

## 英汉对照参考资料 (2)

### DIAMOND BITS—THEIR SELECTION, USE, AND CARE

Just as it has not been possible to design one core barrel, or one sampler to accomplish all coring and sampling requirements, no diamond bit can be considered best, or even satisfactory, for all drilling conditions. Rather, there are available to the modern diamond driller a great variety of contours, matrices, stone grades and sizes developed to permit him to obtain the fastest penetration at the lowest cost attainable.

It is no easy task, in some instances, to determine which bit to choose. We are very fortunate in having our own specialists in this field, constantly working on this problem, who can evaluate the condition of used bits and institute variations in stone size, matrices, or contour, and by so doing, can often reduce our bit costs considerably. This is one of the reasons we want to receive used bits promptly, with complete information on drilling conditions.

All drillers should be able to select a bit somewhere near what should be used, but it is not often that even a fully experienced person can choose just the right bit without having previous experience in the same, or very similar, formations. The information presented here will acquaint you with the various matrices, types and grades of diamonds, and contours, and should assist you in the selection of diamond bits.

**Impregnated** bits are available in all common sizes, and their use should be considered in instances where loose materials must be penetrated, and sawtooth or insert bits will not accomplish the job. They are very resistant to wear, but will normally penetrate solid formations much slower than a surface-set bit. The entire matrix of these bits is impregnated with small diamond chips, and normally contain about three times the amount of diamonds as a comparable surface-set bit, so are more expensive. Their use, to be economically justified, must permit you to accomplish your job more quickly and efficiently than by other available means to offset the much higher cost.

Proper diamond bit selection is to no avail if proper care is not taken in the use of the bit. In spite of its being the hardest material known to man, the diamond is extremely fragile under certain conditions. It can be used to dress the hardest emery wheels, yet a light blow from a small tack hammer will reduce it to so much powder. The introduction of wire-line drilling techniques has proven that most diamond bit damage does not occur while drilling, but while entering or being withdrawn from the hole. This damage occurs as the stones in the bit strike obstructions, and are chipped or crushed. Some of this damage is unavoidable, but much of it occurs through carelessness.

### 金刚石钻头的选择、 使用与爱护

正如未曾设计出一种岩心管或取样器来满足全部取心和取样要求一样,没有一种金刚石钻头,对任何钻进条件都是最好的,或者甚至是满意的。然而,现代金刚石钻探工人则有可能选用已研制的多种多样的唇面、胎体、金刚石品级和粒度的钻头,从而以最低的费用,获得最快的钻速。

在某些情况下,确定选择何种钻头并不是一件轻而易举的事。幸亏在这方面我们有自己的专家,能不断地研究这个问题。他们能对用过的钻头状况做出评价,并研究变更金刚石粒度、胎体或唇面形状,通过这些研究,常常能明显降低我们钻头的各种费用。这就是我们要求及时回收旧钻头并将有关钻进条件的完整资料同时报来的原因之一。

所有的钻探工人均应具备选择大致接近应该使用的某些钻头的能力。但是,如果没有过去在同样或类似岩层中钻探的经验,那末即使是一个有充分经验的人,也未必一下子就能选定合适的钻头。这里介绍的资料可供你熟悉各种胎体、类型和金刚石品级与唇面造型,将有助于你选择金刚石钻头。

现有孕镶金刚石钻头有各种通用尺寸。在要求钻穿疏松物质,而齿状或嵌齿式钻头不能胜任的情况下,应该考虑使用孕镶钻头。孕镶金刚石钻头很耐磨损,但在钻进完整地层时则常大大慢于表镶钻头。这类钻头的整个胎体孕含许多细小的金刚石颗粒,一般金刚石的含量约为类似表镶钻头的三倍,因而价格较贵。

如果钻头使用时不采取适当的维护措施,即使金刚石钻头选择适当也无济于事。尽管金刚石是人们知道的最硬的物质,但在某些条件下它又是极脆易碎的。金刚石可用来修整金刚砂轮,然而,只要用平头小锤轻轻一敲,就能把它敲成粉碎。采用绳索取心钻探技术已经证明,大多数金刚石钻头的损坏并不是发生在钻进过程中,而在钻头送入或提出钻孔的一瞬间。这种损坏发生于钻头上的金刚石碰到障碍时,即被砸掉或压碎。这类损坏有些是无法避免的,但大部份是出于疏忽大意。(林剑秋译 卢林生校)