

Stuffing Box Packing

We offer a broad range of sizes, materials and designs to best fit your stuffing box configuration. Our Hercules™ packing is compatible with various models of stuffing boxes. Whether you have a mild or extreme application, our various packing compounds will match your well conditions.

Stuffing Box Packing

Dome™ Packing

- Rod sizes: 1-3/8", 1-1/4", 1-5/16", 1-3/8", 1-1/2", 1-3/4"
- Dramatically reduces stuffing box failures and maintenance costs
- Rubber packing with unique PTFE seal ring
- PTFE seal ring minimizes contact between rubber and polished rod
- Low coefficient of friction
- Less heat build-up
- Lower drag on polished rod
- Unique bowl shape converts vertical compression forces into radial forces for a tight seal around polished rod
- Automatically compensates for changes in flow line pressure
- One-time conversion kit to retrofit most cone packed stuffing boxes
- Designed for easy replacement using Packing Pullers (available from National Oilwell Varco — P/N 99756K14)
- U.S. patent number: 5622371



Packing Pullers

Sure-Pak™ Packing

- Soft+ handles temperatures to 160°F (71°C)
- Pressure handling capabilities to 2500 psi
- Rubber packing with unique PTFE seal ring
- Effectively dissipates heat
- Enhances fluid sealing control
- Longer packing service life
- Fewer packing gland adjustments required
- U.S. patent number: 5845909



H2S and Conversion CO2 Table

1,000 PPM	0.1%
2,000 PPM	0.2%
10,000 PPM	1.0%
20,000 PPM	2.0%
50,000 PPM	5.0%
100,000 PPM	10.0%
150,000 PPM	15.0%
200,000 PPM	20.0%
350,000 PPM	35.0%

PPM = Parts Per Million

Packing Material Table

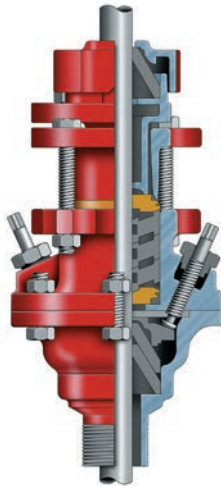
Material	Maximum % H ₂ S	Maximum % CO ₂	Maximum Temperature
NBR DOME	2%	Not Recommended	250°F (121°C)
HSN DOME	10%	20%	325°F (163°C)
TFEP (Aflas) DOME	35%	15%	450°F (232°C)
Sure-Pak Soft +	2%	Not Recommended	160°F (71°C)
Sure-Pak "G"	10%	20%	325°F (163°C)

Stuffing Box Packing

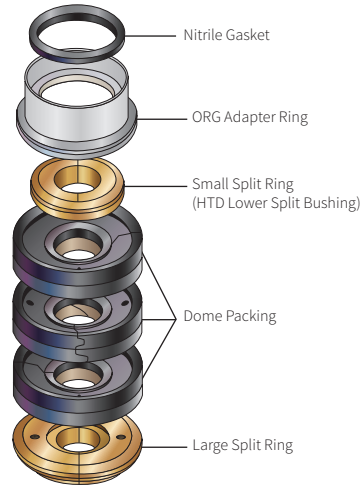
Dome Packing Configurations



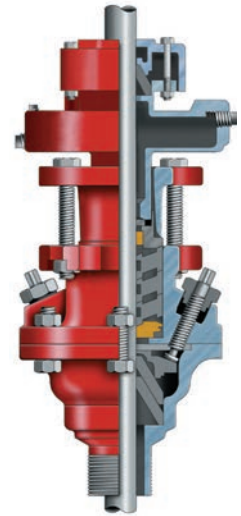
Conversion kit for Dome Packing and Lub Upper Gland



Lub Upper Gland with Dome Packing



ORG Adapter with Dome Packing



Hercules DPSB with ORG and Dome Packing

Selection Criteria for Rubber Compounds in Stuffing Boxes and BOPs

Rubber Compound		Maximum Service Temperature with Concentrations of H ₂ S and CO ₂ Below 1%		Maximum Service Temperature with Concentrations of H ₂ S and CO ₂ at Maximum Tolerance Levels		Maximum Tolerances for H ₂ S	Maximum Tolerances for CO ₂	Resistance to Explosive Decompression in CO ₂ Concentrations up to 20%	Performance in Steam Environments	Mechanical, Tear and Abrasive Resistance
Name	ASTM Type	°F	°C	°F	°C					
Soft, Hard, Special Lubricated, Heavy Duty, PTFE Filled, Hercules Gold	SBR	160	71	160	71	2%	NR	Poor	Poor	Good
Compound C Compound D	NBR	300	149	250	121	2%	10%	Good	Good	Excellent
Compound G	HNBR	325	163	300	149	10%	20%	Good to Excellent	Very Good	Excellent
Compound H	EPDM	425	218	350	177	5%	NR	Poor	Good	Fair
Compound S™ Compound ST	SBR	160	71	160	71	2%	2%	Poor	Poor	Good
Nitrile Dome	NBR	250	121	150	65	2%	5%	Fair	Poor	Good
HSN Dome	HNBR	325	163	300	149	10%	20%	Good to Excellent	Very Good	Excellent
*Aflas Dome	TFEP	450	232	350	177	35%	15%	Fair	Excellent	Fair

Note: Above temperatures are suggested "Maximum Short-Term" ratings and should not be considered as a "Continuous Operating Temperature"

NR - Not Recommended

SBR - Styrene Butadiene Rubber

NBR - Nitrile Rubber

HSN - Highly Saturated Nitrile or Hydrogenated Nitrile

EPDM - Ethylene Propylene

* Aflas is a registered trademark of Aashi Glass Co. Ltd.

Stuffing Box Packing

Cone and V-ring Packing

The most important feature of stuffing box packing is long-lasting performance. NOV continually tests new and better materials to meet the demands for ever-changing well conditions. Extensive field tests make certain new packing stands up to stringent durability and performance standards. Cone packing is available in sizes for all polished rods 1" through 1-3/4" in sets of four (3 top cone and 1 bottom cone) and five (4 top cone and 1 bottom cone).

Packing Type	Description
Hercules Gold	For sweet crudes with high oil-to-water ratios, low sand content and where salt or corrosion buildups on polished rod have caused premature wear of other packings
Soft Cone Packing	For sweet crudes with high oil-to-water ratios and low sand content
Hard Cone Packing	For sweet crudes with low oil-to-water ratios
Slick Pack™ (Compound S™)	For reducing polished rod noise "squeaking" in noise-sensitive locations on crudes with high oil-to-water ratios and low sand content
Special Lubricated:	For sweet crudes with high oil-to-water ratios and low sand content
Heavy-duty:	For prolonged service on sweet crudes and wells without constant flow
PTFE filled:	For sweet crudes and wells with long stroke and fast pumping cycles
Compound C	For steam injection wells producing sweet crudes
Compound G:	For H2S and CO2 wells
Slick Pack With Teflon Flakes (compound st):	For reducing polished rod noise ("squeaking") in noise-sensitive locations on sweet crudes that pump off or have long stroke and fast pumping cycles
Compound D:	For steam injection wells where polished rod scoring is a concern
Compound H:	For steam injection wells

Note: The guidelines on this page are for general reference purposes only and should not be used as the sole determining factor for packing material selection. Each downhole condition is different and must be addressed on a case-by-case basis to determine the best material solution for each particular well.

Cone Packing

Material	Maximum % H ₂ S	Maximum Temperature
Soft+	2%	160°F (71°C)
Hard	2%	160°F (71°C)
Compound S	2%	160°F (71°C)
Special Lubricated	2%	160°F (71°C)
Heavy-Duty	2%	160°F (71°C)
PTFE Filled	2%	160°F (71°C)
Compound ST	2%	160°F (71°C)
Compound C	2%	300°F (149°C)
Compound D	2%	300°F (149°C)
Compound H	5%	350°F (177°C)
Compound G*	10%	325°F (163°C)
Hercules Gold	2%	160°F (71°C)

* Recommended for CO₂ in concentrations up to 20%.

Other Packing

Material	Product	Maximum % H ₂ S	Maximum Temperature
NBR V-ring	PCSB and HTD	2%	250°F (121°C)
HSN V-ring	PCSB and HTD	10%	325°F (163°C)
FKM V-ring	PCSB and HTD	20%	400°F (204°C)
Kevlar/PTFE	HTD	20%	540°F (282°C)

*PCSB and HTD V-ring are not interchangeable.
HTD packing OD is 2-1/4", PCSB HPLUG OD is 2-1/2".*



V-ring Packing