

SERVICE AND PERFORMANCE

Unparalleled in Industry

At Chesterton, we place strong emphasis on working together as partners to provide real solutions. Our high service levels are delivered by combining both industry and product knowledge with experience to implement Best Available Techniques. Our wide geographical reach and local service capabilities enable us to be responsive to your needs.

Reliability through Innovation

To be a full-service provider takes a wide array of high-quality, engineered sealing products that address your needs. Innovative, high performance products are the core of Chesterton's offerings as a premier sealing solution provider. Some of our standard offerings are:

- Split Seals
- Cartridge Seals
- Gas Seals
- Component Seals
- Pump Packing
- Bearing and Gearbox Protection
- Rotary Seals
- SpiralTrac™

Improving Productivity with High Impact Programs

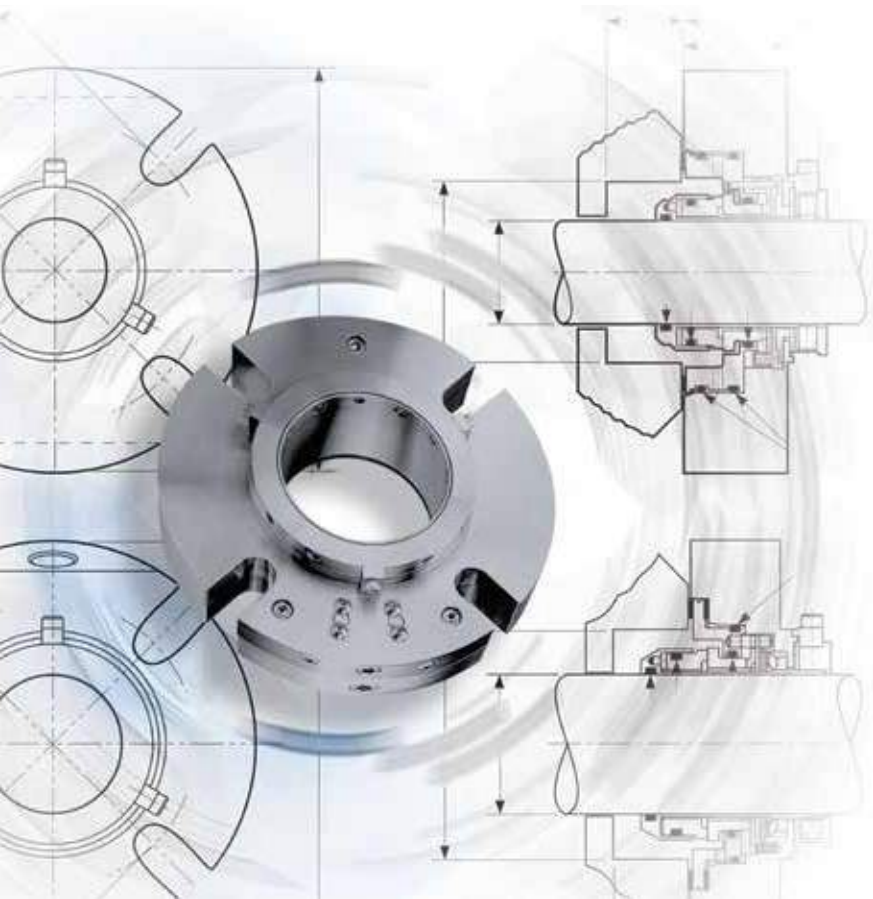
In today's global economy, our clients are faced with increased profitability pressures. Chesterton can assist users in achieving their productivity goals by improving asset reliability and lowering the total cost of ownership. Our programs are easily customized for each plant to:

- Improve equipment availability
- Increase process throughput
- Lower total cost of ownership

Delivering Results for Industry

Meeting industry needs requires a thorough knowledge and understanding of the key drivers specific to a plant. Chesterton's depth of experience allows us to deliver results such as:

- Increased equipment reliability
- Reduced water consumption
- Reduced environmental emissions
- Increased energy efficiency



Pump Packing Application Guide

Please contact your local Chesterton Representative to help you select the best product for your application.










Family	Product	Media					Duty			Key Benefit		
		Water	Steam	Chemicals	Slurries	Food and Beverage	High Temperatures	High Pressures	High Speeds	Reliability	Economy Solution	Emissions
Pump Packing	1730	√++		√+	√++		√+	√++	√	√++	√+	
	1760	√++		√++	√+		√+	√++	√++	√++	√+	
	1765	√++		√++	√		√+	√+	√+	√++	√+	
	1830	√++		√++	√+		√+	√+	√++	√+	√++	
	1830-SSP	√++		√++	√++		√+	√+	√++	√+	√+	
	1935	√++		√+	√	√++	√			√+	√+	
	1400R	√++	√++	√++	√		√++	√+	√++	√++	√+	√+
	2211	√++		√	√++		√+	√+	√+	√+	√++	
Environmental Enhancers	SuperSet™	√		√	√++		√			√++	√	

√++ = Best Choice

√+ = Better Choice

√ = Good Choice

Bearing and Gearbox Protection and Rotary Seal Application Guide

Speed	Types	Product	Profile Series	Description	Attributes			Friction			Wear Resistance		
					mould	**mach	split	Low	Mid	High	Low	Mid	High
Rotary Applications													
to 20 m/s (4 000 ft/min)	Restriction Bushing	14K		Restriction bushing for rotary equipment		•	•	•				•	
	Continuous Rotary Lip Seals	30K		Single-acting, low-pressure seal for bearing and gearbox protection		•			•			•	
Bearing and Gearbox Protection													
to 5 m/s (984 ft/min)	Cartridge Polymer Seal	30KC		Seal for viscous fluids and powders		•			•			•	
to 12,5 m/s (2 500 ft/min)	Split Rotary Lip Seals	33K		Single-acting, non-pressure split seal for bearing and gearbox protection		•	•	•				•	
to 20 m/s (4 000 ft/min)	Continuous Rotary Excluder	50K		Single-acting rotary face excluder	•				•			•	
to 25 m/s (5 000 ft/min)	Continuous/Split Rotary Lip Seal	51K		Single-acting, low-pressure seal for bearing and gearbox protection	•		•		•			•	
	Continuous Rotary Lip Seal	52K		Single-acting, low-pressure seal for bearing and gearbox protection	•				•			•	
to 35 m/s (7 000 ft/min)	Continuous Rotary Lip Seal	53K		Single-acting, low-pressure seal for bearing and gearbox protection	•				•			•	
to 1 m/s (200 ft/min)	Wipers	W21K		Positive-angled profile with flange, slow rotary	•	•	•	•				•	
	Rod and Piston Seals	R22KN5		Single-acting, positive-angled profile, slow rotary	•	•	•			•		•	

**Machined product does not require tooling.

DUALPAC™ 2211



Severe Slurry Packing

Longer Packing Life, Reduced Maintenance

By inventing a new braiding process, Chesterton has successfully combined ePTFE and aramid fibres in a unique configuration, allowing low-friction fibres to seal the shaft and resilient fibres to provide strength and anti-extrusion benefits. Combined in this way DualPac 2211 provides all of the performance advantages of ePTFE and aramid without the compromises of traditional mixed fibre packing.

Operating Conditions		Materials
Sizes	9,5 mm to 25 mm (3/8" to 1")	ePTFE and Aramid
Pressure	20 bar g (300 psig)	
Temperature	Max 260°C (500°F)	
pH	4 to 11	
Speed	10 m/s (2 000 ft/min)	
Applications	For use in ore slurries, mineral handling, dewatering tailing pumps and other slurry processing applications	



- Achieves significantly longer packing life using patent pending DualPac packing technology
- Multiple configurations to eliminate the need for end rings
- Exclusive design using DualPac Technology

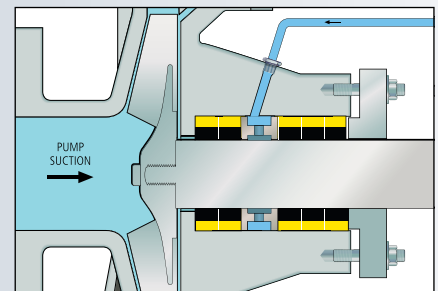


Figure 1 – All rings oriented for sealing

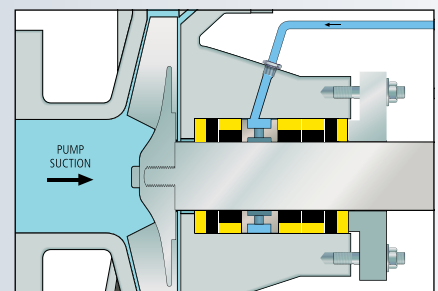


Figure 2 – Solids resistance and anti-extrusion

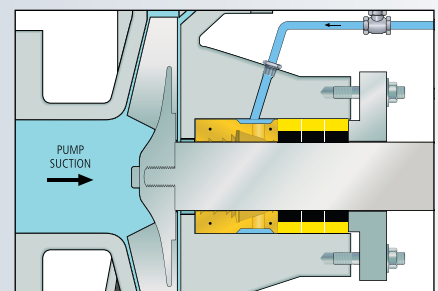
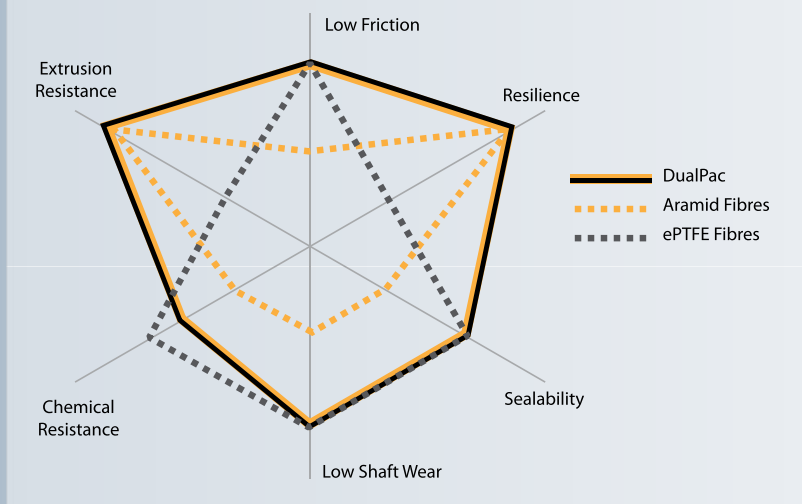


Figure 3 – Chesterton DualPac SuperSet™

DualPac 2211 packing: all the benefits of both fibres



SpiralTrac™

Environmental Controllers

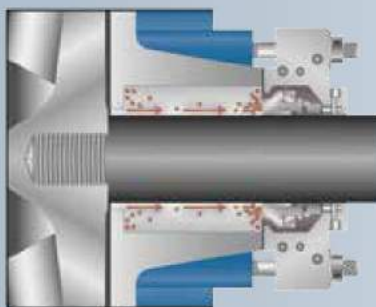
When used with Chesterton® mechanical seals, SpiralTrac Environmental Controllers greatly enhance seal reliability by effective removal of solids and improved cooling of the stuffing box.



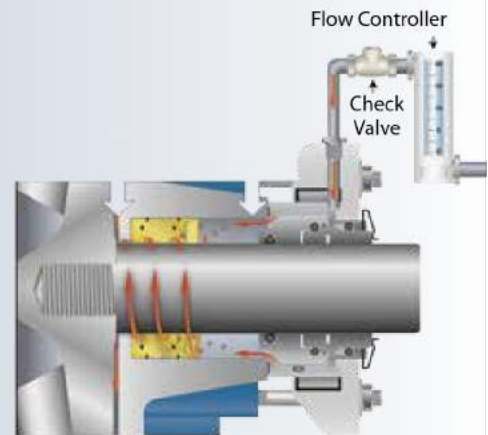
Versions	
F (Split)	Greatly reduced flush
N	Reduced/No flush in no fibrous fluids
D	Reduced/No flush in fibrous fluids
P (Split)	Packing version
C	With drain for crystallizing media

Available Materials
1.4401 (316SS)
416 SS
PTFE – Glass Filled
PTFE – Carbon Graphite Filled
Bronze
Ti/EN 3.7035
AWC800 – Red Polymer
Monel® K400 / EN 2.4360

- Extends seal reliability in most rotating equipment applications
- Reduces cost of flushing in abrasive applications
- Fits all rotating equipment

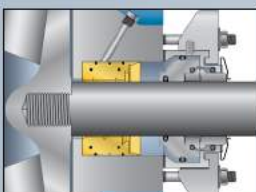


- 1 Air**
Vented from cavity when pump is stationary (eliminates crystallization, coking overheating due to air)
- 2 Circulation**
Driven around seal (excellent face cooling)
- 3 Exchange**
In and out of cavity (heat removed from cavity)
- 4 Particulate**
Immediately removed from cavity through the exit groove, flush or no flush

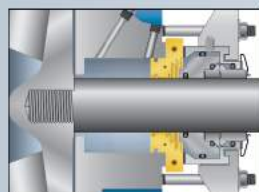


Configurations Available

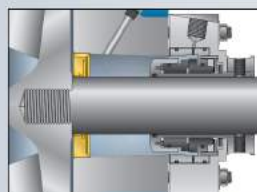
Split



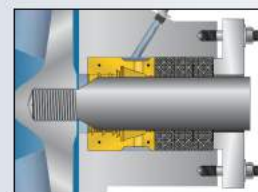
Adapter



Standard



Packing



PLANTWIDE PACKING

1935

Food-Grade Compression Packing

Durable performance packing that is easy to install and will not score shafts.

Technical Data

Materials	Virgin PTFE yarn, with lubricant that is food-compliant		
Applications	Pumps, valves, cookers, blenders, agitators, mixers		
Available Sizes	4,7 mm to 22,2 mm (3/16" to 7/8")		
Pressure Limit	14 bar g (200 psig) in rotating equipment	Temperature Limit	230°C (450°F)
	55 bar g (800 psig) in valves		
Chemical Resistance	pH Range: 0 to 14		



- Suitable for use in virtually all food media below 230° C
- Made with a virgin PTFE and white oil lubricant
- Independently certified EC 1935 compliant

1730

General Service Packing

Durable performance packing that is easy to install and will not score shafts.

Technical Data

Materials	Thermoset fibres with lubricants and blocking agents		
Applications	Water pumps, paper stock pumps, slurries, agitators, mixers		
Available Sizes	6 mm to 25,4 mm (1/4" to 1")		
Pressure Limit	28 bar g (400 psig)	Temperature Limit	290°C (550°F)
Speed	10 m/s (2 000 ft/min)	pH	1 to 13

See page 81 for available sizes.



- Easy and fast break-in
- Abrasion-resistant, while non-scoring
- Good chemical resistance
- Good temperature resistance

Standards and approvals available on page 90.

1760

Chemical Packing

Strong and dense PTFE fibre packing for chemical applications with the heat dissipating properties of graphite.

Technical Data			
Materials	Graphite coated PTFE yarn with break-in lubricants		
Applications	Black liquor pumps, chemical pumps, agitators		
Available Sizes	3,2 mm to 25,4 mm (1/8" to 1")		
Pressure Limit	17 bar g (250 psig)	Temperature Limit	260°C (500°F)
Speed	18 m/s (3 600 ft/min)	pH	0 to 14



- Dense braid ensures excellent leakage control and prevents solid embedment
- Excellent chemical resistance
- High shaft speed

1765

White Chemical Packing

Non-staining chemical packing, ideally suited for bleach pumps and other rotary applications.

Technical Data			
Materials	White expanded PTFE yarn with a special filler		
Applications	Bleach pumps, chemical pumps, agitators		
Available Sizes	6,4 mm to 25,4 mm (1/4" to 1")		
Pressure Limit	20 bar g (300 psig)	Temperature	Min -40°C to 260°C (-40°F to 500°F)
Speed	10 m/s (2 000 ft/min)	pH	0 to 14 except for Fluorine (F ₂), ClF ₃ and related compounds, and molten alkali metals



- Non-staining
- Superior chemical resistance
- Low friction for improved speed capability
- Longer packing life

Standards and approvals available on page 90.

1830

Advanced Expanded Graphite PTFE Packing

Economical packing developed to meet strict specifications in pumps, agitators, mixers, and other rotating equipment.

Technical Data

Materials	Expanded graphite PTFE filaments		
Applications	Wide range of applications	Temperature Limit	260°C (500°F)
Available Sizes	4,8 mm to 25,4 mm (3/16" to 1")		
Speed	18 m/s (3 600 ft/min)	pH	0 to 14 with exception of strong oxidizers in the 0 to 2 pH range



- Excellent chemical resistance
- Low friction, less heat generation and non-abrasiveness saves shafts and shaft sleeves
- Easy installation and removal
- Low leakage and long life

1400R

Carbon-Reinforced Graphite Packing

Combines the unique sealing properties of flexible graphite with the high strength of carbon fibre.

Technical Data

Materials	Carbon fibre-reinforced flexible graphite packing		
Applications	Process pumps, boiler feed pumps, block valves, refiners, agitators, mixers		
Available Sizes	3,2 mm to 25,4 mm (1/8" to 1")		
Pressure Limit	14 bar g (200 psig) rotating applications 275 bar g (4 000 psig) valves	Temperature	Min -240°C (-400°F) Max 650°C (1200°F) steam Max 455°C (850°F) oxidizing atmosphere
Speed	20 m/s (4 000 ft/min)	pH	0 to 14 except oleum, fuming nitric acid, and aqua regia



- Flushless packing
- High shaft speed capability
- Passive molybdate corrosion inhibitor
- For use in valves and pumps

Standards and approvals available on page 90.

SLURRY PACKING

1830-SSP

Slurry Packing

Designed with a hybrid yarn, combining advanced, expanded graphite PTFE yarn with carbon yarn reinforcement.



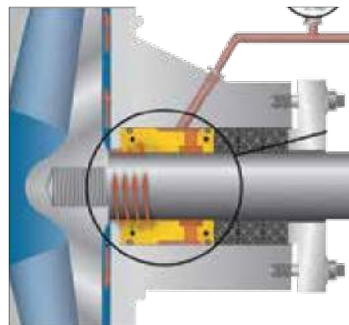
Technical Data			
Materials	Carbon-reinforced, expanded graphite PTFE		
Applications	Slurry pumps, mineral handling slurries, tailing pumps		
Available Sizes	9,5 mm to 25,4 mm (3/8" to 1")		
Pressure Limit	28 bar g (400 psig)	Temperature Limit	260°C (500°F)
Speed	18 m/s (3 600 ft/min)	pH	0 to 14 with exception of strong oxidizers in the 0-2 pH range

- Developed to meet rigid demands of slurry sealing applications
- Excellent chemical resistance
- Low friction, less heat generation, non-abrasive, saves shafts and shaft sleeves

SuperSet™

Enhanced Packing Sets

Chesterton performance packing sets, in combination with the patented SpiralTrac Environmental Controller, reduce flush water consumption and increase equipment service life.



- Reduces flush water consumption
- Increases equipment MTBR
- Reduces shaft sleeve wear

Versions	Applications
1730 SuperSet	General service in slurries and clean fluids
1400R SuperSet	Worn equipment, high-speed and high-temperature applications
1760 SuperSet	Highly aggressive chemical environments oxidizers in the 0-2 pH range

Standards and approvals available on page 90.

PRODUCT APPROVALS & CERTIFICATION

Compression Packing

Application	Certification/Approvals	Product
Drinking Water	WRAS	1935
Drinking Water	ACS	1725A
Food Contact	EC1935- 2004 - FDA 21 CFR	1935
Food Contact	FDA 21 CFR	1725A
Food Contact	FDA 21 CFR	CMS2000-FP
Fugitive Emission Control	API-589 (Fire Safe) - API-607 (Fire Safe)	1600
Fugitive Emission Control	API-622 - API-607 (Fire Safe) - TA Luft/VDI 2440 -ISO 15848-1* - Total**- Chevron Texaco**	1622
Fugitive Emission Control	API-589 (Fire Safe)	5800
Fugitive Emission Control	API-589 (Fire Safe)	1400R
Fugitive Emission Control	TA Luft/VDI 2440	1600/477-1 LL
Fugitive Emission Control	TA Luft/VDI 2440	1724/477-1 LL
Fugitive Emission Control	TA Luft/VDI 2440	1724 Low E
Fugitive Emission Control	API-589 (Fire Safe)	5300GTP/ One
Fugitive Emission Control	API-589 (Fire Safe)	5300GTPG/ 1600
Fugitive Emission Control	API-589 (Fire Safe)	5800E
Fugitive Emission Control	API-589 (Fire Safe)	5800T
Military	MIL P-24790(SH)	1760
Military	MIL P-24503B	5200GTP
Military	MIL P-24583B	Style ONE
Nuclear	Nuclear 10CFR pt21	1601
Nuclear	Nuclear 10CFR pt21	5800
Nuclear	Nuclear 10CFR pt21	5300GTP/ One
Nuclear	Nuclear 10CFR pt21	5300GTP/ 1601
Oxygen Compatible	BAM Oxygen	1730
Oxygen Compatible	BAM Oxygen	1830
Oxygen Compatible	BAM Oxygen	1400R
Oxygen Compatible	BAM Oxygen	1724-OX

* Valve Test Standard

** Customer Approval (special high purity version for total)

Mechanical Seals

Application	Certification/Approvals	Product
ATEX	ATEX Cat 1 (Group 2)	280™
ATEX	ATEX Cat 1 (Group 2)	280M
ATEX	ATEX Cat 1 (Group 2)	442™
ATEX	ATEX Cat 1 (Group 2)	491
ATEX	ATEX Cat 1 (Group 2)	442M™
Drinking Water	ACS	150
Drinking Water	ACS	442™
Drinking Water	ACS, KTW, WRAS	491
Drinking Water	ACS	442C™
Drinking Water	ACS	442M™
Food Approval	EC1935-2004	491
Food Contact	FDA - 21 CFR	280™
Food Contact	FDA - 21 CFR	442™
Food Contact	FDA - 21 CFR	442C™
Fugitive Emission Control	TA Luft/VDI 2440	280™
Fugitive Emission Control	TA Luft/VDI 2440	4400

Note: The above certifications and compliance are available on request.

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