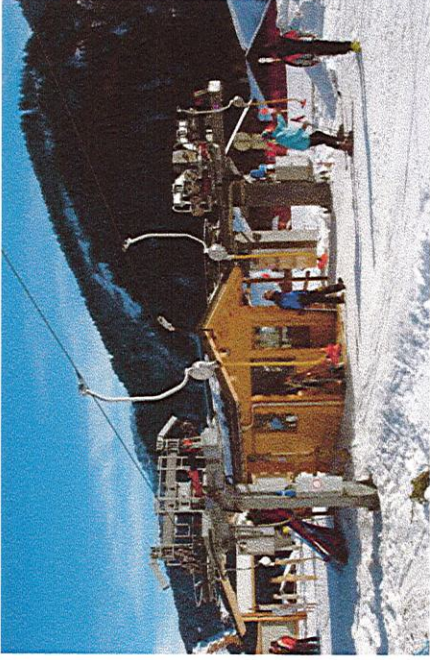


# Technical & Financial Proposal

Spring Box Ski-Tow

Burke Mountain Academy



Leitner –  
Poma  
06/10/2016



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## Introduction

### Key points

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#### Before getting started

This document describes POMA Spring Box Ski-Tow and provides an overview of standard and optional components. Component manufacture and development, as well as all safety and infrastructure aspects are in line with the ANSI B-77 2011 documents.

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#### Specifications of the range

The entire range of ski-tows operates at a maximum speed of 2.00 m/s.

##### Simple adjustments

The width of the line is the same as the drive bull wheel diameter, i.e. 2.5 m for all lifts. There is therefore no track reduction, which simplifies any adjustments.

The Spring Boxes are equipped with T-Bar.

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#### Drive & Return Terminals

We offer a range of 2 return terminals and 3 drive terminals that can be distinguished through their different tension and power specifications.

The terminals accept sheave trains and are equipped with walkways that are compliant with work safety regulations.

The terminals are driven by an asynchronous electrical motor that is controlled by a variable-speed drive.

LPOA supplies the electric cabinets provided with our lifts.



## Technical Characteristics

### Burke T

The ski lift main characteristics are the following ones:

Characteristics	Figures
Horizontal length	3,084 ft. – 940 m
Vertical	1,096 ft. - 334 m
Slope length (Track)	3,273 ft. – 998 m
Average Grade	33%
Number of line towers	9
Direction of operation	CW
Operating speed	700 fpm - 3.56 m/s
Hourly rated capacity	1,000 pph
Haul rope Dia.	22.0 mm
Line Gauge	2.4 m
Drive tension terminal	Bottom
Return terminal	Top
Type of carrier	Single Spring Box
Number of Carriers	80



## Overview of POMMA lifts components

- All Components complies with ANSI B-77 2011
- Max Speed 3.5m/s
- AC motor with variable speed drive
- Line Gauge 2.4m
- Very Silent operation
- Hydraulic tensioning design
- Cost-effective design
- Easy maintenance
- Workers Safety

*Note: the pictures & drawings of this proposal are not contractual*

## The drive terminal

### Presentation

Since the bull wheel is sized according to the track, there is no track reduction meaning that adjustments are simple (no horizontal sheaves or track-retainers). The bull wheel attitude monitoring device stops the lift if the bull wheel axle breaks.

Anti roll-back pawls positioned on the bull wheel prevent any backward movement.

This terminal falls within the intermediary range in terms of mechanical specifications. It accepts three types of drive systems from 20 to 90 kW.



*The T45 drive terminal*

### Mechanical specifications

The mechanical specifications for the T201 drive terminal are as follows:

- Maximum cable tensioning during operation
- Maximum operating speed 3.5m/s
- Ram stroke 1m
- Maximum hydraulic pressure 134 bars
- Reduction ratio of gearbox 73.1 or 58.4
- Maximum static braking torque 180 N.m

### Drive system

The terminal is driven by a Usocom asynchronous gearbox. It is a planetary gearbox with parallel axles that does not contain any bevel gears. Simple and compact, the integrated electric motor-driven braking system is reliable and highly efficient.

	Maximum torque	Rated power
T20I	16 kN.m	22 kW
T55I	18 kN.m	55 kW
T75I	24 kN.m	75 kW
T90I	32 kN.m	90 kW

### Sheave trains

The terminal accepts sheave trains with 2, 4, 6, or 8 sheaves (support or compression).

## The RAZ 55 return terminal

### Presentation

This is the smallest return terminal in the range.  
The cable height is between 3.5 m and 5 m.



*The RAZ55 return terminal*

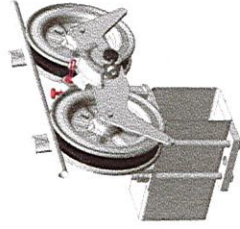
### Mechanical specifications

The mechanical specifications for the RAZ 55 return terminal are as follows:

RAZ55	<b>Cable tension during operation</b>	<b>Cable tension outside operation</b>
	55 kN	55 kN

### Sheave trains

The terminal accepts sheave trains with 2 or 4 sheaves (support or compression).





## Line elements

### Line towers

#### User safety and comfort

The use of inclined towers increases the clearance on the side in use. This device provides a comfortable and safe track width for users.

#### Easy access for maintenance personnel

For easy access, the ladder has the same inclination angle as the tower.

### Sheave train combinations

The towers accept the following sheave trains:

- **support 2S; 4S; 6S; 8S**
- **support/compression 2S/2C**
- **compression 2C; 4C; 6C; 8C**

### Walkways

The support/compression towers are equipped with regulatory cross arm walkways.

## Sheave trains

### Introduction

#### Simple maintenance

Line and terminal sheave trains are identical.

They are fitted on saddles and integrate a cable-retaining device and a derailment detector.

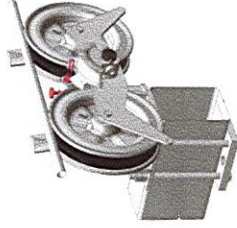
Sheave trains are equipped with 280 mm-sheaves.

They have sealed-lubrication bearings.

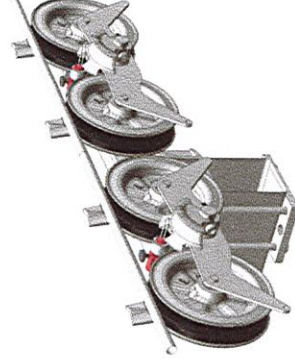
Lubrication is only applicable to the main axle.

### Sheave trains support

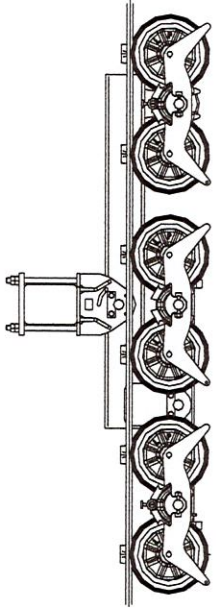
The support sheave trains can be equipped with 2, 4, 6, or 8 sheaves.



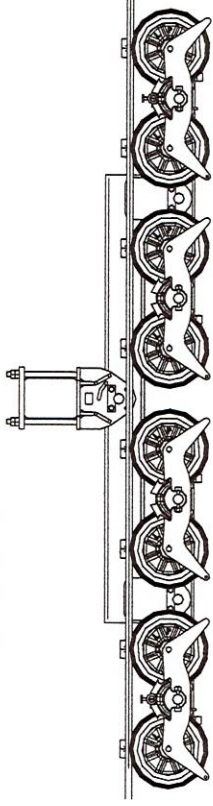
*The 2S sheave train*



*The 4S sheave train*



*The 6S sheave train*

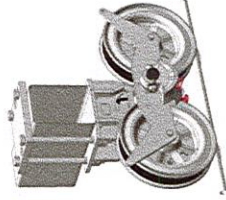


*The 8S sheave train*

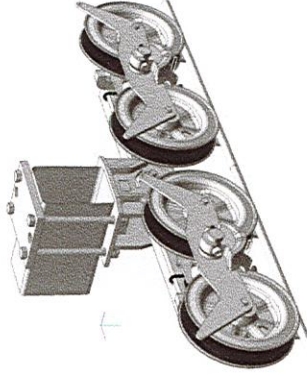
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### **Compression sheave trains**

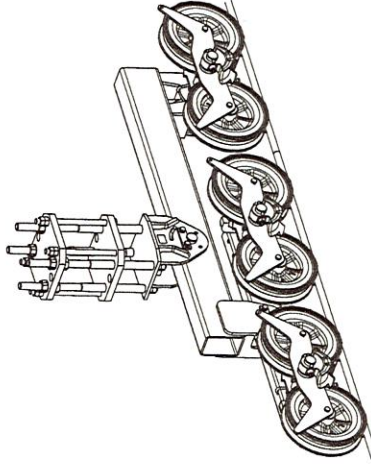
The compression sheave trains can be equipped with 2, 4, 6, or 8 sheaves.



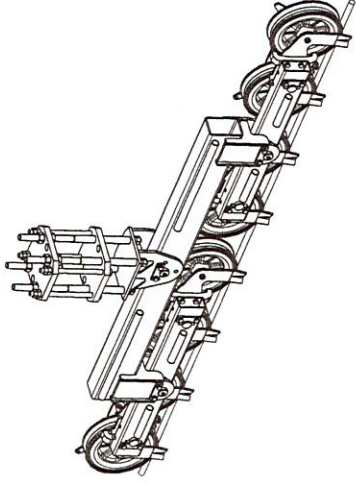
*The 2C sheave train*



*The 4C sheave train*



*The 6C sheave train*

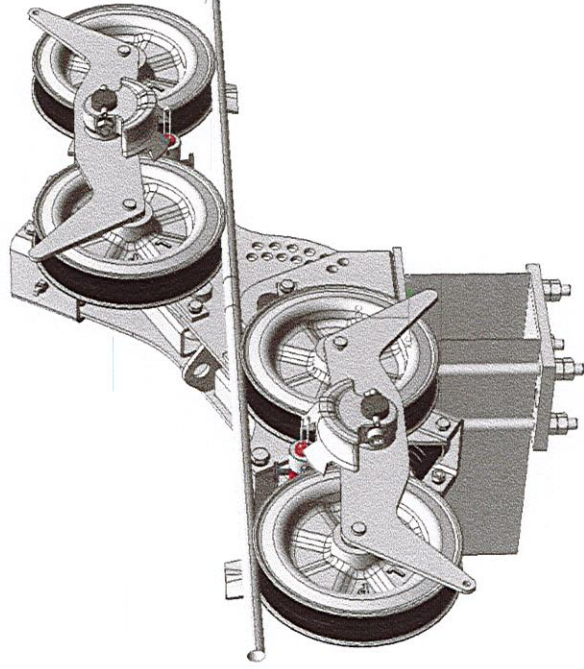


*The 8C sheave train*

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**Sheave trains  
support /  
compression**

The **support/compression** sheave trains are made up of 2 support sheaves  
The **support/compression** sheave trains are made up of 2 support  
sheaves and 2 compression sheaves.



*The 2S/2C support/compression sheave train*

## The grip/tow hanger assembly

### Grips

#### Simple to control

The clamping force is achieved using a calibrated spring.

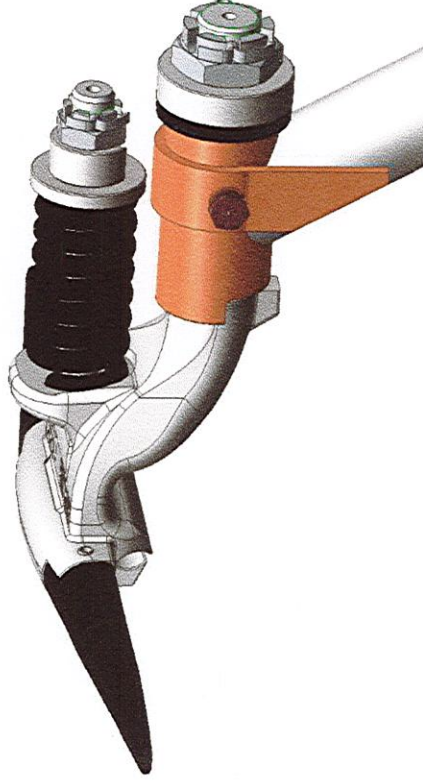
This system makes it possible to detect failures through a simple visual inspection.

The ski-tow's grip can assembly be used on cable diameters ranging from D=12 mm and D=22 mm.

#### Simple maintenance

Using a calibrated spring system means that the grip can be moved simply by compressing it.

The operation is made easier by using the grip assembly uncoupling device (delivered with the lift).



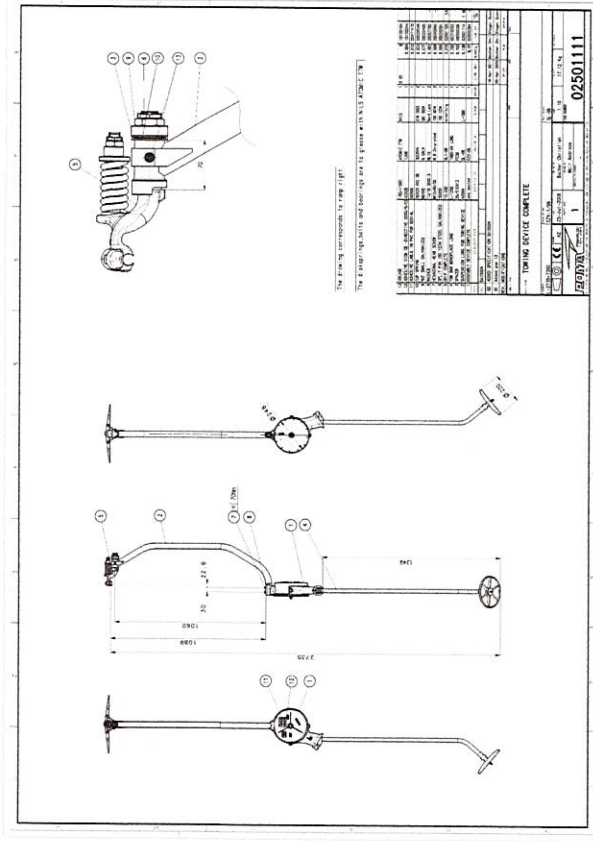
*The grip assembly*

## The grip/tow hanger assembly (cont.)

### The simple plate spring box seats

#### Enhanced skier comfort

The approved simple plate spring box seat model is shown below:



### The simple plate spring box seat tow hanger assembly

#### The spring box

The tow hanger is made up of a Spring Box.

#### Simple mechanism

The pole's spring action is slowed down by a spring system and weighted components.

The rope is 6.5 m long



The spring box

## The grip/tow hanger assembly (cont.)

### Tool for moving grips

#### Simple maintenance

Moving the grip assembly is made easier thanks to an adapted hydraulic tool.

The grip assembly design means the grips can slide without being opened.



*Tool for moving grips*



## Leitner-Poma Service and Responsibilities:

### **Leitner-Poma's Price includes the following:**

1. Accurate initial ground survey profile of the lift line (if necessary).
2. All necessary technical information about the lift for permit applications.
3. Complete engineering study of the lift.
4. All mechanical subassembly and assembly drawings and all electrical schematics necessary for installation and maintenance.
5. Design engineering certificate to meet ANSI B77 2011
6. Two operation and maintenance manuals.
7. Construction insurance for the work.
8. Lay out and staking of the terminal and tower foundations holes.
9. Excavation and backfill to rough grade by excavator on all terminal foundations holes.
10. Excavation and backfill to rough grade by excavator or by hand if required on all line towers foundations.
11. Installation of anchor bolts and reinforcing steel.
12. Installation and supply of concrete for both terminals and the line tower foundations by land, if by helicopter is necessary it would be an extra cost to the customer.
13. Factory preassembly, pre-wiring and adjustments of drive, and tension systems.
14. Installation of top and bottom terminals by crane.
15. Installation of line towers by crane, if by helicopter is necessary it would be an extra cost to the customer.
16. Installation and splicing of haul rope including supply of splicer.
17. Installation of communications line.
18. Installation and supply of electrical wiring and conduits from customer supplied main disconnect breakers to the drive terminal, return terminal and operator houses.
19. Installation of carriers.
20. As-Built survey of the lift.
21. Construction engineering certification.
22. Adjustment and start-up of the lift.
23. Acceptance test supervision.
24. Onsite technical assistance for 7 days after the load test, lodging supplied by the customer.
25. All submission documents.
26. First year inspection of the complete installation.



### Purchaser Service and Responsibilities:

The following conditions and services are supplied by the Purchaser. All the following conditions and services are excluded from the Leitner-Poma supplies and Contract Price.

1. Preliminary clearing of the lift line to allow accurate ground survey profile before July 1, 2016
2. Soil engineering if necessary and additional construction costs if any soil pressure is less than 4000PSI (109kPa)
3. Drainage where necessary.
4. Removal of existing structure, if any before, July 1, 2016.
5. Final clearing of the lift line as required by code before final tower staking.
6. Grading of the lift terminals areas as required by Design (especially; maze, loading and unloading ramps.) Ramps areas must be completed 30 days prior to acceptance test and provisions made for muddy areas.
7. Sediment fencing for excavations.
8. **Purchaser supplied lift houses:** Supply and install the necessary 480 VAC 3 phase and 240/120 VAC single phase circuit breakers that are required to power the Lift. Provide all electrical permits and qualified personnel to install this equipment, as required by governing jurisdiction including all special inspections costs such ground fault testing for the equipment..
9. Lift houses must be completed 30 days before load test.
10. Main power (480 VAC) with main transformer at drive and return operator house for final adjustments prior to Acceptance Test.
11. Eight laborers to work with the splicer.
12. Ballast, labor for the load test, and adequate electric power when required.
13. Base parking lot and access for material storage and lift construction staging and assembly, access to all towers, drive and return stations.
14. Any fire protection required by appropriated regulatory agencies.
15. Obtaining of all construction permits and approvals in connection with the Lift and the work.
16. All Authority having jurisdiction initial fees to be paid Purchaser.
17. Adequate land access to drive and return terminals from July 1, 2016.
18. Re-landscaping and re-vegetation.





Spring-Box Ski-Tow  
Burke T Bar

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Date: 06/10/2016

## Warranty

### Description

The equipments and spare parts provided by POMA hereunder are **guaranteed for a period of two (2) years** from commissioning.

In addition to this one-year period:

- **The POMA gearbox is guaranteed for 5000 hours of operation (with a maximum of 5 years from ex-works delivery), except seals which are covered by a two-year guarantee.**
- **The main cable is guaranteed for 3000 hours of operation with a maximum of 3 years from ex-works delivery.**

This guarantee is limited to the replacement or reconditioning in POMA workshop of the defective parts.

This guarantee will become null and void and POMA will be discharged from all liability:

If one of the following conditions occurs	Then
Parts have been replaced with parts from an origin other than POMA	this guarantee will become null and void and POMA will be discharged from all liability
Lift has been transformed or modified in any manner whatsoever without POMA prior written agreement	
Lift or parts thereof have been damaged due to negligence, incorrect or inappropriate use or overloading, even momentary, or due to the operator's lack of experience	
Operation and inspection logbooks are not kept up-to-date	
Damage is due to natural causes, including without limitation, avalanches, landslides or subsidence, and excessive accumulation of snow ice, earthquakes or tornadoes	
Loading tests are done more than 6 months after ex-works delivery	