

WARP PREPARATION

COMPLETE SOLUTIONS FOR YOUR SUCCESS IN WEAVING

Shirting / Sheeting / Denim / Home Textiles / Wool / Silk / Filament / Technical Textiles / Glass

WARP PREPARATION COMPLETE PROCESS SOLUTIONS





ZERO DEFECT AND 100% CAPACITY UTILIZATION

One of our main objectives is to ensure that your weaving mill produces at the highest efficiency. We are the only manufacturer in the world who offers complete process solutions for the warp preparation business. Therefore we offer you the highest reliability for economic efficiency, quality and flexibility of your weaving factory.

Since 1991 we, as market leader, have been providing our customers with sustainable concepts. Innovative technology and reliable service structures guarantee the durability of your machines. KARL MAYER has agencies all over the world, at our customers' locations. Our global service network provides you with quick and targeted service solutions. Pre- and aftersales concepts support the long service life of your equipment and processes.

Our integrated processes ensure zero defect and 100% capacity utilization for your machines during production. Our Centers of Excellence develop special solutions for your complete business activities. We can also offer you tailor-made development solutions for your special requirements.

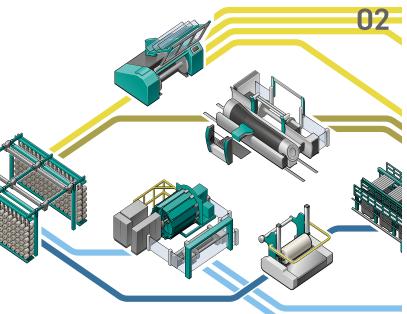
With our ground-breaking innovations we are always one step ahead. This competitive edge is the result of our professional development management and of our excellent relations to textile and technical colleges and universities. Our technology leadership also becomes evident by numerous applications of innovative patents.

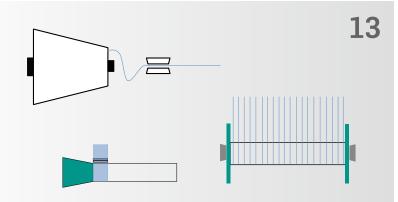
This leaflet shows you our entire product portfolio and the appropriate technical solutions. Please kindly contact us if you have questions regarding your individual issues and wishes. Our experts are looking forward to meeting you and having a personal conversation with you. They would be pleased to hand you over detailed technical folders for your specific requirements.

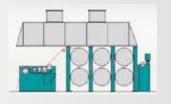
We are looking forward to hear from you!











CONTENT

01	INNOVATIONS 6		
02	COMPLETE SOLUTIONS 8	-11	
03	SHIRTING	12	
04	SHEETING	13	
05	DENIM	14	
06	HOME TEXTILES	15	
07	WOOL	16	
80	SILK	17	
09	FILAMENT	18	
10	TECHNICAL TEXTILES	19	
11	GLASS – TECHNICAL SECTOR	20	
12	GLASS - ELECTRONIC SECTOR	21	

13 PRODUCT OVERVIEW

22

INNOVATIONS ALWAYS ONE STEP AHEAD



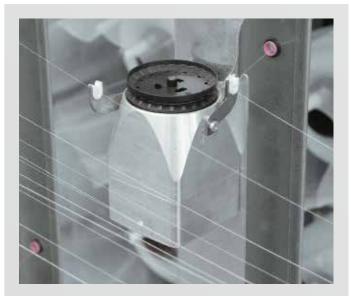
LATEST WARPING TECHNOLOGY IN COMBINATION WITH KAMCOS® 2

ensure highest quality level through self-optimizing layer regulation



PATTERN YARN SELECTOR MADE FROM CARBON AND PATENTED CENTER-YARN TRANSPORT FACILITY

guarantee most precise yarn laying at highest speed



EXTENDED APPLICATION RANGES WHEN USING DYNAMIC YARN TENSIONERS

result in more flexible applications even when operating at lowest yarn tensions



NEW INTERMINGLING TECHNOLOGY NOZZLES

More intermingling points but less energy consumption and considerably easier handling



EXTENSION OF WARP SAMPLING APPLICATIONS NEW YARN CONVEYING BELTS

Pneumatically controlled yarn conveying belts ensure a constant yarn tension in all warping bands



FLEXIBILITY DUE TO CONSISTENT FURTHER DEVELOPMENT

A newly developed equalizing roller, now also available on fully automatic machines, gives you a competitive edge



MOST EFFICIENT SIZING TECHNOLOGY WITH PROSIZE®

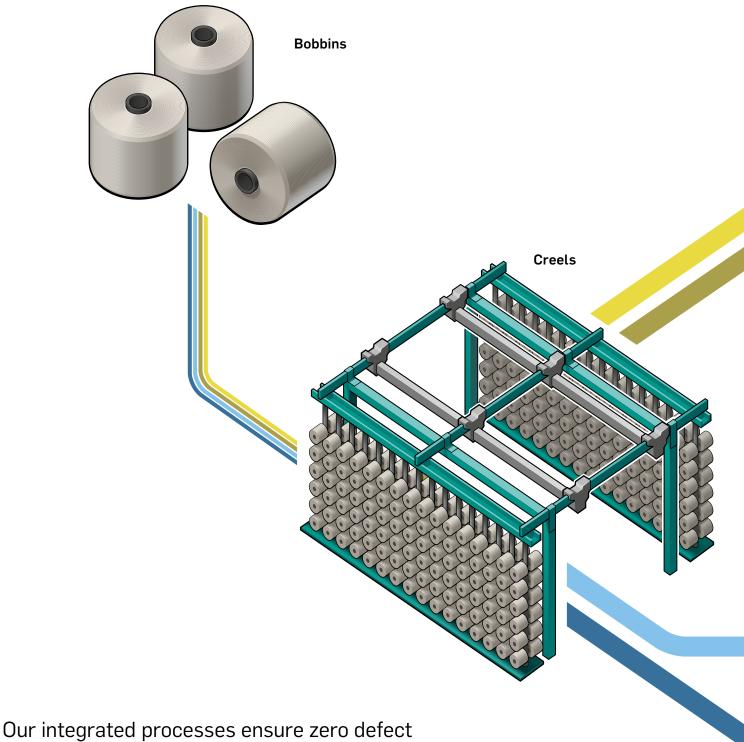
Innovative, immersion-free sizing process. Easy handling and unrestricted view of the entire processing sequence due to vertical yarn guiding



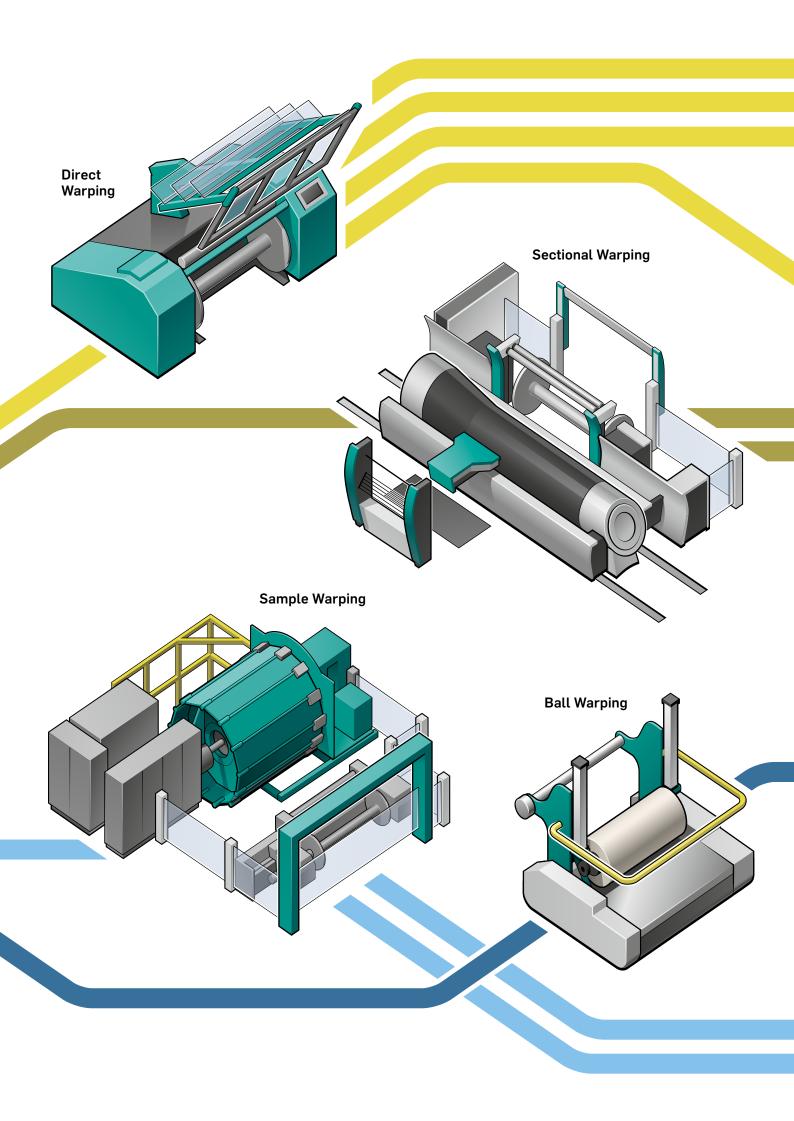
BEST DENIM QUALITY THANKS TO THE DOUBLE VARIO TECHNOLOGY

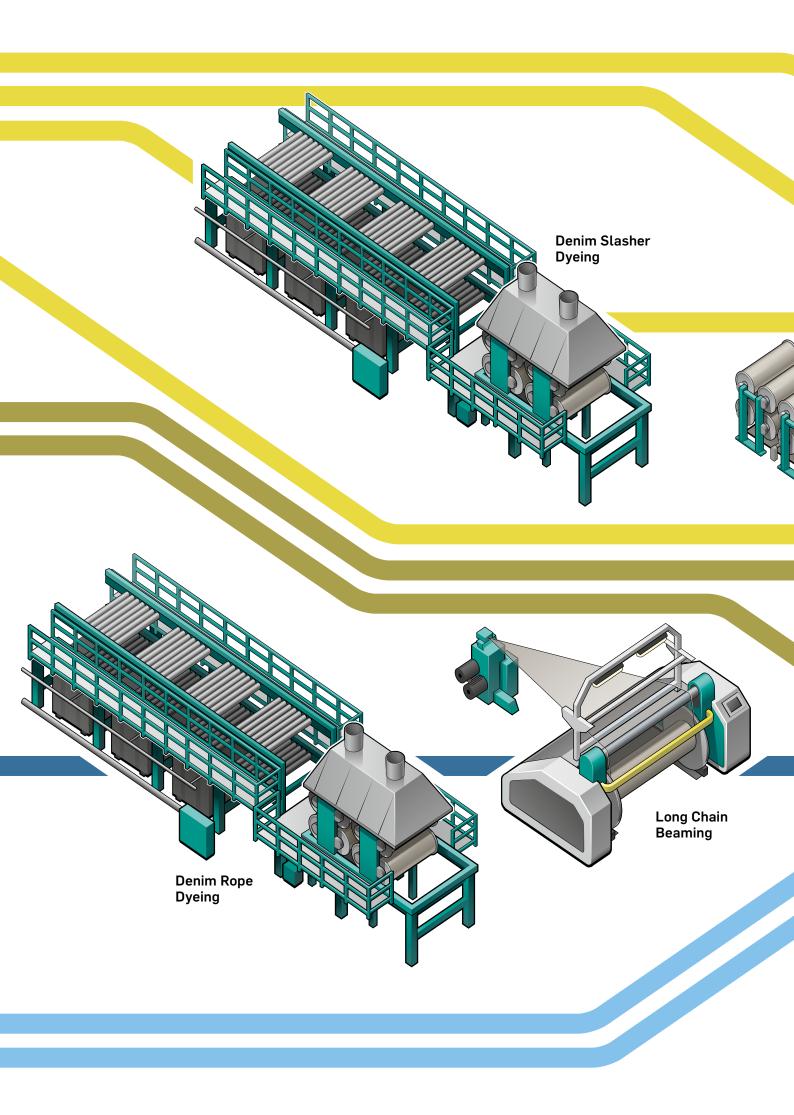
The Double Vario technolgy with two dyebaths ensures high, uniform dyeing and deep indigo shades

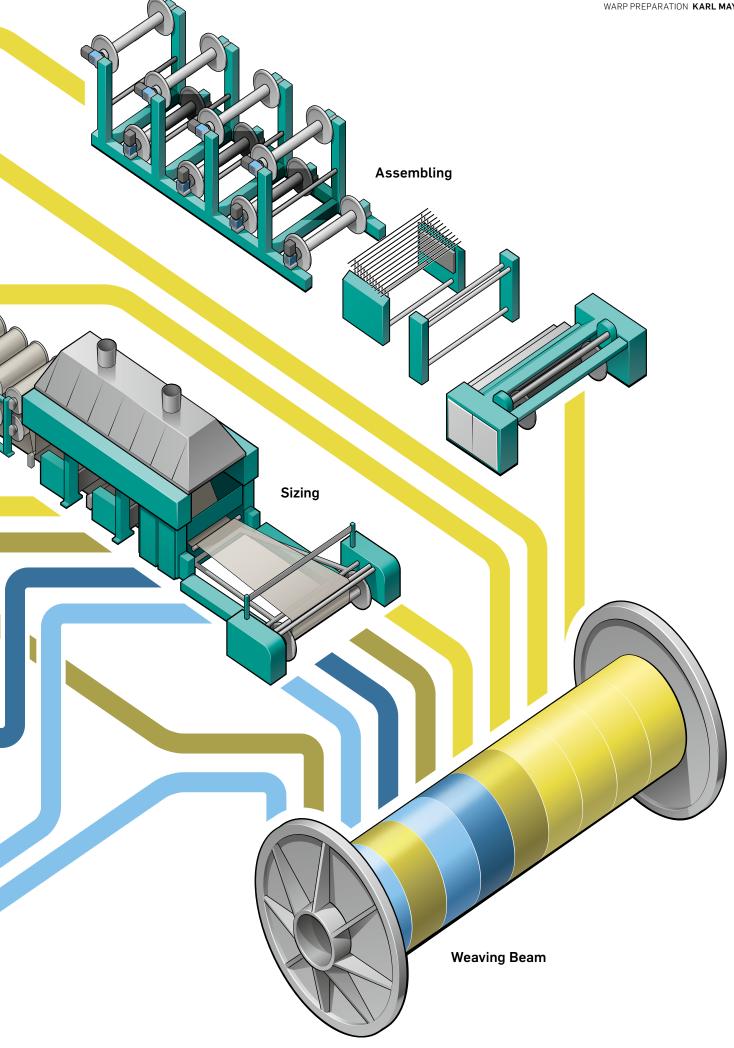
PROCESS OVERVIEW



Our integrated processes ensure zero defect and 100% capacity utilization for your machines during production.



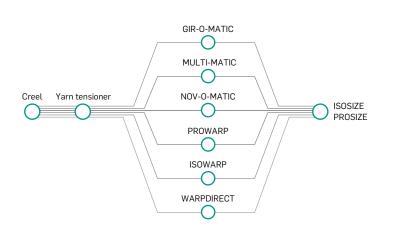






SHIRTING TAILOR-MADE ORDER HANDLING

Only a made-to-measure shirt has a perfect fit. And only a made-tomeasure order handling in warp preparation for weaving guarantees maximum quality as well as cost-efficient solutions. Regardless of whether you want to process raw or dyed yarns, in batches of short or long lengths, whether you want to produce plain or striped fabrics – with KARL MAYER's flexible machines you can always be sure to manufacture first-class warp beams in a most efficient and favourably-priced way.



YOUR BENEFIT

First-class quality

- Shirting made of dyed or raw yarns of outstanding quality
- Plain or striped textiles
- Reproducible results in terms of density and colour
- Minimum yarn breakage rates during all process stages
- Unsurpassed gentle yarn treatment for first-class results
- Gives your designers a vast scope to express their creativity

Process know-how

- Specialized system expertise and complete product portfolio
- Improved machines for batches of short and long meters
- Electronic control system for highest process reliability
- Flexible technology for all requirements
- Cross-process quality management

- Specialized system expertise and completeproduct portfolio
- Improved machines for batches of short and long meters
- Electronic control system for highest process reliability
- Flexible technology for all requirements
- Cross-process quality management



First-class quality

- 100% reproducible quality due to automatic process control
- Minimum yarn breakage rates during all process stages
- Unsurpassed gentle yarn treatment for first-class results

Process know-how

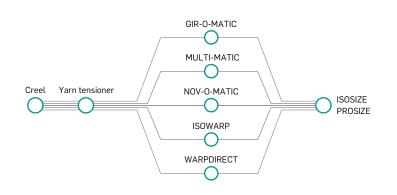
- System expertise and complete product portfolio
- Improved machines for warp beams with 15,000 and 30,000 yarn ends
- Electronic control system for highest process reliability
- Flexible technology for all requirements
- Cross-process quality management

Profitability

- Permanently high productivity in warp preparation for weaving
- Minimum yarn breakage rates
- High efficiency
- More process reliability and higher productivity in weaving
- Production-supporting services such as remote maintenance of the machines

SHEETING MORE COMPETITIVENESS

In times of decreasing profit margins and ever increasing competition you can take advantage of state-of-the-art machines offering highest efficiency, thus, being the decisive basis for more competitiveness. Successful weaving mills rely on KARL MAYER's machines. No matter which raw materials are used and which specific products and qualities are to be achieved, KARL MAYER's warp preparation machines ensure reliable production cycles, consistent quality and the decisive increase in productivity.

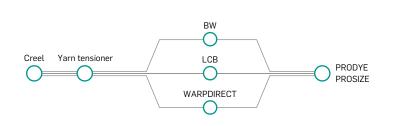




DENIM

PRODYE - THE KEY TO SUCCESS

Denim as an "evergreen" product in the clothing sector has increasingly developed to a sophisticated fashion article with personal touch and rapidly changing trends. Therefore, flexibility is the number one success factor for weaving mills. With its PRODYE KARL MAYER offers you the entire denim process technology for weaving warp preparation from a single source. It doesn't matter whether you decide on the slash-dyeing procedure or on the rope-dyeing method, KARL MAYER's PRODYE is always the most productive and economical solution.



YOUR BENEFIT

First-class quality

- Extremely wide range of colours and unique look of your denim products
- 100% reproducible quality due to automatic process control
- Uniform yarn guiding for ensuring the best dyeing and sizing results
- Keeping the original yarn properties
- Higher intrinsic value of your products for higher profit margins

Process know-how

- Outstanding flexibility
- Additional components for special effects in the dyeing process
- Intelligent control system for optimum tension control and gentle-to-yarn sizing
- High-grade yarn tensioners for uniform, lowest yarn tension
- High ease of operation
- Maximum protection against soiling

- 20% more productivity in slash-dyeing
- Low wastewater pollution
- Highest efficiency due to reduced yarn breakages and optimum yarn quality
- Cleaning during machine operation ensues more productivity



First-class quality

- 100% reproducible quality due to automatic process control
- Best results thanks to uniform yarn tension
- Minimum yarn breakage rates in all process stages

Process know-how

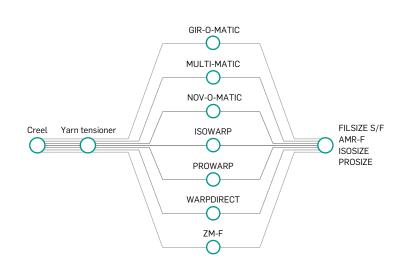
- Specialized system expertise and complete product portfolio
- Customized, optimized machines
- Production of wider warp beams of up to 3.60 m
- Electronic control system for highest process reliability
- Flexible technology for all requirements
- Cross-process quality management

Profitability

- Profitability calculations offered by our team of experts
- More efficient processes due to highest productivity in the long term
- Reduction of manufacturing costs
- Production-supporting services such as remote maintenance of the machines

HOME TEXTILES COMPETITIVE EDGE THANKS TO EXPERTISE

Gain the lead and make use of KARL MAYER's expertise to achieve a faster and more economical production with highly efficient machines. Based on reliable profitability calculations KARL MAYER's experts are able to offer you the ideal solution for your weaving warp preparation business. Become more competitive by means of special solutions. Machines of double width ensure, for example, an efficient patterning for upholstery fabrics.

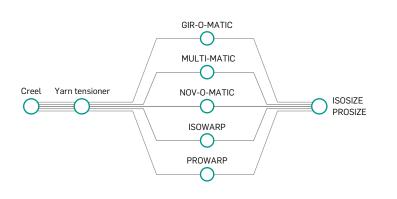






WOOL EXCITING BY QUALITY

Experienced wool weaving mills know how to impress and delight sophisticated fashion labels: with exclusive quality at competitive prices. Perfect warp preparation with KARL MAYER's innovative technology is the key to success. It preserves the original properties of the delicate wool yarns and blended wool yarns, so that a faultless and productive operation is possible in weaving.



YOUR BENEFIT

First-class quality

- 100% reproducible quality due to automatic process control
- Maximum accuracy for high efficiency
- Gentle yarn treatment due to uniform yarn tension
- Constant, completely homogeneous dyeing results

Process know-how

- Specialized system expertise and complete product portfolio
- Improved machines for efficient warp lengths
- Automatic warping with GIR-O-MATIC[®] and MULTI-MATIC[®], maximum precision due to special warping bands
- Electronic control system for highest process
 reliability
- Flexible technology for all requirements
- Cross-process quality management

- Less material usage, reduced waste
- Production-supporting services such as remote maintenance of the machines



First-class quality

- 100% reproducible quality even in case of an unsteady nature of the raw material, due to automatic process control
- Gentle yarn treatment and protection of the original yarn properties
- Uniform yarn guiding for obtaining best dyeing and sizing results
- Highest quality standard with "zero defect tolerance"

Process know-how

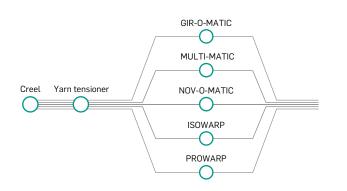
- Specialized system expertise and complete product portfolio
- Improved machines with maximum flexibility
- Uniform yarn tension by means of ISOTENS and MULTITENS
- Electronic control system for highest process reliability
- Cross-process quality management

Profitability

- · Highest efficiency and maximum productivity
- First-class process reliability in weaving
- ${\boldsymbol{\cdot}}$ Reduced material usage and less waste
- Lower stock reserves due to just-in-time production
- Production-supporting services such as remote maintenance of the machines.

SILK SPECIAL TREATMENT FOR A SPECIAL YARN

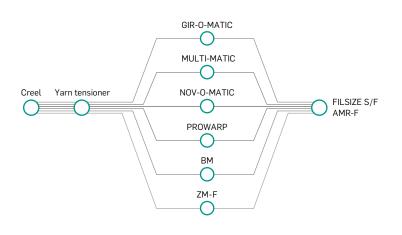
The prima donna amongst yarns is extremely demanding, and wants to be given a special treat during its processing from the bobbin to the loom. This is the reason why KARL MAYER developed the ISOTENS® and MULTITENS® yarn tensioners, a technology that guarantees a uniform yarn tension during the entire process of warp preparation for weaving, at the same time compensating for an unsteady condition of the raw material. When it comes to silk there's no room for compromises. Therefore, rely on KARL MAYER's machines.





FILAMENT ANYTHING IS POSSIBLE

The applications of filament yarns are almost unlimited. Lightweight, airy fashion fabrics, trendy functional garments, classical linings or technical textiles with particular properties – anything is possible. Therefore, high demands are made on warp preparation for weaving. For the special physical properties of filaments KARL MAYER can offer the most suitable process technology. Take advantage of the most flexible, most efficient and cost-saving solutions worldwide!



YOUR BENEFIT

First-class quality

- Perfect conservation of the original residual elongation of the yarn and of its other properties: from the first to the last meter
- Absolutely homogeneous dyeing results due to uniform yarn tension during direct beaming
- Highest process reliability in weaving due to uniform yarn tension and optimum sizing

Process know-how

- System expertise for all applications: from the finest monofilament yarns for filter fabrics up to high-tenacity multifilaments for tire cord
- Yarn guidings and yarn tensioners made from special wear-resistant ceramics
- Roller feeding devices for tension control in case of special applications
- Worldwide unique regulating systems in sectional warping, intermingling and sizing for continuous quality assurance

- Achieving high potential savings in all process stages
- Highest efficiency due to yarn breakages reduced to minimum
- Competitive advantages thanks to reproducible best yarn quality
- Low current costs



First-class quality

- Documented processes
- 100% reproducible quality due to automatic process control
- Computer-controlled quality management for the entire process
- Wide range of materials to be used

Process know-how

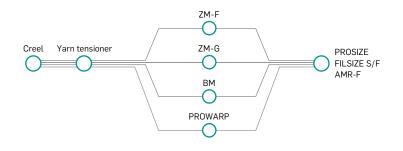
- Specialized system expertise and complete product portfolio
- Improved machines for especially wide warp beams (up to 5.40 m) and high warp tensile forces
- Electronic control system for highest process reliability
- Flexible technology for all requirements
- Cross-process, documented quality management for all processes

Profitability

- Highest productivity in all applications
- High efficiency
- Reduced material usage, less waste
- Efficient, flexible processes with low personnel expenses
- Production-supporting services such as remote maintenance of the machines

TECHNICAL TEXTILES PROVEN, DOCUMENTED QUALITY

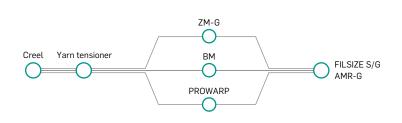
Very often technical textiles make great demands on the quality management. Therefore, 100% reproducible processes are a "must" in warp preparation for weaving. In this respect, a highly specialized know-how is required because the processing widths and tensile forces exceed the usual dimensions many times over. But by using KARL MAYER's machines you will be able to master these challenges without any problems.





GLASS – TECHNICAL SECTOR HIGHLY SPECIALIZED COMPLETE SOLUTIONS

Consistent high quality, maximum process reliability and 100% reproducibility – KARL MAYER offers highly specialized complete solutions for glass processing for weaving warp preparation in case of which all the components are perfectly synchronized. In this way, you can control the complete process and can achieve unique results. KARL MAYER is a competent partner for glass weaving mills, with many years of experience in the field and offering an exceptionally wide service network.



YOUR BENEFIT

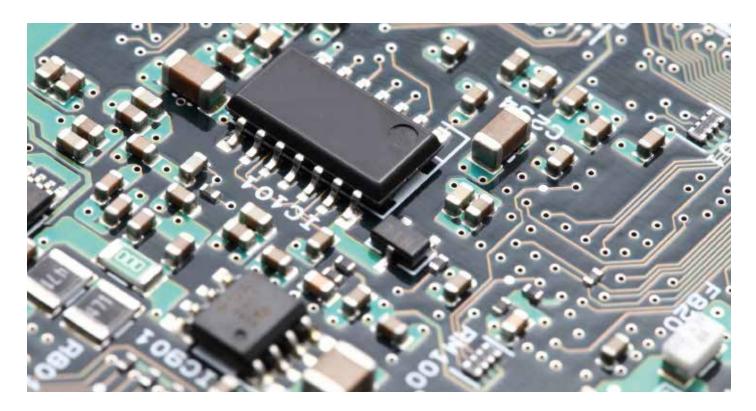
First-class quality

- 100% reproducible quality due to automatic process control
- Computer-aided quality management during the entire process
- Homogeneous degree of sizing
- Precise winding structure

Process know-how

- Specialized system expertise and complete product portfolio
- Improved, innovative overall solutions for highest efficiency
- Camp-cross control of all production
 processes
- Electronic control system for highest process reliability due to KAMCOS®
- Perfect yarn tension and circumferential control
- Cross-process quality management
- Compensator-controlled assembling machines for the processing of very fine glass fiber yarns

- Maximum productivity and highest efficiency
- Minimum yarn breakage rates
- Efficient and flexible processes for all yarn counts
- Production-supporting services such as remote maintenance of the machines



First-class quality

- 100% reproducible quality due to automatic process control
- Computer-aided quality management during the entire process
- · Homogeneous degree of sizing
- Precise winding structure

Process know-how

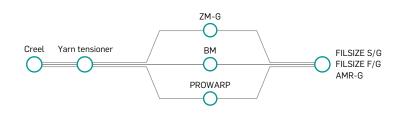
- Specialized system expertise and complete product portfolio
- Improved, innovative overall solutions for highest efficiency
- Electronic control system for highest process reliability due to KAMCOS®
- Perfect yarn tension and circumferential control
- Cross-process quality management
- Compensator-controlled assembling machines for the processing of very fine glass fiber yarns
- ACCUTENSE 0° for the gentle deflection of sensitive glass filament yarns

Profitability

- Maximum productivity und highest efficiency
- Minimum yarn breakage rates
- Efficient and flexible processes for all yarn counts
- Production-supporting services

GLASS – ELECTRONIC SECTOR HIGHLY SPECIALIZED COMPLETE SOLUTIONS

Consistent high quality, maximum process reliability and 100% reproducibility – KARL MAYER offers highly specialized complete solutions for glass processing for weaving warp preparation in case of which all the components are perfectly synchronized. In this way, you can control the complete process and can achieve unique results. KARL MAYER is a competent partner for glass weaving mills, with many years of experience in the field and offering an exceptionally wide service network.



OUR PRODUCTS OVERVIEW

12 12 12 1	CREEL	GN-1 – Standard creels
H CO H CO H CO H CO	CREEL	GM – Magazine creels
TA TA TA		GD – Swivel-frame creels
هي هي هي هي		GW – Carriage creels
$\mathbf{E} + \mathbf{E} + \mathbf{E} + \mathbf{E}$		GV – V-creels
I TA I TA I TA		GAR – Unwinding creels
2222		GAM – Unwinding creels monofil
		GAPP – Unwinding creels polypropylene
	YARN TENSIONER	KDF-2
	TARN TENSIONER	KDF-B
		KFD-SP
		KFD-AIR
		OPTOSTOP
		U2V
		U3V
		DISCTENS
		ISOTENS
_		MEGATENS
		MULTITENS
		ACCUTENSE 0°
		ACCUTENSE 30°–90°
	BEAMING AND DIRECT BEAMING MACHINES	ZM-F – Direct warper for filament yarns
		ZM-G – Direct warper for glass fiber yarns
		WARPDIRECT – Direct warper for spun yarns
		BW – Ball Warper
		LCB – Long Chain Beamer
		BM – Beaming machine
	SECTIONAL WARPERS	NOV-O-MATIC – Automatic sectional warper
	SECTIONAL WARTERS	PROWARP – Sectional warper
		ISOWARP – Sectional warper
	WARP SAMPLING	MULTI-MATIC (MM) – Warp sampling machine
	MACHINES	GIR-O-MATIC (GOM) – Warp sampling machine
	MACHINES	
	SIZING MACHINES	PROSIZE – Sizing machine for spun yarns
		ISOSIZE – Sizing machine for spun yarns (old SMR-SP)
		FILSIZE S/F
		FILSIZE S/G
		FILSIZE F/G
000000	ASSEMBLING MACHINES	AMR-F – Assembling machines
		AMR-G – Assembling machines
Contraction of the second seco	INDIGO DYEING UNITS	PRODYE





KARL MAYER Worldwide



Europe Germany Obertshausen, Chemnitz, Naila Italy Mezzolombardo Switzerland Uzwil UK Shepshed Asia China Changzhou City, Hong Kong India Mumbai, Ahmedabad Japan Fukui-City North America USA Greensboro

© KARL MAYER Textilmaschinenfabrik GmbH Brühlstraße 25 · 63179 Obertshausen · Germany www.karlmayer.com

The information provided in this document contains merely general descriptions or characteristics of which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract. Availability and technical specifications are subject to change without notice. All rights reserved.