Trade Press Service November 2009

Press Release Le/KUJ

Custom-built weaving machines for high-performance textiles -
ITEMA Weaving demonstrating its competence at Techtextil in Mumbai, India

The International Trade Fair for Technical and Industrial textiles – Techtextil – held in Mumbai, India in October 2009 revealed great growth opportunities for the local textile industry. The International Technology & Machinery Group "ITEMA" with its globally renowned brand for technical textiles - Sulzer Textil - presented latest weaving machine developments and innovative upgrading options for highly demanding fabric applications.

Tremendous growth opportunities

It is undisputed that technical & industrial textiles – and in particular woven fabric constructions – are steadily gaining importance and widening their range of technical applications. Developing economies in Asia will profit from interesting production perspectives but also consumption opportunities. This became again very evident during the recent Techtextil held in Mumbai, India. The technical textile industry in India is expected to grow by more than 10 % per year for the next several years. Some of the growth engines are believed to be in following sectors:

- **Agrotech** (e.g.anti-hail nets, crop covers, erosion protection materials)
- **Packtech** (e.g. FIBCs, leno & laundry bags)
- **Mobiltech** (e.g. airbags, car-aircraft-rail upholstery, automotive carpets, helmets)
- **Hometech** (e.g. carpet backings, mosquito nets)
- **Spartech** (e.g. tents, artificial turf, parachute fabrics, sleeping bags)
- **Protech** (e.g. ballistics, fire retardant apparel & fabrics, NBC suits)
- **Geotech** (e.g. geotextiles, geosynthetics, geogrids)
- **Indutech** (e.g. conveyor & drive belts, bolting cloth, fiber glass)

Market know-how, innovative solutions and the right weaving technology

Stringent demands made on the quality of woven technical fabrics and their cost-optimized production determine trends in weaving machine refinements and development. Fast and reliable settings of different warp and weft materials, absolute reproducibility of fabric styles as well as quick style changing facilities on weaving machines for a quick turnaround of styles are a necessity for the success of weavers in the field of technical and industrial textiles.

The technology brand “Sulzer Textil” has been successfully used in fields of technical and industrial weaving applications for decades, covering agro- and geotextiles, floor coverings, heavy-duty packaging materials, airbags, car-, aircraft & rail upholstery, canvas, tarpaulins, conveyors, ballistic materials, leno applications, filtration, sail cloth, coating fabrics, medical textiles, composite materials and many more. More than 30 % of installed machines occupy most demanding niche segments, be it for widest, heaviest, densest or very lose fabric constructions made from any kind of yarn. The Sulzer Textil brand covers weft insertion systems from Rapier (G6500), Air-jet (L5500) to Projectile (P7300HP V8) as well as Customized Weaving Technology (CWT) for specific needs in areas of complex fabric forming.

In demand – weaving aramid fibres on Sulzer Textil G6500

Aramid fibres are used for protecting lives and therefore must be processed by high quality machinery with most advanced technology.

The rapier weaving machine Sulzer Textil G6500 is best suited to weave 0-twist multifilament yarn since the rapier tapes are unguided thus freely flying through the shed. There are no guide hooks or any other elements in the shed to interfere with the warp. Small and effective rapier heads running close to the weaving reed make sure that there is only a small shed opening needed thus guaranteeing a very low yarn load & tension. This results in top quality fabrics (broken filaments are less of a topic), an optimum fabric cover, less shrinkage and increased yield (m^2 of fabric). The G6500 offers special waste saving opportunities in warp and weft at highest insertion speeds of more than 650 rpm on a 190 cm wide machine.

Reinforced and custom-built weaving machines

Ultra-heavy fabric constructions can only be woven cost-effectively with exceptionally rugged and high-precision weaving machines. These machines can be equipped with reinforced machine frames and longitudinal parts. Warp let-off and cloth take-up are also designed to withstand highest warp tensions. Both Projectile- and Rapier weaving machines are available with reinforced machine parts.

Wide-width weaving – up to 6.55 m – upgrading on Sulzer Textil P7300 HP

Flat multi-filament weft yarns (mostly 0-twist) for e.g. very wide coating fabrics create daily challenges in fabric forming. Highest quality requirements, coupled with the need for productivity, ask for dedicated solutions to carefully insert delicate yarns. ITEMA Weaving provides the answer on Sulzer Textil Projectile weaving machines P7300 HP with a new weft tensioning device. The thread guiding eyelet has been positioned sideways thus preventing the tensioning lever from touching the weft yarn during insertion. New cams for the tensioning unit accelerate much faster during the

upward movement thus resulting in a straight insertion line with less strain and deflection on the weft yarn. The peak tension during insertion is reduced to about 50% of the old tensioning & insertion system on Projectile weaving machines. This improvement makes it very hard for wide air-jet or rapier weaving machines beyond 4 m to compete with the most suitable projectile weaving machine for demanding applications.

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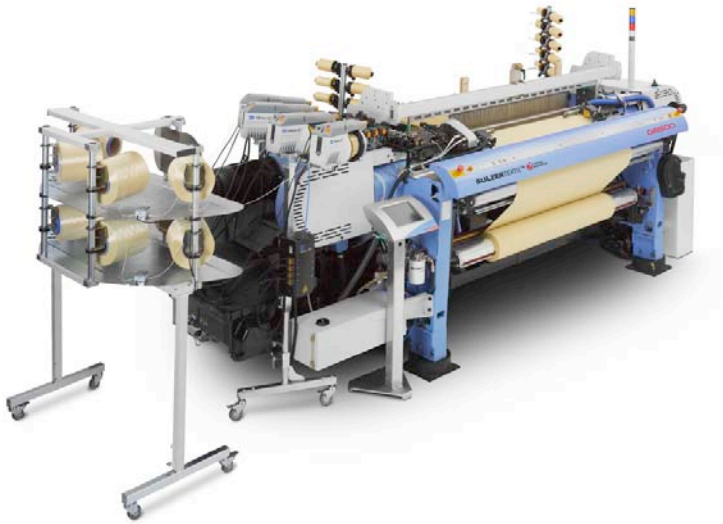
Pictures:



The Sulzer Textil G6500 rapier weaving machine is the right machine for weaving aramid fibres.

New weft tensioner "fast yarn release" for Sulzer Textil P7300HP projectile weaving machine
The new system releases the weft yarn much earlier and prevents any contact with the weft yarn other then the eyelet itself.
This results in a straight insertion line with less strain and deflection on the yarn. The peak tension is reduced to about 50 % of the old system.