HECKER®

STUFFING BOX PACKINGS

ENGLISH

The information given in this brochure is not binding and should only be seen as a gereral guedeline. Due to the great range of application possibilities and demands placed on the materials we produce, we are unable to offer standard values for every individual application. The information tiven in the brochure can not offer guarantees with respect to suitability or lifetime of a particular sealing system since operating and application conditions play an important role and are not subject to our control. Therefore we cannot asume liability for the information given.

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HECKER® STOPFBUCHS-PACKUNGEN

STOPFBUCHSPACKUNGEN
Geflochten:
mit Garnen aus Naturfasern, Synthesefasern (z. B. PTFE, Aramid, Polyamid, Polybenzimidazol), Kohle, Graft, Glas, Keramik
Gepresst:
aus expandiertem Graft bzw. faserhaltigen Pressmassen
Lieferformen:
Meterware
Einbaufertige Dichtringe in geschlossener und offener Ausführung
Einsatzgebiete: Kolbenpumpen, Gebläsen, Rührwerken und Armaturen

VERSCHLUSSDECKEL- UND KLAPPENDICHTUNGEN
Gewickelt:
mit Geweben aus Naturfasern, Synthesefasern (z. B. Aramid, Glas, Keramik)
Gepresst:
aus expandiertem Graft
Lieferformen:
Meterware
Einbaufertige Dichtringe in geschlossener und offener Ausführung
Einsatzgebiete Gewebe:
Hand- und Mannlochverschlüsse, Kesselböden bzw. -türen, Domdeckel und Hebelklappen
Einsatzgebiete Grafit:
selbstdichtende Verschlüsse (z. B. nach dem Bredtschneider System)

HECKER® STUFFING BOX PACKINGS

STUFFING BOX PACKINGS
Braided:
with threads made of natural fibers, synthetic fibers (for example PTFE, aramide, polymer, polybenzimide azole), graphite, glass, ceramic
Pressed:
from expanded graphite, moulded fibrous composites
Available forms:
uncut continuous length
preformed rings ready for installation
Applications:
centrifugal and piston pumps, ventilators, agitating devices and fittings

LIDS AND STATIC SEALING
Wrapped:
with lamers made of natural fibers, synthetic fibers (for example aramide, glass, ceramic)
Pressed:
out of expanded graphite
Available forms:
uncut continuous length
preformed rings ready for installation
Static Applications:
hand and manhole covers, boiler covers and doors, tank dome lids and lever flaps
Graphite applications:
self-sealing closures (for example according to the Bredtschneider principle)

GARNITURES DE PRESSE-ÉTOUPE HECKER®

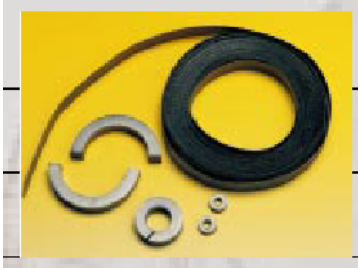
GARNITURES DE PRESSE-ÉTOUPE
Tressées:
à partir des fils de fibres naturelles, de fibres synthétiques (p. ex. PTFE, aramide, polyamide, polybenzimidazol), graphite, verre, céramique
Pressées:
à partir de graphite expansé ou du matériel pressé fibreux
Produits disponibles:
au mètre
sous forme de bagues d'étanchéité prêtes au montage, en version ouverte ou fermée
Domaines d'utilisation:
pompes centrifuges ou à piston, souffleries, malaxeurs, robinetterie

JOINTS POUR BOUCHONS ET CLAPETS:
Enroulés:
de tissus de fibres naturelles, de fibres synthétiques (p. ex. aramide, verre, céramique)
Pressées:
en graphite expansé
Produit disponibles:
au mètre
sous forme de bagues d'étanchéité prêtes au montage, en version fermée et ouverte
Applications textiles:
obturateurs pour trous de poing ou trous d'homme, fond ou portes de chaudières, couvercles de dômes et clapets à levier
Applications Graphite:
obturateurs auto-étanchéifiants
(p. ex. selon Bredtschneider)

GUARNIZIONI DI TENUTE A PREMISTOPPA HECKER®

GUARNIZIONI DI TENUTE A PREMISTOPPA
Filamentose intrecciate in fibre naturali, fibre sintetiche (p. es: PTFE, aramide, poliammide, polibenzimidazolo), grafite, vetro, ceramica
Pressate:
in grafite espansa o materiali fibrosi compressi
Disponibili:
in metratura
Come anelli di tenuta pronti per il montaggio realizzati in versione aperta o chiusa
Campi di applicazione:
Pompe centrifughe o a pistoni, soffianti, agitatori e strumenti

GUARNIZIONI PER COPERCHI E VALVOLE:
Avvolte:
con tessuti in fibre naturali, fibre sintetiche p. es.: aramide, vetro, ceramica)
Pressate:
in grafite espansa
Disponibili:
in metratura
Come anelli di tenuta pronti per il montaggio realizzati in versione aperta o chiusa
Tessuti:
Chiusure a mano o a passo d'uomo, fondi e porte di caldaie, coperchi per passo d'uomo e valvole a leva
Grafite:
Chiusure ad autotenuta (p. es.: in base al sistema Bredtschneider)





STOPFBUCHS-PACKUNGEN


HECKER WERKE

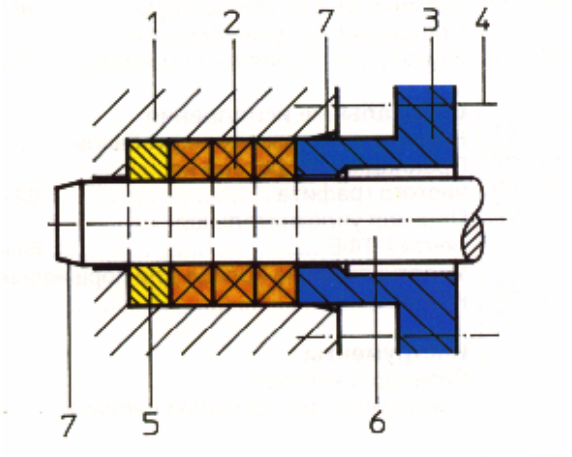
CONTENTS

Introduction
Application

Stuffing box serve for sealing the connecting passages of the shafts through the housing. Typical ranges of application are:

1. Sealing of rotary shafts, e.g. in circulation pumps or agitators
2. Sealing of axially moving shafts e.g. in pumps
3. Sealing of spindles, e.g. in valves
4. static sealing of frames and covers
5. heat insulations on frames, fire doors

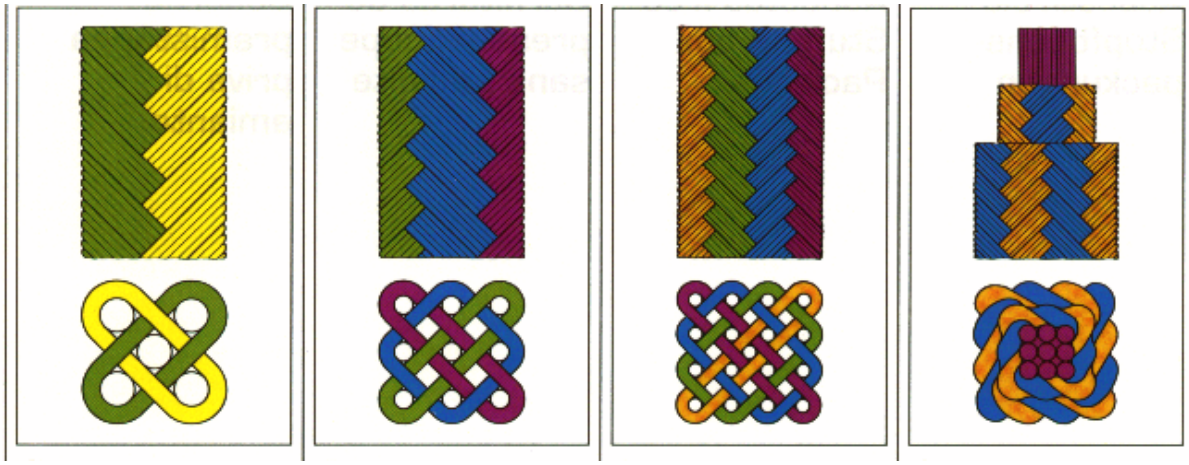
Design



Design of a stuffing box:

1	stuffing box housing
2	packing space and stuffing box rings
3	stuffing box cup
4	stud bolts
5	basic ring
6	shaft, spindle, rod, plunger
7	entry bush

Plaiting methods



2-diagonally | 3-diagonally | 4-diagonally | braid-over-braid

Design

For all requirements HECKER® - stuffing box packings are plaited from yarns made of the following fibres:

Natural fibres:
- Ramie
- cotton

synthetic fibres:
- Polytetrafluorethylenr (PTFE)
- Polyaramidr und Polyimide
- Polybenzimidacole (PBI)
- Polyacrylate
- Graphite
- carbon

anorganic fibres:
- Glass
- ceramics

By means of impregnation with special compounds the packing is adapted to every respective application purpose, e.g. lubricants for pump packings, binding and filling agents and dry lubricants for valve packings or PTFE for piston pump packings.

For the sealing of stuffing boxes which are exposed to higher temperatures and pressures where plaited packings cannot be used, the application of packing rings and bushings of expanded graphite, the HECKER® Grafotherm® seals are recommended.

HECKER® Euraflon® (PTFE) universal flat seals with adhesive strip as well as the so-called AK-seals (asbestos-free fabric caoutchouk), which are produced of gummed fabrics are available for the static sealing of covers.

Notes for selection

The selection of stuffing box packings must be effected under consideration of the following factors:

1. application conditions
   e.g. aggregates (pump, valve), maximum values of temperature, pressure and sliding speed
2. media
   the tables on the following pages indicate the technical values, the suitability for the different applications as well as the resistance to various media of the packings.

Shapes available

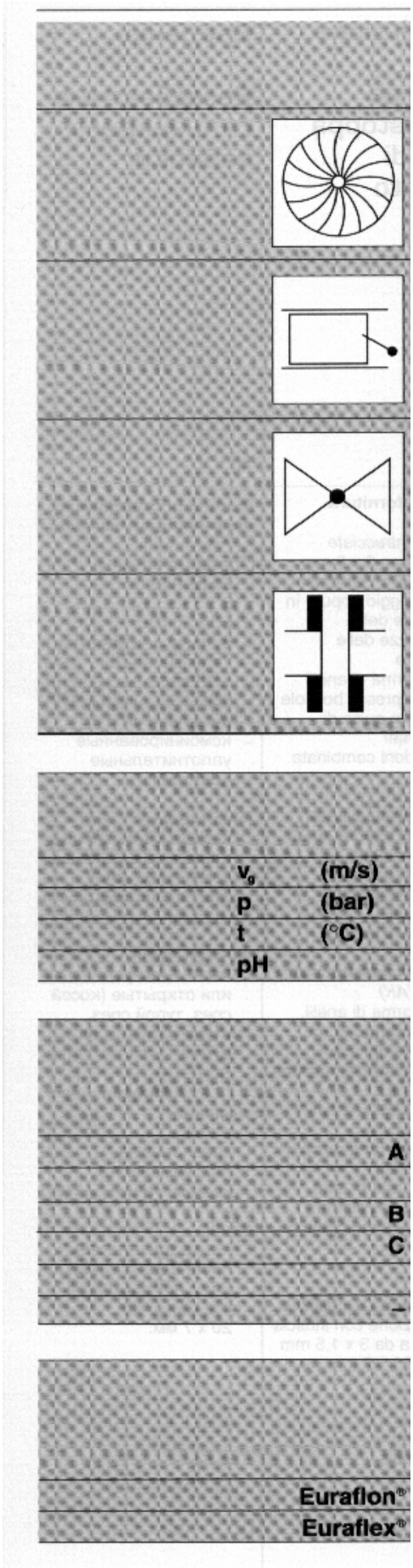
Plaited packings
- with a cross section of 3x3 mm to 50x50 mm
- as yarded goods or rolled packings
- as prepressed rings, bushes or combined packing sets

Grafotherm
- As rings, continuous or open (diagonal cut, jump jointed cut) or
- As half rings
- As bushes

AK-seals
- As rings, closed or open (diagonal cut, jump jointed cut, stepped cut)
- As yard ware (as a rule up to 15 m)
- As cut lengths
- As frames
- As special profiles like bunt strips

PTFE: As flat seal with adhesive strip from 3 x 1,5mm to 20 x 7 mm

Symbols of aggregates



Circulating pump
(rotary shaft)

piston pump
reciprocating piston)

armature
(sealing of the spindle)

static seal
(flanges, frames etc.)

UNITS :

Sliding speed
Pressure
Temperature
Acid and lye concentration

Symbols for application in the table of media

= well suited, and recommended quality

= applicable
= limited application

= not suitable

Registered trademark of the HECKER® company

Notes for installation on starting-up of glandbox packings in circulation piston pumps, as well as in armatures

Tecnical requirements for an optimal function

Stroke of shaft max. 0,001 x shaft diameter at sliding speed > 2 m/s.

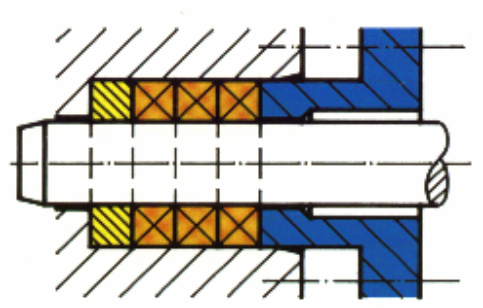
Surface roughness of the shaft, spindle or piston $R_{t <}$ 5 µm. Surface within sealing area smooth, without any scores or rust formation !

Gap between shaft and housing or cup < 0,2 mm. In the case of a larger gap, extrusion-free packings or supporting rings of such packing are necessary.

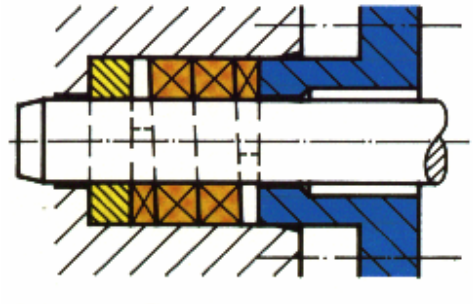
Install well dimensioned packings only (for the range of dimensions 6 to 20 mm: +0,3mm/-0,5mm). Packings which do not fit exactly are not allowed to be aligned by hammering. After installation they are subject to expansion causing increased friction. Such packings applied in circulating pumps may start burning !

Mounting of packing rings
Mounting of single rings, never install the packing as spiral.

Correct



Wrong



When yard ware is applied: selection of appropriate length of packing !

Cutting by use of yard ware

Lay the Packing rings provisioriosly round the shaft and mark them as shown on figure 1. So you geht the straight length of the packing L , figure 2.

➔ *Please pay attention, that the packing rings have fully contact with the shaft.*

Figure 1

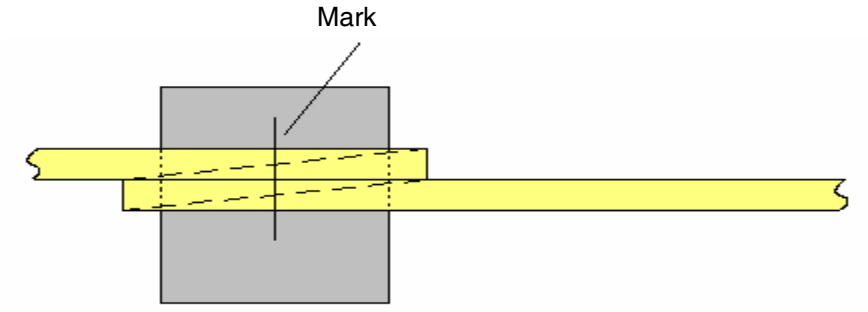
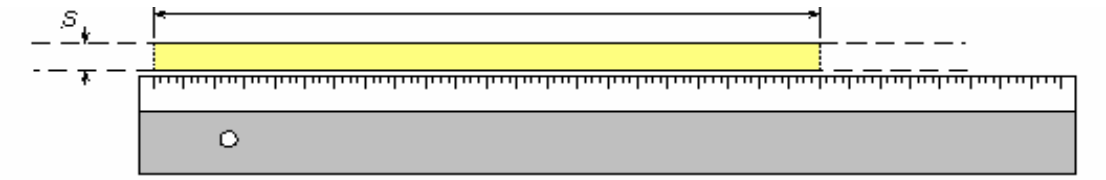
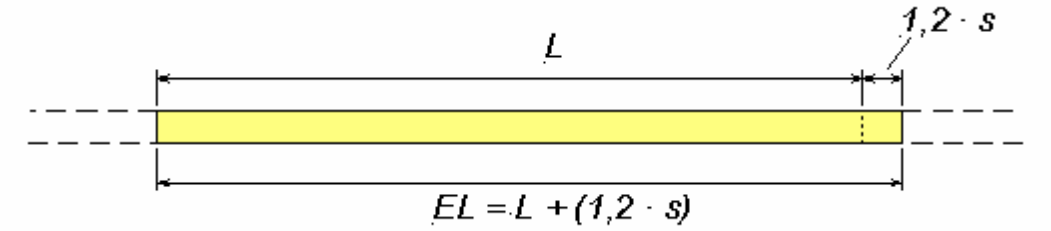


Figure 2 L = straight length of packing round the shaft



a) Take the packing away and add the width of packing s x 1,2 to the length L. You geht the Length for mounting (EL, figure 3).

Figure 3



b) Cut on both marks of the length for mounting (EL) by approx. 45° (Figure 4). Use our HECKER® packing cutter for accurate cuts of packings.

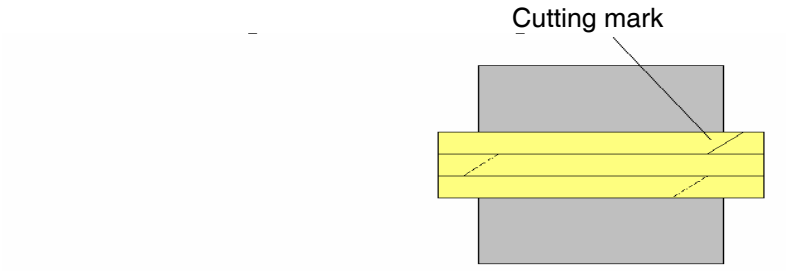
Figure 4

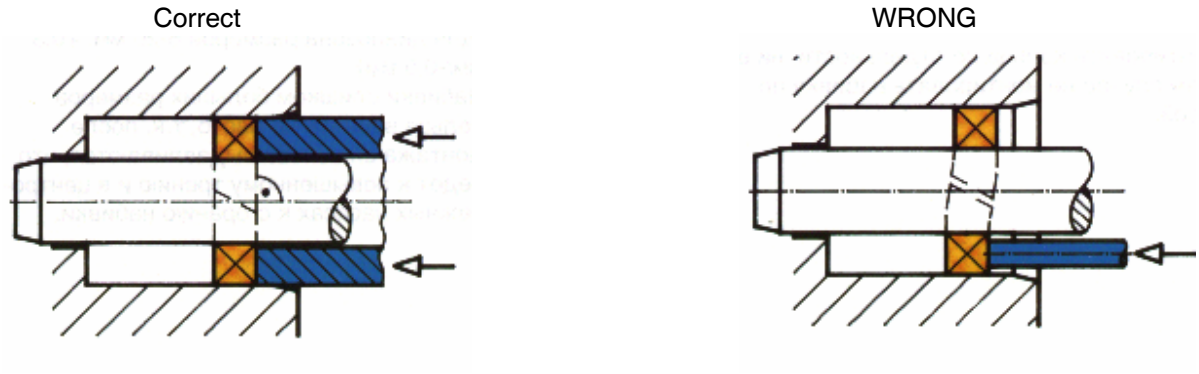
As an alternative, application of prepressed packing rings are recommended.

mounting of packing rings

- Packing rings to be inserted one after the other. Carefully bend up the packing ring in axial direction and insert cut end first, with longitudinally divided sleeve and press rectangularly against the axis of the shaft. (Figure 5)

Figure 5





Mounting of circulationg pump packins

a) Packing set during idle running to be well compressed (min. approx. 5 N/mm²)
b) Afterwards pressure on packing set to be released
c) Remove cap by approx. 8% of the hight of packing set.
d) If a cooling device exists it has to opened
e) Start pump and wait for mounting procedures for 1 hour. Interference will be necessary only in the case of vapour, then slightly release cap a little bit. As per experiences, overheating of the packing occures only in the case of very unfavourable conditions – in most cases no interference will be necessary.
f) An obvious heating of the packing during this starting time is normal and there is no cause for alarm.

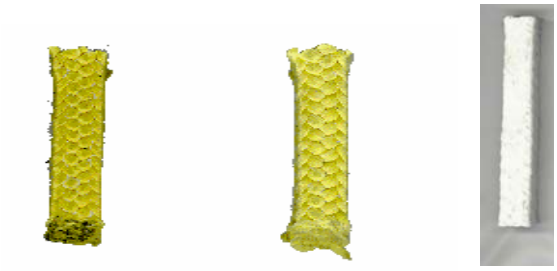
As a rule the packing becomes stable after 1 hour. If necessary, the leakage can now be adjusted by carefully retightening the cap screws.

A minimum leakage is necessary in all cases. In the case of sliding speed up to 5 m/s there will be drip leakage. In the case of sliding speed up to 20 m/s leakage min. 20 ml/min.

Starting-up of valve packings

Packing set to be well pressed. Release cap as far as the handlever can be actuated.

Aramide, Filament

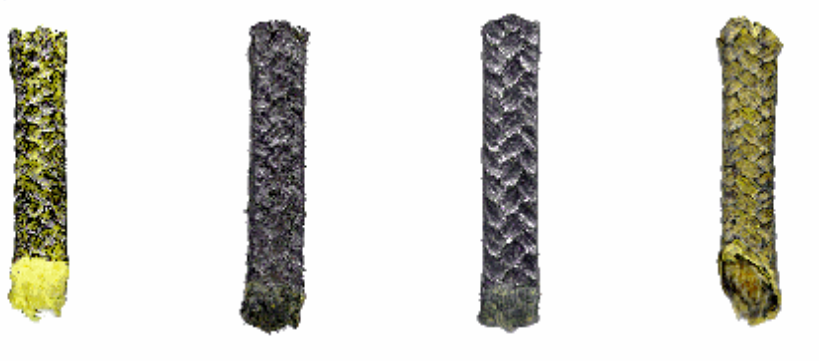


Material		1700	1720	1771
Fibre:		aramide	aramide	Aramide
Fibre type:		filament	filament	Filament
Impregnation:		--	--	PTFE
Lubricant:		silicon oil	parafin oil	parafin oil
Density:	[g/cm³]	1,35	1,3	1,35
	T (°C)	-100 to 280	-100 to 280	-50 to 280
	pH	2 to 13	2 to 13	1 to 13
	P [bar]	25	25	25
	V [m/s]	25	25	25
	P [bar]	100	100	50
	V [m/s]	2	2	2
	P [bar]	100	100	100
	V [m/s]	2	2	2
	P [bar]	--	--	25
Peculiarity:		Very high abrasion resistance. Application against media with abrasive components	Silicon free.Very high abrasion resistance. Applicable against media with abrasive components	Very good chemical Resistance. Applicable Against most media. Very good for use in hot And wet conditions, also Hot oils. Packing didn't contaminate the agent. FDA-conform, "white" packing for general use, Good mechanical resistant also for media with abrasive compontents
Release:		--	--	--
Structure:		Euroflex®-diagonal plaiting		
Form of delivery:		piece goods from 3 mm to 50 mm square		
Media resistance:		Applicable against most media. Not applicable against concentrated acids and alcaline-solutions, few organic compounds, alkali metals, elementary fluorine and fluorine compounds.		
Notes:		The packings WS 1700 and WS 1720 have very high mechanical stability and excellent sliding properties. WS 1720 was developed for employments were silicon-free packings are necessary.		

Aramide, staple fibre

Material		1721	1727
Fibre:		aramide	aramide
Fibre type:		Staple fibre	staple fibre
Impregnation:		PTFE	PTFE
Lubricant:			parafin oil
Density:	[g/cm³]	1	1,1
	T (°C)	-100 to 280	-100 to 280
	pH	2 to 13	2 to 13
	P [bar]	-	20
	V [m/s]	-	20
	P [bar]	-	100
	V [m/s]	-	2
	P [bar]	300	100
	V [m/s]	-	2
	P [bar]	5	--
Peculiarity:		Especially for the use In fittings In steam up to 200°C Applicable against media with abrasive Components and hot water	Silicon free. Soft but high abrasive resistance. Applicable against media with abrasive components
Release:	--	--	-- --
Structure:	Euroflex®-diagonal plaiting		
Form of delivery:	piece goods from 3 mm to 50 mm square		
Media resistance:	Applicable against most media. Not applicable against concentrated acids and alcaline-solutions, few organic compounds, alkali metals, elementary fluorine and fluorine compounds.		
Notes:	The packings WS 1700 and WS 1720 have very high mechanical stability and excellent sliding properties. WS 1720 was developed for employments were silicon-free packings are necessary.		

Aramide, black



Material		1710	1751	1761	1799
Fibre:		aramide	aramide	aramide	Aramide/glass
Fibre type:		filament	Staple fibre	filament	filament/core
Impregnation:		graphite	graphite	PTFE/graphite	graphite
Lubricant:		silicon oil	silicon oil	silicon oil	parafin oil
Density:	[g/cm³]	1,35	1,1	1,25	1,4
	T (°C)	-100 to 280	-100 to 280	-100 to 280	-100 to 280
	pH	2 to 13	2 to 13	2 to 13	2 to 13
	P [bar]	25	20	25	20
	V [m/s]	30	20	30	15
	P [bar]	100	100	100	--
	V [m/s]	2	2	2	--
	P [bar]	100	100	100	100
	V [m/s]	2	2	2	2
	P [bar]	--	--	--	--
Peculiarity:		Surface graphited. In centrifugal pumps packing has already rendered a service life of more than 15.000 hours	Silicon free. Good dimension stability and high cross-section-density	In centrifugal pumps this packing has already rendered a service life of more than 15.000 hours	Cheap alternative for low mechanical requirements. Core serves as reservoir for lubricant
Release:		--	--	--	--
Structure:		Euroflex®-diagonal plaiting			
Form of delivery:		piece goods from 3 mm to 50 mm square			
Media resistance:		Applicable against most media. Not applicable against concentrated acids and alcaline-solutions, few organic compounds, alkali metals, elementary fluorine and fluorine compounds.			
Notes:		The packing “Aramide,black” are suitable for applications with high sliding speed I n piston- and centrifugal pumps. Through the use of a graphite impregnation on the fibre, the heat conductivity has been increase.			

Aramide-combinated, “Edge”

Material		1787	1788	1794	1798
Fibre:		Aramide/G4®	Aramide/PTFE	Aramide/gPTFE	Aramide/PTFE
Fibre type:		Filament/filament	Filament/filament	Filament/filament	Filament/filament
Impregnation:		PTFE/Incorp. GR	--	Incorp. GR	PTFE
Lubricant:		--	--	silicon oil	Silicon oil
Density:	[g/cm³]	1,4	1,4	1,4	1,5
	T (°C)	-100 to 280	-100 to 280	-100 to 280	-100 to 280
	pH	2 to 13	2 to 13	2 to 13	2 to 13
	P [bar]	--	--	20	20
	V [m/s]	--	--	10	25
	P [bar]	1400	1400	500	500
	V [m/s]	2	2	2	2
	P [bar]	500	500	500	500
	V [m/s]	2	5	2	2
	P [bar]	2	1	--	--
Peculiarity:		for use in piston-pumps at extrem pressures. Yarn-combination results in low friction and good heat conductivity	Especially developed for piston-pumps. The aramide-fibre prevents an extrusion of the PTFE-yarn	High strength and good sliding properties. Suitable for high sliding speed In piston-pumps.	--
Release:		--	--	--	--
Structure:		Euroflex®-diagonal plaiting, “edge reinforced”			
Form of delivery:		piece goods from 5 mm to 50 mm square			
Media resistance:		Applicable against most media. Not applicable against concentrated acids and alcaline-solutions, few organic compounds, alkali metals, elementary fluorine and fluorine compounds.			
Notes:		“Edge reinforced” qualities are especially for piston pumps. Through the aramide reinforcement the extrusion of packing can be decreased. The PTFE in the sliding surface makes ist possible to seal against high pressure and support very good sliding properties of the pump rod.			

Aramide-combinated, “Zebra++”

Material 1797

Fibre:		Aramide/graphite
Fibre type:		filament/filament
Impregnation:		PTFE
Lubricant:		silicon oil
Density:	[g/cm³]	1,2
	T (°C)	-100 to 280
	pH	2 to 13
	P [bar]	20
	V [m/s]	25
	P [bar]	100
	V [m/s]	5
	P [bar]	200
	V [m/s]	2
	P [bar]	--

Peculiarity:	Very good heat conductivity in combination with high mechanical stability
Release:	--
Structure:	Euroflex®-diagonal plaiting, “Zebra”
Form of delivery:	piece goods from 3 mm to 50 mm square
Media resistance:	Applicable against most media. Not applicable against concentrated acids and alcaline-solutions, few organic compounds, alkali metals, elementary fluorine and fluorine compounds.
Notes:	Packings with “zebra” plait are especially for centrifugal pumps. Because of the graphite fibre Packing 1797 has excellent heat conductivity and can be used up to very high sliding speed.

Aramide-combinated, “Zebra”

Material		1785	1786	1795	1796
Fibre:		Aramide/PTFE	Aramide/PTFE	Aramide/gPTFE	Aramide/PTFE
Fibre type:		Filament/filament	Staple fibre/filament	Filament/filament	Filament/filament
Impregnation:		graphite/PTFE	PTFE	Incorp. GR	PTFE
Lubricant:		Silicon oil	Paraffin oil	silicon oil	Silicon oil
Density:	[g/cm³]	1,5	1,4	1,4	1,4
	T (°C)	-100 to 280	-100 to 280	-100 to 280	-100 to 280
	pH	2 to 13	2 to 13	2 to 13	2 to 13
	P [bar]	20	20	25	20
	V [m/s]	20	20	30	20
	P [bar]	100	200	200	200
	V [m/s]	5	2	5	5
	P [bar]	200	200	200	200
	V [m/s]	2	2	2	2
	P [bar]	2	2	--	--
Peculiarity:		The good sliding Properties makes it Possible to be use in Centrifugal pumps at High sliding-speed	Through the use of Aramide staple-fibre The packing is very Pliant and aleastic	High strength and good sliding properties. Suitable for higher sliding speed In centrifugal-pumps.	Suitable for higher Sliding speed in Centrifugal pumps
Release:		--	--	--	--

Structure: Euroflex®-diagonal plaiting, “Zebra”!

Form of delivery: piece goods from 3 mm to 50 mm square

Media resistance: Applicable against most media. Not applicable against concentrated acids and alcaline-solutions, few organic compounds, alkali metals, elementary fluorine and fluorine compounds.

Notes: Packings with “zebra” plait are especially for centrifugal pumps. This plaid makes it possible to Combine materials with good supporting behaviour (aramide) and materials with good sliding Behaviour (PTFE) in the face. So running-in can be avoided.

Cotton, solvent

Material 1962

Fibre:		Cotton
Fibre type:		Long fibre
Impregnation:		-
Lubricant:		Glycerine
Density:	[g/cm³]	1,2

	T (°C)	- 20 to 120
	PH	-
	P [bar]	20
	V [m/s]	12
	P [bar]	100
	V [m/s]	2
	P [bar]	100
	V [m/s]	2
	P [bar]	--

Peculiarity: Quality is resistant
Against solvents but
Not applicable for
Polar media

Release: --
Structure: Euroflex®-diagonal plaiting
Form of delivery: piece goods from 3 mm to 50 mm square
Media resistance: Applicable against solvents made of aliphatic, aromatic or chlorated hydrocarbons like
Benzine, trichlorethylene, perchlorethylene. Not applicable against aqueous media
Notes: The packing 1962 is especially developed for solvents and shows good sealing properties against
Solvents which wash-out the normal lubricants. The lubricant contains an blue identification colour

COTTON/HEMP

Material		1941	1942	1943	1944
Fibre:		cotton	cotton	cotton	Hemp
Fibre type:		Long fibre	Long fibre	Long fibre	Long fibre
Impregnation:		Graphite	-	-	Paraffin/tallow
Lubricant:		Grease	Grease	Grease	Grease
Density:	[g/cm³]	1,2	1,2	1,2	1,1
	T (°C)	-20 to 120	-20 to 120	-20 to 120	-20 to 120
	pH	5 to 13	5 to 13	5 to 13	5 to 13
	P [bar]	15	15	15	15
	V [m/s]	10	10	10	10
	P [bar]	100	100	100	50
	V [m/s]	2	2	2	2
	P [bar]	150	150	150	-
	V [m/s]	2	2	2	-
	P [bar]	-	-	-	-
Peculiarity:		Inexpensively	Inexpensively	Especially suitable For dirt sensitive Application	Very inexpensively
Release:		-	-	-	-
Structure:		Euraflex®-diagonal plaiting			
Form of delivery:		Piece goods from 3 mm to 50 mm square			
Media resistance:		Hot and cold water, aqueous solutions, dissolved alkalis, fat and oil. Not applicable against acid- And abrasive media			
Notes:		1941, 1942 and 1943 are recommended as cheap alternative for uses with low requirements to the Packing. 1944 is recommended as cheapest alternative for use with very low requirements.			

EURAFLON®
(PTFE)




Material		1601	1689	1690	1699
Fibre:		PTFE	PTFE	PTFE	PTFE
Fibre type:		Filament	Filament	Filament	Filament
Impregnation:		PTFE	PTFE	PTFE	PTFE
Lubricant:		-	Silicon oil	Paraffin oil	-
Density:	[g/cm³]	1,7	1,73	1,72	1,7
	T (°C)	-200 to 280	-200 to 280	-200 to 280	-200 to 280
	pH	0 to 14	0 to 14	0 to 14	0 to 14
	P [bar]	-	10	10	-
	V [m/s]	-	12	12	-
	P [bar]	1000	150	150	1000
	V [m/s]	2	2	2	2
	P [bar]	500	150	150	500
	V [m/s]	2	2	2	2
	P [bar]	5	-	-	5
Peculiarity:		No restriction of Pressure and Temperatures in use Against liquid oxygen	Especially pliant Packing	Silicon free	
Release:		unobjectionable for FDA BAM	-	-	-
Structure:		Euraflex®-diagonal plaiting			
Form of delivery:		Piece goods from 3 mm to 50 mm square			
Media resistance:		Applicable against near all media. Not applicable against alkaline metals in melted or dissolved form, As well as elementary fluorine and fluorine compound at high temperatures and pressure			
Notes:		In employments where it is necessary to seal against aggressive chemicals, we recommended to use These packing materials of PTFE			

EURAFLON®(PTFE), GRAPHITE




Material		1636	1681	1682	1683
Fibre:		PTFE	100% GFO®	100% G4®	PTFE
Fibre type:		Filament	Filament	Filament	Filament
Impregnation:		graphite	Incorp. GR	Incorp GR	Incorp. GR
Lubricant:		Paraffin oil	Silicon oil	-	Silicon oil
Density:	[g/cm³]	1,73	1,54	1,38	1,57
	T (°C)	-200 to 280	-200 to 280	-200 to 280	-200 to 280
	pH	0 to 14	0 to 14	0 to 14	0 to 14
	P [bar]	20	20	40	20
	V [m/s]	20	20	20	20
	P [bar]	300	250	400	300
	V [m/s]	2	2	2	2
	P [bar]	300	-	400	300
	V [m/s]	2	-	2	2
	P [bar]	-	-	-	-
Peculiarity:		Good heat Conductivity by Graphite coated yarn	High chemical Resistance. Good Lubrication and heat Conductivity	High chemical Resistance. High Pressure resistance And good heat Conductivity	
Release:		-	FMPA	BAM/FMPA	-

Structure: Euraflex®-diagonal plaiting

Form of delivery: Piece goods from 3 mm to 50 mm square

Media resistance: Applicable against near all media. Not applicable against alkaline metals in melted or dissolved form, As well as elementary fluorine and fluorine compound at high temperatures and pressure

Notes: The packing quality WS 1636 is extremely chemical resistant. They are only attacted by strong oxidazing substances which are aggressive against the graphite. The graphite in WS 1681, 1682 and WS 1683 can not be rubbed off. Through the microporous structur the packings are very flexible.

GLASS

Material		1300	1309	1382
Fibre:		C-glass	E-glass	E-glass
Fibre type:		Staple-fibre	Filament	Filament
Impregnation:		-	Graphite	-
Lubricant:		-	-	-
Density:	[g/cm³]	0,9	1,2	1,1
	T (°C)	-200 to 450	-200 to 600	-200 to 600
	pH	0 to 13	2 to 14	2 to 14
	P [bar]	-	-	-
	V [m/s]	-	-	-
	P [bar]	-	-	-
	V [m/s]	-	-	-
	P [bar]	-	-	-
	V [m/s]	-	-	-
	P [bar]	1	2	-
Peculiarity:		Hydrolysis class 3 According DIN 12111	Higher gasproof as 1300, 1382, 1383	Good temperature Resistance
Release:		-	-	-
Structure:		-		
Form of delivery:		Piece goods from 3 mm to 50 mm square		
Media resistance:		Applicable against air, vapour and gases, aggressive and acid gases too. Not applicable against hydrofluoric acid and fluorides		
Notes:		Static sealing for high temperatures, for example oven doors, tunnel covers …		

GLASS CHORDS

Material		6000	6001	6002
Fibre:		C-glass	E-glass	C-glass/E-glass
Fibre type:		Textured	Textured	Textured/textured
Impregnation:		-	-	-
Lubricant:		-	-	-
Density:	[g/cm³]	0,9	0,9	0,9
	T (°C)	-20 to 450	-20 to 450	-200 to 500
	pH	0 to 13	2 to 14	2 to 12
	P [bar]	-	-	-
	V [m/s]	-	-	-
	P [bar]	-	-	-
	V [m/s]	-	-	-
	P [bar]	-	-	-
	V [m/s]	-	-	-
	P [bar]	1	1	1
Peculiarity:		C-glass hydrolysis Class 3 according to DIN 12111, high Chemical resistance Good acid resistance	Made of a special Fibre pliable and Comfortable to skin Core and wrapping 100 % Glass	Compactly wrapped With special fibre Which is pliable and Comfortable to skin Core: predominat C-glass Wrapping: e-glass
Release:		-	-	-
Structure:		Many parallel/lightly turned ropes with braiding		
Form of delivery:		At enquiry		
Media resistance:		Applicable against air, vapour and gases, aggressive and acid gases too. Not applicable against hydrofluoric acid and fluorides. Resistant against organic solvent		
Notes:		The material serve as asbestos-free statical sealing for high temperatures, for example oven Doors, tunnel covers etc.		

GRAPHITE




Material		1410	1420	1421	1433
Fibre:		graphite	Graphite	Graphite/Inco.	Graphite
Fibre type:		Filament	Foil	Foil/wire	Filament
Impregnation:		Graphite	-	-	PTFE
Lubricant:		-	-	-	-
Density:	[g/cm³]	0,8	1,2	1,3	0,9
	T (°C)	-200 to 500	-240 to 450	-240 to 450	-200 to 300
	pH	0 to 14	1 to 14	1 to 14	0 to 14
	P [bar]	30	20	-	20
	V [m/s]	20	10	-	20
	P [bar]	30	250	450	-
	V [m/s]	3	2	2	-
	P [bar]	30	250	450	200
	V [m/s]	3	2	2	3
	P [bar]	3	5	10	-
Peculiarity:		Packing consists of 100% graphite and Withstands service Temp. up to approx. 2000°C in non-oxidizing Atmosphere	Packing combines The advantage of Plaited packing with The good characteristics Of expanded graphite	Packing combines The advantage of Plaited packing with The good characteristics Of expanded graphite	Very high heat Conductivity. Very Good chemical resistance
Release:		-	-	-	-
Structure:		Euraflex®-diagonal plaiting			
Form of delivery:		Piece goods from 3 mm to 50 mm square			
Media resistance:		Applicable against near all media like acids, alkalines, organic chemicals, salt solutions, vapours Water, oils, solvents and aggressive gases. Not Applicable against pur oxygen			
Notes:		This packing is well suited for very difficult sealing conditions, e.g. in the case of high Temperatures and aggressive media			

CERAMIC

Material		1370	1379
Fibre:		Ceram./Cr-steal	Ceram./Cr-steal
Fibre type:		Stable-fib./wire	Staple-fib./wire
Impregnation:		-	Graphite
Lubricant:		-	-
Density:	[g/cm³]	0,65	0,8
	T (°C)	-200 to 1260	-200 to 700
	pH	0 to 10	0 to 10
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	1	2
Peculiarity:		Highest temperature Resistance	The graphite Impregnation prevents An adhesion of packing At oven doors
Release:		-	-
Structure:		2D plait or tube braid	
Form of delivery:		Piece goods from 3 mm to 50 mm square/round	
Media resistance:		Applicable against air, vapour and gases, aggressive and acid gases too	
Notes:		Static sealing for highest temperatures, for example oven doors, tunnel covers, …	

CARBON

Material		1409	1432
Fibre:		Carbon	Carbon
Fibre type:		Filament	Filament
Impregnation:		Graphite	PTFE
Lubricant:		-	-
Density:	[g/cm³]	1	0,95
	T (°C)	-60 to 350	-160 to 300
	pH	2 to 14	0 to 14
	P [bar]	-	20
	V [m/s]	-	20
	P [bar]	150	-
	V [m/s]	2	-
	P [bar]	150	200
	V [m/s]	2	3
	P [bar]	3	-
Peculiarity:		Packing for valves Up to 400°C. The Packing is compact And compression-proof	The packing can be Used in the case of Very difficult sealing Conditions
Release:		-	-
Structure:		Euraflex®-diagonal plaiting	
Form of delivery:		Piece goods from 3 mm to 50 mm square/round	
Media resistance:		Applicable against near all media. Not applicable against concentrated acids and Oxidizing media	
Notes:		This packing is well suited for very difficult sealing conditions, e.g. in the case of high temperatures And aggressive media	

PBI

Material		1809	1824
Fibre:		PBI/stainless steal	PBI stainless steal
Fibre type:		Staple fibre/wire	Staple fibre/wire
Impregnation:		Graphite	PTFE
Lubricant:		-	-
Density:	[g/cm³]	1	1,3
	T (°C)	-50 to 350	-50 to 350
	pH	0 to 13	0 to 13
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	250	300
	V [m/s]	2	2
	P [bar]	-	10
Peculiarity:		Applicable in steam Up to 420°C	Applicable in steam Up to 420°C Suitable for dirt Sensitive applications
Release:		-	-
Structure:		Euraflex® diagonal plaiting	
Form of delivery:		Piece goods from 3 mm to 50 mm square	
Media resistance:		Applicable against near all media. Not applicable against concentrated alkaline solutions	
Notes:		Packings made of heat-resistant fiber PBI (polybenzimidazole) are suitable for the employments, where Heat resistant, but low compressive and brittle carbon- and graphite yarns on one hand and on the other Hand the compressive resistant, but only up to 280°C useable synthetic yarns like aramide or PTFE Are not suitable	

PTFE, EXTRUSION MOLDED

Material		7015	7621
Fibre:		PTFE	PTFE
Fibre type:		Unsintered	Unsintered
Impregnation:		-	Graphite
Lubricant:		-	-
Density:	[g/cm³]	1,95	1,9
	T (°C)	-100 to 250	-100 to 250
	pH	0 to 14	0 to 14
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	2	2
	V [m/s]	1	1
	P [bar]	2	1
Peculiarity:		Plastic extrusion Molded material Made of 100% Unsintered PTFE	Plastic extrusion Molded material Made of unsintered PTFE with graphite As lubricant
Release:		-	-
Structure:		homogenuous	
Form of delivery:		Piece goods round from 2 mm to 12 mm, square from 3 mm to 26 mm	
Media resistance:		Applicable against near all media. Not applicable against alkali metals in melted or Dissolved form and elementary fluorine at high temperature and pressure	
Notes:		Suitable as a flange- and shaft sealing in pipeline and equipment construction	

RAMIE

Material		1931	1938	1955
Fibre:		Ramie	CR/Ramie	Ramie
Fibre type:		Long fibre	Cell./long fibre	Long fibre
Impregnation:		PTFE	PTFE	Graphite
Lubricant:		Paraffin oil	Paraffin oil	Grease
Density:	[g/cm³]	1,1	0,63	1,2
	T (°C)	-50 to 140	-40 to 100	-20 to 140
	pH	5 to 14	1 to 13	5 to 14
	P [bar]	20	10	20
	V [m/s]	20	10	15
	P [bar]	900	2	200
	V [m/s]	2	2	2
	P [bar]	200	10	200
	V [m/s]	2	2	2
	P [bar]	1	1	1
Peculiarity:		Special packing for Alkaline solutions. For tank business, Food and beverage industry Paper industry Water plants etc.	Weatherproof rubber Especially elastic Through cellular-rubber-Core. Not applicable Against hydrocarbons	Special packing for Alkaline solutions Heat and caustic Solutions resistant
Release:		According to the FDA regulations	-	-
Structure:		Euraflex®-diagonal plaiting		
Form of delivery:		Piece goods from 3 mm to 50 mm, qualities with core made out of rubber from 8 mm		
Media resistance:		Aqueous- and alkaline media, especially abrasive media and cristalline solutions, sandy soles, Salt grained sludge, chemical pulp. Not applicable against acid media. Qualities with core made Of NBR are applicable against hydrocarbons		
Notes:		Against media with high mechanical abrasive potential, packings made of wear resistance ramie fibre		
		Are well suited. Through the high rotproof behaviour of the ramie fibre the packing support high durability In cases where the graphite content of the packing disturbs, we recommend 1931 with an bright PTFE-/grease-lubricant.		

OTHER

Material		1820	1832
Fibre:		P84 (polimide)	PAN
Fibre type:		filament	Filament
Impregnation:		PTFE	PTFE
Lubricant:		Silicon oil	Silicon oil
Density:	[g/cm³]	1,3	1
	T (°C)	-100 to 200 (*)	-50 to 100
	pH	0 to 12	1 to 13
	P [bar]	20	10
	V [m/s]	20	25
	P [bar]	200	50
	V [m/s]	2	2
	P [bar]	250	30
	V [m/s]	2	2
	P [bar]	-	1

Peculiarity:	High working capacity and Flexibility. The yarn is soft And textile. (*). Applicable in Steam up to 260°C	Packing made of Polyacrylonitrile Especially adapting
Release:	FMPA	-
Structure:	Euraflex®-diagonal plaiting	
Form of delivery:	Piece goods round from 3 mm to 26 mm square	
Media resistance:	Applicable against near all organic solvents, as well as concentrated acids at low temperatures Not applicable against alkaline solutions and strong polar solvents	
Notes:	For uses at high pressure or abrasive media we recommended packings made of Polyaramide like 1700 or polyimide yarn like 1820	

TANK CAP, ARAMIDE

Material 1778

Fibre:		Rubber/aramide
Fibre type:		Cellular/staple fibre
Impregnation:		PTFE
Lubricant:		-
Density:	[g/cm³]	0,63

T (°C)	-100 to 120
pH	2 to 13
P [bar]	-
V [m/s]	-
P [bar]	-
V [m/s]	-
P [bar]	-
V [m/s]	-
P [bar]	1

Peculiarity:	High mechanical Stability trough use of Aramide, combined with High elasticity of the Cellular rubber
Release:	-
Structure:	Euraflex® diagonal plaiting
Form of delivery:	Piece goods from 3 mm to 50 mm square
Media resistance:	Applicable against most media. Not applicable against concentrated acids and alkaline-solutions, few Organic compounds, alkali metals, elementary fluorine and fluorine compounds
Notes:	The qualities which are made with a rubber core have a high elasiticity. Through the choice of suitable Rubber cores (for example cellular-, hose- and solid rubber) and the choise of suitable rubber qualities These materials can be tuned to several uses.

TANK CAP, PTFE




Material		1670	1671	1675	1678
Fibre:		CR/PTFE	CR/PP/PTFE	Rubber/PTFE	CR/PTFE
Fibre type:		Full/filament	Cell./stap./fil.	Tube/filament	Cell./filament
Impregnation:		PTFE	PTFE	PTFE	PTFE
Lubricant:		-	-	Paraffin oil	-
Density:	[g/cm³]	1,54	0,6	0,6	1,2
	T (°C)	-40 to 150	0 to 150	0 to *	-40 to 150
	pH	1 to 13	1 to 13	* to *	1 to 13
	P [bar]	-	-	-	-
	V [m/s]	-	-	-	-
	P [bar]	-	-	-	-
	V [m/s]	-	-	-	-
	P [bar]	-	-	-	-
	V [m/s]	-	-	-	-
	P [bar]	10 (*)	10(*)	10(*)	10
Peculiarity:		High elasticity Suitable to compensate Uneveness (*) enclosed installation (groove)	High elasticity Suitable to compensate Uneveness (*) enclosed installation (groove)	(*) maximum conditions Dependent on used Rubber (*) enclosed installation (groove)	Silicon free Maximum pressure For enclosed installation
Release:		-	-	-	-
Structure:		Rubber core wrapped with PTFE-tabe and braided With PTFE yarn			
Form of delivery:		Piece goods and rings endless bonded, cut ends Wrapped with PTFE			
Media resistance:		All fluid media and vapours found in the tank business. The heat-resistance of the rubber core up to 150°C makes it possible to clean tanks through steam jet cleaning without damaging the sealing			
Notes:		The qualities which are made with a rubber core have a high elasticity. Through the choice of suitable Rubber cores (for example cellular-, hose- and solid-rubber) and the choise of suitable rubber qualities These materials can be turned to several uses.			

Grafotherm® 9525, 9500, 9590
for pump shafts and fitting spindels

	pump shafts	fitting spindles
V_g:	40 m/s	3 m/s
P (bar)	40 bar	100 bar at 1,2 g/cm³ 200 bar at 1,4 g/cm³ 325 bar at 1,6 g/cm³
t (°C)	- 200 up to +550°C in water - 200 up to +2000°C in inert atmosphere	
pH	0 - 14	

media:

Resistant against most media. Not applicable against strong oxidants e.g. concentrated nitric acid, sulphuric acid and perchloric acid and crome (VI) solutions, alkaline salt e.g. calium chlorate, -nitrate aggressive gases with vromium, chlordioxide or sulphuric trioxide.

Design:

Grafotherm consists of pure graphite, which has been expanded in a spezial procedure. This material is densified to foils without using any binders or fillers and cut in strips. These strips (as mentioned below) can be pressed as sealing rings into glandbox rings on site. As a rule, we supply finished prepressed rings of Grafotherm strips.

Characteristic features:

- Ductility up to 50% of original thickness at a density of 1,0 g/cm³
- Resiliance of approx. 10% of the original thickness
- Continuous elasticity, resistant to thermal shocks, non-ageing, no hardening or softening, no warm- or cold flow
- High heat conductivity, depending on density 100…400 W/K*m
- Low friction value μ = 0,05 - 0,09; self lubricating
- Resistant to radiation 5^{*} 10^{6} rad
- Good sectional density, at shafts only very low leakage is necessary.

	WS 9525	WS 9500	WS 9590
Purity	≥ 98 % C	≥ 99,8 % C	≥ 99,8 % C (+2% Inhibitor)
Chloride contents	< 50 ppm	< 20 ppm	< 20 ppm
Iron contents	< 300 ppm		

WS 9525 is the standard quality, whereby WS 9500 ist applied in the case of high purity requirements.

The quality WS 9590 with corrosion inhibitor (barium molybdate) is recommended in the case of spezial requirements of the corrosion safety, e.g. in the case of long storing periods, long idle running times at water- and vapour fittings of combinations of high-alloy spindle materials and low-alloy housing materials.

Advantages:

- Wide range of application, thus easy stock-keeping
- No disturbance due to a wrong selection of the gaskets
- Easy mounting, short idle running times, less maintenance service: no resealing, only re-mounting in the case of increased leakage
- Long lifetime at low leakage
- Protection of shafts and spindles
- For fittings, decrease of the glandbox depth is possible

Shapes available:

The following types of Grafotherm WS 9525, WS 9500 and WS 9590 with densities of 1.2 to 1.8 g/cm^3 depending on the respective application are available:

- Packing-rings pressed on foil, continuos, with a cut or separated
- Profile rings, e.g. with angular cut for covers
- Profile rings with small cross sections as part of replacement for Elastomer-O-rings

Made of Grafotherm WS 9500:

- Strips with transverse ribs 0,38 mm thick, in 10, 15, 20 and 25 mm width, for selv rolling and pressing in the glandbox
- Strips with transverse ribs, 1,0 mm thick with adhesive strip for the sealing of flanges, covers etc.

Special widths on request.

HECKER® Ceramic Cords 6100, 6101, 6102, 6103

Application:

static sealing and insulation




Standard application values:

	6100	6101	6102	6103
Pressure:	1bar	1bar	1bar	1bar
Temperature range:	1200°C	1200°C	600°C	800°C
pH range:	3 - 11	3-11	3-11	3-11

Media:

air and gases, including fumes with abrasive action

Construction:

The ceramic-cords 6100 and 6102 consists of ceramic-yarn with enweaved reinforcement of Inconel (6100) or glass (6102) that is turned in S - or Z-direction.

The ceramic-cord 6101 consists of a Keram-mat-core (100% aluminum-silicate-fibers), braided with ceramic-yarn.

The ceramic cord 6103 essentially consists of ceramic-yarns. The cohesion of the parallel flowing Keram-yarns are guaranteed by a braiding with fine brass-wire.

Notes:

On the basis of the thermal qualities the aluminum-silicate, ceramic-cords possess a low heat-conductivity and as a result of it a high isulation-value.

Preffered application of these ceramic-cords are in low-pressure static sealing at high temperatures, e.g. in ovens, tunnel covers and the like.

	6100	6101	6102	6103
Density:	0,5 g/cm3	0,45 g/cm3	0,5 g/cm3	0,7 g/cm3
Available as round-cord	3 - 50 mm	10 - 50 mm	3 - 50 mm	4 - 20 mm

Packings for high temperatures

Material		1369	1360
Fibre		Modificated silicic acid	Modificated silicic acid
Fibre type:		Staple fibre	Staple fibre
Impregnation:		Graphite	-
Lubricant:		-	-
Density:	[g/cm³]	0,90 g/cm³	0,80 g/cm³
	T (°C)	-200°C up to +700°C	-200°C up to 1000°C
	pH	0 up to 13	0 up to 13
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	-	-
	V [m/s]	-	-
	P [bar]	2	1
Peculiarity:		Applicable against air, vapour and gases, aggresive and acid gases (except HF) too. The graphite prevents sticking of the packing to oven doors. An alternative for packings made of ceramic up to 700°C. Schott free. No known risk to health	Applicable against air, vapour and gases, aggresive and acid gases (except HF) too. An alternative for packings made of ceramic up to 1000°C. Very good heat-insulating (low thermal conductivity). Schott free. No known risk to health.
Notes:		Static sealing for high temperatures, for example oven doors, tunnel covers, ...	Static sealing for high temperatures, for example oven doors, tunnel covers, ...
Form of delivery:		2D plait, Piece goods from 3 mm to 50 mm square	Piece goods from 3 mm to 50 mm

We do have the possibility to deliver fabric ribbons out of this high-temperature yarn.

Our name: HT-Gewebeband 6060

Thickness: 2, 3, 4 and 5 mm
Width: 20 up to 300 mm
Form of delivery: 25 meters on each roll

HECKER® AK-Products for locks, covers, fire doors and lever stop

AK products are elastic gaskets which are manually rolled or pressed with rubber-coated fabrics.

Rubber-coated fabrics out of glass, ceramics, aramide or cotton are processed. For higher demands and for a special reinforcement, layers and sheatings out of FA-material are added. If a higher elasticity of the gasket is required, AK-gaskets can be provided with a soft core e.g. out of elastomer plaited packing or rolled fibres. Thus the rigidness and elasticity of the gasket can meet the requirements of a sealing area.

Akgaskets are applied as follows:
- as locking gaskets (e.g. handhole and manhole lockings),
- as cover gaskets (e.g. at dome and case covers)
- as door gaskets (e.g. at fire doors)
- at flap gaskets (e.g. blast furnace flaps or fire flaps)

As a rule, the following AK-gasket profiles are available:

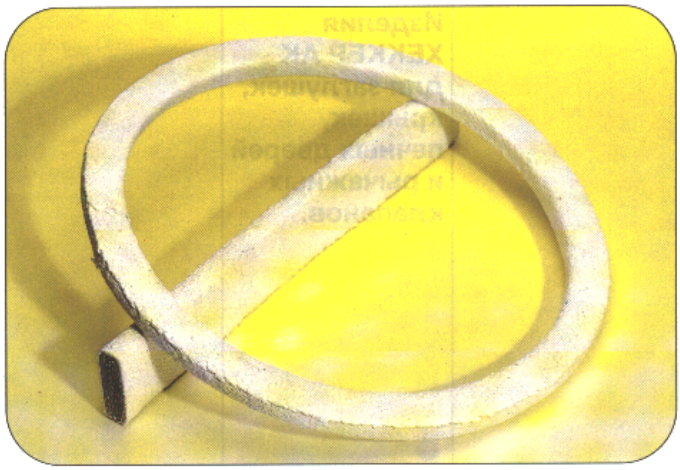
Profile	section
Narrow ware	rectangular or round
Rings	rectangular or round
Oval gaskets	rectangular or round
Frames	rectangular

For special applications, specifically adapted shapes are available, e.g. stretch band as fire door gasket, or wedge-shaped constructed and therefore slightly pre-tensioned rings for connectors (as rod or shaft seals).

The surface of the gaskets in the most cases is treated with graphite or PTFE dispersion as antiadhesive agent. The latter thus guarantees a better locking of the surface roughness of the fabric seals.

Wenn installing narrow ware please consider that it has an angular cut (as a rule 45°) and a slight surplus length, that the joint of the gasket can be pressed against the lock. Thus leakage at the gasket joint is avoided.

HECKER® Locking and Lever Stop Gasket AK 2602



2602

p (bar)	–	–	–	20
t (°C)	– –	– –	– –	–50 +280
pH	–	–	–	1 – 12

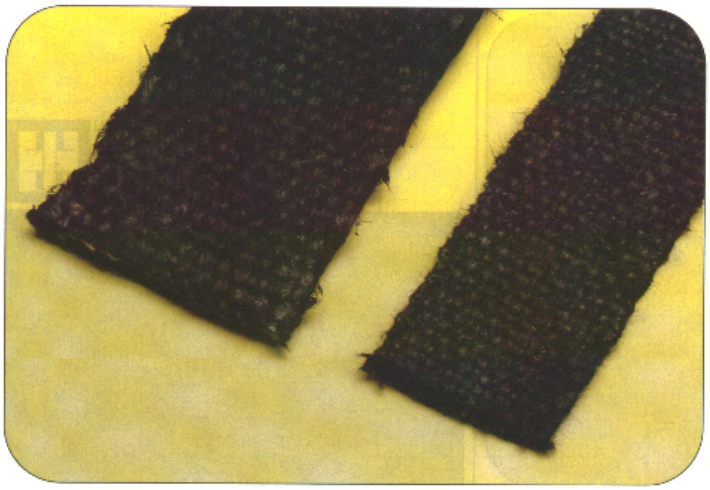
Media: water, vapour, hydrous acids, weak acids up to strong lyes, non aggressive vapours and gases.

Design: The core is rolled out of glass fabrics, provided with an elastomer coat on both sides. The gasket contains a gummed sheating out of glass fabrics on one side. The exterior side is impregnated with PTFE-dispersion.

Notes: AK 2602 is applied as static seal, e.g. for hand and manholes, covers, blast furnace flabs. The PTFE-coat increases the chemical resistance and avoids adhesion of caking of the seal. The elastic packing for the most part ist used in those cases where the application of a graphitized packing is not allowed. AK 2602 is an asbestos-free alternative to the well-proved AK 2221.

Shapes available: Yard ware from 8 mm square
Rings from 60 x 80 mm diam.
Frames from 10 mm square

HECKER® Fire Door Packings AK 2603



2603

p (bar)	–	–	–	1
t (°C)	– –	– –	– –	–200 +650
pH	–	–	–	2 – 14

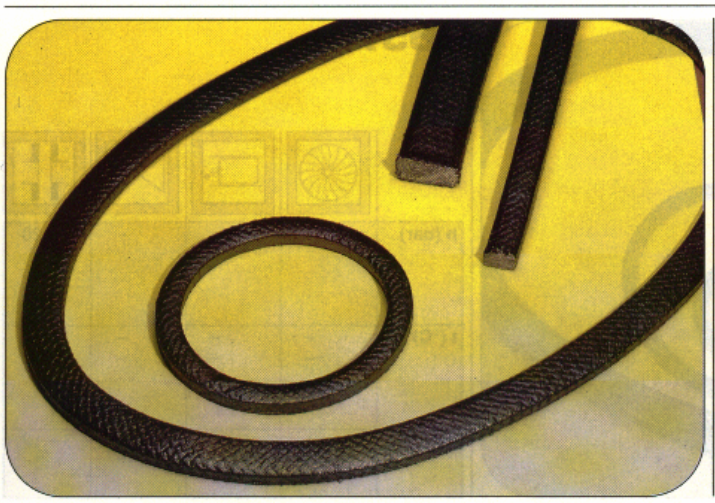
Media: hot gases, e.g. flue gas, furnace atmosperes

Design: Glass plait of E-glass, graphitized on all sides

Notes: Due to ist composition, glass plait of E-glass remains as flexible as normal C-glass up to higher temperatures. The graphitizing prevents the adhesion of the packing.

Shapes available: yard ware from 8 mm square

HECKER® Locking gasket AK 2650



2650				
p (bar)	–	–	–	20
t (°C)	– –	– –	– –	–50 +450
pH	–	–	–	3 – 12

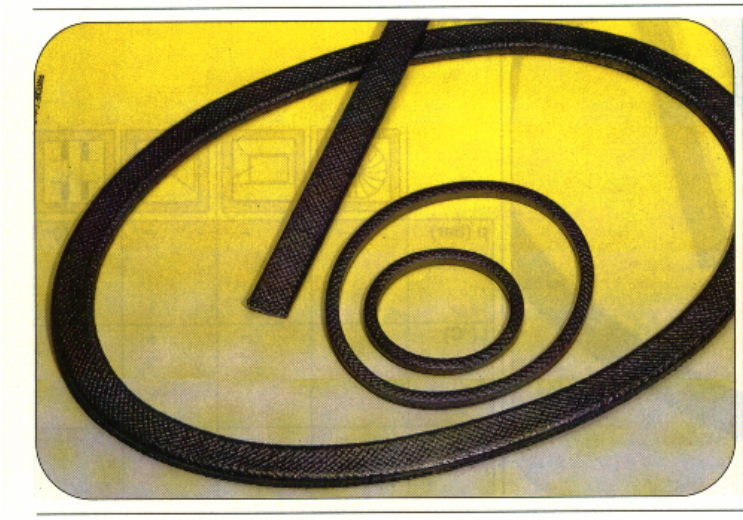
Media: water, vapour, hydrous acids, weak acids up to strong lyes, non aggressive vapours and gases.

Design: Rolled out of a stainless steel reinforced ceramic fabric which is provided with a special elastomer coat on both sides. The gasket ist graphitized on both sides.

Notes: AK 2650 has been developed e.g. for hand and manholes, covers, blast furnace flaps. The gasket is very smooth and elastic. It is well suited as an asbestos-free alternative to the proved AK-type 2039. Due to the graphitizing, adhesion of the gasket to the counter surface is nearly avoided.

Shapes available: yard ware from 8 mm square
Rings from 60 x 80 mm diam.
Frames from 10 mm square

HECKER® Locking gasket AK 2657



2657				
p (bar)	–	–	–	20
t (°C)	– –	– –	– –	–50 +250
pH	–	–	–	3 – 12

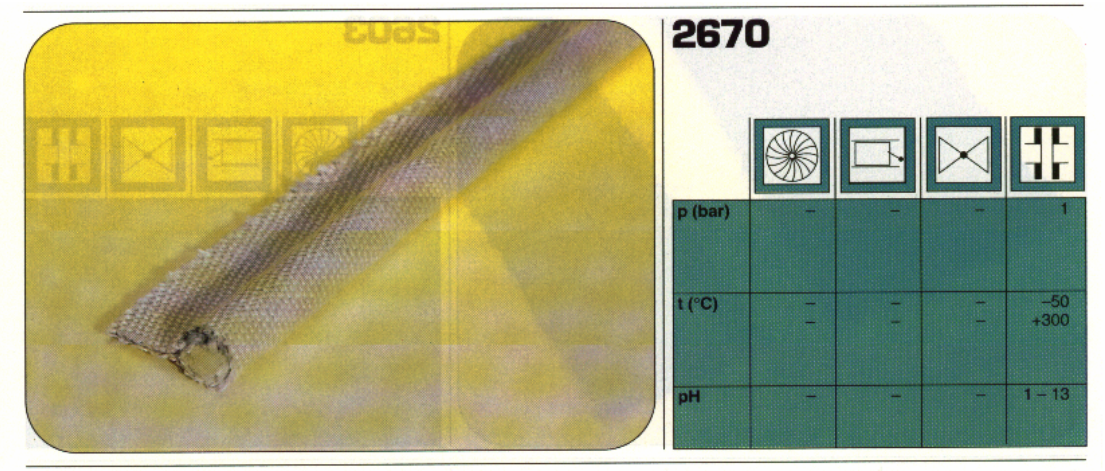
Media: water, vapour, hydrous acids, weak acids up to strong lyes, non aggressive vapours and gases

Design: Rolled out of a glass fibre fabric which is rubber-coated on both sides, then pressed and vulcanized. The gasket ist graphitized on all sides.

Notes: The locking gasket AK 2657 ist well suited for the sealing of hand- and manholes, covers, blast furnace flaps. Up to 250° C and 20 bar, the gasket is well suited as an asbestos-free alternative to the proved AK type 2039. In the case of higher temperatures, we recommend the asbestos-free alternative AK2650 produced of ceramic fabrics.

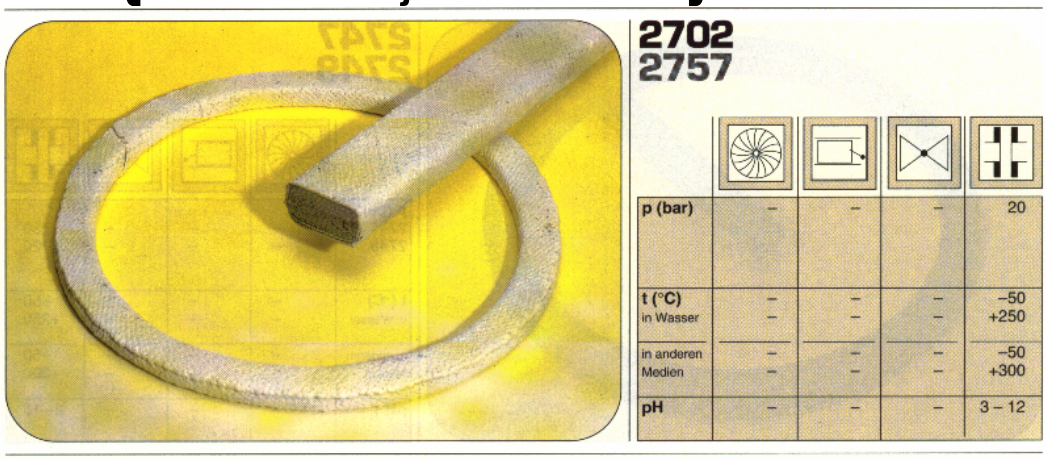
Shapes available: yarded goods from 8 mm square
Rings from 60 x 80 mm diam.
Frames from 10 mm square

HECKER® Bunt Seal AK 2670



Media: hot gases, e.g. air, flue gas, furnace atmosperes
Design: a rubber coate glass fabric is layed around a packing in such way that ends are salient. The overlapping ends are now bonded.
Notes: The bunt seal is applied for the static sealing of e.g. fire doors. Due to the core of plaited packing, the seal is smooth and flexible. The bunt enables a constructively simple mounting of the seal.
Shapes available: Yard ware and frames from 10 mm thickness

HECKER® Locking and Lever Stop Gaskets (AK 2702, AK 2757)



Media: water, vapour, hydrous acids, weak acids up to strong lyes, also aggressive vapours and gases.
Design: Rolled out of an aramide fibre fabric which is elastomer-coated on both sides, then pressed and vulcanized. The gasket is produced with the following surfaces.
AK 2702 = PTFE impregnated
AK 2757 = graphitized
Notes: The gaskets AK 2702 and AK 2757 are well suited for the sealing of hand- and manholes, covers, blast furnace flaps. The outstanding resistance to wear of the aramide fibre enables application as lever stop gasket in different cases where media with abrasive elements exist.
The surface treatment with PTFE for AK 2702 or with graphite for AK 2757 prevents an adhesion of the gasket.
The application of AK 2702 with PTFE impregnation is recommended when any colouring of the medium should be excluded.
Shapes available: Yard ware: from 8 mm square
Rings: from 60 x 80 mm diam.
Frames: from 10 mm square

HECKER® Locking and lever Stop gaskets AK 2747 und AK 2749

2747
2749

p (bar)				
2747	–	–	–	30
2749	–	–	–	20
t (°C)	–	–	–	–50
in Wasser / In water	–	–	–	+250
in anderen Medien / Other medias	–	–	–	–50
	–	–	–	+300
pH	–	–	–	2– 13

Media: water, vapour, hydrous acids, weak acids up to strong lyes, oils and hydrocarbons and aggressive vapours and gases

Design: rolled out of an aramide fibre fabric which ist rubber impregnated on both sides. During rolling procedure, a foil of asbestos-free (FA) material is added to the gasket AK 2747. Both types are provided with a sheating of Centellen® and are graphitized on all sides.

Notes: AK 2747 and AK 2749 are very solid gaskets expecially suited for the application in lever stops. They can also be used in hand- and manholes, covers and locks.

The elastomer-coating guaranties high solidity and density which is reinforced by means of the Centellen®-foil sheating.

Due to the Centellen® sheating, AK 2747 is very solid and rigid and therefore well suited for applications with high contact pressure (> 1 N/mm²). For applications with a lower contact pressure (< 1 N/mm²), AK 2747 is recommended, an extended design of this type but without Centellen®-layer.

By means of graphitizing, an adhesion of the gaskets to the counterface is nearly prevented.

AK 2747 and 2749 are asbestos-free alternatives to the proved types AK 2047 and AK 2049.

Shapes available:

Yard ware	from 8 mm square
rings	from 80 x 100 mm diam.
frames	from 10 mm square

HECKER® Packing extractor

A torsion free, pliant shaft allows easy grasping of the packing, even in stuffing boxes that are difficult to reach. The spin drill is constructed in such a way that it bores open any kind of packing cords and ensures their complete removal. Proved thousandfold, the packing extractor reduces the time needed for replacing the packing material.

The special tool for removing used packings from stuffing box chambers.

Available dimensions:

Drill-∅ [mm]	Set I	Set II	Set III	Set IV	Set V
	Length of the pliant shafts in mm				
4	-	-	-	100	130
6	60	120	200	160	95
8	70	120	200	200	170
10	80	120	200	260	250
14					325

set I, II, III: wooden, solid top
set IV: metal, solid top
set V: changeable top

HECKER® Packing cutter

Packing cutters allow separation of the packing lengths with exact diagonal cut, suitable for shaft diameters up to 120 mm and packing cross sections up to 20 mm.

Cross-section 12° (for pumps)
1. up to 110mm diameter
2. up to 250mm diameter

Working space up to 25 mm

Diagonal cut 45° (Armatures)
1. up to 140mm diameter
2. up to 320mm diameter

Working space up to 35 mm

Price-list E-04/2004 PZ HECKER® Packing extractors

With wooden grip

Set	Dimension	Whole length	Our art.no.	EUR/piece
I / 1	6 x 60 mm	325 mm	PZ 100001	17,40 €
I / 2	8 x 70 mm	360 mm	PZ 100004	18,56 €
I / 3	10 x 80 mm	395 mm	PZ 100007	19,58 €
II / 1	6 x 120 mm	385 mm	PZ 100002	19,66 €
II / 2	8 x 120 mm	410 mm	PZ 100005	21,20 €
II / 3	10 x 120 mm	415 mm	PZ 100009	21,82 €
III / 1	6 x 200 mm	470 mm	PZ 100003	19,29 €
III / 2	8 x 200 mm	490 mm	PZ 100006	20,74 €
III / 3	10 x 200 mm	500 mm	PZ 100011	23,20 €

With metal grip

					Only the top	
IV / 0	4 x 100 mm	175 mm	PZ 100014	22,77 €		
IV / 1	6 x 95 mm *	180 mm	PZ 100015	15,07 €	PZ 100029	7,77 €
IV / 2	8 x 170 mm *	270 mm	PZ 100016	18,40 €	PZ 100030	8,83 €
IV / 3	10 x 250 mm *	365 mm	PZ 100017	23,58 €	PZ 100031	9,89 €

With metal grip and corkscrew thread

					Only the top	
V / 0	4 x 130 mm	180 mm	PZ 100023	17,07 €		
V / 1	6 x 95 mm *	180 mm	PZ 100019	12,24 €	PZ 100032	4,95
V / 2	8 x 170 mm *	270 mm	PZ 100020	15,78 €	PZ 100033	6,21
V / 3	10 x 250 mm *	365 mm	PZ 100021	21,90 €	PZ 100034	8,21
V / 4	11,5 x 325 mm	425 mm	PZ 100024	35,74 €	-	-
V / 5	15,5x 450 mm	585 mm	PZ 100025	43,15 €	-	-
V / 6	15,5x 625 mm	760 mm	PZ 100026	49,43 €	-	-

*** = with changeable tops**

HECKER® Packing extractor for diagonal cut 45°		
Up to 140 mm	PZ 100000	204,20 €
Up to 320 mm	PZ 100018	342,20 €
HECKER® Packing extractor for cross-cut 12°		
Up to 110 mm	PZ 100027	202,40 €
Elongation up to 250 mm	PZ 100028	43,60 €

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