NORDIFA AB

Nordifa, the only dedicated manufacturer of technical textiles in the Nordic region, is located on Flygstaden industrial estate, close to the airport in Halmstad. The 14,000 square metre, state-of-the-art production plant meets the highest environmental standards.

OUR BUSINESS AREAS

ADVANCED INDUSTRIAL TEXTILES

Textiles can replace many traditional construction materials. The benefits include lower weight, increased service life and strength, simpler production and reduced costs. In addition, textiles make holistic design easier.

FILTRATION

Effective filter materials are frequently created using layers of fibres with different properties. The final finish is achieved through customised after-treatment. In this area, Nordifa's resources and experience are unique.

SPORTS FLOORING

Needled felt sports flooring is quick to lay and holds its dimensions well. The surface texture and colour can be customised to make it ideal for a range of uses. Outdoor products are, of course, made from weather, wind and UV-resistant filter material.

NORDIFA Engineered Textiles

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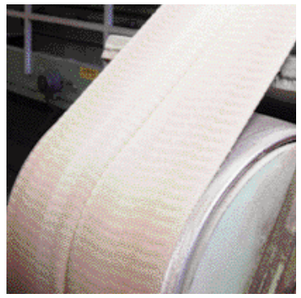
NORDIFA TEXTILE MACHINE COMPONENTS.

THE SMART ALTERNATIVE TO PLASTIC, STEEL, WOOD AND RUBBER

WE HAVE MADE THESE PRODUCTS FOR OTHER CUSTOMERS. WHAT CAN WE PRODUCE TOGETHER?

Textiles are versatile and can replace plastic, rubber, wood and metals in many different areas. No other company has solved so many problems for companies in such a wide range of industries. This means that we offer short start-up times, high quality and low costs. We work with all imaginable textile applications – not just one
– entailing a valuable exchange of ideas, from which you can benefit.

CONTROLLED FLOW FOR POWDER TRANSPORT
Bulk vehicles use air to move materials to the right place. It is blown in through a thick fabric that has precisely the right permeability and creates the correct air cushion for the material.



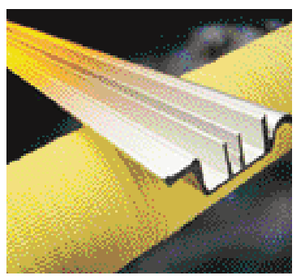
SPECIAL CONVEYORS FOR THE PAPER AND CELLULOSE INDUSTRIES
Fixing and transportation of moist raw materials at high temperatures.

NOISE REDUCTION IN DRAWERS
Everyone knows the sound of cutlery in a plastic drawer. This is eliminated if the drawer is made from moulded felt, whilst also boosting its appearance.

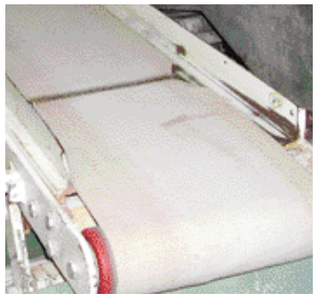
FLUID-DISTRIBUTING FELT TIP
A textile can function both as a container (e.g. an ink pad) and means of dispersal (felt tip). The fluid is held in the right place, distributed and results in an even flow, thanks to the porous structure of the textile.

ANTISTATIC DOOR SEALS
When a rapid rolling door is opened and closed, there is a risk that static electricity and sparks will be created as it moves over the seal. The solution is Nordifa's antistatic seal, which includes metal fibres.

SELF-SUPPORTING CEILING
In forestry tractors, the sound environment is at least as important as that in a private car – it is a workplace. Making the ceiling from moulded acoustic felt reduces noise, as well as meaning that the ceiling is fast and easy to install.



TRANSPORT AND PROTECTION OF EXTRUDED PROFILES
Immediately after being extruded, the aluminium is not only hot, it is also sensitive to mechanical interference. This special textile roller can withstand the temperature, but without affecting the surface.



TRANSPORTING PLASTICS
Transporting raw plastics with a temperature of 180°C from the mixer to the extruder can easily turn into a sticky story. The solution is a conveyor that withstands the high temperature and has a non-stick surface.

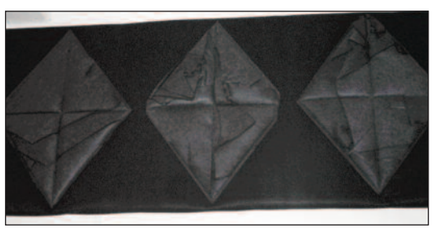
QUICK-FIT FURNITURE PADS
Moving furniture causes both noise and scrape marks. The solution is punched felt furniture feet, which can withstand mechanical stresses and last a long time without becoming compressed.

QUIET, DECORATIVE PEN HOLDER
Most things that make a noise are unwelcome in an office environment. An integrated pen holder of moulded felt not only makes the desk more attractive, it also eliminates a great deal of noise.

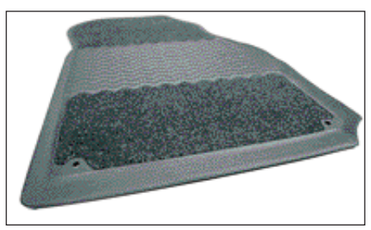
BREATHABLE SEALS
When the street lights are lit, the space inside the cover heats up. The moisture inside it is ventilated out through a textile seal, somewhat like that of a jacket with a breathable membrane.

DUST PROTECTION AND OIL SEALS
For many decades, felt has been used as a seal in classic bearing housings. The reason is that no other material is as good as felt at combining the ability to form a seal with the ability to absorb oil.

MOISTURE-RESISTANT GLIDING SEAL
One key component of a tumble drier is the seal between the rotating drum and the housing. The slightest leak will extend drying times and reduce efficiency. Other materials have been tested, but felt is unbeatable.



SOUND-ABSORBING WALL PANELS
A special product that has been developed for spaces that have a long reverberation time due to hard walls and floors, e.g. gyms, school dining rooms and sports halls.



A GREAT COMBINATION OF TEXTILE AND RUBBER
Simple rubber mats are inadequate for prestige cars. The combination of soft felt and rubber gives a feel of quality, whilst the mat also creates sound comfort.

ELEVEN FUNCTIONS, THOUSANDS OF APPLICATIONS

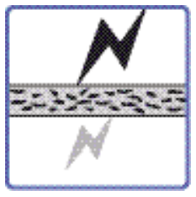
Nordifa is one of the few independent European companies with a complete production chain for needled and moulded felt, as well as for specialist woven products. This gives us unique opportunities to maximise how we adapt products to suit our customers, i.e. to tailor-make products entirely according to customer demands and requirements.

It is no surprise that smart designers, product developers and industrial designers want to come to Nordifa. You are very welcome, you too!

Unlike all the other companies that are satisfied with manufacturing and selling standard products, we always start from the product's function. This is why we work with all the production methods that might be necessary – weaving, knitting, plaiting and needling. Below are a handful of common technical functions for which textiles may just be the solution you need:

SEALANT – BETWEEN MACHINE PARTS AND CONSTRUCTION ELEMENTS, AGAINST FLUIDS, OILS, AIR AND GASES

PROTECTION – PRODUCTS, PEOPLE, MACHINES AND THE ENVIRONMENT



MUFFLING – NOISE, IMPACTS, WEAR AND VIBRATIONS

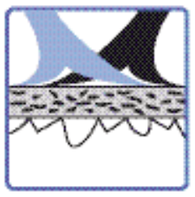
INSULATION – FROM HEAT AND COLD, AGGRESSIVE CHEMICALS AND EMISSIONS

ABSORPTION – SOUND, POLLUTION AND FLUIDS

TRANSPORTATION – PRODUCTS, POWDERS AND AIR

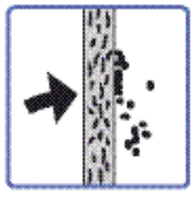
SCREENING AND COVERING – MACHINES, WORKPLACES, DEBRIS, DISRUPTIVE WORK AND VEHICLES

DECORATION – OFFICES, PREMISES, FURNITURE AND THEATRES



DISTRIBUTION – AIR AND FLUID FLOWS, PRESSURE AND ELIMINATING UNEVENNESS

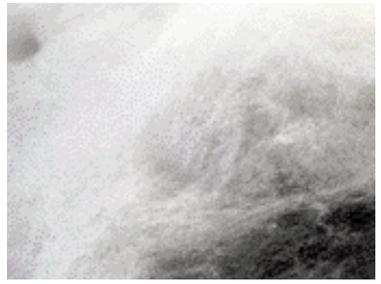
FILTRATION – AIR, GASES, WATER AND FLUIDS



SCRAPING/CLEANING – CONVEYORS AND DRIERS, WHITEBOARD CLEANING AND POLISHING

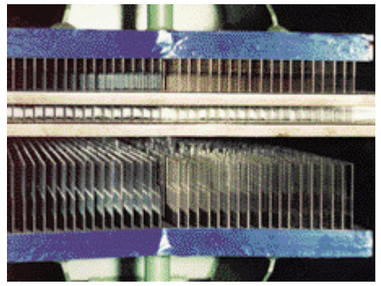
A COMPLETE PRODUCTION CHAIN – FROM FIBRE TO FUNCTION

Smart designers, product developers and industrial designers head to Nordifa. The reason is that we have a complete production chain for needled and moulded felt, as well as specialist woven products. This gives us unique opportunities to tailor-make products to suit customer requirements.



STEP 1 – ANALYSIS AND DEVELOPMENT
First, we map out operating conditions, decide on functional requirements and make prototypes. When we know what the product should look like, we decide which materials should be used and their composition, as well as the structure, weight and colour of the product, etc.

STEP 2 – BLENDING THE FIBRES
Nordifa's specially-made blending equipment guarantees that even minute quantities of a special fibre are evenly distributed throughout the entire fibre volume. This is decisive for its functionality, such as when antistatic fibres are added. For weaving, the raw material is yarn made from fibres that have been just as carefully blended.



STEP 3 – CARDING AND WADDING
When making needled felt, the fibres are carded to make a fine fibre web. To increase the material's strength, a number of these are placed on top of each other and carded to make wadding. We are the only ones to use this technique. The way we layer the wadding is also unique. We have a unique width and can also select different patterns and combine different wadding materials.

STEP 4 – NEEDLING/WEAVING/KNITTING
The wadding is processed a number of times using barbed needles. Each time the felt passes the needles it becomes more compact. This process can vary from a few repeats to many. Weaving and knitting is carried out in special machines that guarantee that the finished material has exactly the right density, weight and thickness.

STEP 5 – FINISHING
There are many types of finishing treatments – impregnation that gives the material special qualities, thermofixing to provide surface structure, dimensional stability and resistance to wear, calandering to give a hard, shiny surface, etc.

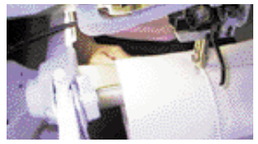
STEP 6 – MAKING-UP AND MOULDING
When the fabric is made-up, it is first cut and then processed in machines that give the product exactly the right dimensions.

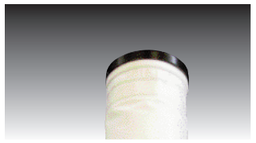
When it is moulded, a heated special felt is pressed into a mould, after which the felt is cooled so that it retains its shape. Finally, the product is cut in a fully-automatic robot station.

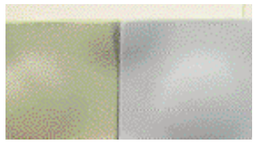
STEP 7 – TESTING AND DOCUMENTATION
There is always a final check on quality and dimensions. We follow the routines that our ISO-based quality assurance system requires. All stages of the process are documented so that we are able to quickly press the button if the same product is ordered again.

OUR 31 MOST IMPORTANT TOOLS

Often, the solution to a tricky problem can be found in new technology, new raw material or a new process. This is why it is natural for us to work as closely as possible with the leading international fibre manufacturers, so that we get the latest news as soon as possible.








TEXTILE RAW MATERIALS AND THEIR PROPERTIES

	SI-units	Factory units	Amorphous silicic acid	CF Carbon fibre	CLF Polyvinyl chloride	CO Cotton	Co-PET Bi-component PE	CV Viscose	EL Elastomers	FL Flax	GF (glassfibre) Silicon dioxide	JU Jute	LCP Aromatic polyester	MAC Modakrylic	MAR Meta-aramid	MTF Stainless steel	OPAN Oxidised pan	PA Polyamide	PAI Polyamide imide	PAN Polyacrylon-itrile, homopolymer	PAR Para-aramid	PBO Polybenz-oxazole	PE Polythene	PEEK Polyether-ether ketone	PEI Polyester imide	PET Polyester	PF Phenol-formalde-hyde	PI Polyimide	PP Polypro-pylene	PPS Polyphe-nylene sulphide	PTFE Polytetra-fluoro-ethylene	PVDF Polyvinylidene-fluoride	WO Wool (sheep)
Trade name			Refrasil	Tenax Torayca	Leavil, Termovyl				Lycra				Vectran	Kanecaron	Conex, Nomex	Bekinox, Naslon	Panox	Perlon	Kermel	Dolanit, Aksa	Kevlar, Twaron	Zylon	Spectra Dyneema	Zyex		Trevira, Dacron	Kynol	P84	Meraklon Asota	Procon, Torcon	Profilen, Teflon	Kynar	
Staple fibres' tenacity	MPa/(kg/m3)	N/Tex	0,48	1,67	0,27	0,50	0,26	0,18	N/A	0,50	0,45	0,32	N/A	0,32	0,48	0,23	0,16	0,50	0,35	0,55	2,07	3,70	N/A	0,48	0,27	0,50	0,18	0,33	0,43	0,27	0,14	N/A	0,13
Staple fibres' strength	Mpa	N/mm²	1240,00	3000,00	360,00	370,00	140,00	270,00	N/A	750,00	1170,00	470,00	N/A	420,00	660,00	1780,00	210,00	570,00	470,00	660,00	3000,00	5900,00	N/A	625,00	345,00	690,00	230,00	465,00	390,00	370,00	300,00	N/A	165,00
Filament fibres' tenacity	MPa/(kg/m3)	N/Tex	N/A	1,67	0,32	N/A	0,26	N/A	0,07	N/A	1,39	N/A	2,00	N/A	0,50	0,23	0,16	0,62	0,41	N/A	2,30	3,70	0,50	0,65	0,27	0,60	N/A	0,33	0,54	0,27	0,14	0,31	N/A
Filam. fibres' strength	MPa	N/mm²	N/A	3000,00	430,00	N/A	140,00	N/A	90,00	N/A	3530,00	N/A	2820,00	N/A	680,00	1780,00	210,00	710,00	540,00	N/A	3330,00	5900,00	470,00	850,00	345,00	830,00	N/A	465,00	490,00	370,00	300,00	560,00	N/A
Break elongation		%	3	0,4 - 1,8	20 - 40	3-7	40 - 50	9 - 23	600	2-4	2 - 3	1,5 - 2,5	2 - 2,5	15 - 40	18 - 20	1	15 - 27	10 - 19	20 - 30	13 - 18	2 - 3,7	2,5 - 3,5	20 - 30	20	38	8 - 15	20	30	15 - 25	25 - 30	13	20 - 50	25 - 40
Wet strength, relative		%	100,00	100,00	100,00	100- 200	95 - 100	55 - 63	100,00	102,00	100,00	105,00	100,00	90 - 95	75 - 80	100,00	95 - 100	90 - 95	75 - 80	90 - 96	75 - 80	100,00	100,00	100,00	100,00	95 - 100	100,00	75 - 80	100,00	100,00	100,00	100,00	75- 85
E modulus**	Gpa	N/mm² x1000	x	x	x	x	9-34	x	x	50-70	72,00	20-55	x	x	x	x	8,40	x	x	17,77	x	300,00	30,00	x	x	137,00	x	4000,00	42,00	x	x	x	x
Density		g/cm³	2,60	1,80	1,35	1,52	1,22-1,38	1,52	1,20	1,49	2,60	1,50	1,41	1,30	1,38	7,90	1,37	1,14	1,34	1,18	1,45	1,56	0,94	1,30	1,28	1,38	1,25	1,41	0,91	1,37	2,10	1,78	1,32
Moisture absorption		%	0,10	0,10	0,10	7,50	0,40	13,00	1,50	10,00	0,01	17,00	0,10	0,50	2,50	2,00	10,00	4,50	3 - 5	1,50	3,00	0,6 - 2	0,01	0,10	1,25	0,40	6,00	3,00	0,10	0,60	0,10	0,04	16,00
Working temperature	K= C + 273	Degrees C	1000,00	530,00	80,00	80,00	70,00	135,00	90,00	80,00	240,00	80,00	180,00	80,00	200,00	550,00	300,00	100,00	250,00	130,00	180,00	400,00	65,00	240,00	170,00	135,00	150,00	260,00	90,00	190,00	240,00	130,00	90,00
Maxtemp bef collapse	K= C + 273	Degrees C	1300,00	1800,00	160 - 180	150,00	110 - 190	190,00	250,00	150,00	845,00	150,00	276 - 322	190 - 200	400,00	1400,00	450,00	250,00	400,00	240,00	425,00	650,00	120,00	335,00	225,00	257,00	250,00	400,00	160,00	285,00	327,00	156,00	130 - 300
Fire resistance LOI		% oxygen for ignition	x	x	x	16-18	x	16-18	x	16-18	x	16-18	x	30	30	x	50	22	32	19	28	68	x	30	44	21	30-34	47	18-19	43	95	44	25
Acid resistance dilute/concentrated		U/K *	3/3	4/4	4/4	2/1	3/3	3/2	3/2	1/1	3/3	2/1	4/3	4/4	3/2	4/3	4/3	2/1	4/3	4/3	3/2	4/3	3/3	4/4	3/2	4/3	4/3	4/4	4/4	4/4	4/4	4/4	3/2
Alkali resistance dilute/ concentrated		U/K *	3/2	4/4	4/3	4/3	2/2	3/2	3/2	3/2	4/3	3/2	4/3	4/3	3/3	4/4	4/3	4/3	3/3	3/3	3/3	4/3	3/3	4/4	4/4	2/1	4/3	3/2	4/4	4/4	4/4	4/3	2/1
Resistance to organic solvents		U/K *	4	4	2	3	3/3	3	2	3	4	3	4	2	3	4	4/3	4	4	3	4	4	3	4	3	3	4	3	3	4	4	3	3
Resistance to oxidising agents		U/K *	4	4	4	2	3/3	3	2	1	4	1	3	4	3	4	4/3	2	4	3	3	4	1	3	3	4	1	3	3	2	4	4	1
Resist. to hydrolysis		U/K *	4	4	3	x	1	x	3	x	4	x	3	3	1	3	4	3	4	4	2	2	2	4	4	1	4	2	3	4	4	4	x
Relative price		Low, medium, high, (L:M:H)	M	H	L	L	M	L	M	L	L	L	H	L	M	M	M	M	M	L	M	H	L	H	H	L	M	M	L	H	H	M	L

** at 2 % elongation

* U = dilute, K= Concentrated

1- poor
2- medium
3- good
4- excellent

N/A Not applicable
x Information not available
LOI values above 25% are regarded low ignitability
Tex Specifies the weight in grams of 1,000 m of the fibre