

# CONTENTS



*Cam & Groove Couplings*

Page 4-5



*Lugged Threaded Couplings*

Page 6



*IBC Off-Load System*

Page 7-9



*Threads*

Page 10



*Materials*

Page 11



*Custom Moulded Fittings*

Page 12



*Chemical Resistance*

Page 13-15

THE HAND BOOK  
**POLYMER HOSE  
COUPLINGS  
&  
IBC OFF-LOAD  
SYSTEMS**

# Cam & Groove Coupling



## The Cam & Groove Coupling

CPP's range of glass fibre filled polypropylene cam and groove couplings are moulded to the highest standards in our factory in the UK under a quality management system approved by the BSI. With an ongoing quality improvement program using state-of-the-art computer technology we can offer assurance of the best possible product available.

All our male adapters of this type are based on the dimension and tolerances as specified in the US military standard MS27019 and the applicable standards, MIL-C-27487 etc. Our female coupler mates with adapters to the above standards.

The excellent chemical resistance and light weight of polypropylene combined with all moving parts made of stainless steel makes this quick disconnect coupling one of the most cost-effective

## Size, Type & Availability

CPP manufactures one of the largest ranges of polymer cam and groove couplings available in the world, from 1/2" - 3" and over with all combinations of parallel and tapered threads with or without seals in most thermoplastic materials.

Apart from the standard range we also manufacture adapters and reducers in most combinations to suit most applications in one fitting.

As the largest manufacturer of polypropylene cam and groove couplings in Europe we also have the largest stock of polypropylene cam and groove couplings in Europe.

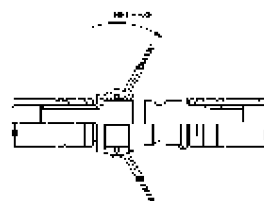
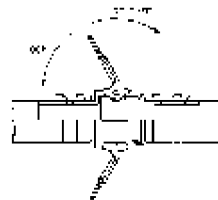
## Standard Materials

Item	Material
Coupling body	30% glass coupled
Cam arms	Stainless steel
Cam arm pins	Stainless steel
Finger rings	Stainless steel
Gasket	EPDM, polypropylene

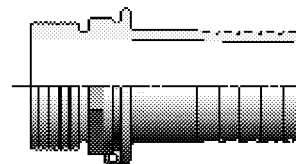
*Other materials such as glass filled Nylon can be moulded along with other gasket materials. Please contact us for the suitability of the material for your application.*

## Applications

This type of quick disconnect coupling has over the years become one of the industrial norms. They can now be found in chemical plants, agriculture, food processing, paint and ink manufacturers as well as the chosen coupling for the off-load of liquid IBC's.



To connect the coupling simply lift the arms up, insert the male adapter and lock the arms down in one easy action. This will give you a leak proof joint up to 150 psi (10 bar) working pressure. To disconnect lift the two cams up and remove the male adapter, remember not to uncouple the fittings under pressure. We can also supply replacement arms, pins, rings and gaskets for general maintenance of your couplings to keep them working as new.

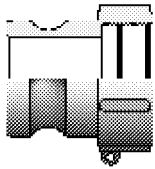


## Part 'HE'

BSP parallel male hose tail

1/2"	Hose tail size	Partno.	Price
3/4" BSP (G)	3/4" (20mm)	HMB/ST/021	£2.25
1" BSP (G)	1" (25mm)	HMB/ST/021	£2.55
1 1/2" BSP (G)	1 1/2" (38mm)	HMB/ST/021	£3.00
2" BSP (G)	2" (50mm)	HMB/ST/021	£3.75
3" BSP (G)	3" (75mm)	HMB/ST/021	£5.11

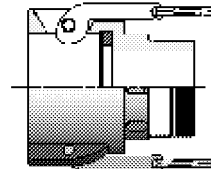
*We have included this hose tail as it complements the cam and groove range of couplings and is moulded in the same material.*



## PART 'A'

Cam male adaptor X female BSP parallel

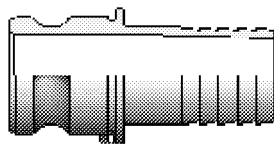
Body	Thread	Part no.	Price
3/4"	1/2" BSP (G)	CMA05B.027	£1.80
3/4"	3/4" BSP (G)	CMA75B.027	£1.80
1"	1" BSP (G)	CMA10B.027	£2.04
1 1/2"	1 1/4" BSP (G)	CMA12B.027	£2.40
1 1/2"	1 1/2" BSP (G)	CMA15B.027	£2.40
2"	2" BSP (G)	CMA20B.027	£3.00
3"	3" BSP (G)	CMA30B.027	£7.20



## PART 'B'

Cam female coupler X male BSP taper

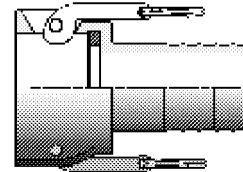
Body	Thread	Part no.	Price
3/4"	1/2" BSPT (R)	CFB05B.027	£5.80
3/4"	3/4" BSPT (R)	CFB75B.027	£5.80
1"	1" BSPT (R)	CFB10B.027	£6.13
1 1/2"	1 1/4" BSPT (R)	CFB12B.027	£8.36
1 1/2"	1 1/2" BSPT (R)	CFB15B.027	£8.36
2"	2" BSPT (R)	CFB20B.027	£9.73
3"	3" BSPT (R)	CFB30B.027	£16.96



## PART 'E'

Cam male adaptor X Hose tail

Body	Hose tail size	Part no.	Price
3/4"	1/2" (12mm)	CME05T.027	£1.80
3/4"	3/4" (20mm)	CME75T.027	£1.80
1"	1" (25mm)	CME10T.027	£2.04
1 1/2"	1 1/4" (32mm)	CME12T.027	£2.40
1 1/2"	1 1/2" (38mm)	CME15T.027	£2.40
2"	2" (50mm)	CME20T.027	£3.00
3"	3" (75mm)	CME30T.027	£7.20



## PART 'C'

Cam female coupler X Hose tail

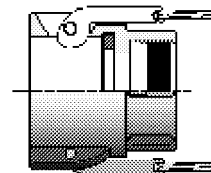
Body	Hose tail size	Part no.	Price
3/4"	1/2" (12mm)	CFC05T.027	£5.80
3/4"	3/4" (20mm)	CFC75T.027	£5.80
1"	1" (25mm)	CFC10T.027	£6.13
1 1/2"	1 1/4" (32mm)	CFC12T.027	£8.36
1 1/2"	1 1/2" (38mm)	CFC15T.027	£8.36
2"	2" (50mm)	CFC20T.027	£9.73
3"	3" (75mm)	CFC30T.027	£16.96



## PART 'F'

Cam male adaptor X male BSP taper

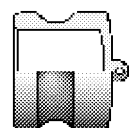
Body	Thread	Part no.	Price
3/4"	1/2" BSPT (R)	CMF05B.027	£1.80
3/4"	3/4" BSPT (R)	CMF75B.027	£1.80
1"	1" BSPT (R)	CMF10B.027	£2.04
1 1/2"	1 1/4" BSPT (R)	CMF12B.027	£2.40
1 1/2"	1 1/2" BSPT (R)	CMF15B.027	£2.40
2"	2" BSPT (R)	CMF20B.027	£3.00
3"	3" BSPT (R)	CMF30B.027	£7.20



## PART 'D'

Cam female coupler X female BSP parallel

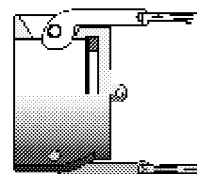
Body size**	Thread	Part no.	Price
3/4"	1/2" BSP (G)	CFD05B.027	£5.80
3/4"	3/4" BSP (G)	CFD75B.027	£5.80
1"	1" BSP (G)	CFD10B.027	£6.13
1 1/2"	1 1/4" BSP (G)	CFD12B.027	£8.36
1 1/2"	1 1/2" BSP (G)	CFD15B.027	£8.36
2"	2" BSP (G)	CFD20B.027	£9.73
3"	3" BSP (G)	CFD30B.027	£16.96



## PART 'DP'

Cam male adaptor X dust plug

Body	Plug	Part no.	Price
3/4"	N/A	CMP75P.027	£1.80
1"	N/A	CMP10P.027	£2.04
1 1/2"	N/A	CMP15P.027	£2.40
2"	N/A	CMP20P.027	£3.00
3"	N/A	CMP30P.027	£7.20

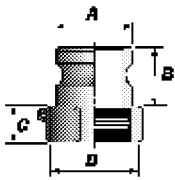


## PART 'DC'

Cam female coupler X dust cap

Body size**	Cap	Part no.	Price
3/4"	N/A	CFH75C.027	£5.80
1"	N/A	CFH10C.027	£6.13
1 1/2"	N/A	CFH15C.027	£8.36
2"	N/A	CFH20C.027	£9.73
3"	N/A	CFH30C.027	£16.96

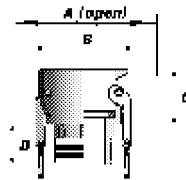
\* A true 1 1/4" coupler and adapter body is available on special order. \*\* The body size is the nominal size of the pipe or hose to be used.



## PART 'A'

Cam male adaptor X female BSP parallel

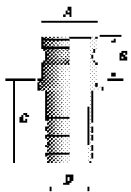
Partno.	A	B	C	D	WT.G
CMA05B/027	32.1	34	18.4	36.3	32
CMA75B/027	32.1	34	18.4	36.3	27
CMA10B/027	36.7	37.5	20.3	45	40
CMA12B/027*	53.4	41.3	24.8	52.8	67
CMA15B/027	53.4	41.3	25	58.7	73
CMA20B/027	63	53	30	72	114
CMA30B/027	91.5	53	43	102	239



## PART 'B'

Cam female coupler X male BSP taper

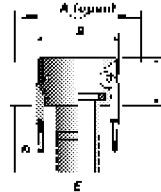
Partno.	A	B	C	D	WT.G
CFB05B/027	110	54	40	27	96
CFB75B/027	110	54	40	29.5	96
CFB10B/027	124	61	47	33.5	132
CFB12B/027*	192	86	52	43	257
CFB15B/027	197	86	52	44.5	268
CFB20B/027	205	95	57	41.6	312
CFB30B/027	255	132	60	53	524



## PART 'E'

Cam male adaptor X Hose tail

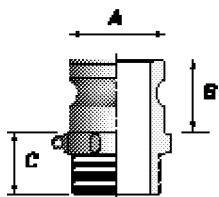
Partno.	A	B	C	D	WT.G
CME05T/027	32.1	38.2	42	13.2	25
CME75T/027	32.1	38.2	44.5	19.7	28
CME10T/027	36.7	43.7	51.7	26.8	41
CME12T/027*	53.4	43.7	63	32.7	89
CME15T/027	53.4	48.5	67.5	39.5	96
CME20T/027	63	60.5	69	52.2	147
CME30T/027	91.5	68	85	77.5	337



## PART 'C'

Cam female coupler X Hose tail

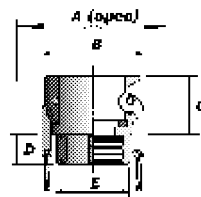
Partno.	A	B	C	D	E	WT.G
CFC05T/027	110	54	40	43	13.2	89
CFC75T/027	110	54	40	51	19.7	92
CFC10T/027	124	61	47	62	26.8	126
CFC12T/027*	192	86	52	71	32.7	252
CFC15T/027	192	86	52	77	39.5	267
CFC20T/027	205	95	57	81	52.2	310
CFC30T/027	255	132	60	106	77.5	620



## PART 'F'

Cam male adaptor X male BSP taper

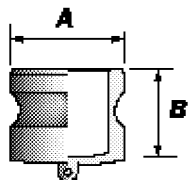
Partno.	A	B	C	WT.G
CMF05B/027	32.1	34	27	27
CMF75B/027	32.1	34	29.5	30
CMF10B/027	36.7	37.5	33.5	40
CMF12B/027*	53.4	41.3	43	77
CMF15B/027	53.4	41.3	44.5	88
CMF20B/027	63	53	41.6	132
CMF30B/027	91.5	53	53	256



## PART 'D'

Cam female coupler X female BSP parallel

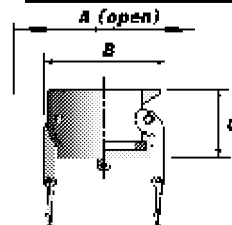
Partno.	A	B	C	D	E	WT.G
CFD05B/027	110	54	40	18.4	36.3	100
CFD75B/027	110	54	40	18.4	36.3	94
CFD10B/027	124	61	47	20.3	45	132
CFD12B/027*	192	86	52	24.8	52.8	247
CFD15B/027	192	86	52	25	58.7	250
CFD20B/027	205	95	57	30	72	297
CFD30B/027	255	132	60	43	102	567



## PART 'DP'

Cam male adaptor X dust plug

Partno.	A	B	WT.G
CMP75P/027	52.1	34	25
CMP10P/027	36.7	37.5	30
CMP15P/027	53.4	41.3	55
CMP20P/027	63	53	91
CMP30P/027	91.5	53	157



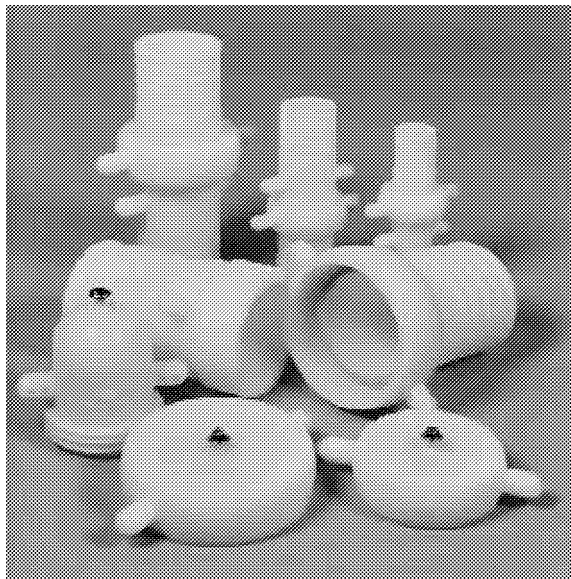
## PART 'DC'

Cam female coupler X dust cap

Partno.	A	B	C	WT.G
CFH75C/027	110	54	40	87
CFH10C/027	124	61	47	116
CFH15C/027	192	86	52	227
CFH20C/027	205	95	57	267
CFH30C/027	255	132	60	475

\* A tre 1 1/4" coupler and adapterbody is available on special order.

# Threaded Lug Coupling



## The Threaded Lug Coupling

CPP's range of polypropylene lugged threaded couplings are moulded to the highest standards in our factory in the UK under a quality management system approved by the BSI. With an ongoing quality improvement program using state-of-the-art computer technology we can offer assurance of the best possible product available.

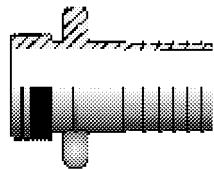
All threads designated BSP of this type are based on the dimension and tolerances as specified in the international standard ISO 228 (BS 2779:1973) for parallel threads. There is no standard for the URT round thread however we do base this thread on the British Standard BS 336 for tolerances.

Moulded in polypropylene, this very tough and light weight threaded hose coupling has many industrial applications up to 150 psi (10 bar) and benefits from being very cost effective.

### Standard Materials

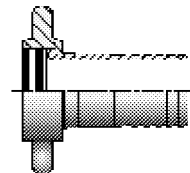
Item	Material
Coupling body	Food grade natural
Gasket	EPDM, polypropylene

Other materials such as Polyethylene (PE) can be moulded along with other gasket materials. Please contact us for the suitability of the material for your application.



## PART 'LE'

BSP parallel male X hose tail

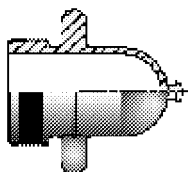


## PART 'LC'

BSP parallel female X Hose tail

Size**	Hose tail size	Part no.	Price
1 1/2" BSP (G)	1 1/2" (38mm)	LMB/15S/025	£1.65
2" BSP (G)	2" (50mm)	LMB/20S/025	£2.16
2 1/2" BSP (G)	2 1/2" (63mm)	LMB/25S/025	£2.73
3" BSP (G)	3" (75mm)	LMB/30S/025	£3.32
4" BSP (G)	4" (101.5mm)	LMB/40S/025	£4.32
3" URT	3" (75mm)	LMU/30S/025	£4.42
4" URT	4" (101.5mm)	LMU/40S/025	£5.76

Size**	Hose tail size	Part no.	Price
1 1/2" BSP (G)	1 1/2" (38mm)	LCB/15S/025	£3.75
2" BSP (G)	2" (50mm)	LCB/20S/025	£5.04
2 1/2" BSP (G)	2 1/2" (63mm)	LCB/25S/025	£5.20
3" BSP (G)	3" (75mm)	LCB/30S/025	£7.71
4" BSP (G)	4" (101.5mm)	LCB/40S/025	£10.22
3" URT	3" (75mm)	LFU/30S/027	£10.28
4" URT	4" (101.5mm)	LFU/40S/025	£13.62



## PART 'LDP'

BSP parallel male X dust plug



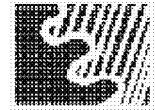
## PART 'LDC'

BSP parallel female X dust cap

Size**	Plug	Part no.	Price
1 1/2" BSP (G)	N/A	LPB/15P/025	£1.65
2" BSP (G)	N/A	LPB/20P/025	£2.16
2 1/2" BSP (G)	N/A	LPB/25P/025	£2.73
3" BSP (G)	N/A	LPB/30P/025	£3.32
4" BSP (G)	N/A	LPB/40P/025	£4.32
3" URT	N/A	LPU/30P/025	£4.42
4" URT	N/A	LPU/40S/025	£5.76

Size**	Cap	Part no.	Price
1 1/2" BSP (G)	N/A	LCB/15P/225	£2.31
2" BSP (G)	N/A	LCB/20P/025	£2.96
2 1/2" BSP (G)	N/A	LCB/25P/025	£3.75
3" BSP (G)	N/A	LCB/30P/025	£4.76
4" BSP (G)	N/A	LCB/40P/025	£5.77
3" URT	N/A	LCU/30P/025	£5.34
4" URT	N/A	LCU/40P/025	£9.02

# Standard Threads



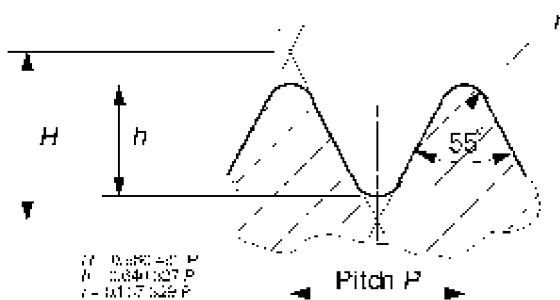
## Screw Thread Forms

Of the various screw thread forms which have been developed, the most used are those having symmetrical sides inclined at equal angles with a vertical centre line through the thread apex. Present-day examples of such threads would include the Unified, the Whitworth and the Acme forms. One of the early forms was the sharp 'V' which is now used only occasionally. Symmetrical threads are relatively easy to manufacture and inspect and hence are widely used on mass-produced general-purpose threaded hose and pipe fittings of all types. In addition to general-purpose fittings, certain threads are used for quick connections or heavy loads. The Round and Buttress thread are the most common.

## Pipe Threads

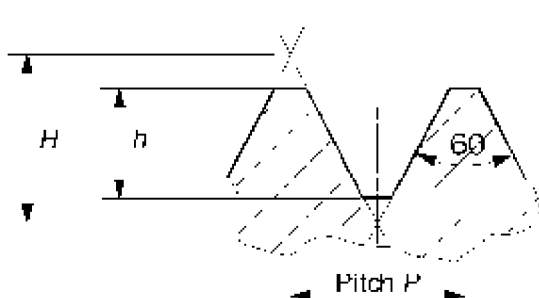
British Standard pipe threads are now specified under BS 21:1973 for taper threads and BS 2779:1973 for parallel threads, and these are designated as 'R' and 'G' threads respectively. These standards have been agreed upon by the ISO standards ISO/R7:78 and ISO/R228:82 and have been adopted by the equivalent French and German standards. Although the Terms 'R' and 'G' followed by the nominal pipe size in inches have been adopted, the terms BSPT and BSP are still recognised by British industry.

BSP Basic thread form



Widely used American threads are the NPT (ANSI B1.20.1-1983) and NPS (ANSI B1.20.101983), tapered and parallel respectively.

NTP Basic thread form

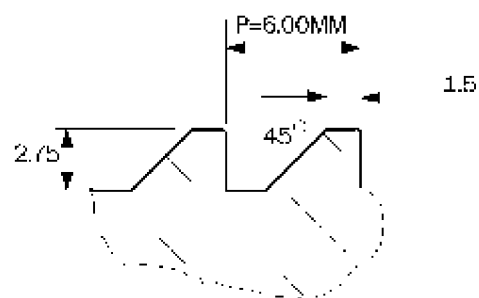


## Buttress Threads

The buttress form of thread is used for translation of loads in one direction only because of its non-symmetrical form and combines the high efficiency and strength of the square thread with the ease of cutting and adjustment of the ACME thread.

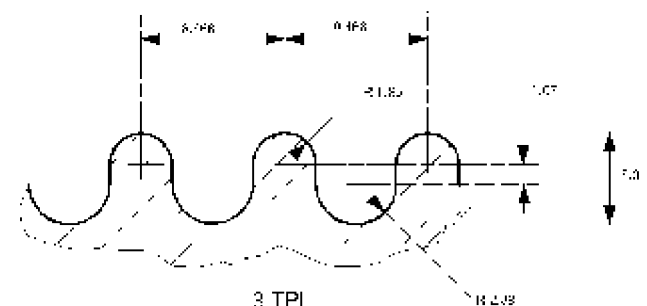
Rigid composite containers moulded from polyethylene and in a cage, Intermediate Bulk Containers or IBCs use the buttress thread as the standard out-put on the bottle or the valve. This type of buttress thread is based on the German DIN standard DIN 6131:1989.

Basic DIN buttress



## Urban Round Thread (URT)

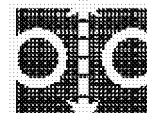
The URT or Urban Round Thread is based on the British Standard BS 336:1989 fire hose suction couplings from 3" - 5 1/2". This type of thread is only used in the United Kingdom and mainly on Cesspool and Gully emptier road tankers along with some chemical waste vehicles. This round thread gives a quick and strong connection and is particularly suited to plastic. Below is the basic form based on BS 336



## Other Coupling Threads

Apart from the standard thread there are several specialist threads of the food, pharmaceutical and dairy industries such as British RJT and IDF or DIN Rd threads. The Military also still use some old standards with 'V' threads

# Material Specification



## **Glass Reinforced Polypropylene**

The polymer used is a controlled rheology grade with tight molar mass distribution and low warpage. With 30% by weight chemically coupled glass fibres, high rigidity and good toughness, low creep under load, even at elevated temperatures.

### **Mechanical Properties**

Property	Unit	Method	Results
Yield stress	N/mm <sup>2</sup>	DIN 53 455	80
Elongation at break	%	ISO 527	2.5
Tensile modulus	N/mm <sup>2</sup>	DIN 53 457	6200
Tensile creep modulus	N/mm <sup>2</sup>	DIN 53 444	5800
Impact strength	KJ/m <sup>2</sup>	DIN 53 453	22

### **Water Absorption**

Because of the non-polar nature of the matrix material, the water absorption of mouldings made from P/P is extremely low. Mouldings made from this material are therefore characterised by high dimensional stability.

### **Chemical Resistance**

P/P is resistant to aqueous solutions of inorganic salts, acids and alkalis even at relatively high concentration and raised temperature. By contrast it is attacked by oxidising agents such as concentrated nitric acid or fuming sulphuric acid (oleum).

### **Resistance to Micro-organisms**

P/P does not provide a nutrient medium for micro-organisms and is therefore not subject to attack by them.

### **Food Contact**

Section 31 Para. 1 of the "Food and Consumer Articles Law" (Lebensmittel und Bedarfsgegenstandegesetz or LMBG) prohibits "the use or supply on a commercial basis of consumer articles as defined in section 5, Para. 1 Clause 1 of the LMBG from which substances - except amounts which are unobjectionable on health, odour and taste grounds and are technically unavoidable - might migrate into food onto its surface".

The conditions under which the composition of the material is deemed to meet the above health and safety requirements are laid down for polypropylene in Recommendation (Empfehlung) VII "Polypropylene" published by the German Federal Health Office (BGA) in Berlin

The material used in our food grade G/P/P couplings conform to BGA Recommendations VII, IX and LII

## **Unreinforced Polypropylene**

Polypropylene copolymer - our P/P is an isotactic material of high purity and crystallinity, low density, excellent mechanical properties and good thermal stability. Exemplary inertness to greases and to a wide range of chemicals. Very low water absorption and low permeability to water vapour.

### **Mechanical Properties**

Property	Unit	Method	Results
Tensile strength	MPa	ASTM D638	25-28
Elongation at yield	%	ASTM D638	7-11
Flexural modulus	MPa	ASTM D790	122-1400
Impact strength @ 20 °C	J/m	ASTM D256 A	>500
@ -20 °C	J/m	ASTM D256	50-80

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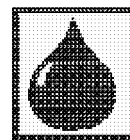
### **Food Contact**

Our P/P complies with most requirements of the food packaging regulations of the European Countries and the Food and Drug Administration (FDA) in the USA. Details of these approvals can be obtained from Crayford Plastic Products Ltd

### **Crayford Plastic Products Ltd**

Unit 38 Swaisland Drive  
Crayford Industrial Estate  
Crayford  
Kent  
DA1 4HS  
**United Kingdom**

# Chemical resistance



## Symbols

The symbols are as a guide to your judgement of the compatibility of the material.

- 1 Recommended
- 2 Moderate / slight attack

- P/P Polypropylene
- PE Polyethylene
- 304 S/S Stainless steel
- Alum. Aluminum
- Buna-N Buna-N (nitrile rubber)
- EPDM/P.P EPDM / polypropylene polymer elastomer

Media	P/P	PE	304 S/S	Alum.	Buna-N	EPDM/P.P
ASTM Oil No. 1	1	1	1	1	1	2
ASTM Oil No. 2	1	1	1	1	1	2
ASTM Oil No. 3	2	2	1	1	1	X
Acetaldehyde	1	2	1	1	X	1
Acetic acid (10%)	1	1	1	2	X	1
Acetic acid (Glacial)	1	1	1	2	X	1
Acetic anhydrid	1	1	1	2	X	2
Acetone	1	1	1	2	X	1
Acetonitrile	1	1	1	1	X	1
Acetophenone	1	2	1	2	X	1
Acetyl Chloride	2	2	2	X	X	2
Acrylic acid	1	2				
Aluminium chloride (10%)	1	1	2	X	1	1
Aluminium sulphate	1	1	1	2	1	1
Ammonium hydroxide (35%)	1	1	1	1	2	1
Ammonium sulfate (50%)	1	1	1	X	1	1
Amyl acetate	1	2	1	1	X	1
Amyl alcohol	1	1	1	1	2	2
Aniline	1	1	1	2	X	2
Antimony Trichloride (10%)	1	1	1	2	2	1
Aqua regia	2	X	X	X	X	X
Arsenic acid	1	1	2	1	1	1
Barium chloride	1	1	X	1	1	1
Benzaldehyde	2	1	1	1	X	2
Benzene	2	2	1	2	X	X
Benzyl alcohol	1	1	1	1	X	2
Benzyl chloride	2	2	2	X	X	X
Boric acid	1	1	1	1	1	1
Bromine liquid	X	X	2	X	X	X
Butyl alcohol (Butanol)	1	1	1	1	1	2
Butyl acetate	2	2	1	1	X	2
Butyl Chloride	X	X	2	X	X	X
Butylamine	1	2	1	1	2	2
Butyric acid	1	1	2	1	X	2
Calcium chloride	1	1	1	1	1	1
Carbon disulphide	2	X	1	1	X	X
Carbon tetrachloride	2	2	2	X	2	2
Castor oil	1	1	1	1	1	2
Cellosolve	1	2	1	1	X	2
Cellosolve acetate	1	2	1	2	2	1
Chloroacetic acid	1	1	X	X	X	1
Chlorine gas (dry)	X	X	1	X	2	X
Chlorine dioxide	2	2	X	2	X	2
Chlorine water	2	2	2	X	2	2
Chlorobenzene	1	2	2	1	X	2
Chloroform	2	X	1	X	X	X
Chorosulphonic acid	X	X	2	2	X	X
Chrome plating solution	2	2				
Chromic acid	1	1	X	2	X	1

14 Note: this is a guide only. We recommend that anyone intending to rely on this guide satisfy themselves as to such suitability and that all applicable health and safety standards are met. The only reliable means for making a final selection is actual field-testing under the conditions of intended use.

Media	P/P	PE	304 S/S	Alum.	Buna-N	EPDM/P.P
Citric acid (10%)	1	1	1	2	2	1
Codliver oil	1	1	1	1	2	1
Copper sulphate	1	1	1	X	1	1
Cotton seed oil	1	2	1	1	1	1
Cresols	1	2	1	1	X	2
Cyclo-hexanone	1	1				
Cyclohexane	2	2	2	2	2	X
Cyclohexanol	1	1	1	X	2	2
Decalin	2	1		X	X	2
Diesel oil	1	1	1	1	1	2
Diethyl ether	1	1	1	2	2	2
Diethylamine	1	2	1	2	X	2
Diethylene glycol	1	1	1	1	1	1
Dimethyl formamide	1	1	1	1	X	1
Dimethylamine	1	X				
Dimethylhydrazine	1	1				
Diocetylphthalate	1	1	1	1	X	2
Dioxane	1	2				
Ethyl acetate	1	2	1	1	X	1
Ethyl alcohol (Ethanol)	1	1	1	2	1	1
Ethyl chloride	X	2	1	X	1	1
Ethylamine	1	2	2	2	X	1
Ethylene bromide	X	X	2	X	X	2
Ethylene dichloride	1	2	2	X	X	2
Ethylene glycol	1	1	1	1	1	1
Ferric chloride	1	1	X	X	1	1
Fluoboric acid	2	1	1	X	1	1
Fluorine (gas)	X	2	1	1	X	2
Fluosilic acid	1	1	1	X	2	1
Formaldehyde (40%)	1	1	1	1	2	1
Formic acid (90%)	1	1	X	X	X	2
Freon-11	X	2	1	2	X	X
Freon-113	1	1	1	2	2	2
Freon-115	1	2		1	1	1
Freon-12	1	1	1	1	2	2
Freon-13B1	1	1			1	1
Freon-21	1	1		1	X	2
Freon-22	1	1	1	1	X	2
Freon-32	1	1	1	1	2	2
Furfural	1	1	1	1	X	2
Glycerol	1	1	1	1	1	1
Hexane	1	1	1	1	1	2
Hydrazine	1	1	1	1	2	1
Hydrobromic acid (50%)	1	1	X	X	X	1
Hydrochloric acid (10%)	1	1	X	X	2	1
Hydrochloric acid (36%)	1	1	X	X	X	1
Hydrofluoric acid (40%)	1	1	X	2	X	1
Hydrogen peroxide (35%)	1	1	2	1	X	1
Hydrogen peroxide (87%)	X	1	1	1	X	2
Hydrogen sulphide gas	1	1	1	1	X	1
Iso-octane	1	1	1	1	1	2
Iso-propyl alcohol	1	1	1	1	2	2
Lactic acid (90%)	1	1	1	1	2	1
Lead acetate (10%)	1	1	2	X	2	1
Linseed oil	1	1	1	1	1	2
Lubricating oil	1	1	1	1	1	2
Magnesium Chloride	1	1	2	1	1	1
Magnesium sulphate	1	1	1	1	1	1
Mercuric chloride	1	1	X	X	1	1
Methyl alcohol	1	1	1	2	1	1
Methyl bromide (gas)	2	X	1	X	X	1
Methyl ethyl ketone	1	2	1	1	X	1
Methylene dichloride	2	2	1	X	X	2
Molasses	1	1	1	1	1	1
Monoethanolamine	2	1	1	2	2	2
n-propanol	1	1				
Nickel chloride	1	1	2	X	1	1
Nitric acid (10%)	1	1	1	1	X	1
Nitric acid (70%)	1	1	1	X	X	2
Nitrobenzene	1	1	1	1	X	2
Nitromethane	2	2	1	1	X	2

Note: this is a guide only. We recommend that anyone intending to rely on this guide satisfy themselves as to each suitability and that all applicable health and safety standards are met. The only reliable means for making a final selection is actual field-testing under the conditions of intended use.

Media	P/P	PE	304 S/S	Alum.	Buna-N	EPDM/P.P
Nitropropane	1	2	1	1	X	1
Oleic acid	1	1	2	1	2	2
Olive oil	1	1	1	1	1	2
Oxalic acid (solutions)	1	1	2	X	X	1
Ozone (gas)	2	X	1	1	X	1
Paraffin oil	1	1	1	1		1
Perchloroethylene	X	2	1	X	X	X
Peroxymonosulphuric acid	2	2				
Petrol	1	1	1	1	1	2
Phenol	1	1	2	2	X	2
Phosphoric acid (85%)	1	1	1	X	X	2
Picric acid (solutions)	1	1	1	1	2	2
Plating solutions (non-chrome)	1	1	1	X	2	2
Potassium cyanide	1	1	2	X	1	1
Potassium fluoride	1	1	1			1
Potassium hydroxide (50%)	1	1	1	X	2	1
Potassium permanganate	1	1	2	1	X	1
Potassium sulphate	1	1	2	1	1	1
Propionic acid	1	1	2	1	X	1
Propylene oxide	1	1	1	2	X	2
Pyridine	2	1	1	1	X	2
Rapeseed oil	1	2	1		2	1
Silicone fluids	1	1	1	2	1	1
Silver nitrate	1	1	1	X	2	1
Sodium borate	1	1	1	2	1	1
Sodium carbonate (10%)	1	1	1	2	1	1
Sodium chloride (25%)	1	1	1	2	1	
Sodium cyanide	1	1	1	X	1	1
Sodium hydroxide (10%)	1	1	1	X	2	1
Sodium hydroxide (60%)	1	1	1	X	2	1
Sodium hypochlorite (20%)	1	1	2	X	X	2
Sodium nitrate	1	1	1	1	2	1
Sour oil	2	2				
Stannic chloride	1	1	1	X	1	2
Styrene	X	X	1	1	X	X
Sulphamic acid (solutions)	1	2	X	2	2	2
Sulphur dioxide (gas)	1	1	1	1	X	2
Sulphuric acid (10%)	1	1	1	X	2	1
Sulphuric acid (70%)	1	1	X	X	X	2
Sulphuric acid (90%)	2	1	2	X	X	2
Sulphuric acid (fuming)	X	X	2	X	X	X
Tetrachloethane	1	2	X	X	X	X
Tetrahydrofuran	2	2			X	
Tetralin	2	1	1	1	X	X
Thionyl chloride	X	X	1	X	X	X
Titanium tetrachloride	2	1	2	X	X	2
Toluene	1	2	1	1	2	2
Transformer oil	1	1	1	1	2	2
Trichloroacetic acid	1	1	X	X	X	2
Trichloroethane	1	X	1	X	X	2
Trichloroethylene	2	2	1	X	X	X
Tricresyl phosphate	1	1	2		X	1
Troethanolamine	1	1	1	1	X	1
Triethyamine	2	2	1		1	2
Turpentine	X	2	1	1	1	X
Vegetable oils (general)	2	1	1	1	2	1
Vinyl acetate	1	1	1	2	X	1
Vinyl chloride	2	2	1	X	X	2
Water (distilled)	1	1	X	1	1	1
Water (sea)	1	1	1	2	1	1
White spirit	1	1				1
Wine	1	1	1	X	1	1
Xylene	2	2	2	1	X	X
Zinc chloride (aq.sol.)	1	1	1	1	2	1