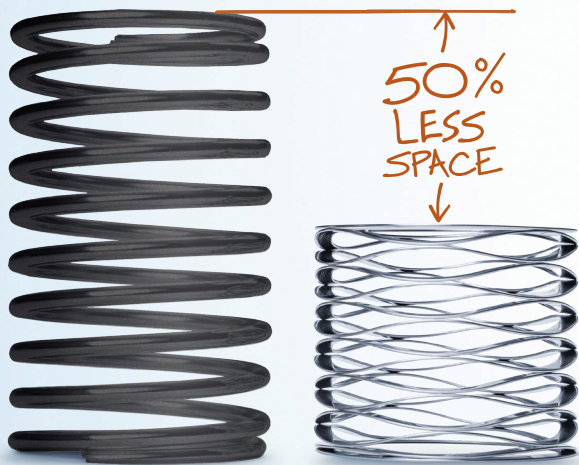




QUALITY AND PRECISION
EXOTIC ALLOYS READILY AVAILABLE



↑
**50%
LESS
SPACE**
↓

THEIR ORDINARY COIL SPRING

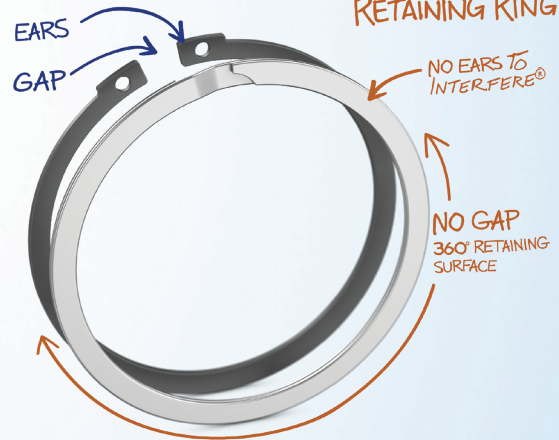
SMALLEY® WAVE SPRING

SAVE SPACE, SAVE WEIGHT

Crest-to-Crest® Wave Springs reduce spring heights by up to 50% compared to coil springs. A smaller, more compact spring allows for space and weight savings by reducing the spring cavity size.

THEIR ORDINARY
STAMPED RING

SMALLEY'S SPIROLOX®
RETAINING RING



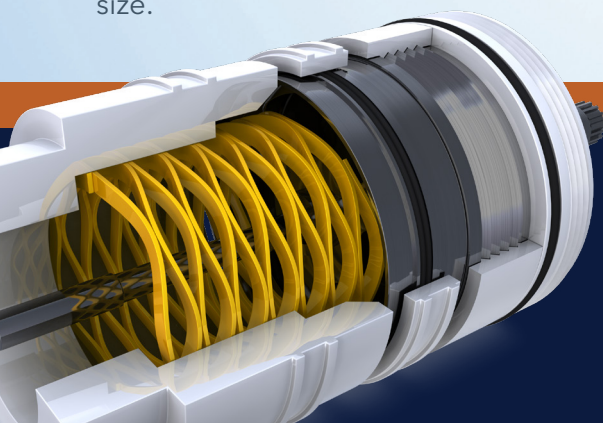
EARS
GAP

NO EARS TO
INTERFERE®

NO GAP
360° RETAINING
SURFACE

NO EARS TO INTERFERE®

Spirolox® Retaining Rings have no ears or lugs to interfere with mating components. Stocked in Stainless Steel, they are available for quick delivery and require no special tools for assembly or removal.



WAVE SPRINGS • RETAINING RINGS • CONSTANT SECTION RINGS



SMALLEY

THE ENGINEER'S CHOICE®

smalley.com/oil-gas

CUSTOMS ARE STANDARD

Smalley engineers have designed thousands of parts for the oil and gas industry. Custom parts are available from .157 - 120" or 4 - 3000 mm diameters. From prototype to production, we are able to scale to your manufacturing schedule quickly and economically, with No-Tooling-Charges™.

EXOTIC ALLOY AVAILABILITY

Our raw materials warehouse contains NACE compliant materials readily available for production, including:

- Stainless Steel
- Inconel
- Elgiloy®
- MP35N®

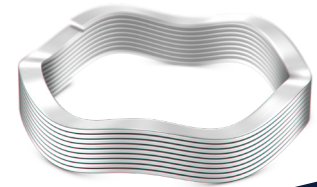
Heavy Duty
Crest-to-Crest®
Wave Spring



Interlaced
Wave Spring

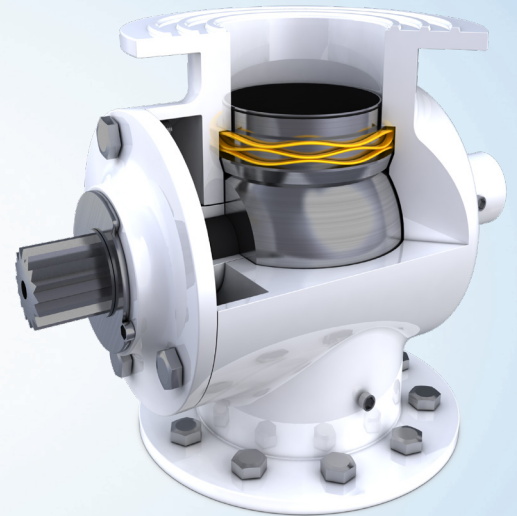


Nested
Spirawave®
Wave Spring



COMMON APPLICATIONS

- Ball Valves
- Gate Valves
- Butterfly Valves
- Packing Preload
- Blowout Preventer
- Christmas Tree
- Ball and Taper Tools
- Coiled Tubing
- Electronic Chassis and Delivery Tools
- Well Abandonment Tools
- Scintillation Crystal Detectors
- Bearing Preload



A **Crest-to-Crest® Wave Spring** was used to reduce the spring cavity in this ball valve by 50%. The resulting spring reduced the valve size and weight. A cost savings was realized from the material savings.

Elgiloy is a Registered Trademark of Elgiloy Specialty Metals

ISO 9001 • ISO 14001 • IATF 16949 • ISO 13485 • AS9100



THE ENGINEER'S CHOICE®

smalley.com/oil-gas

555 Oakwood Road
Lake Zurich, IL 60047 USA
Tel: (847) 719-5900
Email: info@smalley.com