

## Chapter C11

### Grooved Kalsi Seals



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Individual chapters of the Kalsi Seals Handbook are periodically updated. To determine if a newer revision of this chapter exists, please visit [www.kalsi.com/seal-handbook.htm](http://www.kalsi.com/seal-handbook.htm).

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## 1. Grooved seals

The Grooved Kalsi Seal (Figure 1) is a special purpose rotary seal that was initially developed for oilfield drilling heads. The seals have an environment-end groove that reduces interfacial contact pressure, breakout torque, running torque, and self-generated heat. For example, in a 500 psi (3.45 MPa), 300 ft/minute (1.524 m/s) test of a PN 381-1-11 Grooved seal, the running torque was 55% of that of an un-grooved Kalsi Seal.



**Figure 1**  
**Grooved Seals**

The Grooved Kalsi Seal employs a groove that relieves interfacial contact pressure and reduces torque and seal-generated heat.

Grooved seals are not recommended for abrasive environments, or for differential pressure less than 100 psi (0.69 MPa) or greater than 600 psi (4.14 MPa). It is possible to make a Dual Durometer Kalsi Seal having equal or less lip load than a comparable -11 HNBR grooved seal, and higher pressure capacity.