

Do you always get what you see?

Probably not. And that's definitely true for cables.



Looks can deceive you.

Cables might look the same on the outside. But it's the inside that counts. And that can differ enormously. We're all depending on safe and reliable cables, and Prysmian will always stand in the forefront, manufacturing cables living up to all relevant standards. That includes making rigorous tests of all cables before letting them out on the market. It's better to be safe than sorry.



Let's put it to the test

The primary criteria for a safe cable is that it must comply with all relevant standards and ensure the same transmission quality throughout its complete life cycle. To ensure this, we make meticulous tests on our cables.

Mechanical tests

Several different tests are executed to make sure a cable can withstand harsh conditions. To be accepted as a safe cable all the tests must be fulfilled in accordance with relevant standards. Tests included:

- Tensile strength
- Elongation
- Ageing
- Pressure
- Cold bend
- Insulation shrinkage
- Durability to vast temperature shifts



Geometrical tests

The measurements and quality of a cable's components have a direct effect on the cables service life.

Meticulous measurements are therefore made on:

- Conductor (including the number of wires)
- Insulation
- Outer sheath
- Complete cable

Electrical tests

To make sure a cable can endure and continue to deliver power in accordance to the most stringent regulations it has to withstand severe tests. Among them:

- Resistance of the conductor and insulation in different temperatures
- Voltage tests of both the core and the complete cable
- Water absorption of the insulation
- Long-term endurance to D.C. voltage

COMPARISON TESTS

In our case study we tested 37 different cable samples from nine cable manufacturers (including Prysmian) to see how well they live up to minimum standards set to make sure safe usage of electricity in our buildings.

All Prysmian cables passed the test, while all other manufacturers had cables that did not. In the chart below you can see what kind of deviations we experienced during the tests.

Producer	Cable	Test	Standard	Deviations	
A	1-AYKY-J 4x16 RE	Sheath min:	1.43 mm	1.32 - 1.42 mm	Inner covering is not continuous
	1-AYKY-J 4x16 RE	Sheath min:	1.60 mm	1.55 - 1.70 mm	
B	1-AYKY-J 4x25 SE	Tensile strength:	100 - 130 MPa	77 - 80 MPa	
		Conductor resistance max:	1.20 Ohm/km	+3 to +5%	
C	H05VV-F 3x1,5	Conductor resistance max:	13.30 Ohm/km	+1.8 to +2.2%	
		Insulation thickness min:	0.7 mm	-27% (average: -5%)	
	NYM-J 3x1,5	Conductor resistance max:	12.10 Ohm/km	+3.1 to +4.7%	
		Insulation thickness min:	0.6 mm	Average: -6.5%	
		Sheath min:	1.4 mm	-24% (average: -32%)	
E-AYY-J 4x240 SM	Conductor resistance max:	0.125 Ohm/km	+10 - 11%		
D	YKY 1x70 RMC	Sheath min:	1.43 mm	1.13 mm	
	YKY zo 5x25 RMC	Conductor resistance max:	0.727 Ohm/km	+2.5 to +5.2%	
E	YKY zo 5x25 RMC	Insulation thickness min:	0.98 mm	0.26 - 1.17 mm	Uneven insulation
		Sheath min:	1.43 mm	1.37 mm	
F	YKY 1x120 RM	Conductor resistance max:	1.20 Ohm/km	+7%	
	YKY zo 5x50 SM	Sheath min:	1.69 mm	1.62 mm	
	YKY 4x50 SM	Conductor resistance max:	0.387 Ohm/km	+2%	
	YKY 4x35 SM	Conductor resistance max:	0.524 Ohm/km	+3%	
	YKY 4x240 SM	Sheath min:	1.43 mm	1.13 mm	
G	YKY 1x120 RM	Conductor resistance max:	0.153 Ohm/km	+7%	
		Insulation thickness min:	1.34 mm	1.15 mm	
	YKY zo 5x25 RMC	Insulation thickness min:	0.98 mm	0.86 - 0.94 mm	Uneven insulation
H	YKY 4x35 SM	Insulation thickness min:	0.98 mm	0.91 mm	
		Sheath min:	1.43 mm	1.27 mm	
	YKY 4x120 SM	Conductor resistance max:	0.524 Ohm/km	+1%	
	YKY 4x240 SM	Sheath min:	1.94 mm	1.16 mm	
YKY 1x240 RMC	Conductor resistance max:	0.0754 Ohm/km	+2%		



Quality pays off in the long run.

New technologies, urbanization and the increase in population intensifies the demand for electricity. We build higher and higher buildings, new schools, hospitals, sport arenas... And cables. Lots of cables.

With this in mind there are choices to be made. It might be tempting to buy low quality cables and save a buck or two. But that would be a very irresponsible decision, even lethal. Plus, at the end of the day cheap cables might not be the ones that will save you the most money. Play it safe, and smart - choose cables that live up to set standards while continuing to deliver, year after year. Choose Prysmian.

Linking the future

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