

Development and research of the XLPE cable laid in HPFF steel pipe

SC B1 Insulated Cables - PS2 – Q2
Y.Ikeda (Japan)



Development of HPFF Cable Removal Method

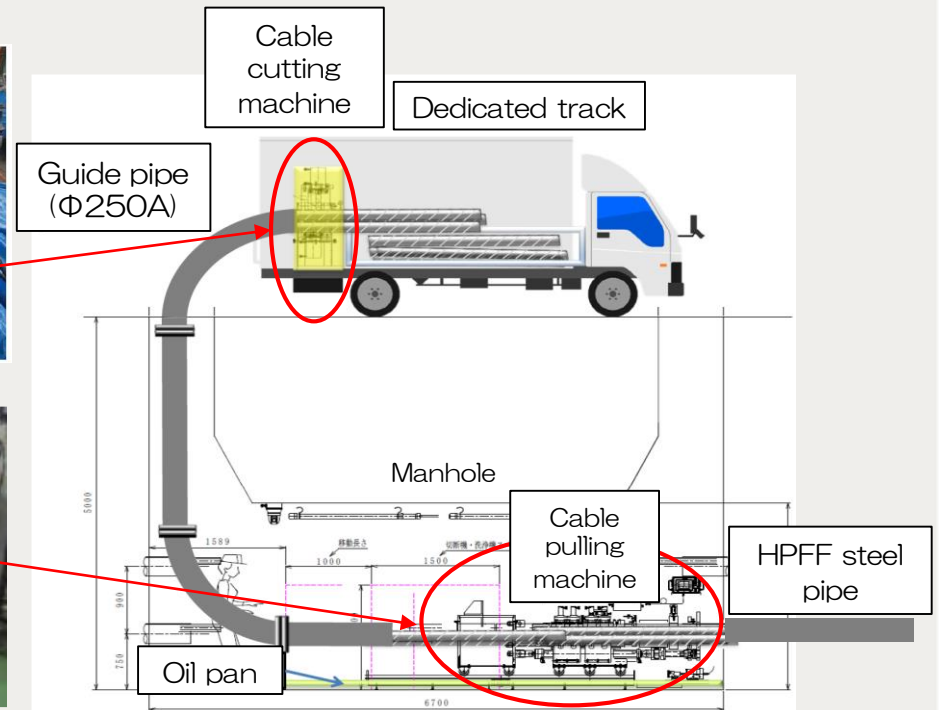
- ◆ HPFF pull-out method
 - Reduction of work time (time spent on the road) through a new construction method based on simultaneous 3-phase extraction.
- ◆ Steel pipe cleaning
 - Establishing oil removal and cleaning methods in steel pipes for environmental consideration, and examining measures (steel pipe lining) for long-term use of steel pipes, such as measures to prevent corrosion in steel pipes after cleaning.



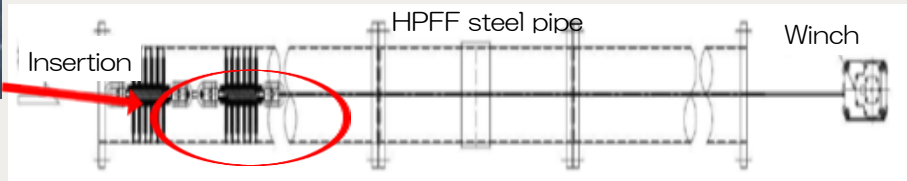
Cable cutting



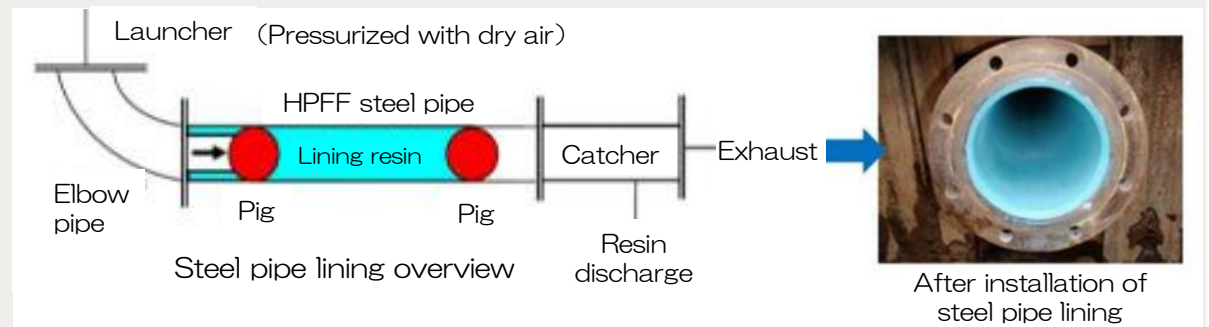
Cable pulling



Blade pig for oil sweeping



Group Discussion Meeting



Development of the 275 kV XLPE cable laid in HPFF steal pipe and measures against thermal contraction and expansion

◆ Purpose

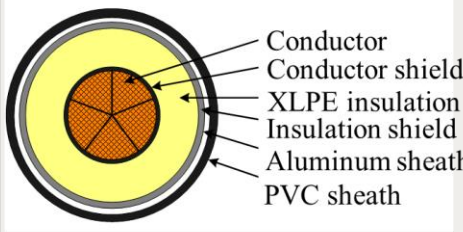
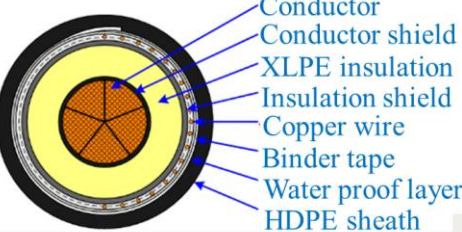
- The XLPE cable laid in HPFF steal pipe was developed for the purpose of reducing the construction cost and shortening the construction period in the HPFF cable replacement work.

◆ Specifications

- Thickness of insulation is reduced to 19.5 mm
- The shielding layer is copper wire and water proof layer is applied
- High Density Polyethylene (HDPE) sheath : Oil resistance

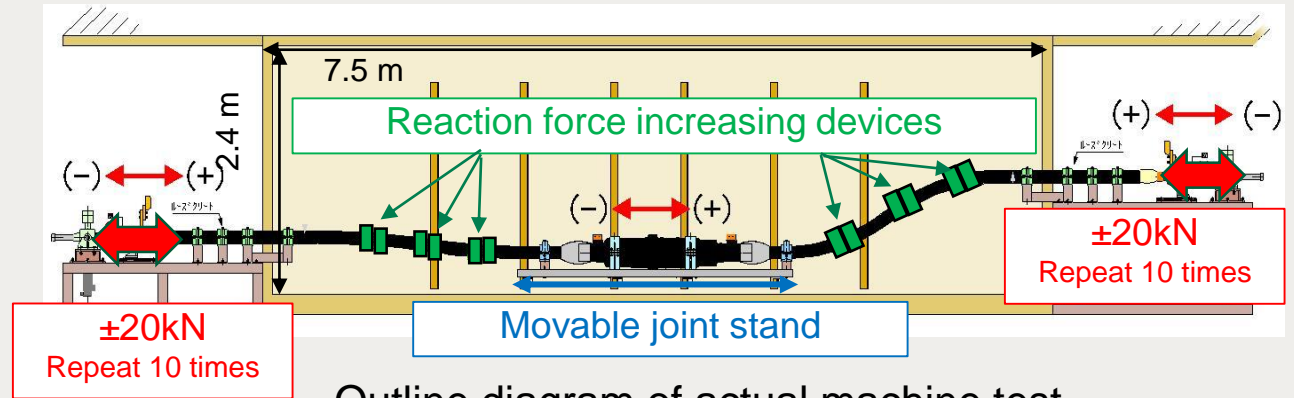
◆ Planned completion of development : 2023

Comparison between the XLPE cable laid in HPFF steel pipe and the ordinary XLPE cable

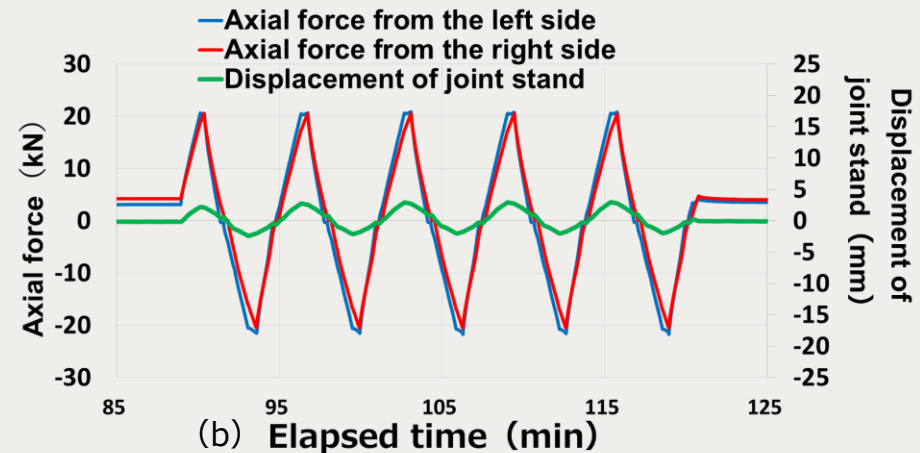
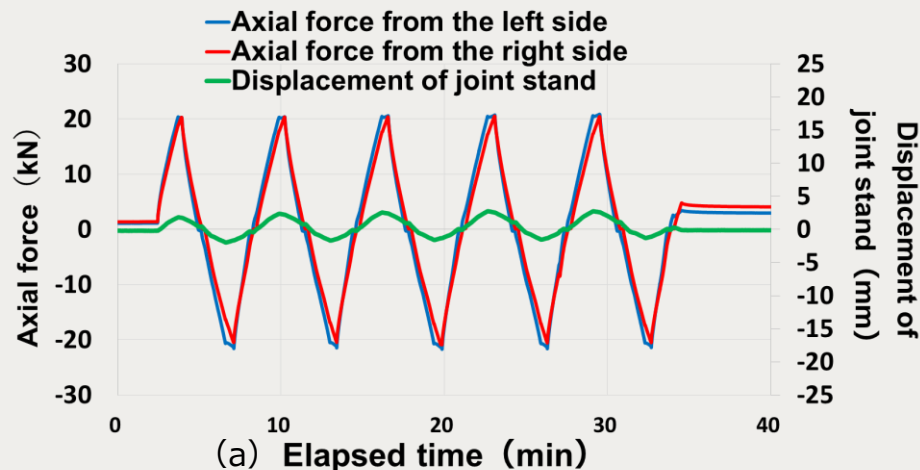
	The ordinary XLPE cable	The XLPE cable laid in HPFF steel pipe
Cross section		
Thickness of insulation	23.0 mm	19.5 mm
Shielding layer	Aluminum sheath	Copper wire
		Water proof layer
Anti corrosion jacket	PVC sheath	HDPE sheath
Outer diameter	138 mm (Three-phase 298 mm)	108 mm (Three-phase 234 mm)

Development of the 275 kV XLPE cable laid in HPFF steal pipe and measures against thermal contraction and expansion

- ◆ Measures against thermal contraction and expansion
 - Measures : Reaction force increasing devices and movable joint stand
 - The effectiveness of the measures was confirmed by an actual machine test



Outline diagram of actual machine test



Actual machine test result (a) 1-5 times (b) 6-10 times

Group Discussion Meeting