

高空作業垂直爬梯輔助機 Climbing Aid for vertical ladders

很舒服

**Comfort,
which pays!**



減輕約40KG負擔，可節省爬梯者體力，減少爬梯時間，增進操作安全

**Relief from
approx. 40 kg**



**Saves climber's strength
Reduces climbing time
Improves Operational Safety**



全新垂直爬梯輔助器

The new Climbing Aid for vertical ladders

Velocity and Operational Safety –

in this case no contradiction at all, ...

速度和操作的安全，此為不能否認的



Fig. 1

Drive and Control 驅動和控制

A gear motor at the lower end of the ladder drives the looped belt by means of a driver disk, which is connected to the gearbox by a continuously adjustable, oil-bath-lubricated sliding clutch.

The continuous welded reinforced round belt, made of special synthetic material, runs over the driver disk and the diverter pulley at the upper end of the ladder.

Patented technique:

Automatic switching on/off the motor is controlled by a time lag relay and switch, which is activated at every revolution of the driver pulley:

- At the first switch signal, e. g. when pulling the round belt upwards, the motor starts and keeps running, as long as the signal is repeated with each pulley revolution.
- Stopping the round belt's movement, e. g. by breaking the ascent, the signal is not repeated within a pre-adjusted time lag, and the motor stops.

The advantage: There is no need of additional control means like a pull cord or similar, thus **excluding possible sources of error.**

... since the Climbing Aid relieves persons climbing a ladder with a constant pulling force of approx. 40 daN (≈ 40 kg), which leads to the following generally positive results:

- **Less stress on arms and legs**, 手和腿可有較少壓力
心跳保持接近休息時水平
- **the heart beat keeps closer to rest level**,
- **after finishing the ascent**, 完成爬昇後, 所需休息減少
由於疲勞有效的減少而使危險減少
- **the danger of incidents due to exhaustion is most effectively reduced**, ...

... so that, all in all, these benefits essentially improve the operational safety.

Comfort at the working place



is no luxury, but
the result of a wise decision!

連接到伺服皮帶

Connection to the servo belt

The harness (EN 361) is connected to the round belt by a rope grab (EN 567) with a spring snap connector (EN 362). **The most effective connection** is that to the D-ring **at chest level** (see front page and Fig. 2a).



Fig. 2a

If the harness is equipped with only one D-ring at waist level (Fig. 2b), the connection can of course be done to that device.



Fig. 2b

萬能使用方法
Universal application

Driver unit and diverter pulley are equally available for **standard ladders** (Fig. 3 + 6), for **ladders with middle pole** (Fig. 4 + 7) as well as for those with **round rungs** (Fig. 5).



Fig. 3



Fig. 4



Fig. 5

NEW! 全新可拆移的驅動單元
The removable driver unit

One motor for any number of Climbing Aids (Fig. 8) – that is the **economic solution**, where several neighbouring installations must not be used at the same time, like for example in wind parks.

Protection for utility model pending!

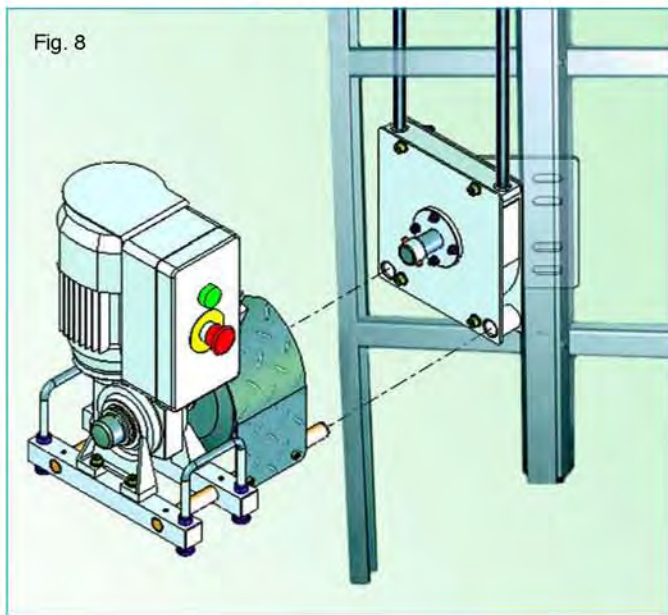


Fig. 8

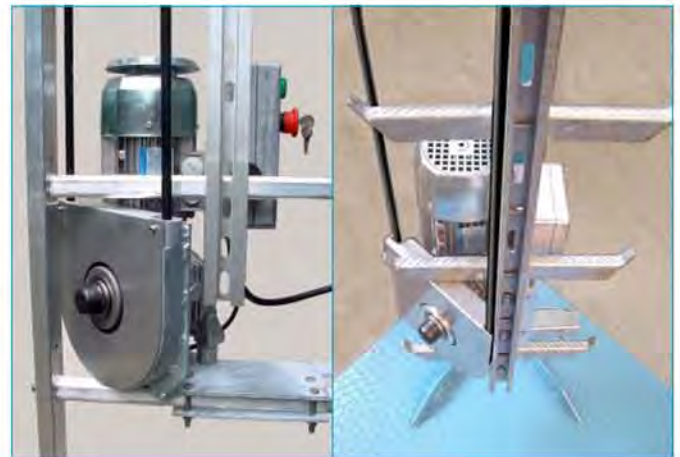


Fig. 6

Fig. 7

圓形皮帶 導槽, 也可 使用在傾斜 **全新 NEW!**
Round belt guiding, also available for inclined ladders

Even if the ladder is not vertical but inclined like shown in Fig. 9, this doesn't mean, that the climbing persons cannot use the helpful support of the Climbing Aid:

Guiding brackets, from which the round belt can be taken off during ascent and descent, hold the belt in an equal distance from the ladder – on outdoor installations this prevents the belt at windy weather from striking against the ladder, producing an annoying noise.

Guiding rollers equally allow the use of the Climbing Aid on folded ladders (Fig. 9)!

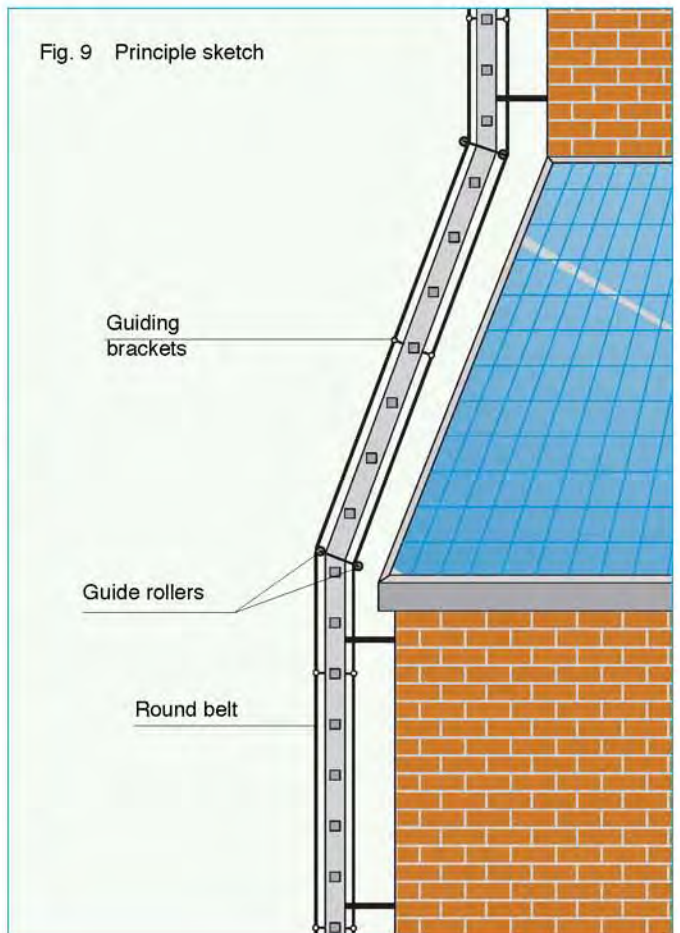


Fig. 9 Principle sketch

Guiding brackets

Guide rollers

Round belt

垂直梯子爬梯輔助器

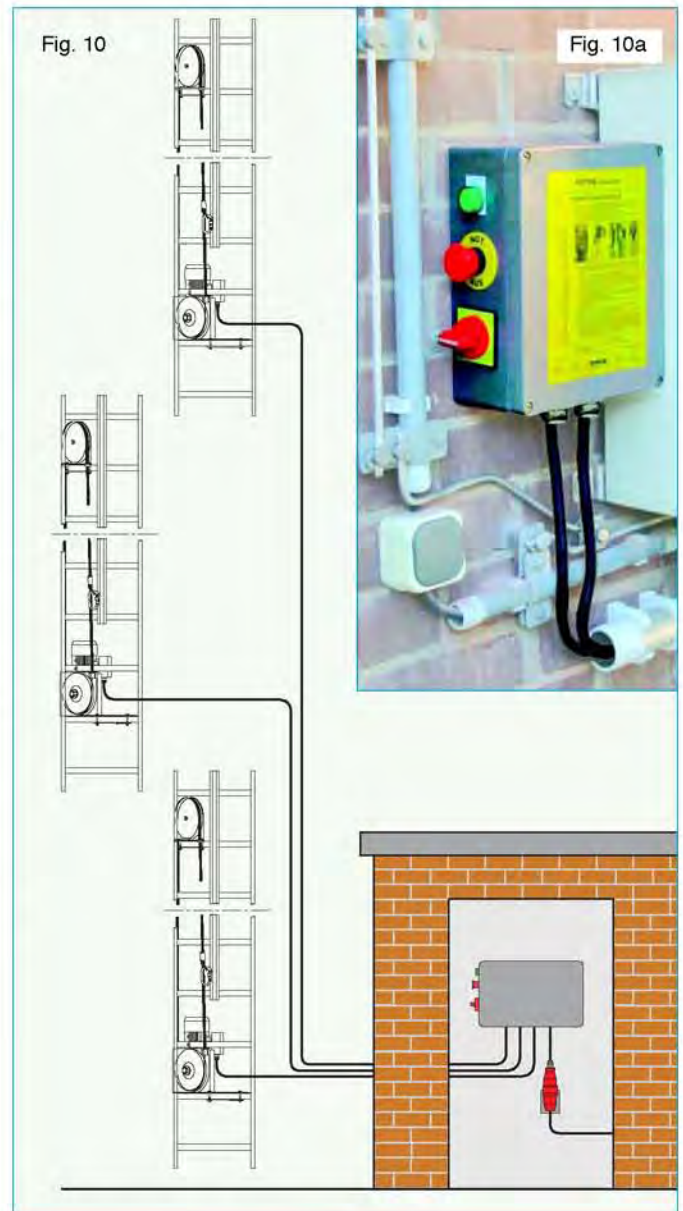
Climbing Aid for vertical ladders

**全新
NEW!**

中央控制可作1~4個安裝
**Central control for
1* to 4 installations**

On buildings **with more than one servo installation** it can be useful, to place the **control at a separate place from the driver unit**:

- Most of all, on high buildings with two or more Climbing Aids one above the other, all control components can be installed at one place providing simple access (Fig. 10).
 - The control box may be installed behind a lockable door, effectively avoiding misuse, and in case of an outdoor installation, checks and repair do not depend on weather conditions.
- * The safety argument as well as the benefit of not depending on weather conditions may equally lead to the decision of separating the control box from the driver unit (Fig. 10a).



technical Data 技術資料

1. Standard

Models:	M for central pole ladders	S for standard ladders
Pulling force:	Standard: approx. 40 daN (\approx 40 kg) Option: max. approx. 50 daN (\approx 50 kg)	
Round belt speed:	max. 37 m/min.	
Temperature range:	-20 °C bis +60 °C	
Power supply:	Standard: 400 V, 3phase, 50 Hz, 0,25 to 0,37 kW Option: 230 V, single phase, 50 Hz, 0,25 to 0,37 kW	
Duty Cycle:	100 %	
Insulation class:	Standard: IP 55 Option: IP 56	

2. With removable driver unit

Typen:	Mm for central pole ladders	Sm for standard ladders
Weight of the removable driver unit:	approx. 19 kg (For all other data see above)	

**NEW! 全新
可執行室外安裝
Execution for
outdoor installations**

Outside screw connections on motor, control and gearbox as well as the **gearbox shaft** are made of **stainless steel**.

Details regarding
**Central control,
guiding elements,
outdoor execution and
other voltages**
on request.