

CAVEL

QUALITY CABLES FOR VIDEO SECURITY

143 - EUROPE



Coaxial Cables
CAVEL
since 1968

www.cavel.it - cavel@cavel.it

EU PRODUCT
EU CABLES - RoHS COMPLIANT
15 YEARS WARRANTY
LEAD FREE
ALL MADE IN ITALY

CAVEL

150m

Coaxial Cables
CAVEL
since 1968



RoHS Compliant
ECOLOGICAL
PACKING

Coaxial Cables
CAVEL
since 1968

Authenticated
Packing

Video Security Coaxial Cables - Multipurpose Installation (LSZH jacket)

CAVEL code		VSHD 70	VSHD 80		-205	-2075	-210	VSHD 113	
CONSTRUCTION DATA									
Inner Conductor	dia. mm	0,70	0,80					1,13	
	material	Cu	Cu					Cu	
Dielectric	material	PEG	PEG					PEG	
	dia. mm	2,90	3,50					4,80	
SCREEN									
1. Film Foil Laminate	material	APA	APA					APA	
	material	CuSn	CuSn					CuSn	
Braid Optical Coverage	%	73	65					72	
	dia. mm	3,40	4,00					5,30	
Electric Leads									
	mm ²	2x0,5	2x0,75					2x1,0	
	Max. I A	4	6					8	
	Max. V	50	50					50	
	R Ω/km	37	24					18	
Sheath	dia. mm	4,30	5,00					6,60	
	material	LSZH	LSZH					LSZH	
	colour	blue	blue					blue	
Non Migrating Film	material	-	-					-	
Outer Sheath									
	size mm	-	-					-	
	material								
	colour								
PHYSICAL DATA									
Copper Content	kg/km	10,0	11,1					19,2	
Cable Weight	kg/km	21,7	26,6					45,2	
Min. Bending Radius:									
single/repeated bends	mm	20/40	25/50					35/70	
Max. Tensile Strength	N	80	90					150	
ELECTRICAL DATA									
Impedance	Ohm	75±3	75±3					75±3	
Capacitance	pF/m	52±2	52±2					52±2	
Velocity ratio	%	85	85					85	
Attenuation (at 20°C)									
at 2 MHz	dB/100m	1,6	1,3					1,0	
at 3 MHz	dB/100m	1,9	1,6					1,2	
at 4 MHz	dB/100m	2,2	1,9					1,4	
at 5 MHz	dB/100m	2,5	2,1					1,6	
at 200 MHz	dB/100m	13,0	11,0					8,0	
at 862 MHz	dB/100m	27,8	23,0					17,1	
Structural Return Loss (SRL)									
at 5 - 470 MHz	dB	> 30	> 30					> 30	
at 470 - 1000 MHz	dB	> 28	> 28					> 28	
Screening Attenuation (SA)									
at 5 - 30 MHz (TI)	class	A	A					A+	
at 30 - 1000 MHz	mΩ/m	< 5,0	< 2,5					< 2,5	
	dB	> 90	> 90					> 95	
DC Resistance: inner/outer	Ohm/km	45,5 / 19,6	35 / 18,6					18 / 13,9	
Loop Resistance	Ohm/km	65,1	53,6					31,9	
Sheath Insulation Voltage	kV	2,5	2,5					3,0	
Max. Current (I_{eff})	A	3,0	4					8	
Specification Conformity	EN50117	2-4	2-5					2-5	
Standard Packing									
Put-up	mode	coi	coil	coi	coil	reel	reel	reel	coil
Unit Length	m	200	500	150	400	150	150	150	100
Unit Packing Content	m	1200	1000	900	800	300	300	300	600
Packing Pattern	mod.	S200M	S500L	S150M	S400L	R150L	R150L	R150L	S100M
Fits CABLEBOX	item	DS100	DS250	DS100	DS250	DS250	DS250	DS250	DS100
Tools & Connectors (look at page 6)									

THE COAXIAL CABLE

As one of the first companies to design high-quality cables specifically for the video security sector, CAVEL has continued its research and development work and invested resources in this to achieve innovative, high-performance products.

Today, CAVEL offers a range of coaxial cables both single and provided with electrical conductors. They are suitable for both analogue systems and cameras and digital HD systems as well as more sophisticated video transmissions with professional equipment fitted with SDI and HD-SDI interfaces.

For decades classic RG/U cables under MIL specification have been used in this field of application. These included both 50 Ohm cables such as the RG58 and, more specifically, 75 Ohm cables such as the RG11. Above all, however, the RG59 and substitutes, such as the KX6 in France and the URM70 in Great Britain, have been used.

Nowadays, all of these cables are considered obsolete and technologically outclassed by **low loss** coaxial cables with nitrogen gas physical injection dielectric and high screening efficiency via a double screen; Al/Pet tape and braid of tinned copper wires.

This provides better linear attenuation, allowing you to install long stretches of cable without the need for amplification. It also offers **high screening efficiency** against electromagnetic interference (EMI).

In order to aid professional video security installers and use the best solutions for each type of system, CAVEL has significantly widened its range of dedicated coaxial cables, called VSHD.

This range now consists of three differ-

ent coaxial cables with attenuation levels that decrease with the diameter of the inner conductor, while the external diameter increases. This translates into: a diameter of 3.40mm for the **VSHD70**, a diameter of 5.00mm for the **VSHD80**, a diameter 6.60 for the **VSHD113**.

The installer is able to choose the appropriate product both in terms of the size of any pre-existing conductors and in terms of using the longest stretches of cable possible.

To provide remote power supply to the cameras, including PTZ (Pan, Tilt and Zoom) controls, composite cables are available. In these cables, the coaxial is combined with electrical conductors with different sections depending of the distance of the cameras from the power supply as well as the operating voltage of the equipment.

Finally, an important feature that should not be forgotten and is common to all CAVEL coaxial cables and LANs for video security is the blue LSZH sheath, which boasts the following characteristics:

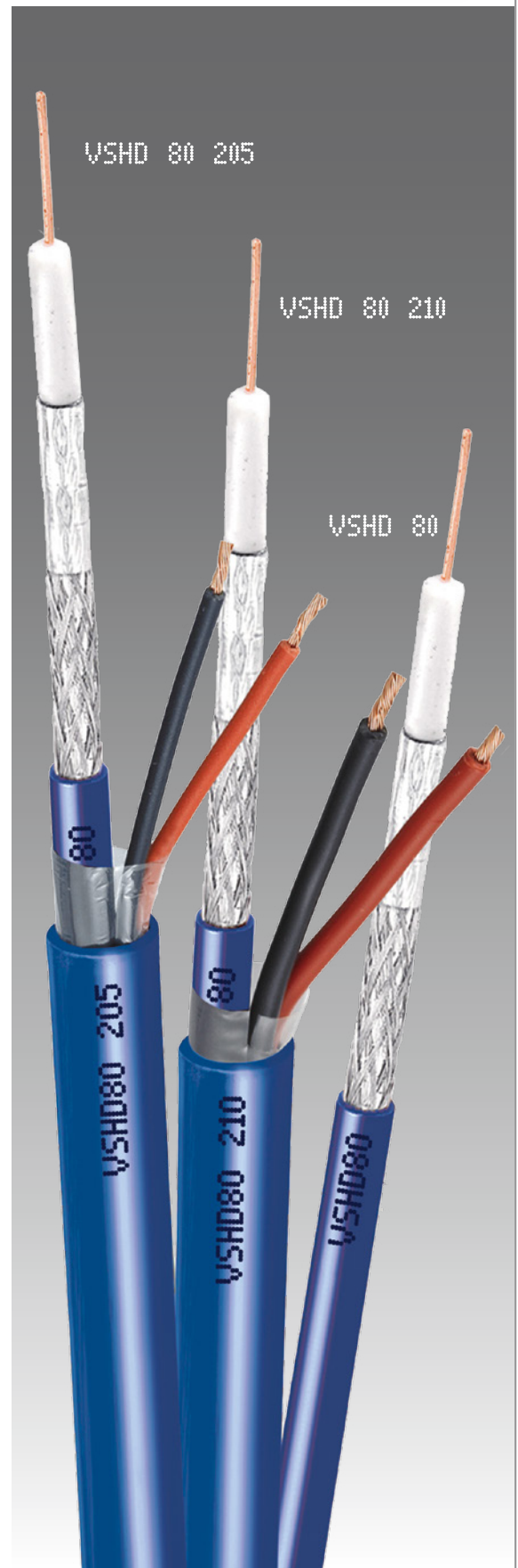
- No propagation of flames and fires
- Low smoke emissions
- No halogen fumes
- Resistance to UV rays
- Ideal for both indoor and outdoor installation
- Recommended for installation in public areas and in all cases where fire safety is a priority, for example: schools, hospitals, banks, airports, etc.
- Designed to comply with Standard IEC-UNEL 36762, which allows these cables to coexist with other electrical cables in the same distribution duct.

The table below will help you to select the most suitable CAVEL product. This table distinguishes:

- cables according to the attenuation and maximum stretch of that can be realized, depending on the use of analogue or digital cameras;
- the loop resistance of electrical leads, to determine the voltage drop, depending on the distance from the equipment.

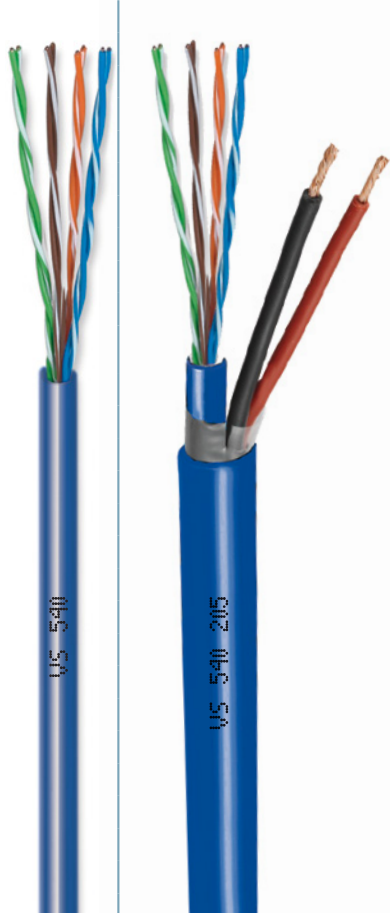
Coaxial Cable	Attenuation @ 5 MHz (analogue)	Attenuation @ 200 MHz (digital)	Screening Attenuation Class	External Diameter	Max. stretch (analogue)	Max. stretch (digital)
	dB/100m	dB/100m				
VSHD70	2,5	13	A	4,3	700	150
VSHD80	2,1	11	A	5,0	1.000	250
VSHD113	1,6	8	A+	7,0	1.500	300
Electrical Lead	Section	Resistance	Loop Resistance	Voltage Drop		
	mm ²	Ohm/km	Ohm/km			
	205	0,5	37	74	V = I Rloop	
	2075	0,75	24	48		
210	1,0	18	36			

Coaxial cables for Video Security



Video Security Networking Cables - Multipurpose Installation (LSZH jacket)

CAVEL code	VS 540		-205	-210
Category	5e U/UTP			
Construction	4x2x AWG24/1			
CONSTRUCTION DATA				
Conductors	dia. mm	0,51	mm ²	2x0,5
	material	Cu	Max. I A	4
Insulation	material	PE	Max. V	50
	dia. mm	0,9	R /km	37
				18
Sheath	dia. mm	5,1		
	material	LSZH		
	colour	blue		
Non Migrating Film	material		Pet	Pet
Outer Sheath	size mm		7,20x9	7,20x9,8
	material		LSZH	LSZH
	colour		blue	blue
PHISICAL DATA				
Copper Content	kg/km	14,6	23,5	31,1
Cable Weight	kg/km	30,5	70,5	82,0
Min. Bending Radius				
	installation / operation	mm	50 / 25	
Temperature				
	installation	°C	0÷50	
	operation	°C	-20÷60	
Max. Pulling Strength	N	100		
ELECTRICAL DATA				
Impedance				
	1 ÷ 100 MHz	Ohm	100 +/- 15	
Mutual Capacitance		pF/m	48	
Velocity Ratio		%	67	
Transmission Data	a 20°C	Attenuation	NEXT	ACR
		dB/100m	dB	dB/100m
	at 2	MHz	2,7	71,0
	at 3	MHz	3,3	68,0
	at 4	MHz	3,8	65,0
	at 5	MHz	4,2	64,0
	at 100	MHz	19,8	41,0
	at 200	MHz	27,5	36,0
				21,2
				8,5
				20,0
				20,0
				20,0
				20,0
Loop Resistance	Ohm/km	<190		
Insulation Resistance	MΩ/m	> 2000		
Voltage Test (1min. DC)	V	1000		
Flame Resistance	acc. to	IEC 60332-1		
Specifications Conformity				
	EN	50173; 50288-3-1		
	IEC	61156-5		
	ISO/IEC	11801 2nd ed.		
	TIA/EIA	568A		
Standard packing				
Put-up	mode	coil	coil	reel
Unit Length	m	150	300	150
Unit Packing Content	m	900	600	300
Packing Pattern	mod.	S150M	S300L	R150L
Fit CABLEBOX	item	DS100	DS250	DS250



THE UTP CABLE

The most recent investments that our company has made improving the production of symmetrical twisted pair cables mean that we are able to provide a UTP network cable which can be either:

- single:
 - CAVEL VS540**
 - Cat. 5e U/UTP 4x2xAWG24/1 LSZH blue;**
- or fitted with electrical conductors:
 - VS540 205** with 0.5 mm² section wires and
 - VS540 210** with 1,0 mm² section wires,
- all suited to creating the aforementioned, IP-based,
- digital solutions.
- all provided with a blue LSZH sheath.

The coaxial cables presented before are still popular technological solutions today and are well proven to require a small amount of auxiliary equipment compared to the UTP cable as they do not require conversion equipment.

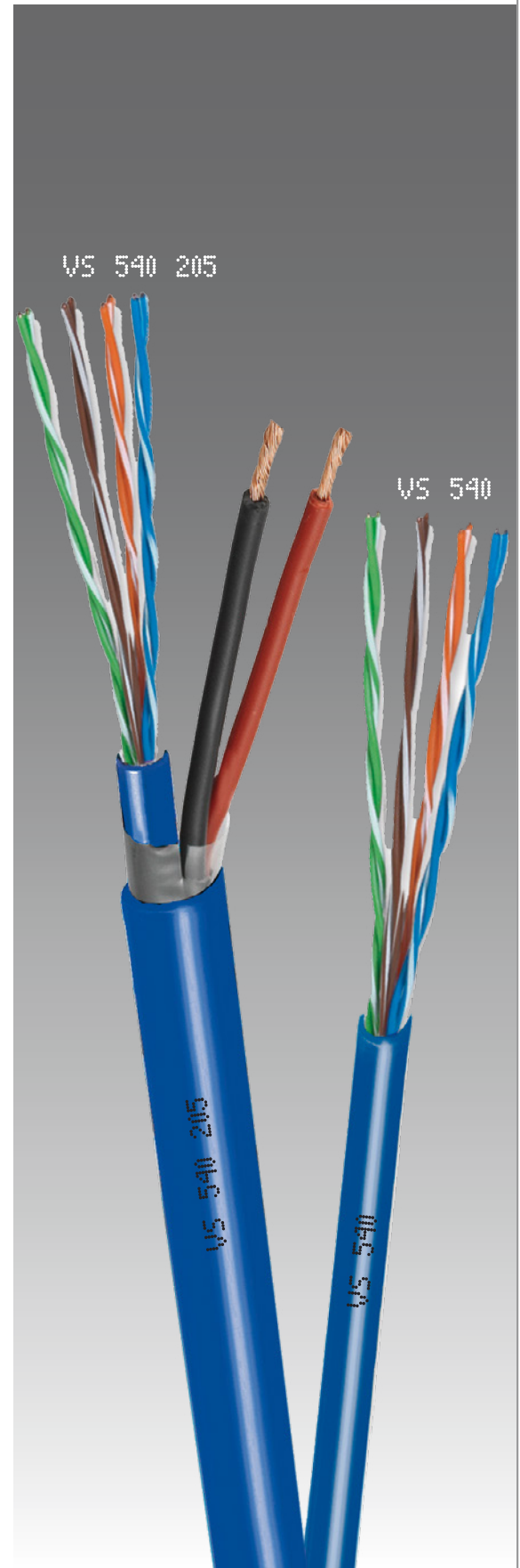
On the other hand, in order to convert the RF signal from 75 Ohm to 100 Ohm to feed through the pairs, the UTP cable requires baluns. They offer reasonable performance up to 300m or more only if connected by active (powered) devices.

Nevertheless, the UTP cable plays an ever-more important part by spreading integrated safety systems in which video, alarm monitoring and access control are taken care of in a single LAN network. In addition, they are used with the so called "megapixels" cameras, which are able to record images at an excellent level of resolution.

The table below summarises the main features for calculating the voltage drop of twisted pairs and auxiliary electric leads.

LAN Cable	Attenuation @ 5 MHz (analogue)	Attenuation @ 200 MHz (digital)	External Diameter	Max. stretch (analogue)	Max. stretch (digital)
	dB/100m	dB/100m			
VS540	4,2	27,5	5,1	300	90
Electric Lead	Section	Resistance	Loop Resistance	Voltage Drop	
	mm ²	Ohm/km	Ohm/km		
AWG24	0,2	95	190	V=IRloop	
205	0,5	37	74		
210	1,0	18	36		

LAN cables for Video Security



TOOLS

FC02
Scissors suitable for any
 coax and electric cable



CS00 Multipurpose **Stripper**
CS70 Dedicated **Stripper** for VSHD70



LUB01
Cable Pulling Lubricant
(1000 ml)
 Reduced pulling strength
 simplifies to run cables
 trough pipes.
 Water based, clean
 and harmless to users.
 Stable at temperature
 up to 82°C (180°F);
 freezes at -5°C (23°F).



BNC CONNECTORS

BNCC 70
 Corning



BNCC 3.9C
 CAVEL



BNCC 501
 Corning



BNCC 703
 Corning



BNC TOOLS

COT04
Compression Tool
 suitable for BNC connectors



COT05
Compression Tool
 Multi-purpose tool with interchangeable
 inserts for
 BNC, F and IEC connectors.



Cross Reference Chart

TOOLS AND CONNECTORS

CABLE	STRIPPER	BNC CONNECTORS Corning	BNC CONNECTORS CAVEL	BNC COMPRESSION TOOLS
VSHD113	CS00	BNCC 703	-	COT04-COT05 BL
VSHD70	CS70	BNCC 70	-	COT04-COT05 BL
VSHD70 205	CS70	BNCC 70	-	COT04-COT05 BL
VSHD70 2075	CS70	BNCC 70	-	COT04-COT05 BL
VSHD70 210	CS70	BNCC 70	-	COT04-COT05 BL
VSHD80	CS00	BNCC 501	BNCC 3.9C	COT04-COT05 BL
VSHD80 205	CS00	BNCC 501	BNCC 3.9C	COT04-COT05 BL
VSHD80 2075	CS00	BNCC 501	BNCC 3.9C	COT04-COT05 BL
VSHD80 210	CS00	BNCC 501	BNCC 3.9C	COT04-COT05 BL

Note

We suggest to look at our WEB site: www.cavel.it
 to check out the availability of any further up-date for:
 - both BNC and other interfaces connectors and accessories;
 - as well as single and composite cables dedicated to Videosecurity.

CABLEBOX DISPENSER PACKING SYSTEM



mod. S100M

6x100m shrunk coils in box = 600m

mod. S150M

6x150m shrunk coils in box = 900m

mod. S200M

6x200m shrunk coils in box = 1200m

fit CABLEBOX DS 100



M

mod. S400L

2x400m shrunk coils in box = 800m

mod. S500L

2x500m shrunk coils in box = 1000 m

fit CABLEBOX DS 250

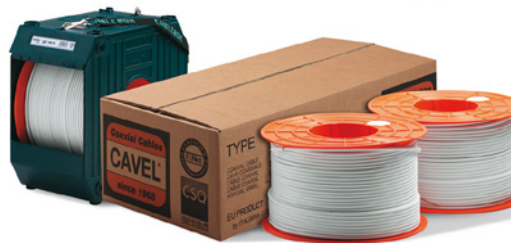


L

mod.R150L

2x150m plastic reel in box = 300m

fit CABLEBOX DS 250



L

Temperatures

Minimum temperature for installation: -5°C

Operating temperature:

PVC sheath - 30 a 80°C

LSZH sheath - 25 a 80°C

PE sheath - 40 a 80°C

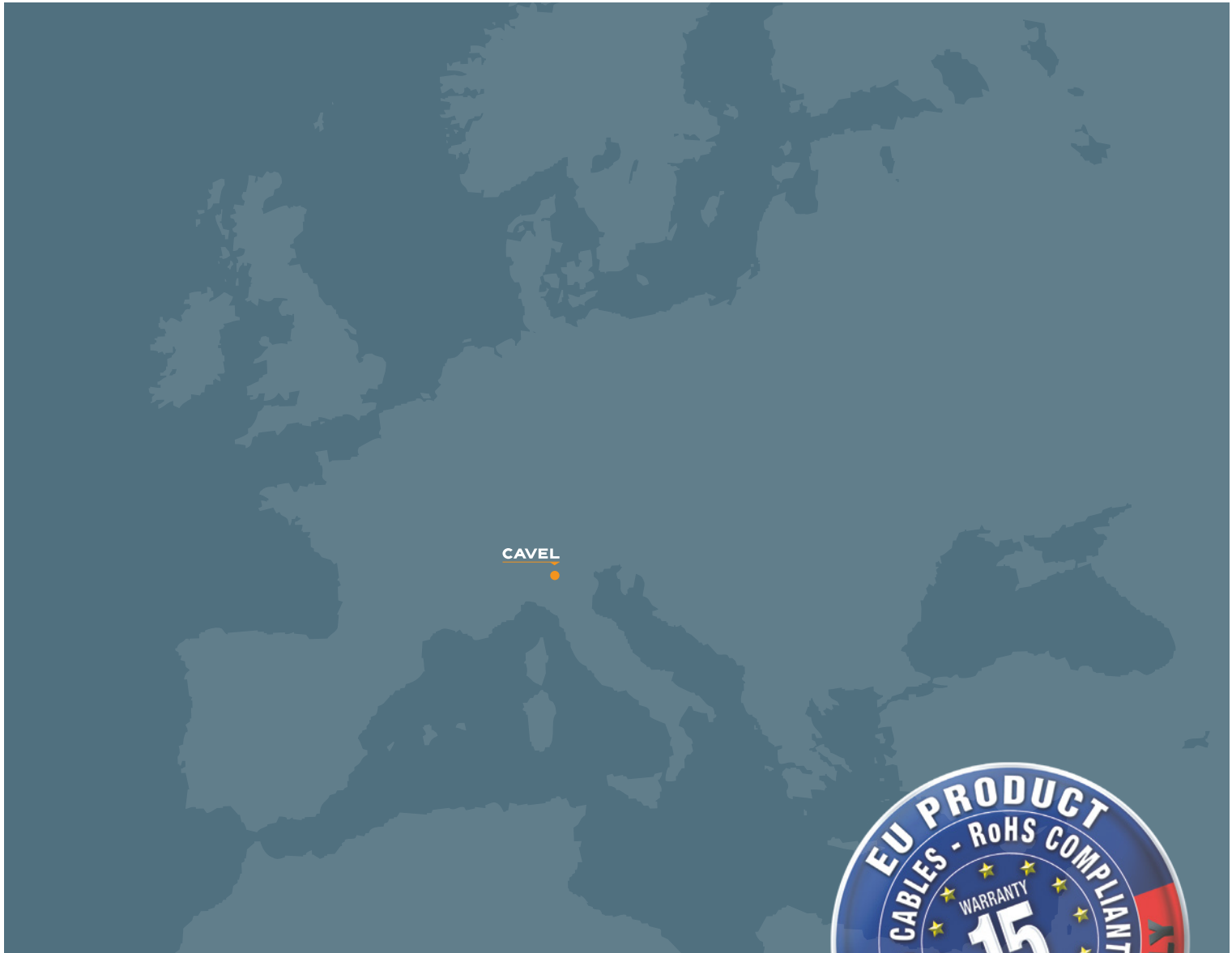
LIMIT OF RESPONSIBILITY

Every care has been taken to ensure the information contained in this publication is correct. The company reserves the right to alter or modify the information contained herein at any time and no legal responsibility can be accepted for any inaccuracy.

The cables illustrated in this catalogue must be used solely for the purposes for which they were expressly designed, which is the reception and distribution of audio, video and data signals. Any other use is deemed to be inappropriate and our approval should be sought for alternative applications. The manufacturer and the seller decline all responsibility for any problems that may occur due to improper, incorrect and unreasonable use.

LEGEND

ACR	Signal/Noise Ratio
Al	Aluminium
AP	Al-Polyester
APA	Al-Polyester-Al
APAS	Al-Polyester-Al-Surline(glue)
AWG	American Wire Gauge
Cu	Copper
Cu/Pet	Copper-Polyester
CuSn	Tinned Copper
FeCu	Copper Clad Steel (CCS)
FeZn	Zinc Plated Steel
LSZH	Low Smoke Zero Halogen
N	Newton (approx. 0.1 kg)
NEXT	Near End Crosstalk
PE	Polyethylene
PEG	Gas Injected Physical Foam PE
Pet	Polyester
PJ	Petrol Jelly Filling
PVC	Polyvinylchloride
PVCII	Non-migrating PVC
SA	Screening Attenuation
SRL	Structural Return Loss
U/UTP	Unshielded Pairs



CERTIFIED COMPANY
UNI EN ISO 9001-2008
CERT. NR. 9125 - ICON



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