

Continuous Haulage System VACHS 500

A basic requirement in an underground mining operation is the bulk material transfer from a continuously cutting and advancing mining machine (Continuous Miner) onto the main material handling system for the material transfer to the surface. The Continuous Miner is constantly changing its position according to the underground development and mining requirements and is the most efficient when the cut material is cleared in a continuous manner. A so called continuous haulage system following the Continuous Miner is the most effective way to perform this task.

VOEST-ALPINE Materials Handling GmbH & Co KG (VAMH) and VOEST-ALPINE Bergtechnik GmbH (VAB), both companies within the Sandvik Mining and Construction group have developed a concept for such a continuous haulage system.

The concept employs a mobile and suspended SICON conveyor as part of the continuous haulage system to permanently follow the continuous mining machine through the mine development or mining process. The mobility of the continuous haulage system will be achieved via a monorail system where the conveyor is suspended from and a track driven hopper car which will also acts as the loading device for the conveyor system.

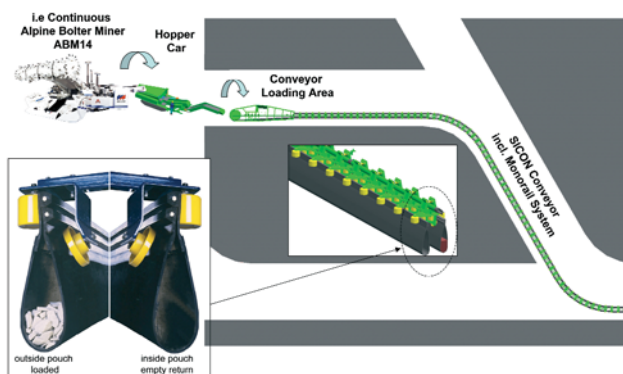
This continuous haulage system is called the Voest Alpine Continuous Haulage System and has got a maximum material transfer capacity of 500 cubic metres > VACHS 500.

The VACHS 500 is fully independent to the continuous miner and is self advancing and retracting via the monorail and a hydraulic winch system. The maximum haulage distance is limited to approximately 200m for the described system.

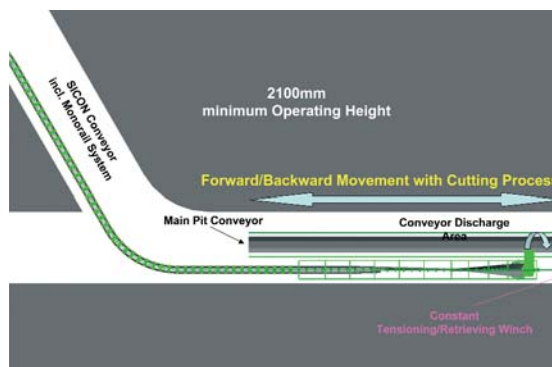
The very compact design allows a maximum space left in the driveways for easy accessibility of the continuous mining machine.

Due to the closed conveyor concept the system is running on zero spillage along the haulage line. The hopper car is equipped with a roof bolter and enough storage space to install the monorail system for a distance of approximately 100 metres. The in-board rock breaker guarantees a reduction of the maximum material size to 70mm.

The hopper is designed with a 3000 mm overlap with the continuous mining machine to allow the independent operation of both machines. All materials transfer points are dust controlled.



VACHS 500 - Loading Area



VACHS 500 - Discharge Area

Technical data VACHS 500*

General:

Minimum operating height	2100 mm
Maximum operating width	3500 mm
Maximum conveyor width	1300 mm
Maximum conveyor height	1500 mm
Hopper car height	1300 mm
Minimum curve radius	6000 mm
System length currently	220 m

Hopper Car:

Installed electrical Power	250kW / 1000V
Chain Conveyor	35 kW
Swivel Belt Conveyor	15 kW
Rock Breaker	50 kW
Hydraulic System	150 kW
Hydraulic Track Drive	15 m/min
Hopper capacity	approx. 5 m ³
Weight	35 t
Connected to conveyor system	
Counterweight to conveyor tension	
Overlap to Continuous Miner	3000 mm

Monorail System:

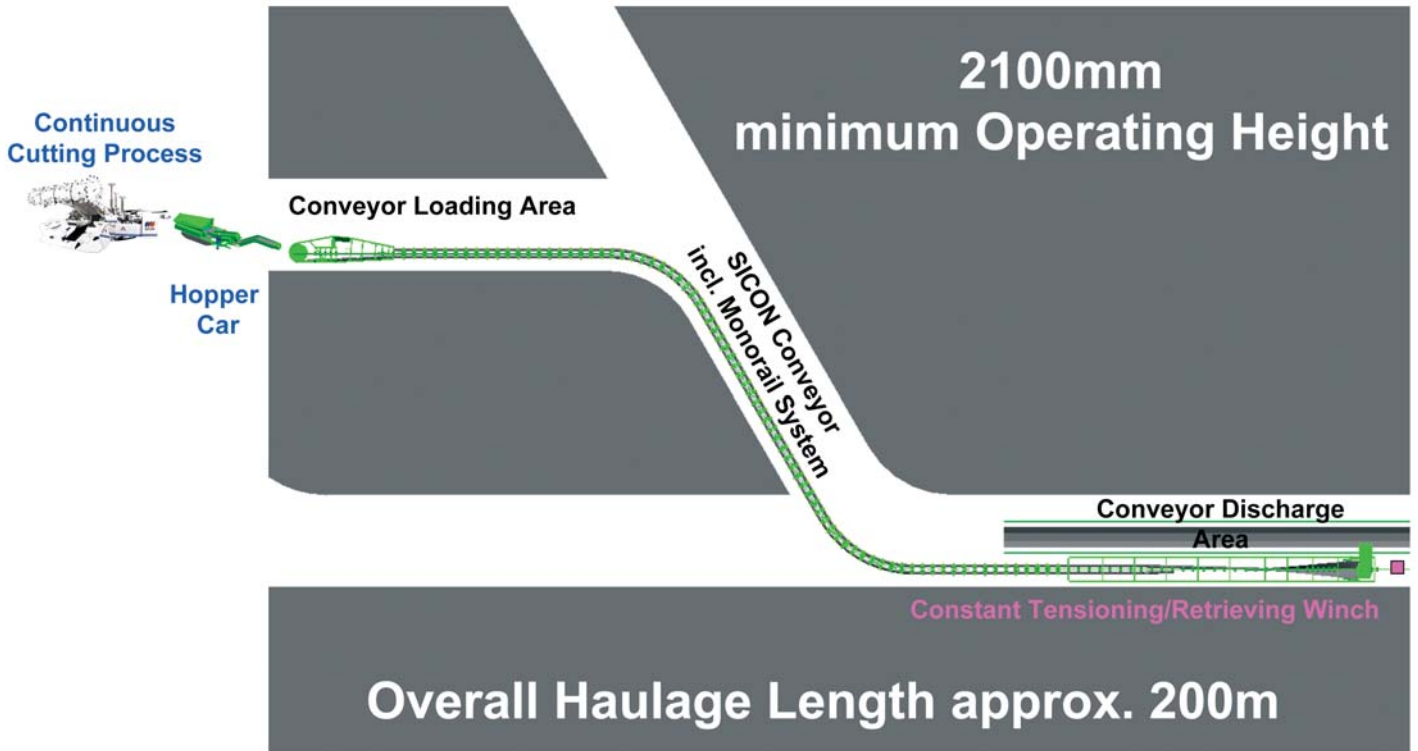
3000mm / 1000mm tubular sections	
Minimum bending radius	6000 mm
Tube diameter	100 mm
Carriage spacing	650 mm
Chain suspended from roof	

SICON Conveyor:

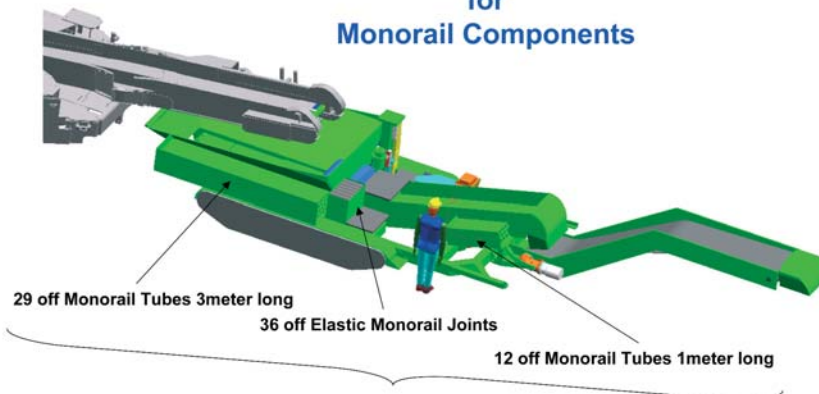
Hydraulic Drive	40 kW
Belt speed	3 m/sec
Max. capacity	500 m ³ /hour
Max. lump size	70x70x200
Belt tension	30 kN
Conveyor length fixed	200 m

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Hopper Car On-Board Storage Facilities for Monorail Components



100m Development Distance with 2 Curved Sections

VACHS 500 features and advantages not available on other Continuous Haulage System

- Quick and fully retractable
- Roof suspended space saving design
- 200 m hauling distance
- Dust and spillage minimized
- Up to 20 m/hour advance rate
- No Strato maintenance required
- Simple design
- Easy to manoeuvre

