

Non-Metallic Systems

ATS - Type CSF90 - Yellow Elastomer



Technical Characteristics


Conforms to	BSI Kitemark KM-35161 CE Low voltage directive Lloyd's Register of Shipping (Type Approval) NF 16-10/12 I4, F2 CEI 11170 LR3 / LR4
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Approvals and Standards	    
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Degree of mechanical protection	High Impact Resistance
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Degree of protection	IP66 - As standard IP67 - As standard IP68 - As standard (4 bar 30 mins) IP69k - As standard
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UV protection	Very High
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Fitting Characteristics	 90° Elbow swivel fitting - Integrated Seal System Swivel internal female thread (Locknut supplied with METRIC threads only)
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Application	For insertion into knockouts & threaded entries using a locknut to secure
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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
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Fire performance	Test Standard	Performance Rating
	BS EN 61386-1 & 23	Approved
	NFF16-101	I4 F2
	ISO 4589-2	24%
	BS EN 60695-2-11	850°C
	UL94	HB

**Self Extinguishing
Low Smoke & Halogen
Free**

Testing data	Click or See pages 4 & 5
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Type of material	Polyamide (Nylon) 66 body, TPE Seal
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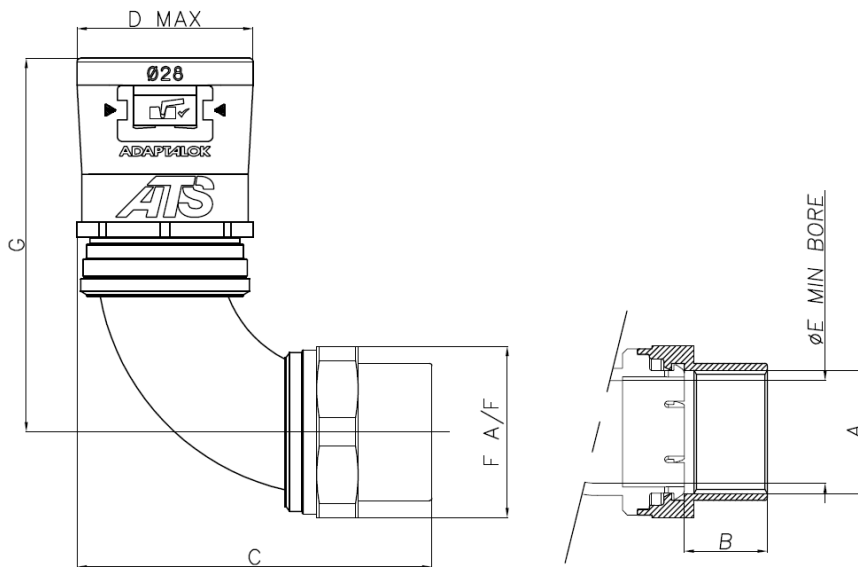
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Dimensional & Thread Data

Part No Black Body Metric Threads	Part No Grey Body Metric Threads	Thread A	Nominal Dimensions (mm)					
			B	C	D	E	F	G
AT13/M16/CSF90/BLY	AT13/M16/CSF90/GRY	M16x1.5	12.0	56.3	21.2	11.0	24.0	65.2
AT16/M16/CSF90/BLY	AT16/M16/CSF90/GRY	M16x1.5	12.0	56.3	23.2	11.0	24.0	65.2
AT21/M20/CSF90/BLY	AT21/M20/CSF90/GRY	M20x1.5	13.0	60.7	30.2	16.1	27.0	70.0
AT28/M25/CSF90/BLY	AT28/M25/CSF90/GRY	M25x1.5	15.0	72.6	37.2	20.8	34.0	76.4
AT34/M32/CSF90/BLY	AT34/M32/CSF90/GRY	M32x1.5	15.0	85.6	44.2	28.8	42.0	86.4
AT42/M40/CSF90/BLY	AT42/M40/CSF90/GRY	M40x1.5	17.0	105.5	54.2	38.3	52.0	104.7
AT48/M50/CSF90/BLY	AT48/M50/CSF90/GRY	M50x1.5	16.5	128.7	65.0	43.0	70.0	127.6
AT54/M50/CSF90/BLY	AT54/M50/CSF90/GRY	M50x1.5	16.5	128.7	66.2	43.6	70.0	127.6
AT54/M63/CSF90/BLY	AT54/M63/CSF90/GRY	M63x1.5	17.0	128.7	66.2	43.6	70.0	127.6

Metric	Standard thread conforming to EN60423 & BS3643			
	Thread Size	Ext Thread Outside Diameter	Int Thread Inside Diameter	Pitch
M16	16.0mm	14.4mm	1.5mm	
M20	20.0mm	18.4mm	1.5mm	
M25	25.0mm	23.4mm	1.5mm	
M32	32.0mm	30.4mm	1.5mm	
M40	40.0mm	38.4mm	1.5mm	
M50	50.0mm	48.4mm	1.5mm	
M63	63.0mm	61.4mm	1.5mm	



NOTE: Dimensions are nominal

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Non-Metallic Systems

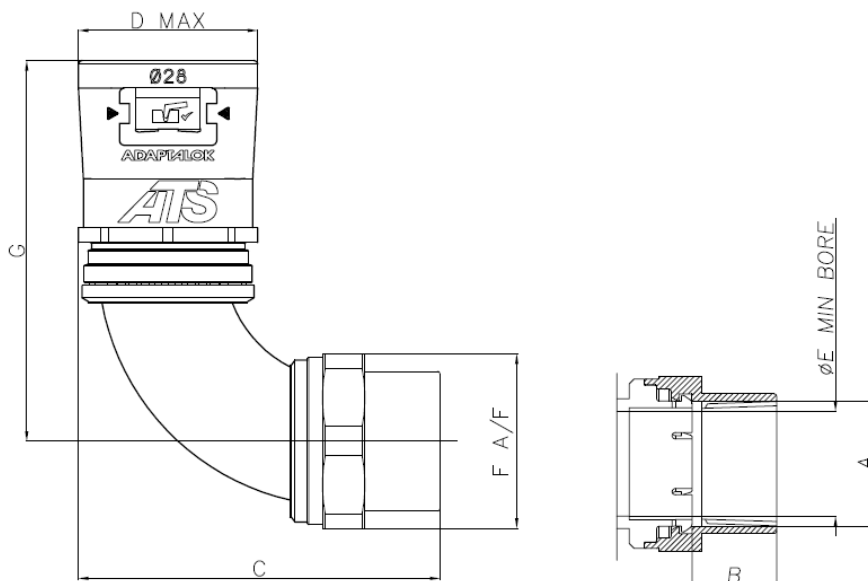
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Dimensional & Thread Data

Part No Black Body NPT Threads	Part No Grey Body NPT Threads	Thread A	Nominal Dimensions (mm)					
			B	C	D	E	F	G
AT13/038/CSF90/BLY	AT13/038/CSF90/GRY	NPT $\frac{3}{8}$ "	12.7	56.3	21.2	10.0	24.0	65.2
AT16/038/CSF90/BLY	AT16/038/CSF90/GRY	NPT $\frac{3}{8}$ "	12.7	56.3	23.2	11.0	24.0	65.2
AT21/050/CSF90/BLY	AT21/050/CSF90/GRY	NPT $\frac{1}{2}$ "	12.7	60.7	30.2	15.0	27.0	70.0
AT28/075/CSF90/BLY	AT28/075/CSF90/GRY	NPT $\frac{3}{4}$ "	13.5	72.6	37.2	19.8	34.0	76.4
AT34/100/CSF90/BLY	AT34/100/CSF90/GRY	NPT1"	17.5	85.6	44.2	26.5	42.0	86.4
AT42/125/CSF90/BLY	AT42/125/CSF90/GRY	NPT1 $\frac{1}{4}$ "	19.0	105.5	54.2	33.8	52.0	104.7
AT48/150/CSF90/BLY	AT48/150/CSF90/GRY	NPT1 $\frac{1}{2}$ "	24.3	113.0	65.0	43.0	70.0	123.0
AT54/200/CSF90/BLY	AT54/200/CSF90/GRY	NPT2"	24.3	128.7	66.2	43.8	70.0	127.6

NPT	US taper seal pipe thread conforming to ANSI/ASME B1.20.1-1983	
Thread Size	Ext Thread Outside Diameter	Pitch
3/8"	16.7	1.14mm
1/2"	21.0	1.81mm
3/4"	26.4	1.81mm
1"	33.3	2.21mm
1 1/4"	41.9	2.21mm
1 1/2"	47.8	2.21mm
2"	59.6	2.21mm



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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 Propogating	Suspended load
ATS	N/A	4	2	4	N/A	0	6	7	0	1	1	0

Mechanical Properties

Test Type	Methods / Standards	Requirements	Value
Tensile Strength	IEC61386-1	2 mins at Specified Value (<i>PAFS21 Conduit</i>)	Class 1
Tensile Strength		Ultimate Pullout (<i>PAFS21 Conduit</i>)	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 values will depend on size and temperature. Specific values available on request.

Thermal Properties

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

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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 - Nylon Body	ISO 4589-2		24.1	%
Ignition Rating - Nylon Body	NF F16-101	I Rating	I4	-
Oxygen Index - Elastomer Seal	ISO 4589-2		20.2	%
Ignition Rating - Elastomer Seal	ISO 4589-2	I Rating	I4	-

Smoke

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

Toxicity

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

Pre Test Conditions

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

Chemical Resistance Chart

Key:	●	●	●	●
Suitable :	●	●	●	●
Limited Suitability :	●	●	●	●
Unsuitable :	●	●	●	●
Not Tested :	●	●	●	●

● Astm No.1	● Diesel oil	● Methyl Bromide	● Sulphur Dioxide (Gas)
● Astm No.2	● Diethylamine	● MEK	● Sulphuric Acid (10%)
● Astm No.3	● Ethanol	● Nitric Acid (10%)	● Sulphuric Acid (70%)
● Acetic Acid (10%)	● Ether	● Nitric Acid (70%)	● Toluene
● Acetone	● Ethylamine	● Oxalic Acid	● Transformer Oil
● Aluminium Chloride	● Ethylene Glycol	● Ozone (Gas)	● 1,1,1-Trichloroethane
● Aniline	● Ethyl Ethanoate	● Paraffin oil	● Trichloroethylene
● Benzaldehyde	● Freon 32	● Petrol	● Turpentine
● 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%)	

All Values Based on Size 21 Fittings and PAFS Conduit, For Other Sizes and Conduit Systems Please Consult

The information above is given as a guide only and is based on published technical data and experience. The chemical resistance of the above products is dependant on factors such as chemical exposure, concentration of the chemical and temperature. The above chemicals are valid for a temperature of 23°C. Use of the above table is at the users own discretion and risk. Those using it must satisfy themselves that their application presents no health and safety risks. The end user should assess compatibility with their application and contact Thomas & Betts for further information.

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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