

OVERBRAIDED STEEL FLEXIBLE SYSTEMS

- TYPE SB** – ABRASION RESISTANT, ENHANCED EMI SCREEN, GALVANISED STEEL OVERBRAIDED
- TYPE STC** – HIGH EMI SCREEN, TINNED COPPER OVERBRAIDED
- TYPE SPB** – ABRASION & LIQUID RESISTANT, ENHANCED EMI SCREEN, GALVANISED STEEL OVERBRAIDED
- TYPE SPTC** – LIQUID RESISTANT, HIGH EMI SCREEN, TINNED COPPER OVERBRAIDED

Conduit



TYPES SB



& STC



Fittings

TYPE A IP40

STRAIGHT FITTING – FIXED EXTERNAL THREAD
for insertion into knockouts using a locknut



TYPE B IP40

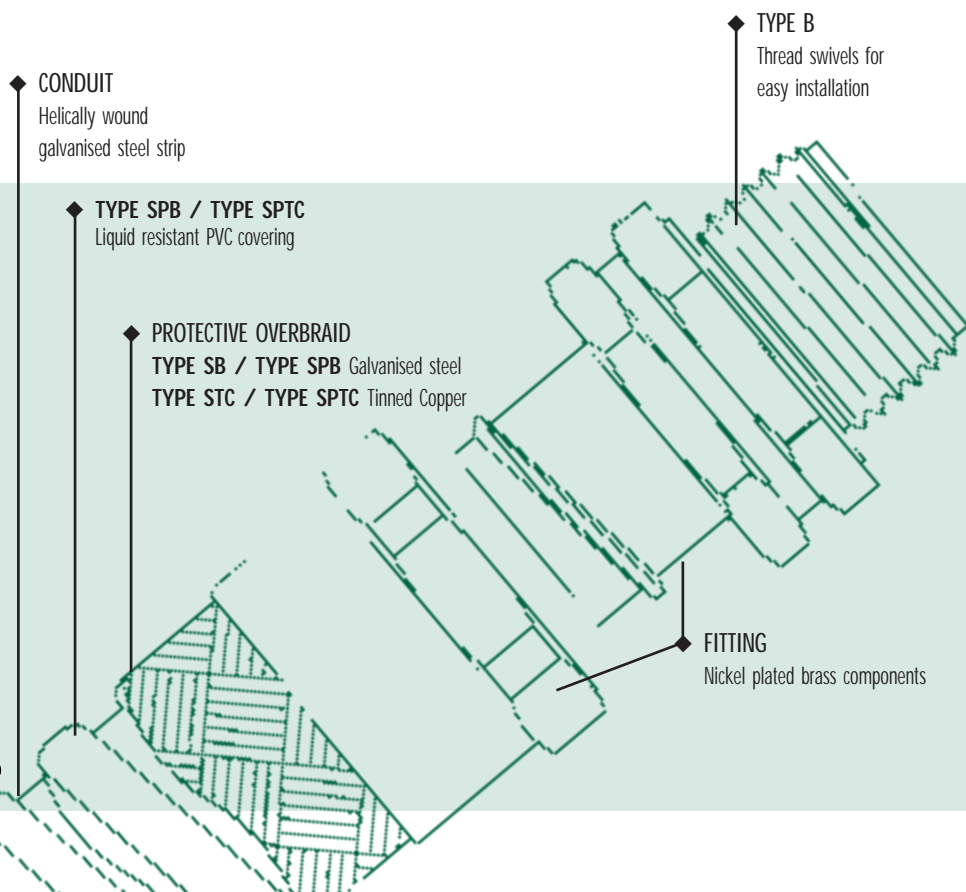
STRAIGHT FITTING – SWIVEL EXTERNAL THREAD
for insertion into threaded entries & knockouts



TYPE SB PART NUMBER	TYPE STC PART NUMBER	OUTSIDE DIAMETER mm	INSIDE DIAMETER mm	MINIMUM BEND RADIUS mm
SB10	STC10	10.0	6.8	25
SB12	STC12	14.0	10.3	30
SB16	STC16	17.5	13.0	35
SB20	STC20	21.5	16.9	45
SB25	STC25	26.0	21.4	55
SB32	STC32	34.0	28.1	60
SB40	STC40	43.6	37.7	80
SB50	STC50	56.0	48.4	90

THREAD	PART NUMBER
PG7	SB10/PG7/A
M16	SB12/M16/A
M16	SB16/M16/A
M20	SB20/M20/A
M25	SB25/M25/A
M32	SB32/M32/A
M40	SB40/M40/A
M50	SB50/M50/A

METRIC THREAD	PART NUMBER	PG THREAD	PART NUMBER
M10	SB10/M10/B	PG7	SB10/PG7/B
M16	SB12/M16/B	PG9	SB12/PG9/B
M16	SB16/M16/B	PG11	SB16/PG11/B
M20	SB20/M20/B	PG16	SB20/PG16/B
M25	SB25/M25/B	PG21	SB25/PG21/B
M32	SB32/M32/B	PG29	SB32/PG29/B
M40	SB40/M40/B	PG36	SB40/PG36/B
M50	SB50/M50/B	PG42	SB50/PG42/B



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ADAPTAFLEX-INFLINE

PERFORMANCE CHARACTERISTICS

The following pages enable you to select Adaptaflex products which best fit the purpose intended and are designed to help meet your product liability obligations over the lifetime of the installation.

To select the most appropriate Adaptaflex system for any given application match the performance criteria required to the relevant tables on the following pages.

Performance criteria used in this table are:

Bending to EN50086

Flexible and pliable conduits can be bent by hand. Flexible systems may flex frequently throughout their life and are suitable for both static and dynamic applications. Pliable systems are intended only for static applications.

Flexibility

Dependent on ease of bending and minimum bend radius without failure.

Fatigue Life

The recommended maximum number of flexing cycles to avoid failure, dependent on temperature, bend radius and frequency of movement.

Torsional Capability

Degree of resistance to conduit damage caused by twisting.

Minimum Dynamic Bend Radius @ Minimum Temperature

The recommended minimum inside bend radius at the minimum temperature to EN50086. Fatigue life in dynamic flexing applications is dependent upon bend radius, frequency of bending, temperature and the chemical environment.

Minimum Temperature to EN50086

The minimum operating temperature defined by the bending classification.

Minimum Static Temperature

The recommended minimum operating temperature in static mode.

Maximum Temperature to EN50086

The maximum operating temperature defined by the bending classification.

Maximum Long Term Temperature

The recommended maximum operating temperature in static mode.

Ultimate Compression Strength

Final resistance to deformation under compressive load.

Ultimate Tensile Strength

A combination of final conduit tensile and fitting pull-off resistance.

Abrasion Resistance

An indication of resistance to rubbing against other materials.

UV Resistance

An indication of suitability for external application dependent on resistance to degradation caused by exposure to UV ie. sunlight.

Non-Flame Propagating to EN50086

Self-extinguishing within a given time once a fire source is removed.

Halogen Free

Giving off < 0.1% Halogen acid gas when burnt.

Fire Performance (see key on page 35)

Systems combining various levels of high flame retardancy, low smoke density and toxicity in the event of fire are classified as Low Fire Hazard (LFH), Enhanced Low Fire Hazard (ELFH), Inherent Low Fire Hazard (ILFH) or Super Low Fire Hazard (SLFH).

EMI Screen @ 1MHz

(see **SCREEN SYSTEMS** on page 41)
SCREEN SYSTEMS are classified as EMI Screen, Enhanced EMI Screen or High EMI Screen dependent on capability to reduce electromagnetic interference (EMI) in the frequency range 0.1MHz to 1000 MHz.

System IP Rating to EN50086

(see definitions on page 39)

The resistance of an assembled system to the ingress of solids and liquids, dependent on the combination of conduit and fittings.

The point of entry into adjoining equipment may require independent sealing to maintain the system IP rating, see sealing washers on page 32.

CONDUITS

METALLIC SYSTEMS

	PAGE NUMBER	CONDUIT TYPE	MIN	MAX	NOMINAL SIZE RANGE mm	COLOUR FINISH (SEE KEY BELOW)
ADAPTASTEEL STEEL FLEXIBLE SYSTEMS	4-5	S	10	75	S	
		SS	12	32	S	
ADAPTASTEEL COVERED STEEL FLEXIBLE SYSTEMS	6-7	SP	10	75	B/G/O	
		SN	12	32	B	
		LFH-SP	16	50	B	
ADAPTASTEEL LIQUID TIGHT COVERED STEEL FLEXIBLE SYSTEMS	8-9	SPL	10	63	B/G/O	
		SPL E	10	63	B/G	
		SPLHC	16	63	B	
		SPUL	16	63	G	
ADAPTASTEEL OVERBRAIDED FLEXIBLE SYSTEMS	10	SB	10	50	S	
		STC	10	50	S	
	11	SPB	10	50	S	
		SPTC	10	50	S	
12	SPLHCB	16	50	S		
STAYFLEX PLIABLE SYSTEM	13	LSP	16	40	S	
NON-METALLIC SYSTEMS						
ADAPTALOK ADAPTASEAL ADAPTARING FLEXIBLE SYSTEMS	CONDUIT	PA LIGHT	13	54	B/G	
		PA STANDARD	10	54	B/G	
		PA MEDIUM	13	34	B/G	
		PA HEAVY	13	54	B/G	
	FITTINGS	PR	13	54	B	
		PI	10	54	B/G	
PP	13	34	B			
HI-SPEC FLEXIBLE SYSTEMS	26-27	PK	16	34	B	
		PKTC	16	34	S	
		PKSS	16	34	S	
		PRTC	16	42	S	
		PRSS	16	42	S	
KORIFIT PVC PLIABLE SYSTEM & XTRAFLEX FLEXIBLE SYSTEM	28-29	KFL	16	50	G	
		KFS	16	25	W	
	30	KFM	12	50	B	
		XF	12	50	B	

COLOUR KEY

B = BLACK
G = GREY
N = NICKEL PLATE
O = ORANGE
S = SELF
W = WHITE

BENDING TO EN50086
FLEXIBILITY
FATIGUE LIFE
TORSIONAL CAPABILITY
MIN DYNAMIC BEND RADIUS mm @ MIN TEMP
MIN TO EN50086
MIN STATIC
MAX TO EN50086
MAX LONG TERM
TEMPERATURE RANGE (°C)
ULTIMATE COMPRESSION STRENGTH (N/50mm)
ULTIMATE TENSILE STRENGTH (N)
ABRASION RESISTANCE
UV RESISTANCE
NON-FLAME PROPAGATING TO EN50086
HALOGEN FREE
FIRE PERFORMANCE (SEE KEY BELOW)
EMI SCREEN @ 1MHz(dB) (see page 47)

F	H	H	-	40	-45	-50	250	300	2200	1450	M	VH	✓	✓	ILFH	-
F	H	H	-	40	-45	-50	250	300	2550	1700	H	VH	✓	✓	ILFH	-

F	H	M	-	40	-5	-15	90	70*	2200	1450	M	VH	✓	-	-	-
F	M	M	-	50	-25	-40	150	120	2200	1450	H	H	✓	✓	-	-
F	M	M	-	50	-5	-25	105	90	2200	1450	M	H	✓	✓	ELFH	-

F	M	M	-	150	-5	-20	105	105*	2500	1600	M	VH	✓	-	-	-
F	M	M	-	150	-5	-15	105	70	2500	1600	M	VH	✓	-	-	-
F	M	H	-	50	-45	-65	150	135*	2500	1600	M	H	✓	✓	-	-
F	M	M	-	N/C	-5	-15	105	75*	2500	1600	M	VH	✓	-	-	-

F	H	H	-	40	-45	-50	250	300	2200	1450	H	VH	✓	✓	ILFH	74
F	H	H	-	40	-45	-50	250	300	2200	1450	H	VH	✓	✓	ILFH	103
F	H	M	-	40	-5	-15	90	70*	2200	1450	H	VH	✓	-	-	74
F	H	M	-	40	-5	-15	90	70*	2200	1450	H	VH	✓	-	-	100
F	M	H	-	50	-45	-65	150	135*	2500	3500*	H	VH	✓	✓	-	72

P	M	L	-	90	-5	-15	90	70	1050	150	M	H	✓	-	-	74*
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F	VH	H	†	70	-5	-40	120	120	320	150	M	M*	✓	✓	-	-
F	H	H	†	70	-5	-40	120	120	350	200	H	VH*	✓	✓	LFH	-
F	M	M	†	-	-5	-40	120	120	400	250	H	VH*	✓	✓	LFH	-
F	M	M	†	-	-5	-40	120	120	600	350	H	VH*	✓	✓	LFH	-
F	H	H	†	70	-5	-40	120	120	350	250	H	VH*	✓	✓	ELFH	-
F	VH	VH	†	30	-25	-50	120	90	250	200	M	M*	✓	✓	-	-
F	VH	VH	†	-	-5	-20	105	90	100	100	M	M*	-	✓	-	-

F	VH	H	-	-	-45	-60	250	250	600	300	VH	VH	✓	✓	SLFH	-
F	VH	H	-	-	-45	-60	250	250	600	1200*	H	VH	✓	✓	SLFH	98
F	VH	H	-	-	-45	-60	250	250	600	1500	VH	VH	✓	✓	SLFH	61
F	M	H	-	70	-5	-40	120	120	350	1200*	H	VH	✓	✓	ELFH	98
F	M	H	-	70	-5	-40	120	120	350	1500*	VH	VH	✓	✓	ELFH	61

P	M	L	-	30	-5	-5	60	60	400	150	M	H	✓	-	-	-
P	M	L	-	40	-5	-5	60	60	750	250	M	H	✓	-	-	-
P	M	L	-	40	-5	-5	60	60	800	300	M	H	✓	-	-	-
P	VH	M	✓	-	-5	-5	60	60	450	150	M	M	✓	-	-	-

F = FLEXIBLE
P = PLIABLE
†WITH ADAPTING FITTINGS
*HIGHER SHORT-TERM MAX TEMP POSSIBLE
*HIGH SUSPENDED LOAD CAPABILITY
*BLACK ONLY
*WITH LSPS

PERFORMANCE LEVEL KEY
L = LOW
M = MEDIUM
H = HIGH
VH = VERY HIGH

FIRE PERFORMANCE CLASSIFICATION KEY

PROPERTY	LFH	ELFH	SLFH	ILFH
OXYGEN INDEX ISO4589	31% ≥ OI ≥ 27%	OI ≥ 35%	OI ≥ 35%	Inherent Low Fire Hazard i.e. Types S, SS & SB conduit and fittings
BS6853 APP. B5.1 SMOKE DENSITY 3m³	0.02 ≥ A ₀ ≥ 0.03	0.005 ≥ A ₀ ≥ 0.02	A ₀ ≤ 0.005	
ZERO HALOGEN	✓	✓	✓	
ZERO PHOSPHORUS	✓	✓	✓	
ZERO SULPHUR	✓	✓	✓	
ZERO NITROGEN	✗	LFH-SP ONLY	✓	
TOXICITY INDEX NES713 ISSUE 3	5.0 ≥ TI ≥ 6.0	0.5 ≥ TI ≥ 5.0	TI ≤ 0.5	
NFF16-102	I3F2	I2F2	I2F0	

FITTINGS

SYSTEM IP RATING TO EN50086	WHEN USED WITH FITTING RANGE	TYPE	COLOUR/FINISH (SEE KEY BELOW)	
40	=	S	A/B/F	N
40	=	S	C	N

54	=	SP	A/B/F	N
65	=	SP	M	N
00	=	SP	E	N

67	=	SPL	A/B	N
67	=	SPL	M	N
00	=	SPL	E	N

40	=	SB	A/B	N
54	=	SPB	A/B	N
67	=	SPLB	A/B	N

67	=	LSP/LSPS	A/S	N
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66	=	AL	A/90/FL90/45/Y	B/G
66	=	AL10	A	B/G
66	=	AL	PPA	B
66	=	AL	SA/SFA/S90/S45/SF45	B/G+N
66	=	AL	UNEFC Connectors	B
67	=	AS	A/90/FL90/T	B/G
40	=	AR	A/90/FL90/T	B/G

67	=	PK	PK	N
67	=	PB	B	N

40	=	KC	A/90	B/G/W
66	=	KF	A/2020	W
65	=	XF	A/90	B

CONDUIT & FITTING MATERIALS

This chart is designed to assist product selection by detailing the material types of the main components which make up a particular conduit system, i.e. conduit, covering, overbraid, fitting body & thread.

The full names for the abbreviated material types can be found on the next page in the materials key.

METALLIC SYSTEMS	PAGE NUMBER	CONDUIT TYPE	CONDUIT MATERIALS			FITTING RANGE	FITTING TYPE	FITTING MATERIALS			
			CONDUIT	COVERING	OVERBRAID			BODY	THREAD		
ADAPTASTEEL STEEL FLEXIBLE SYSTEMS	4-5	S	S	—	—	S	A/B/F	NPB	NPB		
		SS	SS316	—	—			NPB	—		
ADAPTASTEEL COVERED STEEL FLEXIBLE SYSTEMS	6-7	SP	S	PVC	—	SP	A/B/F	NPB	NPB		
		SN	S	TPE	—	SP	M	A+NPB+N+EPDM	NPB/PA6		
		LFH-SP	S	PO	—	SP	C/E	NPB	—		
ADAPTASTEEL LIQUID TIGHT COVERED STEEL FLEXIBLE SYSTEMS	8-9	SPL	S	PVCOR	—	SPL	A/B	PA6+NPB+N+EPDM	NPB/PA6		
		SPLE	S	PVC	—			M	A+NPB+N+EPDM	NPB/PA6	
		SPLHC	S	TPR	—			E	NPB	—	
		SPUL	S	PVCOR	—						
ADAPTASTEEL OVERBRAIDED FLEXIBLE SYSTEMS	10	SB	S	—	S	SB	A/B	NPB	NPB		
		STC	S	—	TC						
	11	SPB	S	PVC	S	SPB	A/B	NPB	NPB		
		SPTC	S	PVC	TC						
12	SPLHCB	S	TPR	SS304	SPLB	A/B	PA6+NPB+N+EPDM	NPB/PA6			
STAYFLEX PLIABLE SYSTEM	13	LSP	LS*	PVC	—	LSP/LSPS	A/S	NPB	NPB		
NON-METALLIC SYSTEMS											
ADAPTALOK ADAPTA SEAL ADAPTA RING FLEXIBLE SYSTEMS	CONDUIT	PA LIGHT	PA6	—	—	AL	A/90/FL90/45/Y	PA66	PA66		
		PA STANDARD	PA6	—	—			AL10	A	PA12T	PA12T
		PA MEDIUM	PA6	—	—			AL	PPA	PP	PP
		PA HEAVY	PA6	—	—			AL	SA/SFA/S90/SF90/S45/SF45	PA66+N+EPDM	NPB
	FITTINGS	PR	PA6	—	—			AL	UNEF Connectors	PA66+N+EPDM	AA
		PI	MPA	—	—			AS	A/90/FL90/T	CR+PA66+N+EPDM	
16-25	PP	PP	—	—	AR	A/90/FL/FL90/T	A+PA66	PA66			
HI-SPEC FLEXIBLE SYSTEMS	26-27	PK	PK	—	—	PK	PK	NPB	NPB		
		PKTC	PK	—	TC						
		PKSS	PK	—	SS316			PB	B	SC+NPB	NPB
		PRTC	PA6	—	TC						
		PRSS	PA6	—	SS304						
KORIFIT PVC PLIABLE SYSTEM & XTRAFLEX FLEXIBLE SYSTEM	28-29	KFL	PVCU	—	—	KC	A/90	A+PA66	PA66		
		KFS	PVCU	—	—			KF	A/2020	PA66	PA66
		KFM	PVCU	—	—						
	30	XF	PVCU+PVC	—	—			XF	A/90	CR+PA66+N+EPDM	PA66

*INCLUDES
KRAFT PAPER
LINER

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ADAPTAFLEX-INFOLINE

CHEMICAL RESISTANCE

To assess the chemical resistance of an assembled system:

- from the Materials Key, compare the material of the conduit & fittings selected, against the main chemical of concern in this chart.
- the least suitable material determines the overall chemical resistance of the system. Phone the Adaptaflex Infoline for other chemicals, concentrations and temperatures.

MATERIALS KEY

	Acetal (POM)	Anodised aluminium	Brass	Copper	Chloroprene rubber	EPDM	Leaded steel	Modified Polyamide (nylon)	Nitrile (NBR)	Nickel plated brass	Polyamide (nylon) 6	Polyamide (nylon) 12	Polyamide (nylon) 12T	Polyamide (nylon) 66	Polyketone	Polyolefin	Polypropylene	Polyurethane	PVC	Oil resistant PVC	Unplasticised PVC	Galvanised steel	Silicone (O)	Stainless steel grade 304	Stainless steel grade 316	Tinned copper	Thermoplastic elastomer	Thermoplastic rubber
	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
A	AA	B	C	CR	E	LS	MPA	N	NPB	PA6	PA12	PA12T	PA66	PK	PO	PP	PU	PVC	PVCOR	PVCU	S	SC	SS304	SS316	TC	TPE	TPR	

SUITABILITY KEY

- S = SUITABLE
- L = LIMITED SUITABILITY
- U = UNSUITABLE
- A = CONTACT ADAPTAFLX INFOLINE

ASTM NO.1	S	S	S	S	S	U	S	S	S	S	S	S	S	S	L	S	S	U	S	S	S	S	S	S	S	S	S	S	
ASTM NO.2	S	S	S	S	L	U	S	S	S	S	S	S	S	S	L	S	S	U	S	S	S	S	S	S	S	S	S	L	
ASTM NO.3	S	S	S	S	U	U	S	S	L	S	S	S	S	S	L	L	S	U	S	S	S	S	L	S	S	S	S	L	
ACETIC ACID (10%)	S	S	U	L	S	S	U	L	S	L	L	S	L	S	U	S	L	L	L	S	U	S	S	S	S	L	S	S	
ACETONE	L	S	S	S	L	S	S	S	U	S	S	S	S	S	U	S	U	S	L	U	U	U	L	S	S	S	U	S	
ALUMINIUM CHLORIDE	L	S	U	L	S	S	U	S	A	L	S	S	L	S	S	S	S	L	S	S	U	L	U	L	L	L	L	S	
ANILINE	S	S	S	S	L	S	S	U	U	S	L	U	U	L	L	S	U	U	U	U	U	S	S	S	S	S	L	S	
BENZALDEHYDE	S	S	S	S	U	S	S	L	U	S	L	L	L	S	U	L	L	U	U	U	U	S	L	S	S	S	U	L	
BENZENE	S	S	S	S	U	U	S	S	U	S	S	S	S	S	S	U	L	L	U	U	U	S	U	S	S	S	L	U	
CARBON TETRACHLORIDE	S	S	S	S	U	U	S	S	U	S	S	S	L	S	S	U	L	L	L	L	L	S	U	S	S	S	U	L	
CHLORINE WATER	U	L	U	U	L	L	U	U	S	U	U	U	U	U	L	L	U	U	U	U	U	L	U	U	U	U	U	S	
CHLOROFORM	L	S	S	S	U	S	U	S	U	U	U	L	S	U	L	L	U	U	U	U	U	S	S	S	S	S	U	L	
CITRIC ACID	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
COPPER SULPHATE	S	S	S	S	S	S	S	S	S	L	S	S	L	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	
CREOSOL	U	S	L	L	L	U	S	U	U	S	U	U	U	L	U	S	U	L	L	L	S	U	S	S	L	L	S		
DIESEL OIL	S	S	S	S	L	U	S	S	S	S	S	S	S	S	L	S	S	L	S	S	S	S	S	S	S	S	S	S	
DIETHYLAMINE	U	S	S	S	U	U	S	L	U	S	S	L	U	S	S	S	S	U	L	L	L	S	L	S	S	S	L	S	
ETHANOL	S	S	S	S	S	S	S	L	S	S	S	L	U	S	S	L	S	L	U	U	S	S	S	S	S	S	L	S	
ETHER	S	S	S	S	L	U	S	S	U	S	S	S	S	S	U	S	S	L	L	S	S	U	S	S	S	S	L	S	
ETHYLAMINE	L	S	S	S	U	S	S	L	S	S	S	L	U	S	S	L	S	U	L	L	L	S	U	S	S	S	L	L	
ETHYLENE GLYCOL	S	S	S	S	S	U	S	S	S	S	S	S	S	S	S	S	S	S	L	L	S	U	S	S	S	S	S	L	S
ETHYL ETHANOATE	S	S	S	S	U	S	S	S	S	L	S	S	L	S	U	S	U	U	U	U	U	S	L	S	S	S	U	S	
FREON 32	S	S	S	S	S	S	U	S	S	S	S	S	S	S	U	S	L	L	L	L	L	U	U	S	S	S	U	U	
HYDROCHLORIC ACID (10%)	L	L	U	U	S	S	U	L	S	S	U	L	L	U	S	U	S	L	S	S	S	U	L	U	U	U	U	S	
HYDROCHLORIC ACID (36%)	U	L	U	U	S	L	U	U	S	S	U	U	U	U	S	U	S	U	L	S	S	U	U	U	U	U	U	S	
HYDROGEN PEROXIDE (35%)	U	S	U	S	S	S	U	L	S	S	L	L	L	L	S	L	S	U	S	S	S	U	S	S	S	L	L	S	
HYDROGEN PEROXIDE (87%)	U	S	U	L	U	A	U	U	S	S	U	U	U	U	S	U	L	U	S	S	S	U	L	S	S	L	U	U	
LACTIC ACID	U	L	L	S	S	S	U	S	S	S	L	S	L	L	S	S	S	L	L	L	L	L	S	S	S	S	S	L	
LUBRICATING OIL	S	S	S	S	S	U	S	S	S	S	S	S	S	S	S	L	S	S	L	S	S	U	S	S	S	S	S	L	
METHANOL	S	S	S	S	S	S	L	S	S	L	L	L	L	L	S	L	S	L	U	U	S	S	S	S	S	S	L	S	
METHYL BROMIDE	U	S	S	S	U	U	S	U	S	S	U	U	U	S	U	L	U	U	U	U	U	S	S	S	S	U	L		
MEK	S	S	S	S	U	S	S	S	S	S	S	L	S	S	U	S	L	U	U	U	S	U	S	S	S	S	U	S	
NITRIC ACID (10%)	L	L	U	U	L	S	U	U	S	S	U	L	U	U	S	S	S	U	S	S	S	U	L	U	U	U	U	S	
NITRIC ACID (70%)	U	L	U	U	U	U	U	S	S	U	U	U	U	U	S	U	S	S	S	S	S	U	U	U	U	U	U	S	
OXALIC ACID	L	S	U	L	S	S	U	S	S	L	S	A	L	S	S	S	L	L	S	S	S	U	L	S	S	L	S	S	
OZONE (GAS)	U	S	S	S	L	S	U	S	S	U	L	U	U	U	S	L	S	L	L	L	L	S	U	S	S	S	S	L	
PARAFFIN OIL	S	S	S	S	L	U	S	S	S	S	S	S	S	S	S	L	S	S	L	S	S	U	S	S	S	S	S	S	
PETROL	S	S	S	S	U	U	S	S	S	S	S	S	S	S	S	U	S	S	U	S	S	S	U	S	S	S	S	S	
PHENOL	U	S	L	L	L	S	S	U	S	S	U	U	U	L	U	S	L	L	L	L	L	S	S	S	S	L	L	S	
SEA WATER	S	S	L	S	S	S	U	S	S	L	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	L	S	S	S
SILVER NITRATE	S	S	U	S	S	S	U	S	S	S	S	S	S	S	S	S	S	S	S	S	S	U	S	S	S	S	S	S	
SKYDROL	S	S	S	S	L	L	S	S	S	S	S	A	S	S	U	S	L	U	U	U	S	L	S	S	S	L	S	S	
SODIUM CHLORIDE	S	S	U	S	S	S	U	S	S	L	S	S	S	S	S	S	S	S	S	S	S	U	S	L	S	S	S	S	
SODIUM HYDROXIDE (10%)	S	U	S	S	S	U	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	U	S	S	S	S	S	S	
SODIUM HYDROXIDE (60%)	S	U	U	S	S	S	U	L	S	S	L	S	S	S	S	S	L	L	S	S	U	S	L	L	S	L	S	S	
SULPHUR DIOXIDE (GAS)	U	L	U	L	L	S	U	U	L	U	U	L	U	S	L	S	U	S	S	S	U	S	U	U	L	L	S	S	
SULPHURIC ACID (10%)	U	L	U	U	S	S	U	L	S	U	L	L	U	S	S	L	S	S	S	S	U	L	U	U	U	L	S	S	
SULPHURIC ACID (70%)	U	L	U	U	L	S	U	U	U	U	U	U	U	U	U	L	S	U	S	S	S	U	U	U	U	U	U	S	
TOLUENE	S	S	S	S	U	U	S	U	S	S	S	S	S	S	S	L	S	U	U	U	S	U	S	S	S	S	U	U	
TRANSFORMER OIL	S	S	S	S	L	U	S	S	S	S	S	S	S	S	S	L	S	S	L	S	S	L	S	S	S	S	L	S	
1,1,1-TRICHLOROETHANE	S	S	S	S	U	U	U	S	U	S	S	S	S	S	L	L	L	U	U	U	U	S	S	S	S	U	L	S	
TRICHLOROETHYLENE	L	S	S	S	U	U	U	S	L	U	S	L	S	L	S	L	L	L	U	U	U	U	S	S	S	S	U	U	
TURPENTINE	S	S	S	S	U	U	S	S	S	S	S	S	S	S	S	U	L	L	L	L	S	S	U	S	S	S	L	U	
VEGETABLE OIL	S	S	S	S	S	L	S	S	S	S	S	S	S	S	S	L	S	S	L	S	S	L	S	S	S	S	S	S	
VINYL ACETATE	L	S	S	S	S	U	S	L	S	L	S	L	S	L	S	U	S	U	U	U	U	S	S	S	S	S	U	S	
WATER	S	S	S	S	S	S	U	S	S	S	S	S	S	S	S	S	S	S	S	S	S	U	S	S	S	S	S	S	
WHITE SPIRIT	S	S	S	S	L	U	S	S	S	S	S	S	S	S	S	U	S	L	L	L	S	S	U	S	S	S	L	L	
ZINC CHLORIDE	S	L	U	L	S	S	U	S	S	S	U	S	S	U	S	S	S	S	S	S	S	U	S	S	S	L	L	S	

EN50086 CLASSIFICATIONS

METALLIC SYSTEMS		WITH FITTING	1 COMPRESSION	2 IMPACT	3 MIN. TEMP.	4 MAX. TEMP.	5 BENDING	6 ELECTRICAL	7 SOLID INGRESS (IP)	8 LIQUID INGRESS (IP)	9 CORROSION	10 TENSILE	11 NON-FLAME PROPAGATING	12 SUSPENDED LOAD
S	S	4	4	5	6	4	0	4	0	1	4	1	0	
SS	S	4	4	5	6	4	0	4	0	4	4	1	0	
SP	SP(M)	4	4	2	2	4	2	6	5	0	4	1	0	
SN	SP(M)	4	4	4	5	4	0	6	5	0	4	1	0	
LFH-SP	SP(M)	4	4	2	3	4	0	6	5	0	4	1	0	
SPL	SPL(M)	4	4	2	3	4	2	6	7	0	4	1	0	
SPLE	SPL(M)	4	4	2	3	4	2	6	7	0	4	1	0	
SPLHC	SPL(M)	4	4	5	5	4	0	6	7	0	4	1	0	
SPUL	SPL(M)	4	4	2	3	4	2	6	7	0	4	1	0	
SB	SB	4	4	5	6	4	1	4	0	1	4	1	0	
STC	SB	4	4	5	6	4	1	4	0	1	4	1	0	
SPB	SPB	4	4	2	2	4	3	5	4	0	4	1	0	
SPTC	SPB	4	4	2	2	4	3	5	4	0	4	1	0	
SPLHCB	SPLB	4	4	5	5	4	1	6	7	0	5	1	0	
LSP	LSP(A)	3	4	2	2	2	2	6	7	0	1	1	0	

NON-METALLIC SYSTEMS

PA LIGHT	AL	2	4	2	4	4	0	6	6	0	1	1	0
PA STANDARD	AL	2	4	2	4	4	0	6	6	0	1	1	0
PA MEDIUM	AL	2	4	2	4	4	0	6	6	0	1	1	0
PA HEAVY	AL	2	4	2	4	4	0	6	6	0	1	1	0
PR	AL	2	4	2	4	4	0	6	6	0	1	1	0
PI	AL	1	3	4	4	4	0	6	6	0	1	1	0
PP	AL	2	3	2	3	4	2	6	6	0	2	2	0
PK	PK	2	4	5	6	4	3	6	7	0	3	1	0
PKTC	PB	2	4	5	6	4	3	6	7	0	3	1	0
PKSS	PB	2	4	5	6	4	3	6	7	0	3	1	0
PRTC	PB	2	4	2	4	4	1	6	7	0	3	1	0
PRSS	PB	2	4	2	4	4	1	6	7	0	3	1	0
KFL	KC	2	2	2	1	2	2	4	0	0	1	1	0
KFS	KC	2	3	2	1	2	2	4	0	0	2	1	0
KFM	KC	3	3	2	1	2	2	4	0	0	1	1	0

Information based on nominal 20mm conduit size

PERFORMANCE CLASSIFICATION KEY

CLASSIFICATION LEVEL	COMPRESSION STRENGTH (N)	IMPACT STRENGTH (J)	MINIMUM TEMPERATURE (°C)	MAXIMUM TEMPERATURE (°C)	BENDING	ELECTRICAL PROPERTIES	IP RATING (SOLID INGRESS)	IP RATING (WATER INGRESS)	CORROSION RESISTANCE	TENSILE STRENGTH (N)	NON-FLAME PROPAGATING	SUSPENDED LOAD CAPACITY (N)
0	–	–	–	–	–	Not declared	–	0	N/A	Not declared	–	Not declared
1	125	0.5	5	60	Rigid	Conductor	–	1	Low	100	✓	20
2	320	1	-5	90	Pliable	Insulator	–	2	Medium	250	✗	30
3	750	2	-15	105	Pl/Semi Rigid	Con/Ins	3	3	Med-Hi	500	–	150
4	1250	6	-25	120	Flexible	–	4	4	High	1000	–	450
5	4000	20	-45	150	–	–	5	5	–	2500	–	850
6	–	–	–	250	–	–	6	6	–	–	–	–
7	–	–	–	–	–	–	7	–	–	–	–	–

In 1995/96 the new European standards for flexible and pliable conduit systems (BS EN 50086-2.3 & BS EN 50086-2.2) were published by BSI.

This is the first European standard for such conduit systems and has been written to conform to the Low Voltage Directive (LVD) and the Construction Product Directive (CPD).

EN50086 is a performance standard which identifies key product characteristics (detailed below). For each of these characteristics there are recommended tests with associated performance classifications.

The adjacent table and key allow you to check product suitability in line with the EN50086 performance classifications.

Compression Strength (Performance Classification 1)

Resistance to deformation under compressive load.

Impact Resistance (Performance Classification 2)

Resistance to brittle fracture and deformation under impact.

Minimum Temperature to EN50086 (Performance Classification 3)

The minimum operating temperature defined by the bending classification.

Maximum Temperature to EN50086 (Performance Classification 4)

The maximum operating temperature defined by the bending classification.

Bending to EN50086 (Performance Classification 5)

Flexible and pliable conduits can be bent by hand.

Flexible systems may flex frequently throughout their life and are suitable for both static and dynamic applications.

Pliable systems are intended only for static applications.

Electrical Properties (Performance Classification 6)

Metallic systems defined as electrical conductors or insulators.

System IP Rating to EN50086 (Performance Classifications 7 & 8)

(see definitions on page 39)

The resistance of an assembled system to the ingress of solids and liquids, dependent on the combination of conduit and fittings.

The point of entry into adjoining equipment may require independent sealing to maintain the system IP rating, see sealing washers on page 32.

Corrosion (Performance Classification 9)

Metallic systems defined by their resistance to corrode under exposure to water vapour.

Tensile Strength (Performance Classification 10)

Resistance of a system to a short term tensile load at ambient temperature.

Non-Flame Propagating to EN50086 (Performance Classification 11)

Self-extinguishing within a given time once a fire source is removed.

Suspended Load Capability (Performance Classification 12)

Resistance of a fitting to a high continuous tensile load at maximum temperature.

THREAD DATA, IP RATINGS & CABLE CARRYING CAPACITY

Thread Data

METRIC

Standard thread conforming to EN60423 & BS3643

PG

German Standard thread conforming to DIN40430

PF

Japanese conduit thread conforming to JIS B 0202

NPT

US taper seal pipe thread conforming to ANSI/ASME B1.20.1 – 1983

UNEF

American Unified Thread conforming to BS1580

THREAD SIZE mm	EXT. THREAD OUTSIDE DIAMETER	INT. THREAD INSIDE DIAMETER	PITCH	THREAD SIZE	EXT. THREAD OUTSIDE DIAMETER	INT. THREAD INSIDE DIAMETER	PITCH	THREAD SIZE (inches)	EXT. THREAD OUTSIDE DIAMETER	INT. THREAD INSIDE DIAMETER	PITCH	THREAD SIZE (inches)	EXT. THREAD OUTSIDE DIAMETER	PITCH	THREAD SIZE (inches)	EXT. THREAD OUTSIDE DIAMETER	INT. THREAD INSIDE DIAMETER	PITCH
M8	8.0	6.9	1.0	PG7	12.5	11.3	1.27	¼	–	–	–	¾	16.7	1.14	⅝	15.9	14.7	1.06
M10	10.0	8.9	1.0	PG9	15.2	13.9	1.41	⅜	16.7	–	–	½	21.0	1.81	¾	19.1	17.7	1.27
M12	12.0	10.9	1.0	PG11	18.6	17.3	1.41	½	21.0	18.6	1.81	¾	26.4	1.81	⅞	22.2	20.9	1.27
M16	16.0	14.4	1.5	PG13.5	20.4	19.1	1.41	¾	26.4	24.1	1.81	1	33.3	2.21	1	25.4	24.0	1.27
M18	18.0	16.9	1.0	PG16	22.5	21.2	1.41	1	33.3	30.3	2.31	1¼	41.9	2.21	1⅙	30.2	28.6	1.41
M20	20.0	18.4	1.5	PG21	28.3	26.8	1.59	1¼	41.9	39.0	2.31	1½	47.8	2.21	1¼	31.8	30.2	1.41
M25	25.0	23.4	1.5	PG29	37.0	35.5	1.59	1½	47.8	44.8	2.31	2	59.6	2.21	1⅙	36.5	35.0	1.41
M30	30.0	28.4	1.5	PG36	47.0	45.5	1.59	2	59.6	56.7	2.31				1¾	44.5	42.9	1.41
M32	32.0	30.4	1.5	PG42	54.0	52.5	1.59								2	50.8	49.3	1.41
M40	40.0	38.4	1.5	PG48	59.3	57.8	1.59								2¼	57.2	55.4	1.41
M50	50.0	48.4	1.5															
M63	63.0	61.4	1.5															
M75	75.0	73.4	1.5															

NOTE: Dimensions are nominal & in mm unless otherwise stated.

IP Ratings

The degree of ingress protection is indicated by two digits following the letters IP. The first refers to protection against the ingress of solid objects, the second refers to protection against the ingress of water.

Protection against solids 1st Digit

4	Protection against solid bodies larger than 1mm
5	Protection against dust (no harmful deposits)
6	Complete protection against dust

Example

Adaptalok system is IP66 which provides complete protection against dust and protection against jets of water of similar force to heavy seas.

Protection against water 2nd Digit

0	No protection
4	Protection against projections of water from all directions
5	Protection against jets of water from all directions
6	Protection against jets of water of similar force to heavy seas
7	Protection against ingress of water to a depth of 1 metre

Cable Carrying Capacity

UK wiring regulations, BS7671 recommend that the total cross sectional area of the sum of the individual cables should not exceed 40% of the cross sectional area of the conduit. The nominal cross sectional area of single-core, stranded, PVC insulated cables is provided as a guide only. Other cables may have different dimensions.

NOMINAL CONDUCTOR SIZE (mm²)	NOMINAL OVERALL CROSS SECTIONAL AREA (mm²)
1.0	6.6
1.5	7.6
2.5	9.6
4.0	14.5
6.0	18.8
10.0	29.3
16.0	40.2
25.0	63.8
35.0	83.5
50.0	113.0
70.0	149.0
95.0	204.0

Example: Is SP20 suitable for five 4.0mm² & two 1.5mm² cables?

■ The total cross sectional area of the conductors is $5 \times 14.5\text{mm}^2$ (for 4.0mm² conductors) + $2 \times 7.6\text{mm}^2$ (for 1.5mm² conductors) = 87.7mm^2

■ The cross sectional area of SP20 is $3.142 \times \left[\frac{\text{Inside Diameter}}{2} \right]^2 = 224\text{mm}^2$

■ % of conduit cross sectional area $\left[\frac{(a)}{(b)} \right] \times 100 = 39.1\%$

This is less than 40% therefore this conduit is suitable for this combination of cables.

The easiest way of installing cables into flexible & pliable conduit is to simultaneously draw in the cables with the conduit in straight condition before installation. UK wiring regulations prohibit the use of flexible or pliable conduit as an earthing conductor. Please phone the *Adaptaflex Infoline* for further guidance.

INTERNATIONAL APPROVALS

As a worldwide supplier of conduit systems, Adaptaflex has an expanding portfolio of international approvals obtained from the various organisations indicated below.

The table shows the relevant approvals obtained for each conduit system.

Since approvals are constantly being added, audited & updated, please phone the Adaptaflex Infoline for the latest details.

CONDUIT TYPE	WITH FITTING	KITE MARK BS EN 50086	CE LVD	LLOYDS	UL RU SA	LUL COMPLIANCE
METALLIC SYSTEMS						
S	S	✓	✓	–	–	–
SS	S	✓	✓	–	–	–
SP	SP(M)	✓	✓	–	–	–
SN	SP(M)	✓	✓	–	–	–
LFH-SP	SP(M)	✓	✓	✓	–	FULL
SPL	SPL(M)	✓	✓	✓	UR	–
SPLE	SPL(M)	–	✓	–	–	–
SPLHC	SPL(M)	–	✓	–	–	–
SPUL	–	–	✓	–	UL+CSA	–
SB	SB	✓	✓	–	–	–
STC	SB	✓	✓	–	–	–
SPB	SPB	✓	✓	–	–	–
SPTC	SPB	✓	✓	–	–	–
SPLHCB	SPLB	✓	✓	–	–	–
LSP	LSP	✓	✓	–	–	–

CONDUIT TYPE	WITH FITTING	KITE MARK BS EN 50086	CE LVD	LLOYDS	UL RU SA	NF RT3-903	LUL COMPLIANCE	DNV5510	NFF16-102
NON-METALLIC SYSTEMS									
PA LIGHT	AL	✓	✓	–	UR	–	–	✓	–
PA STANDARD	AL	✓	✓	✓	UR	✓	CONCESSION	✓	I4F3
PA MEDIUM	AL	✓	✓	✓	UR	✓	CONCESSION	✓	I3F2
PA HEAVY	AL	✓	✓	✓	UR	✓	CONCESSION	✓	I3F2
PR	AL	✓	✓	–	UR	–	CONCESSION	✓	I2F2
PI	AL	✓	✓	–	UR	–	–	✓	–
PP	AL	–	✓	–	–	–	–	–	–
PK	PK	✓	✓	–	–	–	FULL	–	I2F1
PKTC	PB	–	✓	–	–	–	FULL	–	I2F1
PKSS	PB	–	✓	–	–	–	FULL	–	I2F1
PRTC	PB	–	✓	–	–	–	CONCESSION	–	I2F2
PRSS	PB	–	✓	–	–	–	CONCESSION	–	I2F2
KFL	KC	16 - 25	✓	–	–	–	–	–	–
KFS	KC	16 - 25	✓	–	–	–	–	–	–
KFM	KC	16 - 25	✓	–	–	–	–	–	–
XF	XF	–	✓	–	–	–	–	–	–

Glossary

Fire Performance

Adaptaflex has introduced a set of symbols to help the user specify conduit systems for installations where fire performance is of particular concern.

Each symbol encompasses a range of properties relevant to the high specification materials used in the construction of the conduit.

They are in an ascending scale of performance from Low Fire Hazard (LFH) featuring zero halogen through to Super Low Fire Hazard (SLFH) featuring zero nitrogen. In addition, Inherent Low Fire Hazard systems (ILFH) are classified as being all metal systems.

For more detailed information on fire performance classifications, see the key on page 35.



LOW
FIRE HAZARD



ENHANCED LOW
FIRE HAZARD



SUPER LOW
FIRE HAZARD



INHERENT LOW
FIRE HAZARD

EMI SCREEN SYSTEMS

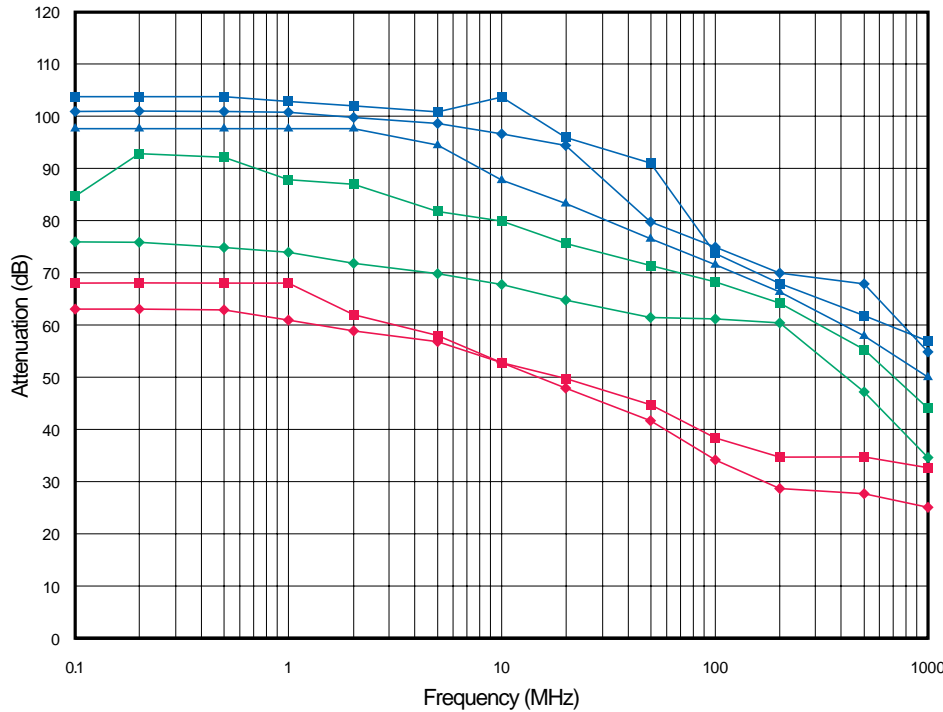
FROM ADAPTALEX

The European Directive on Electromagnetic Compatibility (EMC) 89/336/EEC requires any electrical equipment/ installation to be constructed so that it neither produces Electromagnetic Interference (EMI), sufficient to interfere with radio and telecommunications equipment, nor is itself affected by EMI.

All conduit systems are considered electrically passive since they do not produce or are affected by EMI. However, Adaptaflex has introduced a new range of "Screen Systems" which offer a cost-effective alternative to individually screened cables within applications where cross talk has no adverse effect.

Additionally the user gains the mechanical advantages of a conduit system and a simplified means of modification; e.g. addition, substitution or replacement of cables in an existing cable run.

The graph below shows the results of different types of 20/21mm diameter screened conduit, with its appropriate fittings, tested by ERA Technology, to IEC96/2:93 (Radio frequency cables Part 1). Tests measured attenuation in decibels (dB) over the frequency range covered by the EMC Directive, 0.1 to 1000MHz. The test data allows comparison with other screened conduit systems, and cables tested to IEC 96-1.



- | | | |
|----------------------------|----------------------------|------------------------|
| STANDARD EMI SCREEN | ENHANCED EMI SCREEN | HIGH EMI SCREEN |
| ■ SPLHCB | ■ LSPS | ■ STC |
| ◆ PRSS/PKSS | ◆ SB/SPB | ◆ SPTC |
| | | ▲ PRTC/PKTC |

ADAPTALEX TRADE MARKS

Adaptaflex, Adaptaflex Screen Systems, Adaptaflex Hi-Spec Systems, Adaptalok, Adapting, Adaptaflex, Adaptaflex, Korifit, Stayflex & Xtraflex.

ADAPTALEX PATENTS

Adaptalok fittings; type KF Korifit fittings; type B Adaptaflex fittings; type AWB anti-vibration washer; pending on type ACB/ACG conduit clips.

ERRORS, OMISSIONS & AMENDMENTS EXCEPTED

Information given in this document was correct to the best of our knowledge at the original publication date and is for guidance only.

Adaptaflex is not liable for claims arising from product misuse.

Our policy is one of continuous development and specifications may change at any time.

ACKNOWLEDGEMENTS

Metaltech
Neil Barker
Burton Daily Mail Ltd

EMI Screen Systems

For applications where electromagnetic interference is of particular concern we have classified suitable conduit systems by means of symbols. These are related in an ascending scale of performance from Standard EMI Screen (products featuring a stainless steel overbraid) through to High EMI Screen (products featuring a tinned copper overbraid).

For more detailed information see above.



**STANDARD
EMI SCREEN**



**ENHANCED
EMI SCREEN**



**HIGH
EMI SCREEN**

Fitting Characteristics



**FITTING OR THREAD SWIVELS
INDEPENDENTLY OF CONDUIT
DURING INSTALLATION**



**FITTING ROTATES
INDEPENDENTLY OF THE
CONDUIT TO ACT AS A
ROTATING JOINT WITHIN
CONSTANTLY MOVING
APPLICATIONS**



Approvals may be limited to certain products, see approvals on page 40.

Conduit

TYPES SPB  & SPTC 



Fittings

TYPE A IP54

STRAIGHT FITTING – FIXED EXTERNAL THREAD
for insertion into knockouts using a locknut



TYPE B IP54

STRAIGHT FITTING – SWIVEL EXTERNAL THREAD
for insertion into threaded entries & knockouts



TYPE SPB PART NUMBER	TYPE SPTC PART NUMBER	OUTSIDE DIAMETER, mm	INSIDE DIAMETER, mm	MINIMUM BEND RADIUS, mm
SPB10	SPTC10	11.0	6.8	25
SPB12	SPTC12	15.0	10.3	25
SPB16	SPTC16	18.5	13.0	30
SPB20	SPTC20	22.5	16.9	35
SPB25	SPTC25	28.0	21.4	55
SPB32	SPTC32	36.0	28.1	60
SPB40	SPTC40	45.5	37.7	80
SPB50	SPTC50	57.5	48.4	90

THREAD	PART NUMBER
PG7	SPB10/PG7/A
M16	SPB12/M16/A
M16	SPB16/M16/A
M20	SPB20/M20/A
M25	SPB25/M25/A
M32	SPB32/M32/A
M40	SPB40/M40/A
M50	SPB50/M50/A

METRIC THREAD	PART NUMBER	PG THREAD	PART NUMBER
M10	SPB10/M10/B	PG7	SPB10/PG7/B
M16	SPB12/M16/B	PG9	SPB12/PG9/B
M16	SPB16/M16/B	PG11	SPB16/PG11/B
M20	SPB20/M20/B	PG16	SPB20/PG16/B
M25	SPB25/M25/B	PG21	SPB25/PG21/B
M32	SPB32/M32/B	PG29	SPB32/PG29/B
M40	SPB40/M40/B	PG36	SPB40/PG36/B
M50	SPB50/M50/B	PG42	SPB50/PG42/B

- See pages 34 - 41 for Technical details
- See pages 31 - 33 for Cutting Tools and Accessories
- See page 5 for P-Clip Conduit Support
- Minimum bend radius is minimum inside bend radius in static mode

Overbraided flexible systems can contribute significantly to the EMI screen requirements of installations covered by the EMC Directive, in addition to providing enhanced resistance to abrasion & mechanical damage, e.g. in the vicinity of metal machining or welding equipment.

Type SB is widely used in dry, high temperature environments whilst Type STC additionally offers a high level of EMI screen.

Type SPB adds weatherproofing and ingress protection to general applications whilst Type SPTC additionally meets high EMI screen specifications.

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