

PRODUCTS:

1. Valve Sealing

A valve is a very critical component of fluid flow system, although it is used only to regulate fluid flow. If a careful selection is not done it may lead to a disaster causing loss of fluids, spillage which can lead to dangers like slippery surface or fire or even explosions. Therefore, selection of valve plays a very important role in designing the fluid flow system. More so, as valve has a critical component its sealing system plays even more crucial role. A good valve with an inferior sealing might cause any or all above calamities.

Inmarco has the expertise in producing such sealing systems for valves like

Installation & troubleshooting guidelines: [1 page](#)




1. Ingraf die moulded rings (endless, single cut, split & profile)

INMARCO STYLE 300

INMARCO Ingraf Flexible Pure Graphite die moulded ring



OPERATIONAL PARAMETERS

PROPERTIES			
pH	0 - 14		
TEMPERATURE (°C)	-200 to +600		
PRESSURE (BAR)	----	----	300
VELOCITY (m/s)	----	----	----
SIZE	Customary Sizes made to order		

Style Ingraf® 300 is a high purity (99% to 99.9% carbon) self lubricating and antifrictional die moulded pre-formed gland packing ring manufactured from Flexible Pure Graphite foil. These rings are manufactured in endless form or in 2 halves in oblique cut containing no Oil or Grease or Binder / Additives of any kind. The packing however is incorporated with sacrificial metal corrosion inhibitor to avoid Galvanic Corrosion on parent body.

Ingraf® 300 packing ring is totally free from any kind of contamination for compression resistance and retention of size and shape

Ingraf® 300 is manufactured with accurate specific density suitable to the working condition. These packing rings have high thermal and dimensional stability and extremely low gas/liquid permeability, very low thermal expansion and extremely high chemical resistance. These rings have low coefficient of Friction (0.08 to 0.1 against steel) and hence, with continuous operation it polishes the stem / shaft and also Non abrasive in nature.

Ingraf® 300 flexible pure graphite rings adjusts to any irregularities under moderate pressure and has resistance to pressure surge and thermal shock. These packing rings are chemically inert and also fire safe.

Ingraf® 300 packing ring has inherent characteristics of basic graphite and hence have high degree of flexibility, compactibility and resiliency. These rings expand radially to form perfect seal against the shaft and housing. Graphite is an extremely good thermal conductor and as such the packing dissipates heat away from the body leading to a longer life of the packing.

Ingraf® 300 is also manufactured for nuclear applications with improved chemical properties. These packings are stable even under exposure to high doses of nuclear radiation.

SERVICE MEDIA

Super heated & saturated steam, Hydrocarbon, Fuel oil, Lube oil, all non oxidizing liquids and gases, dies and chemicals but not recommended for use in aqua regia, fuming nitric acid, oleum and strong oxidizing media.

TYPICAL APPLICATIONS

Valves & Pumps.

2. Ingraf Tapes

INGRAF FJ



OPERATIONAL PARAMETERS

PROPERTIES	↻	↔	↔
pH	0 - 14		
TEMPERATURE (°C)	-200 to +450		
PRESSURE (BAR)	Vacum 28" Hg to 300		
VELOCITY (m/s)	---	---	---
SIZE	1/4" X 25ft, 1/2" X 25ft, 3/4" X 50ft, 1" X 50ft		

INGRAF BF

STUFFING BOX FOIL PACKING



OPERATIONAL PARAMETERS

PROPERTIES	↻	↔	↔
pH	0 - 14		
TEMPERATURE (°C)	-200 to +300, -200 to +650 in steam		
PRESSURE (BAR)	Vacum 28" Hg to 250		
VELOCITY (m/s)	30	3	---
SIZE	1/4" X 25ft, 1/2" X 25ft, 3/4" X 50ft, 1" X 50ft		

GASKET TAPE FOR FLANGE JOINTS

Ingraf Fj gasket tape is made from 100% pure flexible graphite, specially corrugated to enable ease of installation over flanges with circular or with complex sealing area. The tape has a unique self adhesive backing for overhead or vertical flange surfaces. At high temperature, the adhesive would integrate itself with the graphite by carbonizing. This tape is also available without any adhesive.

Construction: Corrugated foil with or without adhesive backing. Chlorides content: Less than 50ppm. Ash content: max.0.5%

Ingraf Tapes are available in 2 basic versions: Ingraf FJ[®] Generally used for Flange Joints and Ingraf BF used for Box foil.

ADVANTAGES

- ◆ Can be used in tandem as a complete gasket with conventional gasket types such as PTFE, spiral wound, metallic etc.
- ◆ Can be used to form gaskets from a small diameter as 1" to every large diameters
- ◆ Nuclear compatibility, radiation resistance – 1.5 x 100 rads
Conforms to surface irregularities. Non sticking while dismantling

TYPICAL APPLICATIONS

Heat exchangers, reactors, pumps, valves, bonnets & for various service conditions. As a filler to spiral wound & metallic gaskets. Flanges made from fragile material like glass. To encapsulate & enhance the sealing efficiency of other gasketing materials, such as PTFE & other gasketing materials

Ingraf[®] box foil gasket tape is made from 100% pure flexible graphite with knurled surface. Simply wind around valve stem and top up.

ADVANTAGES

- ◆ Could be used by itself or in combination with other packings for effective sealing & possible nuclear compatibility.
- ◆ Wide range of pressure and thermal compatibility.
- ◆ Low friction & permeability, eliminates wear & associated risks in equipment ensuring plant safety.
- ◆ Emergency replacement packing for virtually any equipment

TYPICAL APPLICATIONS

Pumps and valve glands, mixers, agitators, autoclaves handling variety of fluids & gases.

3. Valve Stem Packing

PTFE Joint Sealant (flat) and Valve Stem Packing (round) are made from 100% expanded PTFE designed to be used as a gap filling dependable sealants for flanges & valve glands. Flexible & heat stabilized Inmatex Sealant eliminates the disadvantages associated with embrittlement & heat retention of gasket and made from conventional PTFE. Inmatex is a reliable seal due to its inertness to most chemicals and is also cost effective alternative on most flanges and valve glands.

Applications for fragile flange surfaces, vessels & compressor housings, glass joints, valves handling corrosive liquids & aggressive chemicals/gases. Valves in nuclear applications.

4. Expandable Valve Cartseal

EXPANDABLE VALVE CARTSEAL



Application Parameters:

PROPERTIES	↻	↔	↔
pH	0 - 14		
TEMPERATURE (°C)	-240 to +650		
PRESSURE (BAR)	350	350	---
VELOCITY (m/s)	25	25	---
SIZE	Customary Sizes made to order		

EXPANDABLE VALVE CART SEAL

Fugitive emissions are hazardous and costly, as large process costs are involved in fluid or gas handling. VOCs find leak paths in valves along the stem. The steam leakages prove extremely costly on control of turbine valves, due to pressure and thermal fluctuations

EVCS is a state of the art and new generation seal designed specifically to conform to fugitive emission norms. V shape design permits effective sealings at all times due to radial expansion of tips under live loadings. These seals have high performance capabilities and give excellent results in critical fluid and gas applications. These are custom built and manufactured to custom orders.

- ◆ Performance beyond Set Standards for VOC, Hazardous Chemicals.
- ◆ Friction Reduces by 15-25%
- ◆ Self Adjustments to Thermal and Pressure Cycles.

Applications:

The variable densities of selected packing rings, adjust to wide range of chemicals including fluids, gases, VOCs or solids at variable temperature and pressure. The excellent sealability of Valve Cartseal enables total leak free performance over long runs. The costly on-line leak sealing can be eliminated.

5. Cartseals

CARTSEAL



APPLICATION PARAMETERS

PROPERTIES	↻	↔	↔
pH	0 - 14		
TEMPERATURE (°C)	-240 to +650		
PRESSURE (BAR)	350	350	---
VELOCITY (m/s)	20	25	---
SIZE	Customary Size made to order		

This is yet another new generation seal supplied in the form of ready cartridge ready to install. The combination of various rings in the set is determined based on the application parameter provided by customer. This combination packing not only seals effectively but also increases the life time of seals by 25% over conventional one type packing rings.

Advantages:

- ◆ Custom made for various media & application parameters.
- ◆ Excellent lubrication and heat dissipation for cool runs.
- ◆ Seals even in dry runs

Applications:

Vertical equipment glands where fluid film is absent. Valves handling hazardous chemicals. Screw pump, centrifugal & plunger pumps

Due to rapid developments and latest technologies in place the need for specialty products, compatible to technology trend, considering factor of safety environment and health many regulations are in place in today's industry one of such compatible products oil, gas & petrochemical is valve sealing materials need to perform together with resistance to fire, fugitive emissions one of such product is expandable valve cartseal qualifying to API 607 and API 622.

6. O Rings

7. Machined PTFE Components

Teflon (PTFE) Polytetrafluoroethylene is a synthetic fluoropolymer that can be used in numerous applications. It has formed in variety of industrial applications in the form of sheets, gaskets, rings, washers components and machinery spares.

Inmarco has specialized in supplying all of these products above and can be machined cut on a short notice as per the customers notice. All grades of PTFE including fillers like glass, carbon, graphite, bronze & MS2 can be supplied.

8. Seat Rings

9. Piston Rings