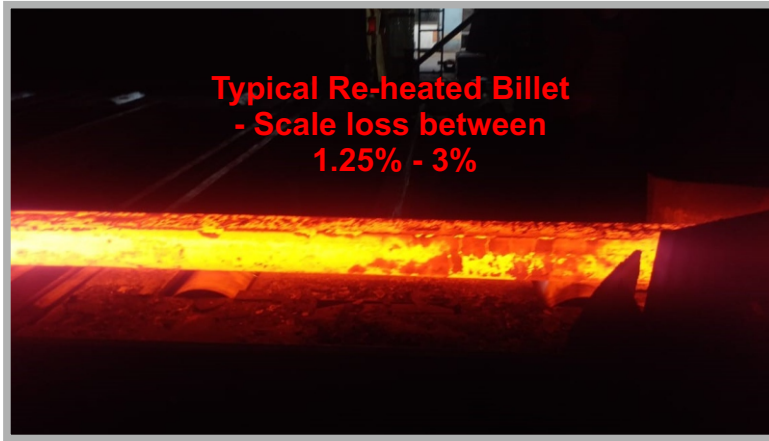
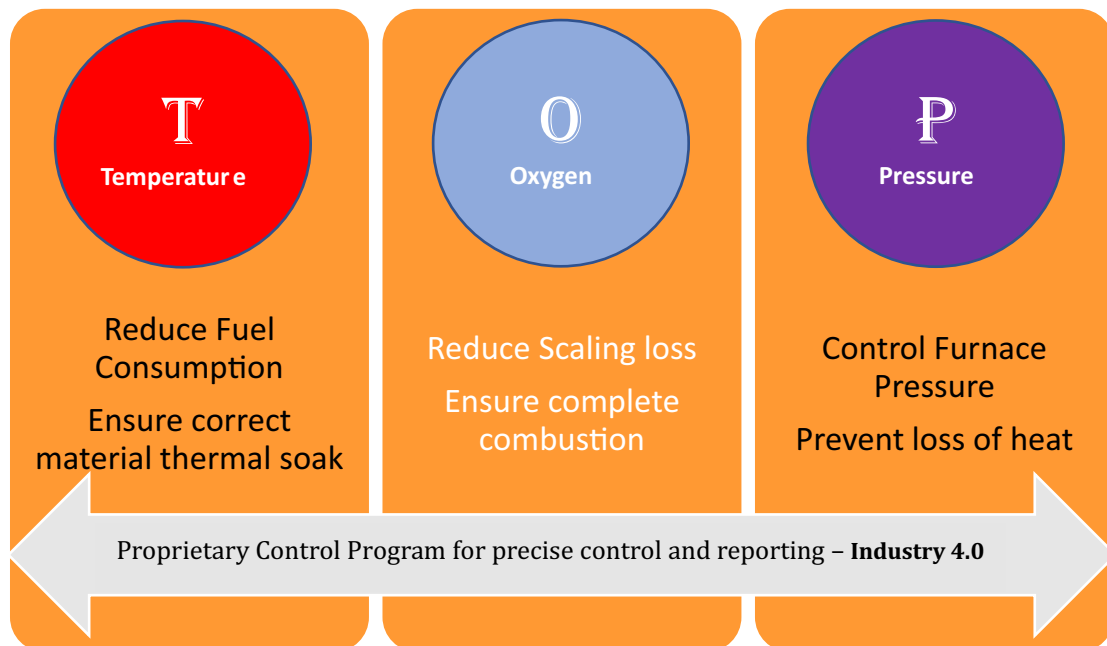




Industry Concerns – High Fuel consumption and Scale formation



Fykays TOPS for Reduced Fuel Consumption and Scale Formation: PLC /SCADA based control of Temperature, Oxygen and Pressure



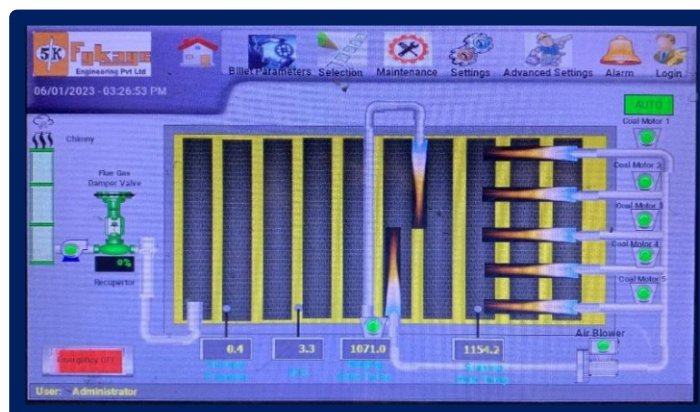
**TOPs Intelligent PLC /SCADA System improves operational efficiency
and generates business analytics as per industry 4.0 standards**



TOPS From Fykays Engineering Private Limited – A Snapshot

Recognizing an industry need to control fuel consumption, formation of scale, reducing wastage of electricity, and improving productivity, Fykays has launched Combustion Control systems specially designed to meet the operating requirements of steel Re-heating furnaces.

- ✓ Reduce scale loss by as much as 1.5%
- ✓ Reduces fuel consumption by as much as 50% (Verified figure - testified by existing customers)
- ✓ Works with all kinds of fuel - liquid (FO, Diesel, LSHS, etc) solid (pulverise coal, coal gasifier) and gas (CNG, PNG, LPG)
- ✓ Works with all kinds of furnaces: Pusher, Walking beam, Rotary hearth, Soaking pits, Bogie hearth, Pit type - you name it, we've done it!
- ✓ Proven solution: installed in various forms at over 100 locations across the country.
- ✓ Controls all the 3 aspects of combustion control namely - Temperature, Oxygen and Pressure.
- ✓ SCADA / PLC based solutions- and can be integrated into existing SCADA / PLC Systems
- ✓ Includes meaningful reporting with production planning functionality
- ✓ Ability to control heat and air - Zone wise and per grade and size of feed material.
- ✓ Robust system architecture - lasts for years without issues
- ✓ Requires minimal maintenance.
- ✓ **Usually has a payback period of less than 45 days**



Easy to use HMI! Even the Fireman can use it!



PUNJAB GENERAL INDUSTRIES PRIVATE LIMITED

(An ISO 9001 : 2015 & IATF 16949 Certified Company)

Mfrs. of : CONCAST BILLETS, FORGING INGOTS, STEEL CASTINGS,
ROLLED PRODUCTS, FISH PLATE BARS & FISH PLATES IN CARBON & ALLOY STEEL GRADES



To
Ms. Kripa Kandade
Managing Director
Fykays Engineering Pvt Ltd
Nerul, Navi Mumbai

Date: 30th November 2022

Subject: Fykays TOPS – excess Air Control System installed in our Billet reheating furnace

Dear Madam

As you are aware, we have a 10 tph gas-fired, billet reheating furnace in which we reheat Carbon steel and Alloy steel billets for various rolling requirements. We were concerned about the high level of scale formation that we were experiencing during reheating process.

In June 2021 we purchased and installed the Fykays Oxygen-in-Flue gas analyzer along with the combustion air control system – Fykays OxyComp G-II.

We are very happy with the results as:

- i. The system is accurate in measurement and controls the excess air in our furnace within the 1.5% - 2.5% range
- ii. The combustion motor power consumption has gone down by over 20%
- iii. Formation of scale in the reheating furnace has been greatly reduced – from 2.50% to 1.50%.
- iv. The system is robust and barely needs any maintenance
- v. We have not had to incur expenditure on procuring replacements and the system is working as is since installation.
- vi. Fykays team is responsive, and we had absolutely no problems during installation.

Page 1 of 2

Works & Office : Plot No. 149-150, Sector-24, Faridabad - 121005 (Haryana)
Ph.: +91-129-4199222, Fax : +91-8860632888, E-mail : info@pgiindia.com Web : www.pgiindia.com
Regd. Office : Z-87, Loha Mandi, Naraina, New Delhi-110028
CIN : U27109DL1999PTC098259, GST - 06AABCP4823A1ZZ



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We are in the process of procuring the temperature and pressure control aspects from you and are looking forward to further reducing our scale formation in addition to reducing fuel consumption in the reheating furnace.

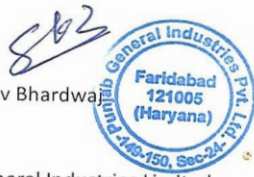
All in all, we are happy to recommend the system to other owners of steel reheating furnaces and wish team Fykays all the best as they continue to add value to reheating furnace operations.

Regards

Mr. Sanjeev Bhardwa

QA- Head

Punjab General Industries Limited



Page 2 of 2

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OMSAIRAM STEELS & ALLOYS PVT. LTD.

Regd. Office / Works : F1, 2, 3, 8, 9, 10, D-53/1 Gut No. 46 & 63, Phase II,
Addl. M.I.D.C. Jalna - 431 203 Ph : (02482) 220323 Tele / Fax : 221123
Email : umaqst500@gmail.com, omsairam.steel@rediffmail.com
www.umasteel.com CIN NO. U27100 MH 2003 PTC 141764 DT. 14/08/2003



To
Ms. Kripa Kandade
Managing Director
Fykays Engineering Pvt Ltd
Navi Mumbai, Maharashtra

20th December 2022

Subject: Performance of Fykays TOPS Combustion Control System in our re-heating furnace

Dear Madam,

As you are aware, we have a coal fired, 30 TPH steel billet re-heating furnace in which we reheat billets before rolling TMT. We have a parallel process – where we roll billets from the continuous caster as well as from the reheating furnace.

We were facing multiple problems – like black smoke coming out near the charging door, high level of fuel consumption, and scale loss.

Once your system was delivered and the installation completed, we were happy with the results – coal consumption was down to approximately 60Kgs / tonne and scale formation was also considerably reduced. The black smoke has also been considerably reduced.

We were very happy with the effort your team put in during the installation to customize the system to suit our requirements – and we only had 2 days of shut down due to your system installation.

We find your team supportive and quick to respond if any technical queries arise.

I am happy with the system you supplied and recommend your combustion control system to other steel plant owners.

Best regards

Nilesh Bharukha
(Director)



Om Sairam Steels & Alloys Pvt Ltd





30th December 2022

To

Ms. Kripa Kandade
Managing Director
Fykays Engineering Pvt Ltd

Subject: Letter of Recommendation for FYKAYS TOPS

Dear Madam,

We are happy to have worked with Fykays Engineering Pvt Ltd – as our furnace consultants and as providers of a combustion control system for our Oil-Fired Steel reheating furnace at Ghana.

Our experience of working with your Company:

1. You had made a commitment of 15% - 20% reduction in fuel consumption before we started on this project.
2. After implementing all the recommendations in your consulting report AND installing your Fykays TOPS – online, automated combustion control system, we are happy that the reduction in fuel consumption exceeded your commitment.
3. Our scale formation has been reduced by 0.5% (from 0.8%).
4. Your team was well qualified to handle the tasks at hand and we did not face any problems during installation.

The support and coordination of Fykays team is appreciable which helped in the completion of project at a faster pace.

We wish you all success in the times ahead – and look forward to possibly installing your system at all our group plants.

Best wishes,



For Star Steels Limited

Star Steels Limited
Miotso-Prampram Road
PO Box PP 16 (Prampram), Ghana
+233 202055255 | www.starsteels.com

Page 1 of 1



Customer Satisfaction Report
Tops for Rolling Mill Reheating Furnace

Date : 17.12.2020

Client Name : SRJ Peety Steels Pvt. Ltd. Jalna.

Product : Fykays TOPs – Online Automated Control of Temperature and Excess Air

Name of Person Filling in this report : Ashok Jatti

Designation : Email Address : shreemsteels@gmail.com

Operating details :

Materials being rolled : TMT Bars

Tonnes Per Day Being reheated : 20 MT per Hr.

Furnace Type : Pusher Type

No. of Zones in furnace : 3 Zones

Fuel Used : Pulverized Coal

Hours of re-heating per day : 24 Hrs

Fykays System Details

Month and Year of Purchase of Fykays System :

1. System for Monitoring and control of excess Air – 2016
2. System for continuous monitoring and control of temperature (Two Zone Control) – May 2019

Savings / Benefits due to Fykays System :

1. Reduction in Scale Formation / Percentage of Scale formation after system : 0.47 kg
2. Fuel Consumption / ton of Steel Reheated : 55 – 62 kgs/ ton
3. Reduction in Power consumption : Yes
4. Increase in life of Roughing stand : Yes
5. Increase in Hearth Life : Yes
6. Reduction in Mill BreakDowns : Yes
7. Service providing : Excellent.

Installation Details :

Did you have to take a shut Down for the installation : (if yes, for how long) : Not taken any shutdown.

Duration of Installation : 2 days

Remarks about Installation : Satisfactory.

Would you recommend Fykays System to Other Companies ? : Yes

Why : Because Fykays system is cost effective in production.

Any Other Remarks / Recommendations : Its good system to reduce the production cost.

For SRJ Peety Steels Pvt. Ltd.

Ashok Jatti



SRJ PEETY STEELS PVT. LTD.

Aurangabad Office: Plot No. 71/72, Gandhi Nagar,
Bansilal Nagar Station Road, Aurangabad - 431005.
T: 02402364281 | M: 9890048645
E: nitin@shreemsteels.com

Factory: D-51/1, Additional MIDC,
Jalna - 431203, India
T: +91 02482 221221
E: info@shreemsteels.com

Pune office: # 14, Dorabjee Enclave, Salunke Vihar,
Road, Kondhwa, Pune - 411048.
M: 9822148104
E: marketing@shreemsteels.com



SAHANU SPONGE AND POWER PVT LIMITED

Factory Add: - Plot No. 122-127, Bicholim Industrial Estate, Bicholim – Goa, 403 529

Email: sahanusales@gmail.com

Date: 10th January 2020

To

Fykays Engineering Private Limited

D-222/17, MIDC – Shiravane,

Nerul, Navi Mumbai – 400706

Kind Attention: Ms. Kripa Sagar - Managing Director

Dear Madam,

As you are aware, we have a reheating furnace fired by pulverized coal in which we heat ingots and billets for rolling TMT Bars.

We purchased from your company – M/s Fykays Engineering Pvt Ltd - your Integrated Online Automated Excess Air control and Two Zone Temperature control system for our reheating furnace.

The system has been working without any problems since installation in September 2019. The installation was well executed by your team with the help of our team in 3 days - without us taking a shutdown.

We would like to commend your team for the thorough training given to our staff on the working and maintenance of the system. We appreciate the logbooks that you have given us - they help us keep track of maintenance of this system.

The specific benefits of your system to us are:

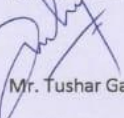
- Reduction in scale formation- 0.5%.
- Reduction in coal consumption - 20kgs per ton rolled.
- Control of CO in the flue gas due to better combustion.

We are now actively considering going for your Pressure control system as well.

We wish you all the best and are happy to recommend your system to other companies.

Regards,

For Sahanu Sponge and Iron Pvt Ltd


Mr. Tushar Garg
Director

Ph: +91-832-2431148, Fax : +91-832-2431142, E-mail: tmtjindal@gmail.com, Website: www.jindaltmt.com



INDUS TMT INDUSTRIES LTD.

MANUFACTURERS OF : TMT BARS

CIN NO.: U27104KA2005PLC036259

TO WHOM IT MAY CONCERN

This is to certify that we purchased, more than an year back, an Oxygen control system for our 20 MT/Hr rolling mill reheating furnace using pulverized coal from M/s Fykays Engineering Pvt Ltd, Mumbai.

The system was ably and efficiently installed and commissioned by their Technical team with NIL disturbance to our operations.

From the very first hour of operation the system has performed wonderfully in terms of reducing the scaling by almost 0.75% and coal consumption by 5- 7 Kg / MT and electricity consumption of the blower motor by almost 30%.

The system concept does away with the conventional practice of using air: fuel ratio controller etc. as it directly monitors the residual free Oxygen and limits the same to a small range resulting in the benefits.

Encouraged by the wonderful performance, we purchased from them an automatic Furnace temperature Control system which has enabled us to regulate the temperatures of the "Soaking" and the "Heating" zones of the furnace to rock steady values, using VFD drives for the coal powder feeders. The temperature control system has further reduced the coal consumption.

Being happy with their system conceptualization and performance, we are now commissioning M/s Fykays Engineering Pvt Ltd to supply and install a Furnace Pressure Control system so that our furnace may become fully automatic and even more efficient.

We unhesitatingly recommend M/s Fykays Engineering Pvt Ltd and their systems to anyone interested in operational economy.

For Indus TMT Industries Ltd.,


G.T. Naik
Works Manager

Works : Kappakkal Road, Uliveeranapalli Village, Thally Road, Hosur - 635 114, Krishnagiri Dist., Tamil Nadu (India)
Tel : +91 - 4347 233255, 233256, E-mail : industmtltd@gmail.com



About TOPS FROM FYKAYS ENGINEERING PVT LTD.

THE CURRENT SCENARIO:

India is expected to produce above 300 Million Tons by the year 2030. This entire production is by means of rolling and forging industry. India is the FIFTH largest steel producer in the World. It is disappointing to note that operations in India are NEITHER energy efficient NOR conducive to minimizing scale losses. A glance at the table below will show how far away India is from the World Standards:

<u>Factor</u>	<u>World figures</u>	<u>Indian Figures</u>
Fuel consumption / tonne	25 – 28 L / Tonne	45 - 55 L / tonne
Scale losses	0.2 – 0.5 %	1.5 – 3.5 %

With even a conservative low figure of 1.5 %, India is losing annually a mind boggling 4.5 MILLION TONS OF STEEL IN THE FORM OF SCALE LOSSES and further OVER CONSUMING 1500 MILLION LITRES OF FURNACE OIL.

At Fykays, we have, due to our deep understanding and vast experience of the Metallurgical industry and of the issues and problems faced within, developed a system that helps address the burning issues of excessive fuel consumption and scale loss.

FYKAYS – TEMPERATURE, OXYGEN AND PRESSURE SYSTEM (TOPs)

TOPs from Fykays, is a System developed to monitor and control Temperature, Oxygen and Pressure in re-heating furnaces for dramatic reduction in fuel consumption and losses caused by scaling. Fykays TOPs can reduce fuel consumption by as much as 10 litres per ton and scale loss by as much as 1%. (These are approximate figures. Actual achievement will vary depending upon size, conditions prevailing at the site, processes being adopted, etc.)

WHAT IS TOPs?

TOPs is a system that FULLY AUTOMATES monitoring and control of Furnace temperature, excess oxygen in the flue gas and furnace pressure to realize hitherto considered impossible achievements.

TOPs - 3 Pronged approach for complete combustion control:

1. **Temperature:** Strategically placed, high accuracy thermocouples ensure automated Multi zone Temperature monitoring and control. This is the primary loop, sensing temperature and regulating fuel delivery to the furnace.
One of the noteworthy features of the temperature loop is the special facility provided for manual intervention – on occurrence of a mill breakdown, the furnace temperature can be turned down to pre-determined levels simply at the flip of a switch.
Specially designed loops for different kinds of fuels. **Benefits: Reduced Fuel Consumption** - Only as much fuel as is needed is pushed into the furnace, and all of it is burnt.



2. **Oxygen measurement and control:** This is done by a highly sensitive sensor positioned at the furnace exhaust. This Oxygen sensor is designed and developed in India and built for Indian operating Conditions. The signal from the probe is fed to a precise oxygen controller. This in turn either controls the Air Blower motor so that it sends only as much air as required OR injects a trim signal to vary the air: fuel ratio built into an existing temperature control loop. **Benefits: Reduced Scaling**
3. **Pressure control** is an independent loop and is achieved by precise furnace pressure sensing and the controller actuating the furnace damper to maintain a slightly positive pressure in the furnace. The actuation can be either electrical or pneumatic. **Benefits: Reduced Fuel consumption and Scale formation** – ingress of cold air into the furnace is limited.
4. **Intelligent programmed System:** Our system will capture operating data and generate informative analytical reports. Additionally, it has features like:
 - ✓ **Production planning and factoring for billet sizes and grades**
 - ✓ **Recuperator health check module**
 - ✓ **Factoring for operating Modes**
 - ✓ **Data Collection and reporting as per Industry 4.0 standards**
 - ✓ **Enforcing Maintenance**
 - ✓ **Special programs for SS, MS and Alloy Steels**

WHAT DOES TOPS MEAN TO YOU?

1. **Savings-** This is something that cannot be overstated. A one-time investment will ensure savings year after year to the tune of crores of rupees. Depending on the size of the furnace and the tonnage of steel rolled, it can be appreciated that the payback period can be as low as a few weeks to a maximum of a couple months EVEN IF THE COMPOSITE PACKAGE IS installed at one go.
2. **Correct thermal soak increasing output and reducing misrolls**
3. **Dramatically reduced surface de-carburization**, thereby enabling you to assure the quality of your products.
4. **Automation:** Reduced dependence on fireman for changing set points of temperature and excess air per grade and size of billet
5. **Meaningful correlation of data for analytics:** Fykays TOPs generates reports like energy, fuel consumption, breakdowns, misrolls, output and combustion parameters per grade / size / shift.

WHY BUY Fykays TOPS?

1. **Custom Built Solutions:** A Control System is MUCH more than a collection of Hardware. Our systems are custom designed and built taking into consideration the customer's furnace design, operations, pressure, and various other factors. We understand that every furnace is different.
2. **Experienced and qualified team:** The Fykays instrumentation and design team comprises a set of highly qualified, dedicated and experienced people. Team members will visit your plant, understand your specific needs and tailor the system to suit your specific requirements. We can also provide the services of a panel of furnace specialists who can advise corrections in the existing set up and wherever possible supervision too.



3. **Evolved training and handover process:** The equipment is extremely simple to use and operate and is very well within the purview of good electrical and mechanical engineers. We offer to train such personnel at our works before dispatch of the equipment and involve them during erection and commissioning, so that they get hands-on experience to be qualified to operate and maintain the system.

To Summarize, TOPS from Fykays is a system that is a “MUST-HAVE” for every rolling mill / forging furnace in our country. The short cost recovery period, low maintenance costs, and Fykays' experience and understanding of the dynamics of the metallurgical industry and back up make TOPS a necessity for a progressive organization.

For questions or additional information, please email
systems@fykays.com