

SANDVIK ALPHA ROCK DRILLING TOOL SYSTEM



**Integrated tool system
for high-efficiency drilling**



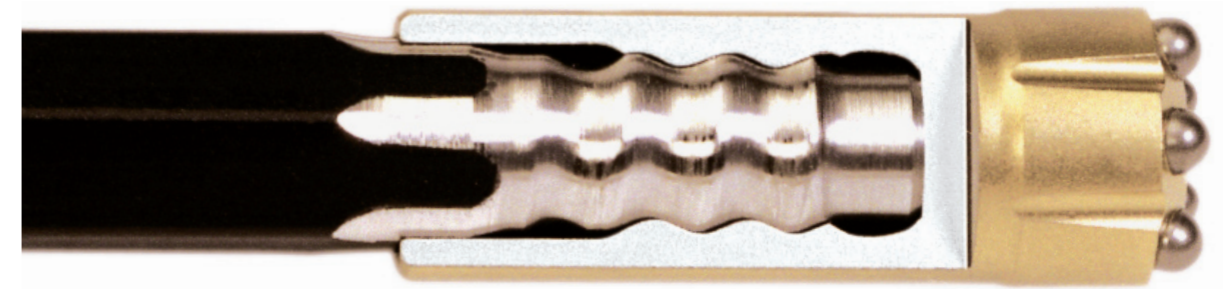
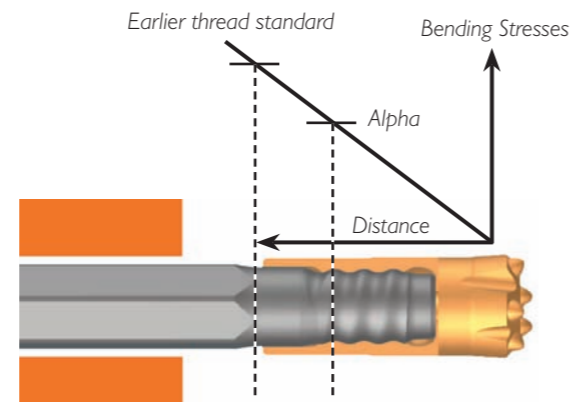
Breaking new ground in numerous drilling applications

The success of the Sandvik Alpha 330 tool system for highpower \varnothing 45 mm drilling in drifting and tunneling has paved the way for the development of the corresponding Sandvik Alpha 280 and Sandvik Alpha 250 systems. Dimensionally optimised to replace standard R28 and R25, these new Sandvik Alpha contributions are breaking grounds now also in bolting and urban civil engineering. And there is much more to be explored.



Introducing the Sandvik Alpha thread design

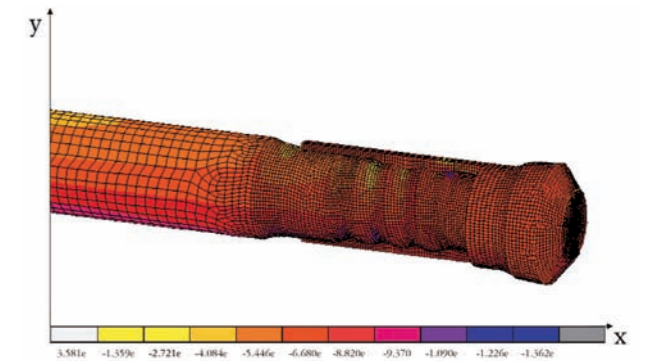
Called Sandvik Alpha, the drill string rod/bit connection features an entirely new thread design. The short thread on the hexagonal rods in the tool system result in a rigid, integrated powerpack drill string with superior resistance to bending stresses, improved bit guidance and perfect energy transfer. The sturdy thread is well guided inside the bit skirt, offering high precision in collaring – even in complex rock formations and against uneven surfaces. (Exact collaring and straight holes are prerequisites for productive drilling with maximum advance, less overbreak and lower overall costs).



Sandvik Alpha™ 330, 280, 250 ...

Sandvik's R&D engineers are constantly engaged in upgrading the components in our tool systems. With our unique in-house R&D and manufacturing facilities for both steel and cemented carbide, and the state-of-the-art equipment for tailoring them to their applications, Sandvik has all the resources needed to respond to market demands and adapt the products to provide new, profitable solutions for rock drilling professionals.

Our advanced CAD/CAM and FEM analyses provide the ability to simulate the application of our designs long before the solution touches rock. The results this time: Sandvik Alpha 330, 280 and 250 tool systems to take drilling productivity to new levels in numerous applications.



Advanced FEM analyses have been used to simulate and locate critical bending stresses of various designs to arrive at an optimally dimensioned rod/bit connection.



At the top end, Sandvik CAPP bits ensure optimal return on your capital investment by fully exploiting the drilling potential of the Sandvik Alpha concept.

Sandvik Alpha™ – another first from Sandvik



HEX 35

Ø 43, 45, 48, 51 mm

To match the increased energy output from modern high-power rock drills in drifting and tunneling (offering 20 kW and more), Sandvik developed the Sandvik Alpha 330 drilling tool system, designed and dimensionally optimized to replace R32 connections (also a Sandvik innovation) which has been the dominant Ø 45 mm system so far.

After using the Sandvik Alpha 330 tool system, customers in both mining and tunneling applications in Australia, Brazil, Canada, Finland, South Korea and Sweden have identified the following advantages:

- Extended rod life (30-80 %)
- Longer shank adapter life
- Longer bit life

Combined, these features reduce total drilling tool cost by 20 %.

On top of that:

- High penetration rate
- Better precision in collaring – straighter holes
- Better drilling accuracy
- Faster and easier uncoupling of bits
- More energy-efficient drilling
- Reduced machine downtime

If hole size can be reduced, the explosive costs can be reduced too

Sandvik Alpha 330 has gained a strong foothold in mining. And with improved drilling precision, it is quite feasible to reduce the blast-hole diameter from the current 51 or 48 mm to 45 mm also in medium-to-large tunnel sections. With the assurance of good drilling precision, Sandvik Alpha 330, will make it possible to reduce hole size in the majority of cases. And, on the explosive side, the saving in terms of volume – be it ANFO, emulsion or dynamite – can be in the region of 10-15 %.



Following up the success



HEX 28

Ø 38, 41, 43 mm



HEX 25

Ø 35, 37, 38, 41 mm

Building on the success of the Sandvik Alpha 330 tool system for Ø 43-51 mm blast hole drilling (a much superior alternative to R32) Sandvik now introduces alternatives to R28 and R25 as well. Called Sandvik Alpha 280 and Sandvik Alpha 250, they have the same unique rod-bit interface that makes the Sandvik Alpha approach so perfectly suited for powerful hydraulic rock drills.

Even smaller hydraulic rock drills pack a powerful punch. To cover the hole range from 35 to 43 mm, R28 and R25 tool systems have been used in roof bolting and for drilling blast holes in small drifts and tunnels. These smaller tool systems have also been the subject of continual efforts aimed at improving drilling precision and gaining much longer tool life and have also had to cope with more powerful forces in the form of impact, feed, rotation and bending when collaring against uneven surfaces.

Better drilling precision, higher productivity

As with R32, the traditional R28 and R25 systems have reached their ultimate point of development with in terms of their suitability for use in modern powerful hydraulic rock drills. A change to the Sandvik Alpha 280 or Sandvik Alpha 250 tool systems means less stress due to exact collaring and better energy transmission. The result is better drilling precision, higher productivity, longer tool life and lower overall drill and blast cost.

A perfect solution also in surface drilling

The Sandvik Alpha 250 tool system has proven to be a perfect solution also for single rod drilling of 35 to 45 mm holes in Tamrock Commando 120 series of surface drill rigs. The Commando can drill upward, downward, forward, horizontally and sideways and is ideal for drilling blast holes for pits, trenches, foundations and road cuttings. It is also used to drill holes for anchors and rock bolts, and to do so-called line drilling in the dimensional stone industry.

Sandvik Alpha 250 gives higher penetration rates and an additional increment in tool life because there is less destructive reflex energy trapped in the drill string at any time. The reduction in reflex energy, means less vibration in practically all components of the drill rig, which reduces wear generally. As a result, the ultimate cost benefit of the new Sandvik Alpha 250 tool system in Commando 120 can be substantial.



SANDVIK ALPHA

HIGH-EFFICIENCY TOOL SYSTEM



1 The new, short thread design in the Sandvik *Alpha* tool system result in a rigid, integrated powerpack drill string dimensionally optimized for Ø 35 to 51 mm drilling.



2 The short Sandvik *Alpha* thread is well guided inside the bit skirt, offering increased precision in collaring even in complex rock formations and against uneven surfaces.



3 The rigid drill string results in straighter holes, permitting optimum drilling patterns and higher rate of advance.



4 Exact collaring and straighter holes are prerequisites for productive drilling with less overbreak and lower overall costs.



5 The tailored Sandvik *CAPP* drill bits ensure the optimal return on the capital investment by fully exploiting the drilling potential of the Sandvik *Alpha* tool system.



6 More efficient energy transmission in the Sandvik *Alpha* tool package minimizes wear on all components in the drilling system and increases the penetration rates.



7 Sandvik grinding equipment plays a significant economic role in optimizing the service life of the drill bits.



8 Welcome to a test drive with the Sandvik *Alpha* drilling tool system. Our Sandvik Teams are always within easy reach to offer prompt support.



We make it possible