

# IE ToughCat 7S\* Armoured

S/FTP Installation Cable for tougher environments

## Construction

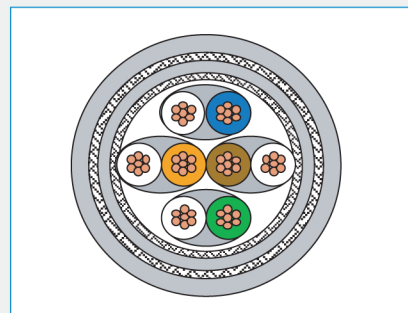
<b>Conductor</b>	Solid copper wire, Ø 0.56 mm (AWG 23)
<b>Insulation</b>	foamskin PE, Ø 1.4 mm
<b>Twisting</b>	2 cores to the pair
<b>Pair screen</b>	Al-laminated plastic foil
<b>Cable lay up</b>	4 pairs (PiMF) to the core
<b>Screen</b>	copper braid, tinned
<b>Inner Sheath</b>	Oil resistant, Fire retardant and halogen free LSZH-FR (SHF1)
<b>Outer sheath</b>	Grey RAL7035
<b>Armouring</b>	Galvanized steel wire braid, Wire diameter 0,25mm
<b>Outer sheath</b>	Oil resistant, Fire retardant and halogen free LSZH-FR (SHF1)
<b>Outer Diameter</b>	Nom. 10.6 mm
<b>Weight</b>	Nom. 168 kg/km

## Mechanical Properties

<b>Bending radius</b>	Installation	8 x D
	Installed	4 x D
<b>Temperature range</b>	During operation	-40°C to + 85°C
	During installation	-15°C to + 50°C
<b>Fire load</b>	4 pair	1540 MJ/km
<b>Maximum tensile load</b>	During operation	No load
	During installation	200 N

## Electrical Properties at 20°C ± 5°C

<b>Loop resistance</b>	-	≤ 150 Ω/km
<b>Resistance unbalance</b>	-	≤ 2%
<b>Insulation resistance</b>	(500 V)	≥ 5000 MΩxkm
<b>Mutual capacitance</b>	at 800 Hz	Nom. 43 nF/km
<b>Capacitance unbalance</b>	(pair/ground)	≤ 1500 pF/km
<b>Characteristic impedance</b>	(1-100 MHz)	100 ± 5 Ω
	(100 - 250) MHz	100 ± 10 Ω
	(250 - 600) MHz	100 ± 15 Ω
<b>Nominal velocity of propagation</b>	-	ca. 79 %
<b>Propagation delay</b>	-	≤ 570 ns/100m
<b>Delay skew</b>	-	≤ 9 ns/100m
<b>Test voltage</b>	(DC, 1 min) core/core and core/screen	1000 V
<b>Transfer impedance(Grade 1)</b>	at 1 MHz	≤ 10 mΩ/m
	at 10 MHz	≤ 10 mΩ/m
	at 30 MHz	≤ 10 mΩ/m
	at 100 MHz	≤ 20 mΩ/m
<b>Coupling attenuation</b>	-	≥ 85 dB



## Application

- Generic Data transmission. This cable is a **Cat7 S/FTP** cable meant for use as installation/horizontal cable in tougher electrical and mechanical environment, including ships and offshore units.

## Standards

- EN 50173-1; EN 50288-4-1
- ISO/IEC 11801; IEC 61156-5
- Det Norske Veritas (DNV) specification No. 6-827.50-2

## Fire Rating

- IEC 60332-1, IEC 60332-3-24, IEC 61034-2, IEC 60754-1/2

## Chemical Resistance

- Mineral oils IRM 902 (IEC60811-2-1) : 7 days/23°C, 4 hours/70°C
- Diesel - IRM 903 (IEC60811-2-1) : 7 days/23°C, 4 hours/70°C

## Certification

- This cable is based on the unarmoured version certified by: Det Norske Veritas (DNV)

## Electrical Data (Nominal) acc. to Cat.7 (at 20°C)

F (MHz)	Attenuation (dB/100m)	NEXT (dB)	PS-NEXT (dB)	ACR (dB/100m)	PS-ACR (dB/100m)	ELFEXT (dB/100m)	PS-ELFEXT (dB/100m)	Return loss (dB/100m)
1	1.8	100	97	98	95	105	105	-
4	3.4	100	97	97	94	105	102	27
10	5.4	100	97	95	92	97	94	30
16	6.8	100	97	93	90	93	90	30
20	7.7	100	97	92	89	91	88	30
31.2	9.6	100	97	90	87	87	84	30
62.5	13.7	100	97	86	83	81	78	30
100	17.4	100	97	83	80	77	74	30
125	19.5	95	92	75	72	75	72	26
155.5	21.9	94	91	72	69	73	70	26
175	23.3	93	90	70	67	72	69	25
200	25.0	92	89	67	64	71	68	25
250	28.1	90	87	62	59	69	66	24
300	30.9	89	86	58	55	67	64	24
450	38.3	87	84	48	45	64	61	23
600	44.8	85	82	40	37	61	58	22

## Ordering Information

P/N	Product Description	P.U
60027371	S/FTP Installation Cable for tougher environments, IE ToughCat 7S* Armoured	500m/drum