

H&K India-25th Year



R. K. Markan
CMD, H&K India

- The Journey Past, the Journey Ahead

*Try to accept what you cannot change.
Try to change what you cannot accept*

This Edison quote sums up the journey of H&K Rolling Mill Engineers Pvt. Ltd. (H&K India) as we enter our 25th year. I must first confess that I have been truly blessed by God throughout my professional career that began in 1962. Looking back it is clear that every step appears to have been pre-ordained. It is clear that His Hand was guiding me and H&K India formation was part of those plans. From the start in 1962 and during the subsequent years, I am surprised how seemingly unsurmountable obstacles were overcome and 'doors opened' at appropriate times. I and all of us at H&K India are grateful and have not forgotten His blessings during this long journey.

Introduction

One cannot but get nostalgic as it dawns upon us that H&K India has entered the 25th year and though it is very long period, the years 1982 - 1985 seem just like 'yesterday'. The first meeting in 1982 at the lobby of Hotel Oberoi and subsequent ones at the Saarlouis offices of Hoestmberghe & Kluetsch GmbH, Germany helped us in laying out the plans for H&K India. They were simple, but revolutionary for that period in time. It was decided that the Indian Company would strictly be based on the following guiding principles:

- ✦ The staff strength would not exceed 20, or at most 25.
- ✦ We would have no manufacturing facility of our own. Manufacturing would be outsourced through confidentiality sub-license agreements with machine shops, duly inspected and approved by H&K Germany engineers
- ✦ The H&K India engineers would concentrate on design, engineering, inspection and technology
- ✦ Only relevant modern equipment would be offered to the Indian rolling mills to enable their upgradation to international levels. Modernisation of mills, quality of work and service to clients were the main objectives.
- ✦ Profits, turnover and other such financial norms would not be the basis for existence. The money part, we believed, would take care of itself as long as we did not waiver from our stated objectives.
- ✦ Based on H&K Germany obtaining exclusive rights for India of Mr. F. Tamm's patented Thermex technology for hi-strength rebars, H&K India would undertake this task.

It is time to take stock and check whether we have achieved what we set out to do and to chalk out goals for the years ahead. A quick narration of the highlights so far would be useful. Our first step, soon after collaboration agreement was signed, was a special seminar organised by H&K Germany for Indian mill owners during METEC at the Park Hotel in Dusseldorf in 1984 on the newly patented THERMEX technology. This was followed by a series of press conferences and lectures at seminars in Indian cities where the inventor Franz Tamm explained the revolutionary new Thermex quenching & self tempering (QST) process and its benefits for civil construction. It was during these

travels we realised the uphill task we had set out to accomplish. It was going to be a long struggle.

Background

Allow me to start at the very beginning. My professional career began in 1962, after graduation from B.H.U., at Mukand Iron & Steel Ltd. (now Mukand Ltd.) as a trainee mechanical rolling mill engineer on a monthly stipend of Rs. 200. Later, as the first engineer in the project team of the Wire Rod Mill project at Kalwe near Thane, I got the invaluable experience of steelplant project work. This was a 'first-of-its-type' in the world and I believe that only a visionary, such as Mr. Viren J. Shah, Chairman & CEO of Mukand could venture to undertake such a monumental task. It included the first 4M radius type continuous caster from Concast, Zurich to be used for billets that would be rolled into wire rods for wire drawing applications. No other plant in the world employed such a concept - continuous cast billets for wire rods.

Working closely with Mr. Viren Shah on the project was a God-sent opportunity as it allowed me to observe and learn major aspects of the steel industry - land acquisition, decision making, timely execution, art of negotiations, professional behaviour (when to be tough and when to be soft) and a host of other aspects. I recall Mr. Viren Shah's tough stand when he outright rejected the suggestion of M.N. Dastur & Co. engineers to include ingot casting facility in the steelmelt shop as a standby for the Concast machine - so that 25T liquid steel was not wasted in case of failure at the caster. His view was clear. The personnel should not be provided with an alternate escape-route that would provide an 'easy way out' and they would then not be fully committed to making the caster route a success.

The Mukand staff had to fully believe in the caster, only then could they ensure its success. Mr. J. R. D. Tata, the legend of steel industry, had in my presence openly expressed his doubts on the financial viability of the project to Virenbhai (as we affectionately addressed him) on one of his visits to the project site. But, Virenbhai was confident and willing to take the risks. This attitude spurred young engineers like me to ensure the project was a success. I often worked 60 to 70 hours at a stretch at the site without a second thought, such was our commitment.

The project was completed in record time. On 'Holi' in March 1966 we rolled our first wire rod of 5.2mm dia at a speed of 21 m/s in the repeater type Morgardshammar mill. Today, engineers refuse to believe rolling 5.2mm wire rod at 21m/s was possible - they have problems with even 8mm rods! The success of this project would take Mukand to the top while its failure would spell doom. The first few years were critical because globally, quality wire rods from continuously cast billets were a strict 'no-no'. We had to convince the experts globally and it took some doing. But, we prevailed and import of wire rods into India was soon stopped. We had turned the corner. It was a proud moment when JRD came to congratulate Virenbhai on Mukand's success. Thereafter, the world and the Indian

Mr. Markan & his team make us proud by keeping the flag of H&K flying so high

Q) What were your expectations when you signed collaboration agreement with Mr. Markan? How do you feel now that H&K India has entered its 25th year?

W.KLUETSCH : When Markan and I started H&K India our main aim was upgradation of Indian rolling mills with specialised H&K Germany equipment. I am glad we were able to achieve our objective when we got the orders from Durgapur Steel Plant and Kalyani Steels for modernisation of their mills.

In these orders we could offer all our special equipments such as shears, grip & trough tilters and bundling-binding systems. I am definitely very proud that that the seed planted by us in 1984 and 1985 has today become a 'big tree which bears fruit'.

Q) How were you involved in Thermex technology that is now being offered exclusively by H&K India in the country?

W. KLUETSCH : H&K Germany had finalised an agreement with Mr. F. Tamm, the inventor of Thermex, to introduce the new patented technology in India on an exclusive basis. We had decided that this would be done through H&K India. We had therefore arranged a THERMEX seminar for Indian visitors at the Park Hotel in Dusseldorf during METEC exhibition in 1984. It was attended by many Indian industrialists and I was surprised that Markan could arrange such a large audience in Germany. That was the first step we took for introducing H&K equipment and Thermex to India.

Of course now, H&K India has a direct exclusive collaboration agreement with HSE Germany for Thermex for entire Indian Region.

Q) H&K Germany was known as the world's leading supplier of stop-start rotary shears. H&K India has in its reference list over 100 rotary shears and other special H&K equipment. Do you feel your original goal of bringing modern technology to India has been fulfilled?

W. KLUETSCH : Yes. I am very happy and proud that we were the first in introducing modern mill equipment in Indian rolling mills. That was our goal when we started H&K India and I am happy that it has been fulfilled. Today all mills that are being built in India are based on global technologies and I am very happy that we started this trend.

Q) H&K India has received over 130 orders for Thermex and each such order includes supply of H&K shears. This is a phenomenal achievement. What is your message to R. K. Markan and the H&K India team in this 25th year of their work in India?

W. KLUETSCH : My brother, Dietmar and I would like to congratulate Mr. Markan and his loyal staff at H&K India for their success. They make us proud by keeping the flag of H&K flying so high. We offer our BEST WISHES to them for the years ahead.



Wolfgang KLUETSCH
Germany



Mr. & Mrs. Markan with Hon. Viren J. Shah
at the Raj Bhavan, Kolkata

“ Truly, Viren Shah was instrumental in shaping my career. He was the mentor I was fortunate to have at the very start ”

steel industry took to continuous casting and it is now a basic norm for a steel plant. Viren J. Shah had shown the way. That was an experience I gained which could not be bought with all the money in the world.

Truly, Viren Shah was instrumental in shaping my career. He was the mentor I was fortunate to have at the very start. Unfortunately, I had to leave Mukand in 1973 on doctor's orders because of an accident at Mukand that resulted in a 6" tear of my liver. I could not see myself seeking employment in any other mill after having worked under Virenbhai. Thus, I 'accidentally' became a rolling mill consultant.

Some thirty years later, when Viren J. Shah was the Governor of West Bengal, he invited me to visit him at the Raj Bhavan in Kolkata. Such was his quality - Virenbhai never forgot persons he was associated with, however small a role they may have played in his life. My struggle for survival had begun. During my days of consultancy I realised how primitive the India re-rolling mill industry was. From the modern Swedish mill at Mukand, I was now exposed to 'Indian' mills that operated differently.

✦ I found rolling mills operated on single- shift basis with a shift of 13- 14 hours! How could workers work efficiently for 13 or 14 hours at a stretch?

✦ The costly capital equipment lay idle for the remaining time which was used for carrying out "maintenance and preparation" for next day's rolling! How could mills which incurred 'interest and depreciation' cost during idle time ever make profits?

✦ I found engineers had no role in running of mills - I remembered my early days at Mukand.

✦ At Mukand, I was used to seeing my Chairman at his desk at 8.30 am like every other staff member whereas other mill- owners came to the plant only at 11 am!

This was a real shock and changes had to be introduced. It was clear that major upgradation of rolling mills was essential in India - in equipment and mindset. My task was cut out. Indore Steel & Iron Mills was one such mill. I was able to convince the owners to allow me a free hand to introduce fundamental changes.

The 13- hour shift working was first reduced to 11 hours and later 9 hours - without drop in production. Just minor automation, sensible work practices and a metallurgical laboratory were introduced. Then we introduced two 8- hour shifts and workers found they hardly had was little manual work to do. An engineer was placed at the head of operations and decision making.

Production, quality and efficiency improved significantly at half of the earlier production cost. Finally, India's first 4- stand block was introduced and commissioned without any assistance of foreign engineers. We did not break a single TC roll during commissioning - a record in itself, because at that time in most cases about 15 TC Rolls were being broken during commissioning in all plants in the world! My job at Indore had been done by early 1982 and I had to move on to better things.

The H&K Journey: 1982 - 2009

The meeting with Wolfgang Kluetsch at Hotel Oberoi in 1982 was a turning point. Few meetings later H&K India was born. The first step was to gather Indian industrialists at a seminar in June 1984 during METEC at Dusseldorf. The response was staggering as evidenced by the large gathering that included former boss, Mr. Viren J. Shah and many reputed steel mill owners from the country. H&K equipment were highlighted and Franz Tamm was present to explain the patented THERMEX quenching technology for rebars and to announce his plans of introducing it through H&K's Indian joint venture. The sapling had been planted and Wolfgang and I were prepared to wait for the tree to bear fruit.

H&K auxiliary equipment such as stop-start shears, grip tilters, bundling binding systems and Thermex

quenching technology of HSE were the focus areas. We were confident that these would lead to upgradation of Indian rolling mills to compete with global players.

The seminars and press conferences in major Indian cities, after the one in Germany, informed the Indian steel industry that H&K would now operate in India through its proposed joint venture company. H&K India was formally registered in May 1985 and the first steps on our journey had been taken. Little did we anticipate that approval for the foreign collaboration would take almost 3 years? Within days of receiving approval Wolfgang Kluetsch and I were at Kalyani Steels for H&K grip tilters and at Durgapur Steel Plant for its global tender for modernisation of its merchant mill. By 1989 both orders had been received and H&K India was on its way.

Durgapur Steel Plant

In spite of 'friendly' advice received that DSP would be a

It is very essential to check the mechanical properties very strictly as per Thermex norms. Otherwise, we would risk the good brand name of 'THERMEX'

Q) How did you and H&K India introduce Thermex Brand rebar in India?

F. Tamm : The work for introducing Thermex in India started many years ago at Park Hotel, Dusseldorf when H&K Germany, with R. K. Markan's help, organised a special seminar for Indian visitors to METEC in 1984. Most of the Indian mill owners were confronted with this new technique for production of high strength rebars production for the first time. Later, Markan arranged seminars and press conferences in India. This was important because India was still using the old CTD bars of Fe415 grade and it is difficult to change old habits. In Germany we have a proverb for that - "What the farmer does not know – he doesn't like to eat."

The main advantage of THERMEX was, and is, that we reduced the so-called 'variable parameters' to the minimum and so the process is quite easy to use - provided the heat transfer calculation has been made correctly.

The first chance we got was at Durgapur and Bhilai Steel plants. This was starting of Thermex in India.

Later, the 2003 seminar at Mumbai arranged by India Chapter of American Concrete Institute was very important. Here Markan and I presented many papers about importance of using Thermex bars in place of old CTD bars. This was when India began to understand importance of Thermex technology.

Q) What did you do to make Thermex economically acceptable to small mill owners in India? Why has Thermex become so easily acceptable to civil engineers in India?

F. Tamm : H&K India and HSE jointly developed commercial and technical conditions especially suited for smaller rolling mills. Further, this was linked with the exclusive right for H&K to manufacture the proprietary THERMEX hardware in India. Thus, H&K was given complete freedom in matters of THERMEX in the Indian Region. Only in special cases, such as quenching lines for multi-slitting or for wire rod lines H&K would need HSE support.

Markan and I decided that "Quality check or Audit" is a very

important point since we must not forget that these rebars will be used, for example, in high multi-storied buildings, important structures and bridges. It would be a disaster if high buildings or bridges would be destroyed because of low strength or poor ductility. Therefore, it is very essential to check the mechanical properties very strictly as per Thermex norms. Otherwise, we would risk the good brand name of 'THERMEX'. Markan and H&K India team takes this quality audit very seriously. The results of these important decisions are there for all to see.



F. Tamm
Inventor of Thermex
Quenching Technology

Q) H&K India has received over 130 orders for Thermex, mostly from India. The capacity of Indian Thermex Licensees is over 10 million T. Does this make you happy and proud?

F. Tamm : I am very happy and I am also a little bit proud that we have reached this result. But I know very well that you need for such a success a very good management and team – as H&K in this case – on place. From outside, this would not have been possible and also, it was never our aim.

Q) As Director of H&K India, do you plan to come to India in the near future?

F. Tamm : I shall definitely visit India this year. Program is not final now. Maybe after your rains are over.

Q) What is your message to R. K. Markan and his H&K India team as they begin their 25th year? Do you plan to come to India in the near future?

F. Tamm : Go on forever this way without any compromise and be a partner who is helping in all relevant questions relating to technique, technology and application in the concrete construction industry.



Stop-Start Shear



Thermex Installation



H&K Grip Tilters

difficult place to complete our project in time, everything went as per plans. The joint H&K Germany – H&K India bid was lower than what had been budgeted by MECON, the consultants, because most equipment was planned to be built in India. Two H&K shears and bundling-binding systems were part of the order alongwith the patented THERMEX quenching system. The execution was fairly smooth. DSP employees were co-operative and eager to help, as were the consultants. In early 1992 we had commissioned all equipment ordered on us. The commissioning date was advanced by DSP at a very short notice but we rose to the occasion. Foreign specialists for Thermex system were not available for the start-up and the same had to be done by me and my team. The very first rebar had the desired symmetrical peripheral tempered martensite ring with and yield strength of 496 N/mm², just a fraction below the desired 500. A little tweak of the water pressures and DSP started making Grade 500 on a regular basis with bar properties far better than specified in the IS Code. It was so simple. That was German engineering at its best.

H&K India had taken the first step in accomplishing what we had set out to do. And, more importantly, we did make adequate profits from global DSP order to put H&K India on a firm footing. We were now the proud owners of our own offices in the prestigious Bandra-Kurla-Complex at Mumbai.

Kalyani Steel

Here, we were given an order to modernise a ‘brand new mill’ through supply of H&K’s unique grip and trough tilters. Both these equipments were built in India, barring some critical accessories that had to be imported. The trough tilter supplied by H&K India to Kalyani Steel was only the third in the world. It’s a monstrous piece of equipment weighing about 65 tonnes.

Here one must give credit to H&K engineering. They specialised in building unique equipment, tailor-made for specific needs. That was their core strength and it made me proud to have Wolfgang Kluetsch as our collaborator and the Chairman of H&K India.

Bhilai Steel Plant

Against stiff global opposition, we received the order for modernisation of Bhilai’s merchant mill with a Thermex system for larger diameters than the one at DSP. This too was completed without much difficulty and the plant was commissioned in 1994 before the date specified in the contract.

The Difficult Years 1994- 2000

The early years were comparatively quite easy as we were dealing with rather large plants. We knew that entering the small mills in the secondary sector with modern equipment of H&K design was going to be a very uphill task. The other problem to be tackled head-on was the firm grip ‘Torsteel’ and cold-twisted deformed (CTD) rebars had in the minds of civil engineers and the B.I.S. even though such bars were not in use in most other countries of the world – especially

in advanced countries – since the early 1970s. While I had to abide by the laws of the country and thereby abide and accept the IS Code because it could not be changed, I had to try to change what I was not able to ‘accept’ as an engineer. One could not comprehend why the educated civil fraternity or even the main steel plants had not noticed the fact that use of CTD rebars was a strict ‘no-no’ in developed countries. Had they readily accepted that its use could not be changed in India and hence didn’t bother to try, or as in most cases worldwide, they were reluctant to accept new and better technologies? Even the code IS: 1786 was totally based on what rebar properties could be achieved by the CTD process instead of what was good for the high seismic hazard category that India falls in. This just had to change. Strangely, even the new IS: 1786- 2008 appears to me as a half- hearted attempt in improvement of rebar properties and is again based on that achievable by the CTD process. The citizens of the country had a right to better RCC structures. But, who was going to bell the cat?

The attempt to change this mindset of the civil engineers and steel sector was going to be a major obstacle. It was going to be a long haul but I was game. For me, it became a mad ‘obsession’. This is where training at Mukand under Mr. Viren Shah proved useful in taking the tough decisions. My mind was set. It had to be done - however painful, whatever the cost.

To achieve my goal, I had to penetrate the secondary sector mills and convince them to upgrade to Thermex QST Systems and switch from their Rs one lakh rotary disc shears to the very costly but efficient H&K stop-start shears as used at DSP. It was a long wait till Mr. Shyam Sunder Beriwal agreed to our proposal for its mill in Kolkata. We had got the break just when matters looked bleak. The Thermex unit was commissioned on my 60th birthday in 2000. After darkness of the night, surely there is sunrise. But the light at the end of the tunnel was still very distant.

In the six long years between the Bhilai commissioning and Mr. Beriwal’s order for Thermex and H&K shear, I also had the task of keeping H&K India afloat.

Malvika Steel

In my view India needed long products to develop the country in an all inclusive manner if it desired to take its place in the comity of nations. Unfortunately, the Budgets from 1992 to 1997 were more focussed on white goods where flat product demand would be created. When the famous ‘dream budget’ of the then finance minister had been placed in parliament, I recall having a very uneasy feeling that the economic situation was going to be disastrous in the coming years and had called a meeting of my staff to warn them of the difficult economic years ahead for the country. I was scoffed at my views. My comment that the ‘government was keen to give us cars much before they had given us roads’ was taken with a pinch of salt. Like the print and electronic media, everyone seemed concerned only about the 30% urban population rather than development of 70% rural population.

Thermex bars provide safety apart from savings in cost



Ravindra Aggarwal,
Directors Guardian Steel

Q) You opted for Thermex in your mill when other options were available – especially some Indian versions at a much lower cost. Was it because of the brand name THERMEX, services offered by H&K India, high international quality of Thermex rebars or, was there some other reason?

R. Aggarwal : In 2002, we realized that twisted bars may no longer be in demand and very soon QST Bars will be preferred by the engineers, due to its superior parameters. We studied the pro and cons of different version available for the manufacture of QST Bars and concluded that Thermex was best suited as it was a very user friendly version and the only recognized version where after installation services were available at hand through H & K India. Moreover the brand name Thermex had already made its place in the construction industry. All this factors encouraged us to believe that the final product would be second to none available not only locally but internationally as well.

Q) Today many reputed builders have switched over to use of Thermex 500 Grade against Fe 415 CTD bars used earlier for 30-35 years. How do you view this in terms of benefits to the country?

R. Aggarwal : Most of the reputed builders have switched now to use of Thermex 500grade and others are catching up. The trend is very positive because Thermex 500grade bars also provide safety apart from savings in cost. As a large part of India falls under the seismic zone, the use of Thermex 500 grade bars is all the more desirable. All these factors impart tremendous benefits to the country. III

Q) Do Thermex Licensees find the Quality Monitoring insisted upon by H&K India and their Quality Audit carried out by an independent agency a nuisance or do you think it is beneficial?

R. Aggarwal : The quality monitoring insisted upon by H & K India is certainly welcome, as quality does not come by chance but is a result of stringent check at every stage of production. This ensures that the desired standard product reaches the customer. The quality audit carried out by H & K India is also beneficial as it keeps the quality personnel ever alert and also ensures that the only the best is delivered under the Thermex brand.

Q) Do you export Thermex 500 rebars? Has production of Thermex rebars been useful in exports because of the quality?

R. Aggarwal : We have exported substantial quantities of Thermex 500 grade to various countries directly as also through merchant exporters. The quality has been well received in these countries. Repeat orders were received from 80% of the buyers.



R. N. Raikar honours RKM, at ICACI, 2003



LTA Award to RKM from R. N. Raikar at ICACI, 2007



H&K Thermex Pavilion at Constru India, 2006

Unfortunately, the H&K India success at DSP and BSP merchant mills of SAIL had established the Company as capable on taking up large projects and completing them in time. This is when we, for the first time, deviated from our main guidelines – and paid a very heavy price.

International companies were keen to team up with us as their consortium partner for the numerous steel projects announced from 1993 to 1995. Malvika Steel was one of them and since it was for long products, it fitted in with my views for India's development. So, I went ahead and selected Rokop of USA for continuous casting technology as our partner – primarily because it was famous for continuous-continuous casting i.e. 24-hour continuous casting without breaks. Bloom casters in USA were accustomed to start operations on Monday morning and continue till Saturday evening! We bagged the order for this unique caster, but my fears on the Indian economy proved right. Other factors also came into the picture and we were caught in a deep recession following the 'dream budget'.

By 2002 we ended up with a loss of over Rs 250 million and found ourselves in an awkward situation. We had learnt our lesson the hard way. Trouble sure comes in heaps we soon found out. Around 1996, H&K Germany also got sold to the KOCH Group and Wolfgang Kluetsch's fell seriously ill. We bought back H&K Germany 40% share holding in H&K India and a fresh struggle was on for survival.

The first step was a direct exclusive collaboration agreement with HSE Germany for the THERMEX technology for the Indian Region and the focus shifted back to introduction of Thermex and H&K shears in small mills of the secondary sector. After the Malvika fiasco, we were back to square one. I recalled the 35 year old quote -

*I cried and cried for a pair of shoes,
Until I saw a beggar who did not have slippers'*

Spreading Rebar Awareness amongst Civil Engineers

The start had been made with order from Mr. S. S. Beriwalla. Gradually other mills gained confidence and enquiries started coming our way, though in a trickle. By 2002 we had managed to claw our way back with about 2- 3 orders a year for Thermex.

We launched a campaign of awareness amongst the steel mill owners and the civil engineers. Thus began a period of articles in magazines and papers presented in seminars. I recall one on 25th January 2001 at Nagpur where I made a presentation on the unique Thermex quenching technology. I was very conversant with the subject of Thermex and H&K shears required to cut the quenched bars and so I normally speak extempore with a few power point slides. I made a point that CTD bars were not used in developed countries since 30 years and should definitely not be used in India which is exposed to earthquakes because 60% of it falls under the high seismic hazard

category. Honestly, I do not know what made me then utter the words

“God forbid if we have an earthquake tomorrow; many buildings could crumble and innocent lives lost. It is time for the civil engineers and steel sector to wake up to global advancements.”

I flew back the same night and was rudely woken the next day (26 January 2001) by calls from Nagpur informing me that a huge earthquake had struck Bhuj and other parts of Gujarat. Buildings had fallen like a pack of cards and many lives lost. I was dumbstruck and since that day I started daily monitoring of global earthquakes of magnitude 5.0 or more. Today, earthquakes have become part of each of my articles because rebar codes must necessarily take into account such eventualities.

It was essential and clear that we had to talk to users in the civil industry and not to the rolling mill owners. It was this sector that had got accustomed to use of CTD rebars over a 30-35 year period and they alone, if convinced, could shake up the steel industry for supply of proper rebars. This required a great deal of reading, research and understanding global rebar codes and the changes they were introducing. This in turn made me arrive at the conclusion that ductility of rebars was the key property, not the yield strength, when used in high seismic zones.

Turning Point

Late Mr. Ramesh N. Raikar, one of the most renowned structural engineers in the country was a dear friend of mine since 1973, soon after I left Mukand. We had utilised his services for all civil construction engineering work as part of the consultancy assignments we received. We lost touch sometime in 1978 when I began modernisation of the wire rod mill at Indore. A good 25 years later, in early 2003, I got his call requesting for a meeting. He was the President of the India Chapter of American Concrete Institute (ICACI) and it was active in many areas. He informed me that they were planning an international seminar on “REINFORCEMENT - Today & Tomorrow”. Strange are His ways. How else can one explain that when I needed a reputed Institute of civil engineers to talk to on quality of rebars, I get this call from a friend after a 25 year gap! It suited my plans perfectly.

The meeting was to be of 30 minutes but went on for more than 3 hours. His idea of rebars ‘Today & Tomorrow’ was limited to Torsteel and CTD bars! I shocked him by stating that they were rebars of “Yesterday” and that ICACI had to catch up with the new developments in Europe. My presentation was a detailed one that fascinated him and made a big impact. Half our battle had been won. It dawned upon him why buildings built in Mumbai after 1970 (with CTD bars) needed to be repaired within 7-8 years after construction. It in turn led to the growth of a new industry by itself – specialists in building repairs. This became his opening remarks at the seminar - to a stunned audience of experienced civil engineers. Mr. Tamm flew in from Germany and H&K India presented three papers on rebars. That was the first time I was honoured by an association of



RK Jha & U. Pandey with RKM at Constru India 2006

“ God forbid if we have an earthquake tomorrow; many buildings could crumble and innocent lives lost. It is time for the civil engineers and steel sector to wake up to global advancements.”



GR Madan, MMRDA & RKM at Thermex Pavilion at Constru India 2006



H&K in India - 2009

“We now had to engineer, procure, build, order, inspect and commission 2 or more plants every month. My H&K team does it effortlessly.”



R. S. Chavan, CEO & ED, H&K India handing over 'Construction Supervisor' certificate to a student

civil engineers for my contribution to “Steel Reinforcement”.

We had made the impact we had been looking for. Soon, I became a regular speaker at international seminars organised by civil engineering institutions. Additionally, we have been running a ‘Rebar Awareness’ campaign in magazines for the last two decades. We are now often consulted by many private and public institutions for proper rebar specifications.

The demand from builders and civil engineers for THERMEX rebars gradually began to increase every year. Orders started coming in at a furious pace. From 6-8 a year it has stabilised at 20-25 every year. The H&K team, led by R. S. Chavan, CEO & ED, rose to the occasion. We now had to engineer, procure, build, order, inspect and commission 2 or more plants every month. My H&K team does it effortlessly.

AS I write this piece in early May 2009, we have had a total of over 120 orders for THERMEX Systems spread all over India and 10 in other countries. Of these 24 orders are under execution. It is reassuring to note that this has been the level of pending orders for the past 3-4 years. As on date, the rebar capacity of mills that have installed Thermex Systems has already crossed 10 million tonnes and it is expected increase at a rate of 1.5 mT each year.

Quality Audit

THERMEX it must be stated is a registered trademark of HSE Germany, our collaborator. Mr. Franz TAMM, the inventor of this technology is also a Director of H&K India. HSE has given us permission to own this trademark in the Indian Region (other than Bangladesh). With this comes a great responsibility on H&K India - maintaining quality of the global brand.

In consultation with Mr. Tamm, we have specified the Thermex rebar properties to be maintained by each licensee. Of course each Licensee must satisfy properties given in IS: 1786 but he must necessarily conform to THERMEX norms which have been based on desired rebar properties for high seismic zones. To ensure strict control of the product made, all our Thermex Licensees are required to submit ‘Daily Inspection Reports’ in a specified format. Additionally, we have appointed “STRUCTWEL” as Quality Auditors for Thermex rebars. Their inspectors visit each Licensee on a quarterly basis to check samples at site and also collect samples for testing them at their laboratory in Navi Mumbai. The magnitude of audit at Thermex installations spread all over the country is evident from the places to be visited as shown on the Map alongside. All expenses on visits made by inspectors are entirely borne by H&K India.

While other companies publish the financial results each year, H&K India publishes the Quality Audit Report of Thermex Rebars on a yearly basis. A copy of the same is sent to Mr. F. Tamm in Germany.

TRMA (Thermex Rebar Manufacturers’ Association)

TRMA, a Section 25 Company, has been formed recently.

It is an association of Thermex Grade 500 rebar producers and has reputed civil and other engineers as honorary members. This all-India body interacts with civil institutions, government bodies, large project construction companies and others on behalf of valid Thermex Licence holders – those who produce Thermex brand rebars as certified by H&K India.

Other Activities

Besides spreading rebar awareness amongst civil engineering fraternity, H&K has also been sponsoring various bodies for vocational training to persons, and sportspersons and others.

The India Chapter of American Concrete Institute undertakes each year a training course for 'Construction Supervisors' to impart learning of correct practices in civil engineering construction. Students who have completed their 12th year qualify for this specialised course. ICACI provides the faculty for teaching from amongst the large number of experts available with them. In light of the urgent need for infrastructure within the country, H&K India takes active interest in this course and is the main sponsor. R. S. Chavan, CEO & ED of the Company co-ordinates with ICACI in this unique training. Those students who complete the training are given certificates and thus get the essential 'push' in starting their career of 'building India'.

Indian lady pugilist, Ms. MC Marykom, is the only woman to have won the world boxing championship at four consecutive events. After H&K promised her 'sponsorship' she retained her world crown for the 3rd and 4th time. She was signed as our brand ambassador for a 2- period that has just got over.

Recently we retained well known cricketer and India's best coach, Mr. Vasudeo Paranjape as our Adviser for sponsorships in the field of cricket. 'Vasu' as he is popularly called in cricket circles has a great eye for spotting talent and fine flaws. Many Indian stars, past and current, have benefitted from his advice. On Vasu's recommendation, H&K India is sponsoring "The THERMEX Elite Cricket Net of H&K India" for Sanjeevani Cricket Academy where young talented, cricketers are trained by a team of coaches led by Satish Samant and Rajesh Sunil. These boys are also provided with cricket kits, and international quality balls. Eight of these boys were selected to play under various categories (U- 19, U- 22, etc) for the State and the country. They were suitably awarded by H&K India recently to encourage them to achieve further heights. Ankit Chavan was a member of the Mumbai Ranji team that won the trophy for the 38th time while Saurab Netravalkar was declared India's 'Promising Cricketer of the Year'.

The Journey Ahead

The problem of corrosion of rebars is an area H&K India plans to tackle in the coming years. We and many others feel epoxy coating is not the proper solution.

We also have a goal of increasing Thermex rebar capacity to nearly 25 million Tonnes by 2020. I am



Ms. Marykom presents a traditional shawl to RKM



Vasu at Thermex Elite Nets



RKM honours Promising Cricketer of India Saurab 2009

Coverstory

confident this will be achieved because H&K India has a very dedicated, sincere and loyal team of young engineers and other staff.

Maintaining the quality of Thermex 500 QST rebars, as the number of clients and distances to be covered by Structwel quality auditors increase at a rapid pace, is another area that will need great planning and attention. Structwel is doing an excellent job in keeping Thermex Licensees 'on their toes' and the years ahead will be a true test as the job will only get tougher.

The Indian rebar Code IS: 1786 seriously needs to address the needs of the country. In my opinion, and that of many civil engineers, the new code issued in 2008 is too confusing and just cannot be implemented at the ground level. It is not pragmatic and is not in the interests or safety of the citizens. In our opinion, the Code for rebars should be very simple, easy to implement in all areas of the country without any exception. This is essential in light of 60% of the country falling under the high seismic zones 3, 4 and 5.

We strongly advocate that irrespective of yield strength, the defining criteria in the Code should be ductility of rebars whereas the current Code permits lowering of ductility as the yield strength is raised! Another strange feature of the current code is 'different chemical compositions' for different grades - and the code has a total of 7 grades! Surely that is too much for a country where 70% population is rural. The Annexure given in the IS: 1786- 2008 defies logic. As worded, the code unintentionally would allow incorrectly treated bars and those using incorrect quenching technology a free run. There are other aspects of the Code that also need to be improved.

I had started by stating that one has to 'try to accept what we cannot change' and so one needs to respect the IS: 1786- 2008 - until it gets amended. Then again, one has to 'try and change what one cannot accept'.

So, the journey ahead is clear. Hopefully, His Blessings and Guidance will be with us in the coming years.

H&K India enters its 25th Year

H&K India began its 25th year of 'service to the nation' on 16 May, 2009 with a meeting of its stakeholders at its offices in Mumbai. The gathering was addressed by the Chairman & MD, R. K. Markan who briefly recounted the journey of the Company and laid out the plans for the future. He also spoke of the challenges and tasks that lay ahead. He thanked all the loyal staff and associates for their support to the Company since inception and made special mention of Pradeep Shah, Partner of AJ Shah & Co, Company Auditors and a former Board Member of CDBT, who has been associated with him since 1973.

Medallions were distributed to all present while the staff members, 45% of whom had spent over 10 years at H&K, received a special ex-gratia payment for each completed year - as recommended by the share holders in the Company's AGM held earlier in the day.



Gathering at H&K India Stakeholders Meeting



R. K. Markan addresses the gathering



Markan distributes medallions and ex-gratia payments to staff

I have no plans for retirement in the near future; I have a long journey ahead



R. K. Markan, CMD, H&K India

“ After my stint at Mukand I realised how primitive the Indian rolling mills were and my main objective was to upgrade them to global levels ”

Q) How did you obtain the rights for THERMEX technology? What was so special about it?

R. Markan : First, I must acknowledge that the patented THERMEX quenching technology came to me due to my collaboration agreement with H&K Germany. They had signed exclusive rights for India and the joint venture Company, H&K India, which Wolfgang Kluetsch and I founded, was the tool for bringing Thermex to India.

H&K was a world leader in special equipment for rolling mills. After my stint at Mukand I realised how primitive the Indian rolling mills were and my main objective was to upgrade them to global levels. That is how H&K became my partner. So, when I learnt about Thermex from W. Kluetsch, it was like 'the icing and cherry on the cake'. You are aware, India was totally dependent on CTD rebars whereas during my trips to H&K Germany I realised that CTD bars were not in use in developed countries since early 1970s. That is when we arranged a special THERMEX seminar in June 1984 at Dusseldorf for Indian visitors to METEC - the response for overwhelming. It was evident that Thermex quenching technology was simple to use at the floor level and importantly, produced high-strength, high-ductility rebars essential for seismic regions such as India.

Q) After initial breakthroughs at Durgapur and Bhilai plants of SAIL, it took a rather long time for H&K India to establish Thermex in re-rolling sector. What, according to you, are the reasons?

R. Markan : It was only after the Durgapur and Bhilai orders for Thermex and their successful commissioning, India started to view Thermex as a better option for rebars as compared to the CTD process. However, as mentioned earlier, the Indian mills were quite primitive in terms of technology and equipment. It required a lot of effort to change the mindset of the mill owners. For example, everyone was keen to introduce Thermex technology but they were not keen to spend money on the stop-start shear that was essential for cutting of quenched rebars to cooling bed lengths. Such a shear, routinely used all over the world, of H&K design involved an outlay of around Rs. 3 to 6 million depending on mill parameters. Against this, Indian mills used rotary disc shears (costing about Rs 100,000) that were not suitable for shearing quenched bars. Further, a lot of mills had a total outlay of only about Rs 20 million for complete mill equipment and so an expenditure of Rs 3 million or more for just a shear appeared 'preposterous'.



Fortunately, we finally got the breakthrough in 2000 after intense discussions with mill owners spread over a five year period. Thereafter, it became easier.

Q) Now after nearly 25 years, Thermex has become the leading rebar brand in India. How was this achieved and do you feel satisfied?

R. Markan : The initial success at small mills gave us the confidence that Thermex technology would finally become the preferred process for rebars in the country but the question of making it acceptable to civil engineers was a big hurdle – they had been accustomed to using Grade Fe415 CTD rebars for three decades. I found it rather strange that whereas developed countries had stopped using CTD rebars since over 30 years, India was totally dependent on them. This had to change and though I am a mechanical engineer I had to take up the challenge of informing civil engineers about changes in developed countries.

A truly God sent opportunity arrived in early 2003 when the reputed structural engineer, late Mr. Ramesh N. Raikar dropped in some 25 years after our last meeting. It was to revive our old friendship and also inform me that the India Chapter of American Concrete Institute (ICACI) was holding an international seminar on “REINFORCEMENT: Today and Tomorrow”. A 30- min meeting lasted for about 3 hours when he learnt about the new Thermex rebars that had been introduced. He was dumb-founded and impressed. This was the moment we were looking for and we seized it. Thus began a series of lectures aimed at civil and structural engineers. H&K was 'on its way' in propagating use of superior Thermex Grade 500 rebars and weaning the civil fraternity away from CTD bars. It has been a most satisfying experience.

Q) You have been always fighting for the revisions in BIS. Can you elaborate on this?

R. Markan : Since the 1970s the IS Code for rebars has been based on properties as could be achieved by the CTD process instead of being based on the requirements on geological considerations – 60percent of India falls under seismic zones 3, 4 & 5. After Thermex rebar production was started in the country in 1992, we had a very strange situation because of the conflicting IS Codes. The Code IS: 13920 stated that rebars of Grade Fe 500 and Fe 550 were not permitted to be used in seismic zones 3, 4 and 5 because the elongation of these rebars in the relevant code IS: 1786- 1985 was 12percent for Fe 500 and 8percent for Fe 550 - less than 14.5percent required for seismic zones.

Thus, we had a situation where Thermex 500 (equivalent to Fe 500) rebars with an elongation of 18 to 24percent could not be used even though the elongation was far above the minimum 14.5percent required by B.I.S. It was only in 2002 that an Amendment was issued in IS: 13920 which permitted use of Fe 500 and Fe 550 provided their elongation value was more than 14.5percent. Thus for a period of 10 years, from 1992 till 2002, the civil engineers were denied the full benefits of new technologies such as Thermex. Then again, IS: 1786- 1985 refers to the new technologies introduced globally as “thermo-mechanical treatment” (TMT) – even though no mechanical treatment is involved in either the Thermex or the Tempcore processes - instead of the proper globally accepted and correct term 'quenching & self tempering' (QST) treatment. This improper term had led to many mills taking advantage and selling their bars as “TMT” bars even without the pretence of employing any quenching technology!

The new Code introduced recently, IS: 1786- 2008 is even more confusing. The global codes are being revised to make them simple and easy to implement while taking into account the needs for rebars for high seismic hazard areas. You have published in one of your issues my article “Earthquakes cause revision in Global Rebar Codes”. The need for high ductility in rebars irrespective of the yield strength has been stressed and is being implemented globally in rebar codes. After four years of deliberations IS: 1786- 2008 has resulted in 7 grades based on different chemical compositions. Further the properties continue to be based on what is achievable by the old CTD process even though CTD bars are hardly being used today! Further as stated in the Amendment, even if tests reveal that the bars have not been properly treated in what the code calls 'TMT' process that is not a ground for rejection of the bars!

Q) In 2003, when captains of Indian steel industry spoke about 50 mT Indian steel consumption against the JPC estimate of 75 mT per year by 2018, you talked about Indian steel consumption needs to be around 150 – 200 mT by 2020. Has the recent global recession changed your view?

R. Markan : Not at all. You will recall many of our discussions and my projections. I have maintained since over two decades that if India genuinely desires to become a Global Economic Power by 2020, it needs to urgently address the needs of the 70percent rural part of the country instead of concentrating on urban India as has been witnessed through government policies over the past 50 – 60 years. If we continue to neglect rural India, migration to cities and consequent problems will continue to haunt future generations. True rural wealth and economic power will be confirmed when the per capita rural steel consumption goes well above 50 or 60 kg and that in turn would mean per capita steel consumption of India at a level above 150 kg.

Actually, this is the proper time to make this happen. We need to talk in terms of trillions of dollars for infrastructure and development of rural India. If we lose out on this opportunity, all our cities will become great urban unmanageable slums.

Q) What are future plans of Mr. Markan? When is he planning to retire?

R. Markan : Frankly, I have no plans for retirement in the near future. The thought has just not come to mind. A lot of work remains as also a lot of unfinished business. So I have a long journey ahead.

"My" Markan Leads H & K India into its 25th Year



Viren J. Shah,
Former Governor, West Bengal

It is a matter of great pride for me that one of 'my boys', Raj Kumar Markan has gained recognition and survived for 47 years in the Steel Industry. It is also remarkable - his contribution to the civil construction sector by his crusade against the cold twisted deformed bars being used in the country when most developed countries had stopped using

them in early 1970s. I learn that the German THERMEX Brand high strength ductile deformed bar, introduced by Markan, now commands a 60% market share in the country. This is laudable and fittingly he has been the recipient of many Life Time Achievement Awards given to him by the civil fraternity.

It was 47 years back Markan joined Mukand in the rolling mill at Kurla as a trainee engineer. My brief was simple - "just make sure you get accepted and make a career for yourself in rolling mills". He literally took it as an order and seemed determined to succeed and he did.

Markan was brought in as the first project engineer for Mukand's ambitious Wire Rod Mill project at Kalwe and became a key member of the team. He used to be responsible for co-ordination with Consultants and keep track of the entire progress and was by my side at all our Project Meetings. His memory was sharp and he could recall at will what decisions had been taken and generally had a grip of the progress being made in all areas of the project. I admire his commitment, conviction, grit and determination. He took up any job assigned to him with enthusiasm.

Under Mr. V. S. Bhavne he was the leader of the group of engineers working on The Rod Mill. Erection of wire rod mill equipment which was carried out even before the shed was built and without an overhead crane. The foundation of shed and equipment were started in October 1965 and hot trials were taken up in March 1966. That was a record feat by any yardstick.

Mukand was the first in the world to opt for continuous cast billets to manufacture rods for wire drawing applications. And Markan contributed to the quality with his distinct

ability.

Markan was deputed to visit mills in Europe on a study tour in 1969. He had an eye for small details and on his return he introduced many minor changes at Mukand's wire rod mill which were of cost saving benefits.

An unfortunate near - fatal accident occurred at site due to fault of one of the vendors and Markan ended up with a six inch tear of the liver. Markan fought and survived. But in 1973, three years after the original accident, Markan's liver tear started giving problems again. Due to this, he had to resign.

He came to me for my blessing in June 1973 as he was going to start afresh from scratch as a consultant- rolling mill was now in his blood. In these 36 years, Markan brought about major changes in the secondary sector mills to make them globally competitive. The Company, H & K India, was born with German collaboration and soon stop-start Shears, Grip and Trough filters and such specialized German equipment were made in India for the first time. Later, through H & K Germany he got the exclusive rights for Thermex quenching technology for production of high strength reinforcement steel bars of global standards. He had achieved the desired breakthrough he needed. Thermex reinforcement steel bars (rebars) had arrived in the country.

Markan first undertook research and background work to understand the needs of civil engineers and in the process has understood the properties of rebars required in earthquake prone areas such as India - the key was ductility irrespective of strength. The Cold twisted deformed bars were not permitted to be used in developed countries but India was fully dependent on only such bars. The fierce commitment and conviction we saw during his days at Mukand surfaced again. He began a series of lectures addressing civil engineers to 'educate' them that twisted bars were bad for seismic India. Thermex became a passion, an obsession for him. He was on a crusade.

I had attended the first H & K lecture in Dusseldorf in 1984 on his invitation. The 25 year long effort has borne fruit because of Markan's perseverance. It is phenomenal that H & K India, with a small band of loyal staff, today receives and executes 20- 25 Thermex orders each year and that it has received 130 orders of which 120 are spread across India. I extend my heartiest congratulations to R.K. Markan and his team at H & K India on the 25th year of their operations. I wish them success in the coming years.

Heartiest Congratulations to Mr. Markan and his Team !



25 years is a long period by any measure. The iron & steel industry has undergone multiple changes during these years. I remember in early years, hot rolled mild steel bar used to be twisted mechanically to cater to the requirements of construction industry. This is the time when Mr. R.K. Markan brought the latest quenching technology from Germany to India. After initial success at Bhilai Steel Plant, his company H&K had to struggle to make its way ahead in this sector. Re-rolling industry was not prepared for such a high tech product, BIS specification had no mention about this product and more importantly, the architects and civil engineers were totally unaware about the quality of steel they were using. Mr. Markan had to fight on these fronts mainly to educate the industry about the changes construction steel industry was undergoing on a global level. It was not a simple task and the battle is still continuing.

Lectures to construction industry professionals, compilation of specification handbook, presentations in

conferences, Mr. Markan is tirelessly doing this noble task for last so many years and even today at his age of 67. Success came to his way. It had to come because of his hard work and able support from his team but this was only a byproduct of his passion. Apart from this, he remains a great analyst of iron & steel industry. I remember few years back in one of 'Steelworld's conferences, when everybody was predicting Indian steel consumption level of around 100 mt by 2020, he was the only person to talk about consumption level of more than 150 mt with conviction.

I have seen many enterprises rising from nowhere to the top in a very short span. They accumulate huge wealth and create large business empires. What is remarkable about H&K India and Mr. Markan is that he changed the thinking of the industry and almost compelled them to adopt modern process and produce more strong and safe steel.

This is his outstanding contribution to not only the industry but to the society at large. Further, his sense of CSR (Corporate Social Responsibility) is far superior than most of his counter parts in the industry. His selfless work in socio-cultural and sports area has helped many needy families as well as budding sportsmen. Happy 'Silver Jubilee Year' for H&K and best wishes for his future journey!!!

D.A. Chandekar
Editor- Steelworld

7th IRON & STEEL SUMMIT

18 -19 September 2009
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**Viability of Integrated
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