



COAL GASIFICATION

for Gas Based DRI

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OUR OFFERINGS



GASIFICATION

- *Single Stage*
- *Double Stage*
- *Circulating Fluidized Bed*



ENGINEERED CARBON

- *Calcined Anthracite Coal*
- *Calcined Pet Coke*
- *Graphite Pet Coke*
- *Carbon black*



SCRAP PROCESSING

- *Shredders*
- *Shears*
- *Balers*



FLUE MANAGEMENT

- *Dust*
- *Sulphur oxides*
- *Nitrogen oxides*

300 + Projects

100000 + Sq. ft Manufacturing Space

40 + Engineering Team

Complete Turnkey Solutions

23 years experience

Long term partners



ABOUT US



FIXED BED DOUBLE STAGE COAL GASIFICATION

TURNKEY SOLUTION FOR THERMAL APPLICATIONS

PARTNERSHIP WITH YISHENG, CHINA

100% SUCCESS RECORD OF > 200 GASIFICATION SYSTEMS IN INDIA

> 2000 MODULES WORKING NOW ACROSS THE WORLD

EXPERIENCE IN > 40 INDUSTRIES

MORE THAN 70 % MADE IN INDIA

CAN REPLACE PROPANE, NATURAL GAS , FURNACE OIL

OUR ACHIEVEMENTS



India's First **DOUBLE STAGE CLEAN COAL GAS SYSTEM**

India's First **BONE CHINA TABLEWARE PLANT *on Coal Gas***

India's First **GRATE KILN IOF PELLET PLANT *on Coal Gas***

World's First **STRAIGHT GRATE IOF PELLET Plant *on Coal Gas***

India's First **PHENOLIC WATER REUSE SYSTEM**

India's First **CERAMIC TILE PLANT *on Coal Gas***

India's largest **REHEATING FURNACE *on Coal Gas***

OUR GASIFICATION JOURNEY



Single Stage Gasification

Hot and Dirty Gas

Output ~ 3000 Nm³/Hr

Gas ~250° C

Simple HMI Control

Double Stage Hot Gasification

Hot and Tar Removed Gas

Output ~ 5000 Nm³/Hr

Gas ~ 150° C.

Tar ~ 3 % in gas

Double Stage Cold Gasification

Cold and Clean Gas

Output ~ 8000 Nm³/Hr

Gas ~ 40° C

Tar ~ 40 mg / Nm³

SCADA Control system

Circulating Fluidised Bed Gasification

Clean Gas

Output ~ 70000 Nm³/Hr

Gas ~ 40° C.

No tar & No phenolic Water

L2 PLC Control

Future - CIRCULATING FLUIDISED BED

PARAMETER	REALITY	CFB ?
Coal	INDIAN ~ 35 % ASH + FINES	✓
Scale	OPERATING ~ 80,000 Nm ³ /hr per gasifier	✓
Capex	Low – No Proprietary Technology	✓
Pressure	Normal to High ~ 1 - 15 Bar	✓
Effluent	No Tar - No Phenolic Water	✓
Efficiency	High Carbon Conversion	✓
Indigenisation	Make in India – possible ~ 70 %	✓

Suitable to Indian 35 - 40% ash Coal

Fixed Bed

- Dry Feed
- Pressure ~ 40 bar
- Coal Size: 6-30 mm
- Difficulty effluent - Phenols, tar etc...
- Low output per m²
- Max. Ash - 20%



Entrained Bed

- Dry/Wet Slurry
- Pressure ~ 40 - 80 bar
- High Purity O₂
- Coal Size: < 0.1 mm
- High Capital Cost
- Ash Melting required as slagging layer
- Max. IM - 11.5 %
- Max. Ash - 21%



Fluidized Bed

- Dry Feed
- Pressure ~ 15 bar
(Optimum for DRI Steel Making)
- Coal Size < 5 mm
- Low Capital Cost
- No Ash Melting Required, Fluidised
- NO tar, NO Phenolics
- Good output per m²
- **Max. Ash - 43%**



CFB PROVEN TECHNOLOGY

Feed

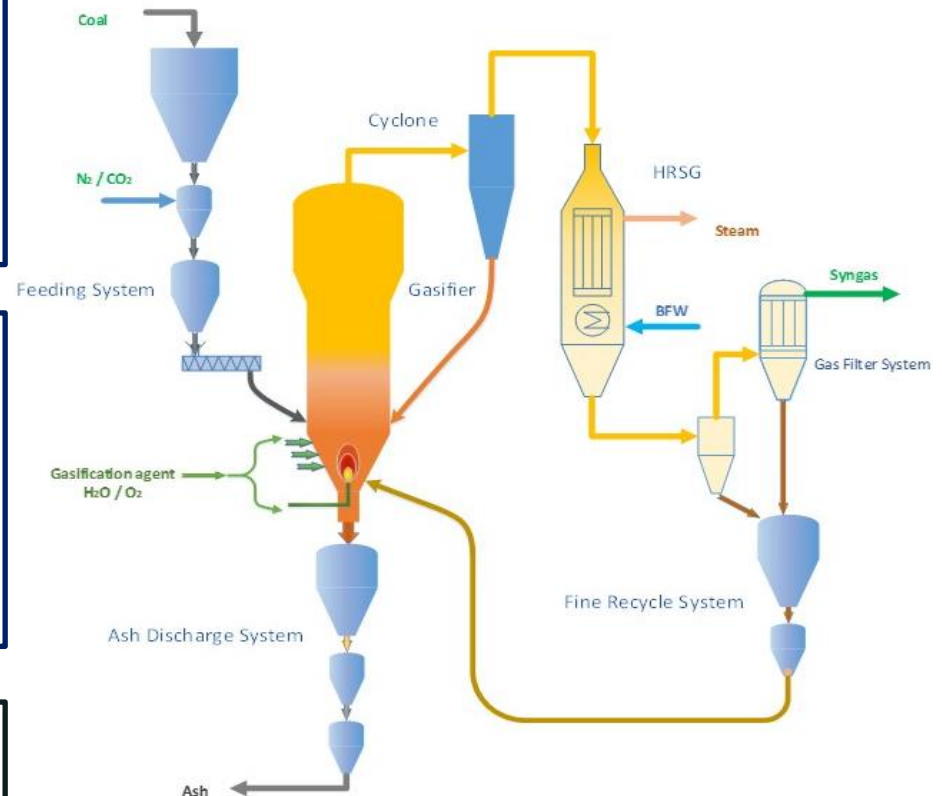
- Use 0 – 10 mm Coal Fines, Dry Feed
- Up to 30% Ash
- Ash Fusion Temperature ≥ 1250 °C
- Air / Oxygen Fed
- Steam as Gasification Agent

Performance

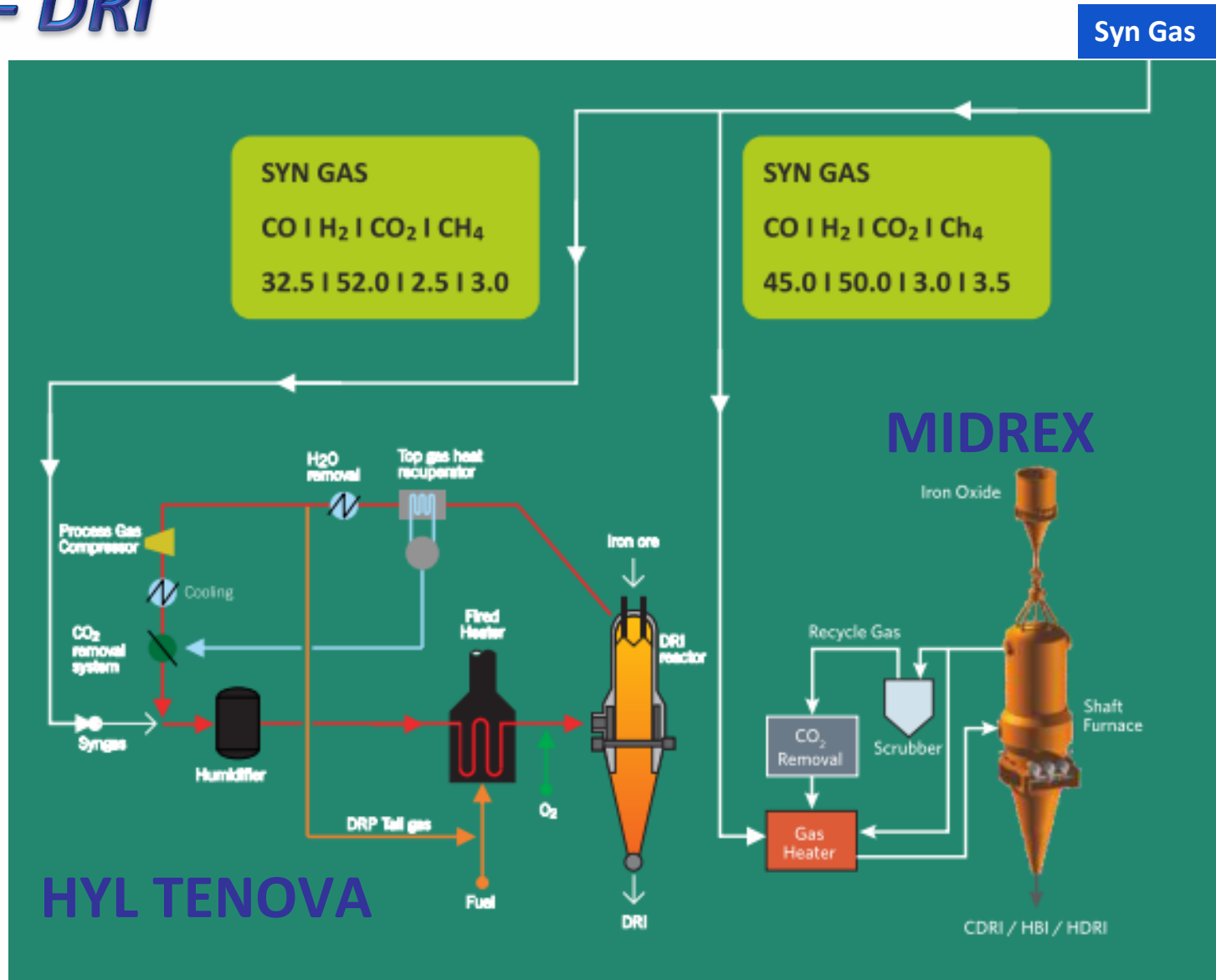
- Output of 80,000 Nm³/hr per gasifier
- Turndown ratio up to 30%
- Operating pressure ~ 15 bar
- Carbon conversion $\geq 98\%$
- High Energy Efficiency – WHRB

Effluents

- Fines recycle – No Fly Ash
- No Tar
- No Phenolic Water Generation



CFB - DRI

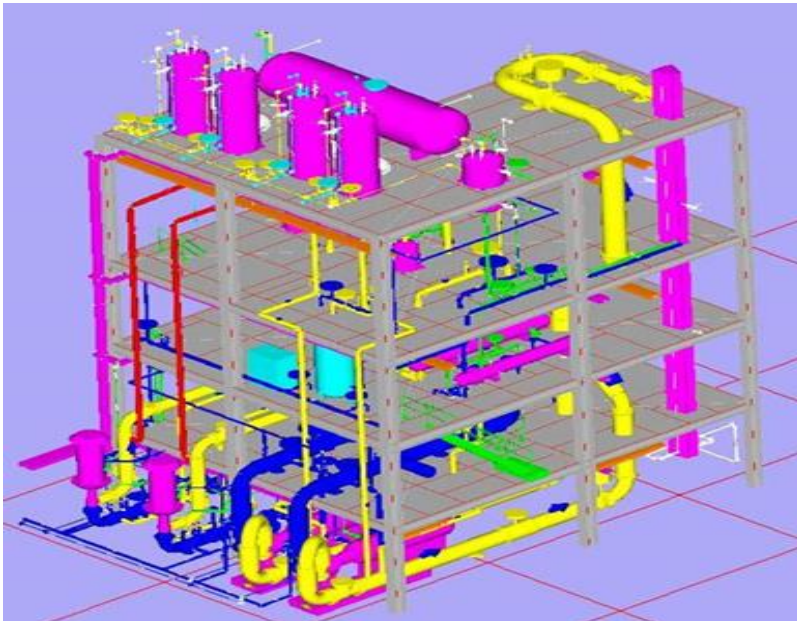


HIGH PRESSURE CFB - OXYGEN FED – SYN GAS



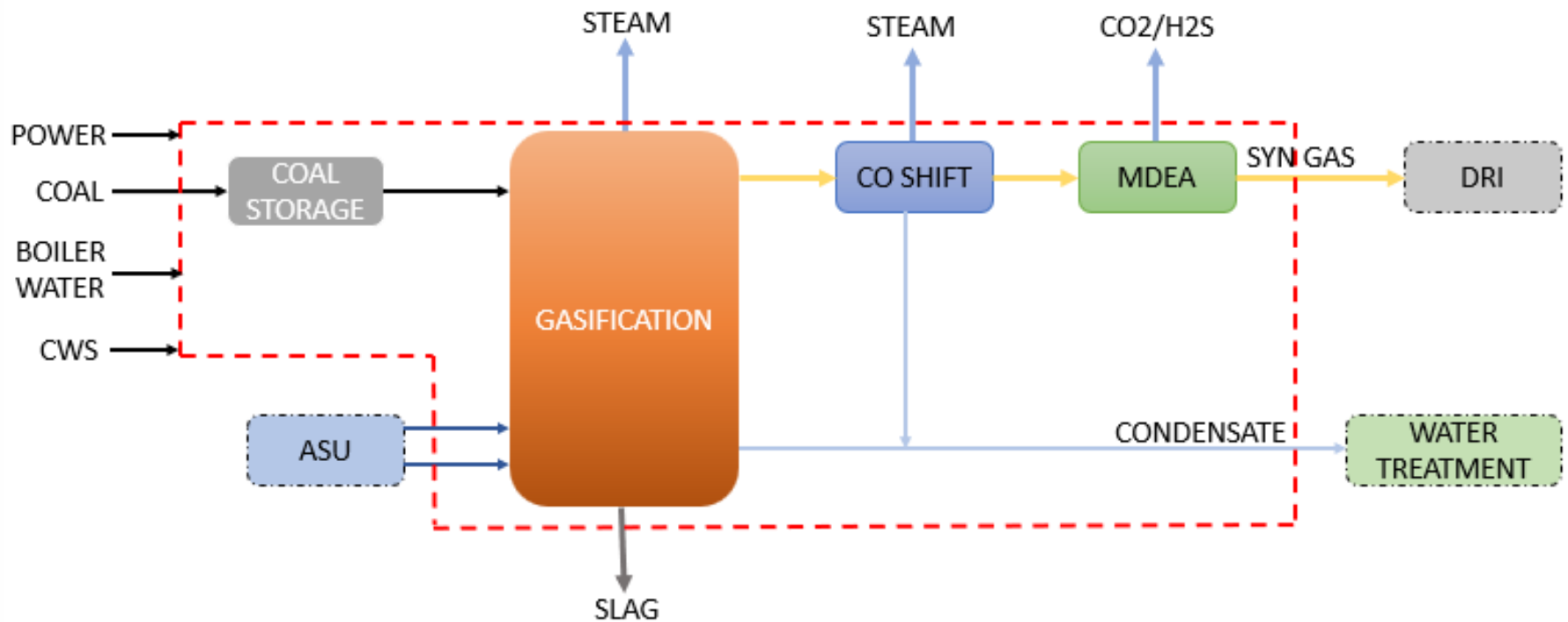
上海泽普工程技术有限公司

SHANGHAI ZEPU ENGINEERING TECHNOLOGY CO. LTD.

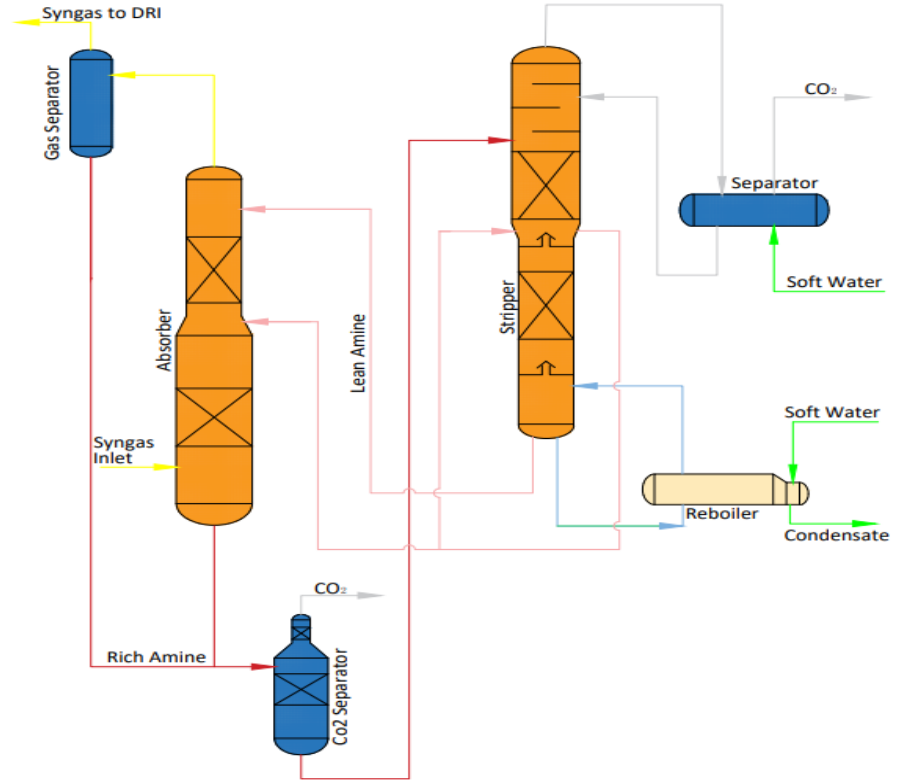
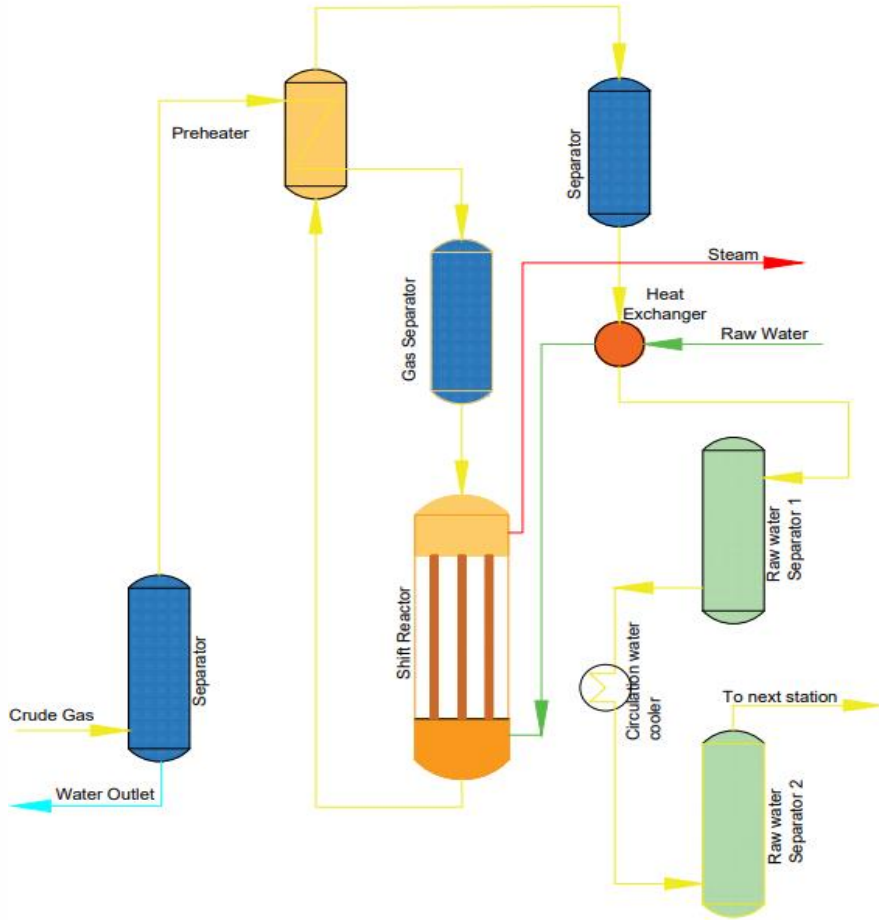


- Technology > Process Design > Detailed Engineering > Supply > Commissioning
- Clean SYN GAS by CFB technology
- Operating Pressure upto 15 bar
- Proven capability to handle high ash coals
- Operating Commercial scale plants in Methanol, DME, Ammonia, SNG

COAL TO DRI SYN GAS



CO SHIFT & CO₂ REMOVAL



2 X 40,000 Nm³ / hr SHANDONG ALUMINA



ANHUI HAUYUAN CHEMICAL DME - 4 x 80,000 Nm³ / hr



SHANDONG RUNYIN - AMMONIA



SHANXI YANGMEI FENGXI - FERTILIZER



OUR ADVANTAGES



LOW CAPITAL COST

TURNKEY PROJECT DESIGN AND IMPLEMENTATION

TIME BASED FAST IMPELMENTATION

STANDARDISED PRODUCT DESIGN

NO EXTERNAL PATENTED TECHNOLOGY

FACTORY MANUFACTURED QUALITY CONTROLLED

EXPERIENCED AND QUALIFIED TEAM

AFTER SALES SERVICE AND OPERATIONAL TRAINING

You have a Question, Lets talk

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