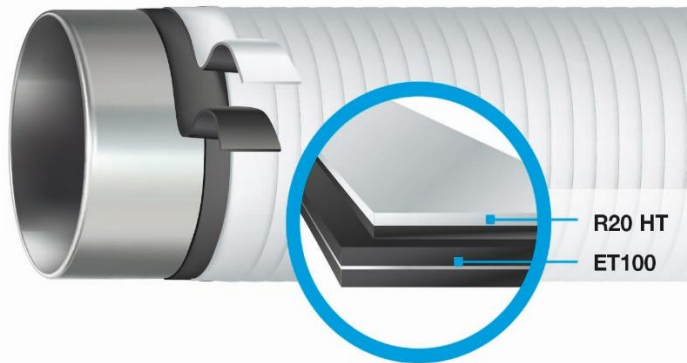


# DENSOLEN<sup>®</sup>-ET100/-R20 HT



## Product information

### Special advantages:



Excellent corrosion prevention for pipelines with increased temperature stress.



Especially thick and adaptable inner layer made from butyl rubber tape with a thickness of 1.0 mm.



Exceeds the requirements of stress class B 70 in accordance with EN 12068.



Compatible with factory coatings made of PE, PP, FBE, PU, CTE and bitumen.



For temperatures up to +100°C (+212°F).

**High temperature two-tape system for the corrosion prevention coating of metal pipes and pipelines in accordance with DIN 30672, EN 12068, ASTM and AWWA. Especially qualified for high operating temperatures for district heating pipelines, oil lines and gas compressor stations.**

For a century now, DENSO Group Germany has been representing experience, quality and reliability for corrosion prevention and sealing technology. The success of the internationally leading corporation is based on the development of the "DENSO-Tape", which was already patented in 1927 as the first product worldwide for the passive corrosion prevention of pipelines. Since then, the DENSO Group Germany has been establishing and guaranteeing the highest quality standards with technically trend-setting products. Research, development and production take place exclusively in Germany. Our employees continuously implement safe and individual solutions in a personal cooperation with the customer..

## Description

**DENSOLEN<sup>®</sup>-ET100/-R20HT** is a cold applied high temperature two-tape system for the corrosion prevention of metal pipes and pipelines. DENSOLEN<sup>®</sup>-ET100/-R20 HT features outstanding properties and is especially suited for increased operating temperatures, e.g. for district heating pipelines, compressor stations and for oil lines.

**DENSOLEN<sup>®</sup>-ET100/-R20 HT** is a system approved by Enagás S.A. (Spain).

Standard designation:

- EN 12068 – B 70
- DIN 30672 – B 70



DENSOLEN<sup>®</sup>-ET100/-R20HT HT is essentially impermeable to water vapor and oxygen and is resistant against soil bacteria and electrolytes. DENSOLEN<sup>®</sup>-ET100/-R20 HT is compatible with factory coatings made of PE, PP, FBE, PU, CTE and bitumen. The system DENSOLEN<sup>®</sup>-ET100/-R20 HT consists of:

### DENSOLEN<sup>®</sup>-HT Primer

A solvent containing primer in accordance with EN 12068 and DIN 30672 for the corrosion prevention with **DENSOLEN<sup>®</sup>** tapes. Please refer to the separate product information of the DENSOLEN<sup>®</sup>-HT Primer.

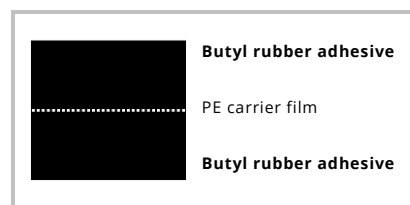
### DENSOLEN<sup>®</sup>-ET100

A real co-extruded 3-ply butyl rubber tape with butyl rubber adhesive on both sides of a carrier film made of stabilized polyethylene film. The special formulation of the butyl rubber adhesive in the DENSOLEN<sup>®</sup>-ET100/-R20 HT gives the tape an extraordinary temperature stability up to +100°C (+212°F). DENSOLEN<sup>®</sup>-ET100 has a thickness of  $\geq 1.0$  mm. DENSOLEN<sup>®</sup>-ET100/-R20 HT fulfills the international standards DIN 30672, EN 12068, ASTM and AWWA.

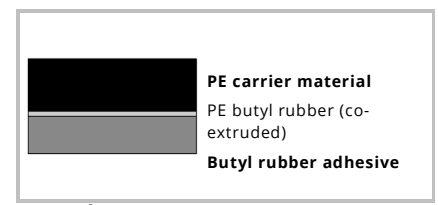
**DENSOLEN<sup>®</sup>-R20HT**, a real co-extruded 2-ply plastic tape made from stabilized polyethylene carrier film with a butyl rubber adhesive on one side. Outstanding connection between the adhesive and the carrier film is guaranteed by the co-extruded intermediate layer. The adhesive layer grows completely together with the outside layer of DENSOLEN<sup>®</sup>-ET100. DENSOLEN<sup>®</sup>-R20 HT fulfills the international standards DIN 30672, EN 12068, ASTM and AWWA.

### DEPROTEC<sup>®</sup>-DRM PP1000 Plus

As a mechanically protecting outside layer, we recommend the use of DEPROTEC<sup>®</sup>-DRM PP1000 Plus rockshield as an additional mechanically protection for operating temperatures above +70°C (+158 °F).



DENSOLEN<sup>®</sup>-ET100



DENSOLEN<sup>®</sup>-R20 HT

## Typical product properties

Property	Unit	DENSOLEN®-ET100	DENSOLEN®-R20HT	Test method
Carrier film color	-	Colorless	White	-
Butyl adhesive color inside	-	Black	Black	-
Butyl adhesive color outside	-	Black	-	-
Total thickness	mm	≥ 1.0	≥ 0.5	ISO 4591 ASTM D1000
Carrier film thickness app.	mm	≥ 0.025	≥ 0.3	
Inside adhesive layer thickness app.	mm	≥ 0.5	≥ 0.2	
Outside adhesive layer thickness app.	mm	≥ 0.5	-	
Elongation at break	%	≥ 200	≥ 550	DIN 30672
Tape strength	+23°C (+73°F) N / cm	-	≥ 65	EN 12068
Dielectric strength	kV / mm	≥ 35	≥ 35	DIN 53481
Water absorption	+23°C (+73°F) 1 day / 30 days %	≤ 0.1 / ≤ 0.4	≤ 0.1 / ≤ 0.4	DIN 53495 ASTM D570
Brittleness temperature	° C (°F)	-46±4 (-50.8±7.2)	-46±4 (-50.8±7.2)	DIN 53372
		-58±4 (-72.4±7.2)	-58±4 (-72.4±7.2)	GOST 10354

### DENSOLEN®-ET100/R20 HT with DENSOLEN®-HT Primer

Property	Unit	Typical value					Standard
System design	Primer	DENSOLEN®-HT Primer					-
	Inner tape	DENSOLEN®-ET100 (2 layers)					
	Outer tape	DENSOLEN®-R20 HT (2 layers)					
	Mechanical protection	DENSOLEN®-DRM PP1000 Plus					
Thickness of the encasement (without DENSOLEN®-DRM PP1000 Plus)	mm	3.0					-
Specific electrical insulation resistance	Ohm · m <sup>2</sup>	> 10 <sup>10</sup>					DIN EN 12068
Contact resistance	Ohm · cm	> 10 <sup>15</sup>					ASTM D 257
Impact resistance	J	16					DIN EN 12068
	°C (°F)	+23°C +73°F	+50°C +122°F	+70°C +158°F	+85°C +185°F	+100°C +212°F	
Peel strength on steel	N / cm	30	5	2.5 **	1.4 **	0.8 **	DIN EN 12068
Peel strength layer to layer ET100/ET100 ET100/R20 HT	N / cm	22					DIN EN 12068
Lap shear strength	N / cm <sup>2</sup>	15	6	5 **	4.8 **	4.5 **	DIN EN 12068
Indentation resistance. residual layer thickness of the tape system without rockshield	Extra load 10 N / mm <sup>2</sup> Stamp-Ø 1.8 mm <sup>2</sup>	-	2.1	1.6	0.9	-	DIN EN 12068
	Extra load 1 N / mm <sup>2</sup> Stamp-Ø 5.65 mm <sup>2</sup>	-	-	2.1	1.8	0.9	
Cathodic disbondment (radius)	mm	8	28	-	-	-	DIN EN 12068
		8	-	-	-	-	ASTM G 8

\*\* Values after 7 days conditioning at the test temperature.

DENSOLEN® tapes can be easily applied manually. The processing with the original DENSOMAT® wrapping devices is even more efficient. For DENSOLEN® tapes with widths of > 50 mm, we recommend the use of the DENSOMAT® wrapping device to guarantee an excellent processing quality.

## Ordering information and packaging

	Width (mm)	Tape length (m)	Tape area (m <sup>2</sup> )	Content per box			kg (app.)
				Number of rolls	Total tape area (m <sup>2</sup> )	Total tape length (m)	
DENSOLEN®-ET100 Core Ø 41 mm	30	12,5	0,375	18	6,75	225	9.0
	50	12,5	0,625	12	7,5	150	10.0
	100	12,5	1,25	6	7,5	75	10.0
	150	12,5	1,875	6	11,25	75	15.0
DENSOLEN®-R20 HT Core Ø 41 mm	30	30	0,9	18	16,2	540	10.0
	50	30	1,5	12	18	360	11.0
	100	30	3,0	6	18	180	11.0
	150	30	4,5	6	27	180	17.0

Additional lengths and widths are available on request.

## Storage

When stored in its original, unopened packaging, DENSOLEN®-ET100/R20 HT can be stored for at least 60 months after the manufacturing date.

Storage temperature: ≤ +50°C (+122°F)

Store in a dry location and do not rest anything against the front of the product.

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