

Atlas Copco Tunnel Profiler

Technical specification



Atlas Copco Tunnel Profiler is a fully integrated scanning system that measures how the excavation conforms to pre-planned design.

Introduction

A main objective in tunnelling and drifting is to drill and blast to an optimum contour at the lowest total cost. Any deviations from the specified profile can be costly and time consuming to correct later on. Atlas Copco Tunnel Profiler is a fully integrated scanning system. The drill rig operator will after just a few minutes of scanning see how the excavation conforms to preplanned design. By using this system under- and overbreak can be corrected at an early stage of the tunnelling cycle. The Atlas Copco Tunnel Profiler can be offered to all Atlas Copco drill rigs with Rig Control System.

Features

- Tunnel profiling as a normal operation during round drilling
- Fast profiling, only five minutes to scan a 5 meter section of 65 m²
- Result data, contour and drill log combined
- One set-up and navigation only
- Possible underbreak is advised
- Overbreak is calculated and presented
- Reduced need for surveying work
- Scanning while drilling the next round
- Navigation with the profiler

Functions

- Navigation together with the drill rig
- Automatic tunnel sector scanning
- Single point recording, joystick control
- Navigation with Profiler as an additional feature
- Presentation and report in drill rig
- Analysis and report in the office

» Navigation

Navigation of the Tunnel Profiler is integrated with the drill rig. The rig and the integrated Profiler are navigated in one single operation with any available navigation method, using drill rig, Tunnel Profiler or Total Station.

» Tunnel sector scanning

The predefined tunnel sector is automatically scanned and the result is immediately available in the Rig Control System, RCS, and also in Tunnel Manager Pro in the office. The tunnel sector is defined by a start and end section and how far down the tunnel wall scanning shall be done.

» Single point recording

The rock wall can manually be measured by pin-pointing individual positions for control. Deviation from planned contour is reported. The scanner is manually controlled with the joystick or automatically directed towards the extreme points.

» Navigation with the Profiler

The Profiler can as an additional feature be utilised for navigation. Profiler navigation can be done towards the tunnel alignment laser, towards one fixpoint and the tun-

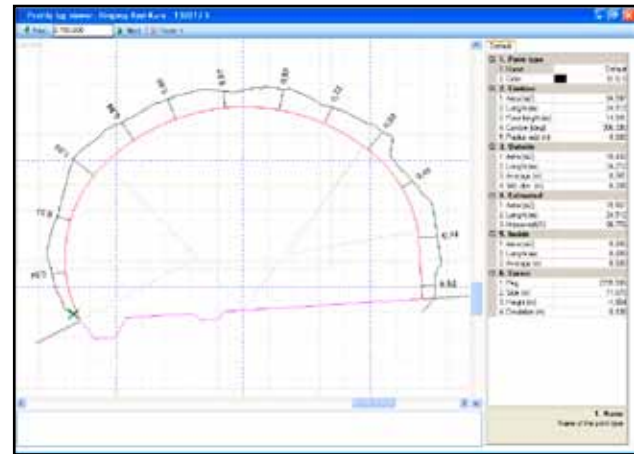
nel laser or towards two fixpoint. Extra fixpoints can be used for control. Profiler navigation navigates the whole system including the drill rig.

» Presentation in drill rig

The scanned profile is compared to planned contour. Under- and overbreak are highlighted. Area outside and inside theoretical contour is calculated and displayed.

» Analysis and report in the office

The same and additional analyses and reports can be done in the site office with Tunnel Manager Pro or Tunnel Manager MWD (see separate specification).



Evaluation in Tunnel Manager Pro.

System components

- Touch screen 12"
- Scanner unit
- Joystick
- Tunnel Manager Pro software (see separate specification)



Scanner unit.

Specifications

- Water proof, vibration robust and mechanical protected
- Temperature -20 to +45 °C
- Angular, absolute 0.1°
- Angular, relative 0.02°
- Distance on rock surface 1–2 cm
- General accuracy on scanned surface <5 cm*
- Typical scanning speed 1.5 m/s, 10 points/s**
- Typical grid on tunnel surface 25x25 cm
- General navigation accuracy with the Profiler <5 cm

* Depends on surface angle distance characteristic of surface

** Typical scanning time for a tunnel blast of 65 m² is 5 minutes

Requirements

The Atlas Copco Tunnel Profiler is designed to be used together Boomer rigs equipped with Rig Control System, RCS 3.5 or later and with the function Advanced Boom Control, ABC, Regular or Total.

SCANNER DIMENSIONS

mm	Width	250
	Height	400
	Length	250
	Weight	20 kg