

# PAMARGAN

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## BONDED SEALS

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WORKING

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SOLUTIONS FOR

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ADVANCED TECHNOLOGY

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**PAMARGAN**

DISTRIBUTED



WORLDWIDE

## MANUFACTURING EXCELLENCE THROUGH CUSTOMER DEDICATION

A specialist manufacturer of bonded seals and associated products, Pamargan has progressively developed its product range since 1981 to encompass all internationally accepted standard bonded seals, together with many non-standard and customised parts.

The Company was one of the first in its field to be accredited to ISO 9002. The quality system now covers the areas of design and development and the use of modern quality tools such as Statistical Process Control and Failure Mode Effect Analysis has led to continued improvement.

In 1995 Pamargan implemented appropriate design systems to be certified to BS EN ISO 9001, creating customer confidence in the knowledge that the Company was recognised as having all necessary controls in place. With feasibility studies, team commitment and advanced quality planning processes our design system will produce drawings for verification by the customer.

Since 1998 Pamargan have been certified to supply into the automotive industry and currently hold ISO/TS 16949 certification.



## MARKET SECTORS

**AUTOMOTIVE**

**AEROSPACE**

**DEFENCE**

**INDUSTRIAL**







## TOTAL COMMITMENT TO PRODUCT QUALITY

It has always been the aim of Pamargan to exceed customers expectations by supplying a product that is defect free, on time and competitively priced. Pamargan's "Customer Care" ethos has been the main driver in developing our global business activities becoming an integral part of the supply chain from design concept product development and test through to logistics and management of stock. Constantly changing customer requirements has seen customer/supplier relationships evolve into active working partnerships with the emphasis on close co-operation, especially in the development of innovative new products. This is especially prevalent within the automotive sector where specialised products have been developed in conjunction with the major OEM's with the emphasis on "Life Time" performance of our sealing systems.

New developments include applications with turbo, HVAC and fuel systems for EURO 6 compliance.

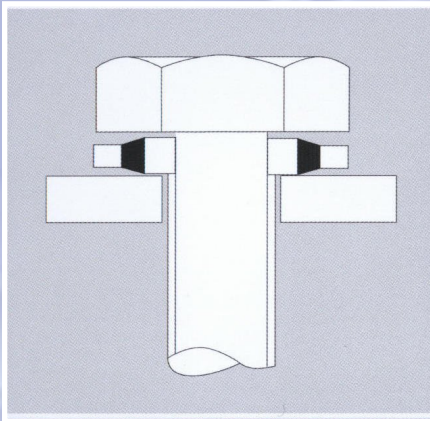




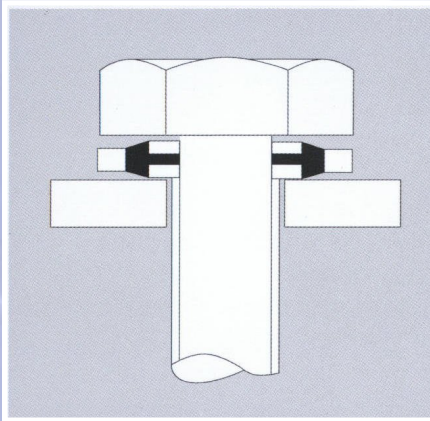


## WASHER SPECIFICATIONS

The Pamargan bonded seal is a rectangular section, metal washer, with a trapezoidal shaped ring of vulcanised rubber bonded to the inside. Both the washer and the material can be selected to suit a given application. The seal is for use in high pressure environments where copper washers are unsuitable.

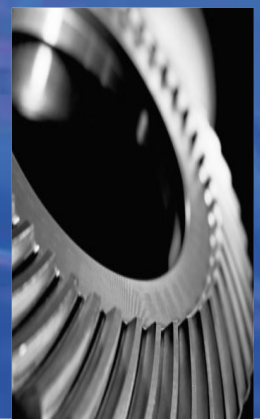


An improvement to the original concept is the self-centralsing bonded seal designed by Pamargan that offers additional benefits. It is available in all popular BSP sizes and many other metric sizes.



METAL	TENSILE STRENGTH MN/m <sup>2</sup> (MINIMUM)	SPECIFICATION
Mild Steel Pressings CS4 BRH5	540	BS EN 10139
Mild Steel Turned EN8	540	BS EN 10083-2
Stainless Steel Pressings T316	540	BS EN 10088-2
Stainless Steel Turned T316	540	BS EN 10088-3
Stainless Steel Turned S1000 Grade T316	1000	BS EN 10088-3
Brass Turned CZ121	380	BS EN 12164
Brass Pressings CZ108	380	BS EN 1652
Aluminium Bronze Turned	700	CA104 & NES 833
Aluminium Pressings Grade 5251-H22	220	BS EN 485-2
Aluminium Alloy Turned	370	L102 & L168
High Tensile Steel	880	S154
Aluminium Alloy Turned (6082-T6)	295	BS EN 573-3

SURFACE FINISH	PAMARGAN CODE	SPECIFICATION
Zinc Plate - Gold Passivate	P0	Def. Stan. 03-20/03-33
Zinc Plate - Trivalent Passivate	P20	8+/-3 microns
Cadmium Plating	P5	Def. Stan. 03-19
Grey Chromic Anodise	P3	Def. Stan. 03-24
Red Chromic Anodise	P4	Def. Stan. 03-24
Zinc Nickel Trivalent Passivate	P13	GMW 4700
Zinc Nickel Trivalent Passivate	P18	12-15% Nickel - 5 Microns Min.
Zinc Nickel Black (Triv.) Passivate	P26	12-15% Nickel - 5 Microns Min.







## TORQUE LOADING

Satisfactory performance of the seal depends on correct torque loading during assembly. The following table indicates recommended figures.

For double sealing, additional torque is generally required.

The table is based on using Mild Steel (540N/mm<sup>2</sup> minimum U.T.S). Torque loadings should be generated according to the weakest part of the assembly.

THREAD SIZE			TORQUE REQUIRED		DOUBLE SEALING FACTOR
METRIC	BOLT	BSP	Nm	lbf.in	
Up to 8	5/16	-	5.3	47+/-3	1.6
10	3/8	1/8	7.1	63+/-3	
11	7/16	-	11.8	105+/-5	1.3
12	1/2	1/4	15.8	140+/-5	
14	9/16	-	22.6	200+/-10	
16	5/8	3/8	30.5	270+/-12	
18	3/4	-	40.7	360+/-15	
20	13/16	1/2	56.5	500+/-25	1.2
22	7/8	5/8	67.8	600+/-30	1.1
24	1.0	3/4	73.4	650+/-30	1.0
27+	1.1/16	-	79.0	700+/-35	







## RUBBER COMPOUND

### - Specific compounds

Pamargan can provide a wide range of specific and technical compounds for:

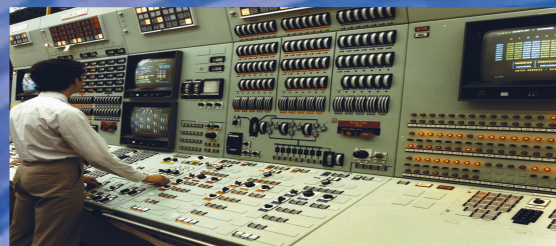
- Aerospace
- Food / Drinking water
- Gas
- Automotive

Most of our compounds are black but coloured compounds can be supplied on request.

A **Technical Data Sheet** can also be provided. Please do not hesitate to contact our Sales Department for further information.

## RUBBER COMPATIBILITY

The characteristics of the compounds used and their compatibility rating against various fluids are summarised in the following table.



	NITRILE (NBR)	HYDROGENATED NITRILE (HNBR)	FLUOROCARBON (FKM)	SILICONE (VMQ)	FLUOROSILICONE (FVMQ)	ETHYLENE PROPYLENE (EPDM)	CHLOROPRENE (CR)
<b>General Characteristics</b>							
Hardness range IRHD	40-90	40-85	60-90	40-80	40-80	80-90	40-80
Continuous high temperature limit	100 C	135 C	200 C	200 C	175 C	125 C	140 C
Low temperature capability	-30 C	-40 C	-25 C	-60 C	-60 C	-30 C	-55 C
Dynamic service/Abrasion resistance	Excellent	Excellent	Very Good	Poor	Poor	Fair	Very Good
Compression set resistance	Very Good	Excellent	Very Good	Excellent	Very Good	Very Good	Good
<b>FLUID COMPATIBILITY</b>							
Acid Inorganic	Fair	Good	Good	Good	Good	Excellent	Fair/Good
Acid Organic	Good	Good	Good	Excellent	Good	Good	Good
Ageing Oxygen	Fair	Good	Very Good	Excellent	Excellent	Excellent	Very Good
Ageing Ozone	Fair/Poor	Good	Very Good	Excellent	Excellent	Excellent	Very Good
Ageing Weather	Poor	Good	Very Good	Excellent	Excellent	Excellent	Very Good
Air	Fair	Excellent	Very Good	Excellent	Very Good	Excellent	Good
Alcohols	Very Good	Excellent	Fair	Very Good	Very Good	Very Good	Very Good
Aldehydes	Fair/Poor	Fair	Poor	Good	Poor	Very Good	Fair/Poor
Alkalis	Fair/Poor	Fair	Good	Very Good	Good	Very Good	Good
Amines	Poor	Poor	Poor	Good	Poor	Good	Very Good
Animal oils	Excellent	Excellent	Very Good	Good	Excellent	Very Good	Good
Esters Alkyl Phosphate (Skydrol)	Poor	Poor	Poor	Good	Fair/Poor	Fair/Good	Poor
Esters Aryl Phosphate	Fair/Poor	Fair	Excellent	Good	Very Good	Fair	Fair/Poor
Esters Silicate	Good	Good	Excellent	Poor	Very Good	Fair	Fair
Ethers	Poor	Poor	Poor	Poor	Fair	Poor	Poor
Gas permeability	Good	Good/Excellent	Good	Poor	Poor	Good	Good
Hydrocarbon fuels Aliphatic	Excellent	Excellent	Excellent	Fair	Excellent	Poor	Fair
Hydrocarbon fuels Aromatic	Good	Good	Excellent	Poor	Very Good	Poor	Fair/Poor
Hydrocarbons Halogenated	Fair/Poor	Poor	Excellent	Poor	Very Good	Good	Poor
Ketones	Poor	Poor	Poor	Poor	Fair/Poor	Very Good	Poor
Lubricating oils High aniline	Excellent	Excellent	Excellent	Very Good	Very Good	Poor	Good
Lubricating oils Low aniline	Very Good	Excellent	Excellent	Fair	Poor	Poor	Fair/Poor
Silicone oils	Excellent	Excellent	Excellent	Good	Excellent	Very Good	Excellent
Vegetable oils	Excellent	Excellent	Excellent	Excellent	Excellent	Very Good	Good
Water/steam	Good/Excellent	Excellent	Fair	Fair	Fair	Excellent	Fair

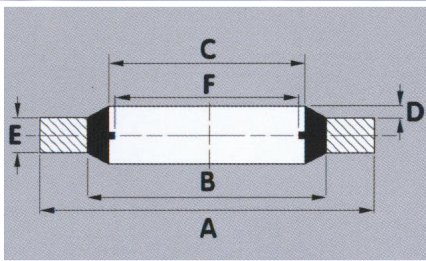
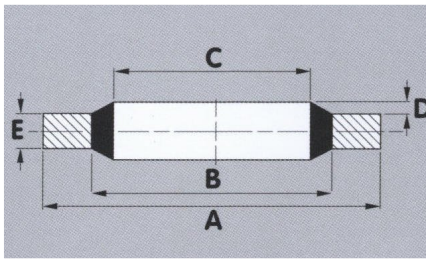




## IMPERIAL BONDED SEALS

### KEY FEATURES OF SELF-CENTRALISING:

1. Prevents seal offset
2. Ease of installation
3. Captive assembly



For seals that are not self-centrallying refer to conditions of assembly P.14

INDUSTRY REFERENCE	SIZE REF.	THREAD		A +0.13 -0.00	B +0.10 -0.10	C +0.10 -0.10	D	E +0.15 -0.15	F +0.20 -0.20	MIN. BURST PRESSURE (BAR)
		BSP	BOLT							
PP45-1	001	-	6BA	6.35	4.09	3.05	0.20/ 0.45	1.22	-	2150
PP45-2	002	-	4BA	7.26	5.26	4.12			-	1570
PP45-3	003	-	2BA	8.38	6.35	5.21			-	1375
PP45-4	004	-	1/4	13.21	8.00	6.86			4.70	2450
PP45-5	005	-	1/4	13.34	9.53	6.99			4.70	1700
PP45-6	006	-	5/16	13.34	9.53	8.31			6.10	1700
PP45-7	007	-	5/16	14.22	10.04	8.64			6.10	1750
PP45-A	020	1/8	3/8	15.88	11.84	10.37	0.25/ 0.51	2.03	8.56	1500
PP45-8	008	-	0.4	18.36	12.45	11.26			8.56	1950
PP45-9	009	-	7/16	19.05	13.08	11.69			8.80	1900
PP45-B	021	1/4	1/2	20.57	15.21	13.74			11.45	1550
PP45-10	010	-	9/16	22.23	16.39	14.86			11.58	1575
PP45-BB	022	-	0.6	22.23	17.30	15.83			12.10	1310
PP45-11	011	-	5/8	25.40	18.75	16.51			12.90	1550
PP45-C	023	3/8	-	23.80	18.75	17.28			14.96	1260
PP45-12	012	-	11/16	25.40	19.69	18.16			14.50	1320
PP45-CC	024	-	3/4	26.92	21.21	19.69			15.80	1260
PP45-D	025	1/2	13/16	28.58	23.01	21.54			18.64	1150
PP45-E	026	5/8	7/8	31.75	24.97	23.49	0.25/ 0.51	2.50	20.60	1250
PP45-13	013	-	15/16	33.27	26.04	24.26			20.20	1275
PP45-F	027	3/4	1.0	34.93	28.53	27.05			24.13	1060
PP45-FF	028	-	1.1/16	38.61	30.61	27.82			22.90	1250
PP45-14	014	-	1.1/8	36.58	30.86	29.33			23.90	900
PP45-HH	031	1.0	1.5/16	42.80	36.88	33.89			30.30	810
PP45-G	029	7/8	1.3/16	38.10	32.29	30.81			27.89	900
PP45-15	015	-	1.1/4	41.40	35.69	32.64			27.10	800
PP45-H	030	1.0	1.5/16	42.80	36.88	33.89			30.30	810
PP45-16	016	-	1.3/8	44.45	38.99	35.94			29.50	700
PP45-17	017	-	1.1/2	47.75	42.04	38.96			32.70	700
PP45-J	032	1.1/4	1.5/8	52.38	45.93	42.93	0.25/ 0.51	3.38	38.96	690
PP45-18	018	-	1.3/4	57.15	48.39	45.34			37.90	875
PP45-K	033	1.1/2	1.7/8	58.60	51.39	48.44			44.86	690
PP45-19	019	-	2.0	63.50	54.74	51.69			43.60	780
PP45-L	034	1.3/4	2.1/8	69.85	58.30	54.89			50.80	950
PP45-M	036	2.0	-	73.03	63.63	60.58			56.67	700
PP45-MM	037	-	2.1/2	77.72	67.44	64.39			55.40	750
PP45-N	038	2.1/4	-	79.50	69.98	66.68			62.80	670
PP45-P	039	2.1/2	-	90.17	79.38	76.08			72.20	680
-	079	3.0	-	101.47	92.84	89.09			85.00	550
PP45-H	9030	1.0	-	42.80	36.88	33.89	0.25/ 0.51	2.50	30.30	810
PP45-J	9032	1.1/4	-	52.38	45.93	42.93			38.96	690
PP45-K	9033	1.1/2	-	58.60	51.39	48.44			44.86	690
PP45-M	9036	2.0	-	73.03	63.63	60.58			56.67	700

Note: There is a permitted moulding flashline on the inner diameter C

All dimensions in mm



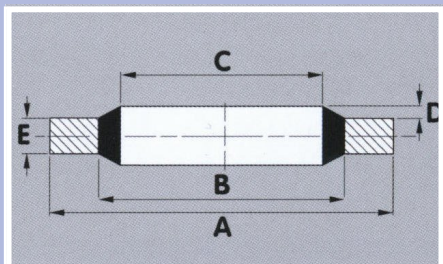


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## CETOPS (RECOMMENDED IN ISO 1179)

THREAD SIZE BSPF	ALTERNATIVE REFERENCE	A +0.00 -0.20	B +0.20 -0.00	C +0.20 -0.00	D +0.25 -0.00	E +0.15 -0.15	PRESSURE (BAR)
1/8	510	14.70	12.00	10.40	0.25	1.25	930
1/4	511	18.70	15.75	13.85			790
3/8	512	22.70	19.25	17.35			775
1/2	513	26.70	23.55	21.65			580
3/4	514	32.50	29.20	27.30			500
1.0	515	39.50	36.10	34.20	2.00		410
1.1/4	516	49.50	44.70	42.80			500
1.1/2	517	55.50	50.60	48.70			430
2.0	518	68.50	62.40	60.50			445

Note: There is a permitted moulding flashline on the inner diameter C

All dimensions in mm







## GERMAN METRIC BONDED SEALS

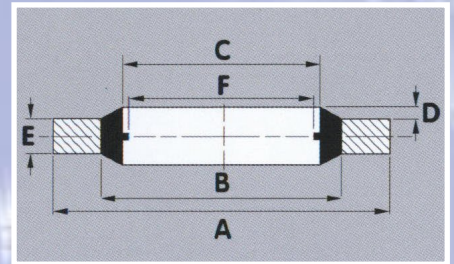
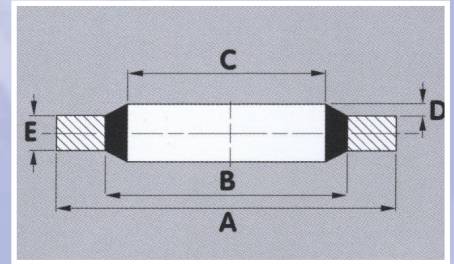
INDUSTRY REFERENCE	SIZE REFERENCE	A +0.13 -0.00	B +0.10 -0.10	C +0.10 -0.10	D +0.25 -0.00	E +0.10 -0.10	F +0.20 -0.20	MIN. BURST PRESSURE (BAR)
PPM4	202	7.00	5.40	4.50	0.30	1.00	3.40	1250
PPM5	203	9.00	6.80	5.70			4.50	1400
PPM5	204	10.00	7.40	5.70			4.50	1500
PPM5.5	205	9.20	7.20	6.20			4.70	1220
PPM6	206	10.00	8.00	6.70			4.70	1130
PPM6	207	11.00	8.20	6.70			4.70	1510
PPM6.7	210	10.20	8.60	7.30			5.77	1330
PPM8	212	13.00	10.00	8.70			6.40	1330
PPM8	213	14.00	10.40	8.70			6.40	1550
PPM8.5	215	13.30	10.50	9.30			6.90	1200
PPM10	216	15.88	12.00	10.35	0.40	1.50	8.56	1450
PPM10	217	16.00	12.40	10.70			8.05	1350
PPM10	218	18.00	12.40	10.70			8.05	1880
PPM11	219	16.30	12.70	11.40			9.80	1250
PPM11	221	19.10	13.50	11.80			9.80	1770
PPM12	222	18.00	14.30	12.70			9.73	1250
PPM12	223	20.00	14.40	12.70			9.73	1680
PPM13	225	22.00	15.40	13.70			10.80	1810
PPM13.5	226	18.70	15.70	14.00			11.30	900
PPM14	227	22.00	16.40	14.70			11.38	1510
PPM16	229	24.00	18.40	16.70			13.41	1400
PPM17	230	24.00	19.20	17.40			13.08	1150
PPM17.5	231	24.70	20.10	18.00			13.60	1070
PPM18	232	26.00	20.40	18.70			14.76	1275
PPM20	233	28.00	22.50	20.70			16.76	1150
PPM21	234	28.70	23.30	21.50	0.40	2.50	17.80	1080
PPM22	235	28.00	24.20	22.50		1.50	18.10	760
PPM22	236	30.00	24.40	22.70		2.00	18.74	1100
PPM22	237	30.00	24.40	22.70		3.00	18.74	1080
PPM24	238	32.00	26.40	24.70		2.00	20.11	1050
PPM26	239	35.00	28.40	26.70			22.30	1050
PPM27	240	36.00	29.00	27.20			23.30	1130
PPM30	242	39.00	33.00	31.00			25.70	860
PPM33	243	42.00	35.80	33.70			28.70	900
PPM33	244	43.00	36.40	34.30			28.70	880
PPM36	245	46.00	38.80	36.70			31.10	880
PPM39	246	51.00	41.90	40.00		2.50	34.10	1020
PPM42	247	53.00	44.40	42.70		3.00	36.50	940
PPM48	248	59.00	50.80	48.70			41.90	800
PPM52	250	64.50	56.40	53.30			-	710
PPM88	254	101.35	92.10	89.09		3.25	-	510

Note: There is a permitted moulding flashline on the inner diameter C

All dimensions in mm

### KEY FEATURES OF SELF-CENTRALISING:

1. Prevents seal offset
2. Ease of installation
3. Captive assembly



For seals that are not self-centrizing refer to conditions of assembly P.14

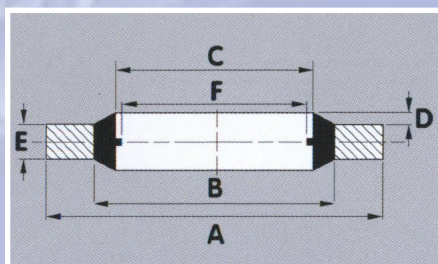
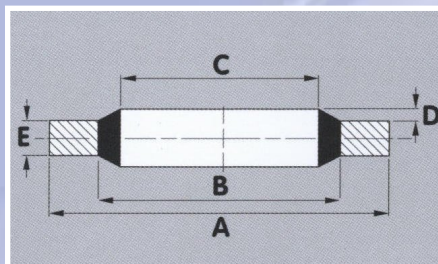






## KEY FEATURES OF SELF-CENTRALISING:

1. Prevents seal offset
2. Ease of installation
3. Captive assembly



## FRENCH METRIC BONDED SEALS

PAMARGAN REFERENCE	ALTERNATIVE REFERENCE	A +0.13 -0.00	B +0.10 -0.10	C +0.10 -0.10	D +0.25 -0.00	E +0.10 -0.10	F +0.20 -0.20	MIN. BURST PRESSURE (BAR)
PPFM3	301	7.50	5.00	3.60	0.30	1.00	-	1950
PPFM4	302	9.00	6.00	4.60			3.40	2000
PPFM5	303	10.00	7.00	5.60			4.50	1780
PPFM6	304	11.00	8.00	6.60			4.70	1680
PPFM6	306	11.40	8.40	7.00			4.70	1540
PPFM8	307	13.00	10.00	8.60			6.40	1330
PPFM10	310	17.00	12.10	10.70	0.40	1.50	8.56	1730
PPFM11	312	18.10	13.20	11.80			9.80	1600
PPFM12	313	19.00	14.10	12.70			9.73	1530
PPFM13	315	20.10	15.20	13.80			10.80	1440
PPFM14	316	21.00	16.10	14.70			11.38	1370
PPFM16	317	23.00	18.10	16.70			13.41	1240
PPFM17	318	23.70	18.80	17.40	0.40	2.00	13.08	1200
PPFM18	320	27.00	20.40	18.70	0.30		14.76	1450
PPFM20	321	29.00	22.40	20.70			16.76	1340
PPFM21	323	30.00	23.40	21.70			17.80	1290
PPFM22	324	31.00	24.40	22.70			18.74	1240
PPFM23	325	32.00	25.40	23.70			19.30	960
PPFM24	326	33.00	26.40	24.70			20.11	1160
PPFM26	327	35.30	28.70	27.00	22.30		870	
PPFM27	328	36.00	29.40	27.70	23.30		1060	
PPFM28	329	36.00	30.30	28.60	0.40		24.80	730
PPFM30	331	39.00	32.40	30.70			25.70	970
PPFM33	332	42.00	35.40	33.70			28.70	900
PPFM36	333	48.00	39.60	37.00		2.50 +0.15 -0.15	31.10	1010
PPFM39	334	51.00	42.60	40.00			34.10	950
PPFM42	335	54.00	45.60	43.00			36.50	890
PPFM45	336	57.00	48.60	46.00	39.50		860	
PPFM48	337	60.00	51.60	49.00	41.90		790	

Note: There is a permitted moulding flashline on the inner diameter C

All dimensions in mm





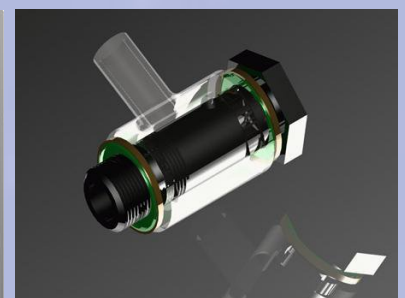
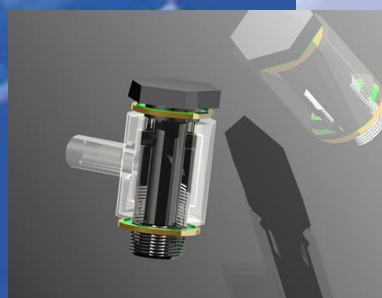
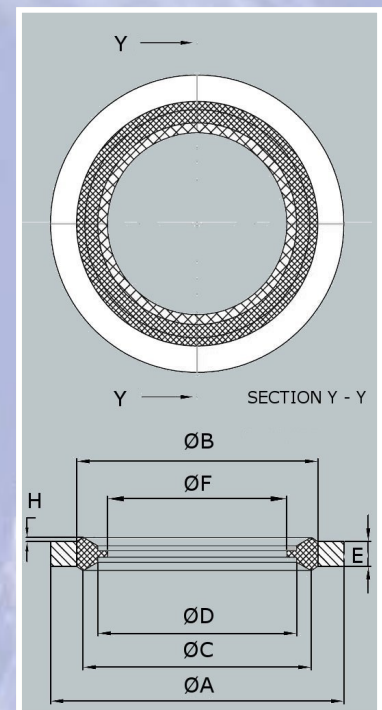


## FLUID CONNECTOR SEALING SYSTEM

A new range of seals developed primarily for the automotive sector where the fluid carrying system utilises connectors. The new seals offer significant advantages compared to sealing systems that currently use copper or aluminium washers. The design is based on standards DIN 7642 and DIN 7643.

These new seals bring a long term warranty confidence providing sealing capability for the life span of the application. The sealing capability encompasses elastomeric technologies to suit all applications with temperatures ranging from -70°C to +230°C. There is a reduced surface finish requirement on the mating hardware. It provides a positive retention to aid off line assembly for Tier 1 / 2.

PAMARGAN REFERENCE	BOLT SIZE	A <sup>+0.13 -0.00</sup>	B <sup>+0.10 -0.10</sup>	C <sup>+0.10 -0.10</sup>	D <sup>+0.10 -0.10</sup>	E <sup>+0.10 -0.10</sup>	F <sup>+0.10 -0.10</sup>	H <sup>+0.05 -0.05</sup>
3413	M8	14.00	10.40	9.80	8.30	1.00	7.00	0.20
3414	M10	16.00	12.40	11.80	10.30	1.50	9.00	0.20
3397	M12	18.00	14.80	13.80	12.30	1.50	11.00	0.20
3398	M14	22.00	16.80	15.80	14.30	1.50	13.00	0.20
3415	M16	24.00	18.80	17.80	16.30	1.50	14.30	0.20
3441	M18	26.00	20.80	19.80	18.30	1.50	16.30	0.20
3456	M22	30.00	24.80	23.80	22.30	2.00	19.75	0.20



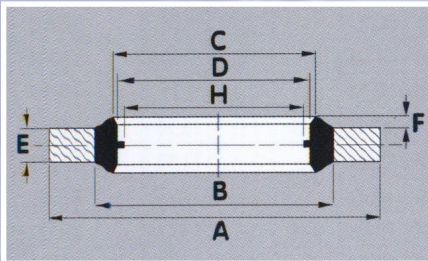
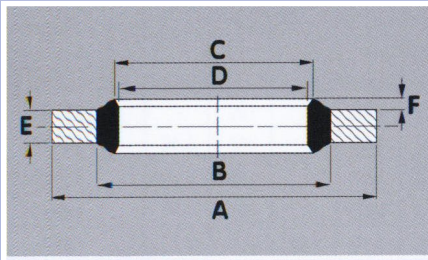


# PAMARGAN

DISTRIBUTED



WORLDWIDE



## PM1000 METRIC RANGE

INDUSTRY REFERENCE	SIZE	A +0.20 -0.20	B +0.20 -0.20	C +0.20 -0.20	D +0.20 -0.20	E +0.20 -0.20	F +0.10 -0.10	H +0.20 -0.20	MIN. BURST PRESSURE (BAR)
3099	M6	10.0	8.0	7.4	6.0	1.0	0.40	4.70	1130
3138	M8	14.0	11.0	10.0	8.0			6.40	1200
3076	M10	17.0	13.0	12.0	10.0	1.5	0.50	8.56	1250
3077	M12	19.0	16.0	15.0	12.0			9.73	1250
3063	M14	22.0	18.0	17.0	14.0			11.38	1100
3078	M16	24.0	20.0	19.0	16.0			13.41	1050
3064	M18	27.0	22.0	21.0	18.0	2.0		14.76	1100
3079	M20	30.0	25.0	24.0	20.0			16.76	1050
3098	M22	32.0	27.0	26.0	22.0			18.74	1000
3080	M24	36.0	29.0	28.0	24.0			20.11	1130
3065	M26	35.0	30.5	30.0	26.0			22.30	850

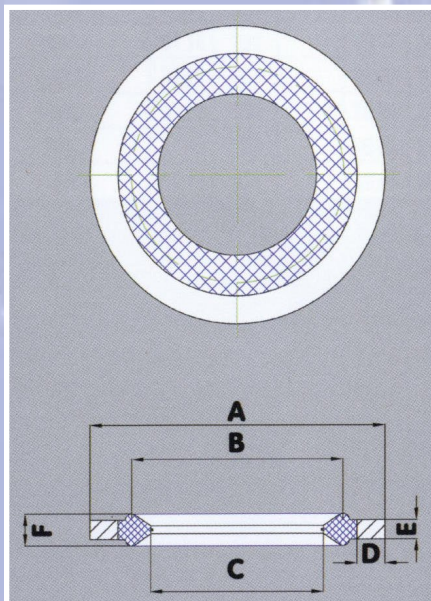
Note: There is a permitted moulding flashline on the inner diameter D

All dimensions in mm

## AUTOMOTIVE SLIMLINE SEALS

PAMARGAN REFERENCE	CONNECTOR SIZE	A +0.13 -0.13	B +0.13 -0.13	C +0.13 -0.13	D REF.	E +0.05 -0.05	F +0.10 -0.10
3270	3/8"	16.00	10.67	8.13	1.78	1.27	2.03
3249	1/2"	19.10	13.66	11.18	1.78	1.27	2.03
3279	5/8"	23.62	18.03	15.49	2.00	1.27	2.13
3250	3/4"	25.27	20.58	17.16	1.78	1.27	2.13
3463	1/2"	19.10	13.66	11.18	1.78	1.27	1.83
3217	5/8"	28.00	20.32	15.37	2.82	1.27	1.83
3464	3/4"	25.27	20.58	17.16	1.78	1.27	1.83

All dimensions in mm



CLIMATE CONTROL  
(HVAC) APPLICATIONS





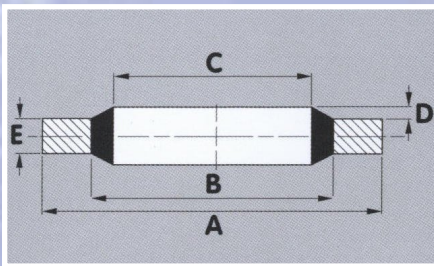


## AEROSPACE BONDED SEALS

An extensive range of bonded seals are available, 100% inspected with full traceability to satisfy the requirements of C.A.A/M.O.D./BAE.

Our bonded seals are manufactured in accordance to International Aerospace Specifications AGS, NSA, ANSA, and specific OEM BAE Systems, Eaton Honeywell, Rolls Royce and Thales.

Pamargan is an approved supplier to the Ministry of Defence. To access our program please refer to ISIS and enter Pamargan cage code U7689.



INDUSTRY REFERENCE	THREAD SIZE		A +0.13 -0.00	B +0.13 -0.13	C +0.13 -0.13	D	E	MIN. BURST PRESSURE (BAR)
	BSP	BOLT						
AGS 1186 - 1	-	6BA	6.35	4.09	3.05	0.20/ 0.38	1.22 +0.15 -0.00	2150
AGS 1186 - 2	-	4BA	7.26	5.26	4.12			1570
AGS 1186 - 3	-	2BA	8.38	6.35	5.21			1375
AGS 1186 - 4	-	1/4	13.21	8.00	6.86			2450
AGS 1186 - 5	-	1/4	13.34	9.53	6.99			1700
AGS 1186 - 7	-	5/16	14.22	10.04	8.64			1750
AGS 1186 - 8	-	0.4	18.36	12.45	11.26	0.25/ 0.51	2.00 +0.13 -0.13	1950
AGS 1186 - 9	-	7/16	19.05	13.08	11.69			1900
AGS 1186 - 10	-	9/16	22.23	16.39	14.86			1575
AGS 1186 - BB	-	-	22.23	17.30	15.83			1310
AGS 1186 - 11	-	5/8	25.40	18.75	16.51			1550
AGS 1186 - A	1/8	3/8	15.88	11.84	10.37			1500
AGS 1186 - B	1/4	1/2	20.57	15.21	13.74			1550
AGS 1186 - C	3/8	-	23.80	18.75	17.28		2.34 +0.26 -0.00	1260
AGS 1186 - 12	-	11/16	25.40	19.69	18.16			1320
AGS 1186 - CC	-	3/4	26.92	21.21	19.69			1260
AGS 1186 - D	1/2	13/16	28.58	23.01	21.54			1150
AGS 1186 - E	5/8	7/8	31.75	24.97	23.49			1250
AGS 1186 - 13	-	15/16	33.27	26.04	24.26			1275
AGS 1186 - F	3/4	1.0	34.93	28.53	27.05			1060
AGS 1186 - FF	-	1-1/16	38.61	30.61	27.82			1250
AGS 1186 - 14	-	1-1/8	36.58	30.86	29.33			900
AGS 1186 - G	7/8	1-3/16	38.10	32.29	30.81			900
AGS 1186 - 15	-	1-1/4	41.40	35.69	32.64		3.25 +0.26 -0.00	800
AGS 1186 - H	1.0	1-5/16	42.80	36.88	33.89			790
AGS 1186 - HH	-	-	42.80	36.88	33.89			810
AGS 1186 - 16	-	1-3/8	44.45	38.99	35.94			700
AGS 1186 - 17	-	1-1/2	47.75	42.04	38.96			700
AGS 1186 - J	1-1/4	1-5/8	52.38	45.93	42.93			690
AGS 1186 - 18	-	1-3/4	57.15	48.39	45.34			875
AGS 1186 - K	1-1/2	1-7/8	58.60	51.39	48.44			690
AGS 1186 - 19	-	2.0	63.50	54.74	51.69			780
AGS 1186 - L	-	1-3/4	69.85	58.30	54.89			950
AGS 1186 - M	2.0	2.0	73.05	63.63	60.58			700
AGS 1186 - MM	-	2-1/2	77.72	67.44	64.39			750
AGS 1186 - N	-	2-1/4	79.50	69.98	66.68			670
AGS 1186 - P	-	2-1/2	90.17	79.38	76.08			680

Note: There is a permitted moulding flashline on the inner diameter C

All dimensions in mm





## SPECIAL BONDED PARTS

Technology developments within all market sectors are continuously changing and evolving. These changes are driven from an environmental and legislative perspective, coupled with the clients additional requirement of obtaining a competitive edge in performance and developing a product that offers the consumer long term warranty.

Pamargans continuous research and development programs within its core competence of bonding elastomeric to metallic and composite structures in association with its innovative manufacturing processes forms the basis of complimenting our clients stringent objectives. New sealing systems are developed based on a "SEAL FOR LIFE" concept.

Development of new programs form the essential basis of partnerships and this is another key aspect of the Pamargans customer care program.







## CONDITIONS OF ASSEMBLY IF NOT SELF-CENTRALISING

If the following instructions cannot be applied, and if, in particular, the diametrical play exceeds the stated limits, automatic concentricity cannot be obtained. It is recommended, in such cases to provide a seating for the external diameter of the bonded seal.

The dimensions listed in the reference tables cover the range of normal utilisation and the three types of thread in current use; Imperial, French & German ranges.

It is important that the radial play should not be less than the following values:

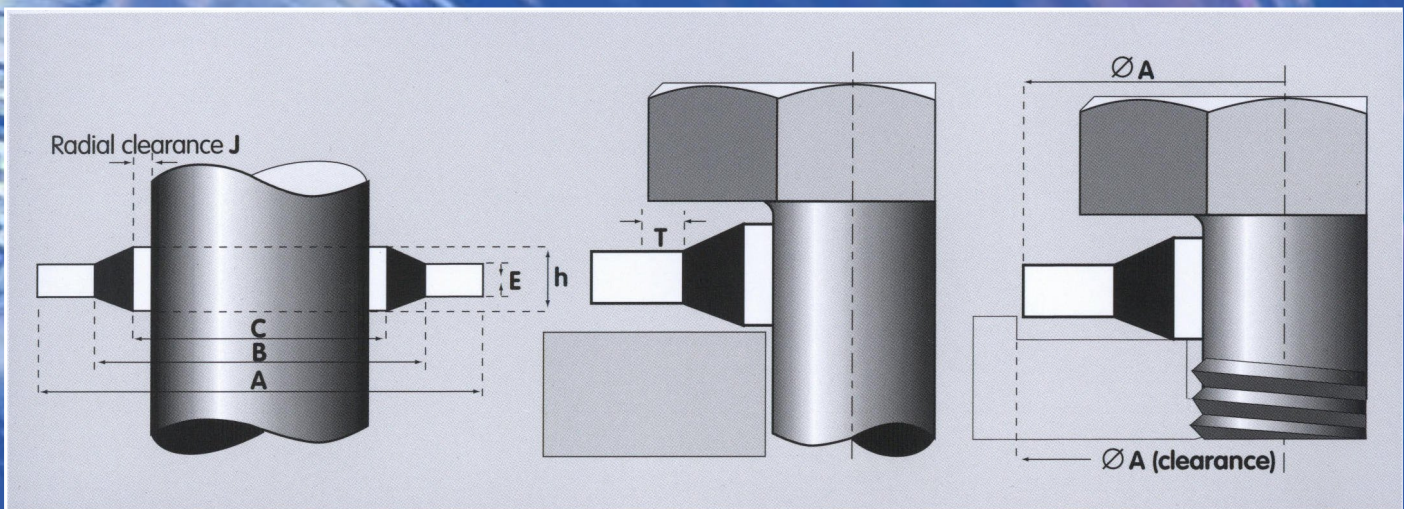
<b>M3 to M8.5 Seals:</b>	<b>J = 0.30mm</b>
<b>M9 to M33 Seals:</b>	<b>J = 0.35mm</b>
<b>M34 to M60 Seals:</b>	<b>J = 0.50mm</b>

For tolerances please refer to product charts in catalogue. The support T for the metal ring must be a minimum of 0.7mm for pressures up to 50 bar.

For higher pressures, support for the washer should cover at least 75% of the washer surface.

The seal can be centralised by means of a counterbore (see figure 3). This diameter should take into account the maximum external diameter A of the metal ring.

<b>0.10mm for M3 to M8.5 Seals</b>
<b>0.20mm for M9 to M33 Seals</b>
<b>0.30mm for M33 to M60 Seals</b>





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## **PAMARGAN PRODUCTS LIMITED**

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DESIGN & MANUFACTURER OF  
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**PART OF THE HUTCHINSON GROUP**

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