

Regenerative burners for Aluminum holding furnace

Indonesia JCM Model Project

July 12, 2017

TOYOTSU MACHINERY CORPORATION

1. Company Profile



Be the **Right ONE**

Head Office: Symphony Toyota Bldg,
4-11-7 Meieki Nakamura-ku, Nagoya, aichi, 450-0002 Japan

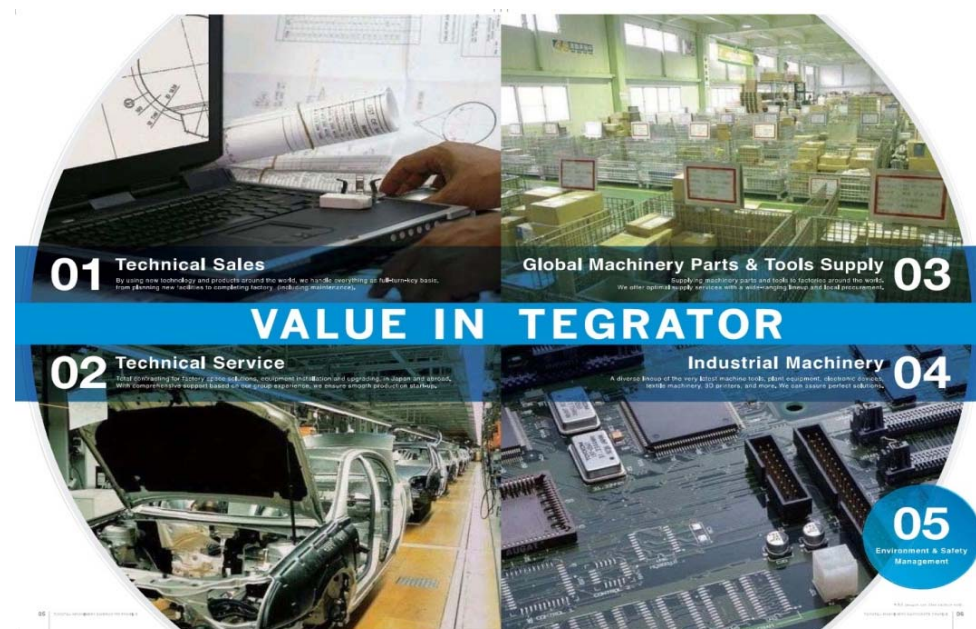
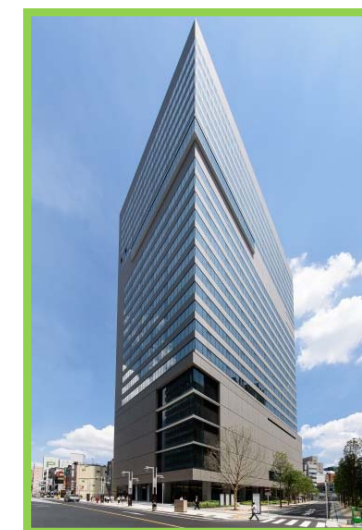
Establishment: February 23 1978

Capital: JPY 325,000,000

Gross sales: JPY 174,860 million

Employees: 705 people (as of Apr, 2017)

Share holder: TOYOTA TSUSHO CORP.



Company Base
Japan 17



Company Base
Oversea 9



TOYOTSU MACHINERY CORPORATION

2. JCM Project Summary



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Counterpart	PT.Yamaha Motor Parts Manufacturing Indonesia PT.Toyota Tsusho Indonesia
Project Site	Kawasan Industri KIIC, West Java
Technology	High efficiency Regenerative burner
Supervisor	Hokuriku Techno co., ltd , PT.Hokuriku Techno indonesia
Local manufacturer	PT.Matahari Wasiso Tama

Project Site

PT. YPMI PLANT

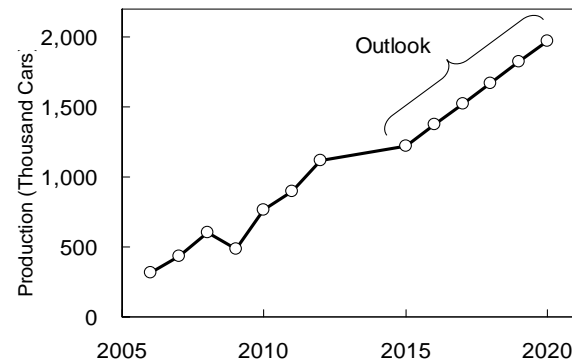


3. Needs & Regenerative burner

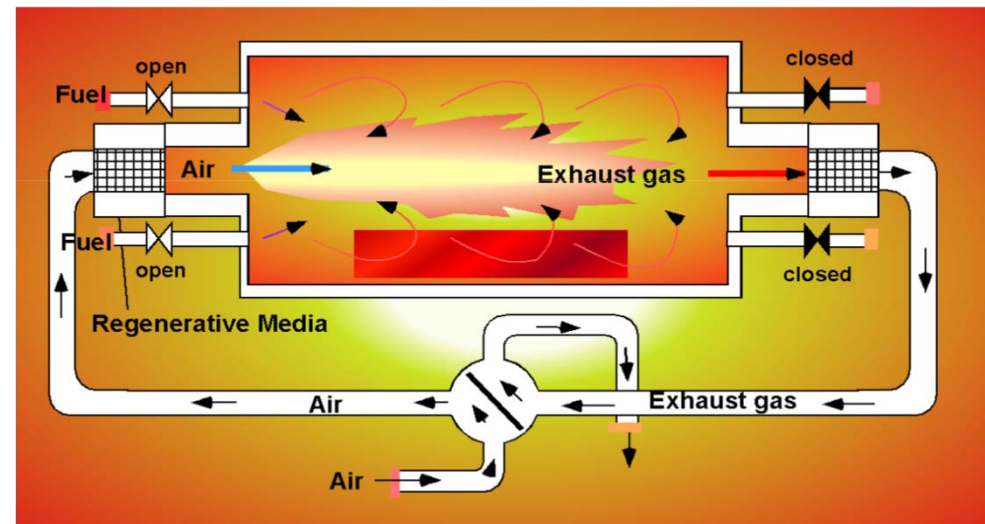


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Increasing of Aluminum casting demand with energy reduction



Automotive production outlook



High efficiency **Regenerative burner** will reduce energy consumption



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4-1. Crucible Holding Furnace



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Crucible holding furnace with Regenerative burner will achieve fuel reduction (over 50%)



Open top crucible can use **GBF** and **Semi solid mixer** etc., and supply high quality molten metal for casting

with compact **self** type regenerative burner

Crucible self regenerative burner



Type: CRU-10

Installation photo

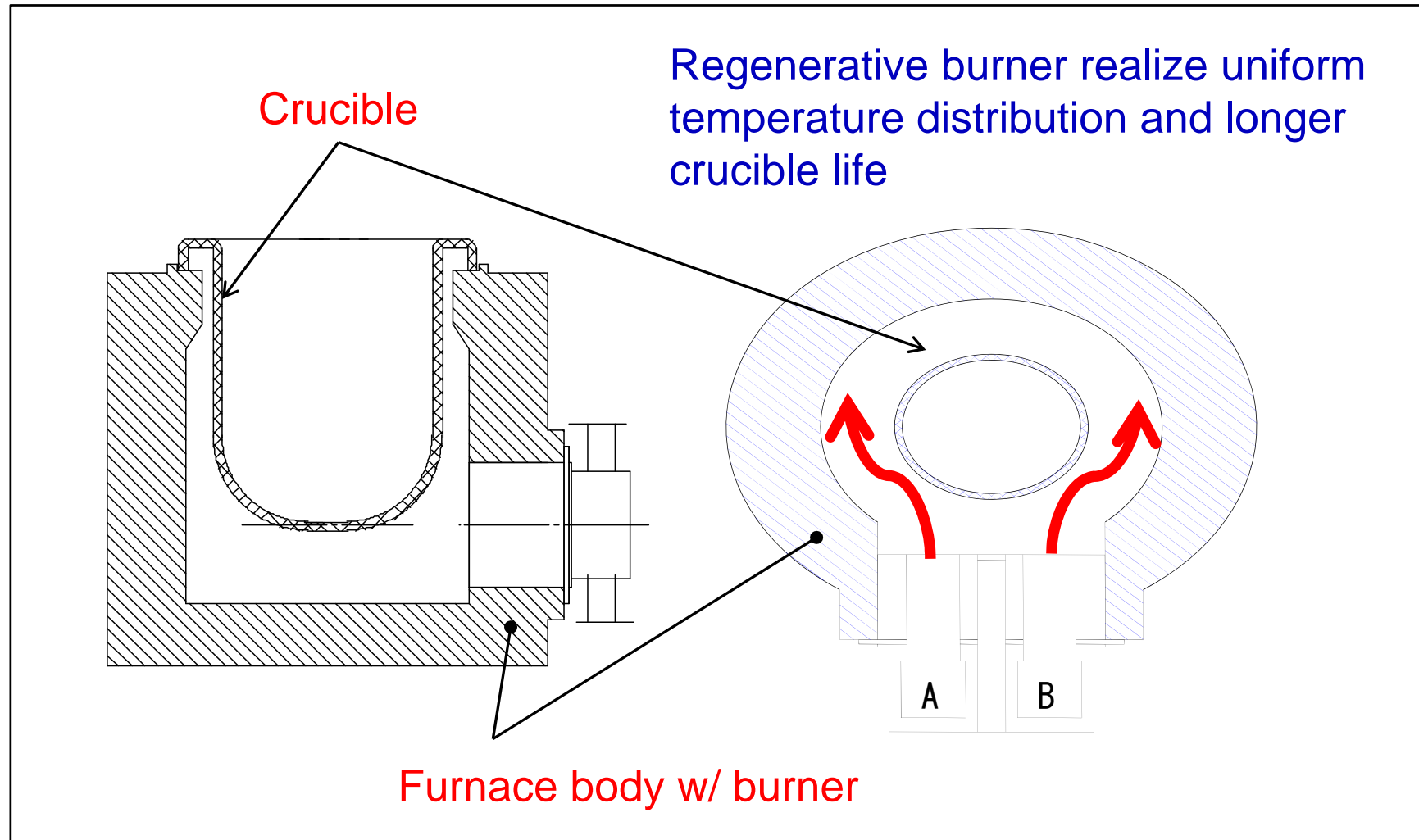


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4-2. Crucible Holding furnace



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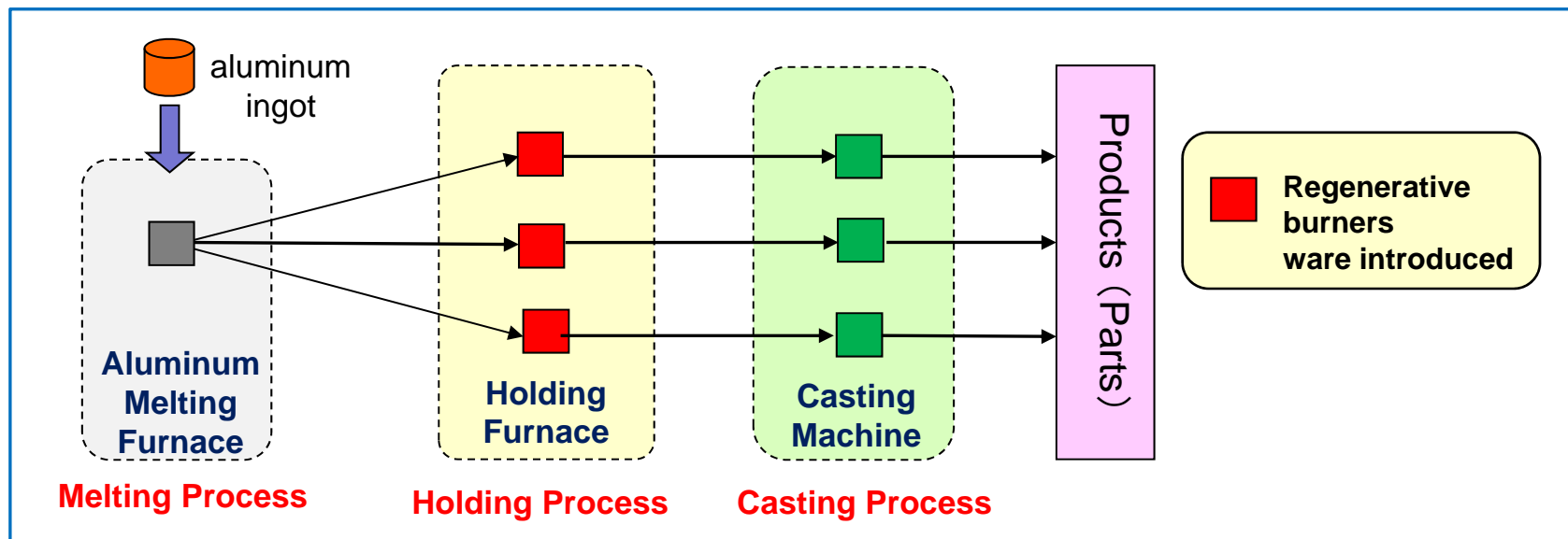


5. Eligibility Criteria



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Criterion 1	The project replaces conventional burners with regenerative burners for aluminum holding furnaces.
Criterion 2	Holding temperature of aluminum melt, which is determined in the furnace user's specification, is within the range from 600 to 800 degrees Celsius.
Criterion 3	The regenerative burners have a structure which leads all exhaust gas to flow through the heat reservoir before discharging it into the atmosphere.
Criterion 4	Periodical check is planned at least once a year.



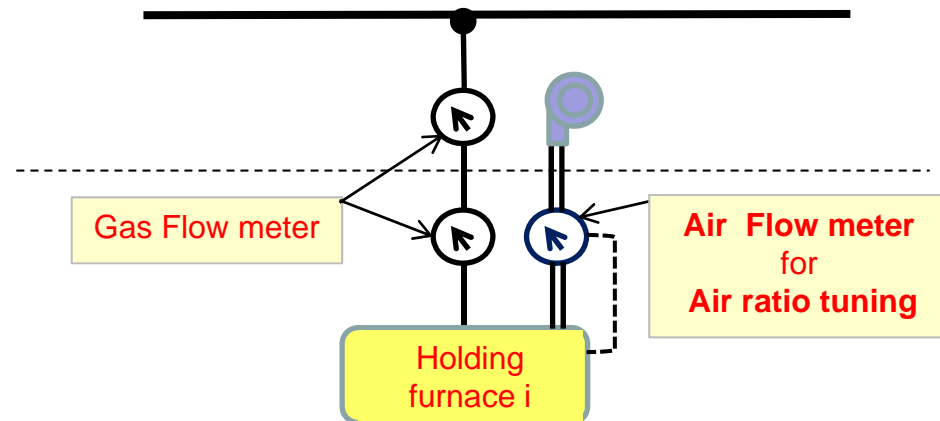
6. Monitoring & Emission Reduction



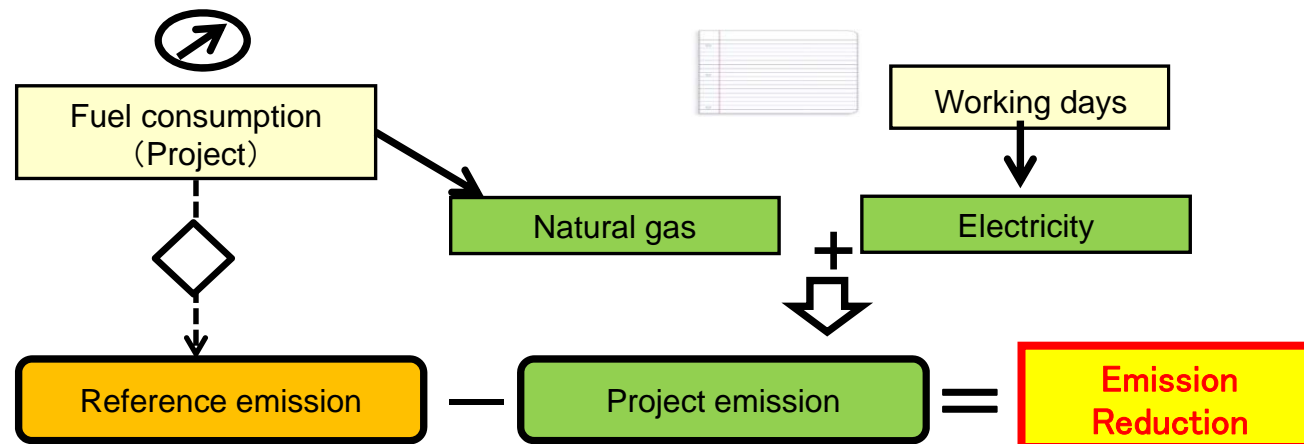
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Monitoring parameters

- Consumption of natural gas by the project furnace
- The number of operating days



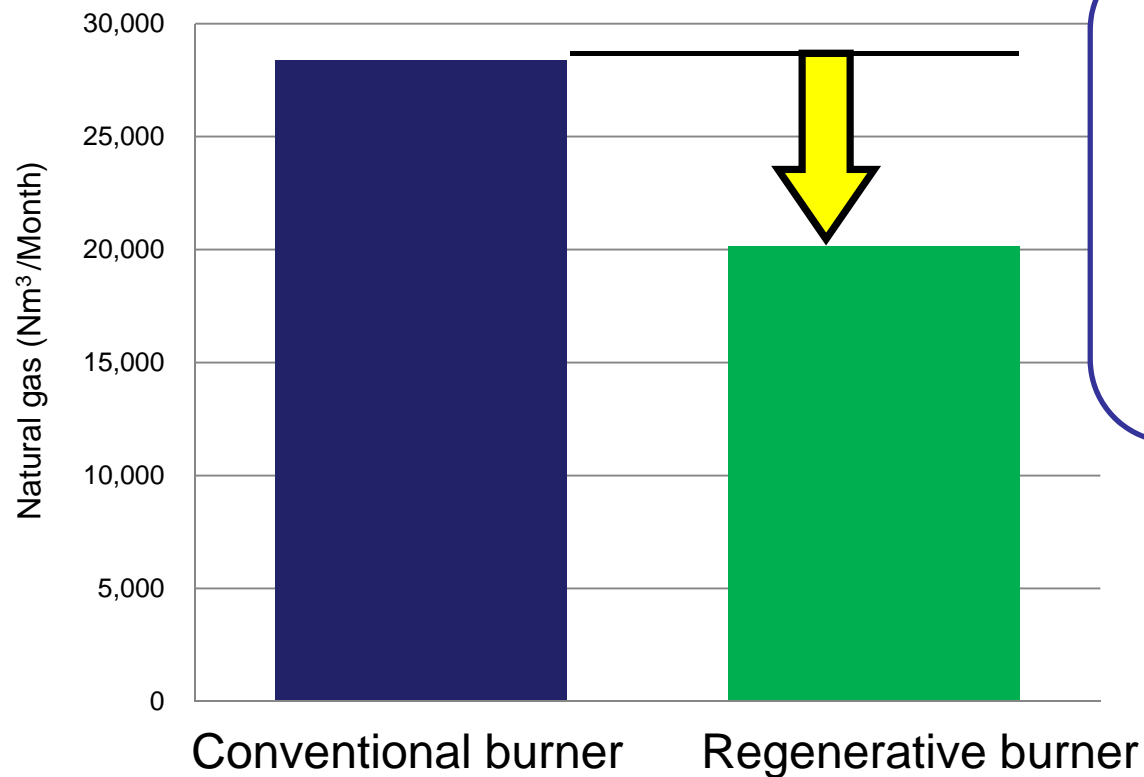
Emission Reduction



7. Fuel consumption reduction; Result



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8. GHG Emission Reduction



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$$ER_p = RE_p - PE_p$$

ER_p	Emissions reductions during the period p [tCO ₂ / p]
RE_p	Reference emissions during the period p [tCO ₂ / p]
PE_p	Project emissions during the period p [tCO ₂ / p]

11 Holding furnaces; 47 tCO₂/ p
(Jan 2016 ~ Dec 2016)

For more reduction;

- Severe Air ratio tuning
- Maintain crucible – furnace top sealing

9. Project Schedule & Project Subject



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■ Result

- Feasibility Study : 2013
- Installation : 2014 ~ 2015
- Validation1 : Mar 2016
- Public comment : Apr 2016
- Approved Methodology : Feb 10, 2017
- PDD public comment : Mar 2017

■ Plan

- Validation report : Jul ~ Aug 2017
- Project registration : Aug ~ Sep 2017

■ Widespread of Regenerative burner

1. Promotion activities in Indonesia
2. Build Maintenance and support system
3. Standardize and cost reduction of Crucible holding furnace

■ Technology replication opportunities

1. Develop the soaking furnace field for ferrous parts.

■ Contribution to sustainable development

1. Reduction of natural gas consumption.
2. Environmental preservation by reducing CO2 and NOx emissions
3. Technology transfer to a furnace manufacturer in Indonesia.
(Production and construction by Indonesian manufacturer)



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Thank you for your attention