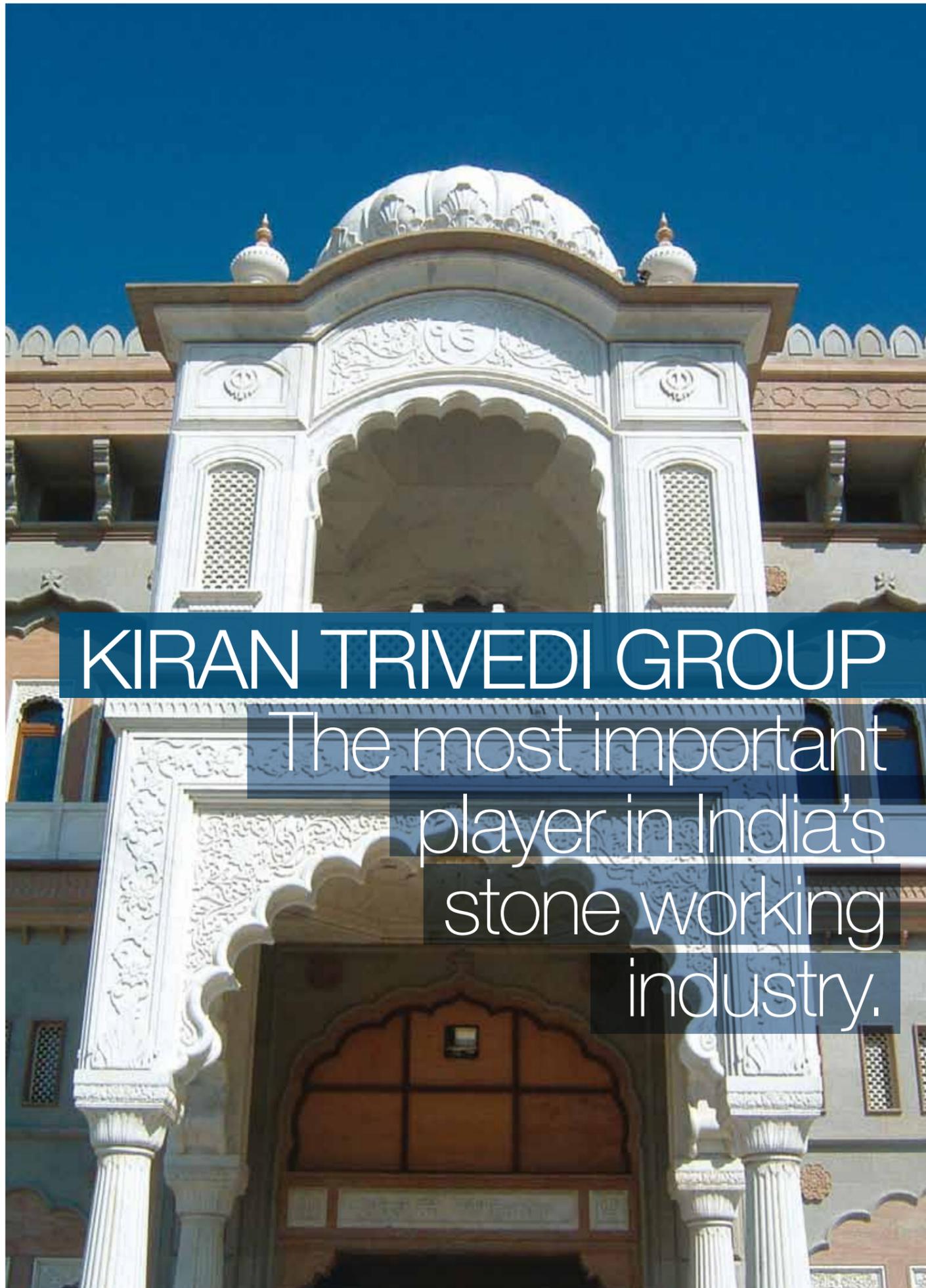


Versatility,
reliability and
accuracy
in marble
machining

Kiran Trivedi Group's Case History →





KIRAN TRIVEDI GROUP

The most important player in India's stone working industry.

Since 1937 Trivedi Group has developed a real gift in the working of marble and granite for the realization of monumental architectures, characterized by complex shapes and therefore requiring extremely accurate machining operations.

The Group has always been in the forefront as regards the organization and improvement of its own production lines' potential, based on a wide and diversified range of numerically controlled machines, most of which are branded CMS.



The Trivedi family has been active in the working of marble and granite since 1937, respecting the wishes of the founder Tardo Shri Trivedi, a restorer of ancient monuments and traditional Indian temples. Such a vocation and expertise have generated the growth of one of the most important industrial groups in the field, an absolute leader in India in the working of marble for historical buildings, places of worship, state halls and prestigious houses. The Group's operation relies on its own marble quarries; and its integrated organization is capable of facing and solving all market requests effectively, even from the most demanding interlocutors, among which are architectural firms and designers, ministries, cultural foundations and superintendents of artistic heritage. This dominant positioning of the Group is also acknowledged in nations such as the USA, the UK, Saudi Arabia and several other countries in the Middle East, as well as the Asian South East countries. The current President Kiran Trivedi, assisted by his sons, who hold strategic managerial positions in the company, has further invested in automated marble working

lines, aiming at machining versatility and accuracy as strategic factors for their identity in the market and competitiveness of their offers. This business strategy has lead to an increasing collaboration with CMS over the years, whose technologies provide a solid basis for Trivedi's working potential. Their range of machines has been recently extended with the purchase of four new machining centres: two GIXA's (CNC 5-axis bridge sawing machine) and two G-REX's (5/6-interpolated-axis machining centre).



→ **Gixa**

5-interpolated-axes CNC bridge sawing machine

The limitless
cutting
specialist.



Z axis stroke
up to 2000 mm



Diamond disks with diameters
up to 1200 mm



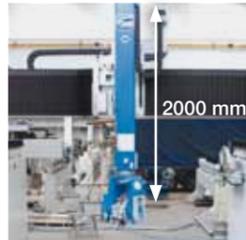
Suitable for cutting both
large-sized slabs and blocks



Large-sized 5-interpolated-axis bridge saw machine with vertical stroke up to 2000 mm and diamond disks up to 1200 mm diameter for ultra-thick cutting operations. Its versatile configuration adapts to any machining dimensions required; it represents the state-of-the-art in the cutting of stone workpieces for architectural purposes.

- This machining centre is ideal for cutting workpieces of significant thickness or overlapping slab stacks.
- Thanks to the availability of the optional lathe, in various sizes, column turning operations can also be carried out.
- Available also with a dual worktable; this makes it possible to use one table for cutting operations and the other table for three-dimensional machining, which require longer machining cycles.

Large-sized machining centre for the processing of (ultra-thick) slabs, paving units and blocks of natural and compound stone. Its configuration can be customized according to various needs; it is especially designed for marble workshops involved in architectural projects and in the building sector in general.



Z axis stroke up to 2000 mm



ISO 50 electrospindle and torque up to 220Nm



Highly-resistant fork head, up to 6 interpolated axes



Disk up to 1200 mm diameter with automatic changer



→ G-Rex

The most versatile and functional numerically-controlled machining centre in the field

- Large-sized work bench with 19 mm thick Duraluminum® surface; it ensures planarity, ease of workpiece clamping during machining and fast positioning.
- Bridge support and sliding structure on separate masonry or steel supports (Open Frame) to ensure sturdiness and rigidity for heavy-duty operations and durability of machinery; this makes the processing of large-sized workpieces easier.



More than 20 CMS machining centres ensure Trivedi's technological leadership in product quality and service reliability.

The machining systems for the processing of marble, granite and other types of stone materials, which are operating in the Ahmedabad factories, are at the heart of Trivedi Group's capabilities. Trivedi's production currently avails itself of no less than 20 CMS numerically-controlled machining centres: a considerable technological range which reveals the strength of the years'-long collaboration and mutual esteem between the two companies. All CMS machining centres, installed beginning

from 1997, are still fully operational, a clear demonstration of the tangible economic advantage of investing in reliable technologies. CMS machining centres have always been preferred by Trivedi due to their operating quality, reliability and productive potential; in particular, CMS machining centres are acknowledged as capable of machining "complex design and finish" workpieces faster, where serialized operations need to

The first machining centre delivered by CMS to Trivedi in 1997 is still fully operational, which proves the exceptional reliability of CMS machinery components. Thanks also to this new purchase the technological range has been expanded by new machining centres, including those supplied by CMS, thus enabling the company to come on stage as one of the worldwide leaders in the industry.

be overcome by special machining interventions ensured by advanced numerical controls. This means higher machining precision and optimization of related costs. It is no accident that Trivedi relies on an in-company specialized team of architects and designers, guaranteeing quality, elegance and above all perfect compliance with project parameters, in particular as regards projects overseen by artistic heritage authorities and characterized by historic and monumental value.

Trivedi is well equipped also for supporting the customer at all stages: from the preliminary check of renewal works involving historic-monumental sites, to the drafting of designs concerning product development and engineering programs, up to the manufacturing of works and related installation "in situ". The production ranges from individual finely-cut works to large mass production of statues, columns, capitals and reliefs.





Thanks to the four new CMS machining centres, recently integrated in its production lines, Trivedi is in a position to meet the most demanding requests, such as, for instance, the new palace of the Emir of Qatar.

The Trivedi Group specializes in the machining of marble (about 80% of the overall production) and granite parts intended for the traditional Indian architecture, but the expertise and ability of the Trivedi Group as a part of the stone industry have gained worldwide renown and a greater force at the service of major religions and cultures. Trivedi's reputation has been highly consolidated by the opportunity to machine the valuable and magnificent white marble from Ambaji quarry. The production systems are planned for the machining of the most varied types of stone with absolutely excellent results. The constant monitoring of the various production cycle steps makes it possible to maintain quality control at the highest level. Such know-how explains the recent job order for the construction of the palace of the Emir of Qatar; this building is characterized by exceptional architectural dimensions and technical-constructs, with an enormous number of columns and other marble parts. The four new CMS machining centres were installed in January 2015 and set to work immediately, in order to meet such an extremely demanding job order with respect to the number and features of the machinable workpieces, delivery times and output accuracy. CMS machining centres have fulfilled Trivedi Group's expectations ideally, in particular by creating a noteworthy synergy between the repetitive cutting operations carried out by the GIXA 5-axis CNC bridge sawing machine and the detailed and specific interventions of the tools mounted on the automatic tool changing electrospindle of the G-REX machining centre.



Serial productions with high processing rhythms, without neglecting accuracy of details



Ability to carry out extremely complex and detailed drawings with automated tools



Versatility and ability to integrate into every production line, involving both marble and granite workpieces

ADVANTAGES:
 being self-assured to take
 up any challenge thanks
 to the best technologies
 available.



CMS machining centres in TRIVEDI's own words

How and when did you start collaborating with CMS and what are the reasons that account for the strengthening of your joint work?

We bought our first CMS machining centre in 1997, it was a 3-axis. The reliability and sturdiness of the machinery, the promptitude of spare part delivery and the readiness in finding specific solutions to our needs have reinforced our collaboration through the years. Following this early phase of acquaintance, definitely positive, our relationship developed constantly on the basis of our growing needs and CMS' ability to meet them satisfactorily. CMS-branded machinery stock is the technological backbone of our machining lines.

You have recently purchased 4 new machining centres; what machining tasks are they devoted to? Do the new machining centres integrate into the pre-existing CMS equipment of your production lines?

These 4 new machining centres are employed in the working of complex-shaped marble workpieces and fit in our production lines perfectly. CMS' special ability to integrate new technologies into pre-existing lines has always represented an important factor of teamwork development: we have found CMS's technical staff extremely understanding and expert people, ready to share any information relating to our specific needs.

How do you assess the technical assistance provided by CMS?

CMS' customer service is quick and effective. It is essential to count on CMS' qualified assistance for their quality machinery. The rhythm and levels of production are never upset this way.

Which industrial sectors are you more involved in at the moment? Do you expect to expand your business towards other markets? Are you planning to buy more CMS machinery in the future?

We are active in the industry of monumental stone exclusively and are not going to diversify our business towards other market fields for the time being. The requests of the market and the resulting workloads are already keeping us very busy. Just examining the potential of our industry makes us confident in buying other CMS equipment. The dialogue with CMS' technical staff has always been open, leading to the installation of machinery as the logical conclusion of a profitable exchange of ideas, projects and solutions.

We have found CMS's technical staff very understanding and expert people, ready to share any information about our specific needs.



Gixa

Technical Data

G-Rex

Gixa

GIXA	
X axis stroke	167 in
Y axis stroke	118 ÷ 283 in
Z axis stroke	35 in (option 79 in)
Disk diameter	16 ÷ 47 in
Motor (with 400-800 mm disk)	34 HP (S9) - 170 Nm
Motor Revolution	0÷4500 rpm
Motor (with 400-1000 mm disk)	42 HP (S9) - 320 Nm
Motor Revolution	3800 rpm
Motor (with 400-1200 mm disk)	39 HP (S9) - 390 Nm
Motor Revolution	3800 rpm
Maximum working thickness (with 90° disk 1200 mm)	17 in
Maximum working thickness (with 45° disk 1200 mm)	12 in
Head revolution (4th axis)	± 270° (540°)
Head inclination (5th axis)	+8° -90°
Workbench dimensions	163x79 in
Maximum XY working dimensions	167x100 in

G-Rex

G-REX		
X axis stroke		167 in
Y axis stroke		118 - 171 - 197 - 275 in
Z axis stroke		35 - 55 -78 in
Rotating axis (optional)	B	± 100°
	C	± 270° (540°)
Tool change positions		11 ÷ ∞ (multiple of 11)
ELECTROSPINDLE		
Power		18 HP
Revolution		0÷8000 rpm
Connection		ISO 50
Torque		120 Nm at 1000 rpm
		30 HP
		0÷8000 rpm
		ISO 50
		220 Nm at 1000 rpm
Electrical cabinet		
Monobloc		Integrated in the base
Open Frame		Fixed on right steel support



www.cmsindustries.it

Founded in 1969 C.M.S. SpA is the head of CMS Industries, a brand that brings together two divisions, with a consolidated turnover of 100 million Euros, four branches and a worldwide sales and customer service network. CMS Industries specializes in the production of multi-axis CNC machining centres, thermoforming machines and water-jet cutting systems. This wide production range enables C.M.S. to meet the needs of several industrial fields: aerospace, automotive, marine industry, wind power generation, eyewear, building, mechanicals, moulds, prototypes, stone, glass and wood processing. This wide range of products, combined with processing quality and precision, offers flexible, innovative and effective solutions to meet the various production process phases or the customers' specific needs.

CMS Stone Technology designs, engineers and manufactures CNC machining centres for the processing of marble and stone of all types and sizes. It brings together and enhances the important know-how in the industry, gained through the fulfilment of especially demanding customers' and industrial groups' requests with respect to the performance and reliability of the technologies applied to their own production plants. Research capacity, production targeted on specific needs and engineering innovation make CMS Stone Technology a global reference as to manufacturing quality and service capability in the marble and stone industry for multiplied industrial, architectural and design applications.



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