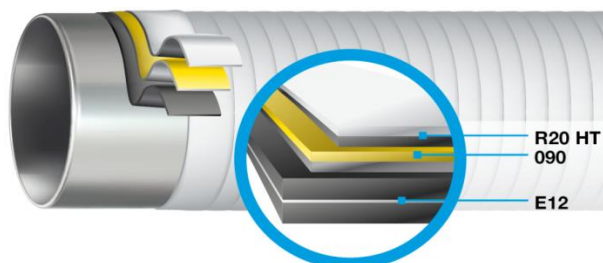
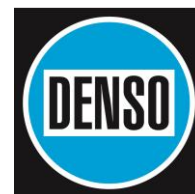


# DENSOLEN® System 1

## DENSOLEN®-E12/-090/-R20 HT

Product information



### Special advantages:



For permanent operating temperatures up to +30°C (+86°F).



Highly resistant thanks to three-tape design.



Fulfills stress class C 30 in accordance with EN 12068 and ÖNORM B 5250.



Easy application even for manual wrapping.

## Robust field coating system for the corrosion prevention of pipelines and pipeline components.

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® System 1** is a robust field coating system for the permanent corrosion prevention of pipelines and pipeline components. DENSOLEN® System 1 is a highly stressable system based on its design of three **DENSOLEN®** tapes. The requirements for the stress class **C 30** in accordance with EN 12068 and ÖNORM B 5250 are exceeded.

Standard designation:

- EN 12068 - **C 30**
- ÖNORM B 5250 - **C 30**

**DENSOLEN® System 1** consists of three **DENSOLEN®** tapes that have been proven for a long time:

**DENSOLEN®-E12** is a soft butyl rubber tape, which – as the inner tape – assumes the major corrosion prevention properties of the system. The thick butyl rubber layer of the system permits an outstanding molding of unevenly formed surfaces and an easy manual processing, e.g. on pipelines with small nominal pipe sizes, pipe bends and house connection valves. Due to its self-amalgamation effect in the overlapping area, DENSOLEN®-E12 creates an essentially gas and water tight as well as electrically high insulating encasement.

**DENSOLEN®-090** is used as the middle layer in the coating system. It is a flexible two-ply tape with a polyethylene outside layer and a butyl rubber coating positioned on the inside. The applied winding tension presses the inner tape solidly to the component surface and supports the self-amalgamation of the inner tape.

**DENSOLEN®-R20 HT** is a robust two-ply tape. The solid polyethylene outside layer protects the encasement against mechanical stresses.

All three **DENSOLEN®** tapes can be processed efficiently with the **DENSOMAT®** wrapping devices.

## Typical product properties

Property	Unit	DENSOLEN®-E12 Typical value	DENSOLEN®-090 Typical value	DENSOLEN®-R20 HT Typical value	Test method
Carrier film color	-		yellow	white, black, or blue	-
Butyl adhesive color inside	-	black	black	black	-
Butyl adhesive color outside	-	black	-	-	-
Tape thickness	mm	≥1.2	≥0.4	≥0.5	ISO 4591 ASTM D1000
Carrier film thickness app.	mm	≥0.025	≥0.22	≥0.3	
Inside adhesive layer thickness app.	mm	≥0.73	≥0.18	≥0.2	
Outside adhesive layer thickness app.	mm	≥0.45	-	-	
Elongation at break	%	-	≥400	≥500	DIN 30672
Tape strength	+23°C (+73°F) N/cm	-	≥35	≥65	EN 12068
Dielectric strength	kV/mm	-	-	≥50	ASTM D149

Property	Unit	DENSOLEN® System 1 Typical value	Required value	Test method
System design	Primer	DENSOLEN®-HT Primer	-	-
	Inner tape	DENSOLEN®-E12, 2 layers		
	Tensioning tape	DENSOLEN®-090, 2 layers		
	Outer tape	DENSOLEN®-R20 HT, 2 layers		
Total thickness	mm	≥4.2	-	-
Specific electrical insulation resistance	Ohm m <sup>2</sup>	≥10 <sup>10</sup>	≥10 <sup>8</sup>	EN 12068
Peel strength metal/primer/tape	N/cm	≥15	≥10	EN 12068 ASTM D1000
Peel strength layer to layer	E12 / E12	≥30	≥15	EN 12068
	E12 / 090	≥20	≥15	
	090 / 090	≥2	≥2	
	R20 HT / R20 HT	≥3	≥2	
Indentation resistance (residual layer thickness) (stamp load 10MPa)	mm	>0.8	≥0.6	EN 12068
Impact resistance	J	>15	≥15	EN 12068
Cathodic disbondment (radius)	mm	<8	<20	EN 12068
Lap shear strength	on steel N/cm <sup>2</sup>	>15	≥5	EN 12068

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

## Ordering information and packaging

	Core diameter (mm)	Tape length (m)	Width (mm)	Tape area (m <sup>2</sup> )	Content per box			
					Number of rolls	Total tape area (m <sup>2</sup> )	Total tape length (m)	App. weight (kg)
DENSOLEN®-E12	41	10	50	0.5	12	6.0	120	10
			75	0.75	12	9.0	120	15
			100	1.0	6	6.0	60	10
DENSOLEN®-090	41	15	50	0.75	12	9.0	180	6.5
			75	1.125	12	13.5	180	10,0
			100	1.5	6	9.0	90	6.5
DENSOLEN®-R20 HT	41	15	30	0.45	18	8.1	270	5.0
			50	0.75	12	9.0	180	5.5
			75	1.125	12	13.5	180	8.0
			100	1.5	6	9.0	90	5.5
		30	50	1.5	12	18	360	11.0
			75	2.25	12	27	360	17.0
			100	3.0	6	18	180	11.0
			150	4.5	6	27	180	17.0

Additional lengths and widths are available on request.

## Storage

When stored in its original, unopened packaging, DENSOLEN®-E12/-090/-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.

## DENSO GmbH

P.O. Box 150120 | 51344 Leverkusen | Germany  
Phone: +49 214 2602-0  
[www.denso-group.com](http://www.denso-group.com) | [info@denso-group.com](mailto:info@denso-group.com)

Our product information, our application recommendations and other product related documents are made for your convenience only. Since many installation factors are beyond our control, the user shall determine the suitability of the products for the intended use and assume all risks and liabilities in connection therewith. All information contained in this document is to be used as a guide and does not constitute a warranty of specification. The information contained in the document is subject to change without notice. For this reason, no liability can be accepted for inaccurate advice or any failure to provide advice.

The user is responsible for checking the applications of the product and verifying its suitability for the intended use. Our General Terms of Sale, which are available at [www.denso-group.com](http://www.denso-group.com), shall be decisive without any exception.

This is a translation from the original German product information. In case of any discrepancy or any dispute arising on the interpretation of this product information, the German text of the respective German product information, which is available at [www.denso-group.com](http://www.denso-group.com), shall be decisive. The legal relationship shall be governed by German law.