

# SYTRONIC Kabel GmbH

## Coaxial Signal Cable

- SAT/CATV-CABLE 75 Ohms - HD/TV - Class A+
- VIDEO-CABLE 75 Ohms - CCTV - SDI/HD
- LOW LOSS SERIES 50 Ohms - (Mobil-) Radiation
- RG-Standard-CABLE - in the style of MIL-C-17
- MULTIMEDIA-CABLE - FIBRE + CAT + KOAX
- AUDIO-CABLE

MADE IN GERMANY





Dear Customer,

Since 1981 the **SYTRONIC** Kabel GmbH has been manufacturing high-quality coaxial cables in Unna. The continued existence in an exceedingly difficult market environment confirms us in our business strategy to be in a position to supply our customers within the shortest possible time with high-quality cables which are favourable in price.

The enlargement of our product programme is for us an opportunity to present you our new Catalogue. On the following pages you will see a survey of our performance range. This includes an extensive selection of cables for aerials, video, multimedia and audio purposes. In addition we are in a position to take care quite individually of your wishes in the framework of our specialized cable manufacturing sector.

We should like to make use of this opportunity to thank you for the agreeable cooperation and your trust in us shown by you. We sincerely trust that we can continue in this way also in the future and can expand on that.

Your **SYTRONIC** - Team

**SAT/CATV - CABLE**

**PROFESSIONAL - SERIES**

**DIGITAL - SERIES**

**HQ – DIGITAL - SERIES**

**SAT/CATV - ACCESSORY**

**MULTIMEDIA - CABLE**

**VIDEO - CABLE**

**CCTV/INSTALL - SERIES**

**DIGITAL/SDI-HD - SERIES**

**VIDEO - ACCESSORY**

**RG - CABLE**

**LOW LOSS-50 OHMS- SERIES**

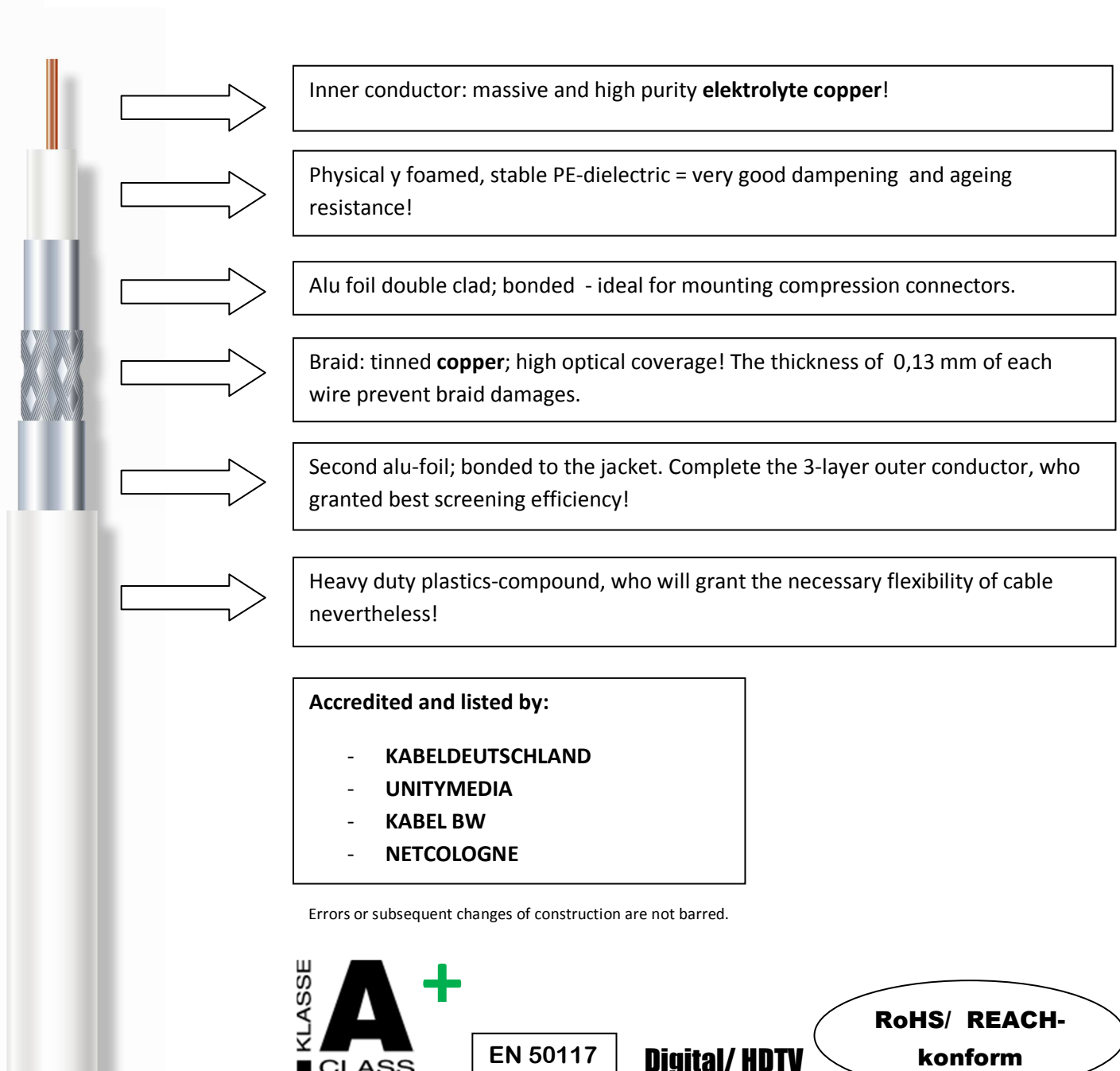
**RG STANDARD - SERIES**

**SPEAKER - CABLES**

# SAT/CATV HIGH PERFORMANCE – COAXIAL CABLE

## AKZ 3-S SERIES A + – 75 Ohms

These high class cables are especially developed for professional use. Thereby we attached importance on a very good handling in conjunction with first class electrical and mechanical properties. With the *professional series A+* we can offer the right product for each application.



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Massive copper

RoHS  
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Digital/ HDTV

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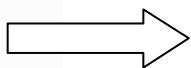
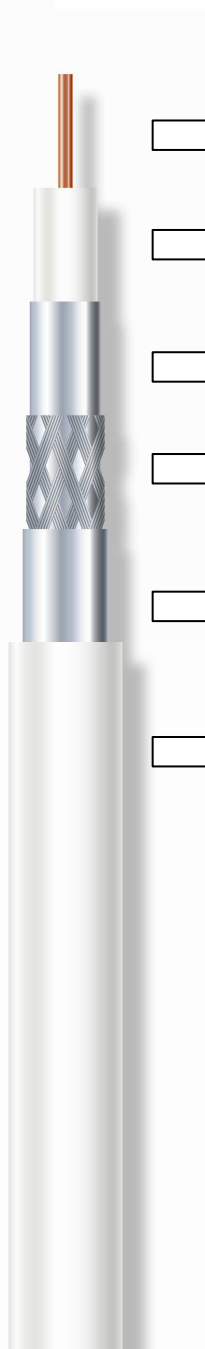
	<b>75100 AKZ 3-S</b> RG 6 (1.0/4.6) A+		
<b>Construction</b>			
Inner conductor	1.0 mm Copper bare		
Insulation	4.6 mm Cell PE +/- 0.1		
Outer Conductor			
a) Alu-foil	bonded		
b) Copper-braid tinned	approx.. 65%		
c) Alu-foil	bonded		
Jacket	6.8 mm PVC +/- 0.2		
<b>Electrical properties</b>			
Characteristic impedance ( $\Omega$ )	75 +/-3		
Capacity (pF/m)	55		
Velocity (v/c)	0,85		
Attenuation at 20°C (dB 100m)			
100 MHz	6,1		
200 MHz	8,7		
450 MHz	13,7		
800 MHz	18,5		
1000 MHz	20,5		
1350 MHz	23,0		
1750 MHz	25,6		
2050 MHz	29,4		
2400 MHz	31,9		
Shield dampening (dB)			
30 - 1000 MHz	>110		
1000 - 3000 MHz	>100		
Return loss (dB)			
30 - 470 MHz	>28		
470 - 1000 MHz	>27		
1000 - 2000 MHz	>25		
2000 - 3000 MHz	>20		
Coupling resistance (m $\Omega$ /m)			
5 MHz	<1,0		
30 MHz	<0,15		
<b>Mechanical properties</b>			
Minimum bending radius (mm)	50		
Cable weight (kg/km)	+/- 48		
Copper weight (kg/km)	+/- 17		
Suitable F-compression connectors	CC CX3 4.9		



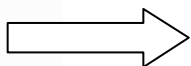
# SAT/CATV HIGH PERFORMANCE – COAXIAL CABLE

## AKZ 3-S SERIES A – 75 Ohms

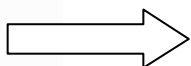
These high class cables are especially developed for professional use. Thereby we attached importance on a very good handling in conjunction with first class electrical and mechanical properties. With the *professional series A+* we can offer the right product for each application.



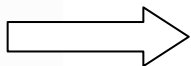
Inner conductor: massive and high purity **elektrolyte copper!**



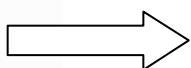
Physical foamed, stable PE-dielectric = very good dampening and ageing resistance!



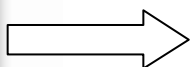
Alu foil; bonded - ideal for mounting compression connectors.



Braid: tinned **Copper**; high optical coverage!



Second double clad alu-foil. Complete the 3-layer outer conductor, who granted best screening efficiency!



Heavy duty plastics-compound, who will grant the necessary flexibility of cable nevertheless!

Errors or subsequent changes of construction are not barred.



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	75065 AKZ 3-S Mini (0.7/2.9)- 100 dB	75080 AKZ 3-S RG 59 (0.8/3.6) -90 dB	75100 AKZ 3-S RG 6 (1.0/4.6) -115 dB	75100 AKZ 3-S RG 6 (1.0/4.6) -115 dB
<b>Construction</b>				<b>Halogenfree</b>
Inner conductor	0.65 mm Copper bare	0.8 mm Copper bare	1.0 mm Copper bare	1.0 mm Copper bare
Insulation	2.9 mm Cell PE +/- 0.1	3.6 mm Cell PE +/- 0.1	4.6 mm Cell PE +/- 0.1	4.6 mm Cell PE +/- 0.1
Outer Conductor				
a) Alu-foil	bonded	bonded	bonded	bonded
b) Copper-braid tinned	approx. 65%	approx. 60%	approx. 65%	approx. 65%
c) Alu-foil	✓	✓	✓	✓
Jacket	4.6 mm PVC +/- 0.2	5.6 mm PVC +/- 0.2	6.8 mm PVC +/- 0.2	6.8 mm HM4 +/- 0.2
<b>Electrical properties</b>				
Characteristic impedance (Ω)	75 +/-3	75 +/-3	75 +/-3	75 +/-3
Capacity (pF/m)	55	55	55	55
Velocity (v/c)	0,85	0,85	0,85	0,85
Attenuation at 20°C (dB 100m)				
100 MHz	8,8	7,2	6,69	6,69
200 MHz	15,1	11,8	9,30	9,30
450 MHz	21,2	17,8	14,1	14,1
800 MHz	28,0	24,6	18,4	18,4
1000 MHz	31,0	28,7	22,2	22,2
1350 MHz	36,9	33,2	25,0	25,0
1750 MHz	42,5	38,6	29,6	29,6
2050 MHz	46,3	42,9	33,3	33,3
2400 MHz	51,9	47,3	36,0	36,0
Shield dampening (dB)				
30 - 1000 MHz	>100	>90	>120	>120
1000 - 3000 MHz	>95	>85	>115	>115
Return loss (dB)				
30 - 470 MHz	>25	>22	>30	>30
470 - 1000 MHz	>22	>22	>29	>29
1000 - 2000 MHz	>17	>20	>27	>27
2000 - 3000 MHz	>14	>19	>20	>20
Coupling resistance (mΩ/m)				
5 MHz	<3,5	<5,0	<4,5	<4,5
30 MHz	<0,1	<0,2	<0,5	<0,5
<b>Mechanical properties</b>				
Minimum bending radius (mm)	45	50	50	50
Cable weight (kg/km)	+/- 30	+/- 41	+/- 46	+/- 46
Copper weight (kg/km)	+/- 9	+/- 15	+/- 17	+/- 17
Suitable F-compression connectors	CC F 60 CX3 Mini 4.5	CC CX356 3.9	CC CX3 4.9	CC CX3 4.9

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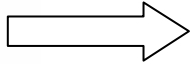
	<b>75100 AKZ 3-S</b> RG 6 (1.0/4.6) 115 dB	<b>75160 AKZ 3-S</b> RG 11 (1.6/7.3)100 dB	
<b>Construction</b>	PE – ground-/outdoor	PE – ground-/outdoor	
Inner conductor	1.0 mm Copper bare	1.6 mm Copper bare	
Insulation	4.6 mm Cell PE +/- 0.1	7.3 mm Cell PE +/- 0.1	
Outer Conductor			
a) Alu-foil	Bonded	Bonded	
b) Copper-braid tinned	approx. 65%	approx. 55%	
c) Alu-foil	√	√	
Jacket	6.8 mm PE +/- 0.2	10.3 mm PE +/- 0.2	
<b>Electrical properties</b>			
Characteristic impedance (Ω)	75 +/-3	75 +/-3	
Capacity (pF/m)	55	55	
Velocity (v/c)	0,85	0,81	
Attenuation at 20°C (dB 100m)			
100 MHz	6,69	4,1	
200 MHz	9,30	6,9	
450 MHz	14,1	9,6	
800 MHz	18,4	12,6	
1000 MHz	22,2	14,8	
1350 MHz	25,0	18,3	
1750 MHz	29,6	21,1	
2050 MHz	33,3	23,9	
2400 MHz	36,0	27,1	
Shield dampening (dB)			
30 – 1000 MHz	>120	>100	
1000 – 3000 MHz	>115	>95	
Return loss (dB)			
30 - 470 MHz	>30	>23	
470 - 1000 MHz	>29	>21	
1000 - 2000 MHz	>27	>20	
2000 – 3000 MHz	>20	>19	
Coupling resistance (mΩ/m)			
5 MHz	<4,5	<3,0	
30 MHz	<0,5	<0,1	
<b>Mechanical properties</b>			
Minimum bending radius (mm)	50	110	
Cable weight (kg/km)	+/- 46	+/-101	
Copper weight (kg/km)	+/- 17	+/- 39	
Suitable F-compression connectors	CC CX3 4.9	CC CX3 10.5	



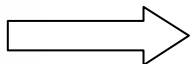
## SAT/CATV DIGITAL – COAXIAL CABLE

# AFZ 2-S SERIES – 75 Ohms

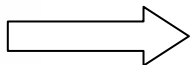
The cables of „DIGITAL SERIES“ cover all requirements which are made on a antenna cable currently. Thereby they are very robust but nevertheless relatively flexible, which is good for a trouble-free installation. Ideal appropriate to the end user.



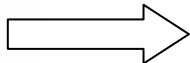
Inner conductor: massive and high purity **elektrolyte copper!**



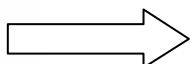
Physical foamed, stable PE-dielectric = very good dampening and ageing resistance!



Alu foil double clad.



Braid: tinned **Copper**; high optical coverage! The thickness of 0,13mm of each wire prevent braid damages .



Heavy duty PVC-compound, who will grant the necessary flexibility of the cable nevertheless!

Errors or subsequent changes of construction are not barred.

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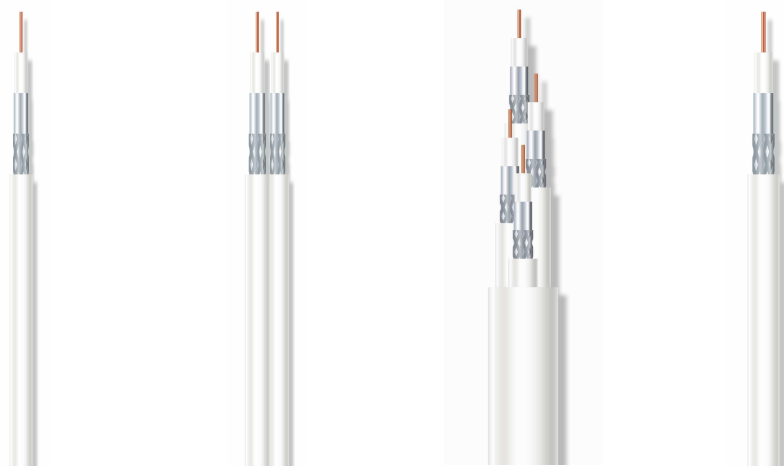
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	<b>75065 AFZ</b> Mini (0.7/2.9) 90 dB	<b>75065 AFZ TWIN</b> Mini (2x0.7/2.9) 90 dB	<b>75065 AFZ Quattro</b> Mini (4x0.7/2.9)	<b>75080 AFZ</b> RG 59 (0.8/3.6) 90 dB
<b>Construction</b>				
Inner conductor	0.65 mm Copper bare	0.65 mm Copper bare	0.65 mm Copper bare	0.8 mm Copper bare
Insulation	2.9 mm Cell PE +/- 0.1	2.9 mm Cell PE +/- 0.1	2.9 mm Cell PE +/- 0.1	3.6 mm Cell PE +/- 0.1
Outer Conductor				
a) Alu-foil	✓	✓	✓	✓
b) Copper-braid tinned	approx. 90%	approx. 90%	approx. 90%	approx. 90%
c) Alu-foil				
Jacket (complete)	4.6 mm PVC +/- 0.2	9x4,6 mm PVC +/- 0.2	12,6 mm PVC +/- 0.3	5.6 mm PVC +/- 0.2
<b>Electrical properties</b>				
Characteristic impedance (Ω)	75 +/-3	75 +/-3	75 +/-3	75 +/-3
Capacity (pF/m)	55	55	55	55
Velocity (v/c)	0,85	0,85	0,85	0,85
Attenuation at 20°C (dB 100m)				
100 MHz	8,8	8,8	8,8	7,2
200 MHz	15,1	15,1	15,1	11,8
450 MHz	21,2	21,2	21,2	17,8
800 MHz	28,0	28,0	28,0	24,6
1000 MHz	31,0	31,0	31,0	28,7
1350 MHz	36,9	36,9	36,9	33,2
1750 MHz	42,5	42,5	42,5	38,6
2050 MHz	46,3	46,3	46,3	42,9
2400 MHz	51,9	51,9	51,9	47,3
Shield dampening (dB)				
30 - 1000 MHz	>90	>90	>90	>90
1000 - 3000 MHz	>90	>90	>90	>90
Return loss (dB)				
30 - 470 MHz				
470 - 1000 MHz				
1000 - 2000 MHz				
2000 - 3000 MHz				
Coupling resistance (mΩ/m)				
5 MHz				
30 MHz				
<b>Mechanical properties</b>				
Minimum bending radius (mm)	45	45	110	45
Cable weight (kg/km)	+/- 29	+/- 58	+/- 145	+/-40,5
Copper weight (kg/km)	+/- 12,5	+/- 25	+/- 50	+/- 14,5
Suitable F-compression connectors	CC F 60 CX3 Mini 4.5	CC F 60 CX3 Mini 4.5	CC F 60 CX3 Mini 4.5	CC CX356 3.9

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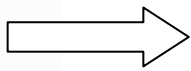
	75110 AFZ 1 GHz RG 6 (1.1/4.8) 90 dB	75110 AFZ 3 GHz RG 6 (1.1/4.8) 90 dB	75160 AF RG 11 (1.6/7.3) 90 dB
<b>Construction</b>			
Inner conductor	1.10 mm Copper bare	1.10 mm Copper bare	1.6 mm Copper bare
Insulation	4.8 mm Cell PE +/- 0.1	4.8 mm Cell PE +/- 0.1	7.3mm Cell PE +/- 0.1
Outer Conductor			
a) Alu-foil	√	√	√
b) Copper-braid tinned	approx. 75%	approx. 90%	approx. 90%
c) Alu-foil			
Jacket	6,8 mm PVC +/- 0.2	6.8 mm PVC +/- 0.2	10,3 mm PVC +/- 0.2
<b>Electrical properties</b>			
Characteristic impedance (Ω)	75 +/-3	75 +/-3	75 +/-3
Capacity (pF/m)	55	55	55
Velocity (v/c)	0,83	0,85	0,81
Attenuation at 20°C (dB 100m)			
100 MHz	6,3	6,3	4,1
200 MHz	8,6	8,6	6,0
450 MHz	13,0	13,0	9,6
800 MHz	18,0	18,0	13,2
1000 MHz	20,6	20,6	14,8
1350 MHz	23,7	23,7	18,3
1750 MHz	27,2	27,2	21,1
2050 MHz	30,7	30,7	23,9
2400 MHz	32,3	32,3	26,8
Shield dampening (dB)			
30 - 1000 MHz	>93	>104	>90
1000 - 3000 MHz	>83	>90	>90
Return loss (dB)			
30 - 470 MHz	>20	>26	
470 - 1000 MHz	>20	>26	
1000 - 2000 MHz	>19	>20	
2000 - 3000 MHz	>18	>20	
Coupling resistance (mΩ/m)			
5 MHz	<14	<1,5	
30 MHz	<7,5	<0,5	
<b>Mechanical properties</b>			
Minimum bending radius (mm)	50	50	110
Cable weight (kg/km)	+/- 51	+/- 55	+/- 105
Copper weight (kg/km)	+/- 21	+/- 25	+/- 50,5
Suitable F-compression connectors	CC F 56 CX3 5.1	CC F 56 CX3 5.1	CC F CX 3 10.5



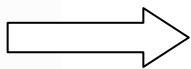
# SAT/CATV HIGH PERFORMANCE – COAXIAL CABLE

## AKZ 4-S SERIES – 75 Ohms

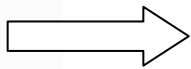
High-end-cables of this premium series are distinguished, because of great material usage and high manufacturing quality, for excellent electrical and mechanical properties. Superior suitability for digital TV/ HD-TV, internet (very large upload and download capacities possible), telephone etc. and they feature great power reserves for applications in the future.



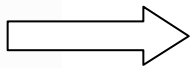
Inner conductor: massive and high purity **elektrolyte copper!**



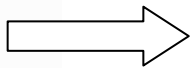
Physical foamed, stable PE-dielectric = very good dampening and ageing resistance!



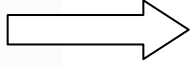
Alu foil; bonded - ideal for mounting compression connectors.



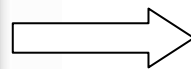
Braid: tinned **Copper**; high optical coverage! The thickness of 0,13mm of each wire prevent braid damages.



Second Alu foil double clad.



Second tinned copper braid. Complete the 4-layer outer conductor, who granted best screening efficiency!



Heavy duty PVC-compound, who will grant the necessary flexibility of the cable nevertheless!

\*Accredited and listed by:

- **KABELDEUTSCHLAND**

Errors or subsequent changes of construction are not barred.

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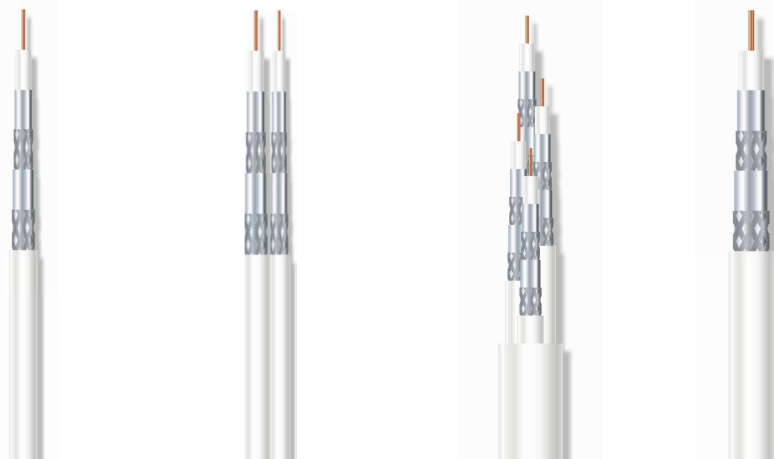
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	<b>75080 AKZ 4-S*</b> <b>100 dB</b> RG 59 (0.8/3.6)	<b>75080 AKZ 4-S</b> <b>100 dB TWIN</b> RG 59 (2x0.8/3.6)	<b>75080 AKZ 4-S</b> <b>100 dB QUATTRO</b> RG 59 (4x0.8/3.6)	<b>75100 AKZ 4-S</b> <b>105 dB</b> RG 6 (1.0/4.65)
<b>Construction</b>				
Inner conductor	0.8 mm Copper bare	0.8 mm Copper bare	0.8 mm Copper bare	1.0 mm Copper bare
Insulation	3.6 mm Cell PE +/- 0.1	3.6 mm Cell PE +/- 0.1	3.6 mm Cell PE +/- 0.1	4.6 mm Cell PE +/- 0.1
Outer conductor				
a) Alu foil	bonded	Kleband	Kleband	Kleband
b) Copper braid tinned	ca. 65%	ca. 65%	ca. 65%	ca. 50%
c) Alu-foil double clad	√	√	√	√
d) Copper braid tinned	approx. 65 %	approx. 65 %	approx. 65 %	approx.. 50%
Jacket (mm +/- 0,2)	5.6 mm PVC +/- 0.2	5.6x13.0 mm PVC	15.4 mm PVC +/- 0.2	6.8 mm PVC +/- 0.2
<b>Electrical properties</b>				
Characteristic impedance (Ω)	75 +/-3	75 +/-3	75 +/-3	75 +/-3
Capacity (pF/m)	55	55	55	55
Velocity (v/c)	0,85	0,85	0,85	0,85
Attenuation at 20°C (dB 100m)				
100 MHz	7,2	7,2	7,2	6,69
200 MHz	11,8	11,8	11,8	9,30
450 MHz	17,8	17,8	17,8	14,1
800 MHz	24,6	24,6	24,6	18,4
1000 MHz	28,7	28,7	28,7	22,2
1350 MHz	33,2	33,2	33,2	25,0
1750 MHz	38,6	38,6	38,6	29,6
2050 MHz	42,9	42,9	42,9	33,3
2400 MHz	47,3	47,3	47,3	
Shield dampening (dB)				
30 - 1000 MHz	>110	>110	>110	>105
1000 - 3000 MHz	>100	>100	>100	>105
Return loss (dB)				
30 - 470 MHz	>26	>26	>26	>28
470 - 1000 MHz	>26	>26	>26	>28
1000 - 2000 MHz	>27	>27	>27	>27
2000 - 3000 MHz	>27	>27	>27	>26
Coupling resistance (mΩ/m)				
5 MHz	<0,5	<0,5	<0,5	<2,0
30 MHz	<0,05	<0,05	<0,05	<0,2
<b>Mechanical properties</b>				
Minimum bending radius (mm)	50	50	110	50
Cable weight (kg/km)	+/- 42,5	+/- 85	+/- 170	+/-51,5
Copper weight (kg/km)	+/- 16,5	+/- 33	+/- 17	+/- 22
Suitable F-compression connectors	CC CX3 59 3.9	CC CX3 59 3.9	CC CX359 3.9	CC CX 56 4.9

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	<b>75100 AKZ 4-S*</b> 120 dB RG 6 (1.0/4.65)	<b>75160 AF 4-S</b> 120 dB RG 11 (1.6/7.3)		
<b>Construction</b>				
Inner conductor	1.0 mm Copper bare	1.6 mm Copper bare		
Insulation	4.6 mm Cell PE +/- 0.1	7.3 mm Cell PE +/- 0.1		
Outer conductor				
a) Alu foil	bonded	√		
b) Copper braid tinned	approx. 70%	approx. 65%		
c) Alu-foil double clad	√	√		
d) Copper braid tinned	ca. 70%	ca. 65 %		
Jacket (mm +/- 0,2)	6.8 mm PVC +/- 0.2	10.3 mm PE +/- 0.2		
<b>Electrical properties</b>				
Characteristic impedance (Ω)	75 +/-3	75 +/-3		
Capacity (pF/m)	55	55		
Velocity (v/c)	0,85	0,81		
Attenuation at 20°C (dB 100m)				
100 MHz	6,69	4,1		
300 MHz	9,30	7,9		
450 MHz	14,1	9,6		
800 MHz	18,4	13,5		
1000 MHz	22,2	14,8		
1350 MHz	25,0	18,3		
1750 MHz	29,6	21,1		
2050 MHz	33,3	23,9		
2400 MHz	36,0	27,9		
Shield dampening (dB)				
30 - 1000 MHz	>120	>120		
1000 - 3000 MHz	>110	>120		
Return loss (dB)				
30 - 470 MHz	>30	>22		
470 - 1000 MHz	>28	>20		
1000 - 2000 MHz	>28	>20		
2000 - 3000 MHz	>27	>19		
Coupling resistance (mΩ/m)				
5 MHz	<1,5			
30 MHz	<0,2			
<b>Mechanical properties</b>				
Minimum bending radius (mm)	50	110		
Cable weight (kg/km)	+/-55,5	+/- 107		
Copper weight (kg/km)	+/- 26	+/- 46		
Suitable F-compression connectors	CC CX 56 4.9	CC CX3 10.5		

Picture:	Article:	Unit:	Art.-No.:	Description:
	<b>F-compression connector 3.9</b> for 75080 AFZ/AKZ 0.8/3.6 Series RG 59	100 pc.	805FSTCX3/3.9	Compression connectors guarantee, because of their construction, a high performance connection. A special O-ring ensure protection against infiltration of water. Pressing with a compression tool make sure a secure and optimal force fit. All this leads to brilliant electrical properties.
	<b>F-compression connector 4.9</b> for 75100 AFZ/AKZ 1.0/4.6 Series RG 6	100 pc.	805FSTCX3/4.9	
	<b>F-compression connector 5.1</b> for 75110 AFZ/AKZ 1.1/4.8	100 pc.	805FSTCX3/5.1	
	<b>F-compression connector 3.9</b> for 75160 AF/AKZ 1.1/7.3 Series RG 11	25 pc.	805FSTCX3/10.5	
	<b>F-connector High End 3.9 selfinstall</b> for 75080 AFZ/AKZ 0.8/3.6 Series RG 59	100 pc.	805FSF5939	
	<b>F-connector High End 4.9 selfinstall</b> for 75100 AFZ/AKZ 1.0/4.6 Series RG 6	100 pc.	805FSF5649	High End F-connectors have almost the good properties of compression connectors. Furthermore there is no need for a compression tool. Only clip on – ready!
	<b>F-connector High End 5.1 selfinstall</b> for 75110 AFZ/AKZ 1.1/4.8	100 pc.	805FSF5651	
	<b>F-connector High End 4.9WD selfinstall</b> for 75100 AFZ/AKZ 1.0/4.6 Series RG 6	100 pc.	805FSF5649WD	
	<b>F-connector High End 5.1WD selfinstall</b> for 75110 AFZ/AKZ 1.1/4.8	100 pc.	805FSF5651WD	This version is because of integrated o-rings additionally protected against humidity.
	<b>Seal ring for High End F-connectors</b>	100 pc.	805sealring	Waterproof in relation with connector version „WD“.  For all High End connectors.
	<b>POCKET TOOL</b> Compression tool for compression-connector 3.9, 4.9 and 5.1	1 pc.	805P-ToolCX3	
	<b>Compression Tool CX3</b> Universal-compression tool for compression-connector 3.9, 4.9, 5.1 and 7.5	1 pc.	805COMPTOOL CX3	

Picture:	Article:	Unit:	Art.-No.:	Description:
	<b>Cable stripper No. 2</b> for 75100 AFZ/AKZ 1.0/4.6 series RG 6	1 pc.	805STRIPPER2	Only one cut makes the cable ready to mount.
	<b>Cable stripper No. 3</b> for 75160 AF/AKZ 1.6/7.3 series RG 11 (also for cables type series RG 7)	1 pc.	805STRIPPER3	Equal technique as stripper No. 2.

# HDTV - Starter-Set/ RG 6 (6.8 mm)

**75100 AKZ 3-S (1.0/4.6) -RG 6- SAT/CATV high performance cable 75 Ohm/ >100 dB**



- Massive copper
- triple shielded
- bonded foil
- Shield dampening 30 - 3000 MHz >100 dB
- Made in Germany

**+ High End F-connector 4.9**



- Guaranteed high screening even at the contact points
- No additional compression tool necessary
- Just clip on - ready!

**+ Cable stripper No. 2**  
(from 50m)



- Only one cut makes the cable ready to mount.
- Instruction sheet enclosed.

Length:	Article:	Unit:	Art.-No.:	Description:
<b>10 m</b>	<b>HDTV – Starter Set/ RG 6</b> + 2 pc. High End F-Connector 4.9	1 pc.	20070000518B02	Ring in Box 200 x 200 x 55 mm
<b>25 m</b>	<b>HDTV – Starter Set/ RG 6</b> + 2 pc. High End F-Connector 4.9	1 pc.	20070000520B02	Ring in Box 200 x 200 x 55 mm
<b>50 m</b>	<b>HDTV – Starter Set/ RG 6</b> + 4 pc. High End F-Connector 4.9 + 1 pc. Cable stripper No. 2	1 pc.	20070000500B02	Ring in Box 245 x 245 x 80 mm
<b>100 m</b>	<b>HDTV – Starter Set/ RG 6</b> + 8 pc. High End F-Connector 4.9 + 1 pc. Cable stripper Nr. 2	1 pc.	20070000501B02	Ring in Box 320 x 320 x 90 mm

(Even other combinations are possible. Please ask for.)



EN 50117

Digital/ HDTV

Massive copper

RoHS / REACH  
KONFORM

# HDTV - Starter-Set/ RG 59 (5.6 mm)

**75080 AKZ 4-S (0.8/3.6) -RG 59- SAT/CATV high performance cable 75 Ohms/ >100 dB**



- Massive copper
- Four times shielded
- bonded foil
- Shield dampening 30 - 3000 MHz >100 dB
- Made in Germany

**+ High End F-Connector 3.9**



- Guaranteed high screening even at the contact points
- No additional compression tool necessary
- Just clip on - ready!

**+ Cable Stripper No. 2**  
(from 50m)



- Only one cut makes the cable ready to mount.
- Instruction sheet enclosed.

Length:	Article:	Unit:	Art.-No.:	Description:
<b>10 m</b>	<b>HDTV – Starter Set/ RG 59</b> + 2 pc. High End F-Connector 3.9	1 pc.	20073003018B02	Ring in Box 200 x 200 x 55 mm
<b>25 m</b>	<b>HDTV – Starter Set/ RG 59</b> + 2 pc. High End F-Connector 3.9	1 pc.	20073003020B02	Ring in Box 200 x 200 x 55 mm
<b>50 m</b>	<b>HDTV – Starter Set/ RG 59</b> + 4 pc. High End F-Connector 3.9 + 1 pc. Cable Stripper No. 2	1 pc.	20073003000B02	Ring in Box 245 x 245 x 80 mm
<b>100 m</b>	<b>HDTV – Starter Set/ RG 59</b> + 8 pc. High End F-connector 3.9 + 1 pc. Cable Stripper No. 2	1 pc.	20073003001B02	Ring in Box 320 x 320 x 90 mm

(Even other combinations are possible. Please ask for.)



EN 50117

Digital/ HDTV

Massive copper

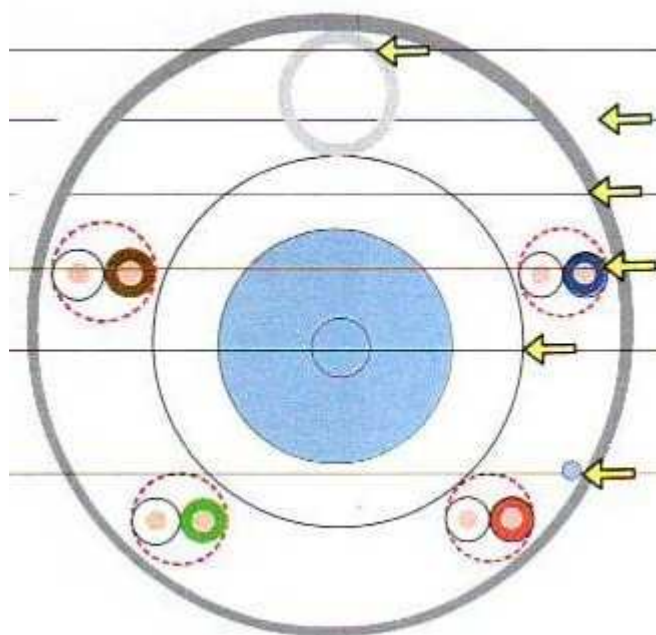
RoHS / REACH  
KONFORM



# MULTIMEDIA-CABLE

## FOR SAT/CATV - SYSTEMS

So manifold the kinds of modern signal transmission in antenna technique are, so variable are our Multimedia-cables. Equal if the approved, simple and well-priced coaxial option, the seminal optical broadcast (Fibre) or DSL. With only one single cable for various applications, you keep all possibilities open. Here we are presenting some of current alternatives. They should demonstrate some examples. As needed we can manufacture other configurations – please ask for.



Example – see page 25

Errors or subsequent changes of construction are not barred



EN 50117

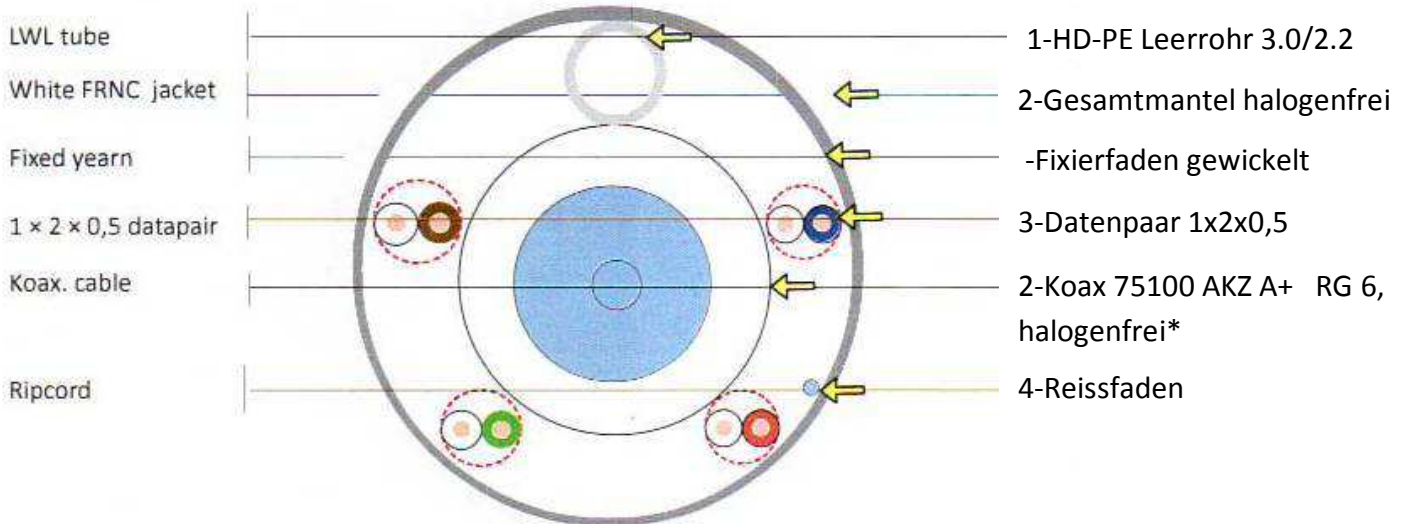
Digital/ HDTV





# MULTIMEDIA-CABLE No. 1

**75100 AKZ A+ (1.0/4.6) 3-S – Series RG 6  
+ HD-PE tube for backfitting of fibre  
+ 4 data pairs (1x2x0,5) ≈ CAT 5e**



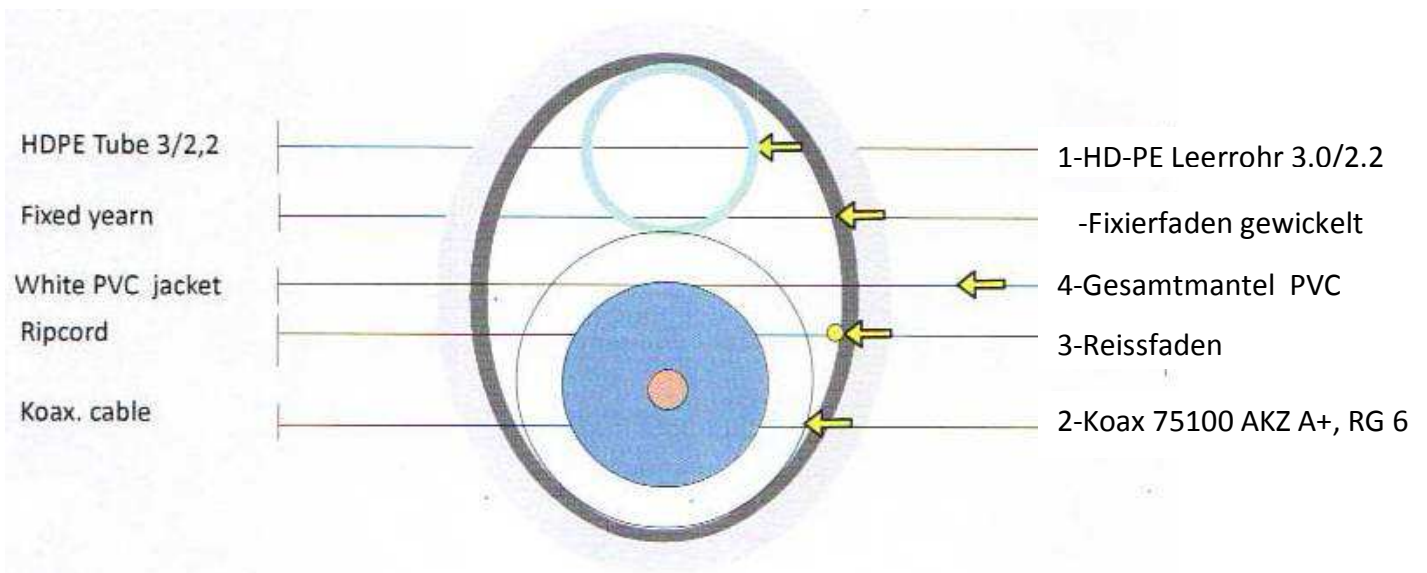
With this hybrid cable all relevant variants of signal transmission will be covered. Once installed it is suitable for most applications. Broad band over coax, DSL/ internet over data pairs. Tube for backfitting of optical conductor assured guaranteed future .

MULTIMEDIA-CABLE No. 1	
<b>Construction</b>	
1) HD-PE tube	Outer Ø: 3.0 mm, Inner Ø: 2.2 mm, for backfitting of fibre
2) SAT/CATV coax cable RG 6	Outer Ø: 6.8 mm, 75100 AKZ A+ 3-S, 75 Ohms
3) Data pairs 4 x 2 x 0,5 mm <sup>2</sup>	Equates to CAT 5e – 200 MHz (DSL-signal transmission)
4) Ripcord	Enable simple stripping of jacket
5) Complete sheet	Outer Ø: 12,6 mm +/- 0,3, halogenfree white

# MULTIMEDIA-CABLE No. 2

**75100 AKZ A+ (1.0/4.6) 3-S – Series RG 6**

**+ HD-PE tube for backfitting of fibre**



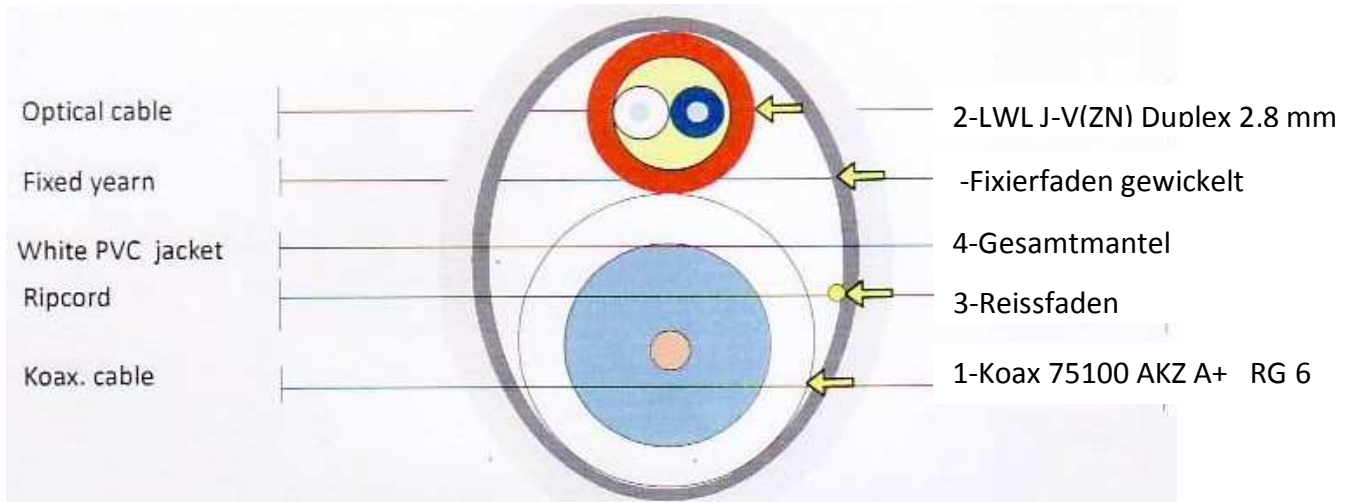
This cable allows, as needed, backfitting of fibre and enable therefore expansion of transmission capacities if needed.

<b>MULTIMEDIA-CABLE No. 2</b>	
<b>Construction</b>	
1) HD-PE tube	Outer $\varnothing$ : 3.0 mm, Inner $\varnothing$ : 2.2 mm, for backfitting of fibre
2) SAT/CATV coax cable RG 6	Outer $\varnothing$ : 6.8 mm, 75100 AKZ A+ 3-S, 75 Ohms
3) Ripcord	Enable simple stripping of jacket
4) Complete sheet	Outer $\varnothing$ : 12,6 mm +/- 0,3, halogenfree white

# MULTIMEDIA-CABLE No. 3

**75100 AKZ A+ (1.0/4.6) 3-S – Series RG 6**

**+ Fibre J-V(ZN)H Duplex 2,8 mm**



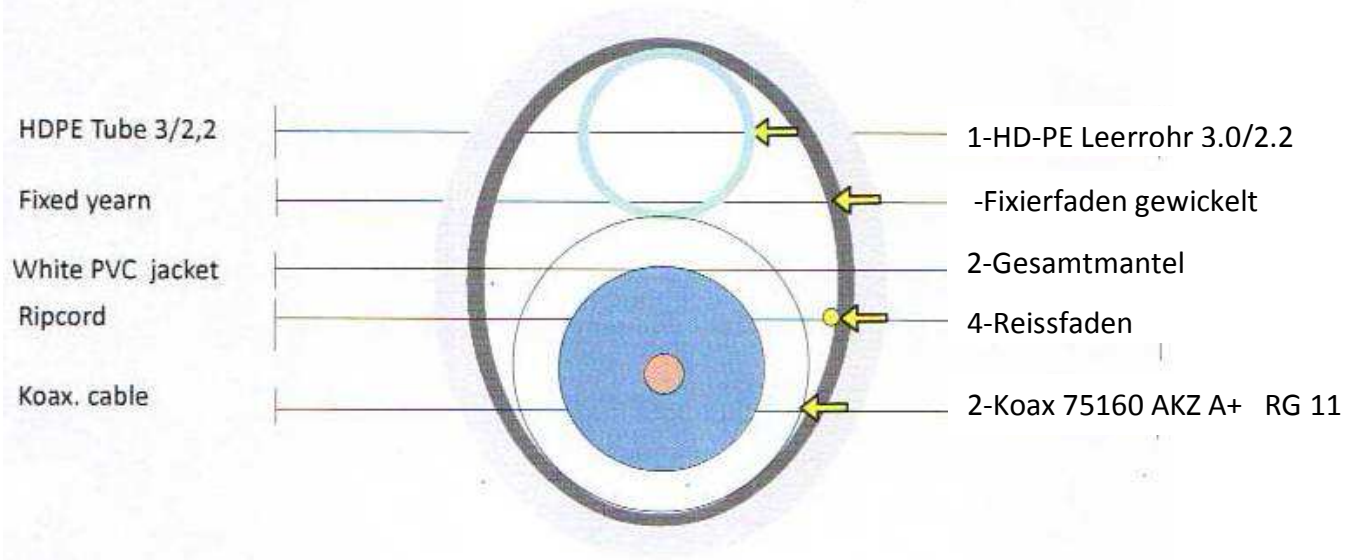
This cable combined the benefits of approved coaxial copper technique with those of trend-setting signal transmission via fibre.

MULTIMEDIA-CABLE No. 3	
<b>Construction</b>	
<b>1) SAT/CATV coax cable RG 6</b>	Outer Ø: 6.8 mm, 75100 AKZ A+ 3-S, 75 Ohm
<b>2) Fibre</b>	J-V(ZN)H Duplex 2,8 mm
<b>3) Ripcord</b>	Enable simple stripping of jacket
<b>4) Complete jacket</b>	Outer Ø: 11,8 mm +/- 0,3, PVC white

# MULTIMEDIA-CABLE No. 4

**75160 AKZ A+ (1.6/7.3) 3-S – Series RG 11**

**+ HD-PE tube for backfitting of fibre**



This cable allows, as needed, backfitting of fibre and enable therefore expansion of transmission capacities if needed. The coax cables of series 11 allows longer installation distances.

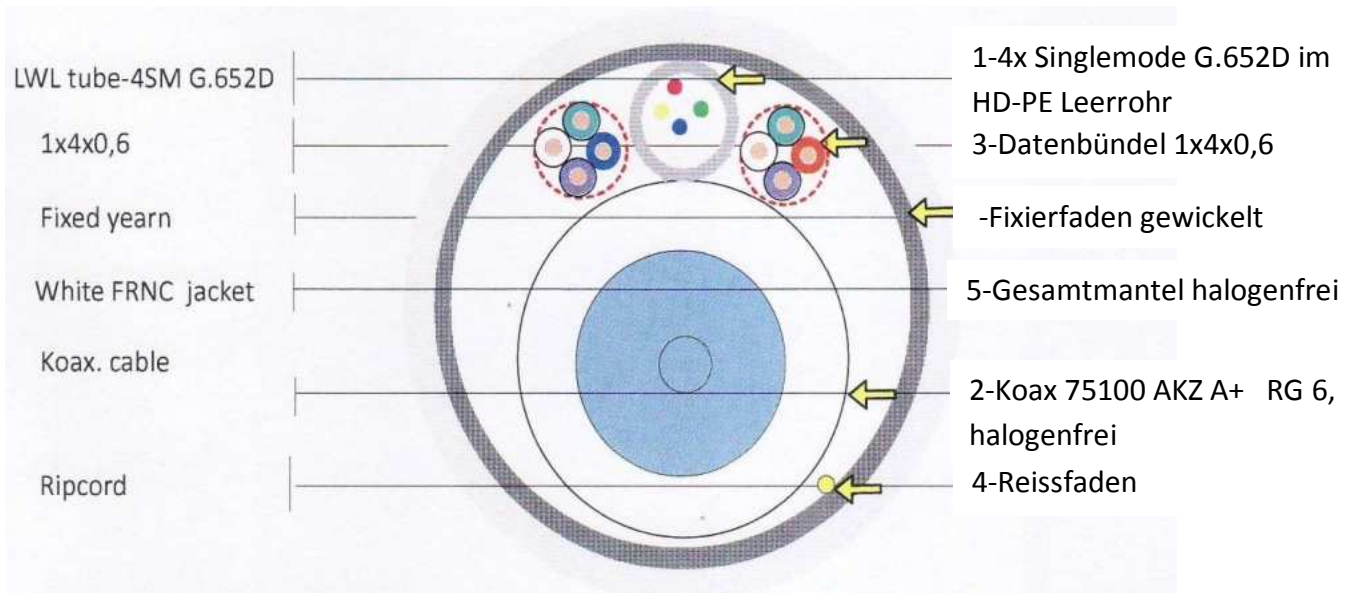
<b>MULTIMEDIA-CABLE No. 4</b>	
<b>Aufbau</b>	
<b>1) SAT/CATV coax cable RG 11</b>	<b>Outer Ø: 10,3 mm, 75160 AKZ A+ 3-S, 75 Ohms, PVC</b>
<b>2) Fibre</b>	<b>J-V(ZN)H Duplex 2,8 mm</b>
<b>3) Ripcord</b>	<b>Enable simple stripping of jacket</b>
<b>4) Complete Jacket</b>	<b>Outer Ø: 11,8 mm +/- 0,3, PVC white</b>

# MULTIMEDIA-CABLE No. 5

**75100 AKZ A+ (1.0/4.6) 3-S – Series RG 6**

**+ Fibre 4SM G.652D in HD-PE tube**

**+ 2 data pairs (1x4x0,6) ≈ CAT 5e 200 MHz**



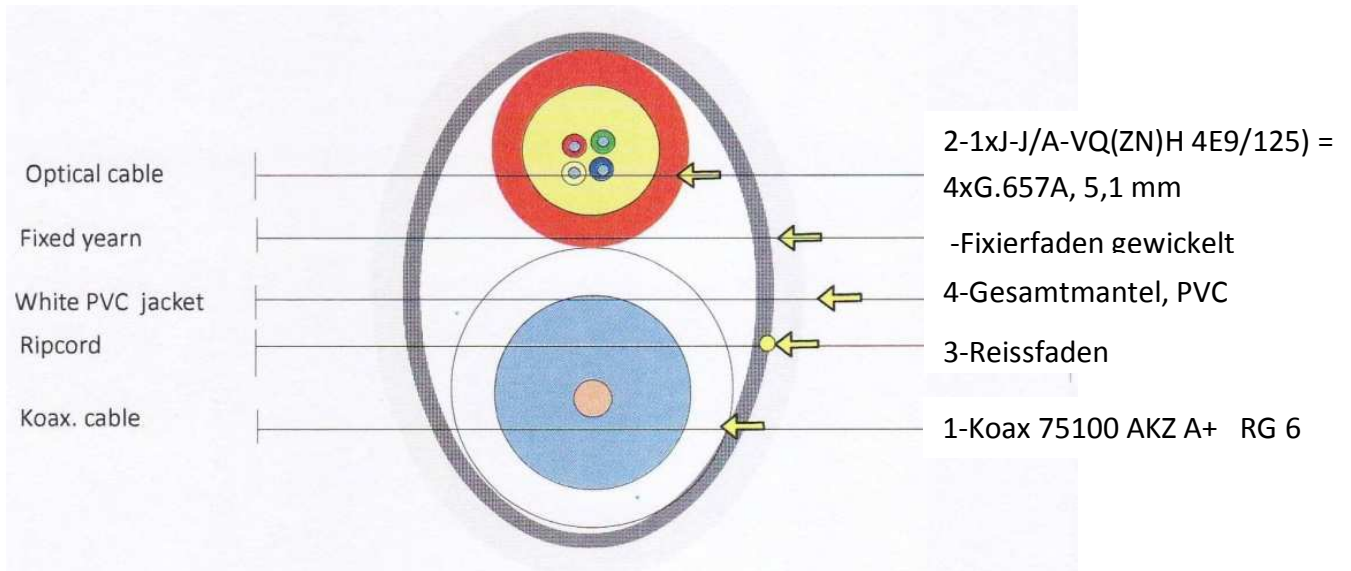
With this hybrid cable all relevant variants of signal transmission will be covered. Once installed it is suitable for most applications. Broad band over coax, DSL/ internet over data pairs. And optical conductors arrange for a maximum of power reserve.

MULTIMEDIA-CABLE No. 5	
<b>Construction</b>	
<b>1) Fibre</b>	2 x (4 x Singlemode G.652D im HD-PE tube)
<b>2) SAT/CATV coax cable RG 6</b>	Outer $\varnothing$ : 6.8 mm, 75100 AKZ A+ 3-S, halogenfree, 75 Ohms
<b>3) Data pairs 2 x (4 x 0,6 mm<sup>2</sup>)</b>	Equates to CAT 5e – 200 MHz (DSL signal transmission)
<b>4) Ripcord</b>	Enable simple stripping of jacket
<b>5) Complete jacket</b>	Outer $\varnothing$ : 12,6 mm +/- 0,3, halogenfree white

# MULTIMEDIA-CABLE No. 6

**75100 AKZ A+ (1.0/4.6) 3-S – Series RG 6**

**+ Fibre J-V(ZN)H Duplex 2.8 mm**



This cable combined the benefits of approved coaxial copper technique with those of trend-setting signal transmission via fibre.

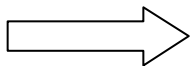
MULTIMEDIA-CABLE No. 6	
<b>Construction</b>	
<b>1) SAT/CATV coax cable RG 6</b>	Outer Ø: 6.8 mm, 75100 AKZ A+ 3-S, 75 Ohm
<b>2) Fibre</b>	1xJ-J/A-VQ(ZN)H 4E9/125 = 4xG.657A, 5,1 mm
<b>3) Ripcord</b>	Enable simple stripping of jacket
<b>4) Complete jacket</b>	Outer Ø: 14,1 mm +/- 0,3, PVC white



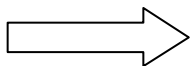
# STANDARD VIDEO COAXIAL CABLE

## VIDEO – CCTV SERIES – 75 OHMS

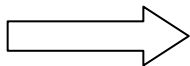
Standard video cables are suitable ideal for analog video technique. We manufacture them in various dimensions (even with low voltage supply, e.g. for DOM cameras) and cover therefore most of applications.



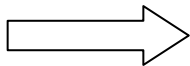
Inner conductor: massive and high purity **elektrolyte copper!**



Solid full-PE insulation, robust type.



Braid of pure **copper**; high optical coverage ! Best conductor characteristics.



Heavy duty PVC-/ or PE jacket who will grant the necessary flexibility of cable nevertheless! Optional: PUR or HALOGENFREE

Errors or subsequent changes of construction are not barred.

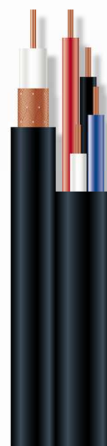
**ANALOG**

**RoHS/ REACH-  
konform**



**Massive copper**

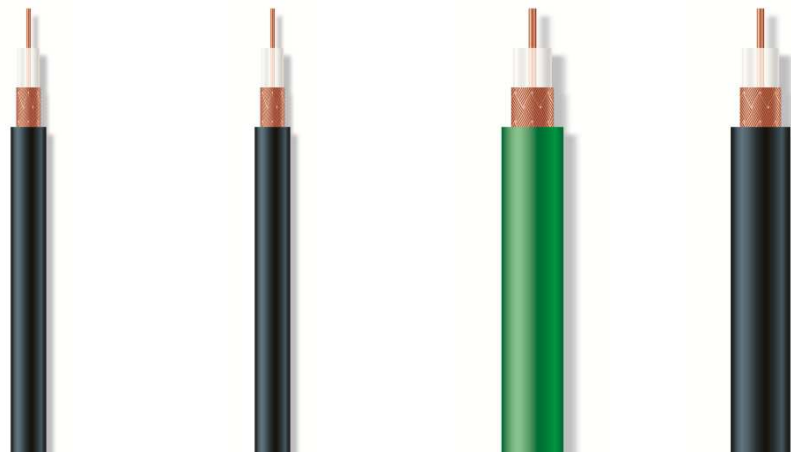
**RoHS / REACH  
KONFORM**



	<b>75060 V</b> (0.6/3.7)	<b>75022 V</b> (0.6L/3.7)	<b>75060 V + 275</b> (0.6/3.7 + 2 x 0,75 mm <sup>2</sup> )	<b>75060 V + 450</b> (0.6/3.7 + 4 x 0,50mm <sup>2</sup> )
<b>Construction</b>				
Inner conductor	0.60 mm Copper bare	7x0,20mm Copper bar	0.60 mm Copper bare	0.60 mm Copper bare
Insulation	3.7 mm PE +/- 0.1	3.7 mm PE +/- 0.1	3.7 mm PE +/- 0.1	3.7 mm PE +/- 0.1
Outer Conductor				
a) Braid	Copper bare	Copper bare	Copper bare	Copper bare
b)				
c)				
Jacket +/- 0,2 mm	6.1 mm PVC	6.1 mm PVC	12.6 x 6.1 mm PVC	12.6 x 6.1 mm PVC
<b>Electrical properties</b>				
Characteristic impedance (Ω)	75 +/-3	75 +/-3	75 +/-3	75 +/-3
Capacity (pF/m)	67	67	67	67
Velocity (v/c)	0,66	0,66	0,66	0,66
Attenuation at 20°C (dB 100m)				
1 MHz	1,1	1,2	1,1	1,1
5 MHz	2,5	2,8	2,5	2,5
10 MHz	3,5	4,1	3,5	3,5
20 MHz	4,8		4,8	4,8
50 MHz				
100 MHz	10,4		10,4	10,4
150 MHz	12,8		12,8	12,8
200 MHz	14,2		14,2	14,2
300 MHz	17,8		17,8	17,8
350 MHz	19,2		19,2	19,2
500 MHz				
800 MHz				
1000 MHz				
Shield dampening (dB)	75 dB	75 dB	75 dB	75 dB
DC resistance (Ohm/km)				
Inner conductor	63	82	63	63
Outer conductor	13	13	13	13
Operating voltage (max. V)	600	600	600	600
+ Cord for low voltage power supply 12/24V	-	-	2 x H05Z-K 0,75 mm <sup>2</sup>	4 x H05Z-K 0,50 mm <sup>2</sup>
In the style of:	DIN 47383	DIN 47383	DIN 47383	DIN 47383
<b>Mechanical properties</b>				
Minimum bending radius (mm)	30	30	50	50
Cable weight (kg/km)	+/- 45	+/- 45	+/- 98,5	+/-106,2
Copper weight (kg/km)	+/- 24	+/- 24	+/- 38	+/- 43,2
Suitable connectors	BNC 3.9 compression	BNC 3.9 compression	BNC 3.9 compression	BNC 3.9 compression

Massive copper

RoHS / REACH  
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	RG 59 B/U (0.6/3.7)	RG 59 B/U PE Outdoor (0.6/3.7 )	75100 V (1.0/6.6)	75100 V PE Outdoor (1.0/6.6)
<b>Construction</b>				
Inner conductor	0.584mm copperweld	0.584mm copperweld	1.00 mm copper bare	1.00 mm copper bare
Insulation	3.7 mm PE +/- 0.1	3.7 mm PE +/- 0.1	6.30 mm PE +/- 0.1	6.30 mm PE +/- 0.1
Outer Conductor				
a) Braid	Copper bare	Copper bare	Copper bare	Copper bare
b)				
c)				
d)				
Jacket +/- 0,2 mm	6.1 mm PVC	6.1 mm PE	9.1 mm PVC	9.1 mm PE
<b>Electrical properties</b>				
Characteristic impedance (Ω)	75 +/--3	75 +/--3	75 +/--3	75 +/--3
Capacity (pF/m)	67	67	67	67
Velocity (v/c)	0,66	0,66	0,66	0,66
Attenuation at 20°C (dB 100m)				
1 MHz	1,2	1,2	0,6	0,6
5 MHz	2,6	2,6	1,4	1,4
10 MHz	3,3	3,3	2,0	2,0
20 MHz	4,7	4,7	2,8	2,8
50 MHz	7,5	7,5	4,7	4,7
100 MHz	11,1	11,1	6,7	6,7
150 MHz	13,9	13,9	8,5	8,5
200 MHz	16,8	16,8	9,8	9,8
300 MHz	21,9	21,9	12,1	12,1
350 MHz	24,5	24,5	13,0	13,0
500 MHz	27,0	27,0		
800 MHz	35,1	35,1		
1000 MHz	39,2	39,2		
Shield dampening (dB)				
	75 dB	75 dB	75 dB	75 dB
DC resistance (Ohm/km)				
Inner conductor	311	311	24	24
Outer conductor	9	9	7,5	7,5
Operating voltage (max. V)				
	1000	1000	800	800
In the style of:				
	MIL-C-17	MIL-C-17	DIN 47389	DIN 47389
<b>Mechanical properties</b>				
Minimum bending radius (mm)	30	30	45	50
Cable weight (kg/km)	+/- 51	+/- 51	+/- 108	+/- 108
Copper weight (kg/km)	+/- 23	+/- 23	+/- 39	+/- 39
Suitable connectors	BNC 3.9 Compression	BNC 3.9 Compression	BNC 1.0/6.6	BNC 1.0/6.6

Massive copper

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	<b>S/FTP 4PR AWG 23/1</b> CAT 7 – 1000 MHz - PE		
<b>Construction</b>	DIGITAL		
Inner conductor	4x2xAWG 23/1		
Outer conductor			
a)	Pairs single shielded – Alu-Foil		
b) Braid	Copper tinned		
Jacket +/- 0,2 mm	9,5 mm PE		
<b>Electrical properties</b>			
Characteristic impedance ( $\Omega$ )	100 +/- 25		
Capacity (pF/m)	150 pF/100m		
Velocity (v/c)	0,78		
Attenuation at 20°C (dB 100m)			
1 MHz	1,7		
5 MHz	3,1		
10 MHz			
20 MHz	7,3		
50 MHz	12,8		
100 MHz	17,0		
150 MHz	21,2		
200 MHz	24,3		
300 MHz	30,0		
350 MHz			
500 MHz	39,3		
800 MHz	50,2		
1000 MHz	58,0		
Shield dampening (dB)	60 dB		
DC resistance (Ohm/km)			
Inner conductor			
Outer conductor			
Operating voltage (max. V)			
In the style of:	EN 50288-4-1		
<b>Mechanical properties</b>			
Minimum bending radius (mm)	4 x Cable diameter		
Cable weight (kg/km)	+/-85		
Copper weight (kg/km)	+/- 34		
Suitable connectors			

Picture:	Article:	Unit:	Art.-No.:	Description:
	<b>BNC Compression connector 3.9</b> for 75060 V (0.6/3.7), RG 59 B/U, 75080 AKZ	100 pc.	805BNCST39	Installation with BNC compression connectors current is the best and safest connection method for video signal transmission.
	<b>POCKET TOOL BNC</b> Compression tool for BNC compression connector 3.9	1 pc.	805P-ToolBNC	
	<b>Cable stripper No. 2</b> Stripper for cable Series RG 59 and RG 6	1 pc.	805STRIPPER2	Only one cut makes the cable ready to mount.
	<b>Kabelstripper Nr. 3</b> Stripper for 75100 V (1.0/6.6) and cables Series RG 11	1 St.	805STRIPPER3	Equal technique as stripper No. 2.

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konform**

# CCTV-RG 59 - Starter-Set

**RG 59 B/U - CCTV – cable - 75 Ohms**



- massive copper
- high optical coverage
- good dampening
- robust style
- in the style of MIL-C-17
- Made in Germany

**+ Compression- BNC -connector 3.9**



- guarantee high screening efficiency even at the contact points
- absolutely secure connection through compression (BNC-compression necessary)

**+ Cable stripper No. 2**  
(from 50m)



- only one cut makes the cable ready to mount.

Length:	Article:	Unit:	Art.-No.:	Description:
<b>10 m</b>	<b>CCTV-RG 59– Starter Set</b> + 2 pc. Compression-BNC-Connector3.9	1 pc.	30023040518B02	Ring in box 200 x 200 x 55 mm
<b>25 m</b>	<b>CCTV-RG 59 – Starter Set</b> + 2 pc. Compression-BNC-Connector3.9	1 pc.	30023040520B02	Ring in box 200 x 200 x 55 mm
<b>50 m</b>	<b>CCTV-RG 59 – Starter Set</b> + 2 pc. Compression-BNC-Connector3.9 + 1 pc. Cable stripper No. 2	1 pc.	30023040500B02	Ring in box 245 x 245 x 80 mm
<b>100 m</b>	<b>CCTV-RG 59 – Starter Set</b> + 4 pc. Compression-BNC-Connector3.9 + 1 pc. Cable stripper No. 2	1 pc.	30023040501B02	Ring in box 320 x 320 x 90 mm

**RoHS - / REACH  
konform**

# CCTV- 0.6/3.7 - Starter-Set

**75060 V - CCTV – Kabel - 75 Ohm**



- massive copper
- high optical coverage
- good dampening
- robust style
- in the style of DIN 47389
- Made in Germany

**+ Compression- BNC -connector 3.9**



- guarantee high screening efficiency even at the contact points
- absolutely secure connection through compression (BNC-compression necessary)

**+ Cable stripper No. 2**  
(from 50m)



- only one cut makes the cable ready to mount.

Length:	Article:	Unit:	Art.-No.:	Description:
<b>10 m</b>	<b>CCTV-0.6/3.7– Starter Set</b> + 2 pc. Compression-BNC-Connector3.9	1 pc.	40025010218B02	Ring in box 200 x 200 x 55 mm
<b>25 m</b>	<b>CCTV-0.6/3.7 – Starter Set</b> + 2 pc. Compression-BNC-Connector3.9	1 pc.	40025010220B02	Ring in box 200 x 200 x 55 mm
<b>50 m</b>	<b>CCTV-0.6/3.7 – Starter Set</b> + 2 pc. Compression-BNC-Connector3.9 + 1 pc. Cable stripper No. 2	1 pc.	40025010200B02	Ring in box 245 x 245 x 80 mm
<b>100 m</b>	<b>CCTV-0.6/3.7 – Starter Set</b> + 4 pc. Compression-BNC-Connector3.9 + 1 pc. Cable stripper No. 2	1 pc.	40025010201B02	Ring in box 320 x 320 x 90 mm

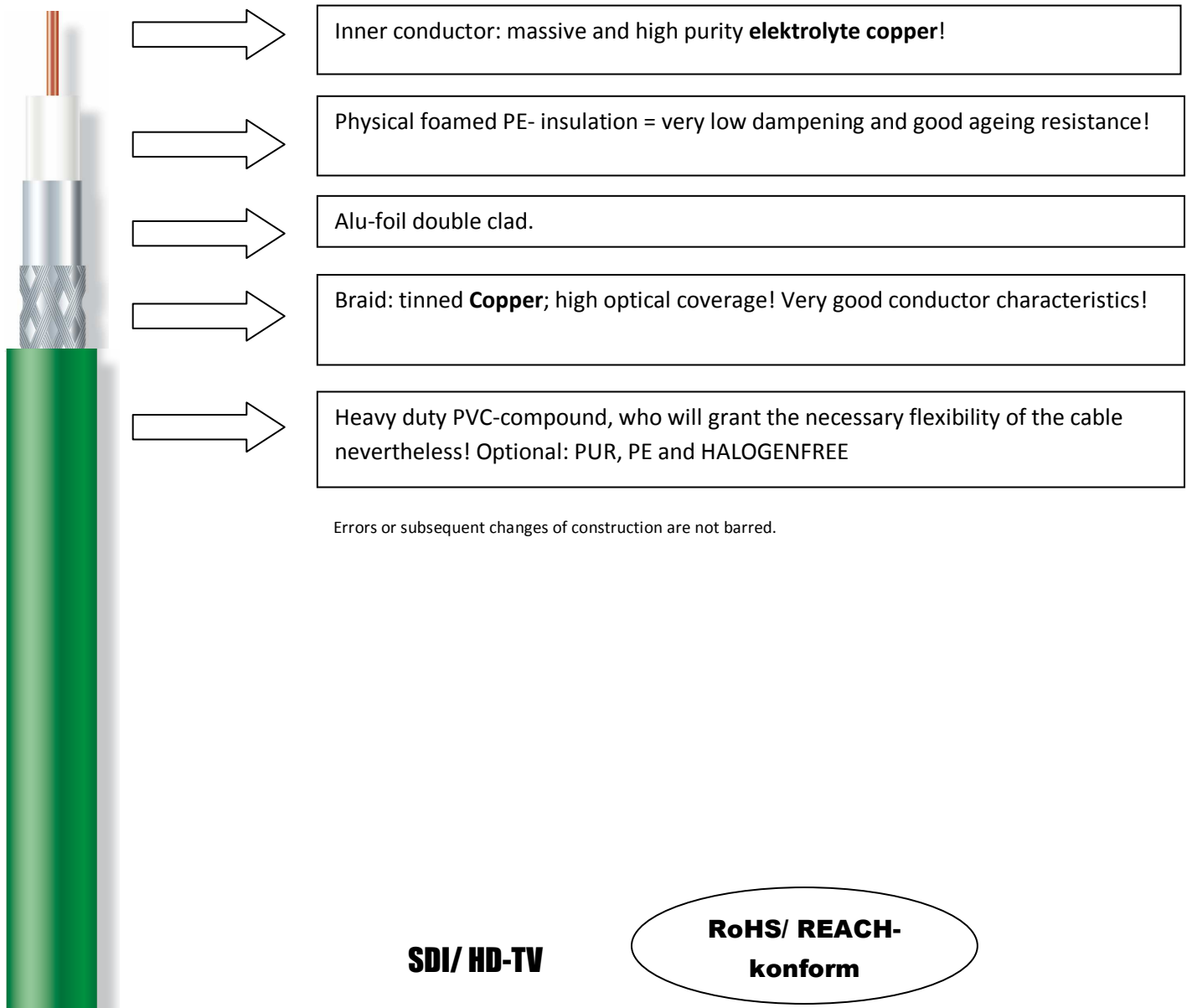
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# HQ – LOW LOSS COAX CABLE

## VIDEO DIGITAL SERIES – 75 OHMS

SDI/HD-Cables are manufactured very precise. They own very good electrical properties. Compared to Standard video cables this will allow longer installation length at equal cable dimensions – or higher transmission capacities at equal cable length. Application: Studio-/ Broadcast-area and SDI-HD CCTV closed circuit television – arrange for a real time picture transmission in a superior quality.



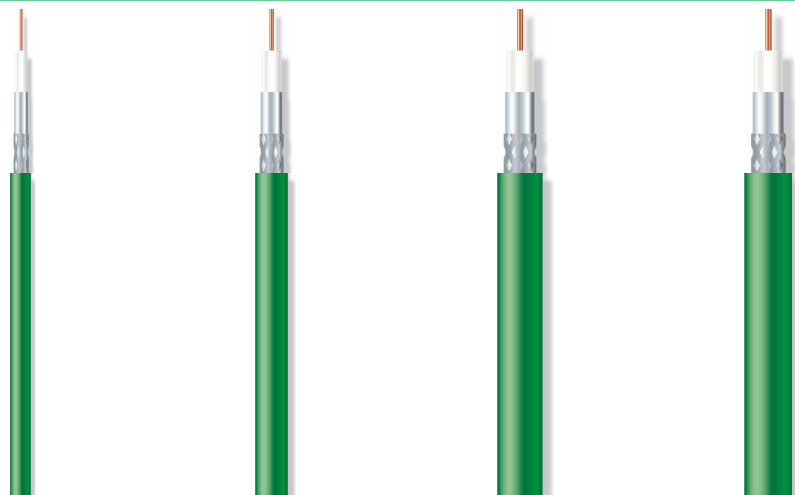


# VIDEO DIGITAL SERIES - SDI/HD

SDI/ HD-TV

Massive copper

RoHS / REACH  
KONFORM



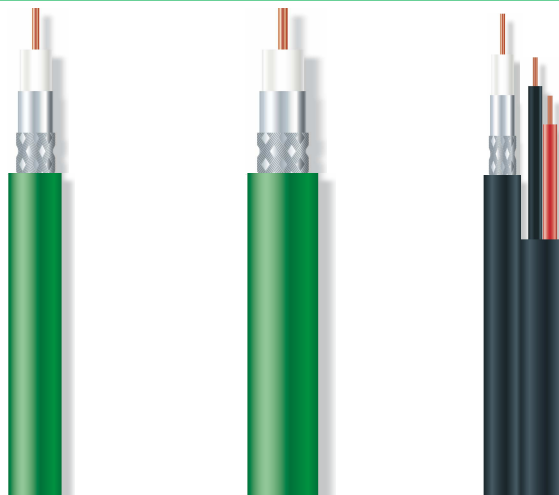
	75060 VZ SDI-HD (0.6/2.8)	75080 VZ SDI-HD (0.8/3.7)	75100 VZ SDI-HD (1.0/4.8)	75125 VZ SDI-HD (1.25L/5.0)
<b>Construction</b>	Mini	Series RG 59	Series RG 6	Series RG 7
Inner conductor	0.60 mm Copper bare	0.80 mm Copper bare	1.0 mm Copper bare	7x0,40mm Copper bar
Insulation	2.8 mm Cell-PE +/- 0.1	3.7 mm Cell-PE +/- 0.1	4.8 mm Cell-PE +/- 0.1	5.0 mm Cell-PE +/- 0.1
Outer Conductor				
a)	Alu foil	Alu foil	Alu foil	Alu foil
b)	Copper braid tinned	Copper braid tinned	Copper braid tinned	Copper braid tinned
c)	90 %	90 %	90 %	90 %
Jacket +/- 0,2 mm	4,5 mm PVC	5.9 mm PVC	7.0 mm PVC	12.6 x 6.1 mm PVC
<b>Electrical properties</b>				
Characteristic impedance ( $\Omega$ )	75	75	75	75
Capacity (pF/m)	54	55	55	55
Velocity (v/c)	0,78	0,78	0,78	0,78
Attenuation at 20°C (dB 100m)				
1 MHz	1,1	1,0	0,9	0,6
5 MHz	2,5	2,0	1,7	1,5
10 MHz	3,2	2,8	2,2	2,3
20 MHz	4,25	3,6	2,8	
50 MHz	7,95	6,2	4,9	5,0
100 MHz	10,6	8,0	6,3	6,9
200 MHz	14,9	11,0	9,0	9,9
300 MHz	17,8	13,5	11,4	
500 MHz	23,2	17,7	14,9	
800 MHz	29,5	22,9	18,6	22,7
1000 MHz	33,0	25,7	20,6	26,3
1500 MHz	40,6	31,5	25,0	
2250 MHz	49,9	39,7	31,9	
3000 MHz	59,5	46,7	37,5	
Shield dampening (dB)	> 90 dB	> 90 dB	> 90 dB	> 90 dB
Return loss				
50 - 300 MHz	> 25	> 25	> 25	> 25
300 - 3000 MHz	> 21	> 21	> 21	> 21
DC resistance (Ohm/km)				
Inner conductor	63	34	23	19
Outer conductor	16	9	8	12
Operating voltage (max. V)				
In the style of:				
<b>Mechanical properties</b>				
Minimum bending radius (mm)	25	40	50	50
Cable weight (kg/km)	+/- 38	+/- 48,5	+/- 63	+/-66
Copper weight (kg/km)	+/- 18	+/- 22	+/- 26	+/- 29
Suitable connectors		BNC 3.9 Compression		

# VIDEO DIGITAL SERIES - SDI/HD

SDI/ HD-TV

Massive copper

RoHS / REACH  
KONFORM



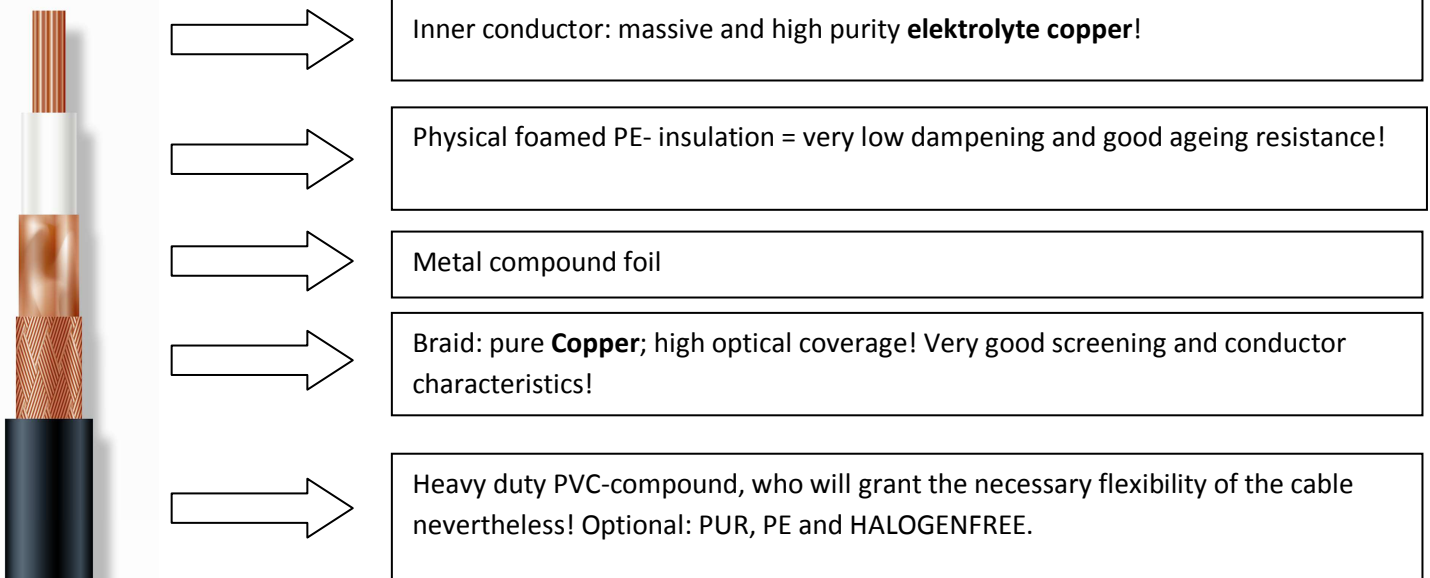
	75140 VZ SDI-HD (1.4/6.6)	75160 VZ SDI-HD (1.6/7.3)	75080 VZ+275SDI-HD (0.8/3.7 + 2x0.75 mm <sup>2</sup> )
<b>Construction</b>		Serie RG 11	Serie RG 59
Inner conductor	1.40 mm Cu blank	1.60 mm Cu blank	0.80 mm Cu blank
Insulation	6.4 mm Cell-PE +/- 0.1	7.3 mm Cell-PE +/- 0.1	3.7 mm Cell-PE +/- 0.1
Outer Conductor			
a)	Alu foil	Alu foil	Alu foil
b)	Copper braid tinned	Copper braid tinned	Copper braid tinned
c)	90 %	90 %	90 %
Jacket +/- 0,2 mm	9.2 mm PVC	10,3 mm PVC	12,6 x 6,1 mm PVC
<b>Electrical properties</b>			
Characteristic impedance ( $\Omega$ )	75	75	75
Capacity (pF/m)	56	56	55
Velocity (v/c)	0,78	0,78	0,78
Attenuation at 20°C (dB 100m)			
1 MHz	0,5	0,4	1,0
5 MHz	1,1	0,8	2,0
10 MHz	1,5	1,4	2,8
20 MHz	2,0	1,7	3,6
50 MHz	3,4	2,1	6,2
100 MHz	4,6	4,0	8,0
200 MHz	6,7	5,5	11,0
300 MHz	9,2	7,3	13,5
500 MHz	11,5	9,5	17,7
800 MHz	14,3	12,2	22,9
1000 MHz	16,2	14,0	25,7
1500 MHz	20,3	17,4	31,5
2250 MHz	27,4	23,6	39,7
3000 MHz	31,1	27,1	46,7
Shield dampening (dB)	> 90 dB	> 90 dB	> 90 dB
Return loss			
50 - 300 MHz	> 25	> 25	> 25
300 - 3000 MHz	> 21	> 21	> 21
DC resistance (Ohm/km)			
Inner conductor	12,5	9,6	34
Outer conductor	5,4	4,5	9
Operating voltage (max. V)			Low voltage 12/24 V
In the style of:			2 x H05Z-K 0,75 mm <sup>2</sup>
<b>Mechanical properties</b>			
Minimum bending radius (mm)	50	70	
Cable weight (kg/km)	+/- 98	+/- 129	+/108
Copper weight (kg/km)	+/- 42	+/- 65	+/- 35
Suitable connectors			



# HQ – LOW LOSS COAX CABLE

## LOW LOSS SERIES – 50 OHM

Application: e.g. (Mobil) radio engineering. Similar dimensions as classical RG-cables, but because of foamed insulation and additional metal-compound foil much better electrical properties. Compared to Standard RG cables this will allow longer installation length at equal cable dimensions – or higher transmission capacities at equal cable length.



Errors or subsequent changes of construction are not barred.

Low loss signal  
transmission

**RoHS/ REACH-  
konform**

# RG - STANDARD SERIES

Massive copper

RoHS / REACH  
KONFORM

Low loss signal  
transmission



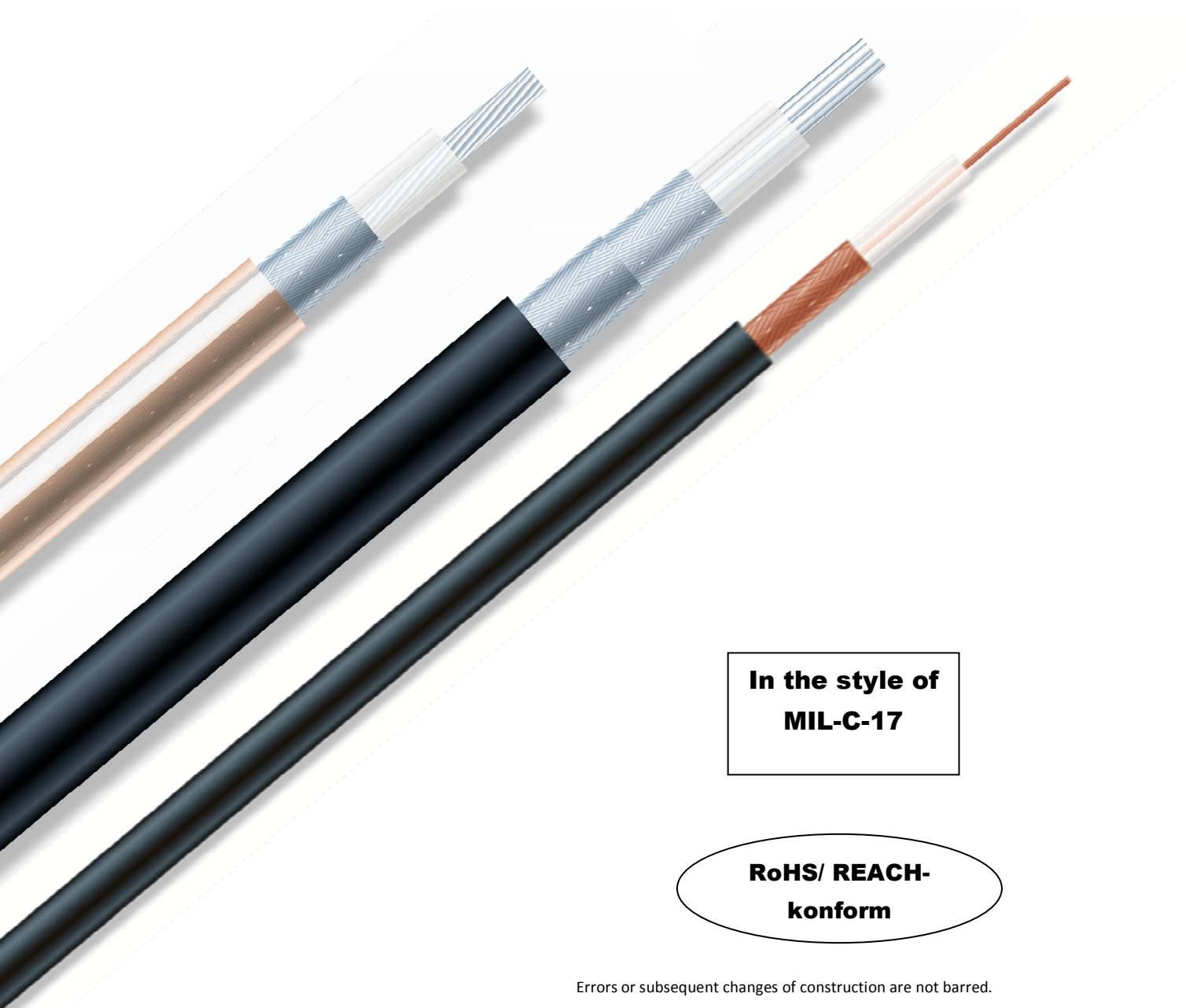
	<b>50110 MFZ</b> (1.08/2.95)	<b>50155 MFZ</b> (1.55L/3.9)	<b>50185 MFZ</b> (1.85L5.0)	<b>50285 MFZ</b> (2.85L/7.3)
<b>Construction</b>				similar to RG 213 LL
Inner conductor	1.08 mm copper bare	19x0.28mm cop. bare	19x0.37mm Cop. bare	7x1.0 mm Cop. bare
Insulation	2.95 mm cell-PE	3.9 mm cell-PE	5.0 mm cell-PE	7.25mm cell-PE
Outer Conductor				
a)	Copper foil	Alu foil	Copper foil	Copper foil
b)	Copper braid bare	Copper braid tinned	Copper braid bare	Copper braid bare
c)	> 70%	> 80 %	> 70 %	> 70 %
Jacket +/- 0,2 mm	5.0 mm PVC	5,4 mm PVC	7.3 mm PVC	10.2 mm PVC
<b>Electrical properties</b>				
Characteristic impedance ( $\Omega$ )	50 +/--3	50 +/--3	50 +/-- 3	50 +/--3
Capacity (pF/m)	82	82	82	82
Velocity (v/c)	0,81	0,80	0,78	0,85
Attenuation at 20°C (dB 100m)				
1 MHz				
5 MHz	2,3		1,7	0,9
10 MHz	3,2	3,1	2,3	1,4
20 MHz	4,3	4,0	3,1	1,8
50 MHz	6,8	6,6	4,7	3,0
100 MHz	10,1	9,5	6,4	4,3
200 MHz	13,9	13,7	9,2	5,8
300 MHz	17,0	16,4	11,6	7,3
500 MHz	22,3	21,0	15,0	9,6
800 MHz	28,4	27,9	19,3	12,9
1000 MHz	31,8	31,0	21,9	15,0
1500 MHz	39,4	38,9	27,5	18,1
2250 MHz	47,9	45,4	33,1	21,9
3000 MHz	58,3		41,6	32,8
Shield dampening (dB) - till 1 GHZ	> 85 dB	> 85 dB	> 80 dB	> 85 dB
Return loss				
50 - 300 MHz	>	>	>	>
300 - 3000 MHz	>	>	>	>
DC resistance (Ohm/km)				
Inner conductor	13,8	15,4	8,7	3,4
Outer conductor	20,7	17,3	8,6	8,3
Operating voltage (max. V)	350		650	950
In the style of:				
<b>Mechanical properties</b>				
Minimum bending radius (mm)	45	35	30	50
Cable weight (kg/km)	+/- 41	+/- 48	+/- 74	+/-166
Copper weight (kg/km)	+/- 22	+/- 23	+/- 42	+/- 89
Suitable connectors				

# RG STANDARD SERIES

## 50, 75, 93 OHMS

SYTRONIC RG coaxial cables are manufactured in the style of MIL-C-17. Because of the used high class materials and construction very robust products will be developed. There are cables for various applications.

We only list the most marketable variants. Other RG-Types are possible. Please ask for.



**In the style of  
MIL-C-17**

**RoHS/ REACH-  
konform**

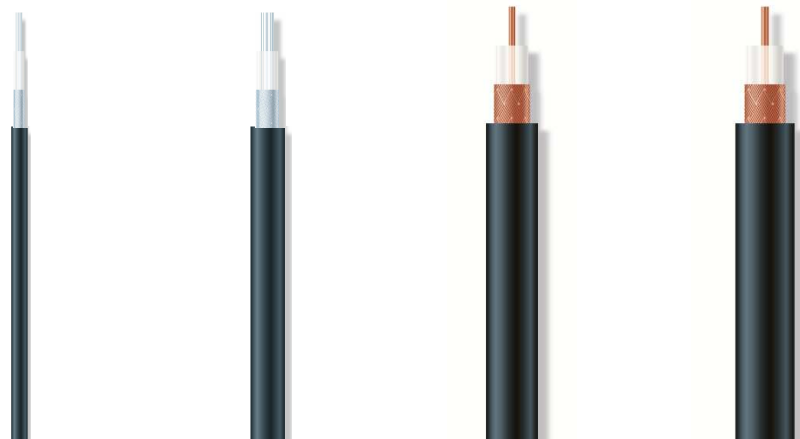
Errors or subsequent changes of construction are not barred.

# RG - STANDARD SERIES

Massive copper

RoHS / REACH  
KONFORM

In the style of  
MIL-C-17



	RG 174 A/U	RG 58 C/U	RG 8/U	RG 213/U
<b>Construction</b>	Mini		Similar to RG 213 UBX	
Inner conductor	7x0.16mm copperwel.	19x0.18mm copper ti.	7x0.70mm copper bar	7x0.75mm copper bar
Insulation	1.54 mm PE	2.95 mm PE	6.40 mm PE	7.30 mm PE
Outer Conductor				
a)	copper braid tinned	copper braid tinned	copper braid bare	copper braid bare
b)				
c)				
Jacket +/- 0,2 mm	2.8 mm PVC	4.95 mm PVC	9.5 mm PVC	10.3 mm PVC
<b>Electrical properties</b>				
Characteristic impedance ( $\Omega$ )	50 +/-3	50 +/-3	50 +/- 3	50 +/-3
Capacity (pF/m)	103	103	103	103
Velocity (v/c)	0,66	0,66	0,66	0,66
Attenuation at 20°C (dB 100m)				
1 MHz				
5 MHz				
10 MHz	9,6	4,7	2,0	1,8
20 MHz	13,7	7,2	3,0	2,8
50 MHz	21,8	10,7	4,8	4,4
100 MHz	31,1	15,3	7,8	6,8
200 MHz	44,5	22,8	10,6	9,7
300 MHz	50,3	28,3	13,4	12,3
500 MHz	72,7	37,0	17,2	16,2
800 MHz	91,3	48,8	24,0	21,5
1000 MHz	106,1	55,5	27,5	24,5
1500 MHz				
2250 MHz				
3000 MHz				
Shield dampening (dB)	>	>	>	>
DC resistance (Ohm/km)				
Inner conductor	306	36,0	6,0	5,5
Outer conductor	54	17,0	6,0	4,5
Operating voltage (max. V)				
In the style of:	MIL-C-17	MIL-C-17	MIL-C-17	MIL-C-17
<b>Mechanical properties</b>				
Minimum bending radius (mm)	15	25	50	50
Temperature range	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°
Cable weight (kg/km)	+/- 12	+/- 35	+/- 127	+/-154
Copper weight (kg/km)	+/- 6,2	+/- 18	+/- 54,8	+/- 82
Suitable connectors				

# RG - STANDARD SERIES

Massive copper

RoHS / REACH  
KONFORM

In the style of  
MIL-C-17



	RG 223 U	RG 214 U	RG 59 B/U	RG 59 B/U TWIN
<b>Construction</b>				
Inner conductor	0.90 mm copper silver	7x0.75mm copper silv	0,584mm copperweld	0,584mm copperweld
Insulation	2.95 mm PE	7.25 mm PE	3,7 mm PE	3,7 mm PE
Outer Conductor				
a)	Copper braid silvered	Copper braid silvered	Copper braid bare	Copper braid bare
b)	Copper braid silvered	Copper braid silvered		
c)				
Jacket +/- 0,2 mm	5.2 mm PVC	10.8 mm PVC	6.1 mm PVC	12,6 x 6.1 mm PVC
<b>Electrical properties</b>				
Characteristic impedance ( $\Omega$ )	50 +/--3	50 +/--3 %	75 +/-- 3 %	75 +/-- 3 %
Capacity (pF/m)	103	103	67	67
Velocity (v/c)	0,66	0,66	0,66	0,66
Attenuation at 20°C (dB 100m)				
1 MHz			1,2	1,2
5 MHz			2,6	2,6
10 MHz	4,0		3,3	3,3
20 MHz	5,8		4,7	4,7
50 MHz	9,4	4,7	7,5	7,5
100 MHz	13,7	7,2	11,1	11,1
200 MHz	19,8	10,5	16,8	16,8
300 MHz	20,5	12,9	21,9	21,9
500 MHz	22,3	18,5	27,0	27,0
800 MHz	42,8	22,9	35,1	35,1
1000 MHz	50,1	26,1	39,2	39,2
1500 MHz				
2250 MHz				
3000 MHz				
Shield dampening (dB) bis 1 GHz	> 75 dB	> 75 dB	> 75 dB	> 75 dB
<b>DC resistance (Ohm/km)</b>				
Inner conductor	27,0	5,5	311	311
Outer conductor	9	4,4	9	9
Operating voltage (max. V)				
In the style of:	MIL-C-17	MIL-C-17		
<b>Mechanical properties</b>				
Minimum bending radius (mm)	25	50	30	30
Temperature range	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°
Cable weight (kg/km)	+/- 60	+/- 205	+/- 51	+/- 102
Copper weight (kg/km)	+/- 33,7	+/- 118	+/- 23	+/- 46
Suitable connectors				



# RG - STANDARD SERIES

Massive copper

RoHS / REACH  
KONFORM

In the style of  
MIL-C-17



	RG 6 A/U	RG 11 A/U	RG 62 A/U	RG 71 B/U
<b>Construction</b>				
Inner conductor	0.72 mm Copperweld	7x0.40mm Copper bar	0.64 mm Copperweld	0.64 mm Copperweld
Insulation	4.7 mm PE	7.3 mm PE	3.7 mm PE hole	3.7 mm PE hole
Outer Conductor				
a)	Copper braid bare	Copper braid bare	Copper braid bare	Copper braid bare
b)	Copper braid silver			Copper braid tinned
c)				
Jacket +/- 0,2 mm	8.5 mm PVC	10.2 mm PVC	6.2 mm PVC	6,2 mm PVC
<b>Electrical properties</b>				
Characteristic impedance ( $\Omega$ )	75 +/--3	75 +/--3 %	93 +/-- 5 %	93 +/--3
Capacity (pF/m)	67	67	44	44
Velocity (v/c)	0,66	0,66	0,84	0,84
Attenuation at 20°C (dB 100m)				
1 MHz				
5 MHz				
10 MHz		2,3		
20 MHz		3,3		
50 MHz	5,9	5,3	5,8	5,8
100 MHz	8,6	7,7	8,2	8,1
200 MHz	12,7	11,2	11,9	11,7
300 MHz	15,5	16,4	14,8	14,3
500 MHz	17,2	18,5	19,2	18,7
800 MHz	26,7	24,3	24,9	24,4
1000 MHz	30,8	27,2	28,1	27,3
1500 MHz				
2250 MHz				
3000 MHz				
Shield dampening (dB) bis 1 GHz	> 70 dB	> 70 dB	> 55 dB	> 70 dB
<b>DC resistance (Ohm/km)</b>				
Inner conductor	105	19,0	130	130
Outer conductor	5,0	4,0	11,0	7,0
Operating voltage (max. V)				
In the style of:	MIL-C-17	MIL-C-17	MIL-C-17	MIL-C-17
<b>Mechanical properties</b>				
Minimum bending radius (mm)	40	50	15	25
Temperature range	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°	-20,0 till + 70,0 C°
Cable weight (kg/km)	+/- 123	+/- 125	+/- 52	+/- 61,7
Copper weight (kg/km)	+/- 64,5	+/- 44	+/- 26	+/- 44
Suitable connectors				

# RG - STANDARD SERIES

**Braid massive copper**

**RoHS / REACH  
KONFORM**

**In the style of  
MIL-C-17**

**Heat proof**



	RG 178 B/U	RG 316 B/U	RG 142 B/U	RG 179 B/U
<b>Construction</b>				
Inner conductor copperweld silvered	7x0.102mm	7x 0.17 mm	1 x 0,94 mm	7 x 0,10 mm
Insulation	0.84 mm PTFE	1.52 mm PTFE	2,95 mm PTFE	1.55 mm PTFE
Outer Conductor				
a)	Copper braid silvered	Copper braid silvered	Copper braid silvered	Copper braid silvered
b)				
c)				
Jacket +/- 0,2 mm	1,8 mm FEP brown	2,49 mm FEP brown	4,95 mm FEP brown	2,5 mm FEP brown
<b>Electrical properties</b>				
Characteristic impedance ( $\Omega$ )	50 +/--3	50 +/--3	50 +/-- 3	75 +/--3
Capacity (pF/m)	94	91	94	102
Velocity (v/c)	0,70	0,70	0,70	0,70
Attenuation at 20°C (dB 100m)				
1 MHz				3,0
5 MHz				10,0
10 MHz				12,0
20 MHz				
50 MHz	38,0	19,2		15,0
100 MHz	52,5	28,7		21,0
200 MHz	65,3			
300 MHz	81,0			41,0
500 MHz	120,7		35,2	58,0
800 MHz				78,0
1000 MHz	170,0	104,8		90,0
1500 MHz				
2250 MHz				
3000 MHz	308,0	209,2		
Shield dampening (dB) bis 1 GHz	>	>	>	>
DC resistance (Ohm/km)				
Inner conductor	784	270		784
Outer conductor	76	40		56
Operating voltage (max. V)				
In the style of:	MIL-C-17	MIL-C-17	MIL-C-17	MIL-C-17
<b>Mechanical properties</b>				
Minimum bending radius (mm)	10	15		10
Temperature range	-50 C° till + 200 C°	-50 C° till + 200 C°	-50 C° till + 200 C°	-50 C° till + 200 C°
Cable weight (kg/km)	+/- 9,3	+/- 18,1	+/- 83,3	+/- 15
Copper weight (kg/km)	+/- 4,7	+/- 8,8	+/- 47,0	+/- 7,8
Suitable connectors				

# SPEAKER CABLES

## Massive copper - Purity level 99,9 % - DIN VDE 0295

(Please ask for other dimensions.)

Audio cables with a special good price performance ratio. Thereby qualitatively high class because this products are made from purity electrolyte copper „Grade A“ with a purity level of 99,9 %.

Errors or subsequent changes of construction are not barred.

### STANDARD No. 1

<i>Construction:</i>	<b>2 x 1,50 mm<sup>2</sup></b>	<b>2 x 2,50 mm<sup>2</sup></b>	<b>2 x 4,00 mm<sup>2</sup></b>
Inner Cond. copper bare	30 x 0,24 mm	50 x 0,24 mm	52 x 0,30 mm
Jacket	PVC transparent	PVC transparent	PVC transparent
Core marking	red marker tape	red marker tape	red marker tape
Dimension (+/- 0,10 mm)	2,60 mm x 5,0 mm	3,60 mm x 7.5 mm	4,0 mm x 8,9 mm
Thickness (+/- 0,22 mm)	0,60 mm	0,80 mm	0,60 mm
Cable weight (kg/km)	37	62	105
Copper No. (km)	30	50	80
Max. Cond. resistance	13,3 Ohms/km	7,98 Ohms/km	4,95 Ohms/km

### STANDARD No. 2

<i>Construction:</i>	<b>2 x 0,75 mm<sup>2</sup></b>	<b>2 x 1,50 mm<sup>2</sup></b>	<b>2 x 2,50 mm<sup>2</sup></b>
Inner Cond. copper bare	24 x 0,20 mm	48 x 0,20 mm	78 x 0,20 mm
Jacket	PVC tr, wh, bla, br, gr	PVC tr, wh, black	PVC tr, wh, black
Core marking	red marker tape	red marker tape	red marker tape
Dimension (+/- 0,22 mm)	2,20 mm x 4,00 mm	2,60 mm x 5,0 mm	3,60 mm x 7.5 mm
Thickness (+/- 0,22 mm)	0,40 mm	0,60 mm	0,80 mm
Cable weight (kg/km)	23,0	37	62
Copper No. (km)	14,4	30	50
Max. Cond. resistance	26,0	13,3	7,98

### HIGHFLEX

<i>Construction:</i>	<b>2 x 1,50 mm<sup>2</sup></b>	<b>2 x 2,50 mm<sup>2</sup></b>	<b>2 x 4,00 mm<sup>2</sup></b>
Inner Cond. copper bare	189 x 0,10 mm	322 x 0,10 mm	511 x 0,10 mm
Jacket	PVC transparent	PVC transparent	PVC transparent
Core marking	red marker tape	red marker tape	red marker tape
Dimension (+/- 0,22 mm)	2,8 mm x 6,0 mm	3,60 mm x 7.5 mm	4,4 mm x 9,5 mm
Thickness (+/- 0,22 mm)	0,70 mm	0,80 mm	0,90 mm
Cable weight (kg/km)	37	62	105
Copper No. (km)	30	50	80
Max. Cond. resistance	13,3	7,98	4,95
Insul. Resistance (min Ω /km)	0,010	0,0095	0,0078
Temperature range	-30 .....+70 C°	-30 .....+70 C°	-30 .....+70 C°



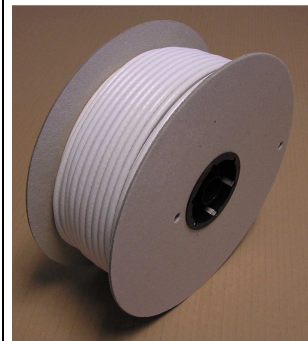
**Ring in plastic bag**  
5m, 10m, 25m, 50m, 100m  
(even sealed possible)

PU (100m): 10,0 km



**Ring in card board box**  
10m, 25m, 50m, 100m

PU (100m): 10,0 km



**Card board reel**  
50m, 100m

PE: 8,0 km



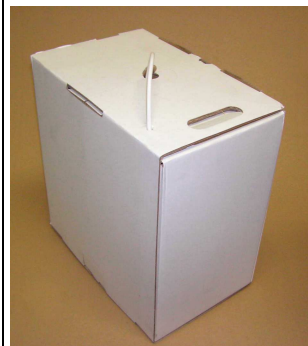
**Ring for use in div. cable boxes**  
100m, 250m

PU (100m): 10,0 km/ (250m): 9,0 km



**Plastic reel use in div. cable boxes**  
100m

PU: 8,0 km



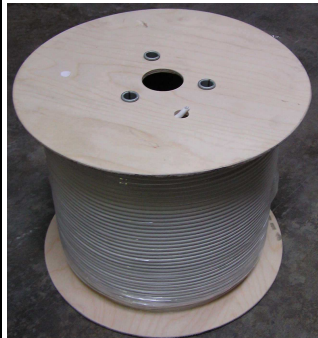
**Dispensing package  
(Cross-wound technique)**  
250m

PU: 4,5 km



**Plastic reel**  
250m

PU: 9,0 km



**Ply wood drum**  
250m, 500m, 1000m

PU: 9,0 km, 12,0 km, 6,0 km



**KTS wood one way drum**  
>1000m

It is possible to label all packaging custom-made (please ask for).

## 1. Sales Conditions

- 1.1 We deliver on the basis of our General Terms and Conditions of Business. Deviating purchasing conditions, even if they have not expressly been rejected by us, are not binding for us. Deviating purchasing conditions need our express confirmation in writing. A withdrawal from the contract - cancellation of an order - also in case of a possible delay of delivery on our part becomes binding only if the acceptance of the cancellation has expressly been confirmed by us in writing.
- 1.2 All agreements become invalid if they have not been confirmed by us in writing within 8 (eight) working days. The customer does not possess any rights for the assignment of any rights from the contract to third parties.
- 1.3 Any price quotations are without obligation and subject to alteration. Decisive are alone the prices stated in the confirmation of order.
- 1.4 The metal quotation at the stock exchange is the basis of the raw material calculation or the account for the raw materials supplied. This is established on the basis of the quotation of the non-ferrous metal processors for electrolyte copper wire bars for conducting purposes (Del Quotation). You find these values published in the economic section of the major daily newspapers.
- 1.5 Our prices are based on the cost relations of the purchasing costs of the raw material market at the time when the order is placed. In the case of a change of these cost relations, we will be justified to carry out subsequently an adaptation of price or, alternatively if necessary, to withdraw from the total order and/or from a part of the order.
- 1.6 Orders on call. The customer undertakes to determine the time for the total delivery and to inform us of this in writing if an order has been placed to be delivered on call. This also applies in the case of orders to be delivered in part consignments in certain intervals.
- 1.7 Orders are considered as accepted only on the condition that they have been confirmed in writing by the works of the supplier.

## 2. Terms of delivery

- 2.1 The time of delivery determines the approximate time for the dispatch of the consignment from our plant after fulfilment and the prerequisites for an undisturbed processing. In case we are prevented from carrying out delivery on account of a disturbance in the work procedure in our plant or on account of an unforeseen event or by one of our in-suppliers causing, in spite of all their reasonable care, a non-fulfilment of their supplies, then our date of delivery will be extended to an adequate extent. Our duty to supply will completely be cancelled in case the delivery becomes impossible due to these circumstances.
- 2.2 An agreed time of delivery begins on the day when the agreement concerning the order has been concluded in writing between the customer and the company accepting the order. A prerequisite for meeting the time limit is the complete receipt of all order documents in due time, the observation of the payment conditions agreed and all other obligations on the part of the customer, necessary for the execution of the order.
- 2.3 After the expiration of a time limit for the acceptance of the goods, we are no longer obliged to carry out the delivery. It is in our discretion to withdraw from the order, to demand an advance payment or to make our delivery dependent on corresponding securities if we become aware of circumstances after the conclusion of the contract which will justify our doubting the creditworthiness of the customer. We are particularly justified to execute this right if the customer fails to pay in spite of our reminder and if payment of our claim is not settled immediately or without delay by the customer, in spite of our demands having become overdue.
- 2.4 Dispatch. We supply for a net goods value above 1,250.00 € on the basis free home delivery or free place of the consignee, valid for the dispatch on the home market. Above 1,600.00 € net goods value, we supply free German border for a dispatch to foreign countries.

## 3. Payment Conditions

- 3.1 Invoicing is effected one day after delivery of the order or on the following working day after delivery of the order. Delivery of the order - Date of invoice. We are justified to assign the claims from our business connection.
- 3.2 In the case of a delay of payment or if the expiration of the credit period is neglected, we are justified to charge, without special agreement, interest in one hundred percent for comparable short-term banking loans. Independent of that, however, consequences of the delay of payment will become already at that time effective. All of our claims will become payable immediately in cash, including any bills of exchange which have not yet been honoured. The customer can no longer sell the goods which remain in our property or co-property (see Item 5: Reservation of Property), and he undertakes to provide for us securities for the amount covered. We have identical rights if we maintain justified doubts in the creditworthiness of the customer.
- 3.3 The payment conditions will be agreed upon with us and require our consent and confirmation in writing.
- 3.4 Decisive for discounting is the date of invoice. The amount for the copper value contained in the cable is not permitted to be discounted.
- 3.5 The customer is allowed to set off amounts only in the case of recognized counter claims or keep back any payments due.
- 3.6 All payments are to be carried out with debt discharging effect only by means of a transfer to the GE-Capital Bank AG, Heinrich-von-Bretano-Str. 2, 55310 Mainz, to whom we have assigned our claims from our business connections.

4. **Passage of risk.** All risks pass over to the consignee or customer as soon as the goods have been reported as being ready to be picked up or ready for shipment or have left our plant or have been taken over by the customer in our plant. This also applies in the case of a transport at no charge to the customer.
5. **Reservation of property.** The supplier reserves the right of property in the material supplied and in those new goods that were possibly manufactured in the course of production by means of the material supplied, pending the settlement of all claims the supplier has against the customer, also from a current account. Also in the case of conflicting purchasing terms and conditions, the transference of our goods remains subject to the reservation of our proprietary rights in the goods, pending full payment.
6. **Warranty**
- 6.1 The customer is obliged to carry out, after receipt of the goods, without delay a practical and technical checking of the incoming goods on the basis of our shipping documents. The customer cannot be released from this duty. Any expenses that are caused during further production through unchecked material at the place of the customer must be borne by the customer.
- 6.2 We accept a warranty for a lack of quantities guaranteed and/or for an exterior obvious defect at the goods only if a claim is made in writing within 10 (ten) working days after delivery, while stating the data of the order, consignment documents and delivery note.
- 6.3 The customer can submit claims, if any, on account of obvious or inherent defects of the goods or on account of the lack of guaranteed properties of the material within 12 (twelve) months, applicable from the date of the delivery note.
- 6.4 All demands for claims resulting from defects of the goods delivered require that the defect is reported immediately after it has been found, and that a sample of the defective goods is placed at our disposal free of charge.
- 6.5 We are entitled either to repair the defective goods or those goods that lack the guaranteed properties free of charge or to supply a substitute consignment. The decision will be made by us at our discretion. This obligation refers only to defects of goods where it can be proved that these goods have become unusable or their usefulness or usability has substantially been impaired due to an event incurred prior to the passing of the risks, in particular due to incorrect or defective construction, faulty material or unsatisfactory implementation.
- 6.6 The customer is obliged to grant us in the case of a justified claim an adequate period of time for carrying out the repair work or, if necessary, making a substitute delivery. If the customer refuses to grant this period of time, we will be released from the duty to provide a warranty or the obligation to supply.
- 6.7 The customer is entitled to the right of reduction, if it is not possible for us to carry out the repair work of the defective goods within an adequate period of time or if there are compelling reasons that make repair work impossible. The customer is entitled to demand a cancellation of the sales contract in case no agreement can be reached between the customer and our company regarding the amount of the reduction.
- 6.8 The customer is, after having made a complaint, entitled to keep payments back only on the condition that there are no doubts left about the justification of the complaint.
- 6.9 Claims of the customer on account of defects of the material or the lack of guaranteed properties come under the statute of limitations in any case from the time of the complaint within 12 (twelve) months.
- 6.10 Other claims on the part of the customer or of third parties, in particular an indemnification for cases of damage which have not been incurred at the material supplied itself or which represent consequential damage are excluded. This does not apply in cases with malice aforethought or gross negligence in which case conclusive liability applies.
- 6.11 Goods delivered are taken back only if this has been agreed before.
7. **Liability**
- 7.1 Unless it has been stated above differently, the supplier is liable for claims for damages on the part of the customer on account of a breach of an obligation other than by delay or impossibility, on account of a violation of duties in the course of contract negotiations and on account of actions that are not allowed, as follows:
- a) The liability for injuries of persons is regulated by the operation of law.
- b) The liability for material damage is limited to 250,000 Euro per loss event and to a total of 500,000 Euro.
- c) The liability for property damage is excluded. The limitation of liability under b) and the liability exclusion under c) do not apply as far as there is a stringent liability for damage at privately utilized articles according to the Product Liability Law or in cases of malice aforethought or gross negligence in which case conclusive liability applies
8. **Place of performance and place of venue** for all liabilities, also legal suits concerning bills of exchange and proceedings restricted to documentary evidence, is for both contracting parties Unna, Germany, which is the commercial seat of the Company.
9. **Final provisions.** The remaining legal provisions remain legally binding, even if individual contract items are or become legally invalid.







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