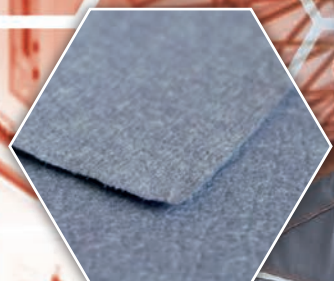


# Norafin Komanda®

Technical High-Performance Nonwovens for Industrial FR Workwear,  
Arc Flash Protective Clothing or FR liners

Our Norafin Komanda®-Nonwovens comply with current EU norms.



- ✓ **Lightweight FR Material**  
Strong FR protection for multi-layer and single-layer solutions
- ✓ **Protects against Heat & Flame**  
according to EN 11612
- ✓ **EN IEC 61482-1-2 in single layer:**  
Class 1 below 165 gsm  
Class 2 below 300 gsm
- ✓ **Durability to washing**
- ✓ **Soft und drapeable**
- ✓ **Superior breathability**
- ✓ **Protection for Welders**  
according to EN 11611
- ✓ **Chemically resistant, high-visibility, antistatic product options available**

PROPERTY	TEST METHOD	125 GSM	160 GSM	285 GSM
<b>Heat and Flame Protection EN ISO 11612</b>				
Tensile Strength (MDxCD)	EN ISO 13934-1:2013	160 N x 160 N	200 N x 195 N	420 N x 420 N
Tear Strength (MDxCD)	EN ISO 13937-2:2000	12,3 N x 11,5 N	18,4 N x 16 N	30,7 N x 26,5 N
Dimensional Change (MDxCD)	ISO 5077	±3 %	±3 %	±3 %
Heat Shrinkage (180°C)	ISO 17493	±5 %	±5 %	±5 %
Limited Flame Spread (A1) (Initial)	EN 15025	No flaming to top or side edge, no hole formation, no debris	No flaming to top or side edge, no hole formation, no debris	No flaming to top or side edge, no hole formation, no debris
Index Afterflame		Index 3 0 s	Index 3 0 s	Index 3 0 s
Index Afterglow		0 s	0 s	0 s
Convective Heat*	EN ISO 9151	2,3 s	2,5 s	3,4 s
Radiant Heat*	ISO 6942	7,6 s (C1)	8,3 s (C1)	10,2 s (C1)
<b>Arc Flash Protection</b>				
Arc Flash (Box test)*	EN 61482-1-2	n.a.	Class 1 (single layer) Class 2 (double layer)	Class 2 (single layer)
Arc Flash (Open Test)*	EN 61482-1-1			
ATPV (Arc thermal protective value)		9,5 cal/cm <sup>2</sup>	11 cal/cm <sup>2</sup>	33 cal/cm <sup>2</sup>
HAF (Heat Attenuation Factor)		n.a.	83 %	93 %
<b>Other Results</b>				
Breathability (ReT*)	ISO 11092	5,00 g/m <sup>2</sup> /24h	5,53 g/m <sup>2</sup> /24h	6,72 g/m <sup>2</sup> /24h
Air Permeability*	ISO 9237	400 l/dm <sup>2</sup> /min	300 l/dm <sup>2</sup> /min	120 l/dm <sup>2</sup> /min
Thickness	ISO 9073-2	0,62 mm	0,72 mm	1,07 mm
Elongation (MDxCD)	ISO 9073-3	30 % x 30 %	25 % x 30 %	25 % x 30 %

\*After 5 domestic washing cycles at 60°C. All statements and data are given for informal purposes only and do not constitute a specification.

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