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Definition and Applications

DIN30678

- ALLLAND Production Standards Overview

1. Definition

DIN 30678 is a German industrial standard for factory-applied polypropylene (PP) coatings on steel pipes and fittings. Its core scope is defined as follows:

- **Governed Objects:** Applicable to steel pipes and fittings for buried or submerged applications, where the external coating is a factory-applied polypropylene (PP) material, making it more suitable than polyethylene coatings for service conditions requiring higher operating temperatures.
- **Primary Processes:** Covers two key coating process systems: extruded polypropylene coating and modified polypropylene powder coating.
- **Coating Types**: Classified by performance grade into General Purpose (Type G) and High Performance (Type H). Type H is designed for severe environments, capable of withstanding high-temperature media (short-term service temperature up to 110°C), strong chemical corrosion, or extreme mechanical stress.
- **Thickness Grades:** Within Type G or H, further classified into Standard Thickness (Grade s) and Enhanced Thickness (Grade e). Enhanced Thickness (Grade e) is primarily used for

Requirement Category	Specific Indicator / Test Item	Core Requirement
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Coating Thickness	Minimum Thickness	Classified by pipe diameter, ranging 2.0-3.2 mm; Enhanced Type (Grade e) adds an extra 0.8-1.0 mm. The applied average thickness must exceed the minimum.
Adhesion / Peel Strength	At Ambient Temperature (23°C)	≥40 N/cm (key projects often require 60-80 N/cm)
	At Elevated Temperature (70°C for G / 90°C for H)	≥28 N/cm for Type G, ≥32 N/cm for Type H
Coating Continuity	Holiday Detection (Spark Test)	Test voltage approx. 30 kV/mm of coating thickness; 100% free of holidays.
Cathodic Disbondment Resistance	28-Day Test (70°C for G / 90°C for H)	Disbondment radius ≤7 mm under specified voltage.
High-Temperature Resistance	Thermal Ageing Test (120°C, 168 hours)	No cracking or peeling, peel strength retention ≥80% of initial value.
Impact Resistance	Falling Weight Impact Test (e.g., at -20°C)	≥12 J/mm of coating thickness, verifying resistance to impact during installation.
Bending Performance	Bend Test at Ambient / Specified Elevated Temp.	No cracking or peeling of coating after pipe bending.
Visual Inspection	Visual Examination	Surface smooth and uniform, free of blisters, cracks, inclusions, or irregularities.

Application Process: Must be carried out in a controlled factory environment, with strict control over preheating temperature (higher than for PE coating application), extrusion speed, and cooling rate to ensure the coating is uniform, continuous, and free of defects.

areas with high risk of external mechanical damage, such as rocky soil or heavy construction zones.

2. Material & Process

3. Performance Requirements

As the core technical content, the standard defines minimum compliance requirements for key coating properties, detailed as follows:

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奥蓝德钢管
ALLLAND STEEL PIPE

Key Notes:

The performance values specified in the standard are minimum compliance thresholds. In actual projects (e.g., high-temperature oil/gas pipelines, chemical transport pipelines, large-diameter high-pressure pipelines), the purchaser's technical specifications often impose higher requirements (e.g., ambient peel strength ≥80 N/cm).

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Testing & Acceptance

Divided into production process control and delivery acceptance to ensure products conform to the standard and project requirements:

1.Production Process Testing: The applicator must test each batch of raw materials (PP, FBE primer, adhesive) and perform real-time online monitoring of coating thickness, temperature, holidays, etc., to ensure process stability.

2.Delivery Acceptance Testing: The purchaser or an independent third-party inspection agency may conduct Witness Performance Tests (WPT) or sampling tests. Test objects are laboratory-coated test pipe sections or samples from finished pipes, covering all performance requirements.

3.Acceptance Basis: Upon qualification, a test certificate conforming to DIN 50049 must be provided, including:

- ✧ Certificate 3.1.B: Manufacturer's declaration of conformity based on in-house testing.
- ✧ Certificate 2.2: Issued by an independent third-party inspection body, offering higher credibility for key items.

Identification & Documentation

Product Identification

Finished pipes must be marked with clear, permanent identification on the pipe body or a tag, containing at minimum: Standard number (DIN 30678), Coating type (G/H), Thickness grade (s/e), Manufacturer's name/trademark, Year of manufacture.

Accompanying Documentation

- ✧ Each delivery batch must be accompanied by the following documents:
- ✧ Declaration of Conformity or the aforementioned test certificates (DIN 50049).
- ✧ Material Data Sheet: Detailed description of the coating system (raw material specifications, layer composition).
- ✧ Application / Installation Guide: Includes recommendations for field joint coating repair, storage requirements (avoid prolonged exposure above 120°C), and handling instructions (prevent severe impact).

ALLLAND DIN30678 Product Images

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