

# Sandvik RT300-series for drifting and tunneling

Button bits for high productivity drilling





SANDVIK

RT3000

# Sandvik RT300 drifter bits

## – born to be worn out

With the new RT300-series of button bits for drifting and tunneling, Sandvik introduces the optimum cemented carbide for drilling in an extensive range of rock types. Called grade XT48 (XT for Extra Tough) it is the first in a new family of grades which, thanks to the introduction of new manufacturing techniques, has higher density and a more homogenous structure. Toughness has been increased without compromising the exceedingly high wear resistance – making the material stronger, but not sacrificing its hardness. This is the latest result of Sandvik's more than 50 years' experience as a pioneer in the development of cemented carbide. (Added to more than a century's experience as a manufacturer of high quality steel).

### Double the service life in major underground mine

After using the Sandvik RT300, one of the world's biggest base-metal underground mines – long troubled by button breakage – saw a twofold increase in bit service life compared with previously used grades. Stoppages are down, productivity is up and bit costs have been halved. Mine management has welcomed the good news, and rig operators are pleased, too.

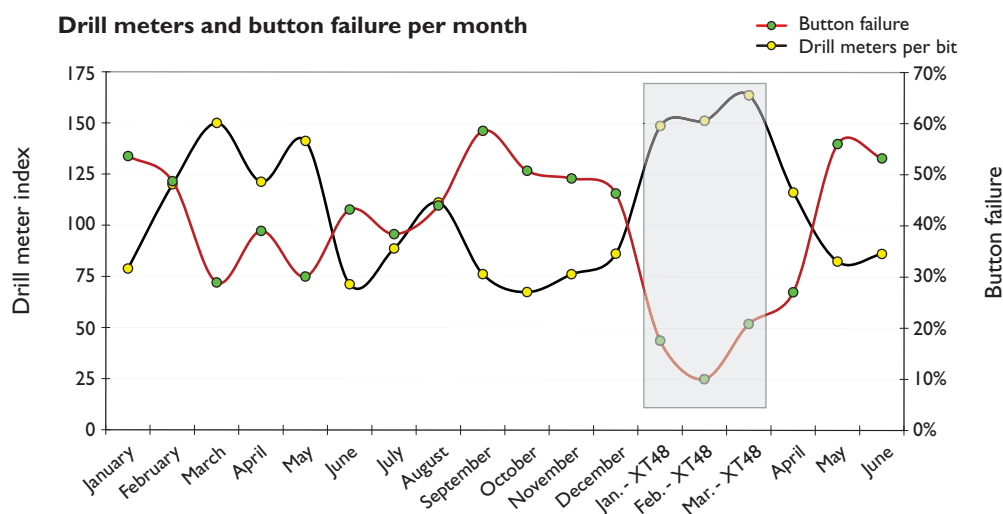
### Simpler drilling far more profitable

Born to be completely and uniformly worn out, the new Sandvik RT300 drifter bits perform superbly in almost all rock conditions, but especially those in which button breakage has previously been a problem. But even if button breakage is not a problem, you can still expect up to 20 percent longer bit service life.

The tailored metallurgical properties of the Sandvik XT48 cemented carbide buttons, their precision manufacture and the R&D programs used for their development – in addition to the numerous field tests to perfect them – have resulted in the Sandvik RT300 drifter bit series.

The drill bit is the spearhead of production. When it fails, a large and expensive rig is the first machine to fall idle, resulting in costly effects all the way up the production chain. With Sandvik RT300s up front, you can maintain top production performance with:

- *Extended bit life*
- *Less downtime*
- *Higher productivity*
- *Reduced bit costs*



One of the world's biggest base-metal mines – long troubled by button breakages when drilling in fissured rock – used only bits with the new XT48 cemented carbide for the first three months of 2007. The remarkable results shown above – a twofold increase in service life with practically no button breakage – are generated by Sandvik's computerized Rock Tools Management System, RTMS.

# The worse the rock

## the greater the need for RT300

Speed, long service life and one-hundred percent drilling reliability are the major payoffs sought in all drilling operations. As a rock drilling professional, you are already using the most advanced and powerful rigs available to improve your drilling performance. To secure maximum return on your capital investment, you also need tailored rock drilling tools up front to capitalize fully on your potential.

### **Unique in-house R&D and manufacturing facilities**

Sandvik's R&D engineers consistently upgrade our tool system components using unique in-house R&D and manufacturing facilities for tailoring the steel and cemented carbides.

Sandvik has all the resources required 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 even touches rock.

### **Better resistance to side-forces**

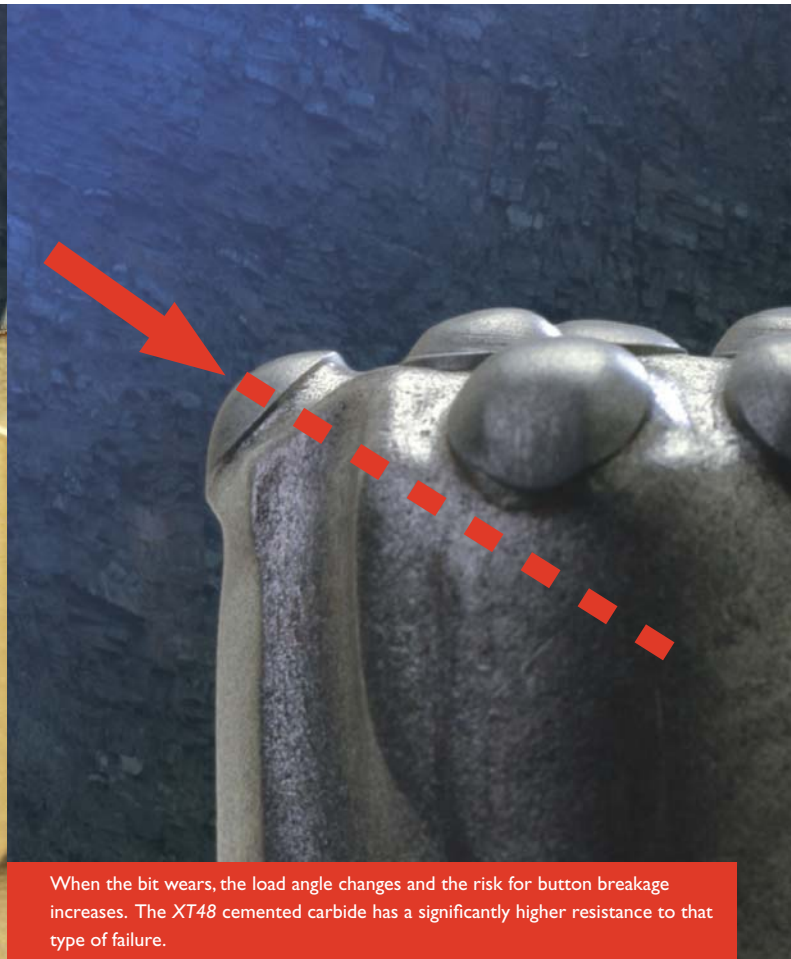
Overloading, pure and simple, causes button failure. But with standard Sandvik drill bits,

damage from frontal overloading is rare. Shear stresses generated by side-forces cause most damage. In this context side-forces are not normally very great in competent rock, however hard. But as soon as the drill string reaches a crack or fracture, the distribution of load on the drill bit becomes irregular and erratic. Only part of the bit face is loaded reactively by the rock, while shear stresses stem from just one or two jagged areas on the periphery of the hole, changing continually. Naturally, this causes uneven loading of the gauge buttons, resulting in imbalance and acute overloading.

### **Extra tough cemented carbide**

Another factor is uneven gauge-wear when drilling in abrasive rock. Especially in these conditions the *RT300* drill bit series dramatically outperform all other bits. Wear-resistance is assured and strengthened by the extra toughness of the denser and more homogenous *XT48* cemented carbide.

The gauge buttons of a new drill bit are exposed to axial forces. Sandvik cemented carbides can take that type of load with minimal risk of damage.



When the bit wears, the load angle changes and the risk for button breakage increases. The XT48 cemented carbide has a significantly higher resistance to that type of failure.



