

POLYETHYLENE AND FIBERGLASS

NUPI polyethylene pipes reinforced with fiberglass are commercially called **NADIR FIBER** and have been specially designed for all applications **where lower thermal expansion is required.**

Polyethylene pipes with fiberglass are made of **several layers.** The inner and outer layers are made of polyethylene (PE100 RC) and the **intermediate layer is made of a specific PE100 RC layer containing a given percentage of fiberglass.**

The technological contribution of fiberglass consists mainly in lower thermal expansion and higher resistance to expansion/contraction that make the product more stable to temperature variations from a dimensional point of view.

Polyethylene systems with fiberglass also **CONFORM WITH CURRENT DRINKING WATER REGULATIONS** which establish hygienic and sanitary criteria for the prevention and control of Legionellosis and bacterial proliferation in general.

POLYETHYLENE PIPING SYSTEMS WITH FIBERGLASS are the most suitable solution to the problems caused by metal installations **thanks to the following characteristics:**

- Low heat transmission
- Limited heat loss and condensation
- 100% corrosion resistant
- Lower surface roughness
- High resistance to most chemicals
- Installation time saving
- High resistance to impact and abrasion
- Limited thermal expansion



MECHANICAL CHARACTERISTICS

The main characteristic that makes these pipes extremely reliable, even under extreme operating conditions, is their high resistance to crack growth and point loading typical of the basic material (PE100 RC), as demonstrated by many tests carried out by leading certified laboratories, such as:

Notch Pipe Test → **NPT** (EN ISO 13479)

Full Notch Creep Test → **FNCT** (according to ISO 16770 and DIN PAS1075 Attachment A1)

Point Loading Test → **PLT** (according to DIN PAS1075 Attachment A3)

WELDABILITY

NADIR FIBER retains the same welding characteristics as single wall PE100 RC so it can be welded using the classic methods for electrofusion and butt fusion welding.

PRESSURE

The pressure requirements of **NADIR FIBER** piping systems are the same as PE 100 RC single wall pipes (SDR17 PN10 and SDR11 PN16).

THERMAL EXPANSION

The thermal expansion or contraction of a plastic pipe can be calculated using the following formula:

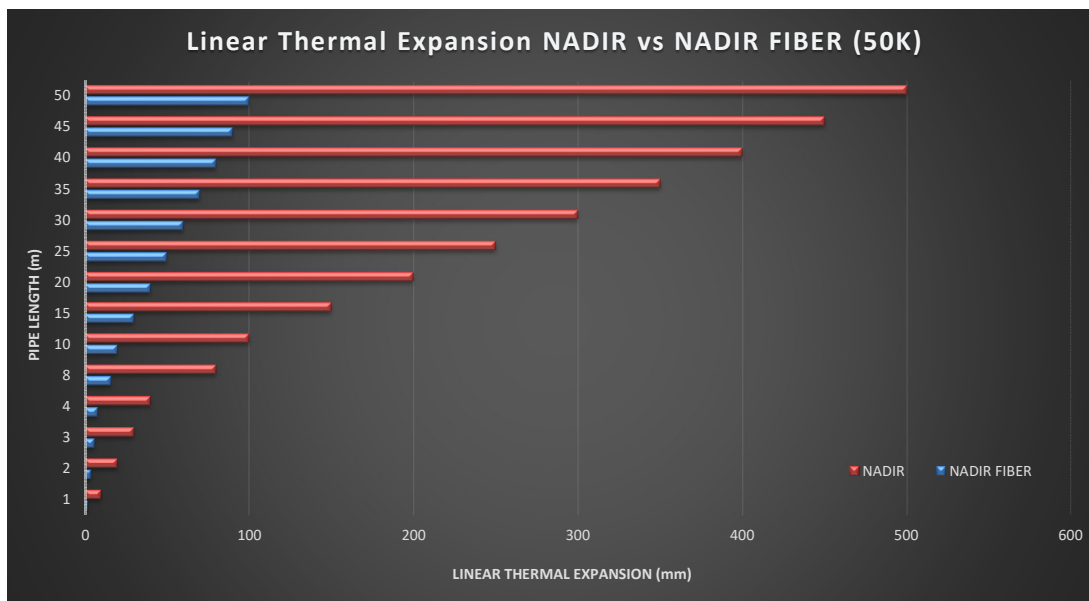
$$\Delta L = \alpha L \Delta T$$

where:

- ΔL linear thermal expansion (mm)
- α coefficient of linear thermal expansion of PE100 pipes NADIR (0,20 mm/mK)
- $\alpha (FG)$ coefficient of linear thermal expansion of PE100 pipes with fiberglass (0,04 mm/mK)
- L initial pipe length(m)
- ΔT difference between installation temperature and temperature of the transported fluid (K)

COEFFICIENT OF LINEAR THERMAL EXPANSION FOR PLASTIC PIPING

Pipe raw material	α (mm/mK)
PE	0,20
PE-X	0,15
PP	0,15
PB	0,13
PE-RT	0,19



Headquarters and Production Centre
via Stefano Ferrario 8
21052 Busto Arsizio (VA) Italy
ph. +39 0331-344211
fax +39 0331-351860
info@nupinet.com

Production and Operations Centre
via dell'Artigianato 13
40023 Castel Guelfo (BO) Italy
ph. +39 0542-624911
fax +39 0542-670851
info@nupinet.com

Production Centre
via Colombarotto 58
40026 Imola (BO) Italy
ph. +39 0542-624911
fax +39 0542-670851
info@nupinet.com



nupiindustrieitaliane.com

NADIR FIBER