

Unilines

The Glass customer magazine October 2008



BOSCH



Design with a vision



Introducing turbo-charged tempering to the Indian market



High-quality glass for Europe's Three-Country Region



Hopes for new growth

Introducing turbo-charged tempering to the Indian market

The Indian market possesses enormous potential for construction, and glass is the ideal choice when it comes to meeting the strict regulations for “green building” certifications. West India based FG Glass Industries plans to be at the lead when it comes to utilizing technology, such as turbo-charged tempering, to produce high-performance glass to the fast growing and “green” building market.



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The glass consumption in India for architectural purposes has increased manifold in the last 10 years. There has been a great demand for using flat glass in structural glazing and curtain walls, which has resulted in a phenomenal increase in the availability of flat glass in terms of type, composition and characteristics. Safety, too, has become a major concern in all new projects that are being developed.

Additionally Indian architecture in recent years has evolved progressively

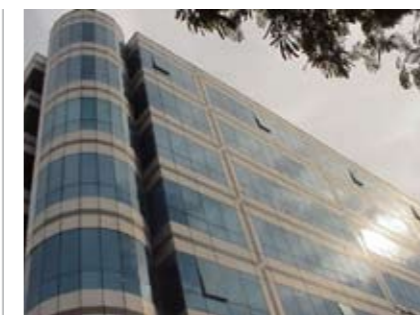
toward the use of “green” building materials with an increasing number of projects now applying for green building certifications. Glass usage has thus naturally increased as per the requirements of green buildings.

Furthermore, developers have become more demanding in terms of glass performance and processing quality. This has led to an increase in the use of high-performance glass in contrast with the ordinary reflective glass that formerly dominated the landscape in

India. Therefore, the emphasis on proper processing infrastructure to process such glass has assumed greater significance.

Processed glass to grow 25-30%

According to Suhel Kachwala, Managing Director of FG Glass Industries Pvt. Ltd., “We feel that the Indian processed glass industry will continue to grow exponentially at 25 to 30% over the next five years. Even today, the per capita glass consumption in India is just 0.80 kg, which indicates



the enormous potential that lies ahead. New regulations for glass usage are now coming into effect throughout our country, which will further expand the processed glass market.”

FG Glass Industries started commercial operations in 2004 as a supplier of tempered and insulated glasses. It is a part of the 35-year-old Fishfa Group, which ranks as one of India’s top glass firms and one of the largest importers of reflective glass. The company is headed by Suhel Kachwala, Firoz Kachwala, Tariq Kachwala and Nuruddin. The last four years have seen exponential growth in sales, fueled by the phenomenal demand in the architectural glass market. The year of 2007 saw major expansions in preprocessing machineries, automatic lifting and handling systems and a new PVB lamination line. The Uniglass tempering line is the third phase of the company’s expansion.

Getting in touch with Uniglass

“Although FG Glass had known about Uniglass ever since the company started operations, we came into personal contact with Uniglass at Vitrum 2007 in Milan, Italy, where we were briefly introduced to its technology and the markets it serves,” Tariq relates.

The core focus of FG Glass has been to cater to the “high-end” architectural glass market, which uses high-performance glass such as single, double and triple silver coated Low-E products. The Indian architectural glass market has been witnessing a paradigm shift towards the use of high-performance glass, driven by the growth of the green building movement and focus on energy conservation. Although the number of processors continues to increase at a fast pace, most of them cannot process this glass due to the non-availability of proper infrastructure and machinery.

“The decision to purchase the Uniglass double-convection tempering line is intended to fortify our position as one of India’s premium suppliers of processed glasses. Although there were other manufacturers producing similar equipment, none could match the performance that Uniglass delivers. This was substantiated by our audits conducted across plants in the Middle East and Western Europe, where the Uniglass machines produced the best-quality tempered glass,” Tariq explains.

Low emissivity, optical quality and speed are key

“Since our existing tempering capacity (35,000 sqm/month) is over-stretched, it was becoming increasingly necessary to purchase a new tempering line to satisfy our market demand,” explains Firoz. “Our search for a new tempering line started in early 2008 and culminated with the purchase of Uniglass UGT Extra in April 2008. With the addition of



the new furnace and the Forel edge-seaming line, we expect our capacity to increase to 80,000 sqm a month. Commercial production with the new furnace is scheduled for the later part of September 2008."

The three most important criteria for purchasing the machine were the capability of the furnace to produce glasses with emissivity as low as 0.02, the optical quality of the final product and the speed of production.

"Although priced higher, the UGT Extra matched our requirements perfectly. FG Glass aims at giving effective solutions for customer's glass requirements, hence our focus has been to equip ourselves with machines and human resources capable of handling any glass coating. We need to position ourselves as having the best processing infrastructure in the country, and Uniglass will be an important step to achieve that status," Firoz says.

Catering to high-performance needs

"FG Glass caters to the architectural Indian market having a pan-India presence," Nuruddin emphasizes. "Our business is conducted primarily through the architects, façade consultants, builders and the aluminum fabricators."

He continues: "With the new setup, we intend to use the capabilities of the Uniglass machine to mostly temper architectural façade glasses, most of which would be high-performance products. Our existing machine will continue to service thicker glasses and automotive and other industrial work."

Technology new to India

"The most appealing feature of Uniglass' heating technology was the turbo-charged, high-power forced convection system," Tariq explains. "This system delivers an extremely powerful convection heating system and will be unique to the Indian market."

The new double and triple silver coated low-E products require fast and even convection heating to limit the distortions – and such a system guarantees optimum optical quality. Since the Uniglass technology recirculates the hot air from the furnace back onto the glass, it also results in substantial reduction in power consumption compared with the conventional compressor-based convection systems found in other machines.

"The other critical benefit of the even heating system and controlled distortion levels is the ease of processing PVB laminated glass. The Indian market uses a relatively high proportion of PVB laminated glass, which has one or both surfaces heat-treated. Since surface waviness is the most important factor to reduce rejections in tempered laminated glass, the Uniglass machine will help increase the production yield and improve quality of the end product," he continues.



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Brand products with turbo technology

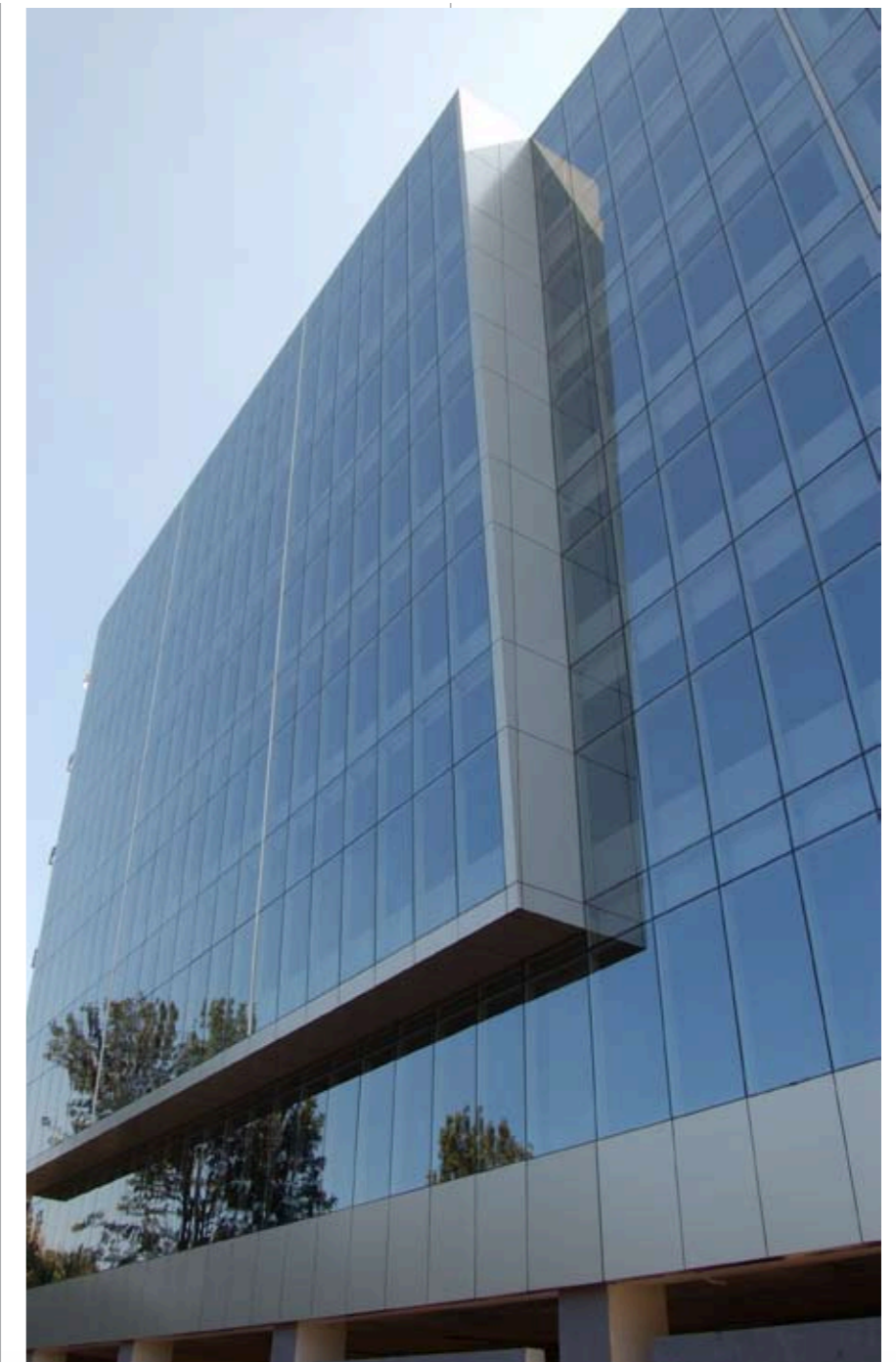
Two of the company's high-performance glass brands in particular will be produced using the new Uniglass furnace: glassshield, is FG Glass' branded tempered or heat-strengthened glass, and enamelite, which is a ceramic-fritted product, one face of this which is covered, either partially or totally, with mineral pigments.

Future growth path

Mumbai, Delhi, Hyderabad, Chennai and Bangalore account for the majority of current high-performance glass projects, but interest in this glass has spread rapidly among the other regions in the country. Especially Pune, which is located only 200 km away from Mumbai, has an exceptionally large percentage of projects with its IT parks and other commercial buildings. FG Glass is strategically placed to cater to both the Mumbai and Pune markets with optimum efficiency.

Glass is a key element in certifying green buildings. It not only lets in the right amount of light, which is essential to create a highly productive and satisfying work environment, but also plays a huge role in decreasing energy consumption.

When asked about the future, Tariq says: "There are plans to set up another production unit in India with high-end processing machinery, and the current facility will be expanded to further enhance the processing infrastructure."



Taking the lead in India

FG Glass Industries moved into the exciting and thriving world of safety glass in 2004 to meet the architectural glass needs of its customers through a concerted effort by a team of professionals dedicated to providing global quality products and services. The glass industry as such is not new; FG Glass Industries' parent company, Fisha Glass, has operated in this industry for over 30 years and is universally known for its commitment to customers and excellence in service.

The FG Glass Industries' 80,000 sq. ft. plant just north of Mumbai, houses state-of-the-art machinery for making toughened, heat-strengthened, insulated and laminated glass. The flat-and-bend tempered glass machinery is currently some of the largest in India capable of producing 2440 mm x 5200 mm flat-tempered and 2440 mm x 3660 mm bend-tempered glass.