



EXPERIENCE THE EXCEPTIONAL

Gland Packing

Division



the AESSEAL® group of companies

designers and manufacturers of mechanical seals, bearing protectors, seal support systems and shaft packing which maximize rotating equipment up-time.

www.aesseal.com

Introduction

AESSEAL® is a world leader in sealing technology. AESSEAL® manufactures and supplies possibly the world's largest range of mechanical seals, supported by international service centres.

To complement this range AESSEAL® also manufactures an extensive range of high quality gland packing. In our opinion, this outstanding range of products and services make AESSEAL® the best choice whatever your seal or packing requirements may be.

The company is fully committed to excellence in customer service and this commitment runs through the organization at all levels. Exceptional customer service is only possible if the entire organization lives and breathes it.

- One global delivery performance standard
- In our industry a huge inventory is the key for exceptional service
- AESSEAL® packing division holds an extensive inventory so customers have no need to do so; probably the highest level of inventory to sales value in the industry, with a strategic inventory turn of over 3 times, in our industry; inventory equals service

Proven Maintenance Costs Reductions

AESSEAL® offers a selected range of gland packing that have been specifically designed and manufactured to reduce plant operational and maintenance costs. Therefore, it is of the utmost importance to select the highest quality modern fibre packing in an inter-braided construction and optimized profile to provide the most resilient, long-lasting packing sealing solution.

Proven Quality and Reliability

AESSEAL® provides a complete packing service, combining an extensive stock and expert technical advice, based on over 25 years of experience. AESSEAL® packing division utilizes the most advanced and enduring inter-braid construction.

Maximum Service Life and Resilience

The braiding quality is of prime importance, otherwise it could significantly affect the service life. Packing manufactured using smaller or obsolete braiding machines lacks the strength of real cross-lock construction, because they are more rounded in cross-section and not as dense.

If the packing braid is loose, it is less durable. If round, it requires a greater gland pressure to carry out the sealing process thereby causing higher mechanical stress. As the packing wears out, more and more adjustments are needed to the gland, which in turn causes further mechanical stress on the packing, resulting in reduced life span.

The highest level of packing design is to be found in a **trapezoid shaped construction** as described on pages 9-11 of this publication.

Dynamic Test Rig

This test rig (pictured right) allows us to measure on each installed packing ring:

- Pressure drop on outer diameter
- Temperature
- Leakage

In addition energy input and the total leakage on shaft and housing can be determined. A variable speed control allows simulation of the influence of miscellaneous factors and hydrodynamic friction on the packing and it's running properties. The efficiency of lantern rings and neck bushes in different positions within the stuffing box can also be evaluated.

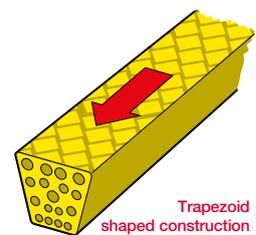
Because of thorough testing the AESSEAL® packing division can optimize the design and construction of gland packing.



AESSEAL plc Group
Headquarters, Rotherham, UK



Industry leading service is
enhanced by a fully automated
stocking and inventory system



Trapezoid
shaped construction



EDI Test rig for Pump packing

Maximum Packing Life

Along with its construction, size also affects the performance of a packing. Our applied SPC (Statistic Process Control) technology guarantees precision and uniformity.

Too big and the packing will burn out, too small and it will require constant adjustment. Packing with inconsistent density and size will never give a controllable seal.

Precision braiding and subsequent treatment ensures an even and parallel surface between the packing rings. SPC guarantees a constant quality with repeatable results, which leads to higher operating reliability and prolonged service life expectancy for the user. Packing that bears the SPC quality seal is under a permanent control throughout the entire production process. This has the advantage that any discrepancy is immediately detected and can be corrected, before it results in size failures or density variations.



Packing Stock

AESSEAL® packing has an exceptional level of resilience and conformity of volume. The high quality design and construction requires less pressure on the gland to form the seal, which in turn leads to less wear on the equipment, less maintenance and most importantly, increased packing life. The advanced technological developments of the newer synthetic fibres, together with the braided construction, allow our packing to offer superior performance. Synthetic fibre packing is far more cost effective and greatly reduces operational costs, which are important factors when considering gland packing selection.

Engineered products like die formed or pre-cut rings, rectangular shapes, seal frames etc. delivered for individual customer applications account for over 35% of AESSEAL® packing division total sales. 65% of total sales are standard products available with 24 hour shipment from stock. The AESSEAL® dedicated packing division also provides customer support for non-standard requirements.

In addition to the focused technical application team and fast delivery philosophy our manufacturing facility processes packing from 2mm (0.063") to 100mm (4.000") cross-section in a wide range of shapes, from square, optimized square to trapezoidal, round or rectangular cross-sections.



Braiding Hall

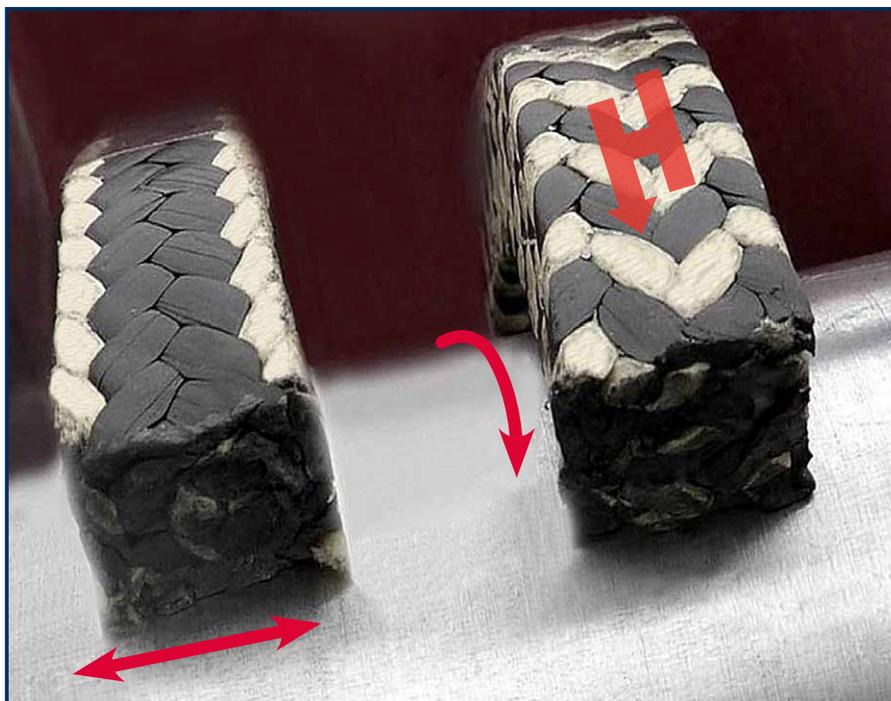
Pump Packing

Pump packing is used for high shaft speeds. Pump packing contains specially formulated lubricants to aid equipment start up and ensure packing pliability for a longer life.

We offer corner and running track reinforced **Hybrid-Pack®**. Typically a minimum of 2 different yarns are combined: e.g. a reinforcing characteristic (as found with Aramid fibres) with yarns containing graphite. The latter improves the heat conductivity. Corner reinforcement is suitable for axial motion machinery such as plunger pumps. A positive side effect is to minimize the risk of gap extrusion.

Typical applications for **Hybrid-Pack®** are found on rotating shafts. Running track reinforcement is preferred over corner reinforcement. This is because the equal distribution of reinforcing material over the width of the packing assures a uniform load on the shaft surface. A side effect of the running track reinforcement is to stop the movement of abrasive particles, which can be induced by the shaft rotation and to protect the softer component of the packing.

H Install packing with Logo facing to housing side and in rotating applications with the arrow marking in the direction of rotation



Reinforced corners for oscillating plungers

Reinforced running track for rotating shafts against churning product particles

Pump Packing

Style 200

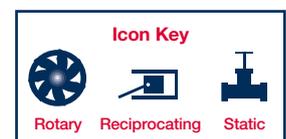
100% ParaAramid continuous fibre with PTFE impregnation and a silicon based inert 'run-in' lubricant.

Option Style 210

100% ParaAramid continuous fibre with PTFE impregnation and a special dynamic 'run-in' lubricant, silicon oil free.

Characteristics

- Good for abrasive products, wear resistant, universal packing particularly suited to the sewage and paper industries
- Little monitoring required, short 'run-in' period
- Recommended shaft hardness HRC*60



p (bar)	25	500	250	360	7200	3600	p (psi)
v (m/s)	25	2	-	4900	400	-	v (ft/m)
t °C	-50 ... +280			-58 ... +535			t °F
pH	2-12			2-12			pH
g/cm³	1,25			0,0452			lb/in³

Pump Packing

Style 274 / Style 270

Combination braid made of ePTFE / Graphite and ParaAramid fibre with 'run-in' lubricant.

Characteristics

- Excellent heat conductivity
- Recommended shaft hardness HRC*50
- Universal packing for abrasive products
- Reduced adjustment work
- Style 274 with corner reinforcement for reciprocating movement or for equipment with bigger clearances

Also available as: Style 270 in "zebra" braid, running track reinforced for rotating equipment (shown right)



p (bar)	25	500	250	360	7200	3600	p (psi)
v (m/s)	20	3	-	3900	600	-	v (ft/m)
t °C	-100 ... +280			-148 ... +535			t °F
pH	2-12			2-12			pH
g/cm ³	1,45			0,0524			lb/in ³

[^] figures displayed valid for 274

Style 290

Synthetic fibre with PTFE impregnation and silicon free dynamic 'run-in' lubricant.

Characteristics

- High durability and flexibility
- Excellent chemical resistance (e.g. hydrofluoric acid 15% / 50°C)
- High cross-section density through PTFE blocking agent, good for crystallising media
- Recommended shaft hardness HRC*35
- Good pliability, therefore perfectly adaptive to uneven shaft surfaces

Suitable for: Sugar, paper and chemical industries.



p (bar)	20	60	100	360	1450	1450	p (psi)
v (m/s)	15	2	-	3000	400	-	v (ft/m)
t °C	-50 ... +280			-58 ... +535			t °F
pH	1-13			1-13			pH
g/cm ³	1,35			0,0488			lb/in ³

Style 299

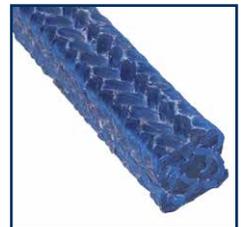
Polyimid Fiber with PTFE Impregnation and Silicone Run In Lubricant.

Characteristics

- High fatigue strength and flexibility
- Good acid resistance
- High cross section density through PTFE blocking agent, good for crystallizing media
- Recommended shaft surface hardness: HRC 35
- Good pliability, therefore perfect adaption of uneven shaft surfaces

Suitable for:

Chemical, Sugar, paper and mining industries.



p (bar)	20	60	100	290	870	1450	p (psi)
v (m/s)	15	2	-	2950	390	-	v (ft/m)
t °C	-100 ... +280			-150 ... +540			t °F
pH	0-12			0-12			pH
g/cm ³	1,35			0,0488			lb/in ³

Style 325

Carbon fibre with special graphite impregnation and silicone free 'run-in' lubricant.

Characteristics

- Graphitized all-round packing with excellent 'emergency run' capabilities
- Good wear resistance against abrasive and crystallizing products
- Volume stable, pressure stable
- High cross section density due to special impregnation
- Excellent value for money
- Recommended shaft hardness HRC*45

Suitable for:

Chemical and paper industries, sewage treatment plants and community facilities.



p (bar)	20	250	150	290	3600	2200	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-50 ... +250			-58 ... +480			t °F
pH	2-12			2-12			pH
g/cm ³	1,15			0,0415			lb/in ³

Pump Packing

Style 330

Highest grade carbon fibres impregnated with specially formulated dynamic silicon free 'run-in' lubricant.

Characteristics

- Excellent versatility
- Wear resistant for abrasive products
- Recommended shaft hardness HRC*45
- Stable volume, no shrinkage, excellent heat conductivity
- Excellent chemical and physical properties
- Suitable as a bullring in combination with a softer pliable packing



p (bar)	30	100	100	435	1450	1450	p (psi)
v (m/s)	25	2	-	4900	400	-	v (ft/m)
t °C	-50 ... +300			-58 ... +570			t °F
pH	2-12			2-12			pH
g/cm ³	1,45			0,0524			lb/in ³

Style 333

Combination braid from carbon reinforced expanded graphite tape and carbon fibre, with 'run-in' lubricant.

Characteristics

- High standardization potential
- Wear resistant through running track reinforcement, nevertheless shaft protecting
- Recommended shaft hardness HRC*35
- Excellent heat conductivity
- Suitable for dry running applications
- Non-hardening, good reset capability, coefficient of thermal expansion like steel
- Self lubricating excellent use in pumps, minimizing the need of flush water



p (bar)	25	100	100	360	1450	1450	p (psi)
v (m/s)	30	2	-	5900	400	-	v (ft/m)
t °C	-50 ... +300			-58 ... +570			t °F
pH	2-12			2-12			pH
g/cm ³	1,0			0.03613			lb/in ³

Suitable for: Power plants, boiler houses, paper and pulp and chemical industries

Style 350

Braid made of flexible expanded natural graphite foil.

Characteristics

- Very good emergency running capability, no wear on the shaft, excellent thermal conductivity
- Highest quality pure graphite gives a coefficient of expansion similar to steel
- The rings have to be densified 15-20% during the assembly
- Can be universally applied
- Packing needs to be pre-compressed
- Die formed rings are recommended
- Recommended shaft hardness HRC*45



p (bar)	20	-	300	290	-	4350	p (psi)
v (m/s)	20	-	-	3900	-	-	v (ft/m)
t °C	-200 ... +550 (400° in oxidizing atmosphere)			-330 ... 1000 (750 in oxidizing atmosphere)			t °F
pH	0-14			0-14			pH
g/cm ³	1,15			0,0415			

Style 351

Braided from expanded graphite with integrated carbon reinforcement for easier handling.

Characteristics

- Very good emergency running capability, no wear on the shaft, excellent thermal conductivity
- Highest quality pure graphite gives a coefficient of expansion similar to steel
- The rings have to be densified 25-30% during the assembly
- Can be universally applied
- Packing needs to be pre-compressed
- Die formed rings are recommended
- Recommended shaft hardness HRC*45



p (bar)	20	-	300	290	-	4350	p (psi)
v (m/s)	20	-	-	3900	-	-	v (ft/m)
t °C	-200 ... +550 (400° in oxidizing atmosphere)			-330 ... 1000 (750 in oxidizing atmosphere)			t °F
pH	0-14			0-14			pH
g/cm ³	1,0			0,03613			

Pump Packing

Style 550 / 560C

Synthetic fibre, PTFE impregnated with 'run-in' lubricant.

Characteristics

- Protected against wear with abrasive media
- High cross-section density and structural stability, but also elastic and pliable
- Recommended shaft hardness HRC*50
- Simple handling during installation and 'run-in' period
- Cost effective packing

Suitable for: Paper and pulp industries, sugar plants and waste water treatment.

Also available as: Style 560C graphitized with improved heat conductivity (shown right)



p (bar)	20	100	100	290	1450	1450	p (psi)
v (m/s)	15	2	-	3000	400	-	v (ft/m)
t °C	-100...+200			-148...+390			t °F
pH	3-12			3-12			pH
g/cm³	1,30			0,0470			lb/in³

[^] figures displayed valid for 560C

Style 785

Braided from 100% GORE® GFO® expanded PTFE-fibre with incorporated graphite and silicone 'run-in' lubricant.

Characteristics

- Made from 100% GORE® GFO® fibre
- PTFE and graphite is closely woven and treated with a break in lubricant capable of withstanding high temperatures
- Highly heat conductive
- Effectively chemically inert over the entire pH range and particularly suitable in arduous chemical applications
- Produced using our dense cross-lock process for square inter-braiding. Helps prevent extrusion problems, reduces gland pressure needed and prolongs packing life
- Recommended shaft hardness HRC*25



p (bar)	25	250	150	360	3600	2200	p (psi)
v (m/s)	25	2	-	4900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	0-14			0-14			pH
g/cm³	1,50			0,0542			lb/in³

Style 790

PTFE-Graphite multifilament fibre with silicone free 'run-in' lubricant.

Characteristics

- Self-lubricating, graphite enhanced to give minimal friction and good heat conductivity
- Short 'run-in' period
- Recommended shaft hardness HRC*25
- Resistant against extrusion
- Universal packing, good price / performance ratio



p (bar)	25	250	150	360	3600	2200	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-50...+280			-58...+535			t °F
pH	0-14			0-14			pH
g/cm³	1,65			0,0596			lb/in³

Style 799

Braided from expanded PTFE-fibre with incorporated graphite and silicone 'run-in' lubricant.

Characteristics

- High heat conductivity
- PTFE and graphite is closely woven and treated with a break in lubricant capable of withstanding high temperatures
- Effectively chemically inert over the entire pH range and particularly suitable in arduous chemical applications
- Produced using our dense cross-lock process for square inter-braiding. Helps prevent extrusion problems, reduces gland pressure needed and prolongs packing life
- Recommended shaft hardness HRC*25



p (bar)	25	250	150	360	3600	2200	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	0-14			0-14			pH
g/cm³	1,50			0,0542			lb/in³

Pump Packing

Style 870

Ramie fibre with PTFE blocking agent and silicone free 'run-in' lubricant.

Characteristics

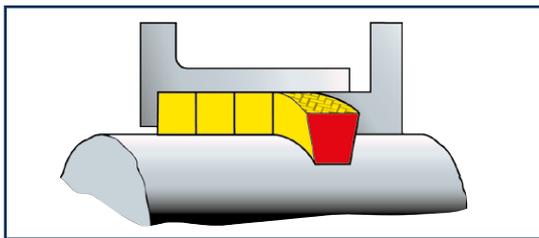
- Universal packing for lower temperatures
- Cost effective
- Long lasting, shaft protecting, resistant to rotting
- Good for media containing solids
- Recommended shaft hardness HRC*45



	25	100	100	360	1450	1450	
p (bar)	25	100	100	360	1450	1450	p (psi)
v (m/s)	12	1,5	-	2400	300	-	v (ft/m)
t °C	-50...+140			-58...+285			t °F
pH	4-11			4-11			pH
g/cm ³	1,25			0,0452			lb/in ³

AESSTAR Technology

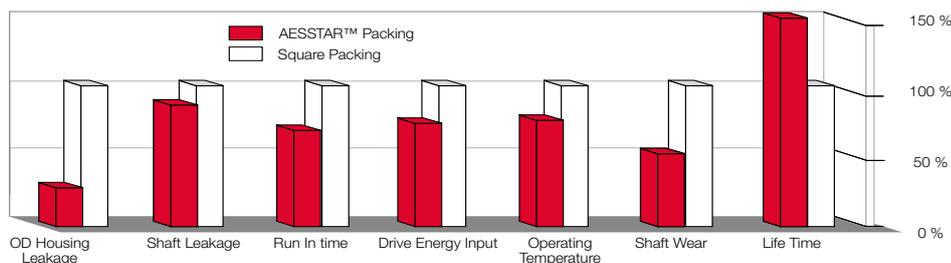
Normal packing deforms, especially when large cross-section packing is wrapped around a small diameter shaft. The AESSTAR range is specially produced with a non-uniform keystone cross-section, which forms the perfect section when installed in the stuffing box. The AESSTAR range transforms from a keystone into a square shape, providing an even pressure distribution over the entire stuffing box, avoiding leakage along the outer diameter and minimizing the wear of both the shaft and the packing. This extends the life of the packing, improves the sealability and gives shorter 'run-in' periods.



The red arrow stamp on the outside diameter of AESSTAR packing indicates the outside diameter stuffing box bore side of the packing and displays **the preferred installation orientation**. Therefore, it is recommended that the arrow mark point in the direction of the shaft rotation.

AESSTAR Packing is manufactured in sizes 10mm (0.375") and above. Smaller sizes are manufactured in square cross-section.

Trapezoid Advantage



Style 250TP ARASTAR

Aramid staple fibre with PTFE-blocking agent and silicone free 'run-in' lubricant.

Characteristics

- Volume stable, pressure stable, also usable for fittings
- Offers excellent wear resistance, suited to abrasive and hardening media
- Dense surface and cross section with high PTFE content and special yarn structure
- High cross-section density, protects against crystallising media
- Recommended shaft hardness HRC*50
- Trapezoidal shape for reduced shaft wear



	25	100	100	360	1450	1450	
p (bar)	25	100	100	360	1450	1450	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-50 ... +250			-58 ... +480			t °F
pH	2-12			2-12			pH
g/cm ³	1,20			0,0434			lb/in ³

Also available:

In square shape as Style 245 and as Style 240 without 'run-in' lubricant in a range of sizes for valve applications.

Style 266TP ALLSTAR

Combination braid of ePTFE yarn with incorporated graphite and MetaAramid fibres and special pore-filling impregnation.



Characteristics

- Highest practical standardization possibilities
- Reduced wear through special 'running track' reinforcement
- High cross section density and compactness, still elastic and flexible; good with hardening and crystallizing products
- Special impregnation ensures packing will not harden and improves pliability
- Recommended shaft hardness HRC*45
- Excellent chemical resistance

p (bar)	25	150	150	360	2200	2200	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	1-13			1-13			pH
g/cm ³	1,50			0,0542			lb/in ³

Style 275TP SLURRYSTAR

Combination braid of ePTFE / Graphite and Para-Aramid fibre as corner reinforcement with special pore-filling impregnation.



Characteristics

- Corner reinforced packing with reduced wear through improved heat conductivity
- Extrusion resistant, ideal for worn equipment with bigger gap width
- Recommended shaft hardness HRC*50
- Universal packing for abrasive media

Suitable for: Paper and pulp, sugar, sewage and chemical industries.

p (bar)	25	500	250	360	7200	3600	p (psi)
v (m/s)	20	3	-	3900	600	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	2-12			0,054			pH
g/cm ³	1,50			0,0542			lb/in ³

Style 285TP PAPERSTAR

MetaAramid fibre with PTFE blocking agent and 'run-in' lubricant.



Characteristics

- 'Clean packing' required in applications where protection against contamination is required
- High cross-section density and structural stability, still elastic and flexible
- Minimized friction means reduced shaft wear
- Protected against wear with abrasive media
- Simple handling during installation and 'run-in' period
- Recommended shaft hardness HRC*45

Suitable for: Paper and pulp industries, sugar plants and waste water treatment.

p (bar)	25	100	100	360	1450	1450	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	1-13			1-13			pH
g/cm ³	1,40			0,0506			lb/in ³

Style 366TP GRAPHOSTAR

Braided from expanded graphite yarn with integrated carbon fibre reinforcement and carbon fibres as corner reinforcements.



Characteristics

- Non-hardening, good reset capability, coefficient of thermal expansion like steel
- Self-lubricating excellent for use in pumps, minimizing the need of flush water
- Universal plant-wide use in static and rotating applications
- Very good dry running characteristic
- Packing should be densified 15-20% during installation
We recommend the use of die formed rings
- High temperature resistance, excellent heat and electric conductivity
- Wear and extrusion stability through carbon fibre corner reinforcement
- Recommended shaft hardness HRC*45

p (bar)	25	100	300	360	1450	4350	p (psi)
v (m/s)	30	2	-	5900	400	-	v (ft/m)
t °C	-200 ...+550 (*400° in oxidizing atmosphere)			-330...1000 (750 in oxidizing atmosphere)			t °F
pH	0-14			0-14			pH
g/cm ³	1,10			0,0397			lb/in ³

Suitable for: Power stations, boiler houses, petrochemical and paper industries.

Approval: BAM certified for the use in gaseous oxygen @ 60°C and 25 bar // 140°F and 360psi

Style 380TP CARBOSTAR

High purity carbon fibre with cross section impregnation and 'run-in' lubricant.

Characteristics

- Self lubricating fibre with high Carbon content and excellent heat conductivity
- Cross section impregnation avoids the penetration of crystallizing products
- Wear resistant against abrasive products
- Excellent for plant wide standardization
- Recommended shaft hardness HRC*45
- Thermal balanced construction, the coefficient of expansion is similar to steel, the packing is volume stable and does not shrink; minimal adjustment is required



p (bar)	30	100	100	435	1450	1450	p (psi)
v (m/s)	25	2	-	4900	400	-	v (ft/m)
t °C	-50 ...+300			-58 ... +570			t °F
pH	2-12			2-12			pH
g/cm ³	1,45			0,0524			lb/in ³

Suitable for: Sugar mills, pulp and paper industry

Style 728TP PAPERSTAR HS

Hybrid braid in W-Profile made of heat conductive ePTFE Yarn with Meta-Aramid fiber reinforcement and Silicone Run In Lubricant

Characteristics

- Clean packing with ultimate heat conductivity for abrasive products in pumps and other rotating equipment
- Recommended shaft surface hardness: HRC 35
- Porosity filling coating increases density and protects the packing in crystallizing mediums.



p (bar)	20	100	100	290	1450	1450	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	1-13			1-13			pH
g/cm ³	1,55			0,0560			lb/in ³

Suitable for: Paper and pulp Industry, power plants, chemical industry and waste water treatment plants and Applications with abrasive products and when white packing is required

Approval: This packing is certified to the regulations of EC 1935:2004 in accordance with EU 10/2011

Style 745TP FOODSTAR

Combination braid of PTFE and PTFE fibre with incorporated heat conductive microparticles.

Characteristics

- 'White packing' means no product contamination
- Wide chemical resistance
- Increased lifetime due to mechanical resistance and outstanding heat conductivity
- Recommended shaft hardness HRC*25
- Form stable universal packing, suitable for vacuum

Suitable for: Pharmaceutical, chemical, pulp and paper and food industries.

Approval: this packing has conformity with FDA CFR 177.1550 and is certified to the regulations of EC 1935:2004 in accordance with EU 10/2011



p (bar)	20	100	100	360	1450	1450	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	1-14			1-14			pH
g/cm ³	1,80			0,0650			lb/in ³

Style 770TP PULPSTAR

Combination braid of ePTFE / Graphite and PTFE fibre with special pore-filling impregnation.

Characteristics

- High cross-section density and structural consistency, elasticity and adaptability
- Excellent in acidic, alkaline, as well as hardening and crystallising fluids
- A special impregnation prevents hardening of the packing
- Universal chemical use
- Improved gliding properties minimizing wear
- Recommended shaft hardness HRC*25

Suitable for: Paper and pulp, sugar and chemical industries.



p (bar)	25	250	250	360	3600	3600	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	0-14			0-14			pH
g/cm ³	1,60			0,058			lb/in ³

Style 789TP-PROSTAR

Hybrid-Braid made of ePTFE/ Graphite and Graphite Yarn with additional X-Section Impregnation and Silicone Run In Lubricant

Characteristics

- Preferred packing for sealing abrasive mediums in all manner of plant rotating equipment
- Excellent when used in crystalizing products
- Low Coefficient of friction and ultimate heat conductivity
- High plant standardization possibilities
- Recommended Shaft Surface Hardness HRC35

Suitable for:

Bauxite industry, general mining applications, ash slurries in power plants, chemical industry, waste water treatment plants and universal use



p (bar)	25	250	150	360	3600	2200	p (psi)
v (m/s)	25	2	-	4900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	0-14			0-14			pH
g/cm ³	1,55			0,0560			lb/in ³

Style 795TP UNISTAR

Braided from 100% ePTFE / Graphite incorporated fibre with silicone 'run-in' lubricant.

Characteristics

- Excellent heat conductivity
- Very easy and safe assembly. Also easy to cut and handle
- No embrittlement or ageing and easy to dismantle
- Recommended shaft hardness HRC*25
- Universal chemical resistance

Option: Style 795TP is available in square braid as Style 787



p (bar)	25	250	100	360	3600	1450	p (psi)
v (m/s)	25	2	-	4900	400	-	v (ft/m)
t °C	-100...+280			-148...+535			t °F
pH	0-14			0-14			pH
g/cm ³	1,50			0,0542			lb/in ³

Valve Packing

Valve packing is generally used in high pressure applications.

The packing contains no extractable materials such as oil and remains non-porous even under extreme temperatures. The construction has a fine surface texture making it pliable against the valve stem and is by design very extrusion resistant.

Style 310

Carbon-filament yarn with high temperature graphite impregnation.

Characteristics

- High temperature graphite impregnation raises the cross-section density and acts as a stable pressure cushion for the carbon fibres
- Elastic, doesn't wear and offers valve stem protection
- Very good with temperature changes as carbon and steel have a similar thermal expansion coefficient
- Excellent suitability for bullrings (anti-extrusion rings) in combination with expanded graphite packing like Style 350, 351,355



p (bar)	30	-	300	435	-	4350	p (psi)
v (m/s)	15	-	-	3000	-	-	v (ft/m)
t °C	-40 ... +550 <small>(400° in oxidizing atmosphere)</small>			-40 ... +1000 <small>(750 in oxidizing atmosphere)</small>			t °F
pH	2-12			2-12			pH
g/cm ³	1,15			0,0415			lb/in ³

Style 337

Braided from expanded graphite tape, with reinforcement and a special PTFE film coating

Characteristics

- Avoids 'slip-stick' effect
- Excellent in MOV and AOV control valves
- Easy to cut, assemble and disassemble
- We recommend die formed rings
- Non-hardening, good reset capability, coefficient of thermal expansion similar to steel
- High cross section density and sealability to minimize emissions
- Wear and extrusion stability through structure reinforcement
- Low coefficient of friction minimises adjustment force on valve steam
- Rings should be compressed 20-25% of their height during installation



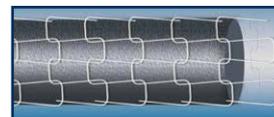
p (bar)	-	-	150	-	-	2200	p (psi)
v (m/s)	-	-	-	-	-	-	v (ft/m)
t °C	-50 ... +300			-58 ... +570			t °F
pH	0-14			0-14			pH
g/cm ³	1,35			0,0488			lb/in ³

Style 340

Braid made of flexible expanded natural graphite foil with a 10 myh wire mesh reinforcement per braiding strand.

Characteristics

- Packing needs to be densified 15-20% during the assembly
- Excellent disassembly due to wire reinforcement compared to standard expanded Graphite rings
- High extrusion resistance, can be used as bullring for Style 350, 351 & 355
- Highest quality pure graphite gives a coefficient of expansion similar to steel
- Universal valve packing
- Non hardening
- Die formed rings are recommended



p (bar)	-	-	500	-	-	7200	p (psi)
v (m/s)	-	-	-	-	-	-	v (ft/m)
t °C	-200 ... +650 <small>(400° in oxidizing atmosphere)</small>			-330 ... +1200 <small>(750 in oxidizing atmosphere)</small>			t °F
pH	0-14			0-14			pH
g/cm ³	1,15			0,0415			lb/in ³

WARNING not to be used in rotating application!

Approval: BAM certified for the use in gaseous oxygen @ 60°C & 25 bar // 140°F & 360psi

Valve Packing

Style 343

Braided from specially formulated expanded graphite, reinforced with a proprietary inconel wire matrix and impregnated with a passive, inorganic corrosion inhibitor



Characteristics

- Non-hardening, excellent re-adjustment capability, coefficient of thermal expansion similar to steel
- Extrusion stability through ultrafine inconel metal mesh reinforcement on each braided strand
- Universal plant wide use in all block and manual valves
- Passive corrosion inhibitor to protect valve stems
- High temperature and high pressure capabilities
- Easy to install and easy to remove from stuffing boxes
- Low coefficient of friction, valves open/close more easily
- No torque required, rings should simply be compressed 20-25% of their original height during Installation

p (bar)	-	-	500	-	-	7200	p (psi)
v (m/s)	-	-	-	-	-	-	v (ft/m)
t °C	-200 ...+650 (450° in oxidizing atmosphere)			-330...1200 (840 in oxidizing atmosphere)			t °F
pH	0-14			0-14			pH
g/cm³	1,45			0,0524			lb/in³

Approval: BAM certified for the use in gaseous oxygen @ 60°C and 25 bar // 140°F and 360psi , API 622 certified and API 589 Firesafe tested. TA Luft 400 tested. Please ask for details.

Style 355

Braid made of flexible expanded natural graphite foil with an integrated inconel reinforcement per fibre strand.



Characteristics

- Highest quality pure graphite gives a coefficient of expansion similar to steel
- Packing needs to be densified 15-20% during the assembly
- Improved disassembly compared to standard expanded graphite rings
- Can be universally applied
- Non hardening
- Die formed rings are recommended

p (bar)	-	-	300	-	-	4350	p (psi)
v (m/s)	-	-	-	-	-	-	v (ft/m)
t °C	-200 ...+550 (400° in oxidizing atmosphere)			-330...1000 (750 in oxidizing atmosphere)			t °F
pH	0-14			0-14			pH
g/cm³	1,20			0,0434			lb/in³

WARNING not to be used in rotating application!

Style 375

Highest grade graphite filament yarn with high temperature graphite impregnation.



Characteristics

- Works perfectly as bullring for softer packing made of expanded graphite
- The high temperature graphite impregnation increases the cross section density and works as a form stable pressure cushion for the graphite fibres
- Purity > 99% C content
- Universal chemical resistance
- Excellent where temperature varies, since graphite has a similar coefficient of expansion as steel

p (bar)	30	-	300	435	-	4350	p (psi)
v (m/s)	15	-	-	3000	-	-	v (ft/m)
t °C	-40 ...+650 (450° in oxidizing atmosphere)			-330...1200 (840 in oxidizing atmosphere)			t °F
pH	1-14			1-14			pH
g/cm³	1,00			0.03613			lb/in³

Suitable for: Power plants, boiler houses, high pressure and high temperature applications, digester applications

BAM approval for the use in gaseous oxygen @ 60°C/15bar / 140°F/218 psi

Style 730

100% PTFE-fibre with special PTFE dispersion.



Characteristics

- For high pressure and vacuum applications
- Long operational period, does not wear
- Die formed rings are recommended
- Very little maintenance, few adjustments necessary
- Universal chemical usefull range
- Lowest coefficient of friction

A special version Style 735OX, is available with BAM approval for oxygen in liquid & gas form at 30 bar/60°C (435 psi/140°F).

p (bar)	25	250	500	360	3600	7200	p (psi)
v (m/s)	2	1,5	-	400	300	-	v (ft/m)
t °C	-200...+280			-330...+535			t °F
pH	0-14			0-14			pH
g/cm³	1,65			0,0596			lb/in³



Density 1,8. This special packing has conformity with FDA CFR 177.1550 and is certified to the regulations of EC 1935:2004 in accordance with EU 10/2011

Special Packing

The packing uses fibres and a braiding process specifically developed to suit the application.

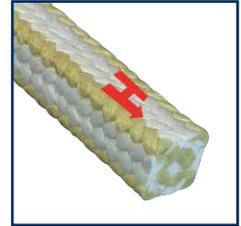
The formulation of the materials and lubricants is selected to suit the environment in which the packing is used.

Style 260

Combination-braid of PTFE-fibre with ParaAramid corner reinforcement and 'run-in' lubricant.

Characteristics

- High cross-section density and compactness
- Elastic and flexible
- Also usable in pumps
- Recommended shaft hardness HRC*55
- Universal quality for high pressure applications and use with abrasive media
- No contamination of media
- Wear resistant and form stable



p (bar)	25	500	250	360	7200	3600	p (psi)
v (m/s)	20	2	-	3900	400	-	v (ft/m)
t °C	-100 ... +280			-148 ... +535			t °F
pH	2-12			2-12			pH
g/cm ³	1,50			0,0542			lb/in ³

Style 720

PTFE-fibre with PTFE dispersion and silicone free 'run-in' lubricant.

Characteristics

- Pliable, easy to compress packing
- Recommended surface hardness HRC*25
- Good emergency running properties
- Excellent chemical resistance

Clean packing should be used where contamination of product has to be avoided.



p (bar)	15	100	100	220	1450	1450	p (psi)
v (m/s)	10	1,5	-	2000	300	-	v (ft/m)
t °C	-50...+280			-58...+535			t °F
pH	0-14			0-14			pH
g/cm ³	1,70			0,0614			lb/in ³

A special version Style 725SI, with density 1.90 is made from food grade fibers and an improved silicone oil. The packing is FDA compliant and approved to EN 1935:2004 according to EN 10/2011.



Style 760

PTFE-fibre with incorporated graphite.

Characteristics

- Very stable shape, little wear
- Good heat conductivity
- Can be used as a bullring
- Recommended surface hardness HRC*25
- Recommended for HIGH PRESSURE applications in valves and piston pumps
- Suitable for oxygen bleaching operations

BAM approval for oxygen in liquid and gas form at 65 bar / 40°C and 50 bar / 200°C (945 psi / 105°F and 725 psi / 390°F.

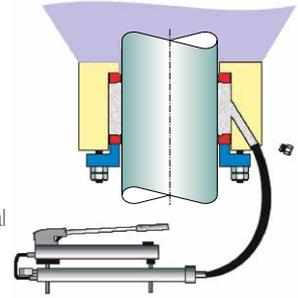


p (bar)	40	800	500	580	11600	7200	p (psi)
v (m/s)	8	3	-	1600	600	-	v (ft/m)
t °C	-200...+280			-330...+535			t °F
pH	0-14			0-14			pH
g/cm ³	1,35			0,0488			lb/in ³

DVS INJECTSTAR

The DVS INJECTSTAR Packing Compound System was developed for the pulp and paper and the chemical industry and is suitable for the application in mixers, kneaders and similar equipment. Due to its excellent pliability, the system can also be used on worn shaft surfaces. With only the top and bottom rings need to be precise dimensioned.

The special fibres and the suitable lubricant make the DVS INJECTSTAR System suitable for universal use. The loose compound is held in place with a top and bottom ring shaped in a special geometry. Additional material and compression is applied by a hydraulic feeding unit. The system needs little maintenance only and due to its loose structure, it doesn't wear the shaft surface.



- Simple installation
- Can be used without barrier fluid
- Maintenance free
- Operates well on worn shaft surface
- Shaft protecting
- Requires no adjustment of the gland
- Density 1.1 g/cm³
- Can be re-pressurised in operation



Universal ending can as well be supplied in radial split design

v [m/s]	12	39	v (ft/s)
t °C	-40 ... +315	-40 ... +599	t °F
pH	2 - 12	2 - 12	pH

Colour: Black Application: High temperature



Technical Parameters DVS-5400

v [m/s]	8	26	v (ft/s)
t °C	-10 ... +260	+14 ... +520	t °F
pH	2 - 12	2 - 12	pH

Colour: White Application: General use



We supply a two component system — H and P in both styles DVS 5400 and 4800.

Component H: Designed for a quick manual fill of the Stuffingbox.

Component P: Designed for injection with our press style DVS TP 9000. Unit: Cans 1 kg (2.2 lbs), Hobbok of 15 kg (33 lbs).

ENVIROSTAR 200, 300 and 400

Reliability and environmental focused packing solution for valves. TA Luft and EN 15848 approved systems are die formed ring assemblies with some of the lowest emission rates and minimized 'slip-stick' effect in automatic driven control valves.

ENVIROSTAR 200

- This ring set of pure PTFE packing and PTFE compound bullrings, is a high-level technological solution complying with TA Luft directives
The set was tested and approved by the MPA (Material Proof Institute of the University of Stuttgart, Germany)
- The leakage parameters of 4.2x10⁻⁵ mbar l/(sm) complies with the VDI directives 2440, which specifies a maximum allowed leakage of 1.0x10⁻⁴ mbarl/(sm) (test media- helium) and is recommended as a high grade sealing system



MPA Approved

ENVIROSTAR 300

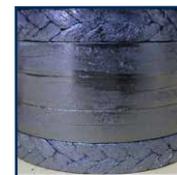
- The ring set of inconel matrix reinforced expanded graphite yarn with a PTFE coating and a special high temperature pore filling impregnation, is a high-level technological solution and complies with TA Luft directives
The set was tested and approved by the AMTEC Institute Lauffen, Germany.
- The leakage parameters of 8,4x10⁽⁻³⁾mbar l/(ms) complies with the VDI directives 2440, which specifies a maximum allowed leakage of 1.0x10⁻² mbarl/(sm) (test media- helium) and is recommended as a high grade sealing system and is as well to ISO 15848 approved and tested with 20.000 cycles and 2 thermic cycles (RT,200°C) and a leakage rate of 6.1x10⁽⁻⁴⁾ mg/s/m.



AMTEC Approved

ENVIROSTAR 400

- Packingset made by combining two expanded Graphite grades and designs in order to avoid blow out and extrusion and as well enhance the sealability of this valve sealing set.
The set was tested and approved by the AMTEC GmbH Lauffen in Germany.
- The leakage parameters of 8,6x10⁽⁻³⁾mbar l/(ms) complies with the VDI-directives 2440 which specifies a maximum allowed leakage of 1.0x10⁽⁻²⁾mbar l/(ms) (test media helium) and is therefore recommended as a high grade seal system.



AMTEC Approved

Requirements for ENVIROSTAR products:

- Max surface roughness: Stem:Ra~ 1 um, Housing:Ra ~ 5 um

These tests have been successfully passed without live loading. Nevertheless for highest performance and maximum sealing lifetime, we recommend for pressure above 40 bar/580 psi and frequently varying temperature and pressure, the use of LIVESTAR our Live Loading System (See page 17).

Die Formed Ring Packing

Custom made ring sets are available for pumps, agitators, valves and reciprocating equipment. Die formed and pre-cut rings are today's user-friendly solution and provide the best sealing result without product waste.

Assembly is simple and secure. A tool stock of over 2,000 die forms in various sizes enables us to fulfil the demands of most pump and valve packing users of quick seal sets.

All of our packing range can be made as pre-cut or pre-compressed, die formed rings. The advantages include:

1. Improved Performance: Packing is supplied close to its working density. The ring stack has a uniform density throughout the stuffing box length, no over compression of rings next to gland.

2. Reduced Inventory: Excess inventories in packing spools of different sizes and styles are eliminated using ring sets dedicated for an application. Common equipment with identical stuffing box sizes and similar application may use the same spare part ring set.

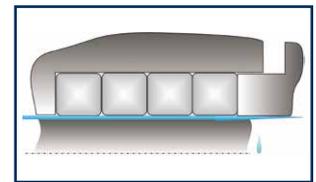
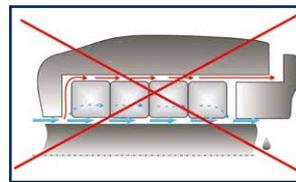
3. Waste Elimination: Die formed or pre-cut ring sets eliminate waste created when packing is cut onsite. A ring set has the exact amount of packing rings to pack a pump or valve. Furthermore, no waste occurs when additional packing material of a spool is not returned to stock.

4. Faster Installation: Ring sets reduce repacking time as well as the start up time, and minimize the amount of readjustments.

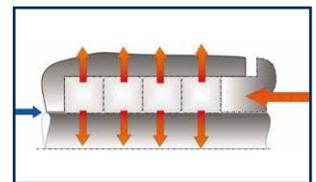
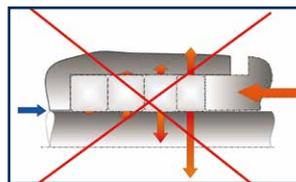
5. Reduced Mis-application: Dedicated to an application all ring sets can be labelled as spare part for equipment.

6. Tracking: Ring sets as a spare part for any equipment can be performance tracked with our Asset Health program.

To easily identify a dedicated packing ring set for an application, customer stock ring sets can be custom labelled by style, size, number of rings, stores codes, barcodes and other information on request. Our software selects from over 2,000 quality dies the right one for an application and converts from inch to metric sizes.



Controlled Leakage path through ring cuts with additional length



Optimized pressure distribution with die formed rings

Best Technical Solution

Design:

- Made from all common types of packing
- Rings or tubes, open, closed or glued ends

Form of Delivery:

- Pre-compressed or form cut rings, complete sets
- Available dimensions: 2.5mm (0.079") to 500mm (19.700")
- Custom made construction on request following drawing details

Advantages of Die Formed Packing Rings:

- Improved sealing - longer service life
- Faster and easier installation - error prevention
- Perfect cut - elimination of waste
- Even pressure distribution - shorter 'run-in' process
- Minimized energy loss due to reduced friction

Special literature for designed ringsets for specific applications is available on request



Select from over 2,000 die forms the best solution for your application



Die Forming Press



CONTROLSTAR



SOOTSTAR



SCANSET

LIVESTAR BES – Live Loading System

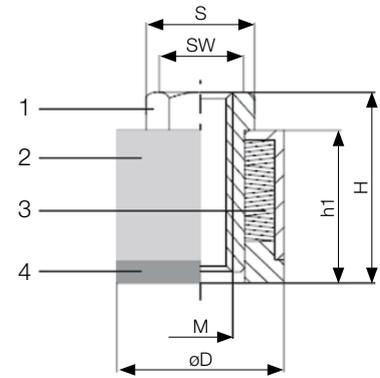
New generation encapsulated disc spring system with defined compression length.

Main areas of application:

- Valves • Control valves • Sootblowers

Advantages:

- Disc springs slide on an even machined surface rather than on the bolt thread
- Disc springs are encapsulated by outer cylinder and protected against environmental impact
- Simplified installation, no torque measuring tools necessary
- Adjustment indicator shows relaxation of the spring set due to volume loss or wear of the packing stack. Simply tighten the nut until the gap closes
- BES-Life loading system acts as a prevention against mechanical destruction of packing keeping it under the optimum compression at all times
- Extended nut screws on the existing valve bolt thereby eliminating the need for new longer bolts



Material of Construction		
Pos	Part	Materialspec
1	Nut/Boltextension	1.4301
2	Springcup	1.4305
3	Spring	1.8159 galCd
4	Springcover	1.4305

Typical Problem:

The stack of disc springs is too long for the available bolt length. As a result the bolts need to be replaced which is time and cost consuming. Without inner or outer guidance the springs shift asymmetrically on the bolt and display uneven loads and bear the risk to hang up.



The Solution:

The LIVESTAR BES Live loading system screws on top of the bolt giving thereby plenty of extra length to accommodate the uncompressed disc spring stack. The system ensures an equal load of compression for thermal expansion. The optimum compression length is set by the LIVESTAR BES housing dimension.



Functional Description:

When the packing consolidates and wears in operation the springs maintain the gland pressure and the sealing force constant. This consolidation is shown by a small inspection gap at the bottom of the housing. At a routine inspection the system is simply tightened down till the gap is closed again. The full load and compensation length of the disc springs is now available. No torque measuring tools are needed!



Dimensional Data

M in (mm)	Order Type	D in (mm)	H in (mm)	h1 in (mm)	SW	s in (mm)	Bolt center to stem min (mm)	ME(Nm)
M8	L8	22	20.2	14.5	13	14.8	15	5
M8	L8HI	22	20.2	14.5	13	14.8	15	11
M10	L10	26	23	16	17	19.6	18	9
M10	L10HI	26	30.5	23.3	17	19.4	18	19
M10	L10RB	26	30.5	23.3	17	19.4	18	9
M12	L12	32	24	17.2	19	21.9	22	18
M12	L12HI	32	32	25.2	19	21.9	22	40
M12	L12RB	32	32	25.2	19	21.9	22	18
M14	L14	38	28	18	22 ø 24	25.3	26	42
M14	L14HI	38	36	26	22 ø 24	25.3	26	84
M16	L16	38	28	18	24	27.6	27	48
M16	L16HI	38	36	26	24	27.6	27	96
M18	L18	45	63.5	48.5	30	34.5	31.5	119
M18	L18HI	45	63.5	48.5	30	34.5	31.5	159
M20	L20	45	63.5	48.5	30	34.5	32.5	131
M20	L20HI	45	63.5	48.5	30	34.5	32.5	175
M22	L22	60	72	57	41	47	41	132
M22	L22HI	60	72	57	41	47	41	176
M24	L24	60	72	57	41	47	42	145
M24	L24HI	60	72	57	41	47	42	193
M27	L27	89	79	53.6	46	53	58	215

M in (inch)	Order Type	D in (inch)	H in (inch)	h1 in (inch)	s in (inch)	Bolt center to stem min (inch)	ME(ftlb)
0.313	L5/16	0.87	0.80	0.57	0.58	0.59	3.7
0.313	L5/16HI	0.87	0.80	0.57	0.58	0.59	8.1
0.375	L3/8	1.02	0.91	0.63	0.77	0.71	6.6
0.375	L3/8HI	1.02	1.20	0.92	0.76	0.71	14
0.375	L3/8RB	1.02	1.20	0.92	0.76	0.71	6.6
0,4375 ø. 0,50	L7/16 ø. L1/2	1.26	0.98	0.68	0.86	0.87	13.3
0,4375 ø. 0,50	L7/16HI ø. L1/2HI	1.26	1.31	0.99	0.86	0.87	29.5
0.50	L1/2*RB	1.26	1.31	0.99	0.86	0.87	13.3
0.56	L9/16	1.50	1.10	0.71	1.00	1.02	31
0.56	L9/16HI	1.50	1.42	1.02	1.00	1.02	62
0.625	L5/8	1.50	1.10	0.71	1.09	1.06	35
0.625	L5/8HI	1.50	1.42	1.02	1.09	1.06	71
0.750	L3/4	1.77	2.30	1.91	1.36	1.28	97
0.750	L3/4HI	1.77	2.30	1.91	1.36	1.28	129
0.875	L7/8	2.36	2.83	2.24	1.85	1.61	97
0.875	L7/8HI	2.36	2.83	2.24	1.85	1.61	130
1.00	L1	2.36	2.83	2.24	1.85	1.65	107
1.00	L1HI	2.36	2.83	2.24	1.85	1.65	142

AESTEX 100% PTFE Joint Sealant

Materials:

100% pure ePTFE (according to VDE-VDI 2480) in a stretched filament knotted fibre structure. This ensures a high pressure resistance (no cold flow) and a good adaptation to the flange surface.

Characteristics:

- Simple to install, universal plant wide use
- Excellent adaption, ideal to compensate uneven gland surfaces
- Physiologically safe in temperatures up to 260°C/500°F
- Selection criteria: max unevenness of gland should not be greater than 1/3 of resulting seal thickness

Order-Nr.	Width (mm)	Width (inches)	Roll length	Recommended Flange width	Surface Pressure / Resulting Thickness		
					10N/mm ²	20N/mm ²	30N/mm ²
AESTEX/1	1	1/24	25m / 82ft	-	0.15	0.10	0.08
AESTEX/3	3 x 1.5	1/8	25m / 82ft	<NW 100/NW 4"	0.40	0.35	0.30
AESTEX/5	5 x 2	3/16	25m / 82ft	<NW 300/NW 12"	0.80	0.60	0.50
AESTEX/7	7 x 2.5	1/4	25m / 82ft	<NW 800/NW 32"	1.00	0.80	0.70
AESTEX/10	10 x 3	3/8	25m / 82ft	<NW 1.500/NW 60"	1.20	0.90	0.80
AESTEX/12	12 x 4	1/2	10m / 33ft	<NW 1.500/NW 60"	1.45	1.15	0.95
AESTEX/14	14 x 5	9/16	10m / 33ft	>NW 1.500/NW 60"	1.60	1.20	1.00
AESTEX/17	17 x 6	5/8	10m / 33ft	In case of greater unevenness a double layer is recommended	2.10	1.50	1.40
AESTEX/20	20 x 7	3/4	10m / 33ft		2.40	1.80	1.40
AESTEX/25	25 x 5	1.0	5m / 16.5ft		1.60	1.20	1.00
AESTEX/28	28 x 5	1.125	5m / 16.5ft		1.60	1.20	1.00
AESTEX/40	40 x 5	1.5	5m / 16.5ft		1.60	1.20	1.00

Gas tight from 20N/mm² surface pressure during operation conditions

Pressure	[bar]	55	[psi]	800
Temp min.	[°C]	-240	[°F]	-400
Temp max.**	[°C]	+270*	[°F]	+520*
Chem Resist.***	[ph]	0-14		

- * 270°C/520°F is the theoretical material value. 315°C/600°F for short time only.
- ** After first heat cycle retighten the bolts.
- *** Except molten or dissolved alkaline metals, elementary or dissolved flourine under high pressure, non ageing.

Technical parameters dependent on installation conditions. Max values for temperature and pressure are valid only with optimized installation conditions and under constant monitoring

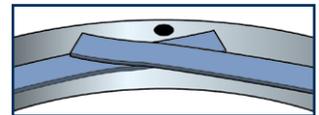


Fig 1

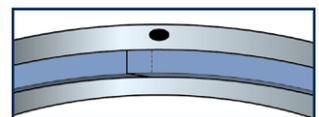


Fig 2

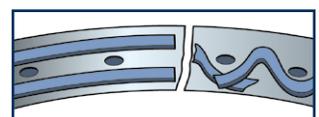


Fig 3



Fig 4

Installation

1. Clean joint surfaces
2. Detach protection strip from adhesive side
3. Place the seal on the flange
4. Overlap the ends by 1-2cm / 3/8-3/4" right in front of a bolt (Fig.1)
5. Cut of the rest of seal

For pressure sensitive flanges use a skive cut see Fig. 2 & 5. On big flanges use a concentric layer or meander as in Fig. 3



AESBIAX 100 % PTFE Flange Gasket Material

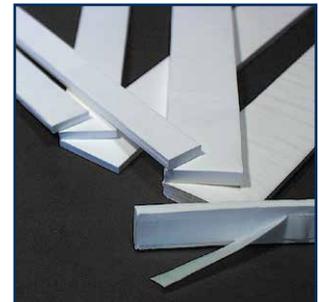
Compression proof and form stable ePTFE joint sealant. Main areas of application: larger flanges and vessels, agitators, glass-lined flanges and heat exchangers

Characteristics:

- No change in width during compression, perfect for narrow or limited surface areas

Material:

100 % pure ePTFE (in accordance with VDE-VDI 2480) in a biaxial expanded structure.



Width in		Thickness in mm (inch)						
mm	inch	2 (0.08)	3 (1/8)	4 (0.16)	5 (3/16)	6 (1/4)	9 (0.35)	10 (0.4)
10	3/8	X	X	X	X	X	X	X
15	9/16	X	X	X	X	X	X	X
20	3/4	X	X	X	X	X	X	X
25	1	X	X	X	X	X	X	X
30	1 3/16	X	X	X	X	X	X	X
35	1 3/8	X	X	X	X	X	X	X
40	1 9/16	X	X	X	X	X	X	X
45	1 3/4	X	X	X	X	X	X	X
50	2		X		X	X	X	X
55	2 3/16		X			X	X	X
60	2 3/8		X			X	X	X
65	2 1/2		X			X	X	X

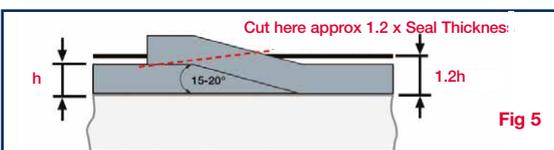


Fig 5

AESBIAX is also available in sheets with the dimension of 1100 x 1000mm / 43,3 x 39,4" and 1500x1500mm / 59x59" in thickness of 0,5mm / 0,02" to 10mm / 0,4". See page 19 AESBIAX D 10

Assembly instruction AESBIAX:

Material ends have to be connected with an approx. 15-20° angle cut.

To seal the cut properly, we recommend to cut slightly longer and overlap the ends to get 120% in material height at the cut in material height.

General Approvals AESTEX and AESBIAX:

FDA Conformity: CFR 177.1550 – "Perfluorocarbon resins"

Food: EC 1935:2004 in accordance with EU10/2011

AESTEX

Approvals: TÜV approval according to MUC-KSP-A066 BAM approval

for gaseous oxygen 60°C/140°F and 40 bar / 580psi

DVGW Reg Nr DG-5127 CL 0032 gas and water approved.

TA Luft: 1.7 x 10⁻⁷ mbar l/(ms) @ 250°C test pressure

AESBIAX

Approvals: TÜV approval according to MUC-KSP-A066

TA Luft: 1.5 x 10⁻⁸ mbar l/(ms) @ 250°C test pressure

BAM approval for gaseous oxygen 60°C/140°F and 40 bar / 580psi (and liquid oxygen gasket sheet only)

As well we manufacture cut gaskets of the mentioned materials in our gasket cutting department.



PTFE Gaskets

AESFLON D3.4 BLUE

PTFE Gasketsheet with Special Anorganic Filler

D3.4 Blue has a high continuity of density distribution over the entire gasket area.

Typical Applications

- Components
- Piping System
- All Flanges, also with reduced gasket compression or smaller surface damages
- Steel, Glass, Ceramic or Plastic flanges
- Highly aggressive media in the full pH range, except for molten alkali metals and fluorine gas.

TA Luft approval VDI 2440

DVGW approval

AESFLON D3.5 FAWN

PTFE Gasketsheet with Silicate Reinforcement

D3.5 Fawn has a high continuity of density distribution over the entire gasket area.

100% virginales PTFE Microstructured PTFE with Silica filler

Typical Applications

- Components
- Piping System
- Steel flanges
- Highly aggressive media in the full pH range, except for molten alkali metals and fluorine gas.

TA Luft approval VDI 2440

FDA Conformity

AESFLON D3.6 White

100 % virgin PTFE, modified and filled with Barium sulfate.

Suitable for Chemical and Petrochemical industry

Characteristics

- Protected against cold flow
- Excellent recovery
- Excellent chemical resistance in caustic applications
- Reduced leakage rates compared to other filled PTFE gaskets under the same gasket stress.

TA Luft approval DIN 2440

FDA Conformity

AESBIAX D10

Formstable **biaxially expanded ePTFE** sheets or die cutted gaskets.

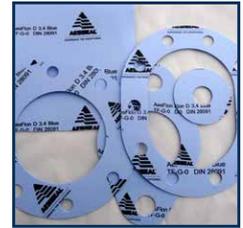
Characteristics

- Excellent adaption
- High blow-out resistance
- No cold flow
- Chemically inert

TÜV approval according to MUC-KSP-A066

TA Luft: 1.5 x 10 (-8) mbar l/(ms) @ 250°C test pressure

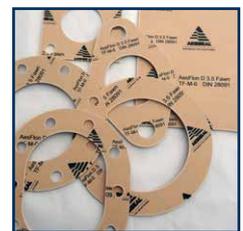
BAM approval for gazeous oxygen 60°C/140°F and 40 bar / 580psi and liquid oxygen



Pressure	Vacuum to 55 bar	Vacuum to 800 psi
Temp. min.	-210°C	-345°F
Temp. max.	+260°C (315°C*)	+500°F (600°F*)
Chem. Resist. ***	pH 0 - 14	

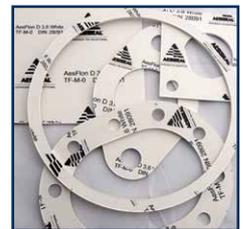


* Short term. *** Except molten or dissolved alkaline metals, elementary or dissolved fluorine under high pressure, non-ageing. The provided Pressure and Temperature data is based on optimal installation condition and steady control of the flange connection.



Pressure	Vacuum to 55 bar	Vacuum to 800 psi
Temp. min.	-180°C	-290°F
Temp. max.	+230°C (260°C*)	+445°F (500°F*)
Chem. Resist. ***	pH 0 - 14	

* Short term. *** Except molten or dissolved alkaline metals, elementary or dissolved fluorine under high pressure, non-ageing. The provided Pressure and Temperature data is based on optimal installation condition and steady control of the flange connection.



Pressure	Vacuum to 55 bar	Vacuum to 800 psi
Temp. min.	-180°C	-290°F
Temp. max.	+230°C (260°C*)	+445°F (500°F*)
Chem. Resist. ***	pH 0 - 14	

* Short term. *** Except molten or dissolved alkaline metals, elementary or dissolved fluorine under high pressure, non-ageing. The provided Pressure and Temperature data is based on optimal installation condition and steady control of the flange connection.



Pressure	Vacuum to 200 bar	Vacuum to 2900 psi
Temp. min.	-210°C	-345°F
Temp. max. **	+270°C (315°C*)	+520°F (600°F*)
Chem. Resist. ***	pH 0 - 14	



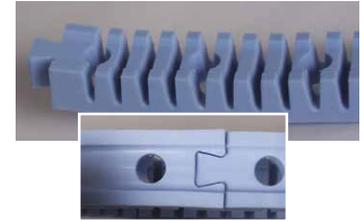
* Short term. ** After first heat cycle retighten the bolts. *** Except molten or dissolved alkaline metals, elementary or dissolved fluorine under high pressure, non-ageing. The provided Pressure and Temperature data is based on optimal installation condition and steady control of the flange connection.

AQUASTAR

New improved cut in place AQUASTAR PTFE Lantern Ring made of 100% virginal PTFE with FDA conforming filler.

Characteristics:

- Economical storage: independent from shaft diameter, delivered in 1180mm lengths
- Does not corrode or wear shafts, no tilting effect during assembly and in use
- Replacement for machined metal lantern water rings
- Universal use through excellent chemical and thermal resistance
- Easy to remove with packing extractor



Form of delivery:

1180mm / 3,87ft per roll. Special sizes and length available on request

Dimensions:

The height of the lantern ring depends on the stuffing box cross-section (see chart below).

t °C	-100 ... +250	-148 ... +482	t °F
pH	0 - 14	0 - 14	pH

Stuffingbox section	mm	8		10		12		13	14	15	16	18	19	20	22	25
	inch	5/16	3/8		7/16		1/2		9/16		5/8		3/4		7/8	1
Height x width	mm	7,6 x 11,4	9,0 x 13,2	9,4 x 13,2	10,5 x 14,3	11,1 x 15,6	12,1 x 17	12,6 x 17	13,5 x 19,2	14,2 x 19,2	15,2 x 20,6	17 x 22,1	18,1 x 22,1	19 x 23,8	20,8 x 25,2	23,5 x 28,2
	inch	0,30 x 0,45	0,35 x 0,52	0,37 x 0,52	0,41 x 0,56	0,44 x 0,61	0,48 x 0,67	0,50 x 0,67	0,53 x 0,75	0,56 x 0,75	0,60 x 0,81	0,67 x 0,87	0,71 x 0,87	0,75 x 0,94	0,81 x 1,00	0,93 x 1,11



Maintenance Tools

Special auxiliary equipment tailor-made for daily use. Proven quality tools support the quick and reliable installation of all kinds of stuffing box packing.

Packing Cutter Special tool for precise Stuffing Box Packing Cutting

Description:

Compact and wear resistant tool made of **aluminium**. Versions available:



Advantages:

- Packing cut without necessary length calculation (an adder-factor x - is already included)
- Time saving
- Repeatable results
- No waste
- Suitable also for AESSTAR packing

Technical Data:

- Shaft diameters: up to 110mm (4.330")
- Using extension (accessory: W5/PS-V) up to 250mm (10.000") diameter
- Scale: in inches and mm
- Packing sizes: from 3mm (0.125") to 30mm (1.125")
- Spare parts available

Portable packing cutter

This Manual Packing Cutter allows cutting braided packing in a safe, quick and easy way, providing precision skive and butt cuts for the high quality packing installations. PROCUT will cut all kind of common packing styles, with the exception of Aramid and Inconel reinforced packing. The spring loaded adjustable guide locks into 90, 75 and 45 degree positions for fast and precise cuts every time.



Maintenance Tools

Packing Extractor

Construction:

These Packing Extractors have a flexible non-torsion shaft with a tightly bound screw tap nose which is either a sharp screw head or a helical screw head.

Advantages:

Excellent for spot drilling and extracting of old and hardened packings as well as blocked and difficult locations. Special versions in other lengths are available.

Versions

- Type W2S04 - 4mm (1/6") sharp screw head with 100mm (4") flexible non-torsion shaft
- Type W2W06 - 5.5mm (3/16") helical screw head with 100mm (4") flexible non-torsion shaft
- Type W2S06 - 6mm (1/4") sharp screw head with 160mm (6 3/8") flexible non-torsion shaft
- Type W2W08 - 8mm (5/16") helical screw head with 160mm (6 3/8") flexible non-torsion shaft
- Type W2S08 - 8mm (5/16") sharp screw head with 200mm (8") flexible non-torsion shaft
- Type W2W10 - 10mm (3/8") helical screw head with 200mm (8") flexible non-torsion shaft
- Type W2S10 - 10mm (3/8") sharp screw head with 260mm (10 3/8") flexible non-torsion shaft
- Type W2W12 - 12mm (1/2") helical screw head with 260mm (10 3/8") flexible non-torsion shaft



Sharp Screw Head W2S



Helical Screw Head W2W



Safe and easy remove of packing rings with the Lever Tool

available for type W2S08, W2W10, W2S10, W2W12.

To order enter code example: W2S08 SPZ for special packing extractor and for the lever enter code example: W2S08 LEV



Packing Selection Database

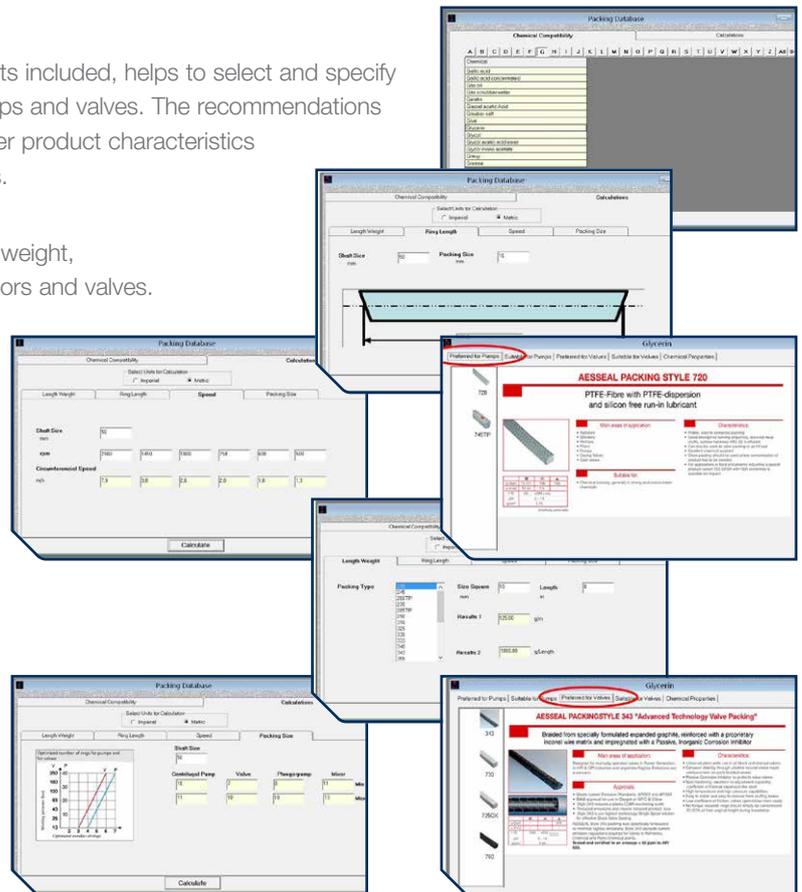
A new developed database with almost 500 products included, helps to select and specify stuffing box packing for specific applications in pumps and valves. The recommendations are sorted alphabetically by product name. They offer product characteristics and recommendations, as well as possible solutions.

The software can calculate packing length, packing weight, ring-cut length and cross-sections for pumps, agitators and valves.

In addition our technical department can provide support (and highly recommended in critical applications)

Software Features:

- Guidance on style of packing suitable to seal a specific chemical
- Definition of correct size cross-section of packing
- Definition on amount of packing rings needed
- Check of surface shaft speed
- Calculates the cut length of packing rings
- Equipment site survey
- Asset health
- Meter/Foot per weight yield of different packing styles



Mechanical Packing Installation

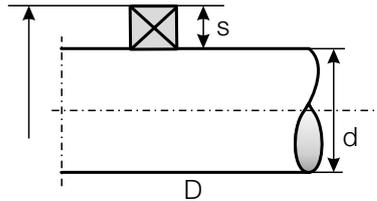
The successful installation of mechanical packing is a combination of common sense with easy to follow recommendations.

- 1) Remove **all** the old packing from the stuffing box.
- 2) Clean the stuffingbox thoroughly removing all debris and inspect for damage on the sealing surfaces.
- 3) Check the flush is working and has clean water.
- 4) Inspect the application and report any concerns to a higher authority (even at a later time) so that it can be logged.
- 5) Cut the selected packing using a sharp knife with one movement (don't saw through the packing). Use a proper packing cutting device.
- 6) Insert cut ends of a butt cut ring first then press the rest of the ring against the cut in the stuffingbox.

Calculation of Cutting Length

For best results use an AESSEAL packing cutter!

Calculation of cut length	
$L =$	$(d+s) \cdot \pi \cdot x$ [mm]
$s =$	$(D-d)/2$
$x =$	Adding factor = 1.02 to 1.08



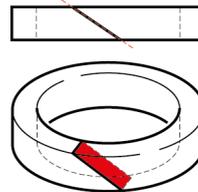
Adding factor x in % of middle line circumference

Shaft diameter	Add
up to 50 mm / 2"	6-8%
51 to 100 mm / 2" bis 4"	4-6%
101 to 200 mm / 4" bis 8"	3-5%
201 mm / 8" plus	2-4%

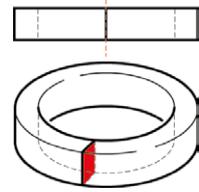


Recommended Packing Cut Angle

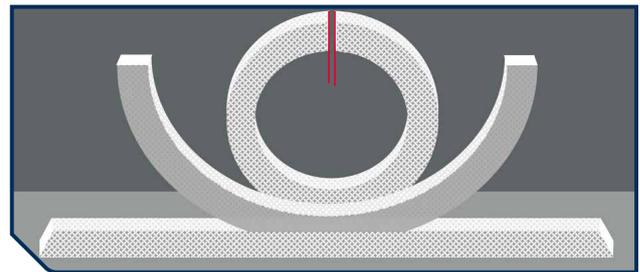
Skive cut 45°
(Valve and reciprocating pumps)



Butt cut approx. 75°
(rotary shafts)



Butt cut with an cutting angle of approx 75° brings the ends in ringform in a parallel orientation



Types of Cut

Pumps and Mixers (Rotary): A butt cut is recommended, if a skive cut is chosen the ring should be pre-compressed in a die form.

Butt Cut Rings: Cut at approx 75 degrees. Add extra length in % to circumferential middle line according the chart.

Valves (Static): A skive cut is recommended, exception fraying packing styles which are preferably cut butt.

Skive Cut Rings: Cut at 45 degrees on circumferential middle line and add 2%.

- 6) Tamp down each ring of packing with a suitable tool; do not attempt to tamp down all the rings at once with the gland, as it is not possible. If a ring is a tight cross-sectional fit, do not tap it with a hammer to reduce its cross-section as this can damage the fibres. Instead, gently roll it with a round item.
- 7) Position: Distribute the packing joints symmetrically to eliminate any leak path. Tighten the gland with the nuts equally.
- 8) **Installation of Valve Packing:** Pre-compress the packing for pressures up to 50 bar (725 psi) with about 2 times (gaseous liquids up to 5 times) the pressure and a minimum of 5 N/mm²/725 psi (gaseous 10 N/mm²/1.450 psi) above 50 bar (725 psi) with 1.5 times (gaseous products up to 2 times) the pressure.

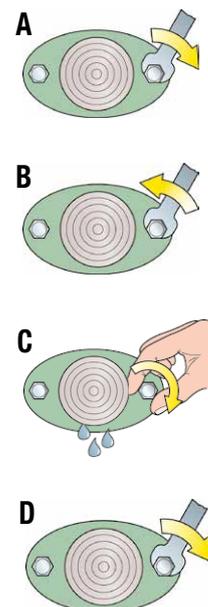
Installation of Pump Packing: The applied gland force should ensure that the rings are seated properly to the stuffingbox bottom and compressed enough to form a seal. (Step A) Then loosen the nuts to relax the gland compression (Step B) and adjust the nuts only finger tight (Step C), checking where possible so that you can rotate the shaft by hand.

Turn on the flush (if used). Start up the equipment. Leave pump operating for 20 minutes before making any adjustments. Tighten as required by one flat of the nuts at 10 minute intervals until acceptable leakage is achieved (Step D).

Never - Over tighten the gland nuts. If the gland is too tight, the fluid film between shaft and packing can be destroyed and packing life reduced.

Never - Back-off (slacken) the gland nuts under pressure!

Backing-off the gland nuts can allow hydraulic force from the product to push back the packing. Force from the gland follower cannot overcome the hydraulic force, and the integrity at the base of the stuffing box will be destroyed. The position of the lantern ring may also be affected and this may cut off the flush water flow.

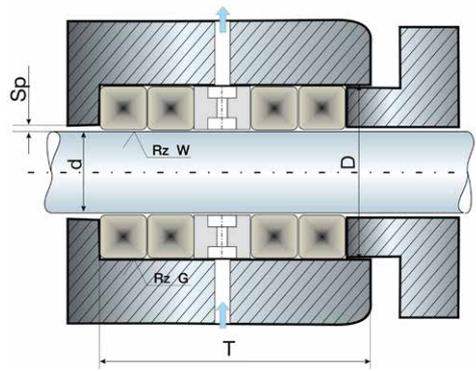


Stuffing Box Design

To avoid extrusion, the gap between shaft and housing, or between shaft and packing gland, should not exceed 2% of the packing size for higher pressure valve applications and 5% of packing size for lower pressure pump applications.

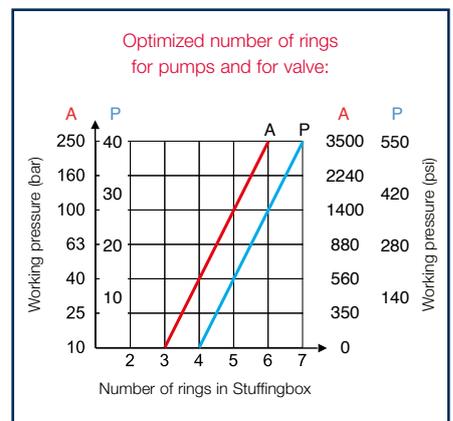
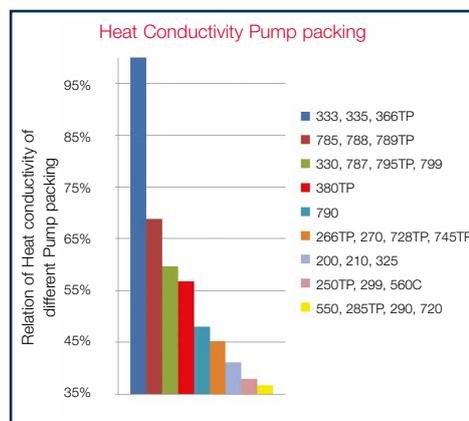
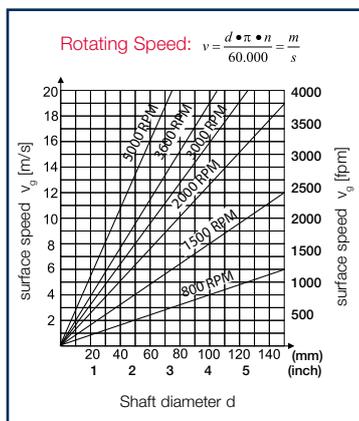
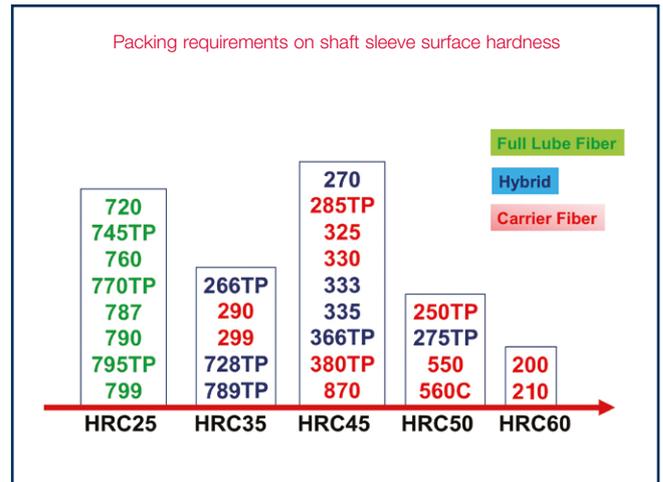
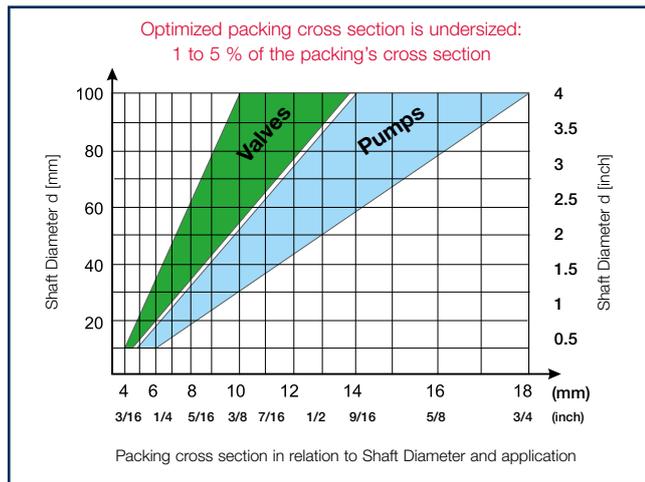
Standard Construction d = Pump shaft / Valve stem size D = Stuffing box bore T = Stuffing

box depth Sp = Gap width Rz = Surface roughness Shaft 1 to 5 μ m Housing 6-16 μ m

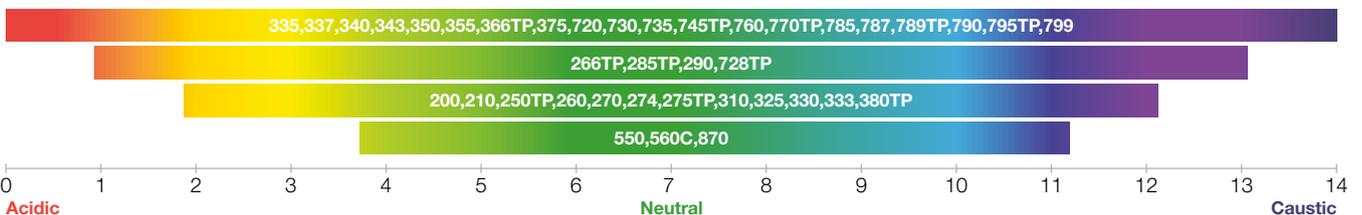


Dimensions (mm / inch)		1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"								
Density	AESSEAL Packing Style	3.2	4	5	6	6.35	7	8	9.5	10	11	12	12.7	14	15	16	18	19	20	22	25
1.00	333, 351, 375	98	63	40.0	27.8	24.8	20.4	15.6	11.1	10.0	8.3	6.9	6.2	5.10	4.44	3.91	3.09	2.77	2.50	2.07	1.60
1.10	366TP	89	57	36.4	25.3	22.5	18.6	14.2	10.1	9.1	7.5	6.3	5.6	4.64	4.04	3.55	2.81	2.52	2.27	1.88	1.45
1.15	310, 325, 340, 350	85	54	34.8	24.2	21.6	17.7	13.6	9.6	8.7	7.2	6.0	5.4	4.44	3.86	3.40	2.68	2.41	2.17	1.80	1.39
1.20	245, 250TP, 355	81	52	33.3	23.1	20.7	17.0	13.0	9.2	8.3	6.9	5.8	5.2	4.25	3.70	3.26	2.57	2.31	2.08	1.72	1.33
1.25	210, 870	78	50	32.0	22.2	19.8	16.3	12.5	8.9	8.0	6.6	5.6	5.0	4.08	3.56	3.13	2.47	2.22	2.00	1.65	1.28
1.30	550, 560C	75	48	30.8	21.4	19.1	15.7	12.0	8.5	7.7	6.4	5.3	4.8	3.92	3.42	3.00	2.37	2.13	1.92	1.59	1.23
1.35	290, 337, 343, 760	72	46	29.6	20.6	18.4	15.1	11.6	8.2	7.4	6.1	5.1	4.6	3.78	3.29	2.89	2.29	2.05	1.85	1.53	1.19
1.40	285TP	70	45	28.6	19.8	17.7	14.6	11.2	7.9	7.1	5.9	4.96	4.43	3.64	3.17	2.79	2.20	1.98	1.79	1.48	1.14
1.45	270, 274, 330, 380TP	67	43	27.6	19.2	17.1	14.1	10.8	7.6	6.9	5.7	4.79	4.28	3.52	3.07	2.69	2.13	1.91	1.72	1.42	1.10
1.50	260, 266TP, 275TP, 785, 787, 795TP, 799	65	42	26.7	18.5	16.5	13.6	10.4	7.4	6.7	5.5	4.63	4.13	3.40	2.96	2.60	2.06	1.85	1.67	1.38	1.07
1.55	728TP, 789TP	63	40	25.8	17.9	16.0	13.2	10.1	7.1	6.5	5.3	4.48	4.00	3.29	2.87	2.52	1.99	1.79	1.61	1.33	1.03
1.60	770TP	61	39	25.0	17.4	15.5	12.8	9.8	6.9	6.3	5.2	4.34	3.88	3.19	2.78	2.44	1.93	1.73	1.56	1.29	1.00
1.65	730, 790	59	38	24.2	16.8	15.0	12.4	9.5	6.7	6.1	5.0	4.21	3.76	3.09	2.69	2.37	1.87	1.68	1.52	1.25	0.97
1.70	720	57	37	23.5	16.3	14.6	12.0	9.2	6.5	5.9	4.9	4.08	3.65	3.00	2.61	2.30	1.82	1.63	1.47	1.22	0.94
1.80	7350X, 745TP	54	35	22.2	15.4	13.8	11.3	8.7	6.2	5.6	4.6	3.86	3.44	2.83	2.47	2.17	1.71	1.54	1.39	1.15	0.89
1.90	725SI	51	33	21.1	14.6	13.1	10.7	8.2	5.8	5.3	4.3	3.65	3.26	2.69	2.34	2.06	1.62	1.46	1.32	1.09	0.84

Table shows length in metre per 1 kg (Displayed length may vary)



Chemical Resistance of Packing expressed in pH value 0-14



Technical Parameters and Product Compatibility

	Valve Packing						Pump Packing										Pump Packing trapezoidal							Special Packing								
Type	310 / 375	337	340	343	350 / 355	730 / 735 OX	200 / 210	270	290	325	330	333	351	785 / 787 / 799	790	870 / 550	250 TP	266 TP	285 TP	366 TP	380 TP	728TP	745 TP	789TP	795 TP	260	274 / 275 TP	277	720 / 725 SI	760		
Materials of Construction	Carbon / Graphite	eGraphite/Inconel Matrix/PTFE	eGraphite/Inconel Matrix	eGraphite/Inconel Matrix HT Impregnat	eGraphite/Inconel Strand	PTFE/PTFE	P-Aramid / PTFE	ePTFE / Graphite / P-Aramid	Novoloid PTFE	Carbon / PTFE / Graphite	Carbon / PTFE	Carbon / PTFE / eGraphite	eGraphite / Carbon	ePTFE / Graphite	PTFE / Graphite	Ramie / PTFE Synth / PTFE	P-Aramid / PTFE	M-Aramid ePTFE / Graphite	M-Aramid / PTFE	eGraphite / Carbon	Carbon / PTFE	M-Aramid / ePTFE	PTFE / ePTFE heat conductive	Graphite / ePTFE / Graphite	ePTFE / Graphite	PTFE / P-Aramid	ePTFE / Graphite / P-Aramid	ePTFE / Graphite / P-Aramid	PTFE	ePTFE / Graphite		
Run In Lubricant	-	-	-	-	-	-	SIL/PPS	Silicon	PPS ⁴	Paraffin	PPS ⁴	-	-	Silicon	Paraffin	Paraffin	Paraffin	Silicon	Silicon	-	Paraffin	Silicon	Silicon	Silicon	Silicon	Silicon	Silicon	Paraffin	Para. / Silicon	-		
Density [g/cm ³]	1,15 / 1,0	1,35	1,15	1,35	1,15 / 1,20	1,65 / 1,80	1,25	1,45	1,35	1,15	1,45	1,00	1,00	1,50	1,65	1,25 / 1,30	1,20	1,50	1,40	1,10	1,45	1,55	1,80	1,50	1,50	1,50	1,40 / 1,50	1,35	1,70 / 1,90	1,35		
Pressure Rotating [bar]	-	-	-	-	20	-	25	20	20	25	30	25	25	25	25	15	25	25	25	25	30	15	20	20	25	25	25	-	15	40		
Pressure Static [bar]	300	300	500	500	300	500	100	100	100	100	100	100	300	150	100	100	100	150	100	300	100	100	100	150	100	250	250	1500	100	500		
Pressure Reciprocating [bar]	-	-	-	-	-	250	100	100	60	100	100	100	65	250	250	100	100	150	100	65	100	100	100	250	250	500	500	500	100	800		
Speed Rotating [m/s]	15 / 20	-	-	-	20	2	20	20	15	20	25	20	30	25 / 20	20	12	20	20	20	30	25	10	16	16	25	20	20	-	10	8		
Speed Reciprocating [m/s]	-	-	-	-	-	1,5	2	2	2	2	2	2	2	2	2	1,5	2	2	2	2	2	1,5	2	2	2	2	3	3	1,5	3		
pH	1-14	0-14		0-14	0-14	0-14	2-12	2-12	1-13	2-12	2-12	2-12	0-14	0-14	0-14	4-11	2-12	1-13	1-13	0-14	2-12	1-13	1-14	0-14	0-14	2-12	2-12	2-12	0-14	0-14		
T min [°C]	-40	-200	-200	-200	-200	-200	-50	-100	-50	-50	-50	-50	-200	-100	-50	-50	-50	-100	-100	-200	-50	-50	-100	-100	-100	-50 / -100	-100	-100	-50 / -100	-200		
T max [°C]	+550* / +650*	+280	+650*	+650*	+550**	+280	+280 / +250	+280	+280	+280	+300	+280	+550**	+280	+280	+140	+250	+280	+280	+550**	+300	+280	+280	+280	+280	+280	+280	+280	+280	+280		
Product Compatibility																																
Water	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Sewage	○	○	○	○	○	●	●	●		●	●	●	○	●	●	●	●	●	●	○	○	●	●	●	●	●	●	●	●	●	●	
Hot Water	●	●	●	●	●	●	○	○	○	●	●	●	●	●	●		○	○	○	●	●	○	○	●	●	○	○	○	○	○		
Steam [<280°C]	●	●	●	●	●	○				○	○	○	●	○	○							●	○		○	○	○					
Steam [<550°C]	○ / ●		●	●	●** / ●								○									○					○	○				
Abrasive Products							●	●	○	●	●	●			●		●	●	●			●	●	○			●	○	○			
Food, Pharmaceutical FDA ☑						- / FDA ☑																	●☑	● FDA ☑					- / FDA ☑			
Oxygen BAM	- / ● BAM	● BAM	● BAM	● BAM	● BAM	- / ● BAM																● BAM							● BAM			
Diluted Acids	●		●	●		●	○	○	●	○	○	○	●	●	●		○	○	●	●	●	●	●	●	●	○	○	○	●	●		
Concentrated Acids	○	○	○	○	○	●			○				○	●	●			○	○	○	○		○	●	●	●		○	●	●		
Diluted Alkaline, Salt Solutions	●		●	●		●	○	○	●	○	●	○	●	●	●	○	○	●	●	●	●	●	●	●	●	○	○		●	●		
Concentrated Alkaline	○	○	○	○	○	●			○	○	○	○	○	●	●			○		○	○		●	●	●				●	●		
Heat Transfer Oil	○	○	○	○	○	○	○	○	○	○	○	○	○	●	●		○	○	○	○	○	○	○	●	●	●	○	○		●	●	
Lubricants, Grease	○	○	○	○	○	●	○	○	●	○	○	○	○	●	●	○	○	○	○	○	○	○	○	●	●	●	○	○	○	●	●	
Solvent, Hydrocarbons API	○	○	○	● API	○	●				○	○	○	●	○	○			○	○	●	○	○	○	○	○	○		○	○			
Adhesive, Bitumen						○		●		○	●	○		○	○		●	○	○		●	○	○	○	○	○	●	○ / ●	○	○		
Paint (Silicon oil free)	○	○	○	○	○	● / ●	- / ●		●	○	○	○	○		○	○ / ○	●					○	○				○	○	○	○		

Not all max. values can be used at the same time. ● = recommended ○ = resistant (*) in steam (**) in steam in combination with bullings made of Style 310, 340, 343 or 375
 ● **BAM** approval for oxygen ● **API** = API 622 and API 589 certification ● **FDA**☑ = FDA conformity and food approval EN 1935/2004, 10/2011 ⁴synthetic, siliconfree 'run-in'-lubricant

Optimizing the Packing Environment



The AESSEAL® FLOWTRUE™ is a fully patented flow control device. The product range is specifically designed to allow the FLOWTRUE™ to be used with packed glands and single / double mechanical seals. The device reduces the amount of water necessary to lubricate and cool the seal. This reliable seal cooling protects valuable equipment.

MODEL FT-XX



For use with packed glands and single seals

MODEL FTP-XX-YYY



For use with packed glands and mechanical seals

Flow Ranges (XX):

l/min	gpm
0.5 – 1.5	0.1 – 0.4
0.5 – 3.0	0.2 – 0.8
1.0 – 8.0	0.25 – 2.0
2.0 – 15	1.0 – 4.0

Pressure Options (YYY):*

bar	psi
0 – 10	0 – 145
0 – 25	0 – 360

* Model FTP-XX-YYY only



All FLOWTRUE™ models are available as screw connection versions (SC-shown above) as well as the push-on connection versions

For pump packing it is essential that a small and controlled leakage occurs on a permanent basis. This lubricates the packing and as a second effect removes frictional heat, which occurs between the packing and the rotating shaft. Modern heat conductive packing can run much drier than old fashioned packing material.

Nevertheless, these new generation styles still need some leakage which may head towards the pump bearing and once entering the bearing chamber may significantly reduce the equipment operational time. Leakage is necessary for packing, it is not necessary to accept reduced bearing life. AESSEAL® offers world leading bearing protection technology allowing packing to be used more successfully than in the past.

LabTecta®66 Bearing Protector

Operating Envelope

The LabTecta®66 is a non-contacting, while rotating, bearing seal that is designed for use in oil splash, dry running and grease applications on pieces of horizontal equipment.

- Non-contacting seal ✓
- Ingress protection to IP66 ✓
- Easy to refurbish ✓
- Safe - Non-sparking ✓
- Low cost ✓
- No shaft wear ✓



The LabTecta®66 is independently certified to IP66, which is the Ingress Protection requirement for IEEE Std 841-2009.



For further information and safe operating limits contact our technical specialists at the locations below.



Use double mechanical seals with hazardous products.

Always take safety precautions:

- Guard your equipment
- Wear protective clothing

UK Sales & Technical advice:

AESSEAL plc
 Mill Close
 Bradmarsh Business Park
 Rotherham, S60 1BZ, UK
 Tel: +44 (0) 1709 369966
 Fax: +44 (0) 1709 720788
 E-mail: seals@aes seal.com
www.aes seal.com

AESSEAL plc is certified to ISO 9001, ISO 14001, ISO 29001, ISO 37001, ISO 50001 and OHSAS 18001.

'Our purpose is to give our customers such exceptional service that they need never consider alternative sources of supply.'



USA Sales & Technical advice:

AESSEAL Inc.
 355 Dunavant Drive
 Rockford, TN. 37853, USA
 Tel: +1 865 531 0192
 Fax: +1 865 531 0571
 E-mail: usa@aes seal.com
www.aes seal.com

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