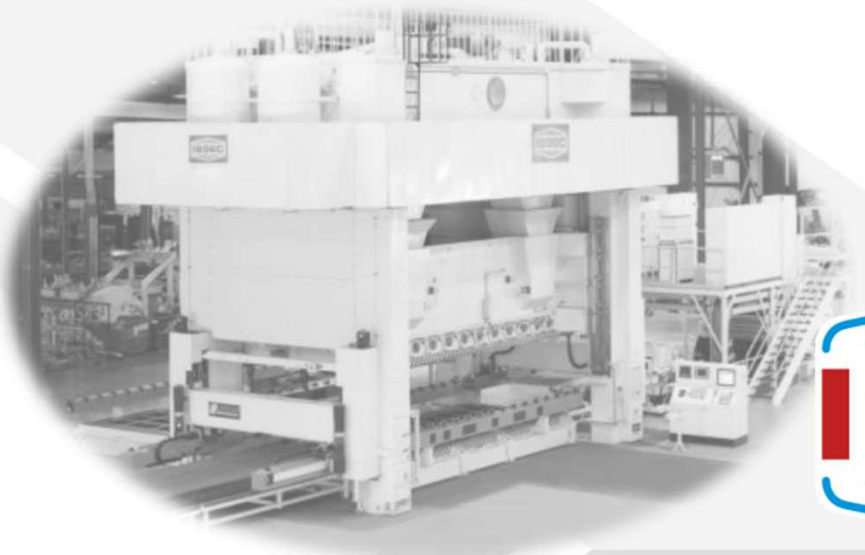
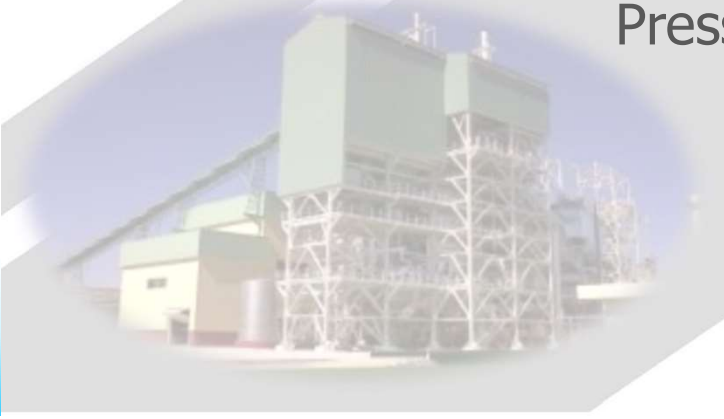
ISGEC
ISGEC Heavy Engineering Ltd.



ISGEC

PRESSES

Presses with Industry 4.0 compatibility



Corporate Overview

ISGEC Heavy Engineering Ltd.

Years in Industry	Turnover	Employee Strength	Stock Exchange Listing	Rankings
90+ (est. 1933)	INR 6412 Cr* Euro 720M*	Over 2800	NSE/BSE	294 Fortune India 298 ET 500

Locations

Corporate Office, Noida, India

Yamunanagar, India

Bawal, India

EAGLE PRESS & Equipment Co. Ltd. — An ISGEC Group Company

Ontario, Canada

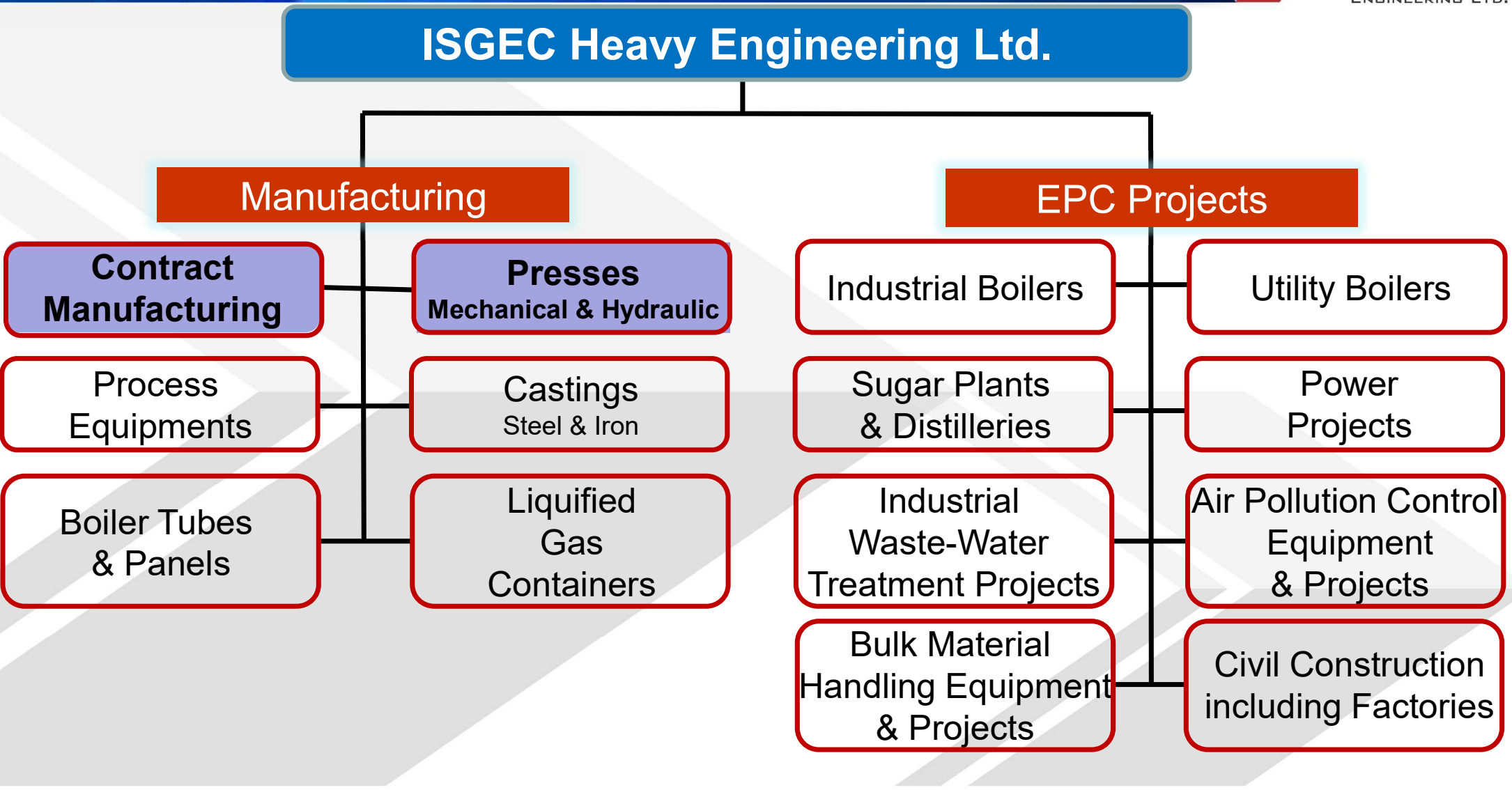
EAGLE PRESS AMERICA INC. — An ISGEC Group Company

USA

* This does not include JV

** This does not include SSM / JV / Contractual Staff

Business Segments

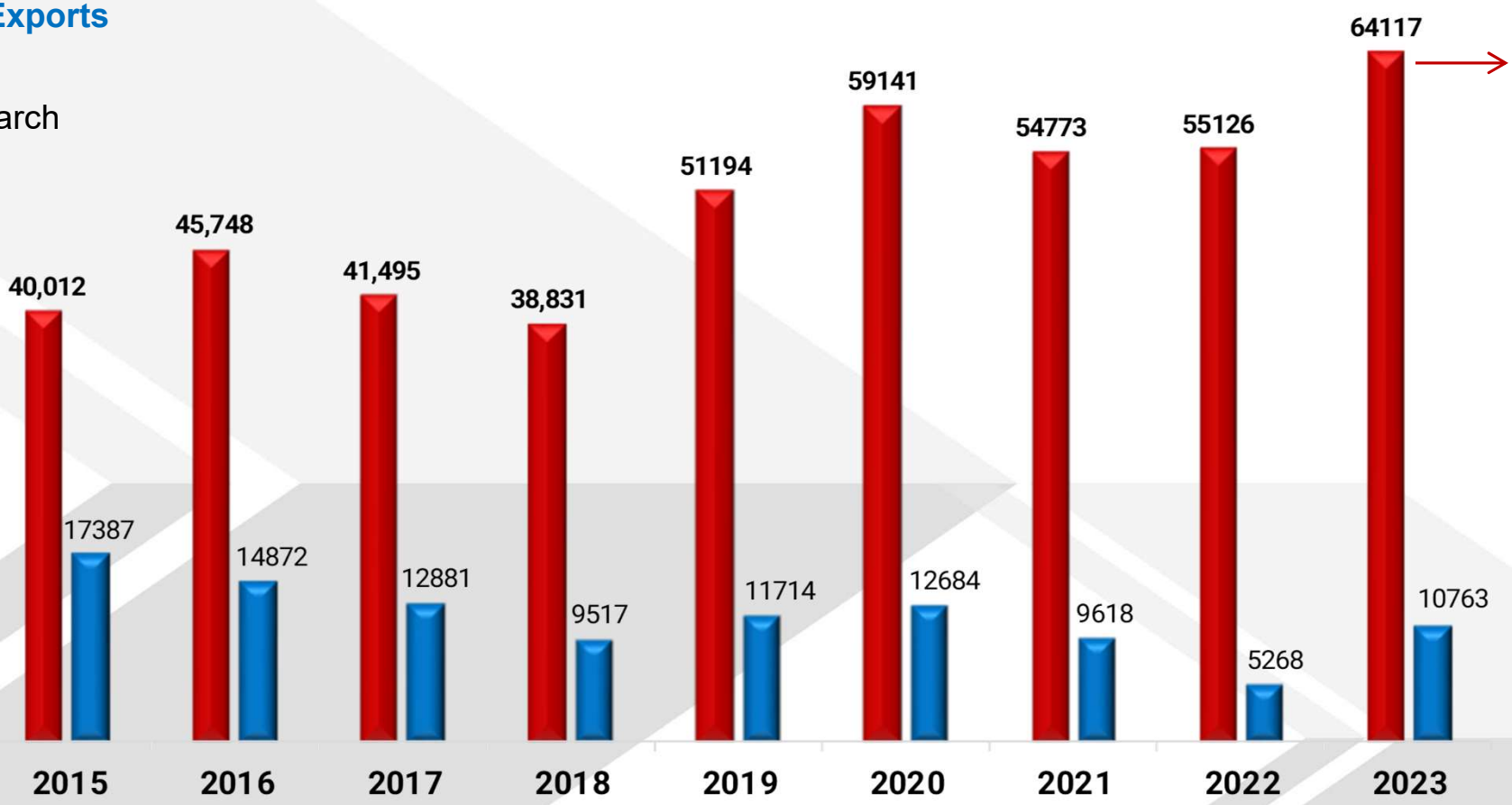


Isgec Group Turnover & Exports

Turnover / Exports

₹ in Millions

FY: April - March



$ 782 Million
€ 720 Million

Conversion:
@ ₹ 82/- to $1
@ ₹ 89/- to €1

Subsidiaries & Joint Ventures

ISGEC HEAVY ENGINEERING LTD.

100%

Saraswati Sugar Mills Ltd.
One of the Largest & Oldest Sugar Mills in India

Eagle Press & Equipment Co. Ltd.
Press manufacturing company in Windsor (Ontario) Canada

90%

Cavite Biofuel Producers Inc.
(Stepdown Subsidiary of Isgec Investments Pte. Ltd.)
Bioethanol Plant in the Philippines

51%

Isgec Hitachi Zosen Ltd.
JV with Hitachi Zosen Corp., Japan to manufacture specialized & critical Process Plant Equipment

Isgec Titan Metal Fabricators Pvt. Ltd.
JV with Titan Metal Fabricators, USA to manufacture corrosion-resistant Process Plant Equipment

Isgec SFW Boilers Pvt. Ltd.
JV with Amec Foster Wheeler (now Sumitomo SHI FW Energia, Oy, Finland) to engineer their Global Boiler Projects

Isgec Redecam Enviro Solutions Pvt. Ltd.
JV with Redecam, Italy to manufacture, test, & commission of Bag Filters

Strategic Technology Partnerships (ISGEC)

AP&T, Sweden

Sumitomo SHI FW Energia Oy, Finland

Amec Foster Wheeler, USA

(now with Wood Group, UK)

Babcock Power Environmental Inc., USA

BHI FW Corp., South Korea

Bosch Projects, South Africa

CB&I Technology Inc., USA

Envirotherm GmbH, Germany

Fuel Tech Inc., USA

Siemens Heat Transfer Technology b.v. Netherlands

Thermal Engineering International (TEi), USA

Important Milestones (Presses)

ISGEC Heavy Engineering Ltd.

1968

Production of Hydraulic Presses started with technical knowhow from **John Shaw, UK**

JOHN SHAW

1969

The first ISGEC **Hydraulic Press** of capacity 25MT manufactured and supplied to customer

1985

Production of Mechanical Presses started with technical knowhow from **Rovetta Presse Spa, Italy (Now, Aida Europe)**

ROVETTA PRESSE

1987

The first **Mechanical Press** of capacity 650MT installed with customer.

1999

The first **Tandem Mechanical Press Line** of capacity 1000MT (Head Press)

2007

First **Transfer Press** of capacity 2000MT manufactured and exported to a Germany

2009

New factory for Standard Mechanical Presses was set up at Bawal, near Gurugram (Haryana) India

2012

The first Mechanical **Servo Press** manufactured and exported to Czech Republic

2018

ISGEC acquired **Eagle Press** based in Windsor (Ontario) Canada.

An ISGEC Group Company

2022

1st ISGEC – AP&T **Press Hardening Line** Successfully Installed in India

Product Range – Mechanical Presses

ISGEC HEAVY ENGINEERING LTD.

Capacity → / Products ↓	63MT - 300MT	630MT	1000MT	2000MT	3000MT	3500MT
Tandem Press Line		←			→	
Transfer Press Lines		←				→
Progressive Die Presses		←			→	
Mechanical Tryout		←			→	
Blanking Lines		←			→	
Servo Presses		←				→
High Speed Press & Standard Mechanical Presses	 	→				

Product Range – Hydraulic Presses

ISGEC Heavy Engineering Ltd.

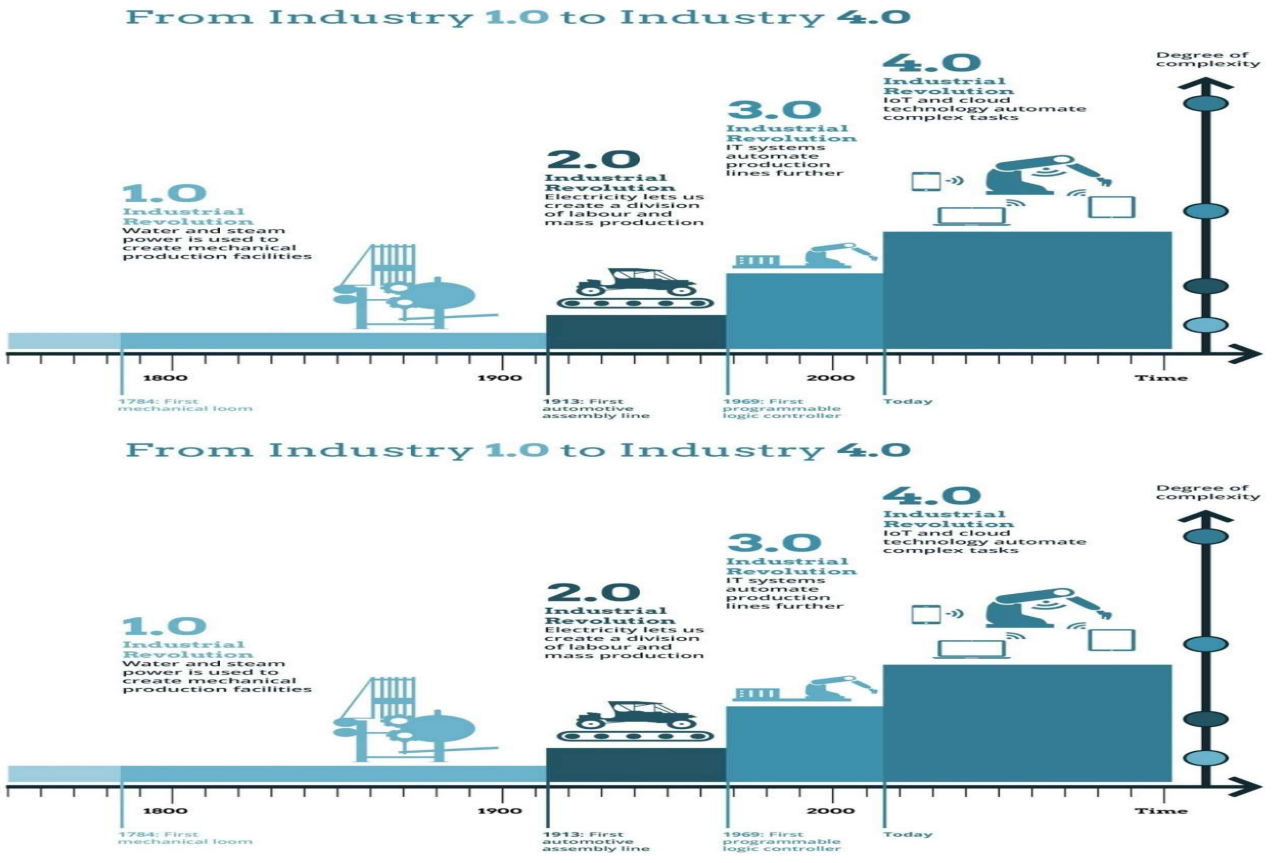
Capacity → / Products ↓	50MT -500MT	1000	2500	5000	10000	15000
High Speed Hydraulic Presses						
Tryout Presses						
Die Spotting Hydraulic Press						
Forging Press						
Special Purpose Presses						
Hot Stamping Presses						

Presses with Industry 4.0 Capability

What is Industry 4.0 ?

The term “Industry 4.0” originates from a project in high-tech strategy of the German government, which promotes the computerization of manufacturing.

Technically, Industry 4.0 or Digitalization refers to the “smart” and connected production systems that are designed to sense, predict, and interact with the physical world, so as to make decisions that support production in real-time.



Evolution of Automation in Metal Stamping Industry

ISGEC
ISGEC Heavy Engineering Ltd.

Manual Tandem Presses

Robotic Tandem Line

Transfer Systems

Coil Feeding Lines

Servo Systems

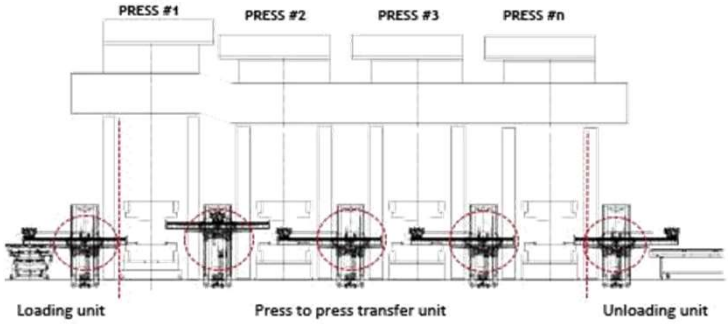
Manual Tandem / Standalone Presses

- **Productivity:** Low, About 5-6 PPM
- **Precision and Efficiency:** Limited
- **Safety:** Safety Concern due to Direct interaction of Operator
- **Flexibility:** High
- **Features:** lacks advanced features for controlling variables like pressure, speed, and stroke length.

Robotic Tandem Line

- **Productivity:** Medium, 8-12 PPM
- **Precision and Efficiency**: Integration of robots with the press controls ensures high precision and consistency in material handling and positioning. Significantly reduces errors and ensures uniform quality.
- **Safety:** Enhanced, No Direct interaction of operator.
- **Flexibility and Adaptability:** Engineered to manage diverse part dimensions, and setups without requiring extensive retooling due to flexible Robot movement
- **Features:** Advanced features for controlling variables like pressures, speed etc.

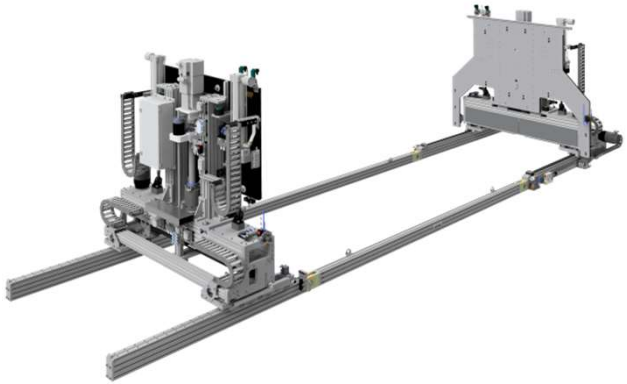
Crossbar Tandem Lines



- **Productivity:** High, 8-16 PPM
- **Precision and Efficiency**: High precision and consistency in material handling and positioning. Significantly reduces errors and ensures uniform quality.
- **Safety:** Enhanced, No Direct interaction of operator.
- **Flexibility and Adaptability:** Less degree of freedom, so less flexible.
- **Features:** Advanced features for controlling variables like pressures, speed etc.

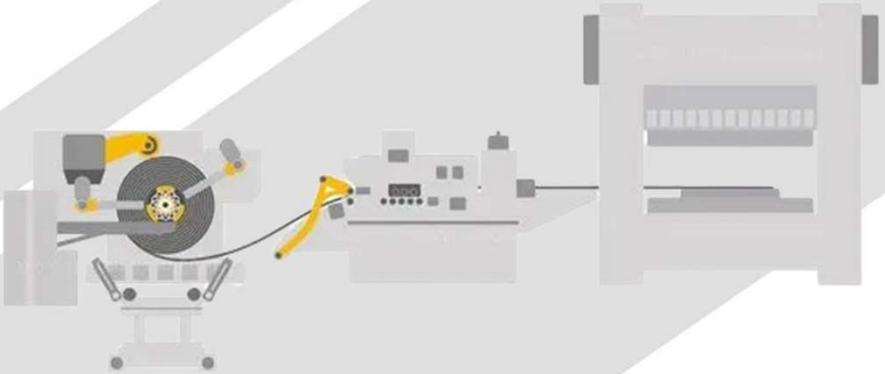
Transfer Presses with 3D Transfer Systems

ISGEC Heavy Engineering Ltd.



- **Productivity:** High, Due to synchronized movement, 10-30 PPM
- **Precision and Efficiency**: High precision and consistency in material handling and positioning. Significantly reduces errors and ensures uniform quality.
- **Safety:** Enhanced, No Direct interaction of operator.
- **Flexibility and Adaptability:** Less degree of freedom, so less flexible.
- **Features:** Advanced features for controlling variables like pressures, speed etc.

Progressive Die Presses



Suitable for small components with shallow draw

- **Productivity:** Very High, Due to synchronized movement, 40-300 PPM
- **Precision and Efficiency**: High precision and consistency in material handling and positioning. Significantly reduces errors and ensures uniform quality.
- **Safety:** Enhanced, No Direct interaction of operator.
- **Features:** Highly Advanced features for controlling variables and tool safety as due to high speed cannot depend on operator.

Servo Mechanical Press

- **Energy Efficiency:** Servo systems are often more energy-efficient compared to traditional systems, thanks to their regenerative power systems.

- **Precision and Control:** Servo motors enable precise control over the speed and position of the slide, allowing for better accuracy and repeatability in the forming process.

- **Flexibility in Applications:** Servo presses can be used for various forming operations, such as stamping, punching, bending, and deep drawing, making them versatile for different manufacturing needs.

- **Reduced Noise and Vibration:** They tend to produce less noise and vibration during operation compared to conventional presses, contributing to a better working environment.

Why Industry 4.0 ?

ISGEC Heavy Engineering Ltd.

Implementation of Industry 4.0 solution gives following benefits :

Increased data-based insights	Enables track, Analyse and informed decision making
Improve efficiency	Simplify monitoring, enhance decision making Data transparency.
Empower productivity	Better understanding of process, more efficient process due to digitalization.
Reduce operating costs	Better and real time visibility provide better understanding of inventory level, delivery status hence reducing cost.
Increased Uptime	Better planned and AI - ML predictive maintenance enhances machine uptime.

Challenges for Industry 4.0 ?

Although there are many benefits of digitalisation in manufacturing, there are also some challenges within the industry

Outdated systems	More outdated a technology infrastructure is, the more difficult it is to adapt it to a digital manufacturing environment.
Employee reluctance	Human nature to resistant changes.
Lack of relevant knowledge	One of the biggest challenges with the evolving technology is the lack of knowledge that comes with it to safely and securely implement advanced manufacturing technology.

Industry 4.0 - Data Flow

ISGEC Heavy Engineering Ltd.

Cloud Computing

1001110

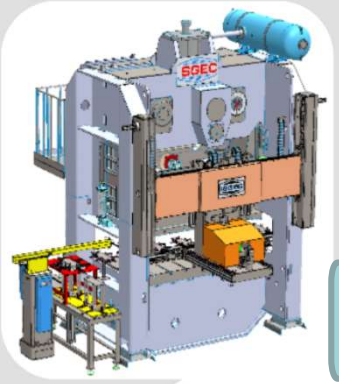
Web App

1001110

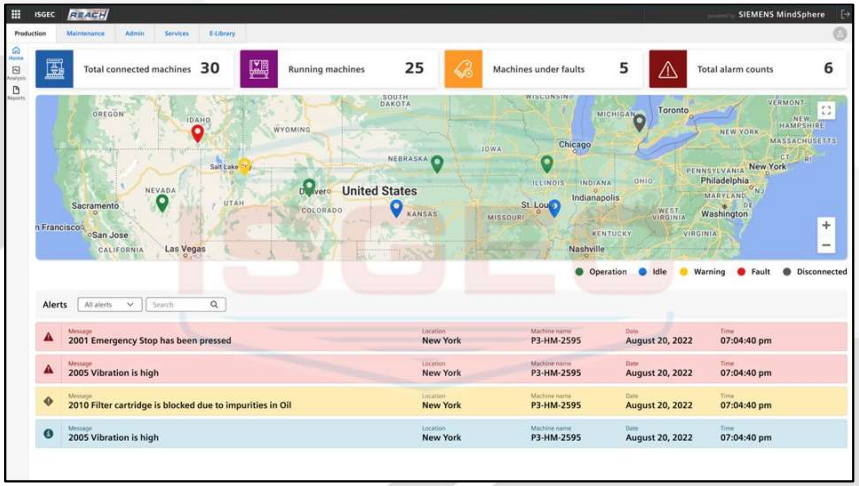
EDGE Device-Analytics

1001110

Press



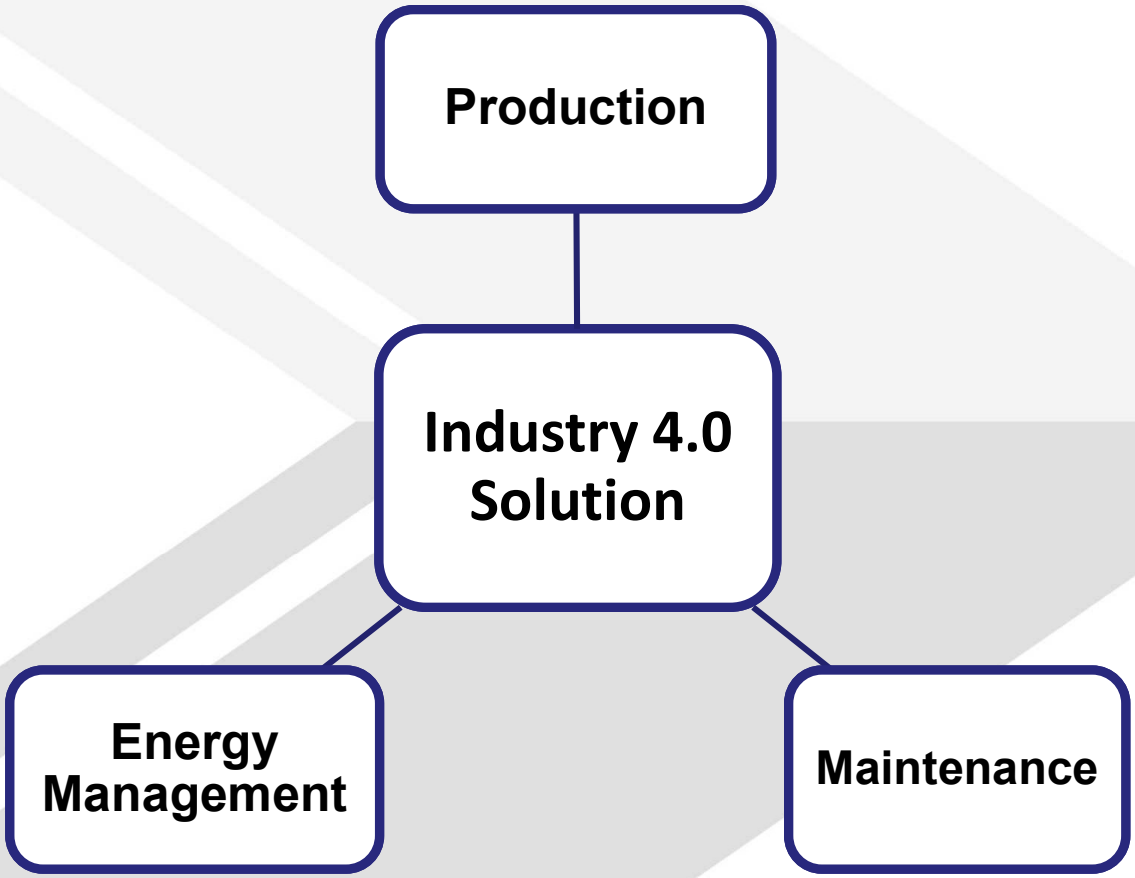
Smart Sensors



Live Image for REACH 4.0

Industry 4.0

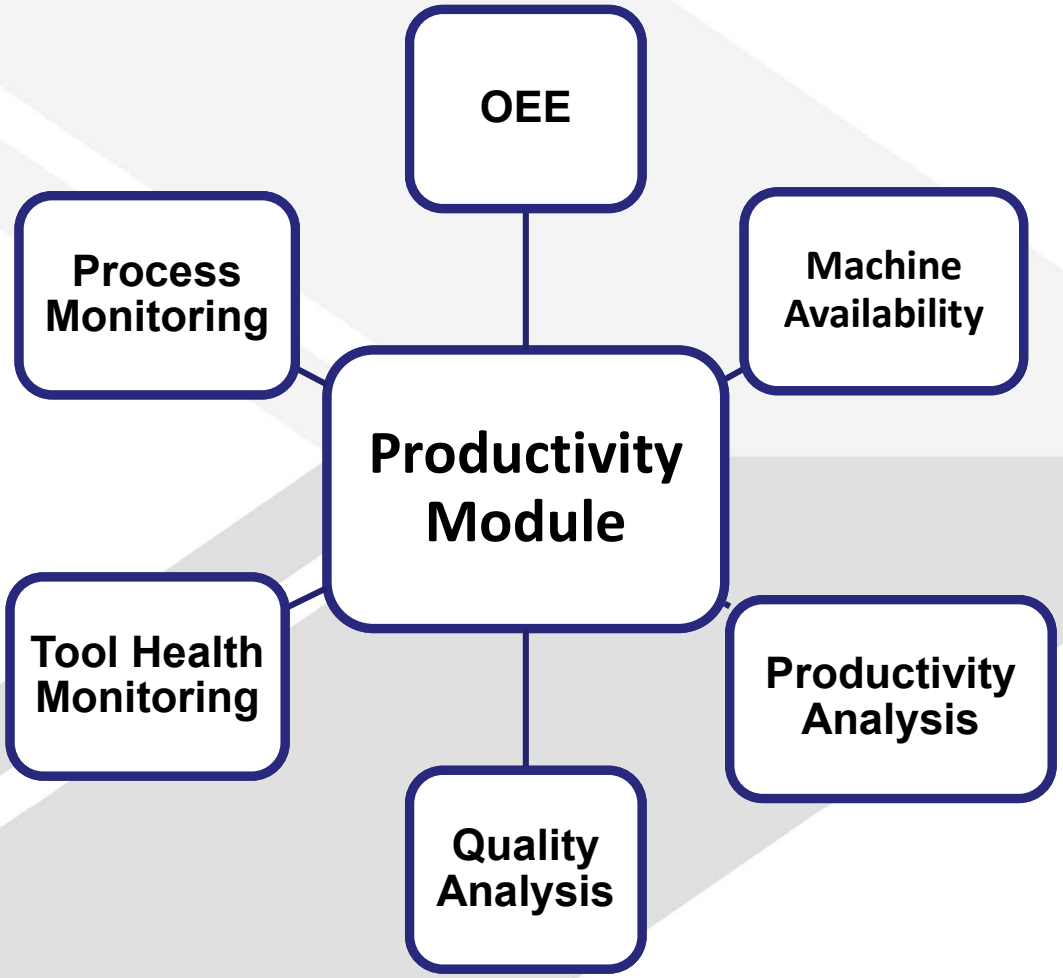
Overview



Normally three different function areas are covered by Industry 4.0. These areas helps to collect, analyze, Store & evaluate the production conditions, Machine maintenance and uptime, Energy analysis etc.

Industry 4.0

Production



Industry 4.0 platform collects all operation related data from press and provides the Real time analysis on the Dashboard, Which enables Production Manager to take timely actions.

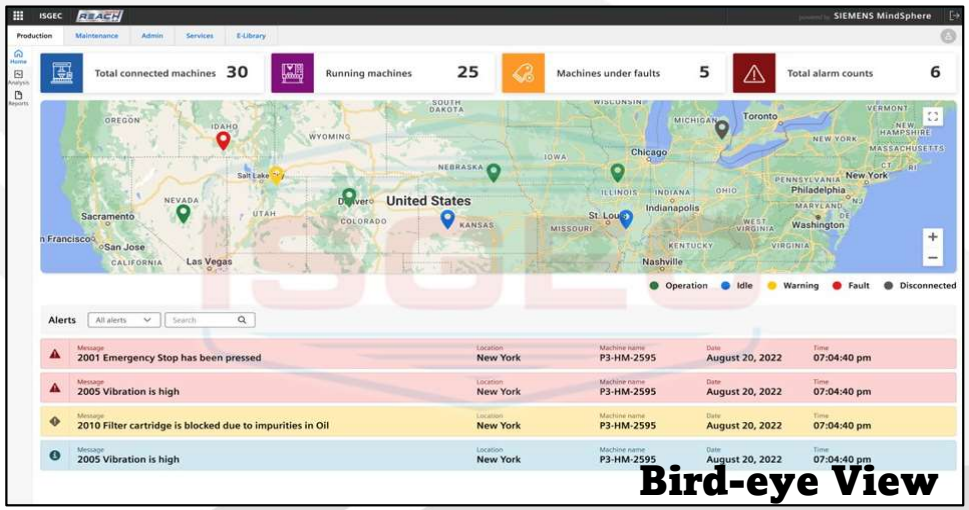
Process monitoring gives a way to check the productivity & quality of produced part.

With the help of Historian data process parameter for best productivity and quality can be decided.

Industry 4.0

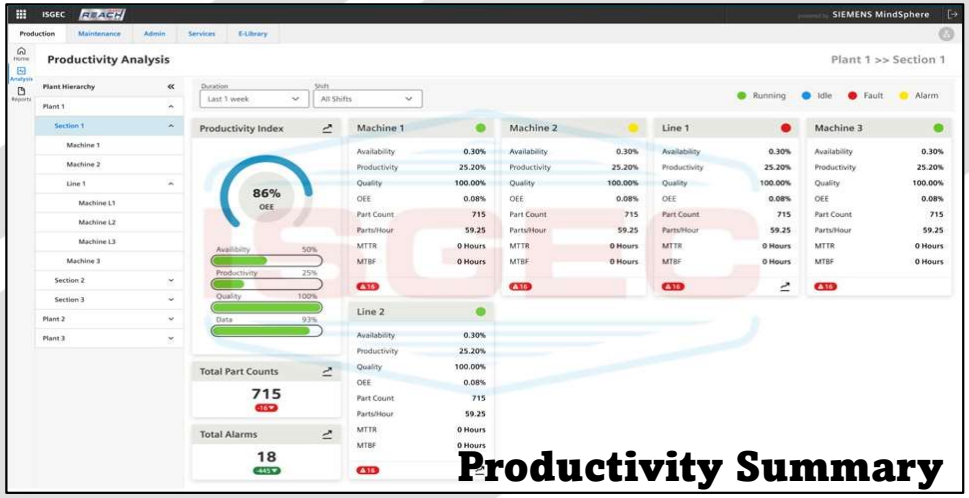
ISGEC HEAVY ENGINEERING LTD.

Productivity Module : KPI & KRA Monitoring @ Plant, Section, Line & Machine Level

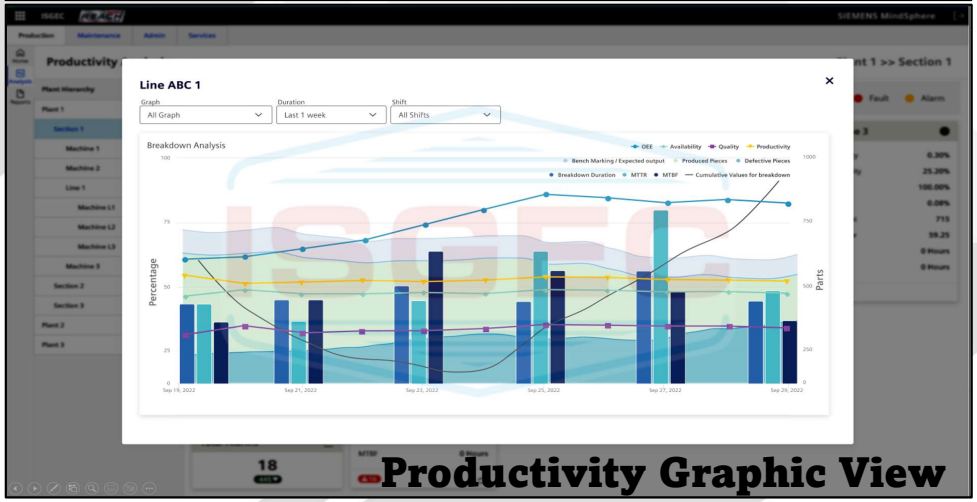


Bird-eye View

Productivity Dashboard



Productivity Summary

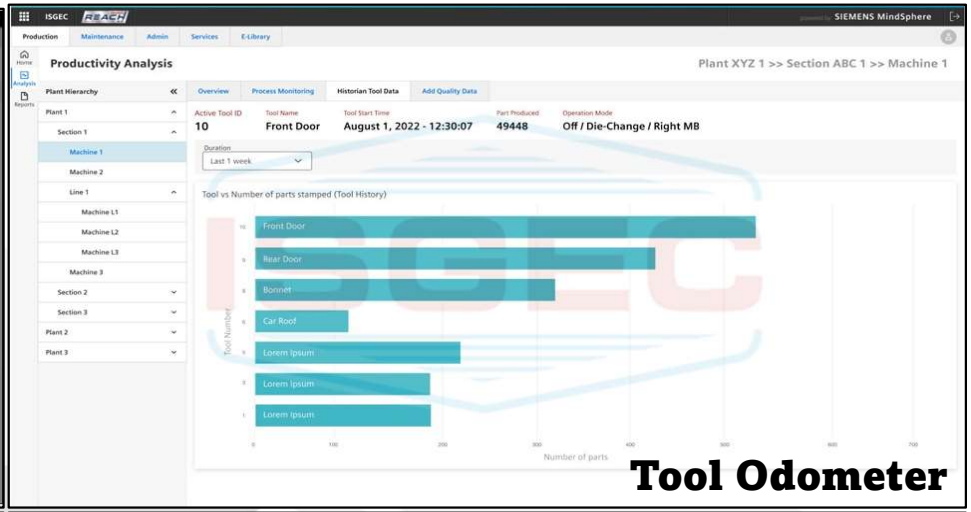


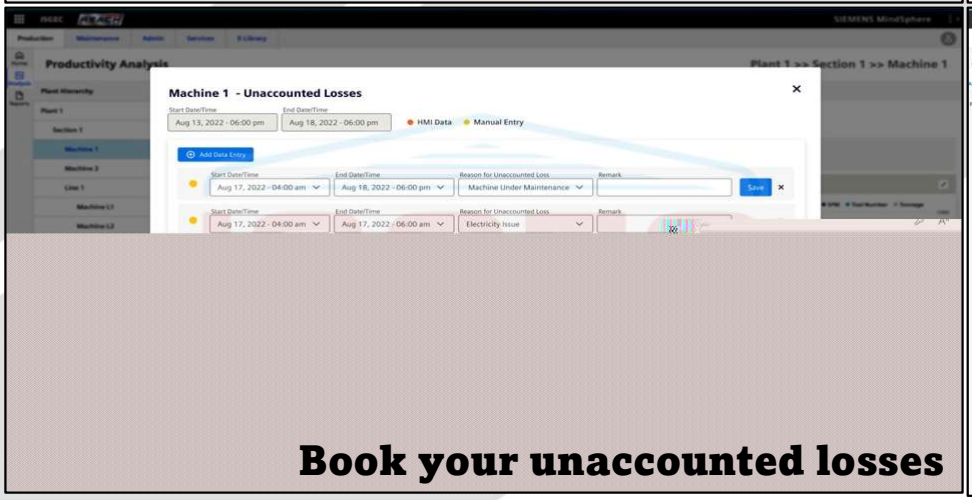
Productivity Graphic View

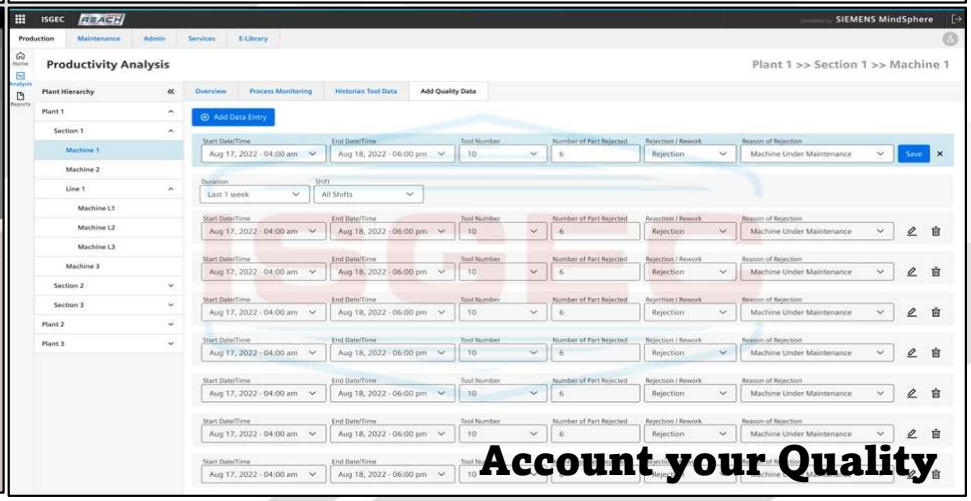
Industry 4.0

ISGEC
ISGEC Heavy Engineering Ltd.

Productivity Module : Loss Analysis

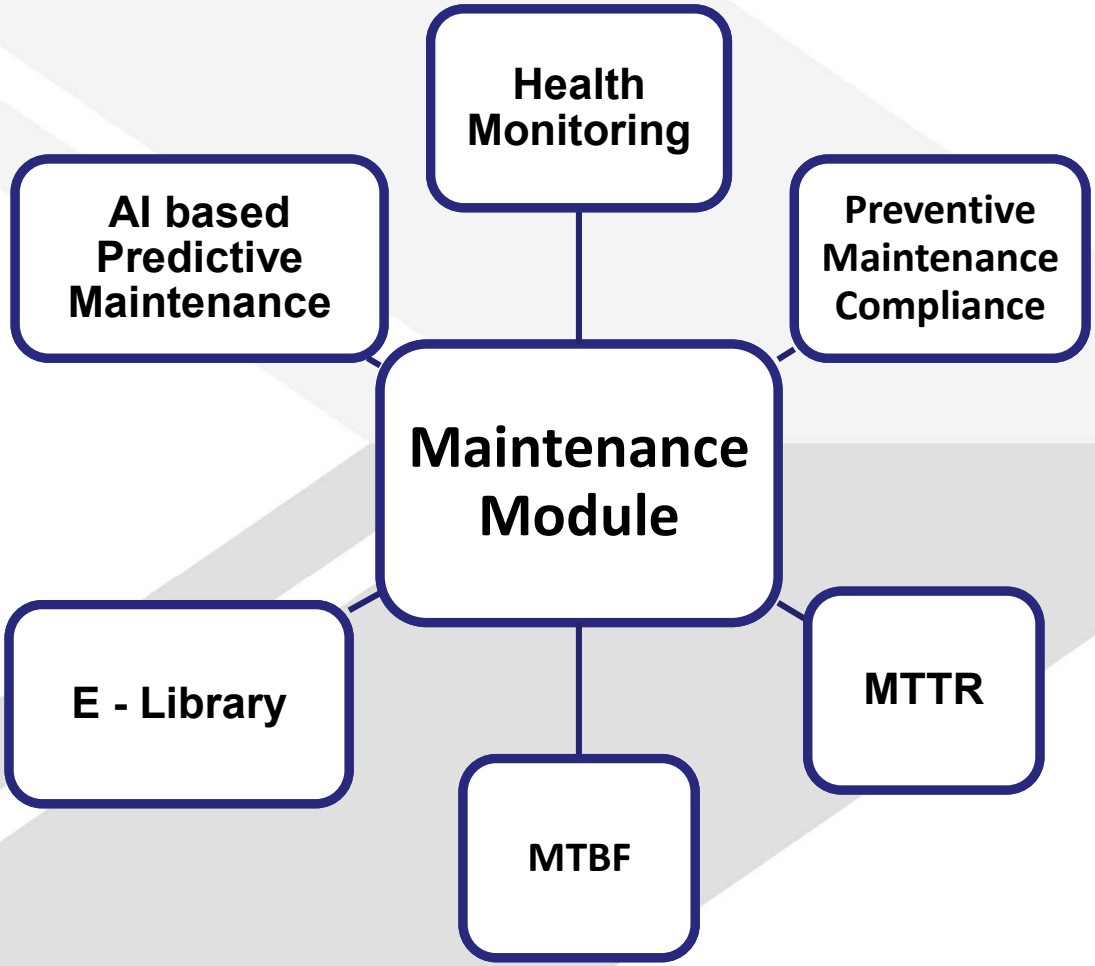


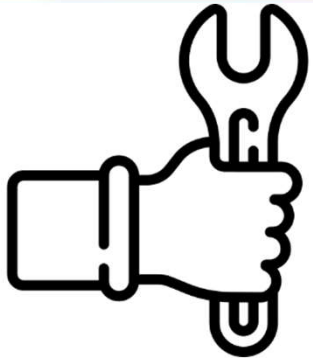




Industry 4.0

Maintenance





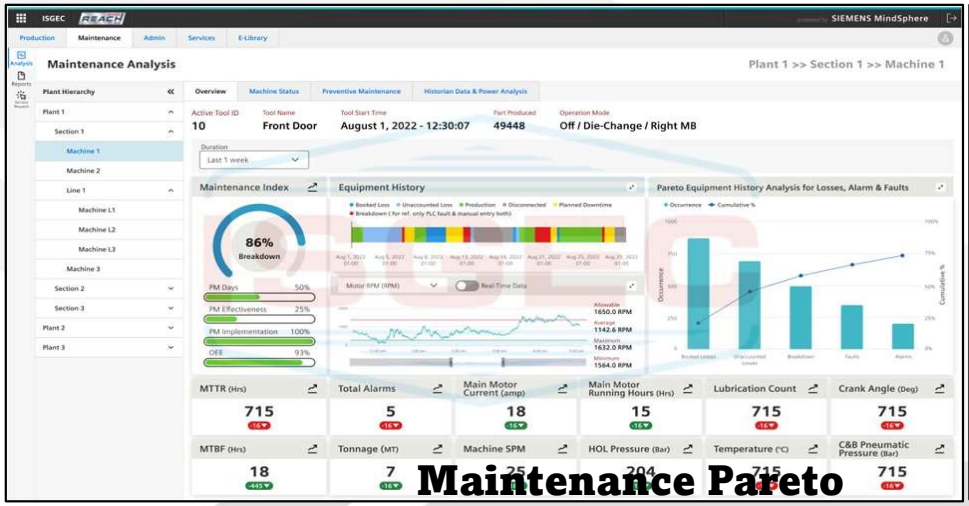
Apart from monitoring the standard maintenance KPI of MTBF, MTTR and preventive maintenance compliance, Industry 4.0 can use power of AI/ML, which give feedback on machine mechanical wear and tear.

Industry 4.0 platform can also help user to predict major failures in advance and change breakdown to planned downtime if AI/ML is used effectively.

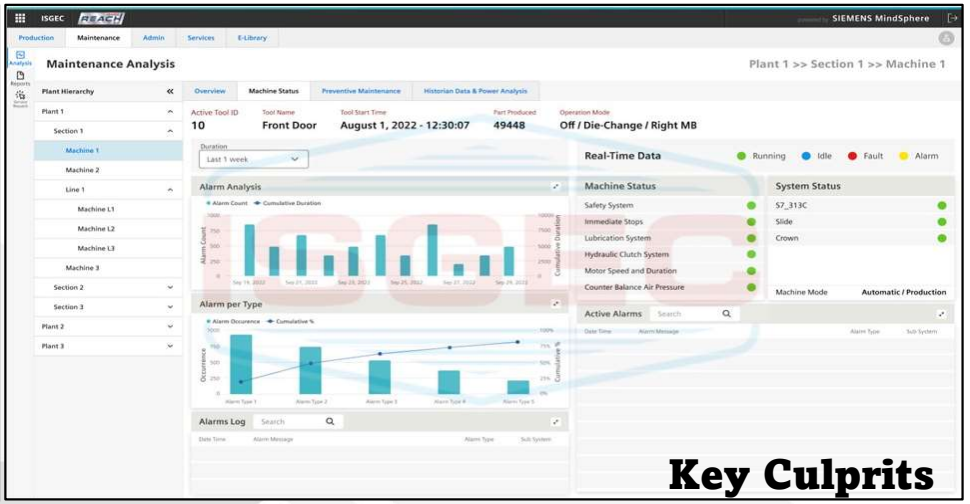
Industry 4.0

ISGEC HEAVY ENGINEERING LTD.

Maintenance Module : KPI & KRA Monitoring @ Plant, Section, Line & Machine Level

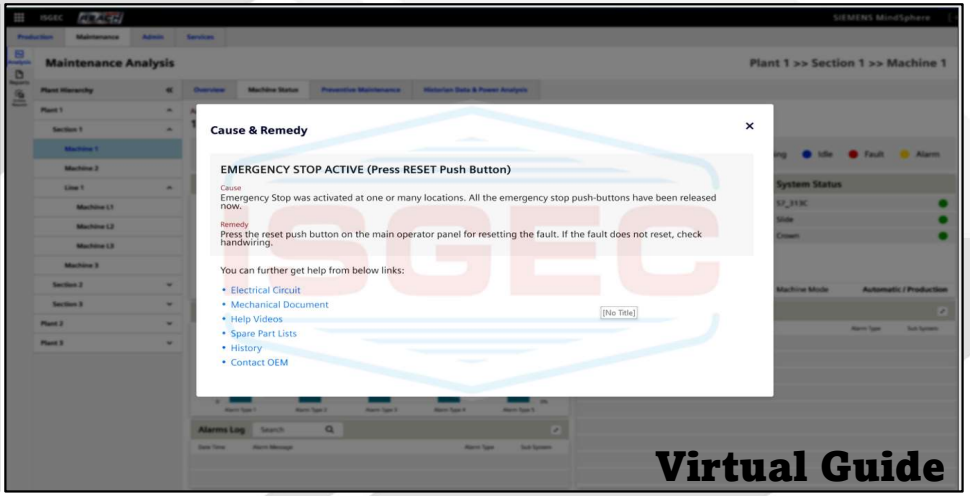


Maintenance Pareto Analysis



Key Culprits

Deep Diving



Virtual Guide

Industry 4.0

ISGEC
ISGEC Heavy Engineering Ltd.

Maintenance Module : e-Library for Fault Diagnostics & Press Data PDF, JPG,MP4 Formats

Help Documents & Videos

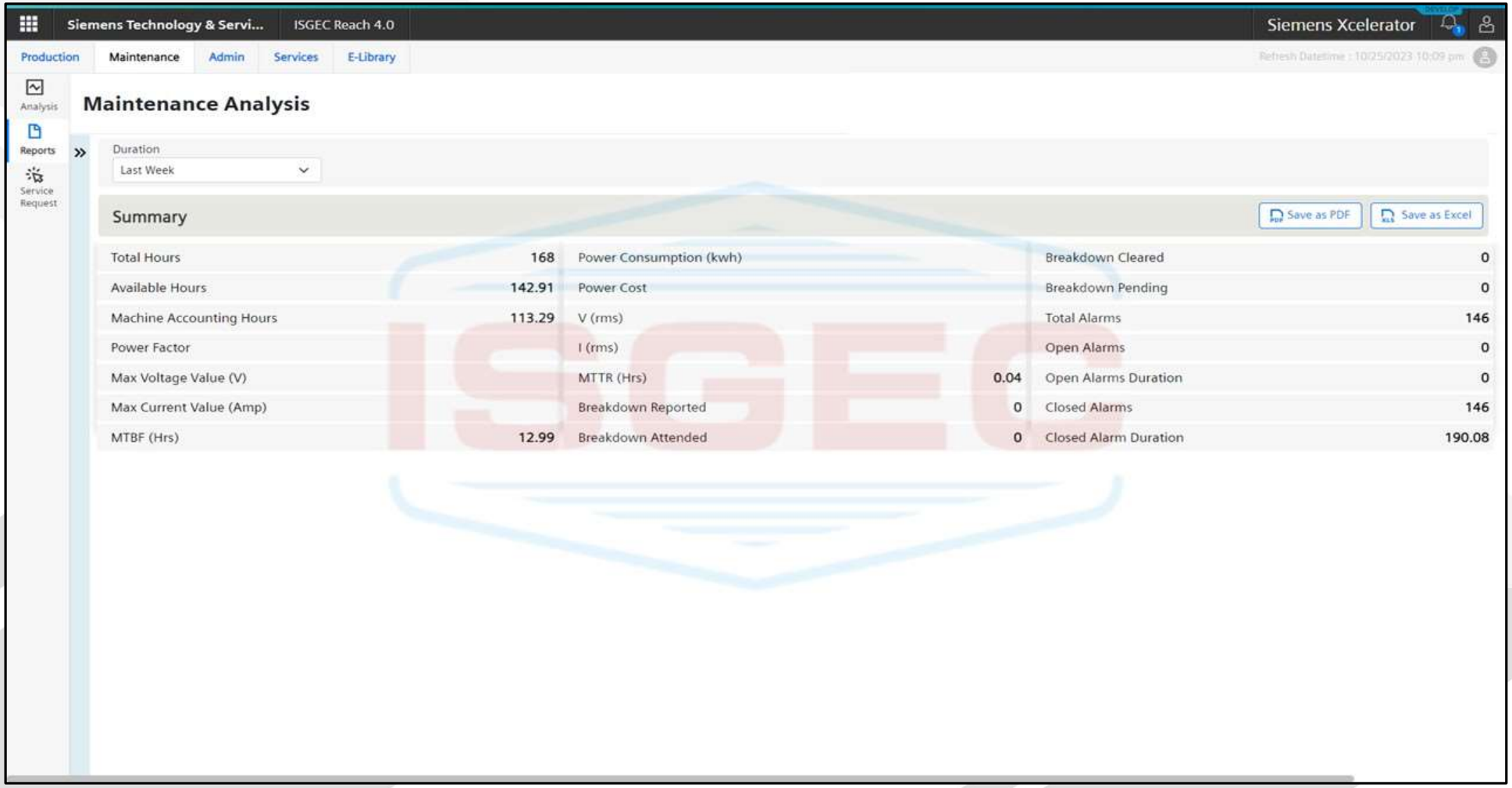
Upload Your Required Data

Machine Drawing

Help Videos

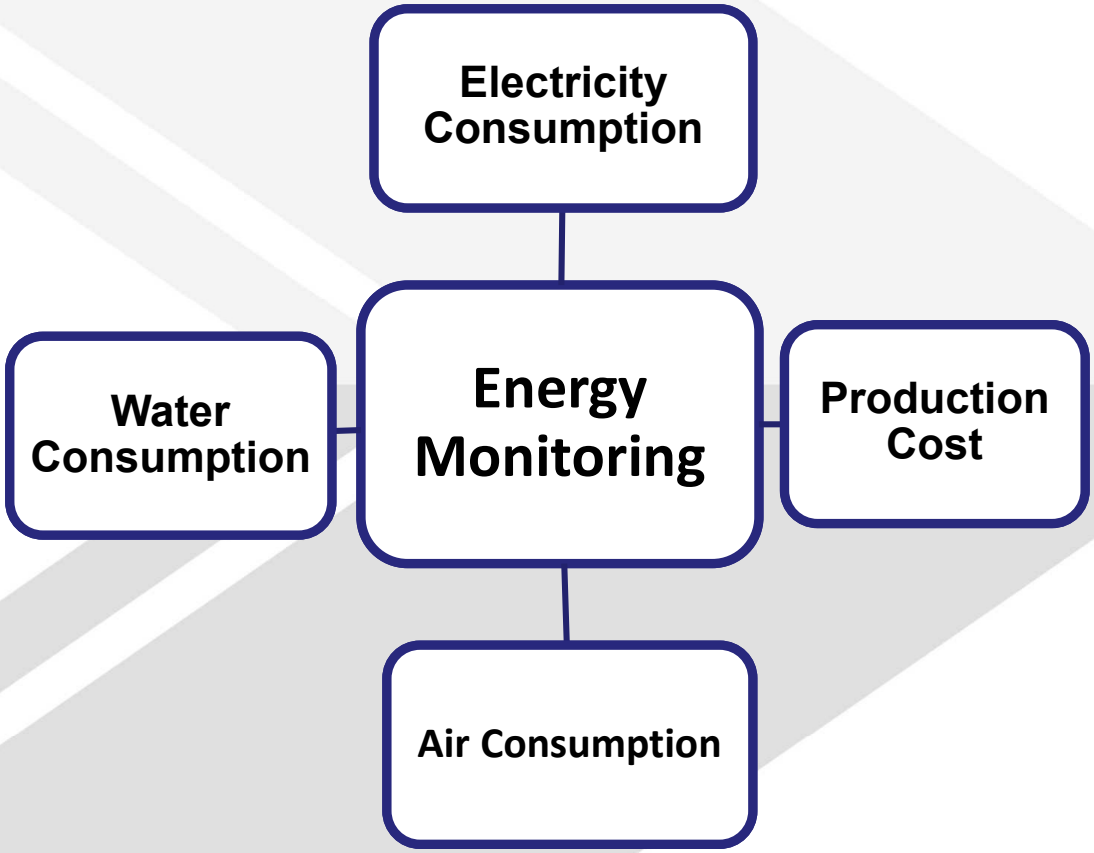
ISGEC
ISGEC Heavy Engineering Ltd.

Maintenance Module : Report Summary (Downloadable to PDF & EXCEL Format)



ISGEC
ISGEC HEAVY ENGINEERING LTD.

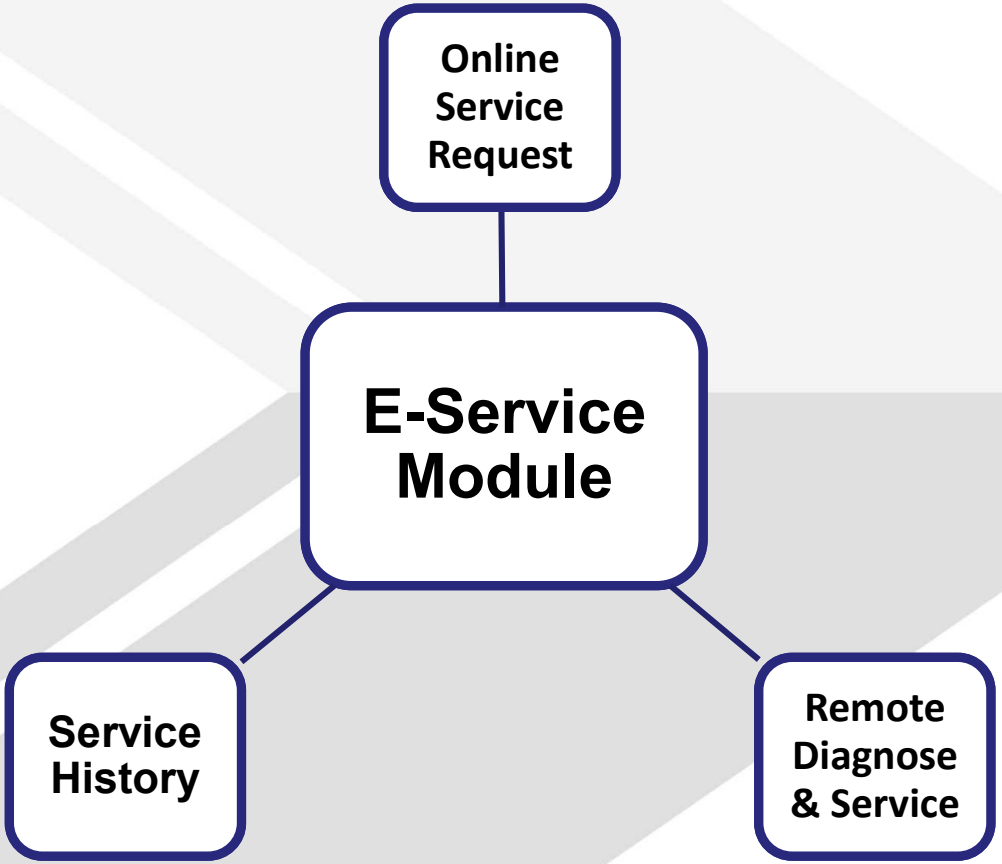
Energy Monitoring Module



Energy is always a key parameter to calculate the production cost. Isgec REACH 4.0 platform can integrate the Energy meter, Air Flow Meter and Water flow meter In this module and provide detailed analysis on energy cost.

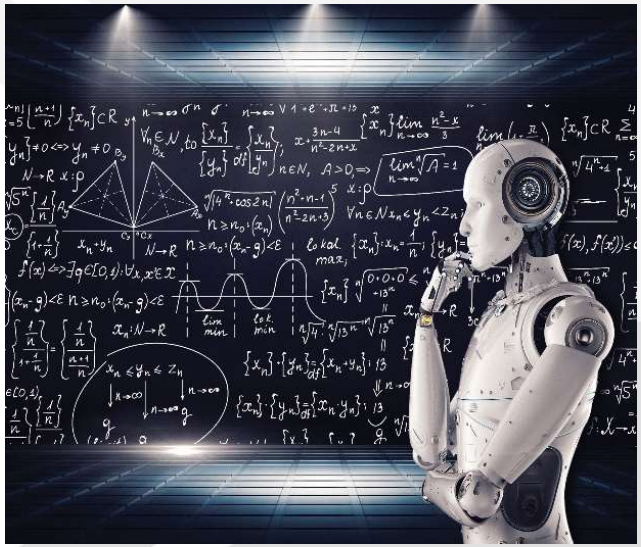
ISGEC
ISGEC Heavy Engineering Ltd.

E- Service Module



Online Service Module provide end user facility to raise and track any complaint online. It also provide the user added functionality of Remote diagnosis. It helps to keep track of machine history.

Isgec REACH 4.0



Digitalization of press shop is need of hour. Digitalization of Press Shop allows not only large automobile manufacturers but also medium-sized suppliers to improve productivity with better quality. In this way they gain the necessary competitive edge.

ISGEC is bringing **Metal Forming Technology** on the digital platform. Our solution **Isgec REACH 4.0** enables machine to acquire machine's operating and process parameters on real time basis. Isgec's analytical engine process this data and provide useful information to user in form of Productivity and maintenance dashboards, Reports and triggers.

Case Study

How Industry 4.0 helps Manufacturers and Users

- Major failure in one of Isgec Press
- Machine recorded history trail of press helped us to find out and reach to a consensus that it was not a sudden failure, and it could have been avoided.

Concluding Note

Industry 4.0 have immense possibility to improve the productivity and Machine uptime. Proper AI based solution can predict failures and can even advise for process improvement.

It is a long journey and require lot of knowledge to be embedded into system.

ISGEC
ISGEC HEAVY ENGINEERING LTD.

FEEL THE
FUTURE

ISGEC REACH™
Remote Enabled Access & Cloud Hub 4.0

Wide Range of Presses

Servo Presses • Transfer Presses • Progressive Presses • High Speed Presses • Hot Stamping & Hot Forming Hydraulic Presses
Standard Straight Sided Mechanical & Hydraulic Presses • Blanking Lines • Tandem Press Lines – Mechanical & Hydraulic
Cold Forging Presses • Tryout & Die Spotting Presses • Gap Frame & Ring Frame Power Presses • Special Purpose Presses

ISGEC PRESSES India

EAGLE PRESSES Canada

www.isgec.com

Sales Office & Plant : **Isgec Heavy Engineering Ltd.**
Yamunanagar – 135 001 (Haryana) India
Tel.: +91-1732-66 11 18, 66 11 14
E-mail: presses@isgec.com

Bawal - 123 501 (Haryana) India
Tel.: +91-1284-302160
E-mail: smpbawal@isgec.com

Eagle Press & Equipment Co. Ltd.
Windsor (Ontario) Canada

Regional Offices : Noida • Mumbai • Chennai • Kolkata • Ahmedabad • Bengaluru

Overseas Offices : Ontario, Canada • Jakarta, Indonesia

Corporate Office : Isgec Heavy Engineering Ltd.
A-4, Sector 24, Noida - 201 301 (U.P.) India
Tel.: +91-120-408 50 01 / 02

Sales Representatives : Brazil • China • France • Hungary • Indonesia • Italy • Malaysia
Mexico • Russia • South Africa • Spain • Thailand • Turkey • USA
Japan • Vietnam • Germany

W/MBD/Reach 4.0/0519/02/Dtp

Thank You

ISGEC Heavy Engineering Ltd.
Yamunanagar -135001 (Haryana) India
Tel.: +91-1732-661140/661043
Email: presses@isgec.com

www.isgec.com