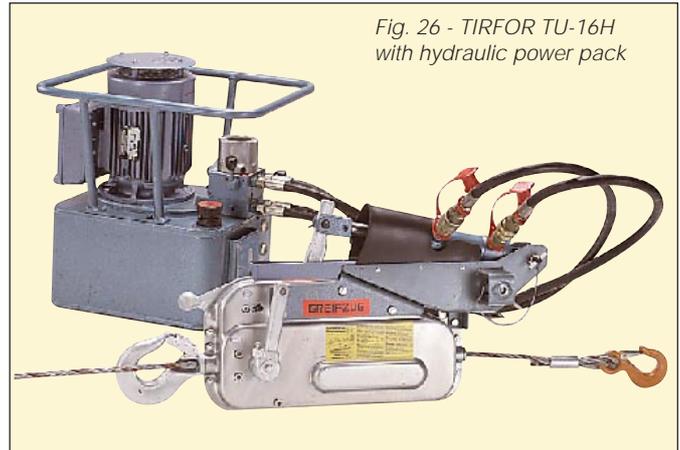


Fig. 26 - TIRFOR TU-16H with hydraulic power pack

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.



Fig. 27 - Installation of mechanical escalator (TU-16H)

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.

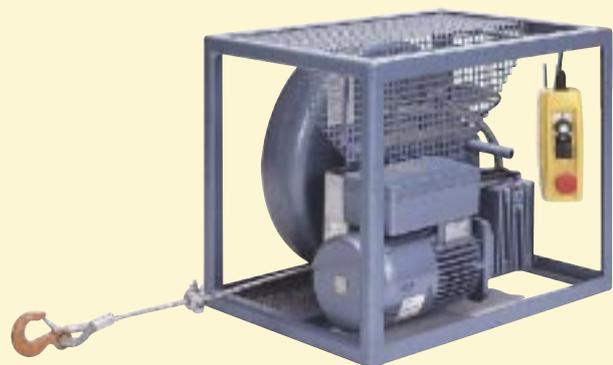


Fig. 28 - TIRAK mobile winch with wire rope reeler mounted in a compact frame.

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