



Connect and Protect

TransTechnical Solutions

Technical Data Sheet

Non-Metallic Systems

CS90 – 90° Swivel External Male Thread Elbow Fitting

Technical Characteristics

Conforms to	BSI Kitemark KM-35161 Low voltage directive Lloyds Register of Shipping(Type Approval) NFF 16-10/12 I4, F2		
Approvals and Standards	   		
Degree of mechanical protection	High Impact Resistance		
Degree of protection	IP66 - As standard IP67 - When fitted with ALS Seal IP68 - When fitted with ALS Seal (1.1 Bar 35 mins) IP69K - When fitted with ALS Seal		ALS SEAL 
UV protection	Very High		
Fitting Characteristics		Straight fitting - Fixed external male thread Black (BL)	
Application	For insertion into threaded entries & knockouts using a locknut to secure		
Normal operating temperature range	Application	Min Temp	Max Temp
	Static	- 50°C	+120°C
	Dynamic	- 45°C	+120°C
For use with - Conduit Series	Light, Standard and Heavyweight variants of type PA, PI, PR, PADL & PF		
Fire performance	Test Standard	Performance Rating	
	BS EN 61386	Approved	
	NFF16-101	I2 F4	
	ISO 4589-2	24%	
	BS EN 60695-2-11	850°C	
	UL94	HB	
	<i>Self Extinguishing Low smoke & Halo- gen Free</i>		
Chemical resistance & Storage data	See page 4 & 5		
Type of material	Polyamide (Nylon) 66 Body - Nickel plated brass thread		

Image



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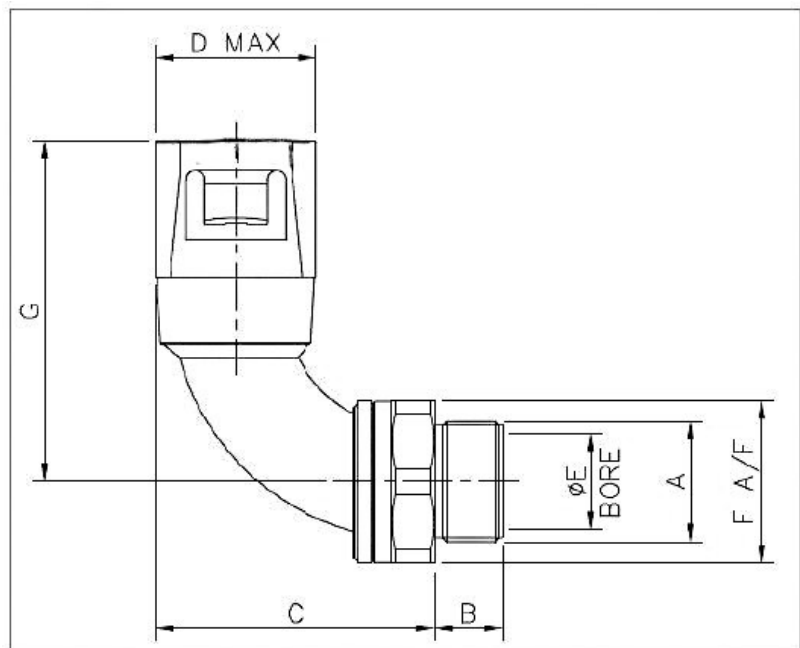
CS90 – 90° Swivel External Male Thread Elbow Fitting

Dimensional and Thread Data - M Thread

Part No Black Body Metric Threads	Thread A	Nominal Dimensions (mm)						Weight in grams (Each)
		B	C	D	E	F	G	
TAL13/M16/CS90/BL	M16x1.5	12	45.4	21.2	11.2	24	53.2	33
TAL16/M16/CS90/BL	M16x1.5	12	46	23.8	11.2	24	55	34
TAL21/M20/CS90/BL	M20x1.5	11.2	46.8	29.1	15.2	27	56.9	41
TAL28/M25/CS90/BL	M25x1.5	12.2	56.8	36.8	19.1	34	65	72
TAL34/M32/CS90/BL	M32x1.5	17	68.8	43.2	26.4	42	74.2	112
TAL42/M40/CS90/BL	M40x1.5	18	85.8	54	35	54	92.5	150
TAL54/M50/CS90/BL	M50x1.5	16	108.6	66.8	45	70	115	293
TAL54/M63/CS90/BL	M63x1.5	16	108.6	66.8	45	70	115	305

Metric	Standard thread conforming to EN60423 & BS3643		
Thread Size	Ext Thread Outside Diameter	Int Thread Inside Diameter	Pitch
M12	12mm	10.9mm	1.5mm
M16	16mm	14.4mm	1.5mm
M20	20mm	18.4mm	1.5mm
M25	25mm	23.4mm	1.5mm
M32	32mm	30.4mm	1.5mm
M40	40mm	38.4mm	1.5mm
M50	50mm	48.4mm	1.5mm
M63	63mm	61.4mm	1.5mm

NOTE: Dimensions are nominal



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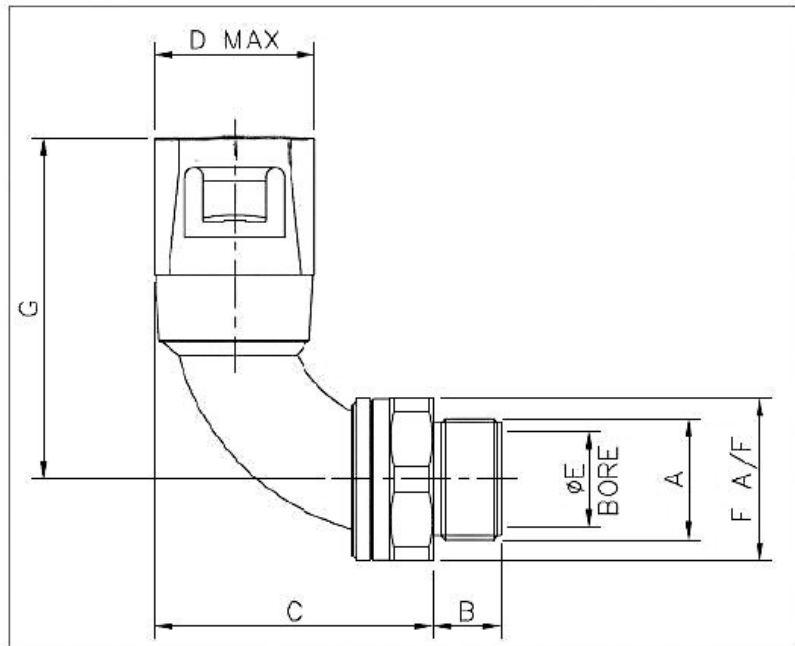
Non-Metallic Systems

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Dimensional and Thread Data - PG Threads (On Request)

Part No Black Body PG Threads	Thread A	Nominal Dimensions (mm)						Weight in grams (Each)
		B	C	D	E	F	G	
TAL13/PG9/CS90/BL	PG9	8.5	42.5	21.2	11.2	24	53.2	33
TAL16/PG11/CS90/BL	PG11	10	46	23.8	11.2	24	55	38
TAL21/PG13/CS90/BL	PG13.5	10	46.8	29.1	15.7	27	56.9	46
TAL21/PG16/CS90/BL	PG16	11.2	46.8	29.1	17.7	27	56.9	46
TAL28/PG21/CS90/BL	PG21	11.5	56.8	36.7	22.5	34	65	74
TAL34/PG29/CS90/BL	PG29	12.2	38.8	43.5	28.9	42	74.2	112
TAL42/PG36/CS90/BL	PG36	12.2	85.8	54	38	52	92.5	160
TAL54/PG48/CS90/BL	PG48	12.2	108.6	66.8	51	70	115	303

PG	German Standard Thread Conforming to DIN40430		
Thread Size	Ext Thread Outside Diameter	Int Thread Inside Diameter	Pitch
PG7	12.5mm	11.3mm	1.27mm
PG9	15.2mm	13.9mm	1.41mm
PG11	18.6mm	17.3mm	1.41mm
PG13.5	20.4mm	19.1mm	1.41mm
PG16	22.5mm	21.2mm	1.41mm
PG21	28.3mm	26.8mm	1.59mm
PG29	37mm	35.5mm	1.59mm
PG36	47mm	45.5mm	1.59mm
PG48	59.3mm	57.8mm	1.59mm



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BS EN 61386 Classification

Fitting	Compression	Impact	Min temp	Max temp	Bending	Electrical	IP solids	IP water	Corrosion	Tensile	Non-flame Propagating	Suspended load
TAL	N/A	4	2	4	N/A	0	6	6	0	1	1	0

Mechanical Properties

Test Type	Methods / Standards	Requirements	Value
Tensile Strength	IEC61386-1	2 mins at Specified Value (TPAFS21 Conduit)	Class 1
Tensile Strength		Ultimate Pullout (TPAFS21 Conduit)	240N
Impact Strength @ -45°C	IEC61386-1	No visible damage	Class 1
Impact Strength @ -5°C	IEC61386-1	No visible damage	Class 3
Impact Strength @ 23°C	IEC61386-1	No visible damage	Class 5

Tensile Tests to IEC 61386 gives the minimum classification value only. Actual values will depend on the type and size of the fittings used and will always be greater than the minimum – Impact strength is the minimum classification value at the minimum temperature – actual

Thermal Properties

Test Type	Methods / Standards	Requirements	Value
Dynamic Applications		5000 Operations at MBR 2hrs	-45°C to +120°C
Static Short Term Temp	IEC 61386-23	Temporary Use (3000hrs)	-50°C to +120°C
Static Long Term Temp		Permanent Use (30,000) Hours	-40°C to +105°C

Flammability

Test Type	Method / Standard	Requirement	Result	Unit
Glow Wire	BS EN 60695-2-11	Extinguish within 30s	850°C	°C
Flammability	IEC 61386-1-12	1Kw Burner Flame to Self Extinguish	Pass	Pass/Fail
Oxygen Index	ISO 4589-2		24.1	%
Ignition Rating	NF F16-101	I Rating	I4	-

Smoke

Test Type	Method / Standard	Requirement	Result	Unit
Fume Rating	NF F16-101	F Rating	F2	-

Toxicity

Test Type	Method / Standard	Requirement	Result	Unit
Halogen Free	NFX 70-100	< 0.5%	Pass	Pass/Fail

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Pre Test Conditions

Duration	Standard	Temperature	Relative Humidity
168 (Hours)	IEC61386	23 (°C)	50 (%)

Chemical Resistance Chart

Key:		Astm No.1		Diesel oil		Methyl Bromide		Sulphur Dioxide (Gas)
		Astm No.2		Diethylamine		MEK		Sulphuric Acid (10%)
Suitable :		Astm No.3		Ethanol		Nitric Acid (10%)		Sulphuric Acid (70%)
		Acetic Acid (10%)		Ether		Nitric Acid (70%)		Toluene
Limited Suitability :		Acetone		Ethylamine		Oxalic Acid		Transformer Oil
		Aluminium Chloride		Ethylene Glycol		Ozone (Gas)		1,1,1-Trichloroethane
Unsuitable :		Aniline		Ethyl Ethanoate		Paraffin oil		Trichloroethylene
		Benzaldehyde		Freon 32		Petrol		Turpentine
Not Tested :		Benzene		Hydrochloric Acid (10%)		Phenol		Vegetable Oil
		Carbon tetrachloride		Hydrochloric Acid (36%)		Sea Water		Vinyl Acetate
		Chlorine water		Hydrogen Peroxide (35%)		Silver Nitrate		Water
		Chloroform		Hydrogen Peroxide (87%)		Skydrol		White Spirit
		Citric Acid		Lactic Acid		Sodium Chloride		Zinc Chloride
		Copper Sulphate		Lubricating oil		Sodium Hydroxide (10%)		
		Cresol		Methanol		Sodium Hydroxide (60%)		

ADHERENCE TO THE CURRENT WIRING REGULATIONS BS7671 OR NEC WIRING REGULATIONS (FOR USA) IS STRONGLY ADVISED.

MINIMUM BEND RADIUS FOR FLEXING IS DEPENDANT UPON MINIMUM TEMPERATURE, BENDING FREQUENCY AND CHEMICAL ENVIRONMENT.

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