



# Needle of the Midday

## FCMD North America Keeps Ski Resort Running Efficiently

Matthew Jaster, Senior Editor

Half a million global visitors visit Aiguille du Midi as an access point for skiing in the winter and hiking, rock climbing and paragliding in the spring, summer, and autumn seasons. The mountain—part of the French Alps—boasts the current title of employing “the world’s highest vertical ascent cable car.” This unique transportation takes passengers from 3,396 to 12,605 ft. above the clouds. The planetary gearboxes needed for the cable car operation are provided by CMD Gears.

The Aiguille du Midi cable car connects the center of Chamonix, France up to the summit. It is a two-stage journey starting at 1,035 m altitude up to 2,317 m at the Plan de l’Aiguille. A second stage, without any support pillars, traverses Les Pelerins glacier before rising the North Face of the Aiguille du Midi at the top station at 3,778 m.

“The ski lift was originally built in the 1950s,” said Clement Ravache, sales engineer, CMD Gears, France. “Then, in the early 1990s as a modernization project, the Mont Blanc Company, responsible for the lift, started working with engineering companies from within the region and thanks to our expertise and long history with reducers, CMD Gears was issued the contract to supply three planetary gearboxes.”

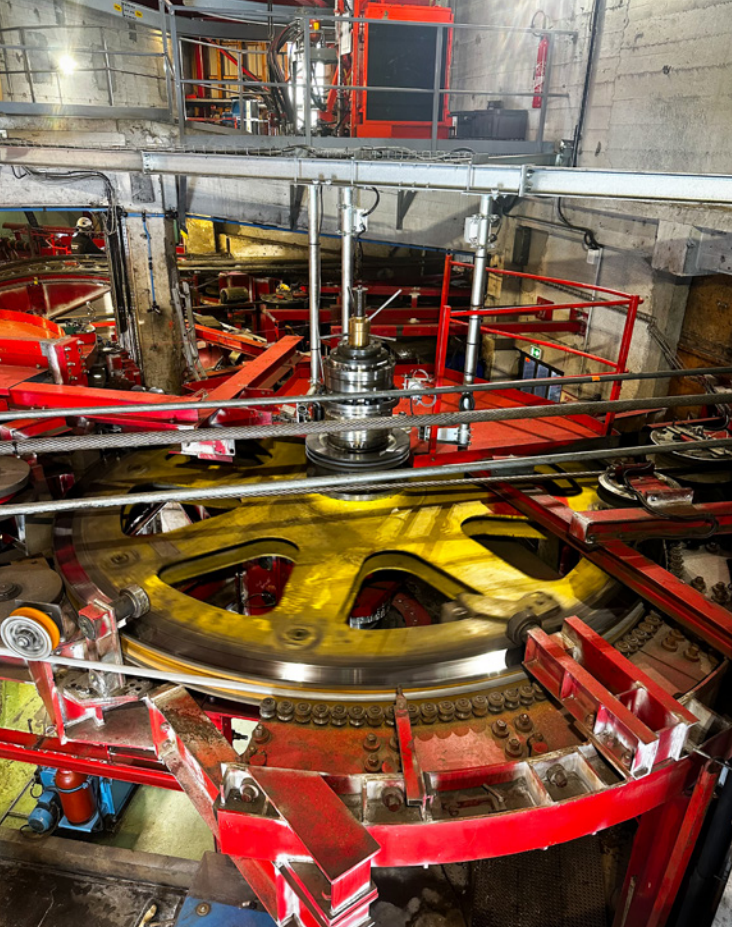
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*CMD Gears has been supplying planetary gearboxes for the Aiguille du Midi ski lift since the early 1990s.*

*Maintaining and replacing planetary gearboxes on a ski lift in Europe comes with a unique set of challenges.*



## **Installation at 12,605 ft.**

Fast-forward 30+ years and that same company reached out to CMD to supply one more planetary gearbox. The plan was simple: Operate three reducers and have an additional reducer on-hand as a spare part, Ravache added.

Gearbox installation for any application has its own unique set of challenges, but how about handling equipment of this size and scope on a mountain?

“Some of the challenges involved with the job were first, the altitude at which the job had to be performed and the gearbox installed,” said Ravache. “Indeed, the design of the lift was made so all three gearboxes would operate from the middle section—thus at 2,317 m altitude. For security reasons, the lift was designed so that one gearbox would drive the first stage and one for the second with a back-up right beside it.”

Another challenge was the time given to swap gearboxes.

“Keep in mind that the summit is very popular and attracts tourist year long. Thus, giving little time for maintenance services. The service team was given only three days to do their job before inspection and testing was conducted by a third party,” said Victor Manoury, sales engineer at FCMD North America, representing CMD Gears in North America.

“The last challenge goes without saying,” said Ravache. “The new gearbox has a zero-failure allowance. Having people stuck in the middle of the lift would be a disaster.”

Since the gearboxes were originally supplied by CMD Gears, the company has been involved with various maintenance operations over the years.

“Mont Blanc Company naturally called us back to build its brand-new planetary reducer,” Manoury said. “The new gearbox comes with newer technology and is made of better materials.”

While maintenance operations have been done directly on site over the last couple of years, now that the Mount Blanc Company has a spare part this permits greater flexibility. “This allows them to send back their reducer to our workshop in Cambrai, France and have us perform our usual gearbox inspection by fully inspecting each component inside,” Ravache said.

The field engineers’ experience in areas like cement and mining—where installations and maintenance take place in both extremely hot and cold environments—helped the team prepare for the ski lift upgrade.

“Our field servicing team is quite used to working in these types of conditions,” Manoury said. “Field servicing is one of the three solutions we provide to our clients. We have vast experience in gearbox manufacturing, on-site services, and repairs.”

## **Investing in New Technology**

CMD Gears is constantly investing in advanced machines to be used throughout its various projects. In 2024, the company will install a brand-new vertical turning machine to increase capacity at its Fourchambault, France facility.

A year ago, they made a large investment for a 6.5 m diameter gear grinding machine. This gear grinding machine





*The new replacement gearbox came with newer technology and better materials than previous versions.*



*FCMD's experience in areas like cement and mining—where installations and maintenance take place in both extremely hot and cold environments—helped the team prepare for the ski lift upgrade.*

is installed and fully running at the company's Cambrai, France workshop.

Closer to home, FCMD North America is currently supplying the whole grind mill drive system (gearboxes, ring gear, pinion, and auxiliary drive) for large copper and gold mining projects.

## An Engineering Perspective

The station of the Aiguille du Midi has several terraces where visitors can take in the spectacular views of the French, Swiss and Italian Alps.

On a clear day, it is possible to see the Matterhorn (4,478 m), the Monte Rosa (4,634 m) the Grand Combin (4,314 m), and the summit of Mont Blanc (4,810 m). Often, during the summer season, it is possible to spot climbers on their way up this face towards the summit of the Aiguille du Midi. ([chamonix.net/english/leisure/sightseeing/aiguille-du-midi](http://chamonix.net/english/leisure/sightseeing/aiguille-du-midi))

The name Aiguille du Midi translates literally to “Needle of the Middy.” The mountain lies to the southeast of Chamonix and when viewed from the front of the church it indicates that it is noon when the sun passes over its summit.

The engineering team is extremely proud to move half a million visitors to and from the mountain safely throughout the year.

“We’ve had ring gears, gearboxes and pinions running for more than 25 to 30+ years in some applications without any issues or problems,” Manoury said. “This is a testament to the knowledge of our service engineers as well as our long-term European manufacturing and quality expertise.”

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