

'TASK FORCE' ON "AGRICULTURAL MACHINERY"

IMTMA Delegation Visits to

Key Agri Machinery & Implements' Manufacturing Companies

Dasmesh Mechanical Works | PREET AGRO | MANKU AGRO Tech

17 & 18 November 2021 : Punjab

Key Notings

Dasmesh Mechanical Works, Amargarh : 17 November 2021 –

Key Management Officials from Dasmesh Mechanical Works (DMW) present for the 'Interactive Meeting' :-

- ★ Mr. Malkeet Singh, Managing Director, Panesar Agriculture Works (Private) Limited.
- ★ Mr. Sarbjeet Singh Panesar, Managing Director, Dasmesh Mechanical Works.
- ★ Mr. Swarnjit Singh Panesar, Proprietor, Dasmesh Mechanical Works.

Presentation by DMW :-

- ✿ Established in 1965 by its founder, Mr. S. Hardial Singh, Dasmesh Group comprises five manufacturing units – core business being agricultural equipment.
- ✿ Establishment evolution :
 - ➔ 1965 – Dasmesh Mechanical Works in Amargarh; manufacturing threshers, straw reapers, zero drills, etc.
 - ➔ 1996 – Panesar Agriculture Works in Ludhiana; manufacturing all type of gear parts for agriculture equipment.
 - ➔ 2009 – Ishwar Farmline Equipment Private Limited in Amargarh; manufacturing harvester combine, self-propelled and tractor driven.
 - ➔ 2013 – Dasmesh Mechanical Works in Langrian; manufacturing all types of land preparation implements as well as an export unit.
 - ➔ 2019 – AMGSTAR towards information technology development.
 - ➔ 2021 – Acquired John Deere harvester manufacturing facility in Patiala; manufacturing harvester combine, self-propelled and tractor driven.
- ✿ The group has more than 20 distributors and more than 250 dealers, as well as a large export-base.
- ✿ Agri-machinery and implements of the group are exported worldwide to countries such as Afghanistan, Australia, Bangladesh, Botswana Kenya, Mexico, Namibia, Nepal, Philippines, South America, South Africa, Thailand, Uganda, Uzbekistan, etc.
- ✿ Material-cutting bending technologies used in DMW include :
 - ➔ Three LASER-cutting machines by Amada.
 - ➔ One press-brake by Amada & Colly.
 - ➔ One press-brake by Amada.

- ✿ Other machining technologies used in DMW include :
 - ➔ CNC five-axis machine by Hurco.
 - ➔ Seven CNC gear-hobbing machines by IFCO and Premier Limited.
 - ➔ Twenty gear-hobbing and spline hobbing machines by Cgurchill, Pfauter, Red Ring and WMW.
 - ➔ Two CNC grinding machines by Hi-Life Machine Tools Limited.
 - ➔ Eight cylindrical grinder and bore grinder machines by Fortune, Schroot, and Toss.
 - ➔ One CNC six-axis gear shaving machine by Hurth.
 - ➔ Sixteen vertical machining centres and horizontal machining centres by Doosan, Gedee Weiler Private Limited, Lokesh Machines Limited, Jyoti CNC Automation Limited and Mazak.
 - ➔ Three CNC induction hardening machines by Electrotherm.
 - ➔ Three shearing machines by Godrej & Boyce Manufacturing Company Limited, Hindustan Hydraulics Private Limited and WMW.
 - ➔ One straightening machines by GS.
 - ➔ Conventional machine by ITL Limited.
 - ➔ Two power presses by AMCO and AMRIT.
 - ➔ CNC vertical machining centre with FANUC robo drill.
 - ➔ CNC machines by Brother.
- ✿ Quality-control instruments used in DMW include :
 - ➔ Two coordinate measuring machines by Zeiss.
 - ➔ Two-dimensional height gauges by Mitutoyo South Asia.
 - ➔ Stereo zoom microscope by Doss.
 - ➔ Three testing dynamometers developed indigenously by DMW.
- ✿ For powder coating and assembly technologies, DMW uses the following techniques in their manufacturing shopfloor :
 - ➔ Shoot blasting by Mec Shot.
 - ➔ Powder coating by KSW.
 - ➔ Oven by KSW.
 - ➔ Assembly conveyor by Praga Tools Limited.
- ✿ Future expansion of the group encompasses –
 - ➔ New power coating plant.
 - ➔ New plant for Panesar Agricultural Works in Ludhiana.
 - ➔ Expansion of Langrian factory of DMW, for harvester and other products.
 - ➔ Enhancement of rotary tiller capacity from current 36,000 units to 80,000 units.
- ✿ Product portfolio of Landforce includes – crop protection; harvesting; residue management; soil preparation; and seeding.
- ✿ Crop protection portfolio includes – fertilizer spreader; and boom sprayer.
- ✿ Harvesting portfolio includes – combine harvester; tractor-mounted harvester; multi-crop thresher; paddy thresher; and 'Harambha' thresher.
- ✿ Residue management portfolio includes – mulcher; and straw reaper.

- Soil preparation portfolio includes – rotary tiller; sub-soiler; hydraulic disc arrow; mould board (MB) plough; post-hole digger; reversible MB plough; inter-row rotary weeder; cultivator; and LASER land leveller.
- Seeding portfolio includes – super-seeder; roto-seeder; raised-bed planter; happy-seeder; seed-cum-fertilizer drill; and zero-till drill.
- The group is certified with ISO 9001, ISO 14001 and ISO 45001 accreditations.
- The group has won several citations over the last two decades including two acclaimed awards from Government of Australia; and one each by Hon'ble Prime Minister of India, Hon'ble Chief Minister of Punjab and National Research Development Corporation.
- The group has introduced an indigenously-in-house-developed enterprise resource planning (ERP) system for catering to its manufacturing, technological capabilities as well as finance and accounts. Through its own ERP system, the group is able to trace its components and implements on real-time basis.
- DMW has developed leakage testing machine that is able to trace and track cent per cent leakages of its machinery and implements.
- The group voiced following challenges as well as expectations from the Indian machine tool industry :

| <i>S. No.</i> | <i>Key Challenges</i> | <i>Major Expectations</i> |
|---------------|--|---|
| 1. | Imported machines have better life, better productivity, energy efficiency, and new inbuilt technologies; though come at very high pricing. | Need for indigenous manufacturers to develop benchmark products in India, at competitive prices. |
| 2. | Availability of spare parts and cost-effective servicing. In spite of annual maintenance contracts, serviceability is a key constraint, especially for the Indian-supplied special purpose machines. | Need for on-time delivery, at competitive prices. |
| 3. | LASER cutting – detection of mistake-proofing for sheet-metal thickness, leading to rejections. | Need solution for mistake-proofing. |
| 4. | Need for capturing real-time data {through OEE and maintenance schedules}. | Need cloud-based integration. |
| 5. | Quality and life-cycle of machines – specifically cost per component. | Quality parameters need improvement; with bare minimum breakdown / idle-time. |
| 6. | Customer connect, especially by the top management of Indian manufacturers with the Group. Senior management of overseas vendors pay a visit every year, irrespective of whether there is an order or not. Visit is to obtain feedback and inform about new developments. | Frequent interactions by senior management of Indian machine tool companies would greatly help in further strengthening this partnership. |
| 7. | Fluctuations in prices of raw materials and key machine aggregates. | Need for stability in pricing of after-market sub-supplies / key aggregates. |

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| 8. | Need for greater automation offerings from the Indian machine tool industry. | |

Shop-floor Visit to DMW :-

- ☛ Two over-the-counter arc-robotic welding machines
- ☛ 'Standard Room' consisting of five gear-cutting, and metallurgical machines.
- ☛ 'Tool Room' consisting of vertical machining centres, CNC machines, six wire-cutting machines, large-storage areas for segregated components.
- ☛ Two huge assembly lines.
- ☛ Large storage facilities.
- ☛ Large packing facilities.
- ☛ Large despatch area.

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PREET AGRO Industries (Private) Limited, Nabha : 18 November 2021 –

Key Management Officials from PREET AGRO Industries Private Limited (PREET) present for the 'Interactive Meeting' :-

- ★ Mr. Hari Singh, Founder and Chairman.
- ★ Mr. Gurcharan Singh, Co-Founder and Director.
- ★ Mr. Shamsher Singh, General Manager - Sales & Marketing.
- ★ Mr. Ravinderjeet Sharma, Deputy General Manager - Purchase.
- ★ Mr. Ashok Gaur, Senior Manager - Purchase.

Presentation by PREET :-

- In 1980, Mr. Hari Singh started a tractor and mechanical repair workshop, which was rechristened as PREET Agro Industries, manufacturing agricultural implements.
- In 1985, PREET combine harvesters was launched by Mr. Hari Singh along with his brother – Mr. Gurcharan Singh and Mr. Prem Singh.
- In 1995, PREET moves to its new state-of-the-art manufacturing plant, catering to meet high-quality and large orders from India and overseas.
- In 1998, PREET launched “PREET 987”, India’s first combine harvester with air-conditioned cabin.
- In 2002, PREET Tractors was launched, manufacturing agricultural tractors, ranging from 35 HP to 45 HP.
- In 2004, PREET increased its range of tractors to manufacture 60 HP and 65 HP range.
- In 2007, PREET launched track-combine-harvester (tangential axial flow), for paddy harvesting in wet fields.
- In 2012, PREET launched track-combine-harvester with straw-walker mechanism.
- In 2013, PREET launched new series of agricultural tractors with four-wheel-drive option and increased the power range up to 90 HP.
- In 2016, PREET launched “AGRITRAC” series tractors with two-wheel and four-wheel-drive and with air-conditioned cabins.
- PREET now manufactures the entire range of tractors from 25 to 110 HP.
- Most of the parts for tractors and combine-harvesters are manufactured in-house.
- PREET also caters to export markets.
- PREET also exports 25 HP tractors – used overseas for gardening purposes.

- ✿ Door-to-door servicing is a USP of PREET.
- ✿ Mr. Hari Singh is a proud owner of three registered patents.
- ✿ Maximum sale of tractors is in the range of 50 - 60 HP – comprising almost 40 per cent of the total tractor market.
- ✿ PREET manufactures 1,000 tractors per month. PREET is the largest growing brand of tractors in Punjab and Haryana.
- ✿ PREET has capacities to manufacture 5,000 tractors per month.
- ✿ PREET was the first Indian company to indigenise maize-cutters.
- ✿ Most parts and components are manufactured in-house in PREET, while some are outsourced.

Views shared by Key Management Officials of PREET :-

- ◆ In 1971, agricultural machines were imported from Germany, and later from Italy. Thereafter, global companies such as John Deere, Klass and New Holland set-up manufacturing in India.
Today, we have several Indian companies manufacturing a wide range of agri-machinery, implements, parts and tractors.
- ◆ In spite of having non-engineering background, promoters of PREET emphasised on quality of their products, and were able to bring it on par with those offered by John Deere and New Holland.
- ◆ Another aspect focused by PREET was on ease of operations – such that the Indian farmers using PREET equipment are able to repair minor defects by themselves without having to seek the help of service engineers.
- ◆ International Agricultural and Gardening Machinery Exhibition (EIMA) is the world's premier exhibition on this sector. In late Nineties, while visiting the exhibition, owners of PREET also visited major Italian agri-machinery companies – which comprised latest CNC machines, machining centres, robotics, etc.
This spurred PREET to also modernise and procure new generation machines and equipment for its manufacturing requirements.
- ◆ Happy to have a delegation visit from Members of Indian Machine Tool Manufacturers' Association. Also happy to learn that IMTMA's membership manufactures a wide range of machinery for the farm sector.
- ◆ Several IMTMA Members are already working with PREET.
- ◆ Indian machine tool industry has worked hard to indigenise several technologies. There is hardly any machine today, which is not manufactured in India.
- ◆ Indian machine tool industry needs to make CNC machines which are easy to use, especially its CNC systems.
- ◆ PREET seeks support of the Indian machine tool industry in training of its workforce on machine maintenance.

- ◆ Indian machine tool industry would need to focus on R&D and quality of their machines and equipment.
- ◆ Indian machine tool industry needs to indigenise key components, as imported prices are exorbitant

Shop-floor Visit to PREET :-

⊙ Designated areas within the shop-floor –

- Chassis assembly.
- Differential assembly.
- Gear box assembly.
- FAB assembly.
- Greasing unit.
- Painting unit.
- Fuel tank fitment
- Tyre fitment.
- Electrical fitment.
- Radiator fitment.
- Bonnet fitment.
- Oil filling.

⊙ Machines in the ‘Machine Shop’ :

- LASER machine {Super Turbo X570} [Mazak].
- LASER machine {Hyper Gear 612} [Mazak].
- Three robots {robo-drills} [ABB].
- Three horizontal machining centres {including Prima series} [Bharat Fritz Werner Limited].
- Two horizontal machining centres {HM series} [Doosan].
- Vertical machining centre [HMT Limited].
- Vertical machining centre [Daewoo Mechatropia].
- Turret punch press {Tantus 256 series} [Amada].
- Turret punching machine [Hindustan Hydraulics Private Limited].
- Turret punch press [LVD Strippit].
- Radial drill [WDM].
- Radial drill [JKEDA].
- Radial drill [MAS].
- Test cleaning machine.

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MANKU AGRO Tech Private Limited, Samana : 18 November 2021 –

Key Management Officials from MANKU AGRO Tech Private Limited (MANKU) present for the 'Interactive Meeting' :-

- ★ Mr. Sukhwinder Singh Manku, Managing Director.
- ★ Mr. S. Vikramjit Singh Manku, Executive Director.
- ★ Mr. Nanda G. S., Vice President.

Views shared by Key Management Officials of MANKU :-

- ◆ Imported machines prove very expensive for MANKU, while that of Indian machines are cost-competitive.
- ◆ MANKU faces a lot of breakdown issues in Indian machines.
- ◆ Service and after-sales by the Indian machine tool industry is a key issue. Service is “killing” – leading to lot of difficulties in MANKU, as repairing becomes a problem.
“MANKU is being **black-mailed** on servicing” by the Indian machine tool industry. Service engineers from Indian manufacturers should “behave better”.
- ◆ In comparison, imported machines in MANKU has never given any sort of problems, with no servicing required. Though very expensive, there has been no breakdown in any of the imported machines so far.
- ◆ Availability of spare-parts for Indian machines is also an issue.
- ◆ There is a need to maintain consistency in quality by Indian manufacturers.

- ◆ No Indian manufacturer ever seeks feedback on effective utilisation of their machines in MANKU's shop-floor or by MANKU's workforce. **This aspect of obtaining customer feedback is missing.**
- ◆ **Involvement of the top management in quotations and price negotiations is "totally missing" from the Indian machine tool industry.**
- ◆ MANKU has 35 to 40 per cent market share of wheel-type combine harvesters. MANKU is clocking a turnover of 500 units even in a down-season such as the current one.
- ◆ MANKU manufactures eleven variants of combine harvesters.
- ◆ MANKU achieved a turnover of 2,300 units in 2020 - 2021 financial year – highest in the industry.
- ◆ The company is now targeting to achieve 4,500 units of all its variants by 31 March 2023.
- ◆ Last three financial years were a boom phase for the agri-machinery and implements' manufacturing industry.
- ◆ MANKU has offered extended warranty to the farmers during the entire pandemic phase. This is precisely an expectation by MANKU from the Indian machine tool industry.
- ◆ MANKU manufactures farm equipment and implements to cater to any variants of soils and crops.
- ◆ MANKU manufactures around 15 to 18 equipment per day basis, during such down-season. If all the six assembly lines are fully-loaded, it can manufacture 100 equipment per day of its variants.
- ◆ MANKU works on one-shift basis in off-season, and in double-shifts during peak-season.
- ◆ MANKU clocks a minimum of one month of advance sales production.
- ◆ MANKU AGRO Tech is a debt-free company.

Machines in MANKU Shop-floor :-

- LASER cutting machine {Ensis 4020 AJ series} [Amada – co-branded as 'VISHAL'].
- LASER machine {Chinese-make} [co-branded as 'VISHAL'].
- LASER machine [BACHAN – co-branded as 'VISHAL'].
- LASER cutting machine [Wiedemann - Muratec].
- Fiber LASER metal-cutting machine {TXL6 R series} [Gloria – co-branded as 'VISHAL'].
- Horizontal machining centre {CMH 500 series} [Ace Manufacturing Systems Limited].
- Horizontal machining centre {Hi-Center H40} [KIA].
- Vertical machining centre {MCV-450 series} [Ace Manufacturing Systems Limited].
- Vertical machining centre {1060 V-50 series} [Ace Manufacturing Systems Limited].
- Vertical machining centre {1050 series} [Jyoti CNC Automation Limited].
- Vertical machining centre {Vertimach V-800 series} [TAL Manufacturing].
- Vertical turning centre {VTL BVL 800 ML series} [Bharat Fritz Werner Limited].
- CNC turning centre {VANTAGE - 800 series} [Ace Designers Limited].
- CNC turning centre {LT-2 XL 500+ series} [Ace Designers Limited].

- CNC turning centre {LT-20 XL series} [Ace Designers Limited].
- Two CNC two-axis turning centres {Super Jobber 500} [Ace Designers Limited].
- CNC turning centre {Sprint 25 TC series} [Batliboi Limited].
- CNC turning centre {DX-200 5A series} [Jyoti CNC Automation Limited].
- CNC turning centre {DX-250 series} [Jyoti CNC Automation Limited].
- CNC turning centre {DX-350 series} [Jyoti CNC Automation Limited].
- CNC turning centre [Jyoti CNC Automation Limited – co-branded as ‘VISHAL’].
- Four press brakes [Hindustan Hydraulics Private Limited].
- Press brakes [Amada – co-branded as ‘VISHAL’].
- Four radial drills [Hoyaland].

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