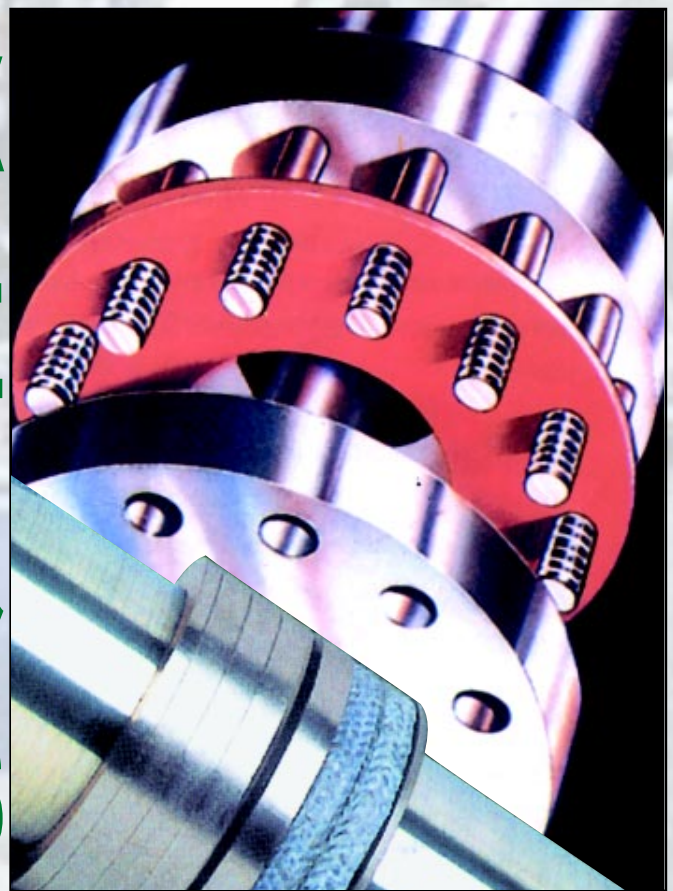




FYSAX
ASBESTOS-FREE
JOINTINGS &
PACKINGS

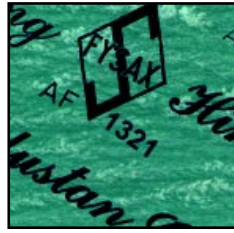


HINDUSTAN
COMPOSITES
LIMITED

WHERE SAFETY IS AN ONGOING CONCERN

**“FYSAX”
GRADES OF
ASBESTOS FREE
COMPRESSED
FIBRE JOINTINGS**

FYSAX AF 1321



FYSAX AF 1341



FYSAX AF 1391

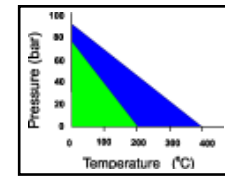
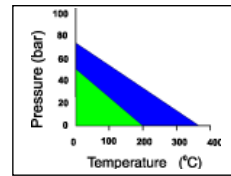
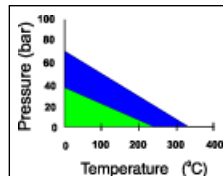


General composition	Synthetic Fibres	Aramid/Mineral/Synth	Aramid/Mineral/Glass
	SBR/NBR	SBR/NBR	NBR/EPDM
Colour/Finish	Green	Black	Yellow
General Properties	Versatile, Economical	Specific oil resistant General purpose	Withstands High Pressure/Temp

General Applications	Low to medium loading, good resistance to oils, water, steam, fuels & chemicals at moderate temperatures & pressures.	Medium loading, excellent resistance to oils, hot water, gases, hydrocarbons and many chemicals.	Medium to high loading, excellent resistance to gases, fuels, oils, mild acids & alkalis and wide range of chemicals.
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Specific Properties(Typical values)			
Tensile strength MPa	DIN 52910	7	8.5
Compressibility %	ASTM F36	11	10
Recovery %	ASTM F 37	50	55
Thickness increase	ASTM F 146		
ASTM Oil no.3 %		15	12
ASTM Fuel B %		15	10
Stress Relaxation	DIN52913		
50Mpa /300°C /16h MPa		20	23
50 Mpa /175° C /16h Mpa		22	28
			11
			9
			55
			8
			9
			25
			30

Operating Conditions			
Temperature °C	Max.	325	375
	Normal	250	250
	with Steam	200	200
Pressure Bar		50	70
			90



If the temperature/pressure parameters fall in the Green area, material selection can, generally be made without technical evaluation. If they fall in the Blue area, the performance will also depend upon other factors, such as, type and concentration of the medium, flange condition, thickness selection etc, hence a technical evaluation is recommended. If the parameters are in the open area, an evaluation by Technical Services Dept. of HCL will be necessary.

The data provided here is based on research efforts, field and laboratory applications, ideal or prototype conditions and long years of manufacturing experience of the sealing products. Since the actual application or installation depends upon number of variables, the data should not be used to support any warranty claim if used without consultation of HCL in extreme conditions.

FYSAX AF 1535



FYSAX AF 1493



FYSAX AF 1429



FYSAX AF 1666CS

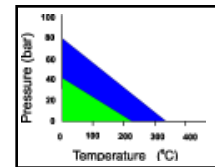
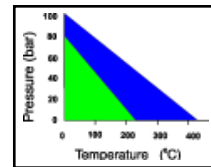
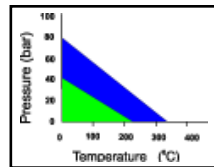
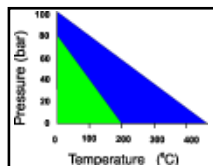


Aramid/Mineral NBR/SBR	Aramid./Glass Butyl	Aramid/Mineral NBR	Aramid./Mineral/Synth. SBR/NBR
Violet	White	Black-Grey	Yellow
Superior chemical and hydrocarbon resistance	High performance resistant to acids	High performance, oil resistant	Controlled Swell

High loading with excellent mechanical strength & resistance to oils/alkalies & wide range of chemicals.	Offers resistance to acids, alkalies and other aggressive media	In addition to superior resistance to gases, water & steam, offers resistance to oils and hydrocarbons under severe operating conditions.	Offers controlled swell properties in oils & fuels. Excellent self sealing with low surface stress.
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10 9 50 8 8 25 28	9 8 45 10 * 12 ** 25 25	12 8 60 5 7 25 30	8 11 55 25-40 15-30 25 28
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450 275 225 100	200 160 - 70	425 275 225 100	330 220 180 80
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If the temperature/pressure parameters fall in the Green area, material selection can, generally be made without technical evaluation. If they fall in the Blue area, the performance will also depend upon other factors, such as, type and concentration of the medium, flange condition, thickness selection etc, hence a technical evaluation is recommended. If the parameters are in the open area, an evaluation by Technical Services Dept. of HCL will be necessary.

The data provided here is based on research efforts, field and laboratory applications, ideal or prototype conditions and long years of manufacturing experience of the sealing products. Since the actual application or installation depends upon number of variables, the data should not be used to support any warranty claim if used without consultation of HCL in extreme conditions.

* 50% HNO₃/1h/65°C, ** 65% H₂SO₄/48h/Ambient

CHEMICAL RESISTANCE CHART

Medium	AF-1321	AF-1341	AF-1391	AF-1535	AF-1429	AF-1493	AF-1666CS
Air	R	R	R	R	R	C	R
Water	R	R	R	R	R	C	R
Steam	R	R	R	R	R	N	R
Saturated steam	C	R	R	R	R	N	R
Mild Inorganic acids	R	R	R	R	R	R	C
Mild Organic acids	C	R	R	R	R	R	C
Strong acids	N	N	C	N	N	R	N
Mild Alkalies	R	R	R	R	R	R	R
Strong Alkalies	N	C	C	R	R	C	R
Industrial Gases	R	R	R	R	R	C	R
Synthetic Oils	N	C	R	R	R	N	R
Vegetable Oils	N	C	C	R	R	N	R
Animal Oils	N	C	C	R	R	N	R
Aliphatic Solvents	C	R	R	R	R	N	R
Aromatic Solvents	N	C	R	R	R	N	R
Chlorinated Solvents	N	N	C	C	R	N	C
General Chemicals	R	R	R	R	R	C	R
Refrigerants	N	N	C	R	C	C	C
Food & Beverages	R	R	R	R	R	C	C

Note : R = Recommended
C = Conditional
N = Not recommended

STANDARD DIMENSIONS

Sheet Size (mm) : 1500(±50) x 1500 (±50)
Thickness : 0.5 mm, 0.75 mm (±0.15 mm)
: 1.0 mm, 1.5 mm (±10%)
: 2.0 mm, 3.0 mm (±10%)

Sheets with other dimensions may be made available, on mutual consent.

Sheets with special surface treatment of graphite or other compounds which impart anti-stick properties and with metal gauze insertion can also be made available, on mutual consent.

ASBESTOS FREE PACKINGS

Style

FYSAX TP

PURE TEFLON PACKING

Features

- : The Packing is cross plaited from tough thermally stable PTFE filament yarn, giving it a consistent density with the compression & recovery inherent in high performance pump packings.

Recommended Applications

- : Valves, plunger pumps, agitators, vacuum dryers, mixers, centrifugal & rotary shafts.

Recommended Service Media

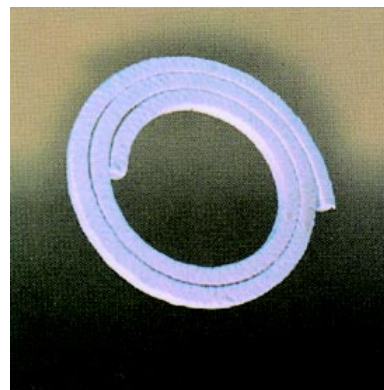
- : Ammonia charge pumps, most caustic media pumps involving high pressure applications, with control system for steam, gases, air, oils, solvents, acids & hydrocarbons, suitable for foodstuffs & pharmaceutical industries.

Recommended Service Conditions

- : **Temperature: (-) 200°C to 260°C**
(300° C in short operation)
Pressure: Upto 5000psi (350 kg/cm²)
pH: 0-14
Surface Speed : 10m/s

Precautions

- : Not suitable for use in molten alkali metals, Fluorine etc.



Style

FYSAX GP

PURE GRAPHITE PACKING

Features

- : A 100% Pure Graphite fibre packing treated with high temperature lubricant to prevent seepage through the packing. The inherent self lubrication, low coefficient of expansion, high thermal conductivity, good chemical compatibility, high temperature resistance are the characteristics of the packing.

Recommended Applications

- : All centrifugal & stationary services, valves, mixers & agitators, refinery services.

Recommended Service Media

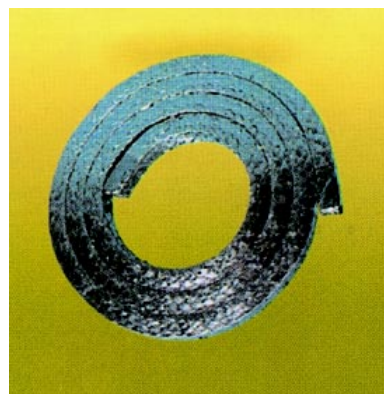
- : Most destructive acids, corrosives & caustics at very high temperature, superheated steam, hot tar, SO₂ & SO₃.

Recommended Service conditions

- : **Temperature: (-) 250°C to 600°C**
(550°C in Steam)
Pressure: Upto 5000psi (350 kg/cm²)
pH: 0-14
Surface Speed: 20 m/s

Precautions.

- : Not recommended for use in Oxygen, fuming Nitric acid, Aqua Regia, Oleum & Fluorine



ASBESTOS FREE PACKINGS

Style

FYSAX GTO

Features

: The packing made from 100% PTFE/ Graphite yarn. It is universally applicable & offers problem free installation & removal. It offers low coefficient of friction & thermal expansion, good thermal conductivity, speed capability & minimum shaft wear in a very large range of applications.

Recommended Applications

: Pumps, valves, mixers & agitators

Recommended Service Media

: Acids, oils, corrosive gases & alkali solutions.

Recommended Service Conditions

Temperature: (-) 200°C to 300°C
Pressure: upto 5000psi (350 kg/cm²)
pH:0-14
Surface Speed: 25m/s

TEFLON/GRAPGITE PACKING



Style

FYSAX AP

Features

Braided from pure Aramid fibre. It is flexible & is an excellent abrasive resisting material even under high pressure conditions. Rings of these are recommended for use as backup rings.(anti-extrusion rings)

Recommended Applications

Ideal for paper mill applications, high pressure water injection systems, high pressure reciprocating pumps.

Recommended Service Media

Suitable for abrasive slurries, fuels, oils, mild acids & alkalies, high pressure dosing pumps, hydrocarbons, greases & brines.

Recommended Service conditions

Temperature: (-) 200°C to 300°C
Pressure: upto 3000psi (210 kg/cm²)
pH:3-12
Surface Speed: 15 m/s

PURE ARAMID PACKING



Sizes : in square sections of 6, 8, 10, 12.5, 14, 16, 18, 20, 22 & 25 mm.
 Unit packaging : supplied in spools of 1, 2.5, 5, 10 & 20 kg

ASBESTOS FREE PACKINGS



FYSAX TAP

(Teflon/Aramid Packing)

The strength & low friction of Aramid fibre combined with negligible friction of PTFE gives the packing the capacity to handle high pressure applications-both rotating & reciprocating. Ideal for dairies, food stuff, beverage, pharmaceutical industries, refineries, fertilizer plants & feed water pumps.

Temperature: (-) 110°C to 260°C

Pressure: upto 7000psi (490 kg/cm²)

pH : 2-12

FYSAX TGAP

(Aramid Packing with PTFE and Graphite)

Braided from Aramid fibres with a high content of PTFE/ Graphite. Most suited in centrifugal & reciprocating pumps with high pressure & sliding velocity for abrasive media.

Temperature : (-) 200°C to 300°C

Pressure : Upto 8000 psi

pH : 2 - 12



FYSAX GCP

(Teflon braided Packing coated with Graphite)

PTFE packng with a high content of graphite coating having self lubrication, very low co-efficient of thermal expansion limits, better extrusion & compression resistance. Widely used in refineries, petrochemicals & fertilizer plants.

Temperature: (-) 240°C to 300°C

Pressure: Upto 5000 psi (350 kg/cm²)

pH : 0-14

FYSAX CP

(Pure Carbon Packing)

Made from carbon filament Yarn, having excellent thermal dissipation & self lubricating properties. Ideally suitable for boiler feed pumps, condensate dryers, continuous digesters, high temp high pressure valves.

Temperature : (-) 200°C to 600°C

Pressure : Upto 5000 psi (350 kg/cm²)

pH : 0 - 14



FYSAX CIP

(Carbon Inconel Packing)

Braided from super tough inconel wire throughout jacketed with soft Carbon fibres. Ideal for super heated high pressure control valves & highly abrasive spreader stoker services.

Temperature: (-) 200°C to 900°C

Pressure: Upto 10000psi (700 kg/cm²)

pH: 1-11

FYSAX GLASS

(Texturized Glass Packing)

High density texturized glass packing, designed for maximum flexibility & strength. Suited for expansion joint packing in boilers, furnaces

Temperature: Upto 540°C

pH: 2 - 12



FYSAX GLASS-G

(Graphite Impregnated Glass packing)

Ideal for small valve stems & rotary shafts. Suitable for mild acids, steam, oils & brines in general service

Temperature:Upto 230°C

pH:4-10

FYSAX NOVOLOID

(Novoloid fibre Teflon treated)

This is treated with PTFE and a non-silicone lubricant suitable for rotary & centrifugal equipments, pulp & paper equipments

Temperature : Upto 260°C

Pressure: Upto 8000 psi (560 kg/cm²)

pH : 1 - 14



Sizes : in square sections of 6, 8, 10, 12.5, 14, 16, 18, 20, 22 & 25 mm.
Unit packaging : supplied in spools of 1, 2.5, 5, 10 & 20 kg