Water-Blocking Tapes

Longitudinal water blocking for power and communications cables

Descripción

Water-blocking tapes (CDZD) consist of a non-woven polyester backing impregnated with superabsorbent polyacrylate powder. On contact with moisture, the polyacrylate swells quickly to form a gel that blocks longitudinal water progress inside the cable, limiting damage to the entry area and easing fault location and repair.

In power and telecommunications cable construction, water-blocking tapes replace traditional flooding compounds between cable components or under armouring. The tape form offers significant advantages over liquid filler: cleaner application, lower weight, easier stripping during installation and active blocking capability that remains throughout the cable's service life.

Thicknesses range from 0.10 to 0.30 mm with swelling rates reaching ≥16 mm in 3 minutes for the thicker references. Short-term thermal stability of 230°C and continuous service of 90°C per IEC 216 ensure compatibility with extrusion processes and with normal operating conditions in power cables.

Thin-thickness references (CDZD-10 to CDZD-18)

Propiedad	Método	CDZD-10	CDZD-15	CDZD-18
Thickness (mm)	ISO 9073-2	0.10 ±0.01	0.15 ±0.03	0.28 ±0.03
Grammage (g/m²)	ISO 9073-1	40 ±5	60 ±5	65 ±15
Tensile strength (N/cm, min.)	ISO 9073-3	≥20	≥25	≥30
Elongation (%, min.)	ISO 9073-3	≥12	≥12	≥12
Swell rate 1 min (mm)	GB 450	≥3	≥5	≥6
Swell rate 3 min (mm)	GB 450	≥4	≥8	≥9

Medium/high-thickness references (CDZD-20 to CDZD-30)

Propiedad	Método	CDZD-20	CDZD-25	CDZD-30
Thickness (mm)	ISO 9073-2	0.20 ±0.03	0.25 ±0.03	0.30 ±0.03
Grammage (g/m²)	ISO 9073-1	70 ±10	80 ±10	90 ±10
Tensile strength (N/cm, min.)	ISO 9073-3	≥30	≥35	≥35
Elongation (%, min.)	ISO 9073-3	≥12	≥12	≥12
Swell rate 1 min (mm)	GB 450	≥10	≥10	≥12
Swell rate 3 min (mm)	GB 450	≥12	≥14	≥16

Thermal and environmental properties

Propiedad	Método	Value
Short-term thermal stability	Q/TR.J02.031-2000	230°C
Long-term thermal stability	IEC 216	90°C
Moisture content	ISO 287	≤8%

Construcción

Backing	Non-woven polyester
Active agent	Superabsorbent polyacrylate powder
Type	Single-side, non-conductive

Guía de selección

The right reference depends on the balance between required blocking capacity, available space and mechanical strength during manufacturing. Swelling speed indicates the response rate to the presence of water.

Reference	Thickness	Grammage	Tensile strength	Swell 1 min	Swell 3 min	When to choose
CDZD-10	0.10 ±0.01 mm	40 ±5 g/m²	≥20 N/cm	≥3 mm	≥4 mm	Very tight spaces, compact constructions
CDZD-15	0.15 ±0.03 mm	60 ±5 g/m²	≥25 N/cm	≥5 mm	≥8 mm	Communication cables, limited spaces
CDZD-18	0.28 ±0.03 mm	65 ±15 g/m²	≥30 N/cm	≥6 mm	≥9 mm	Capacity/space balance
CDZD-20	0.20 ±0.03 mm	70 ±10 g/m²	≥30 N/cm	≥10 mm	≥12 mm	LV/MV power cables
CDZD-25	0.25 ±0.03 mm	80 ±10 g/m²	≥35 N/cm	≥10 mm	≥14 mm	High absorption capacity
CDZD-30	0.30 ±0.03 mm	90 ±10 g/m²	≥35 N/cm	≥12 mm	≥16 mm	Maximum protection, HV cables

Variantes disponibles

Tape type
– Single-side non-conductive (CDZD) — standard
– Semiconductive (WBSC2S) — for HV cables with partial-discharge control

Swelling-agent application
– One side — standard
– Special configurations on request

Formatos de entrega

The supply format directly influences process continuity and taping efficiency. Material can be supplied in different formats and dimensions adapted to each machine type and production speed.

Pad / Roll (pancake)

Core ID:	76 mm (3″), 102 mm (4″), 152 mm (6″)
Max OD:	80 – 600 mm
Width range:	5 – 1000 mm
Core material:	Plastic or cardboard

Spool (TWS / STS reel)

Core ID:	76 mm (3″)
Max OD:	300 – 320 mm
Width range:	3.5 – 80 mm
Winding type:	Traverse Wounded (TWS) or Step to Step (STS)
Core material:	Plastic or cardboard

The values shown below come from tests run to international standards and characterise the material's behaviour both during processing and in service.

Los valores indicados son típicos y no constituyen especificaciones vinculantes.