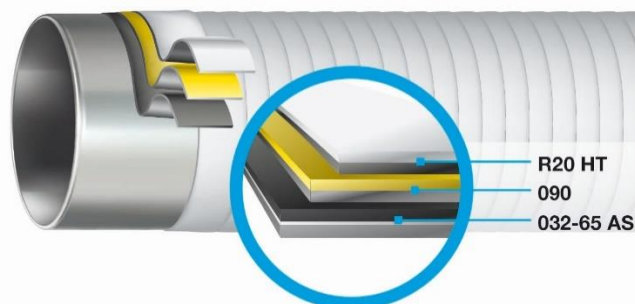
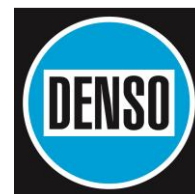


# DENSOLEN<sup>®</sup>-System 3

## DENSOLEN<sup>®</sup>-032-65 AS/-090/-R20 HT

Product information



### Special advantages:



For operating temperatures up to +50°C (+122°F).



Fulfills EN 12068-C 50.



Highly resistant thanks to three-tape design.

## 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<sup>®</sup> System 3** is a field coating system for the permanent corrosion prevention of pipelines and pipeline components. DENSOLEN<sup>®</sup> System 3 is a highly stressable systems based on its design of three **DENSOLEN<sup>®</sup>** tapes. An essentially gas and watertight as well as electrically highly insulating encasement will be created due to the self-amalgamation effect of the inside tape **DENSOLEN<sup>®</sup>-032-65 AS**.

DENSOLEN<sup>®</sup> System 3 features an ÖVGW approval for the stress class C 50 in accordance with EN 12068. The requirements for this standard are significantly exceeded.

Standard designation:

- EN 12068 - C 50



DENSOLEN<sup>®</sup> System 3 consists of three DENSOLEN<sup>®</sup> tapes:

**DENSOLEN<sup>®</sup>-032-65 AS** as the inner tape, assumes the major corrosion prevention properties of the system. DENSOLEN<sup>®</sup>-032-65 AS is a co-extruded 3-ply tape with an asymmetrical layer design. Even for a relative thin tape thickness of 0.65 mm with this design, a thick butyl rubber layer is placed on the pipe surface and it provides an outstanding adhesive connection even if the pipe surface is uneven. A self-amalgamation effect will be achieved in the overlapping area due to the thin butyl rubber layer at the upper side of the tape. The low tape thickness results also in a good processability at pipe bends and fittings.

**DENSOLEN<sup>®</sup>-090** is used as the middle layer in the encasement 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 inside tape solidly to the component surface and therefore supports the self-amalgamation of the inside tape.

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

## Typical product properties

Property	Unit	DENSOLEN®-032-65 AS Typical value	DENSOLEN®-090 Typical value	DENSOLEN®-R20 HT Typical value	Test method
Carrier film color	-	Black	Yellow	White, black or blue	-
Butyl adhesive color inside	-	Gray	Gray	Black	-
Butyl adhesive color outside	-	Black	-	-	-
Tape thickness	mm	≥0.65	≥0.4	≥0.5	ISO 4591 ASTM D1000
Carrier film thickness app.	mm	≥0.18	≥0.26	≥0.3	
Inside adhesive layer thickness app.	mm	≥0.39	≥0.14	≥0.2	
Outside adhesive layer thickness app.	mm	≥0.08	-	-	
Elongation at break	%	≥550	≥400	≥500	DIN 30672
Tape strength	+23°C (+73°F) N / cm	≥50	≥35	≥65	EN 12068
Dielectric strength	kV / mm	-	-	≥50	ASTM D149

Property	Unit	Typical value	Required value	Test method
System design	Primer	DENSOLEN®-HT Primer	-	-
	Inside tape	DENSOLEN®-032-65 AS, 2 layers		
	Tensioning tape	DENSOLEN®-090, 2 layers		
	Outside tape	DENSOLEN®-R20 HT, 2 layers		
Total thickness	mm	≥3.1	-	-
Specific electrical insulation resistance	Ohm m <sup>2</sup>	≥10 <sup>10</sup>	≥10 <sup>8</sup>	EN 12068
Peel strength on steel	+23°C (+73°F)	≥15	≥10	EN 12068
	+50°C (+122°F)	≥2	≥1	
Peel strength on PE	+23°C (+73°F)	≥10	≥4	EN 12068
Peel strength layer to layer	032-65 AS / 032-65 AS	≥22	≥15	EN 12068
	032-65 AS / 090	≥22	≥15	
	090 / 090	≥2	≥2	
	R20 HT / R20 HT	≥3	≥2	
Indentation resistance (residual layer thickness)	+23°C (+73°F) (10 MPa)	≥0.8	≥0.6	EN 12068
Impact resistance	J	≥20	≥15	EN 12068
Cathodic disbondment resistance	mm	<2	<20	EN 12068
Lap shear strength	on steel N/cm <sup>2</sup>	≥8	≥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)	Width (mm)	Tape length (m)	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®-032-65 AS	41	50	15	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®-090	41	50	15	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	30	15	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
		50	30	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®-032-65 AS/-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.

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