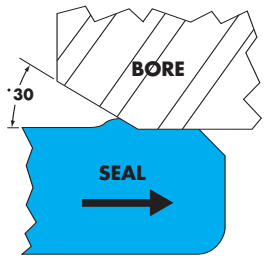
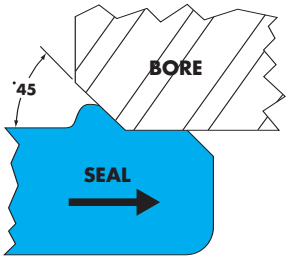
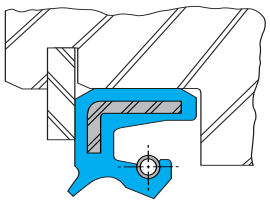
RUBBER COVERED SEAL INSTALLATION

The bore's lead-in chamfer is critical to proper installation of a rubber covered oil seal. The chamfer acts as a wedge to guide the seal into the bore and must be 30 degrees or less for best results. A chamfer of 45 degrees will act more like a snow-plow resisting the seal and increasing installation force by more than four times. This high installation force can also cause a hysteresis in the seal's rubber cover resulting in the seal springing back after being seated.

BORE LEAD-IN CHAMFER

CORRECT	INCORRECT
	

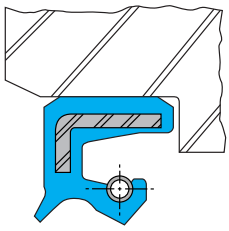
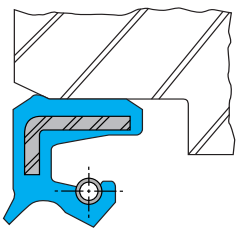
INTERRUPTED BORE



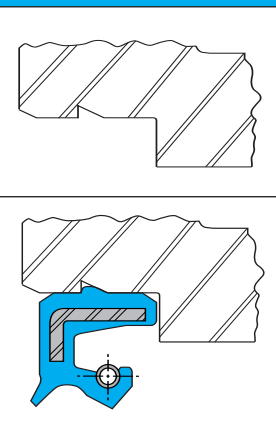
Interruptions within the bore, such as snap-ring grooves or cross-holes, require a 30 degree chamfer to provide ease of installation and prevent seal damage.

The seal must always be pressed far enough into the bore to ensure its rubber outside diameter has completely passed the chamfer. Failure to do so may result in the seal backing out of the bore.

INSTALLATION DEPTH

CORRECT	INCORRECT
	

BUTTRESS GROOVE



USE OF BUTTRESS GROOVE WITH RUBBER COVERED SEALS

In applications where a rubber covered seal is desirable and bore depth is limited or high system pressure exists, the possibility of seals backing out of the bore should be considered. A bore with a buttress groove will allow the seal to be installed normally with the seal's outside diameter extruding into the groove. The result will be ease of assembly with a significantly higher pullout force. This design can eliminate the need for snap-rings in some applications although testing is required to ensure proper results.