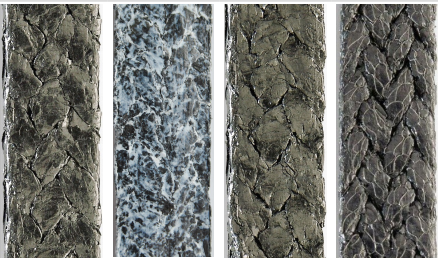


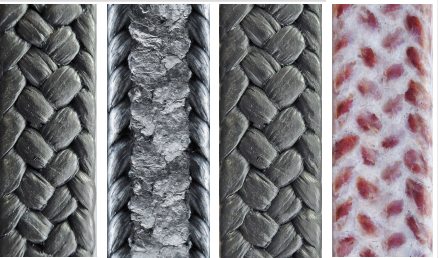


















Table of technical parameters and conversion rates of high-duty gland packings designed for industrial technology, primary list, page 1

Group of packings	Flexible expanded graphite				PTFE fluorocarbon polymer				Aramid high-strength fiber				High-carbon fiber			
The general characteristic of basic material	Black, metallic material with high chemical and thermal resistance. It has very good thermal conductivity and self-lubricating properties.				Polymeric material with particularly high chemical resistance. In addition, it guarantees the low coefficient of friction and a wide temperature range.				Synthetic fiber with a specific yellow color. It is characterized by extreme durability and the particularly high abrasion resistance.				Black fiber with a characteristic gloss and high strength. It guarantees good sliding properties and very high thermal resistance.			
Technical Data Sheet number	4410	4380	4430	4710	4450	4490	4470	4650	4530	4540	4660	4580	4770	4630	4360	4680
Brand and a type of packing	Grafopak GRA 450	Grafopak GRP 420	Grafopak IGP 600	Grafopak GTR 650	Tefapak GRF 260	Tefapak BOL 210	Tefapak PUR 200	Tefapak RAM 220	Arapak ZG 320	Arapak AG 360	Arapak XP 310	Arapak AP 300	Karbopak HR 660	Karbopak XR 640	Karbopak KA 400	Karbopak KL 380
Appearance and type of braid																
For various size of packings are used four kind of braid: for 4 - 6mm is twice waves, for 8 -10mm is triple waves, over 12mm is fourfold waves. The bigger profiles over 20mm are made by braid over braid method.																
Construction materials and kind of impregnation	Flexible graphite & inhibitor	Graphite with PTFE impregnate	Flexible graphite with inconel	Flexible graphite & metal mesh	gPTFE with graphite core	PTFE with silicone impregnate	100% purity expanded PTFE	Ramie fiber with PTFE impregnate	Aramid in zebra with gPTFE	Aramid on corners with gPTFE	Aramid in ladder with ePTFE	Aramid with PTFE impregnate	Carbon + graphite dispersion	Carbon on corners +flex graph.	Carbon impregnated in graphite	Phenolic fiber in PTFE impregnate
Minimal temperature [°C]	-200	-100	-100	-100	-200	-100	-200	-40	-100	-100	-100	-100	-200	-200	-40	-40
Maximal temperature [°C]	450	200	600	600	260	200	260	120	260	260	260	260	600	600	200	200
Pressure in rotating [bar]	40	25	n/a	n/a	20	20	20	20	30	30	30	30	30	30	15	40
Rotatory linear speed [m/s]	40	15	n/a	n/a	20	15	15	10	20	20	10	10	20	30	10	20
Pressure reciprocating [bar]	n/a	n/a	n/a	n/a	400	100	400	100	200	600	600	600	400	200	300	200
Piston linear speed [m/s]	n/a	n/a	n/a	n/a	3	2	3	2	6	4	3	3	6	3	4	2
Pressure in valves [bar]	200	100	300	400	200	150	150	100	200	200	200	200	600	300	100	200
Coefficient pV [bar*m/s]	600	300	n/a	n/a	300	150	150	150	400	400	300	200	400	500	150	400
Chemical resistance [pH]	1 - 14	1 - 14	1 - 14	1 - 14	0 - 14	2 - 12	0 - 14	4 - 10	3 - 12	3 - 12	3 - 12	3 - 12	1 - 14	1 - 14	2 - 13	2 - 13
Min. sleeve hardness [HRC]	30	30	40	50	30	30	30	30	50	50	60	60	40	40	40	30
Average density [g/cm³]	1,15	1,2	1,15	1,4	1,5	1,5	1,4	1,2	1,4	1,4	1,4	1,4	1,3	1,15	1,3	1,2
Conversion rate from kg	GRA 450	GRP 420	IGP 600	GTR 650	GRF 260	BOL 210	PUR 200	RAM 220	ZG 320	AG 360	XP 310	AP 300	HR 660	XR 640	KA 400	KL 380
S6 - Square 6x6 mm [m]	20	19	20	17	17	17	18	20	18	18	18	18	19	20	19	20
S8 - Square 8x8 mm [m]	12	11,5	12	9,8	10	10	10,5	12	10,5	10,5	10,5	10,5	11	12	11	12
S10 - Square 10x10 mm [m]	8	7,6	8	6,4	6,4	6,4	6,8	8	6,8	6,8	6,8	6,8	7,4	8	7,4	8
S12 - Square 12x12 mm [m]	6	5,8	6	4,6	4,6	4,6	5	5,8	5	5	5	5	5,4	6	5,3	5,8
S14 - Square 14x14 mm [m]	4,4	4,2	4,4	3,4	3,4	3,4	3,6	4,2	3,6	3,6	3,6	3,6	3,8	4,4	3,8	4,2
S16 - Square 16x16 mm [m]	3,4	3,3	3,4	2,7	2,6	2,6	2,8	3,2	2,8	2,8	2,8	2,8	3	3,4	3	3,2
S20 - Square 20x20 mm [m]	2,2	2,1	2,2	1,8	1,7	1,7	1,8	2	1,8	1,8	1,8	1,8	1,9	2,2	1,9	2
S25 - Square 25x25 mm [m]	1,4	1,3	1,4	1,15	1,05	1,05	1,15	1,3	1,15	1,15	1,15	1,15	1,25	1,4	1,25	1,3
Cost index EUR/kg	15	20	20	30	25	25	30	25	40	40	40	50	60	40	20	60
Range of sizes	3x3 to 40x40 mm		4x4 to 50x50 mm		4x4 to 40x40 mm		4x4 to 30x30 mm		6x6 to 30x30 mm		4x4 to 30x30 mm		6x6 to 30x30 mm		6x6 to 25x25 mm	
Standard of packaging	spool 2,5 / 5 / 20 kg		spool 2,5 / 5 / 20 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg	
Areas of applications	Centrifugal pumps for water and clean media. Graphite has a resistance to high temperatures and chemicals.		Standard sealing material for high-pressure valves and static seals in both power and industrial installations.		Easy to use and reliable packing. In dynamic application it gives low wear of shaft and long service life.		White, clean packing for static and dynamic seals. It has the FDA approval or EU 10/2011 cert for contact with food.		Seals for abrasive or particulate contaminated media. Hydro-transport, sewage pumps and drainage systems.		Abrasive yet clean media, where no risk of staining is tolerated. For food, paints, pulp and paper industry, etc.		Pumps, valves, fittings at high temperatures, extremely pressure. Chemical industry and power engineering.		Dynamic seals for slightly impure media or colloidal liquids. Can be used interchangeably with aramid packings.	
All products are restricted to professional users in industry and technology																

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Table of technical parameters and conversion rates of high-duty gland packings designed for industrial technology, secondary list, page 2

Group of packings	Natural fiber				PTFE fluorocarbon				Aramid high-strength fiber				High-carbon fiber and acryl			
The general characteristic of basic material	Natural vegetable fibers with good abrasion resistance. They are characterized by flexibility and high absorbency to impregnates and lubricants.				Polymeric material with particularly high chemical resistance. It guarantees the low coefficient of friction and a wide temperature range.				Synthetic fiber with a specific yellow color. It is characterized by extreme durability and the particularly high abrasion resistance.				Synthetic fibers with good flexibility and mechanical strength. In addition, high carbon fibers have good thermal and chemical resistance.			
Technical Data Sheet number	4600	4340	4610	1420	4750	4780	1380	1300	4510	4560	4800	4690	4730	1320	4570	1360
Brand and a type of packing	Cottonpak BLK	Cottonpak YLW	Cottonpak WHT	Cottonpak PTF	Tefapak GRH 280	Tefapak ARM 290	Tefapak UFP 205	Tefapak COR 230	Arapak XG 340	Arapak DG 370	Arapak AR 305	Arapak AT 315	Akrylon AK 180	Karbopak KP 250	Karbopak ZK 240	Karbopak GR 620
Appearance and type of braid For various size of packings are used four kind of braid: for 4 - 6mm is twice waves, for 8 - 10mm is triple waves, over 12mm is fourfold waves. The bigger profiles over 20mm are made by braid over braid method.																
Construction materials and kind of impregnation	Cotton with graphite	Cotton with grease	Cotton with vaseline	Cotton with PTFE	gPTFE with graphite dispersion	gPTFE with aramid reinforced	ePTFE homogenic structure	ePTFE with elastomer core	Aramid ladder with gPTFE	Aramid duoside with ePTFE	Aramid pure fiber	Aramid corners with ePTFE	Acrylic fiber impregnated with PTFE	Carbon impr. PTFE with core	Carbon in zebra with ePTFE	Carbon with graphite core
Minimal temperature [°C]	-30	-30	-30	-30	-200	-100	-200	-40	-100	-100	-100	-100	-40	-40	-40	-200
Maximal temperature [°C]	160	120	120	120	260	260	260	260	260	260	350	260	150	200	200	600
Pressure in rotating [bar]	10	10	10	10	20	30	20	20	30	30	30	30	25	20	20	30
Rotatory linear speed [m/s]	12	8	8	15	25	20	15	10	20	15	10	10	15	10	15	30
Pressure reciprocating [bar]	30	30	30	50	400	600	100	40	600	600	600	600	100	100	100	300
Piston linear speed [m/s]	2	2	2	2	3	3	3	2	4	3	3	3	3	2	2	4
Pressure in valves [bar]	50	50	50	50	200	300	100	40	200	200	200	200	100	100	100	400
Coefficient pV [bar*m/s]	80	60	60	100	300	300	150	150	400	300	200	300	300	150	200	500
Chemical resistance [pH]	5 - 9	5 - 9	5 - 9	5 - 9	0 - 14	3 - 12	0 - 14	2 - 12	3 - 12	3 - 12	3 - 12	3 - 12	2 - 13	2 - 13	3 - 12	1-14
Min. sleeve hardness [HRC]	40	40	40	30	30	30	30	30	50	60	60	60	30	30	30	40
Average density [g/cm³]	1,2	1,1	1,1	1,2	1,5	1,5	0,85	1,4	1,4	1,6	1,4	1,4	1,3	1,3	1,3	1,2
Conversion rate from kg	COT BLK	COT YLW	COT WHT	COT PTF	GRH 280	GRS 290	UFP 205	COR 230	XG 340	DG 370	AR 305	AT 315	AK 180	KP 250	ZK 240	GR 620
S6 - Square 6x6 mm [m]	20	22	22	20	17	17	30	18	18	14	18	18	19	19	19	19
S8 - Square 8x8 mm [m]	12	14	14	12	10	10	17	10,5	10,5	9,2	10,5	11	11	11	11	11,5
S10 - Square 10x10 mm [m]	8	9	9	8	6,4	6,4	11,5	6,8	6,8	6	6,8	6,8	7,4	7,4	7,4	7,6
S12 - Square 12x12 mm [m]	5,8	6,3	6,3	5,8	4,6	4,6	8,2	5	5	4,4	5	5	5,4	5,3	5,4	5,8
S14 - Square 14x14 mm [m]	4,3	4,6	4,6	4,3	3,4	3,4	-	3,6	3,6	3,2	3,6	3,6	3,8	3,8	3,8	4,2
S16 - Square 16x16 mm [m]	3,3	3,6	3,6	3,3	2,6	2,6	-	2,8	2,8	2,4	2,8	2,8	3	3	3	3,3
S20 - Square 20x20 mm [m]	2,1	2,3	2,3	2,1	1,7	1,7	-	1,8	1,8	1,55	1,8	1,8	1,9	1,9	1,9	2,1
S25 - Square 25x25 mm [m]	1,3	1,45	1,45	1,3	1,05	1,05	-	1,15	1,15	1	1,15	1,15	1,25	1,25	1,25	1,3
Cost index EUR/kg	4	5	5	15	40	40	50	30	40	50	50	40	25	25	30	50
Range of sizes	from 6x6 to 30x30 mm		6x6 to 30x30 mm		6x6 to 25x25 mm		(2)6x6 to (12)25x25 mm		6x6 to 25x25 mm		6x6 to 25x25 mm		6x6 to 25x25 mm		6x6 to 25x25 mm	
Standard of packaging	rolls 5 / 10 / 20 kg		rolls 5 / 10 / 20 kg		spool 2,5 kg / 5 kg		spool (1,5)2,5 / (3)5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg		spool 2,5 kg / 5 kg	
Areas of applications All products are restricted to professional users in industry and technology	Applications where the service life and durability are not substantial but the low material cost is required.		White, economical seal for low parameters applications, where the risk of staining is unacceptable.		Easy to use and reliable packing. In dynamic application it gives low wear of shaft and long service life.		White, non-staining sealant for both dynamic and static seals. It can be used in contact with drinking water and food.		Seals for abrasive or particulate contaminated media. Hydro-transport, sewage pumps and drainage systems, etc.		Abrasive yet clean media, where no risk of staining is tolerated. For food, paints, pulp and paper industry, etc.		Sealing material for tank lids and doors as well as static seals for low pressure and limited temperature range.		Packing for slightly polluted media, pulps also colloidal liquids. Can be used interchangeably with aramid packings.	

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