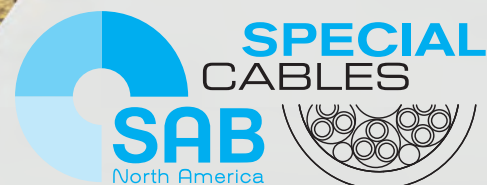


# CABLES FOR MARINE TECHNOLOGY



[www.sabcable.com](http://www.sabcable.com)  
866-722-2974 ■ [info@sabcable.com](mailto:info@sabcable.com)





SAB North America is a focused supplier for the automation, aerospace, medical, high temperature, and robotics industries, providing cable and thermocouple solutions that meet, exceed, and set new standards in the flexible cable market. In addition to flexible cable products, we offer an extensive inventory of high-quality cable accessories, including cord grips, grounding glands and other accessories that complement our flexible control and automation cables.

Whatever the need may be, look to SAB North America for Special Cables that can, for example, help minimize maintenance costs and increase productivity, reduce downtime, and solve specific problems. Here is a small sample of some of the challenges that Special Cables from SAB North America can help address:

- Hybrid designs for multiple functions
- Harsh environments
- Difficult applications
- Industry-specific requirements



The requirements are very demanding for applications for water depths down to 6,000 m. Extreme application conditions require special and reliable solutions. Submarine cables often have to fulfill very high demands regarding to mechanical and electrical stress. With our cable series for marine technology, we offer sea water resistant hybrid and submarine cables as well as reliable data cables for the use in submarine robotics (ROV).

SAB's level of speed and service as a supplier is unmatched. SAB lives up to its name in not only flexible cable but also flexible manufacturing.



## SAB Advantage...We make it Easy

- Engineering & technical assistance
- Cut to length with no cut charges
- Prepaid freight within US for orders over \$2,500
- Specialty cable designs (1500 ft minimum)
- No minimum on orders from stock
- Free drop shipments (no surcharges)
- 24-hour shipments from stock
- Cord Grips for securing and grounding cables

# Cable for Marine Technology

## Development and production

### SAB BRÖCKSKES – your marine specialist for marine systems

In total 71 percent of the earth surface is covered by water with only 5% of total volume known to mankind. Marine systems need to be developed for exploration. The requirements are very demanding for applications for water depths down to 6,000 m. Extreme application conditions require special and reliable solutions. Submarine cables often have to fulfill very high demands including mechanical and electrical stress. Our marine technology cables are sea water resistant and can be used in both submarine and ROV applications. SAB is your partner for the development and production of cables for tailor-made application solutions.

**We are your partner for the varied challenges of deep sea applications.**

- + depth resistance down to 6,000 meters
- + floatability
- + winch suitability
- + seawater resistance
- + abrasion and tensile strength
- + buoyancy neutrality
- + on request also available as cable assembly



**You haven't found your special cable?**

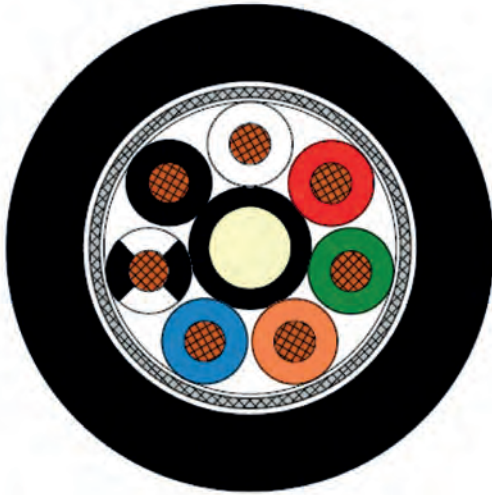
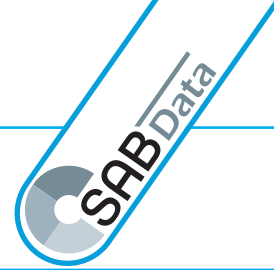
- Please contact our specialists:  
We design and produce special cables according to your individual requirements!  
How you can reach us: [info@sabcable.com](mailto:info@sabcable.com)

Phone support **866-722-2974**

# Cable for Marine Technology

## Li2YC11Y

Data cable with PUR outer jacket and overall copper shield for deep-sea use



### Construction:

<b>Conductor:</b>	bare copper strands, fine wires
<b>Insulation:</b>	PE
<b>Color code:</b>	white, red, green, orange, blue, white-black, black
<b>Stranding:</b>	in layers, PE jacketed aramid strain relief as core
<b>Wrapping:</b>	non-woven tape
<b>Shield:</b>	tinned copper braiding, optical coverage approx. 85%
<b>Wrapping:</b>	non-woven tape
<b>Jacket material:</b>	PUR, low adhesion
<b>Jacket color:</b>	black (RAL 9005)
<b>Marking:</b>	SAB BRÖCKSKES · D-VIERSEN · Li2YC11Y 20 AWG/7pr



dimensions AWG	outer-ø ± 5%	ohmic resistance at 20°C max. Ω/km
inch	mm	
20 AWG/7pr	0.394	39.0

Other dimensions and colors are possible on request.

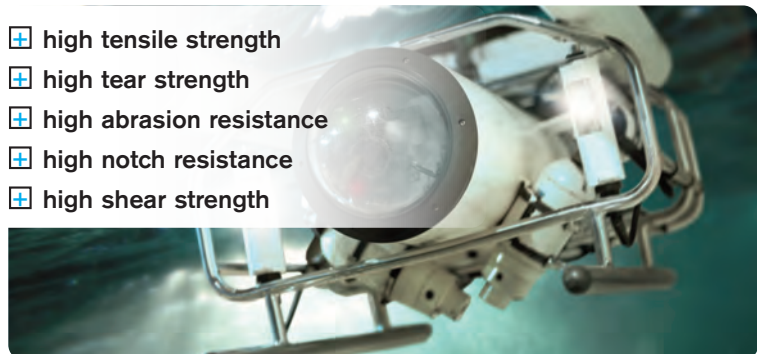
### Technical data:

Peak operating voltage	Testing voltage	Temperature range	Min. bending radius	Insulation resistance
750 V	conductor/conductor: 3000 V conductor/shield: 3000 V	static: -40/+70°C flexible: -40/+70°C	fixed installation: 70 mm free movement: 100 mm	conductor/conductor: ≥ 10000 MΩ x 1000 m conductor/shield: ≥ 100 MΩ x 100 m

Halogen-free	Oil resistance	Chemical resistance	Resistances	Min. tensile strength of aramid strain relief
acc. to IEC 60754-1 + VDE 0482-754-1	very good - PUR, TPU acc. to EN 50363-10-2 + DIN VDE 0207-363-10-2	good against acids, alkalines, solvents, hydraulic liquids etc.	good resistance against UV rays, ozone and vapors as well as resistant to fresh and salt water	3600 N

Absence of harmful substances
acc. to RoHS directive of the European Union

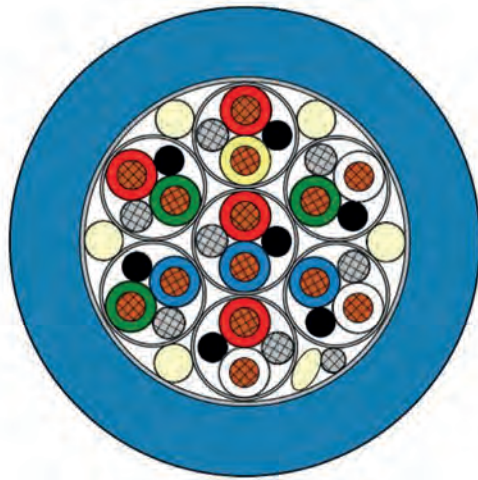
- + high tensile strength
- + high tear strength
- + high abrasion resistance
- + high notch resistance
- + high shear strength



# Cable for Marine Technology

## Special cable

Data cable with PUR outer jacket and foil-shielded data pairs for deep-sea use



### Construction:

<b>Conductor:</b>	bare copper strands, fine wires
<b>Insulation:</b>	SABIX®
<b>Color code:</b>	red/blue, red/yellow, red/green, green/blue, white/red, white/blue, white/green
<b>Stranding:</b>	conductors twisted to pairs, pairs twisted in layers
<b>Wrapping:</b>	foil
<b>Jacket material:</b>	PUR with smooth surface
<b>Jacket color:</b>	sky blue (RAL 5015)
<b>Marking:</b>	SAB BRÖCKSKES · D-VIERSEN · Special Cable 20 AWG/7pr ST



dimensions AWG	outer-ø ± 5%	ohmic resistance at 20°C max. Ω/km	cable weight in salt water ≈ lbs/mft	cable weight in air ≈ lbs/mft
	inch	mm		
20 AWG/7pr	0.500	12.7	53	141
				39.0

Other dimensions and colors are possible on request.

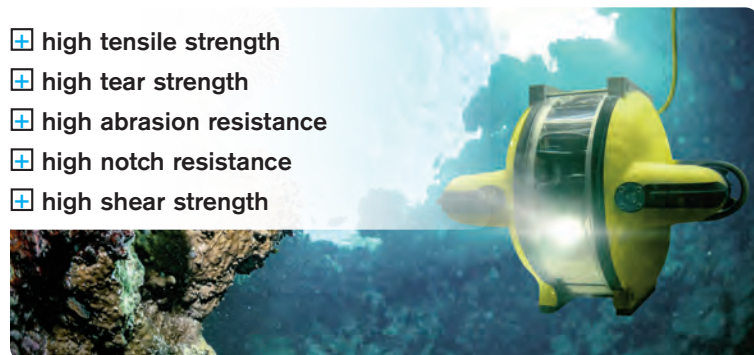
### Technical data:

Peak operating voltage	Testing voltage	Temperature range	Min. bending radius	Impedance
max. 600 V	conductor/conductor: 2500 V conductor/shield: 2500 V	static: -50/+90°C flexible: -40/+90°C	fixed installation: 120 mm free movement: 150 mm	1 MHz: 4.6 dB/100 m 4 MHz: 8.5 dB/100 m 10 MHz: 12.6 dB/100 m

Halogen-free	Oil resistance	Chemical resistance	Impedance	Capacity
acc. to IEC 60754-1 + VDE 0482-754-1	very good - PUR, TMPU acc. to EN 50363-10-2 + DIN VDE 0207-363-10-2	good against acids, alkalines, solvents, hydraulic liquids etc.	1-10 MHz, 50.4-59.6 Ω	97-107 pF/m

Resistances	Absence of harmful substances
good resistance against UV rays, ozone and vapors as well as resistant to fresh and salt water	acc. to RoHS directive of the European Union

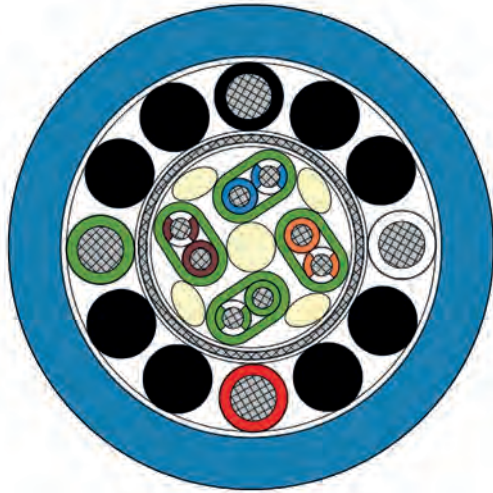
- ⊕ high tensile strength
- ⊕ high tear strength
- ⊕ high abrasion resistance
- ⊕ high notch resistance
- ⊕ high shear strength



# Cable for Marine Technology

## Special CATLine CAT 6

flexible, halogen-free Ethernet cable



### Construction:

<b>Conductor:</b>	24 AWG: silver-plated copper strands, fine wires 18 AWG: tinned copper strands, fine wires
<b>Insulation:</b>	FEP
<b>Color code:</b>	24 AWG: blue-white/blue, orange-white/orange, green-white/green, brown-white/brown 18 AWG: black, white, red, green
<b>Stranding:</b>	24 AWG: pairwise
<b>Inner jacket:</b>	SABIX®
<b>Stranding:</b>	24 AWG: jacketed pairs stranded in a specially adjusted layer, wrapped with alu/PETP foil
<b>Shield:</b>	24 AWG: tinned copper braiding, optical coverage approx. 85%
<b>Stranding:</b>	conductors: 24 AWG/4pr CAT 6 wrapped with PETP foil. Outer layer: conductors 18 AWG wrapped with non-woven tape
<b>Jacket material:</b>	PUR
<b>Jacket color:</b>	sky blue (RAL 5015)
<b>Marking:</b>	SAB BRÖCKSKES · D-VIERSEN · Special CATLine Cat.6 24 AWG/4pr Cat.6 + 18 AWG/4c <SAB Article no.> <€ <SAB ID no.>



dimensions AWG	outer-ø ± 5%		cable weight in salt water ≈ lbs/mft	cable weight in air ≈ lbs/mft	ohmic resistance at 20°C max. Ω/km
	inch	mm			
24 AWG/4pr CAT 6 + 18 AWG/4c	0.551	14.0	51	158	24 AWG: 85 18 AWG: 21

Other dimensions and colors are possible on request.

### Technical data:

Operating voltage	Testing voltage	Temperature range
18 AWG: 600 V 24 AWG: 250 V	24 AWG conductor/conductor: 1500 V conductor/shield: 1200 V 18 AWG 2500 V 2500 V	static: -50/+90°C flexible: -40/+90°C

Min. bending radius	Chemical resistance	Absence of harmful substances
fixed installation: 130 mm free movement: 130 mm	good against acids, alkalines, solvents, hydraulic liquids etc.	acc. to RoHS directive of the European Union

REACH	Data transmission
The product does not contain any SVHC (Substance of Very High Concern) acc. to REACH Regulation (EC no. 1907/2006)	Characteristic impedance 100 Ω ± 15 Ω. The element 24 AWG/4pr fulfills the transmission requirements with reference to EN 50288-5-2 (CAT 6 acc. to EN 50173)

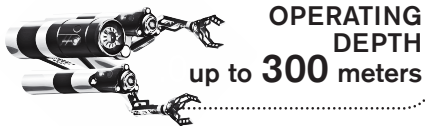
- + high tensile strength
- + high tear strength
- + high abrasion resistance
- + high notch resistance
- + high shear strength
- + very good oil resistance
- + good resistance against UV rays, ozone and vapors and resistant to water



# Cable for Marine Technology

## Hybrid cable

with special polymer insulation and overall aramid shield as strain relief



Construction:	
Conductor:	bare copper strands, fine wires
Insulation:	special polymer
Color code:	26 AWG: blue-white/blue, orange-white/orange, green-white/green, brown-white/brown 1.0 mm <sup>2</sup> : black conductors with consecutive numbers 1-4, Ø 2.3 mm
Stranding:	conductors 26 AWG: pairwise and pairs together optimized twisted, PP foils with overlap wrapping
Shield:	26 AWG/4pr: alu foil and tinned copper braiding, optical coverage ≥ 85 %
Stranding:	all elements twisted together optimized, swelling yarn in the fillers, non-woven tape with overlap wrapping
Shield:	tinned copper braiding, optical coverage ≥ 85 %
Inner jacket:	PUR, ultramarine blue (RAL 5002)
Strain relief element:	aramid braiding
Jacket material:	PUR
Jacket color:	ultramarine blue (RAL 5002)
Marking:	acc. to customers requirements



dimensions AWG	outer-ø ± 5%	cable weight in salt water ≈ lbs/mft	cable weight in air ≈ lbs/mft	ohmic resistance at 20°C max. Ω/km
	inch	mm		
26 AWG/4pr CAT 6 + 18 AWG/4c	0.630	16.0	47	26 AWG: 121.9 18 AWG: 19.5

### Technical data:

Other dimensions and colors are possible on request.

Peak operating voltage	Nominal voltage	Testing voltage	Temperature range	Min. bending radius	Halogen-free	Insulation resistance
max. 90 V	Uo/U 0.6/1kV	conductor/conductor: 1000V, 1 min conductor/shield: 1000V, 1 min conductor/conductor: 4000V, 10 min conductor/shield: 4000V, 10 min	static: -20°C/+80°C flexible: -20°C/+80°C	fixed installation: 5 x O.D. free movement: 10 x O.D.	acc. to IEC 60754-1 + VDE 0482-754-1	≥ 5 GΩ x km

#### Chemical resistance

good against acids, alkalines, solvents, hydraulic liquids etc.

#### Strain relief element

Min. tensile strength: 20 kN\*  
\*Size can't be controlled by the manufacturer.  
Testing is the responsibility of the user

#### Data transmission

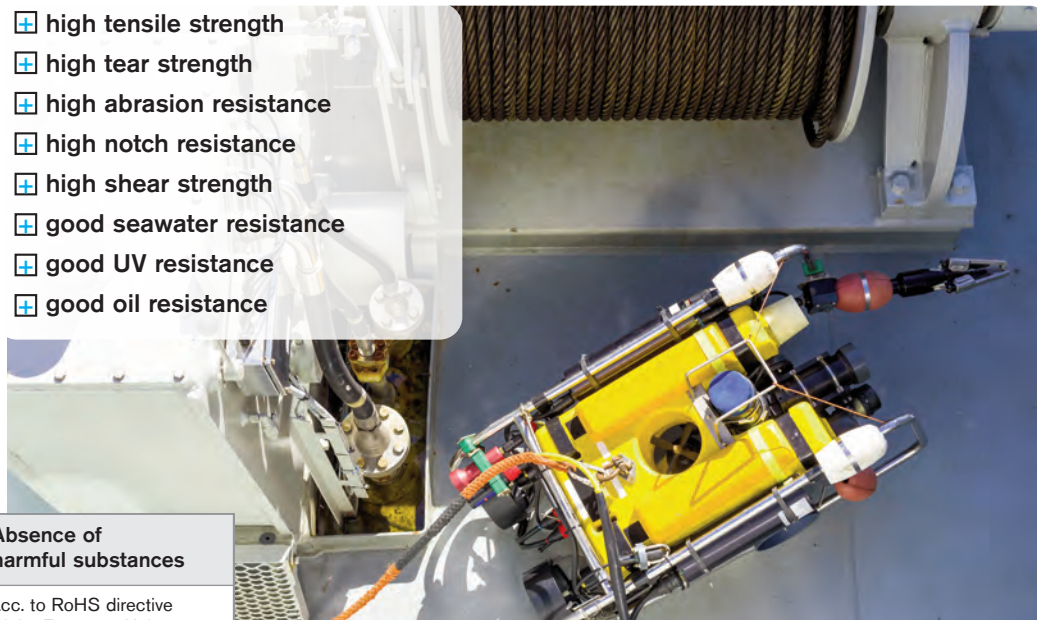
Element 26 AWG/4pr CAT.6:  
Characteristic impedance  
100 Ω ± 10 Ω, fulfills the electrical and transmission requirements with high frequency with reference to EN 50288-5-2

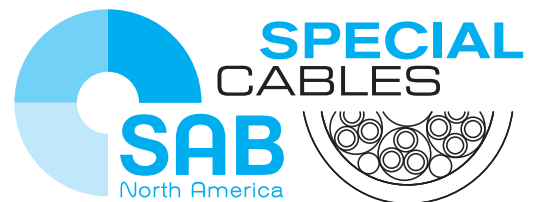
Operating capacity is tested after first production  
Attenuation values are tested after first production

- + high tensile strength
- + high tear strength
- + high abrasion resistance
- + high notch resistance
- + high shear strength
- + good seawater resistance
- + good UV resistance
- + good oil resistance

#### Absence of harmful substances

acc. to RoHS directive of the European Union





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