

建物維修單元-洗窗機

Building Maintenance Units





City Point, London (GB)



Marconi (I)



Caesar Palace, Las Vegas (USA)



Le Monde, Paris (F)



Pravdi 24, Moscow (RU)



Main Station Berlin (D)



Burj Al Arab, Dubai (UAE)



Jumeirah Beach Hotel, Dubai (UAE)

遍佈全世界大樓
throughout
the world...

進入最難達到的區域

Access to the most inaccessible areas



part of the Tractel Group, is the world's leader in suspended access solutions, with more than 8,000 BMU references worldwide. These systems allow the maintenance of the world's most famous buildings.



The knowledge and experience of , developed over many years, guarantees its customers, the most appropriate technical solutions that meet all the relevant quality standards and safety regulations.



The different technical solutions developed by (machines, monorail, jibs, platforms, ladders...) are all solutions that can easily be integrated into the buildings architecture while taking into account the customer's aesthetic and technical requirements.



is certified ISO 9001: 2000, ISO 14001, and OSHAS 18001.



DEXIA, Esch (L)



Tiong Bahru Plaza, Singapour



Jumeirah Beach, Dubai (UAE)

給每棟建築物能自行解決-使用本洗窗機

For each building, i Take advantage of S



Gantry over a glass canopy, Paris (F)



Horizontal RAILSCEF, Brussels (B)



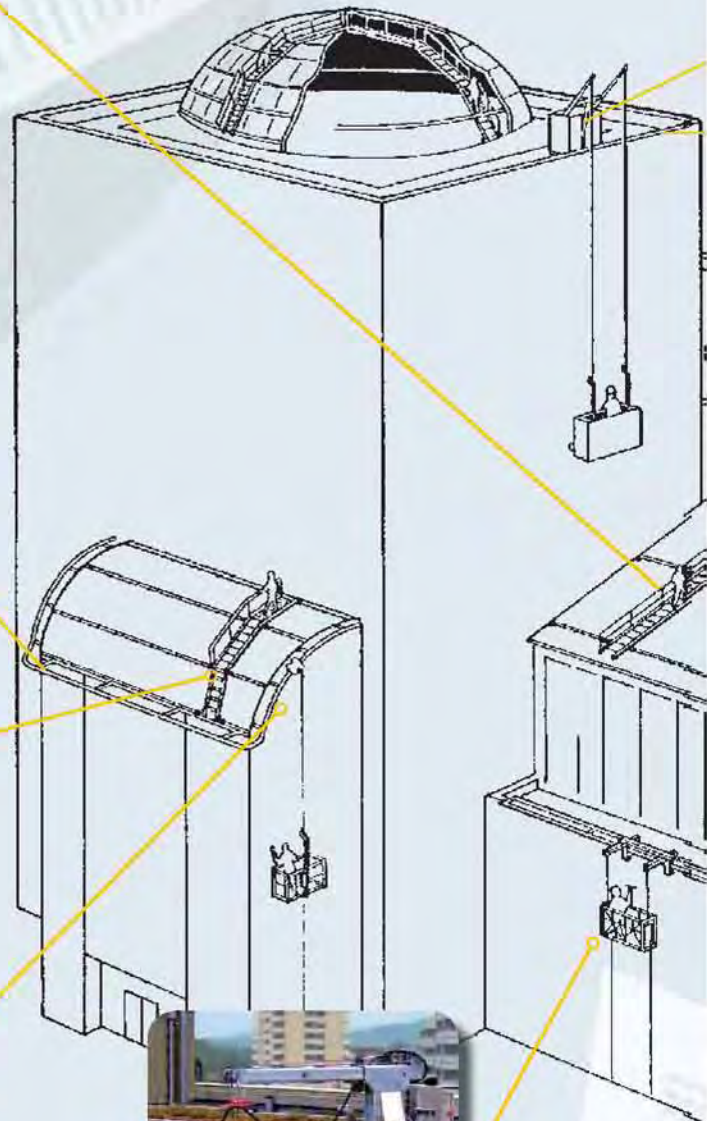
Ladder for external maintenance of glazed surfaces, Paris (F)



Suspended platform from traversing trolley on monorail, Morocco (M)



Suspended platform from a powered Davit, Basel (CH)



給每棟建築物能自行解決-使用本洗窗機

, its own solution

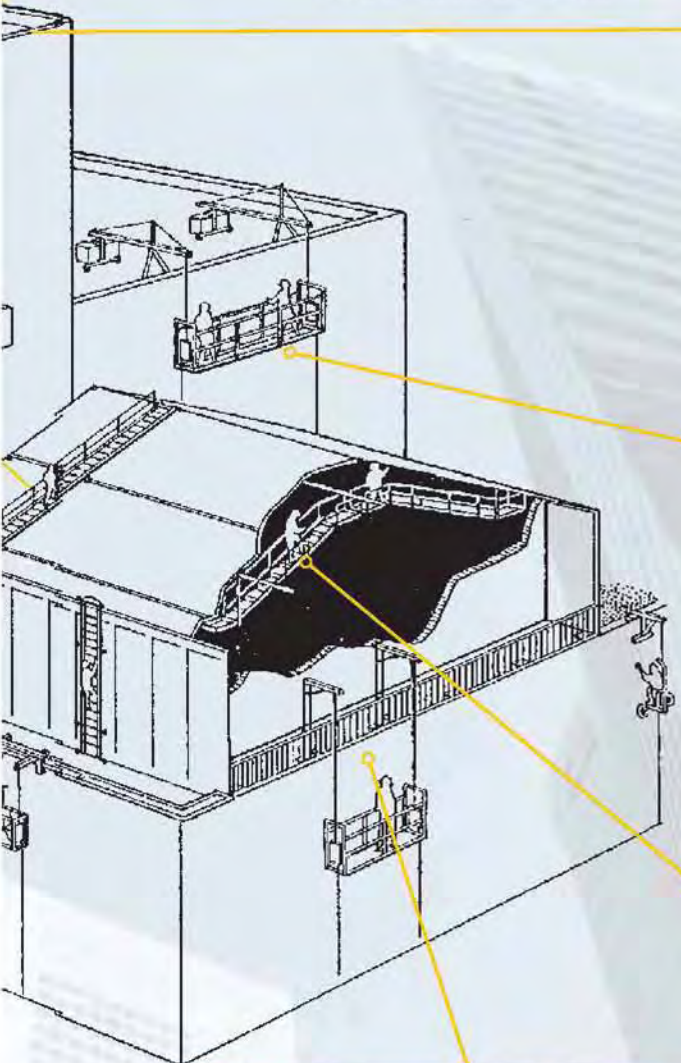
of experience



Jupiter machine on rails, Istanbul (TR)



Mustang machine on rails, Brussels (B)



ALTA suspended platform from 2 Portafix jibs, Luxembourg (L)



Suspended powered platform on 2 Davits (ZA)



Travelling gantry for internal maintenance of glazed surfaces, Dublin (IRL)

懸吊平台附有屋頂走行車 SUSPENDED PLATFORM

With our vast experience of developing solutions, we can advise you from the very beginning of the project on the most appropriate equipment.

+ Roof space

A BMU with roof car requires a track on the roof for traversing. Plan for enough space on the roof top for the machine to move near the buildings edge. Beware of obstacles such as stairway exits or air conditioning units... Depending on the roof space available, choose between a compact machine solution or a machine equipped with a mast.

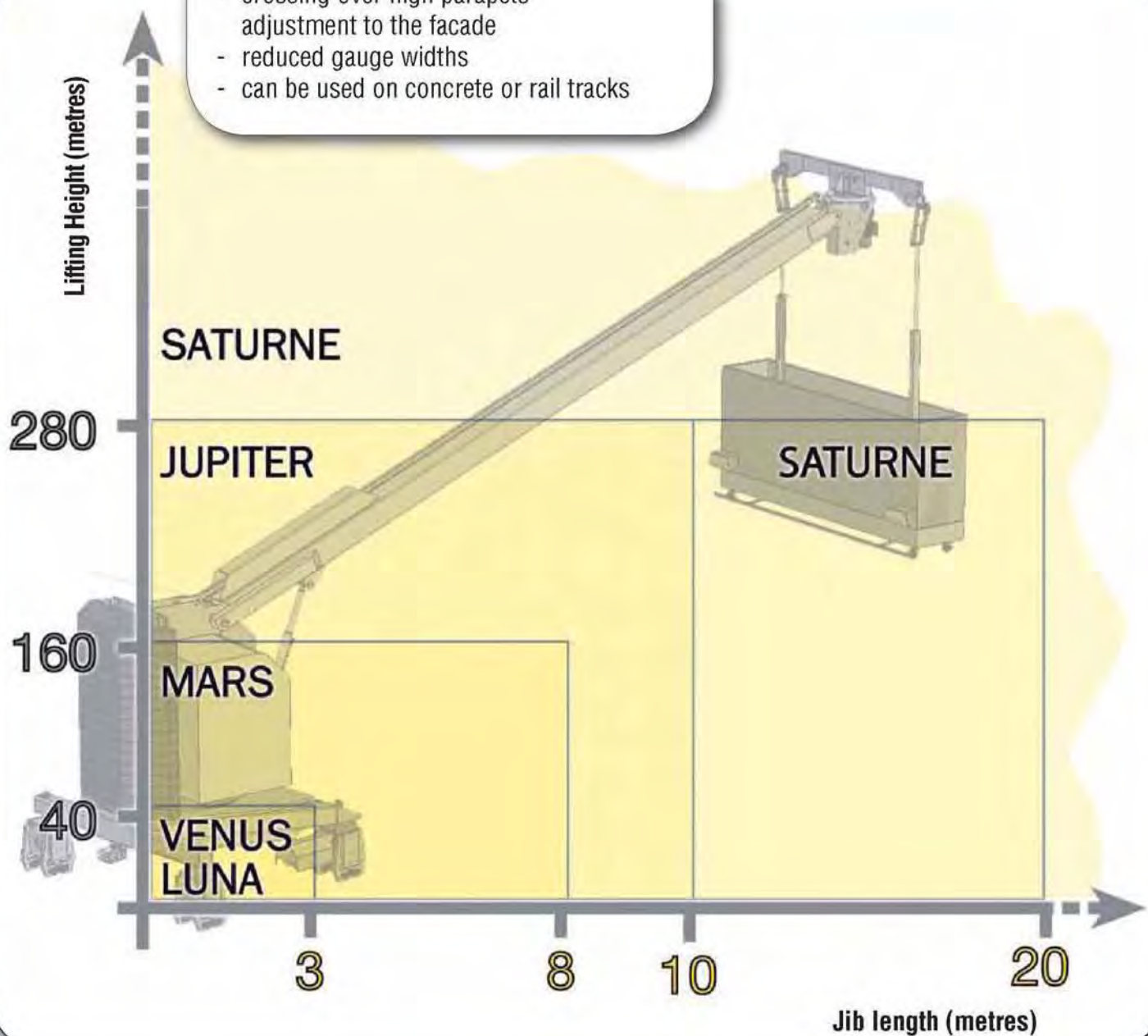
+ Machine tracks

Several track solutions are available (concrete, free laying rails or attached rails) depending on the machine type and building structure.

Compact machines 結實的機器

Characteristics

- crossing over high parapets
- adjustment to the facade
- reduced gauge widths
- can be used on concrete or rail tracks



CRANES WITH ROOF CARS

Types of tracks

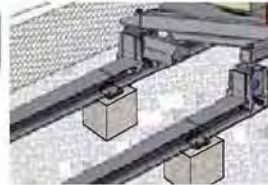
軌道型式



Concrete



Rail track placed on concrete or steel plate

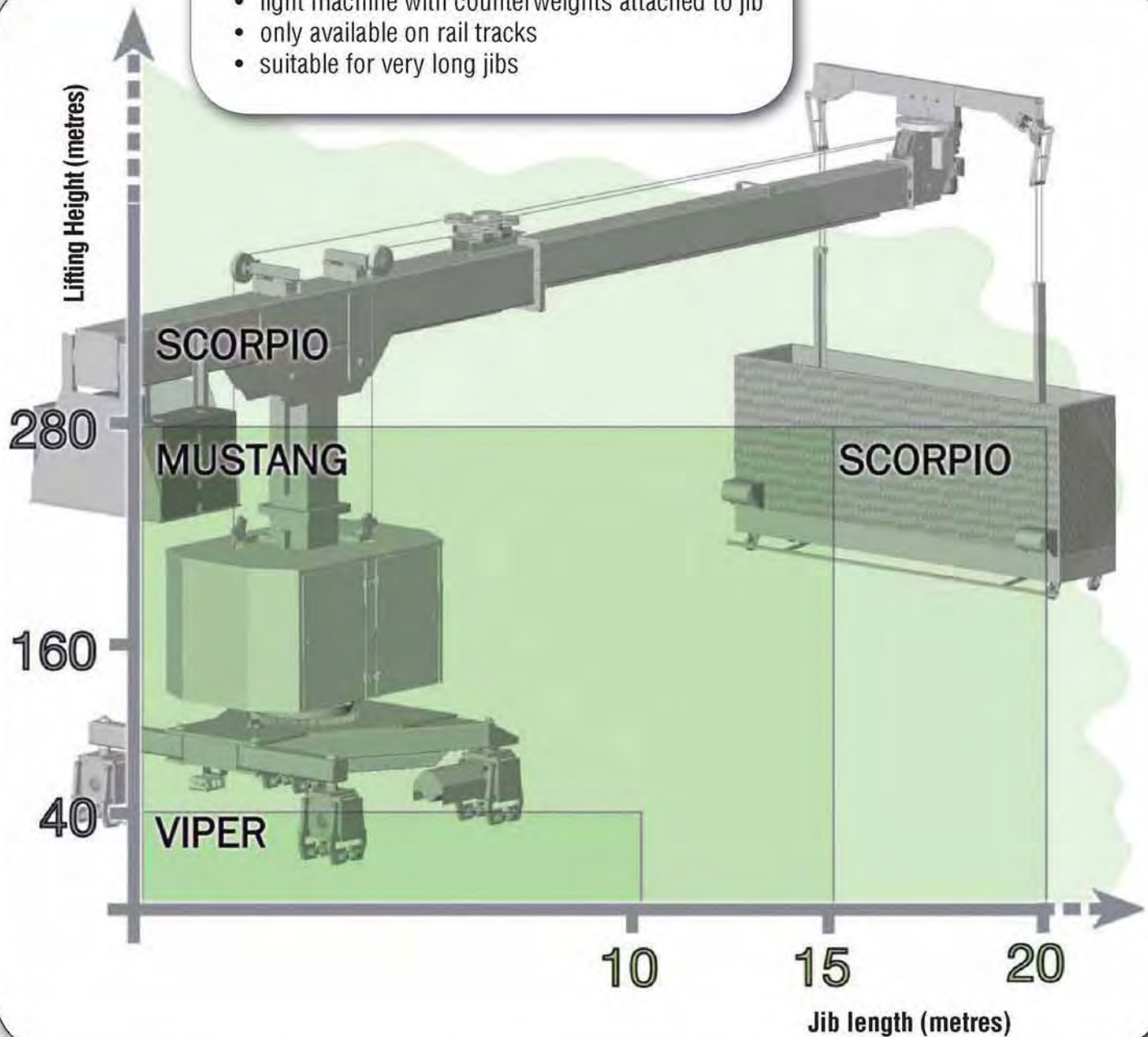


Rail track fixed to concrete or steel post

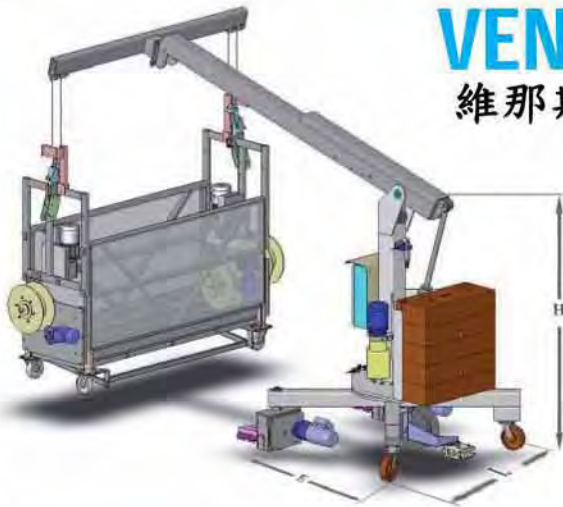
Mast machines 桅柱機械

Characteristics:

- light machine with counterweights attached to jib
- only available on rail tracks
- suitable for very long jibs



結實的機器 Compact machines

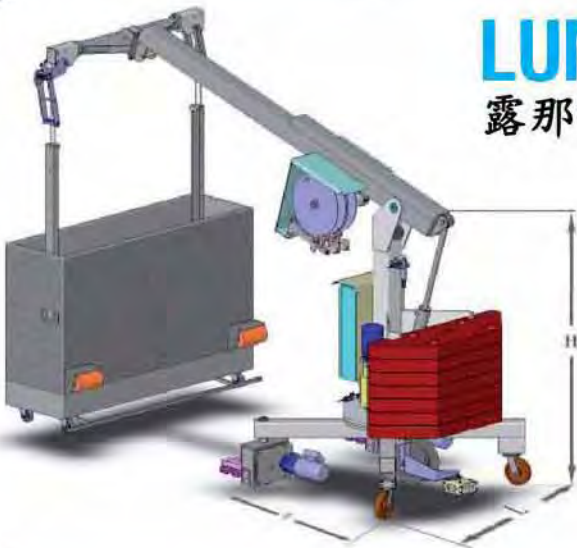


VENUS 維那斯型

Working height: max. 40 m
Jib length: max. 3 m
Machine weight: max. 7.5 ton

Compact, light, economic machine with powered platform (TIRAK™ hoist on the platform).

Dimensions:
E: 1.3 – 1.5 m
H: 2.35 m
L: 1.3 – 1.5 m

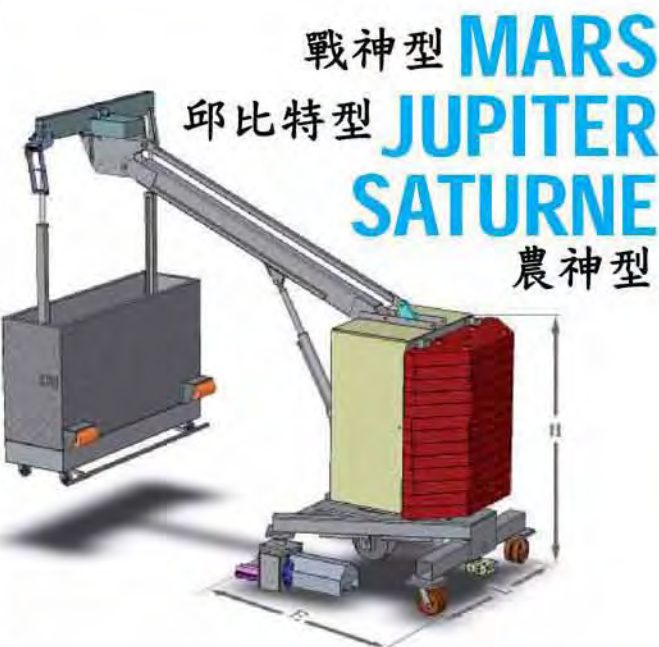


LUNA 露那型

Working height: max. 40 m
Jib length: max. 3 m
Machine weight: max. 7.5 ton

Simple and economic solution.
TIRAK™ hoist is fitted on the roof car.

Dimensions:
E: 1.3 – 1.5 m
H: 2.35 m
L: 1.3 – 1.5 m



戰神型 MARS 邱比特型 JUPITER 農神型 SATURNE

	Max. lifting height.	Max. jib length.	Max. machine weight.
MARS	160 m	8.5 m	7.5 ton
JUPITER	280 m	10 m	9.0 ton
SATURNE	280 m	20 m	25.0 ton

For these three models the lifting hoists are integrated into the turret which protects them from external aggressions (climatic, vandalism, etc.).

Dimensions:

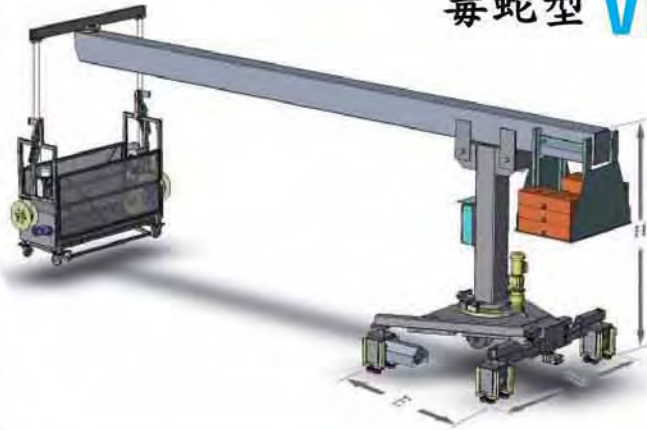
	E	H	L
MARS	1.3 – 1.8 m	2.15 m	1.4 – 2.1 m
JUPITER	1.5 – 1.8 m	2.6 m	1.4 – 2.1 m
SATURNE	1.8 – 2.5 m	2.9 m	1.8 – 2.5 m

桅柱機械

Mast Machines

Only available on rail tracks

毒蛇型 VIPER



Working height: max. 40 m
Jib length: max. 10 m
Machine weight: max. 8.0 ton

Lightweight BMU thanks to counterweight fixed to the back of the jib.
Equipped with powered platform (TIRAK™ hoist on the platform).

Dimensions:
E: 1.3 – 1.8 m
H: 3.2 m
L: 1.4 – 2.1 m

野馬型 MUSTANG

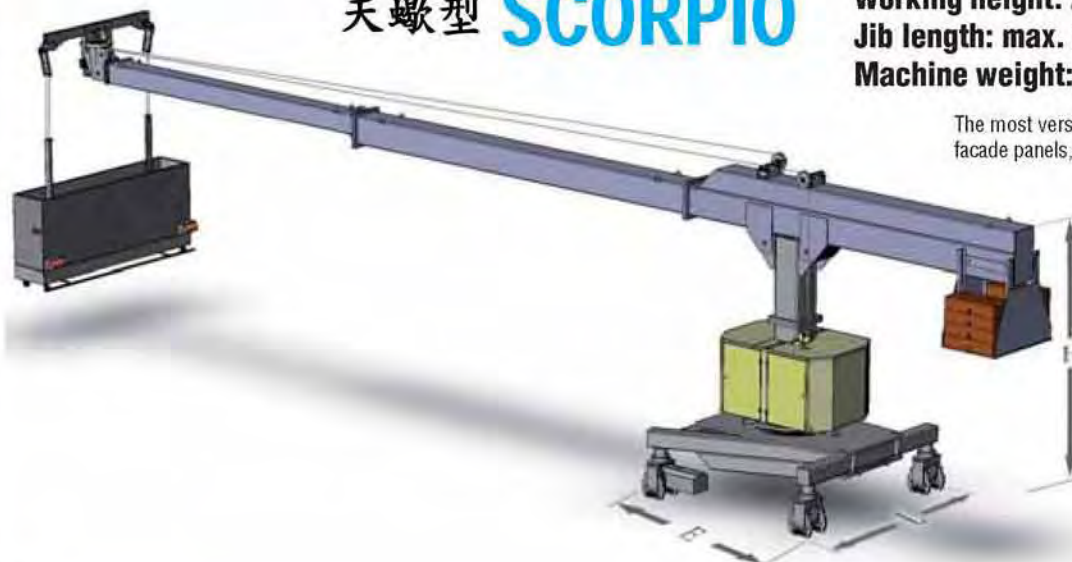


Working height: 280 m
Jib length: max. 15 m
Machine weight: max. 11.0 ton

Flexible model, with possibility to adjust the mast height.
TIRAK™ hoist(s) installed within the turret.

Dimensions:
E: 1.8 m
H: 3.2 – 6.0 m
L: 2.1 m

天蠍型 SCORPIO



Working height: 280 m
Jib length: max. 20 m
Machine weight: max. 30.0 ton

The most versatile machine, capable of lifting facade panels, special long cradles, ...

Options: telescopic jibs and telescopic masts.

Dimensions:
E: 1.8 – 2.5 m
H: 3.6 – 6.0 m
L: 1.8 – 2.5 m

Common characteristics 共同特性

- Machines CE certified and conform to the European norm EN 1808.
- Welded assembly, hot galvanised steel.
- Platforms made out of aluminium alloy.
- Double command from the machine and from the cradle.
- Motorised slewing turret.
- All the motors, electrical cabinets and commands are IP 55.
- traction lifting hoist.
- Single jib with slewing spreader bar.

Options 選用

- Special spreader bars (V shaped, longer lengths, articulated, ...).
- Operations are powered and controlled through the patented MAGTRON™ control system.
- Specially equipped against low temperature (for geographic regions such as Russia, Scandinavia, ...).
- Telescopic jib.
- Telescopic mast.
- Hoist for additional load.
- PLC (for programming movement).
- Guiding systems (by mullion guide or restraint plug).

MAGTRON™ control 控制器

MAGTRON™ is a patented system by that allows the transmission of data between cradle and roof car by induction of a magnetic field in a closed circuit created by the steel wire ropes.

Advantages:

- Elimination of the pendant electrical cable or special suspension wire rope integrated electrical wires.
- No need for a radio command.
- No requirement for a dedicated transmission frequency.
- No interference with the electrical or computing environment.
- Control voltage reduced to 10 V.



Standard on JUPITER, SATURNE and SCORPIO machines

All machines are equipped with a TIRAK™ traction hoist, either X series (one cable) or XD series (dual cable).

- Traction hoist, developed and made by the Tractel Group.
- Compact, robust, lightweight and reliable design.
- Approved for man-riding according to the European, American and Canadian norms.
- Reduced maintenance requirement prolongs the life expectancy of the machine.

TIRAK™ SÉRIE X



TIRAK™ SÉRIE XD



Platforms and cradles 平台和搖籃

Lightweight and compact, made out of aluminium alloy, platforms can be divided into two families:

- Powered platforms (hoist on the platform).
- Working cradles without hoist.

Platforms with hoist (VENUS, VIPER) 平台附主機
can be used with several systems.



ALTA 2 m platform



SOLO platform (1 person)

**Working cradles without hoists
(LUNA, MARS, JUPITER,
SATURNE, MUSTANG,
SCORPIO)**



Cradles without hoist 2 / 3 m

Special cradles



Pantograph cradle



Eccentric cradle

其他使用的解决方法-吊杆, 两端吊, 高架吊杆 Other Access Solutions: Da

Fixed Davits 固定吊杆

Fixed Davits are an economic and simple solution, with **ALTA** or **SOLO** powered platform suspended to one or two Davits.

Advantages:

- Low installation cost.
- Lightweight and easy to move on the roof.
- No excess equipment on the roof.
- System can easily be dismantled when not in use.



Fixed Davits with ALTA platform, (ZA)

Powered Davits 动力吊杆

Traversing on a track fixed to the parapet, this system leaves the roof free of equipment whilst providing a simple and efficient solution.

Powered Davits can be used with **ALTA** or **SOLO** platforms equipped with **TIRAK™** hoists.



Powered Davits with ALTA platform



Powered Davits with SOLO platform, Basel (CH)

Polelifts

An ideal solution for buildings under 20 m height, as the polelift mast is attached to rail tracks at the top and bottom of the structure allowing lateral movement and the platform moves vertically on the mast.



Polelift, Geneva (CH)



Polelift, glazed dome, Reichstag Berlin (D)

其他使用的解決方法-吊桿, 兩端吊, 高架吊桿

Davits, Polelifts, Gantries...

Ladders and Travelling Gantries 梯階和高架移動

Solutions for inside and external maintenance of glazed structures such as domes, atriums and buildings with panoramic views.

All mobile gantries are made from profiled aluminium, which can be painted or anodised depending on the customers requirements.



Mobile gantry shown with RAILSCAF monorail and SOLO platform

Alulift 高空作業平台

Electric driven hydraulic platform for working heights up to 16 m.

The Alulift is a compact, lightweight and polyvalent platform which can pass through all standard doors, reaching 16 m in height. It can be powered either by mains electricity or by battery.



TRAVSAFE™ Lifelines 生命線



The horizontal lifelines **TRAVSAFE™**/ **TRAVFLEX™** allow punctual, secure access to building tops where there is a risk of falling from height.

It is a dual cable lifeline that:

- Allows great personal mobility
- Allows up to five people to work simultaneously, attached to the same lifeline

Providing individual height protection is a key priority for the Group, who can offer a complete safety solution (harness, lanyards and anchor points).



單軌：一種整體建築物正面

The monorail: a system i

An ideal system for integrating into metal structures and curtain wall facades, as it blends perfectly with the building. The monorails are made of aluminium alloy and may be supplied plain, anodised, or lacquered. They can be formed both vertically and horizontally

to fully integrate with the facades. All monorails can be fitted with manual or powered trolleys which are easy to operate in complete safety.

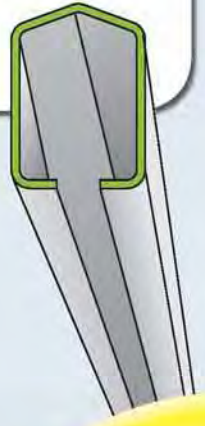


Orail with a special platform, Main Station Berlin (D)

ORAIL (Steel) O型鋼軌(鋼製軌道)

Hot galvanised steel monorail for all ceiling applications.

Profile: steel 110 x 80 mm
Weight: 11.9 kg/m
Max. distance between brackets: 2.7 m
Max. loading per trolley: 500 kg



O型鋼軌(鋁製軌道)

ORAIL (Aluminium)

Monorail in aluminium alloy, ideal aesthetic solution for an installation within a recess or false ceiling.

Profile: aluminium 110 x 98 mm
Weight: 9.0 kg/m
Max. distance between brackets: 3.0 m
Max. loading per trolley: 350 kg



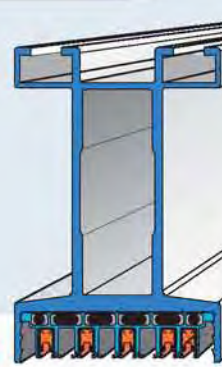
RAILSCAF with SOLO platform, St. Denis (F)

ATS軌道

ATS Rail

Very resistant monorail, which can use an electric sheath to provide power for trolley and platform.

Profile: aluminium 185 x 121 mm
Weight: 9.11 kg/m
Max. distance between brackets: 4.5 m
Max. loading per trolley: 350 kg

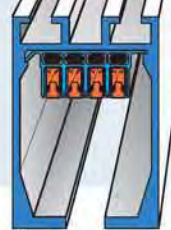


Double ACS rail with special platform, Main Station Berlin (D)

ACS Rail ACS軌道

Monorail used for ceiling applications, which can use an electric sheath to provide power for trolley and platform.

Profile: aluminium 125 x 100 mm
Weight: 5.27 kg/m
Max. distance between brackets: 2.0 m
Max. loading per trolley: 350 kg



Integrated into the facade

I-SCAF I-SACF型軌道

Monorail for ceiling or cornice, which can be equipped with an integrated chain to negotiate slopes.

Profile: aluminium 55 x 110 mm
Weight: 3.16 kg/m
Max. distance between brackets: 1.8 m
Max. loading per trolley: 350 kg



I-SCAF, TGV railway station, Liege (B)

RAILSCAF型軌道 RAILSCAF

Lightweight and compact monorail which can be fitted with an integrated chain allowing powered trolleys to negotiate slopes up to 60°.

Profile: Aluminium 120 x 40 mm
Weight: 6.05 kg/m
Max. distance between brackets: 3.0 m
Max. loading per trolley: 350 kg



RAILSCAF with ALTA platform, Paris (F)

EASYRAIL型軌道 EASYRAIL

Monorail for buildings where the distance between brackets is important.

Profile: Aluminium 175 x 73 mm
Weight: 9.61 kg/m
Max. distance between brackets: 4.4 m
Max. loading per trolley: 500 kg



RAILSCAF with SOLO platform, Paris (F)

O-SCAF O-SCAF型軌道

Monorail with integrated chain to allow upward movement.

Profile: Aluminium 80 x 100 mm
Weight: 5.14 kg/m
Max. distance between brackets: 2.0 m
Max. loading per trolley: 350 kg