

ROCK BIT HAVING A MECHANICAL SEAL WITH SUPERIOR THERMAL PERFORMANCE

ABSTRACT

5 A drill tool includes a bit body, at least one bearing shaft extending from the bit
body and a cone mounted for rotation on the bearing shaft. A mechanical seal is disposed
between the bearing shaft and the cone in a seal gland. The mechanical seal includes a rigid seal
ring having a dynamic sealing surface with the cone and another non-sealing surface exposed to
an aperture in the seal gland. The mechanical seal further includes at least one cooling channel
10 formed in the another non-sealing surface of the rigid seal ring, the cooling channel having an
open end in fluid communication with the aperture in the seal gland.

[Fig. 5A]