

# ToughCat S/FTP MUD Resistant

## Individually Screened Twisted Pair with Braiding



### Application

Generic Data transmission. This **Cat.5E S-STP** cable is based on our **DNV and Lloyd Register certified ToughCat**, but with an additional fire retardant, halogen-free, low smoke MUD resistant outer jacket. This cable is meant for use as horizontal cable in tougher electrical and mechanical environment.

### Standards

EN 50288-2-1

### Fire rating

MUD resistant outer sheath: IEC 60754-2; IEC 61034, IEC 60332-3-24  
 Inner sheath LSFROH (SHF1): IEC 60754-2; IEC 61034, IEC 60332-3-24

### Oil resistant inner sheath

Norm CEI 20.34: 4 hours, 70°C in IRM902 oil

### Construction

|                |   |
|----------------|---|
| Conductor      | Stranded copper wire Ø 0.22 mm <sup>2</sup>                           |
| Insulation     | PE, Ø 1.4 mm  |
| Twisting       | 2 cores to the pair   |
| Cable lay up   | 4 pairs   |
| Pair screen    | Al-laminated plastic foil around each pair                            |
| Overall screen | Copper braid, tinned Ø 6,2 mm   |
| Inner sheath   | Oil resistant, Fire retardant and halogen free LSFROH (SHF1) Ø 7,7 mm |
| Outer sheath   | MUD resistant   |

### Mechanical Properties

|                                    |                     |                 |
|------------------------------------|---------------------|-----------------|
| Bending radius                     | Installation        | 8 x D           |
|                                    | Installed           | 4 x D           |
| Temperature range                  | During operation    | -20°C to + 85°C |
|                                    | During installation | 0°C to + 50°C   |
| Fire load                          | 4 pair              | 254 MJ/km       |
| Maximum tensile load, installation | During installation | 100N            |
|                                    | Installed           | -               |

## ToughCat S/FTP MUD Resistant

### Electrical Properties

at 20°C

|                                 |                  |                |
|---------------------------------|------------------|----------------|
| DC loop resistance              |                  | ≤ 158 Ω/km     |
| Resistance unbalance            |                  | ≤ 2%           |
| Insulation resistance           | (500 V)          | ≥ 5000 MΩxkm   |
| Capacitance                     | at 800 Hz        | Nom. 43 nF/km  |
| Capacitance unbalance           | (pair to ground) | ≤ 300 pF/km    |
| Mean Characteristic impedance   | @ 100 MHz)       | 100 ± 5 Ω      |
| Nominal velocity of propagation |                  | 0,75c          |
| Propagation delay               |                  | ≤ 450 ns/100 m |
| Delay skew                      |                  | ≤ 15 ns/100 m  |
| Transfer impedance              | at 1 MHz         | ≤ 10 mΩ /m     |
|                                 | at 10 MHz        | ≤ 8 mΩ /m      |
|                                 | at 30 MHz        | ≤ 10 mΩ /m     |

### Nominal Transmission characteristics

at 20°C

| F<br>(MHz) | Attenuation<br>(dB/100m) | NEXT<br>(dB) | ACR<br>(dB/100m) | Return loss<br>(dB) | PS-NEXT<br>(dB) | PS-ACR<br>(dB/100m) | ELFEXT<br>(dB/100m) | PS-ELFEXT<br>(dB/100m) |
|------------|--------------------------|--------------|------------------|---------------------|-----------------|---------------------|---------------------|------------------------|
| 1          | 2,1                      | 90           | 88               |                     | 87              | 85                  | 85                  | 82                     |
| 4          | 4,0                      | 90           | 86               | 27                  | 87              | 83                  | 85                  | 82                     |
| 10         | 6,3                      | 90           | 84               | 30                  | 87              | 81                  | 79                  | 76                     |
| 16         | 8,0                      | 90           | 82               | 30                  | 87              | 79                  | 75                  | 72                     |
| 20         | 9,0                      | 90           | 81               | 30                  | 87              | 78                  | 73                  | 70                     |
| 31.25      | 11,4                     | 90           | 79               | 30                  | 87              | 76                  | 69                  | 66                     |
| 62.50      | 16,5                     | 86           | 70               | 30                  | 83              | 67                  | 63                  | 60                     |
| 100        | 21,3                     | 83           | 62               | 30                  | 80              | 59                  | 59                  | 56                     |
| 155.00     | 24,2                     | 81           | 57               | 26                  | 78              | 54                  | 57                  | 54                     |
| 200.00     | 31,5                     | 78           | 47               | 25                  | 75              | 44                  | 53                  | 50                     |
| 250.00     | 35,8                     | 77           | 41               | 25                  | 74              | 38                  | 51                  | 48                     |
| 300.00     | 47,1                     | 73           | 26               | 23                  | 70              | 23                  | 47                  | 44                     |
| 600.00     | 60,1                     | 71           | 11               | 20                  | 68              | 8                   | 44                  | 41                     |

### Technical Data

| Description                                     | Variant       | Colour | Outher diameter (D) mm | Delivery form | Weigth kg/km | Material code |          | EI. No  | DCN No. |
|---|---------------|--------|------------------------|---------------|--------------|---------------|----------|---------|---------|
| ToughCat S/FTP + MUD<br>4x2/0,22mm <sup>2</sup> | MUD Resistant | Black  | 9,5                    | Drum 500m     | 100          | 1000846       | -00001DD | 1080893 | 799090  |