



Gestionnaire
du Réseau de Transport d'Electricité

PE extruded cables with aluminium sheath

Screen-oversheath complex

→ RTE Specification requirements

- Carry short-circuit current
- Achieve watertightness
- Achieve mechanical protection

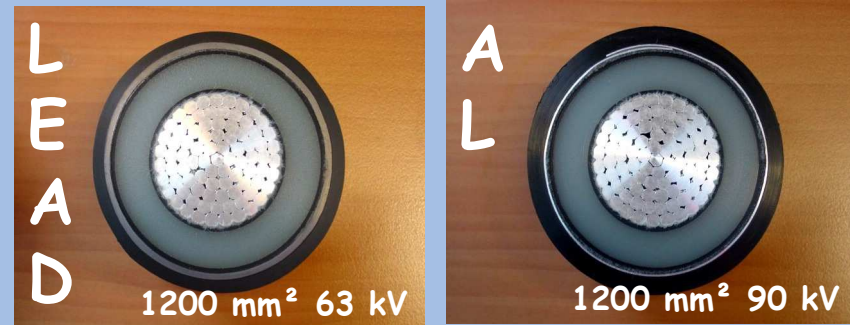
→ Laying needs

- Minimal bending radius
- Minimal weight

History of extruded cables technologies in France

- **Lead sheath and PVC oversheath cables**
 - Installed since the sixties
- **Aluminium sheath and PE oversheath cables**
 - Installed since 1998
 - Mandatory since 2005 for HV cables and 2006 for EHV cables
 - Pool
 - 63 kV: \approx 200 km
 - 90 kV: \approx 140 km
 - 225 kV: \approx 15 km
- **Qualified transition joints between lead and aluminium sheaths**

Comparison



Cable 1200 mm ² Al 90 kV	Lead sheath cables	Aluminium sheath cables
Cable weight	13.6 kg/m	7.5 kg/m
Sheath thickness	2 mm	0.5 mm
Oversheath thickness	4 mm (PVC)	5.7 mm (PE)
External diameter	90 mm	85.3 mm
Electrical stress (internal / external)	6/3	7/4
Deliverable length	1200 m	1600 to 2600 m *

* Depending on whether the supplier can do the transversal welding or not

LEAD



1200 mm² 63 kV

AL



1200 mm² 90 kV

Interests

→ Lighter cables

- Longer transportable lengths of cable
- Fewer joints and joint bays
 - Less assembly on site
- Mechanical laying process enabled
- XLPE extruded cables
 - No maintenance & lower dielectric losses

→ Lower costs

→ Higher reliability

→ Environmentally respectful cables without lead