



# Städeli T-Bars Chair-Lifts

High  
capacity

comfort

safety

quality

We trust that the contents  
of this brochure will assist  
in the planning of your  
lift installation.

*Städeli*

## Introduction

The proper selection of lift equipment will determine to a great extent the degree of efficiency and success that the complete installation will possess. Careful and objective review of lift equipment, lift location and overall planning should be made before lift lines are cleared or types or makes of lifts are decided upon. Too often one is impressed and convinced only by data concerning maximum lift performance or special equipment.

What type of lift should you select? What important features should be considered? What hourly capacity and speed is required? These factors can make all the difference between an economical and profitable installation or one that might be a headache for years to come.

This brochure describes the different types and models of lifts manufactured by Städeli. It is sincerely hoped that these contents will assist you in making a selection of the proper equipment that is more profitable to you. There are certain conditions where one particular type and configuration of lift will best serve your specific requirements.

Our firm has years of experience in both Europe and North America devoted solely to uphill passenger transportation. We are proud of our reputation for Swiss quality and reliability combined with the appreciation of the American requirements for prompt delivery and efficient service. Our engineering staff is constantly developing new and better features to give you the best quality and optimum performance for your investment. It is well to remember that the least expensive lift may well prove to be the least profitable lift to own and operate.



Lattice tower in the high alpine scene at Flims



### Principal considerations in selecting lift equipment

Safety and Dependability  
Capacity and Performance  
Functional Design and Solid Construction  
Economic First Cost and Economic Operation  
Prompt Delivery and Efficient Service

Städli Lifts offer you maximum safety, quality and performance— all at a reasonable cost!

Some important questions to be considered for initial planning:

- What is the elevation of the base terminal?
- What is the maximum and minimum snow depth?
- What means of access is there to the area?
- What are the Climatic conditions?
- What type of electric power is available?

### What does Städli do for you?

Städli assists you in selecting the proper equipment and helps you to determine the best locations of the lift terminals. Städli furnishes you complete plans for the erection of the equipment. Städli works out an erection schedule with you. Städli furnishes you a factory trained construction supervisor to supervise and assist you in the erection of the lift.

View of the loading area





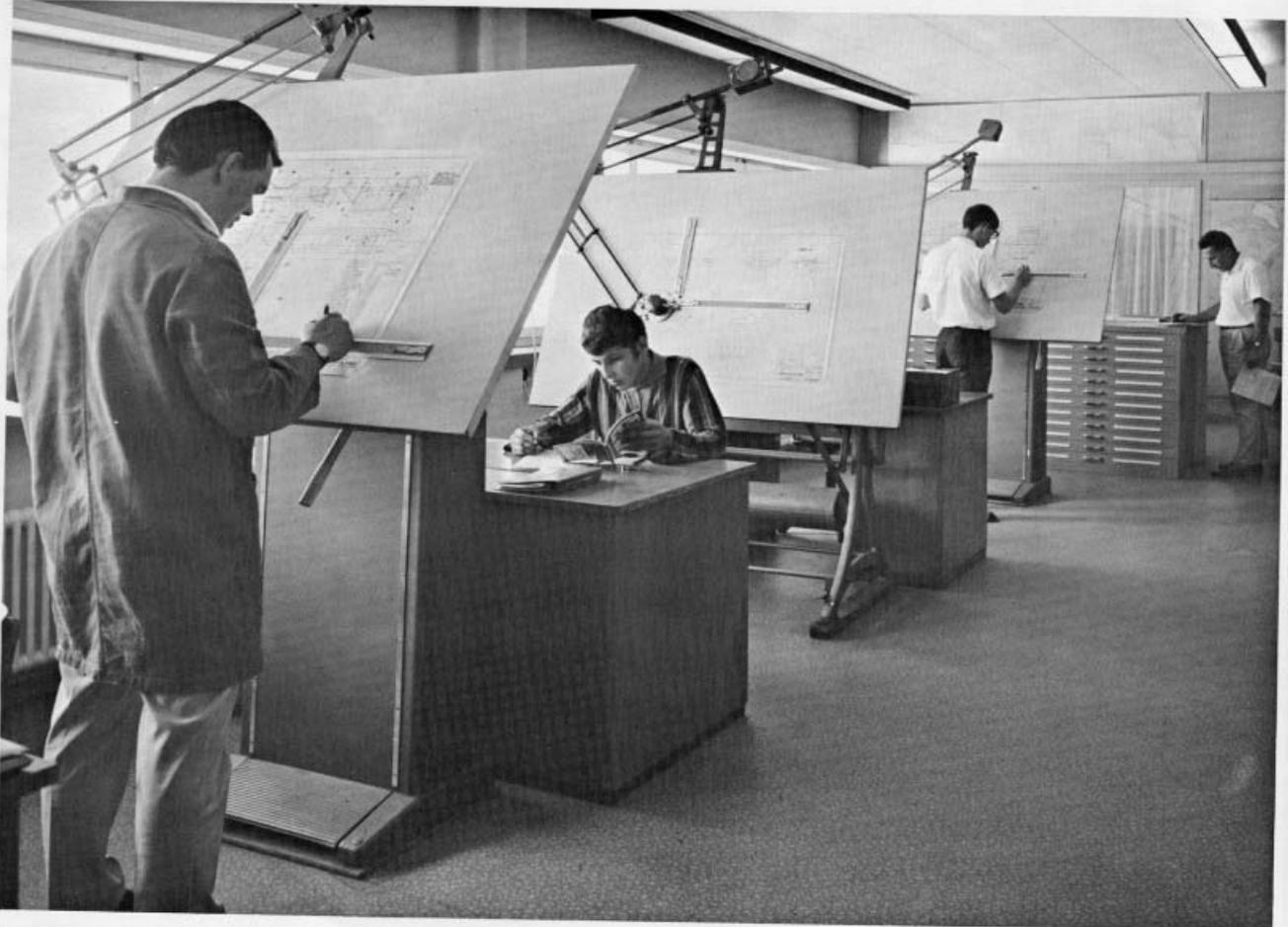
**Design and construction of lifts –  
A job for the specialist**

**What Städeli can do for you:**

The many technical and erection problems involved in the construction of a lift requires specialized knowledge gained from long experience in this unique field. Städeli offers you their outstanding experience in this field. Our engineering department will supply you with complete detailed plans for your project. Our skilled and experienced staff of specialists guarantees a first-class lift. Our factory-trained erection supervisors assure the proper installation of the equipment.

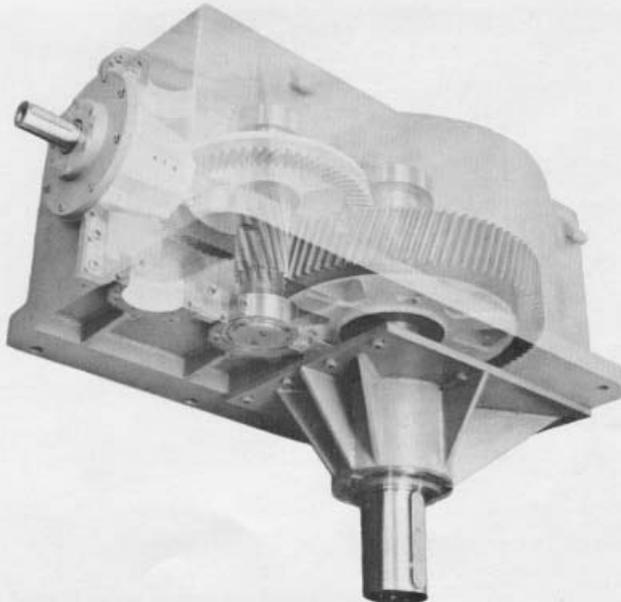
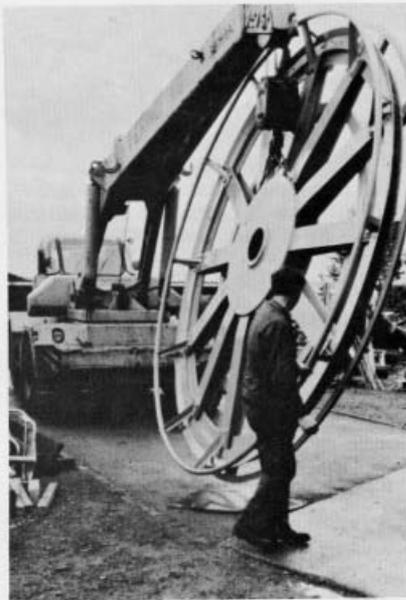
1. Review your project with respect to your ultimate requirements and erection methods.
2. Recommend and estimate proposed lifts.
3. Design and manufacture the equipment.
4. Supervise the installation of the equipment.
5. Provide annual inspection and servicing of the equipment.

View of the technical offices at Oetwil



Städli designs and manufactures  
Baby T-Bars — Trainer T-Bars —  
T-Bars — Double chair lifts

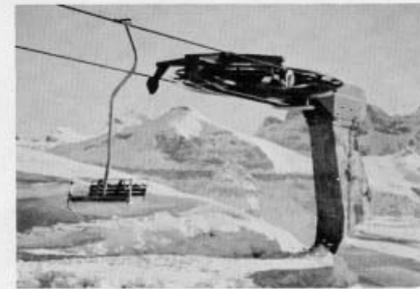
- Type SKI-PONY    Small lift for beginners and children.
- Type ST-12        Baby Trainer — especially for ski school slopes.
- Type ST-16        Light Trainer T-Bar
- Type ST-30        Trainer T-Bar — with 30 HP — capacities up to 800 skiers per hour.



- Type US-120      T-Bars — with 50 to 250 HP
- US-160            up to 1440 skiers per hour.
- US-220            Double Chair-Lift — with 50 to 250 HP up to 1200 skiers per hour.



- Type ST-50        Trainer T-Bar, High capacity — with 50 HP — up to 1200 skiers per hour.
- Type US-70        T-Bars — with 70 to 100 HP
- US-100            up to 1200 skiers per hour.





## Technical Data

### General arrangement

Städeli can furnish a wide variety of terminal arrangements. The tensioning provisions can be combined with the drive in a single station, thus keeping the majority of the terminal equipment requiring servicing and inspection at one single place. This combined station may be located at either the base or upper terminal, as specific conditions dictate. Städeli can also supply separate tensioning and drive stations, so that each may be located at opposite ends of the lift if conditions at the lift site make such an arrangement more desirable.

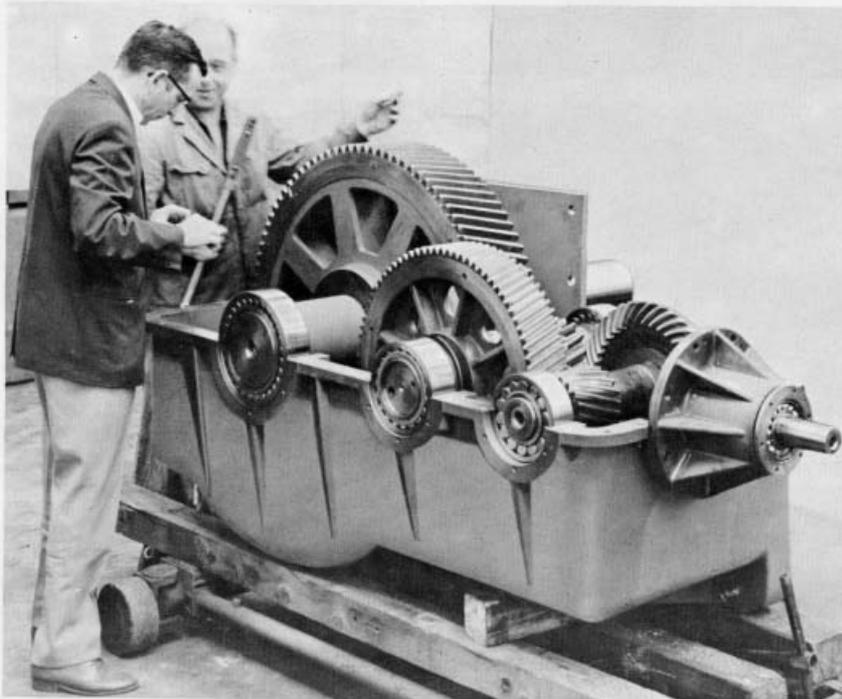
Frequently space is severely limited at one of the proposed terminals. Städeli designs have taken such conditions into account and have standard designs to meet these requirements.

### Lift-Power

The power supply for the lift can be either an electric motor or an internal combustion engine. Preference is usually given to electric power when obtainable at a reasonable cost. However, all lifts may be powered by

either gasoline or diesel engines. For small power requirements the gasoline engine is usually preferred over the diesel engine. At higher power requirements, the diesel engine gains favor. When an internal combustion engine is used, torque converters are desirable for higher horsepowers to assure smooth starts and eliminate costly clutch wear.

Chair lifts are provided with a second power source. This permits the safe and rapid unloading of a lift in the event of primary power failure. The second power source is normally an internal combustion engine;



Very large gear reducer weighing about 6 tons

### Drive arrangement

Two general drive arrangements are available from Städeli. In the first type, the drive is mounted overhead on a steel framework. This arrangement leaves the area below the drive sheave clear and unobstructed. In off seasons, this space can become valuable storage or work space.

The second type of drive features a pedestal arrangement where a steel framework ex-

tends upwards from floor level. This framework supports the drive components and the drive sheave is located atop this pedestal.

When the drive is combined with the tensioning mechanism, either drive arrangement is mounted movable on rails. In the overhead arrangement, these rails are attached to the side walls of the terminal. With the pedestal arrangement, rails are set into the concrete foundation of the terminal.

Since the lift drive is indeed the "heart" of the lift, it is recommended that this terminal be protected from the weather with a simple building, or at least a roof. Städeli will assist you in the planning of such a building by offering sketches and photographs of different architectural arrangements of such enclosures.

## Drive components

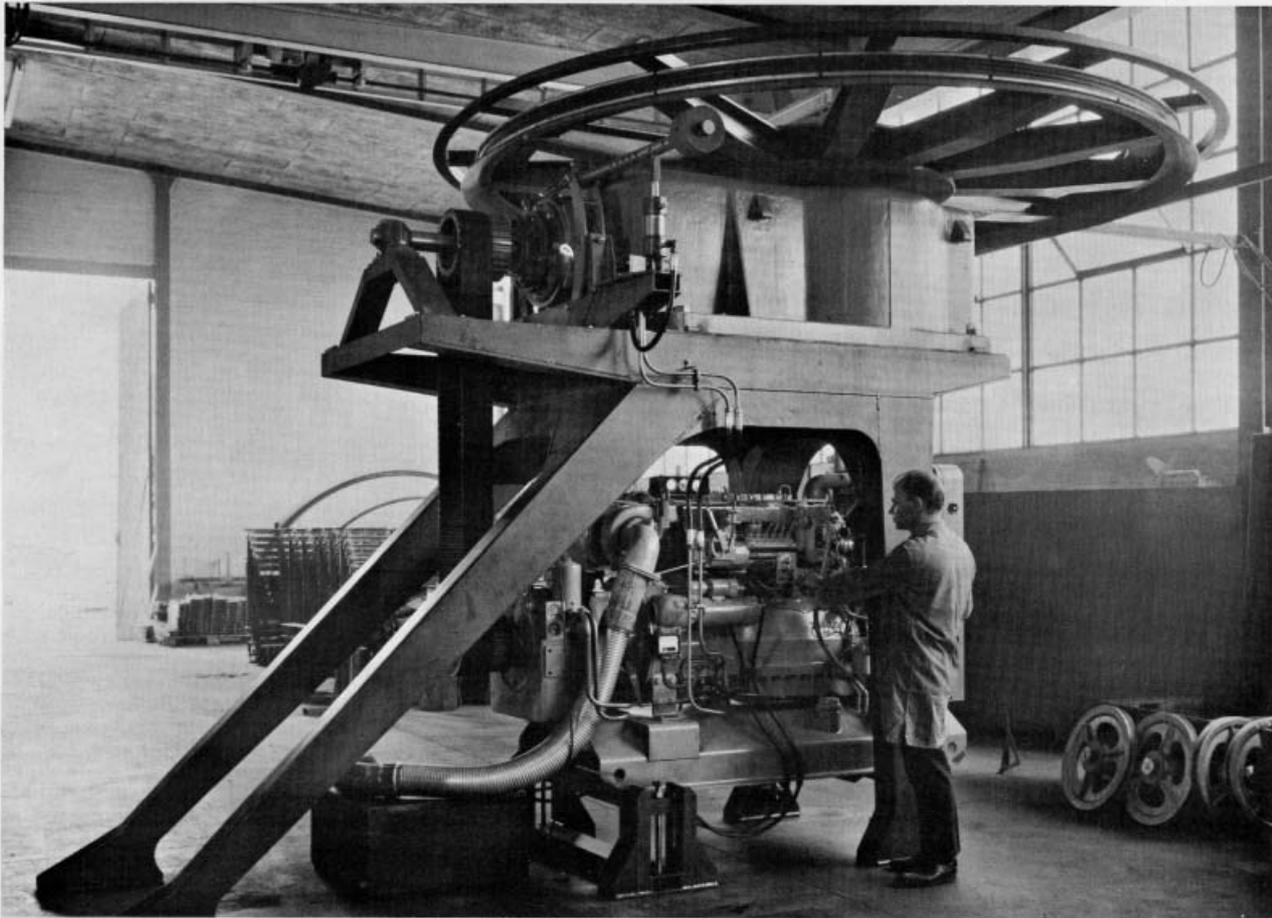
Städli features a fully enclosed speed reducer. Many other lift systems still use the exposed pinion and ring gear and offer an enclosed speed reducer only at considerable extra cost. When you purchase a Städli lift you do not get loud gearpinion noise. You do not get frequent gear-pinion alignment problems, or chairs or T-Bars coated with gear lubricant. You do get a fully enclosed final reduction unit as standard equipment. You do get gears that are correctly aligned for life. You do get gears that are polished and hardened for smooth, efficient, live-long operation. The drive sheave mounts directly to the vertical output shaft of the

reducer. The reduction gears operate in an oil-bath of such capacity that oil changes are necessary only once a year. The Städli arrangement gives a drive system that cannot be surpassed for neatness, compactness or efficiency.

For certain conditions, lifts with intermediate speeds are desirable. Städli offers two standard arrangements to give you intermediate speeds. A wound rotor electric motor with speed control resistances is offered. This system offers reasonable speed control for uphill operations. When operating at reduced speeds, there does occur some speed variation with load. However, for

summer chair lift operation with down hill loads this system fails to provide the required dynamic braking at the lower speeds required for successful summer operation. This characteristic is inherent in all wound rotor motor drives. For such conditions Städli offers a multispeed mechanic transmission coupled to the final speed reducer. The desired lift speed can be set on the transmission and the lift will not operate above this pre-set speed. Dynamic braking is assured. Either or both of these systems may be incorporated into your lift design to meet your specific requirements.

Pedestal type drive with diesel engine





## Electrical controls

When purchasing a lift the details of the electrical equipment is often given little consideration. Then as installation of the lift progresses, the purchaser discovers that he must locate switches, indicator lights and controls all around the control room. Frequently he must purchase a large amount of wiring, conduit and electrical components and fixtures. The cost of these electrical parts and the installation costs are considerable.

Städli saves you this complicated job by furnishing a complete control panel at no extra cost. All switches, indicators and controls are built in and pre-wired. Installation requires only connections between the drive and the control panel.

## Counterweight

All lifts must have a method of maintaining the correct tension on the haul rope. Usually this tension is maintained by a counterweight system. However, counterweight systems differ widely in design and arrangement. Often the system offers limited counterweight movements and frequent adjustment of the counterweight requires extensive rigging and many man hours of labour. Occasionally the haul rope must be re-spliced to provide additional travel!

Städli offers a counterweight system that can be adjusted by one man with no tools! A permanent winch is built in the counterweight system. The counterweight rope operates over large diameter sheaves equipped with anti-friction bearings. In most installations this system is located in the drive terminal, so that nearly all terminal maintenance work is centralized at the most convenient location.

## Line structures

Line structures usually are furnished in one of two types. One form of line tower is built of steel angles and is known generally as a lattice type of tower. The second form of tower is built of single steel tubular members and is known as a tubular tower. The general configuration of either type may be as a single structure with the haul rope located on either side of the tower. This is a "T" tower. The configuration may be in the shape of an inverted "U" with the haul rope located between the legs of the inverted U. This is a portal tower.



High-capacity chairlift at Waterville Valley

What type and configuration is best for you? With Städli your specific arrangement and taste alone determines this. Städli furnishes both types and both configurations. Your specific requirements may be fully discussed with a Städli representative knowing that the decision is not to be based on the limited availability of a single type and configuration.

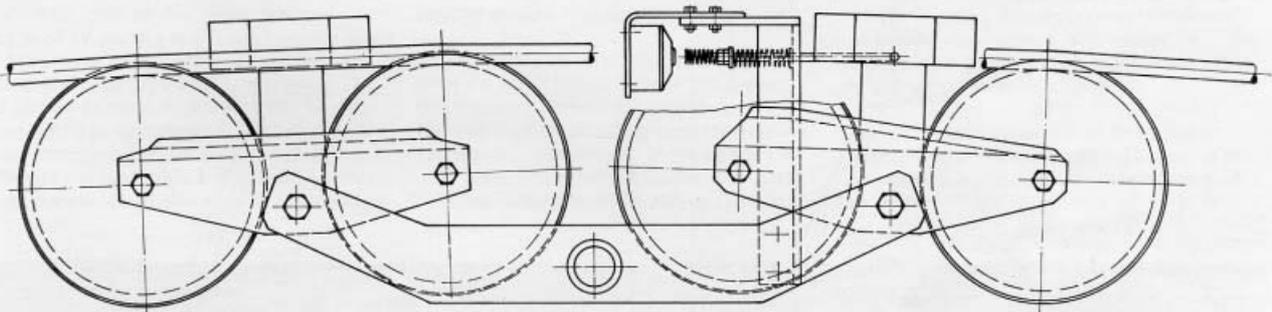
Städli features an extremely wide gage for chair lifts. This important feature does not become apparent until a lift is put into operation. With the large clearance between chairs and towers, Städli Chair Lifts can operate under wind conditions that cause other chair lifts to shut down. With the Städli design, where the line sheaves, the rope grips, the chair hangers, and the wide gage are all correctly designed, a swinging chair passes towers safely. Other types may require guards at the towers and extreme swinging may result in a collision between the chair hanger and these guards.

## Line sheaves

The smooth ride enjoyed on a Städeli Lift is due in a great part to the design of the Städeli line sheaves. While many Types of lifts use only 2, 4 or 6 line sheaves per tower, Städeli lifts employ up to 12 line sheaves per tower. Rather than distribute a break-over angle between only 4 sheaves, for example, Städeli may employ 8 sheaves, thus reducing the breakover per sheave to half the angle as found in the 4 sheave type!

These sheaves are built with replaceable rubber liners and run on ball bearings. Each sheave is individually articulated on double frame rocker arms which support the sheave on both sides. All rocker arm pivots are equipped with non-ferrous bushings.

The line sheave rocker arms are designed to catch the haul rope in the unlikely event at a derailment towards the outside. Each unit is provided with an inner guard to prevent derailments towards the inside. In addition, each unit comes equipped with a derailment switch which automatically stops the lift in the event of a derailment. Städeli furnishes, as standard equipment on chair lifts, an indicator which tells the operator the location at the derailment!



## Haul rope

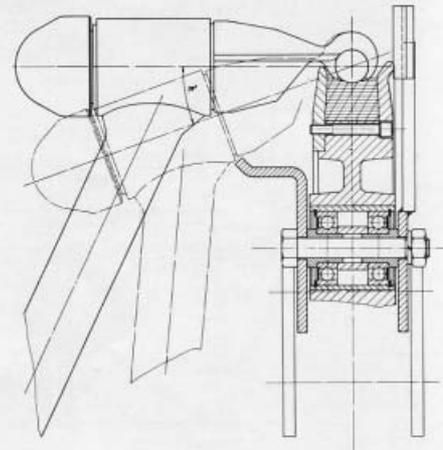
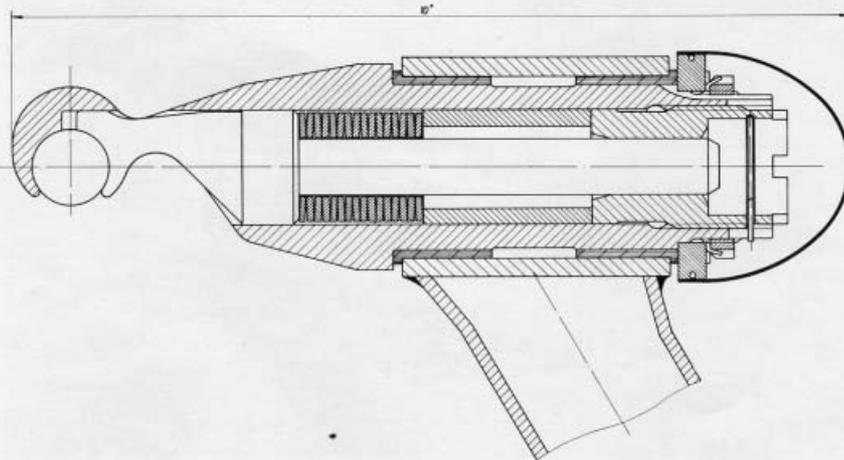
All ropes used for Städeli lifts are of the highest quality and especially processed for lift usage. The wires are preformed into the shape that they will occupy in the finished rope. This performing process reduces undesirable twisting effects which can cause excessive liner wear and makes splicing more difficult. The haul rope will have a strength of at least five times the greatest load that can ever be imposed on the rope during normal operation.

## Rope grip

One of the most important parts of a lift is the rope grip (Sometimes called "cable clamp"). In cooperation with the Swiss Tramway Board, Städeli has designed a rope grip that offers the maximum of safety. The Städeli rope grip is made of high quality, drop forged steel. The shape of this grip is such that passes around terminal sheaves and over and under line sheaves with only a minimum of wear for cable and liners. Constant grip pressure is maintained by

means of a built-in spring-cylinder. Proper grip pressure is maintained under conditions of reducing haul rope diameter due to stretching or variations in tension.

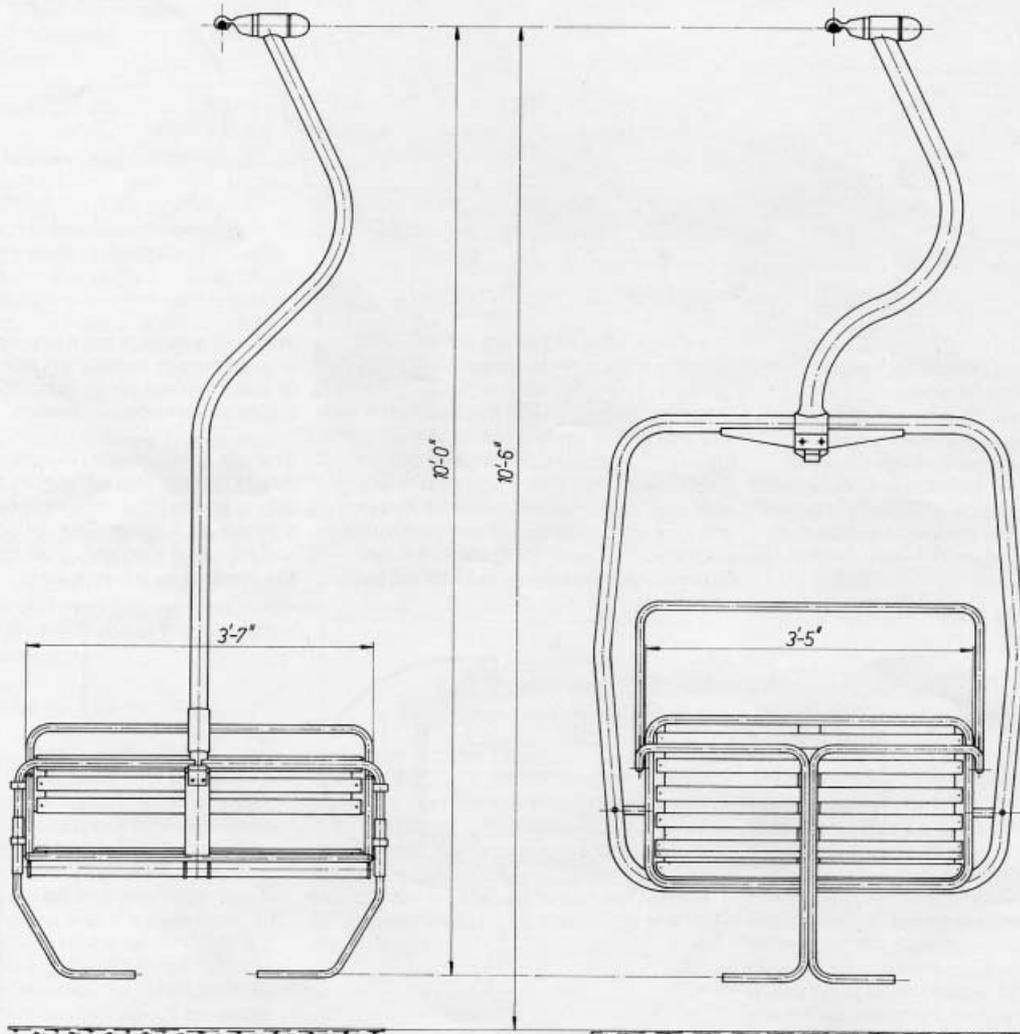
The grip is adjusted by means of a spanner nut. It can be released, moved to a new location on the haul rope and readjusted in a matter of minutes. The spring-cylinder and adjusting mechanism are protected from the weather by a plastic cap.





## Double chair

Two types of chairs are found on double chair lifts. These are known as the "Center Post Chair" and the "Bail Chair". Which do you prefer? It makes no difference — Städeli can furnish either! Both types are of tubular construction and can be furnished hot dipped galvanized or painted. The seats and backrests are provided with hardwood slats which are treated and varnished for exterior use. Both types of chairs can be provided with safety bars and footrests.



## T-Bar towing outfits

Städli offers two sizes of spring box type of towing outfits. The length and capacity requirements of a specific installation determine which spring box should be furnished.

The modern high-capacity T-Bar lift requires towing outfits that can handle up to 1440 skiers per hour. A smooth, gradual acceleration is essential. The Städli spring box towing outfit provides this smooth, gradual acceleration.

During the past several years, the spring box type of towing outfit has become more and more popular in comparison to the telescopic tube type of towing outfit. The far greater extension of the spring box towing outfit as compared to the telescopic tube, permits a greater variation in distance between the haul rope and ground contour. The importance of this feature is threefold:

- 1) Fewer line towers are required.
- 2) Greater variation in snow depth may be attained.
- 3) Better loads on sheave units may be attained.

The high retracted position of the T-Bars permits unloading to either side of the lift without danger of a skier being struck by a returning T-Bar. This also permits simpler lift line maintenance since snow vehicles can be driven up and down the lift line.

### Safety codes and safety equipment

Städli lifts were first built to conform with the strict regulations of the Swiss Government. Städli lifts are built to conform to applicable safety codes governing the specific installation. Some of the specific codes under which Städli has installed lifts in North America are as follows:

USA Standard Safety Code for Aerial Passenger Tramways (B.77.1)(Including U.S. Forest Service Supplements)  
Maine Tramway Safety Code  
New Hampshire Safety Code  
New York State Industrial Code 32.

Städli believes that every lift designed and constructed should have utmost consideration given to the safety of the passengers and to protect the passengers and equipment from human and mechanical failures. To simply install a device to meet the intent of a code requirement is not sufficient. The device must be of proven reliability so that it will function in an emergency.

An unreliable device can at times prove worse than no device at all — it can lull an operator or attendant into a false sense of security.

Modern span-station on top under deep snow



## Safety equipment

In addition to the previously described line sheave safety equipment, the Stedeli Chair Lift has the following:

### 1. Emergency brake

This brake has two large shoes, similar to the type found in automobiles, which act on a brake drum attached to the drive sheave. The brake is spring powered and is actuated by three separate methods:

- a) Manual rotation of a brake wheel.
- b) Pulling an emergency trip handle.
- c) Automatically, should the lift speed exceed 15% of the rated speed.

### 2. Backstop

This unit is located directly on the terminal sheave, and prevents reverse rotation of the lift.

### 3. Automatic Brake

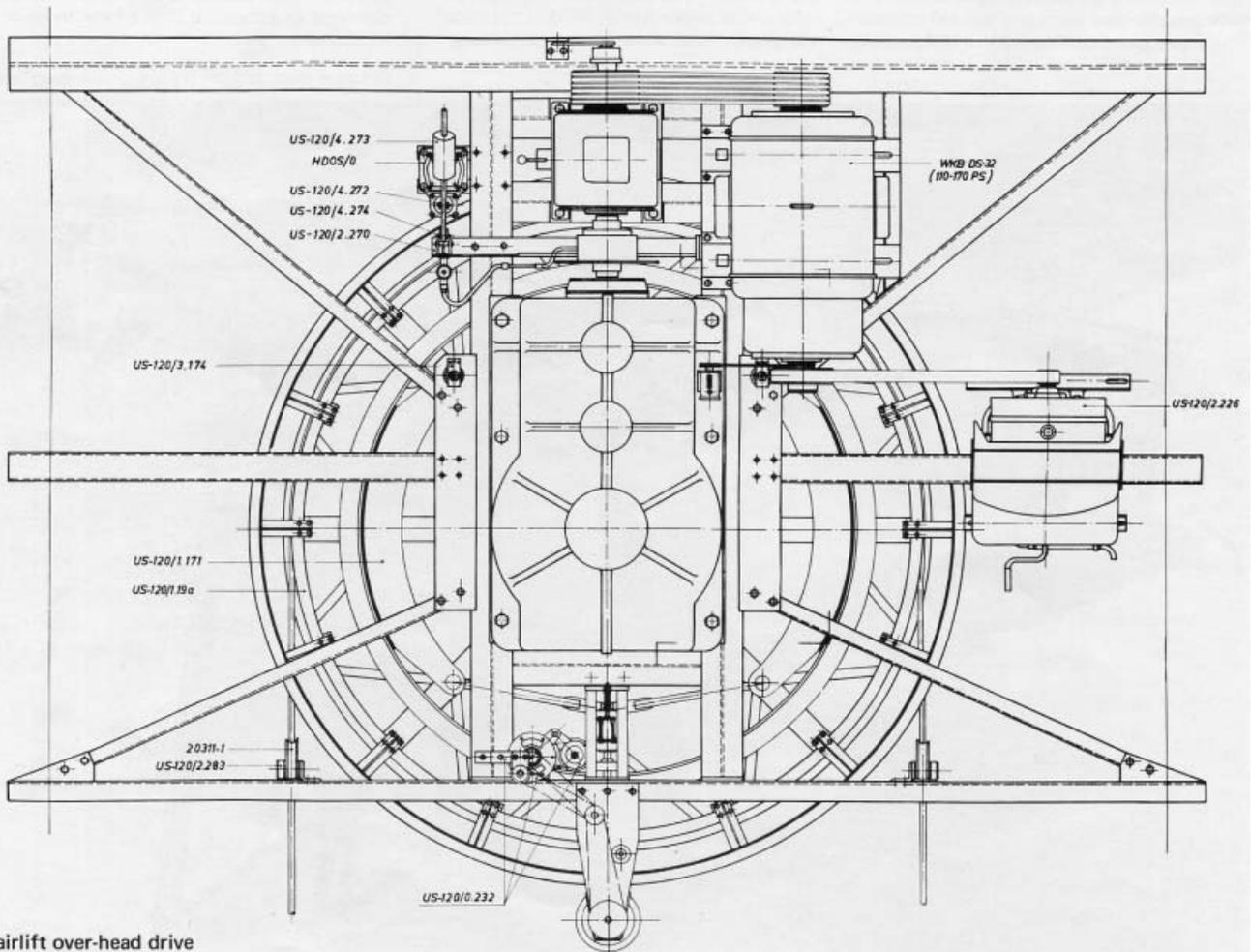
This motor brake is of the electric-hydraulic thruster type and is the normal operating brake. It is of "failsafe" design and is applied each time power is cut-off from the drive. It is adjustable in speed of application to give smooth, sure stops.

### 4. Overspeed Switch

In addition to the overspeed unit built into the emergency brake, a separate electrical overspeed switch is provided. This

switch applies the automatic brake and cuts all power to the drive when the lift speed exceeds 10% of the design speed. When the multi-speed mechanical transmission is incorporated in the drive system for summer operation, this overspeed device functions at 10% over each of the design speeds. Thus, should summer speed be 250 feet per minute, this device comes into action at 275 feet per minute. Other types usually fail to operate until speeds in excess of 500 feet per minute are attained.

### 5. Conventional Electrical Protective Devices for Drive Equipment.



Chairlift over-head drive



## Warranty

Städli guarantees each lift and its components, when correctly operated and maintained, to be free from defects in design, workmanship, or materials for a period of one year.

## Service

Städli Lifts are noted for low maintenance costs. Experience and research has enabled Städli to redesign and improve parts subject to wear by the use of improved materials and design. After years of operation, parts such as liners, grips, bearings, etc. show little wear. Few replacement parts are necessary.

A large stock of spare parts is maintained in the United States. In the event of an unforeseen emergency, delivery from the factory in Switzerland to the East Coast of the United States can be made in 24 hours. The factory is within 20 miles of the Zurich airport, where daily air freight flights depart to the United States.

## Confidence

Städli has attempted to describe the features of their lifts to you. Please consider each feature and advantage of the Städli lift and compare them with other types. Let us answer any additional questions you may have. We are confident that we have the best lift for you. May we have your confidence?

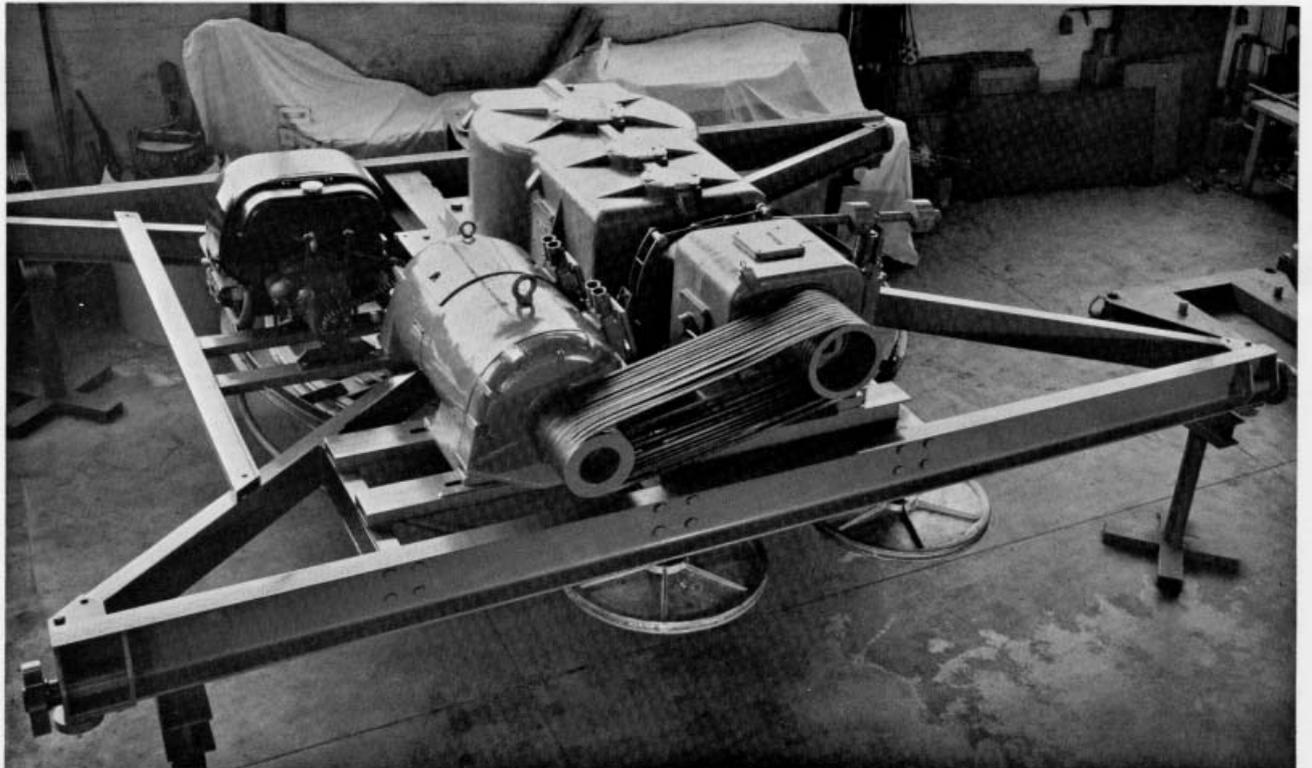
Lift parts ready for shipment at Oetwil



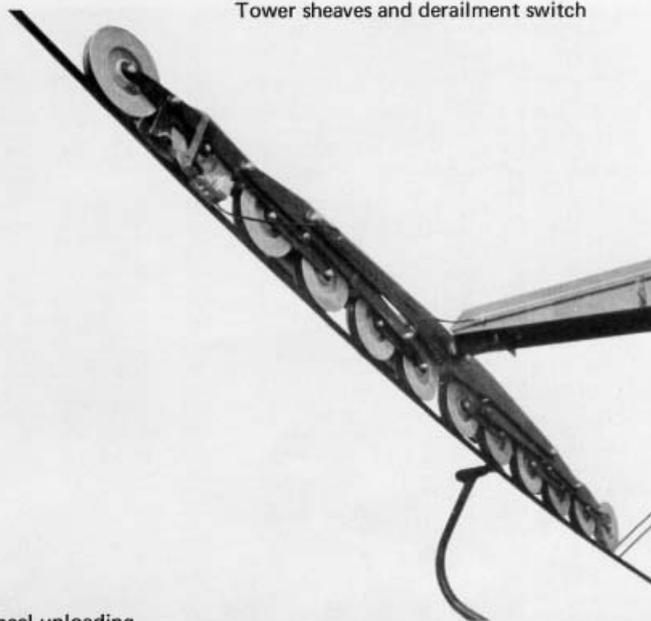
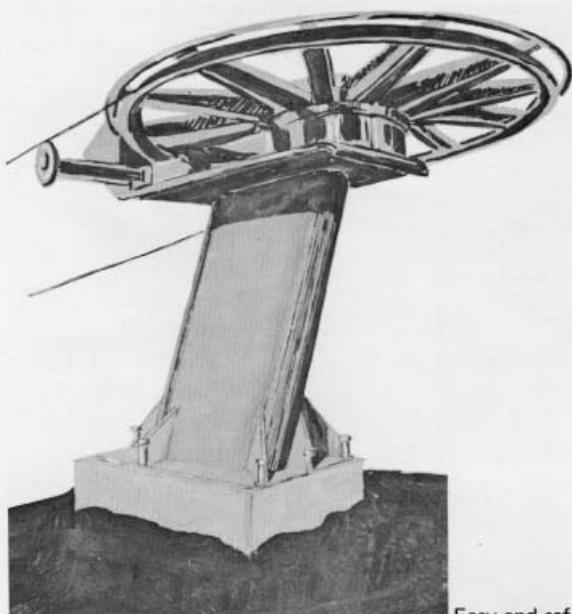


Top station with unloading

Over-head type drive after test run



Tower sheaves and derailment switch



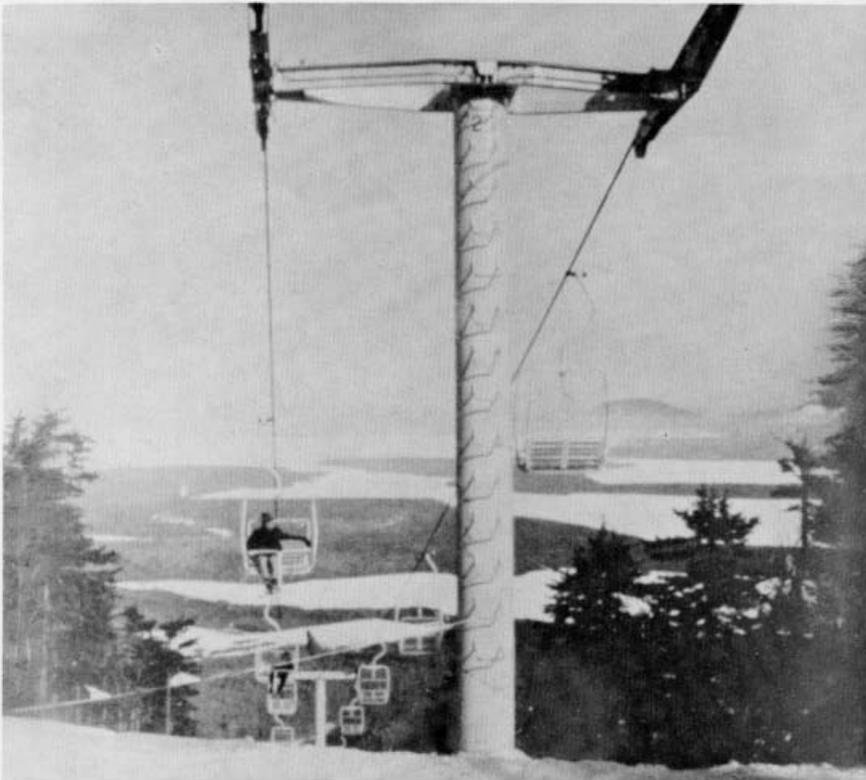
Easy and safe bullwheel unloading





Very comfortable bail type chair lift ▶

Final adjustment of a tubular tower



Part of the lift line  
at Squaw Mountain Ski Area





Aerial transport of lattice tower

Mr. W. Städeli (right)  
organizing the air transport





Check-List – Lift Comparison

Features	STAEDELI	A	B
Enclosed gear box	yes		
Shift gear	yes		
Continous electric variable speed control	if specified		
Rope Retainers on Bullwheels, wheelretainers	yes		
Overhead-Drive or pedestal-type-drive	as specified		
Speed governor for diesel or gasoline engine	if specified		
Remote control	yes		
Thrustor brake	yes		
Emergency brake	yes		
Back stop	yes		
Two way communication system in ground or above towers	as specified		
Derailment switches on each sheave unit	yes		
Rescue device	yes		
Derailment channels outside and rope retainers inside on all sheave units	yes		
Tubular Towers or in lattice design, painted or galvanized	yes		
All sheaves between two arms	yes		
Centerpost or Bailtype-Chair	as specified		
Safety gates with or without footrests	as specified		
Drop forged ropeclamps with plate springs, easy to move	yes		
Spanstation block and tackle system, with winch for regulation	yes		
Concrete-Console or 3-leg-ironframe for bullwheel in upper terminal	as specified		
Top Tension Terminal	if ordered		
Guide sheaves on both sides of bullwheels	yes		



Please fill out and return to:

1. Type of Lift desired: T-Bar \_\_\_\_\_ Chair Lift \_\_\_\_\_
2. Location of proposed Lift \_\_\_\_\_
3. Do you have a surveyed profile? \_\_\_\_\_ Scale \_\_\_\_\_
4. What uphill capacity is required? \_\_\_\_\_ p.h. \_\_\_\_\_
5. Winter operation only? \_\_\_\_\_ Summer operation? \_\_\_\_\_
6. What is the required maximum speed? \_\_\_\_\_
7. What is the inclined length of the Lift line? \_\_\_\_\_
8. What is the vertical rise of the Lift? \_\_\_\_\_
9. What space has to be between chair and maximum snow depth? \_\_\_\_\_
10. Maximum and minimum snow depths \_\_\_\_\_
11. Is there electric power available \_\_\_\_\_ in lower/in upper terminal, \_\_\_\_\_ Volt \_\_\_\_\_
12. If electric power is not available, would you prefer gasoline or diesel power? \_\_\_\_\_
13. Do you prefer a "Over-head type drive" or a "Pedestal type drive"? \_\_\_\_\_
14. In the lower or in the upper terminal? \_\_\_\_\_

Signed by \_\_\_\_\_  
Name of Company \_\_\_\_\_  
Adress \_\_\_\_\_  
Telephone \_\_\_\_\_ Date \_\_\_\_\_