



Advancap™ Piston



Advancap™ Rod

O-Ring Energized Seals

Improved System Performance

The Advancap™ rod and piston seals are designed to provide a cost-effective cap seal solution that prevents extrusion and eliminates o-ring spiral failure in dynamic applications.

Each seal combines a cap made from Avalon®, our PTFE material, with an elastomeric energizer, and is available in configurations for zero, one, or two back up ring glands per AS4716. Custom configurations are also available.

The Advancap™ can replace low-friction, o-ring swivel seals that leak, nibble, and/or exhibit excessive friction.

Features and Benefits

- » Avalon® cap interfaces with the dynamic surface resulting in lower friction and elimination of spiral failure, which leads to better system performance
- » Specially designed Avalon® cap cradles o-ring, protecting it from extrusion when under pressure
- » Designed for AS4716 gland and uses standard o-rings, resulting in overall cost savings

Applications

- » Flight controls (e.g., ailerons, spoilers, airbrakes)
- » Utility and positioning actuators in landing gear systems

Advancap™ Configurations

Rod/Gland Diameter Change

O-Ring Dash No.	006 Through 028	104 Through 149	210 Through 247	325 Through 349	425 Through 460
"E" Dia.	+0.010 in.	+0.010 in.	+0.018 in.	+0.018 in.	+0.025 in.

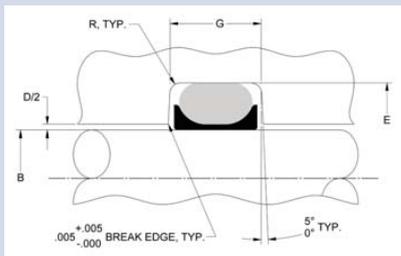
Piston/Gland Diameter Change

O-Ring Dash No.	006 Through 028	104 Through 149	210 Through 247	325 Through 349	425 Through 460
"F" Dia.	-0.010 in.	-0.010 in.	-0.018 in.	-0.018 in.	-0.025 in.

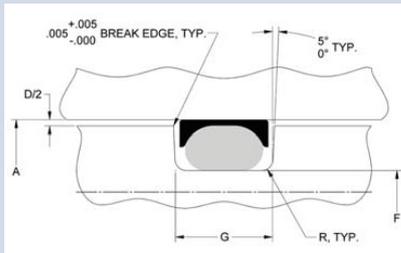
Note: Gland radii, finishes, concentricity and groove wall angle to conform to MIL-G-5514/AS4716. See Capabilities section for more information.

Gland Dimensions

Rod



Piston



Note: Refer to the dimensional tables for more information.

Squeeze Considerations

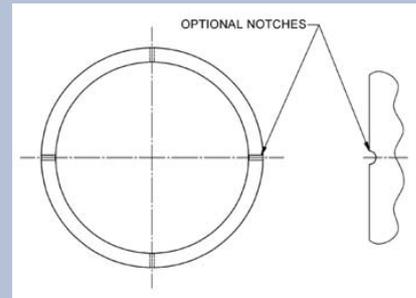
The addition of any cap to an o-ring gland will increase o-ring squeeze and gland occupancy. This may result in excessive friction, unsatisfactory service life, or installation difficulty. By modifying the gland diameter, as shown in the table above, these problems can be alleviated without reducing o-ring squeeze below the minimum per AS4716.

Advancap™ Options

Notches — Blow By Protection

Both piston and rod type Advancaps™ can be supplied with notches for blow by protection, in accordance with SAE AIR 1243.

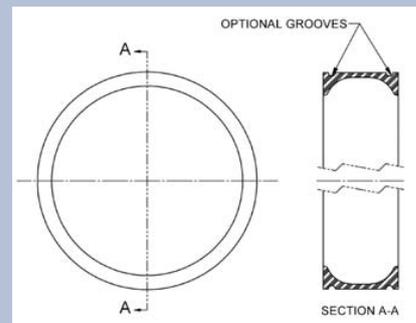
Notches



Circumferential Grooves

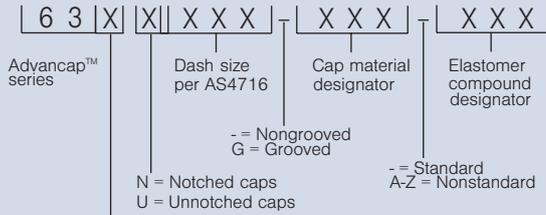
Circumferential grooves can be added to Advancap™ seals to provide better dynamic sealing. The grooves will retain lubricant that enhances start up performance by releasing lubricant to the sliding surfaces as the surface moves.

Grooves



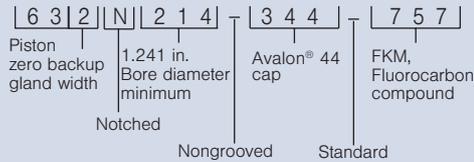
Advancap™ Part Numbering System

The part numbering system requires the use of the material designator tables found in the next column. For nonstandard designs, contact Greene Tweed engineering.



Rod	Piston	Gland Width
1	2	Zero backup gland width
3	4	One backup gland width
5	6	Two backup gland width

Part Numbering Examples



Contact KLINGER for specific recommendations to suit higher performance requirements.

Material Designator Tables

Code	Elastomer Compound
160	NBR, Nitrile
161	NBR, Nitrile
165	NBR, Nitrile
193	NBR, Nitrile
409	FMVQ, Fluorosilicone
410	FMVQ, Fluorosilicone
735	FKM, Fluorocarbon
757	FKM, Fluorocarbon
772	FKM, Fluorocarbon
952	EPM, Ethylene Propylene
954	EPDM, Ethylene Propylene
963	EPDM, Ethylene Propylene
964	NBR, Nitrile

Code	Cap Material
301	Avalon® 01
043	Avalon® 07
019	Avalon® 09
344	Avalon® 44
069	Avalon® 50
357	Avalon® 57
379	Avalon® 69
389	Avalon® 89

See Greene Tweed Surface Finish guidelines.

Statements and recommendations in this publication are based on our experience and knowledge of typical applications of this product and shall not constitute a guarantee of performance nor modify or alter our standard warranty applicable to such products.

KLINGER Limited

AUSTRALIA

Western Australia - Head Office
38 McDowell Street
Welshpool WA 6106

Queensland
Unit 3, 5-7 Roseanna Street
Gladstone QLD 4680

Tel: 1300 798 279
(calls within Australia)

Tel: +61 8 9251 1688
(calls outside Australia)

NEW ZEALAND

Tel: +64 272 735 045

SINGAPORE

105 Cecil Street #07-01, The Octagon
Singapore 069534
Tel: +65 6827 9045

KLINGER Thailand

501/2 Moo 2, Tambol Mabyangporn
Amphur Ruak Daeng
Rayong 21140 Thailand
Tel: +66 3306 0154