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Crushing Solutions by Professionals

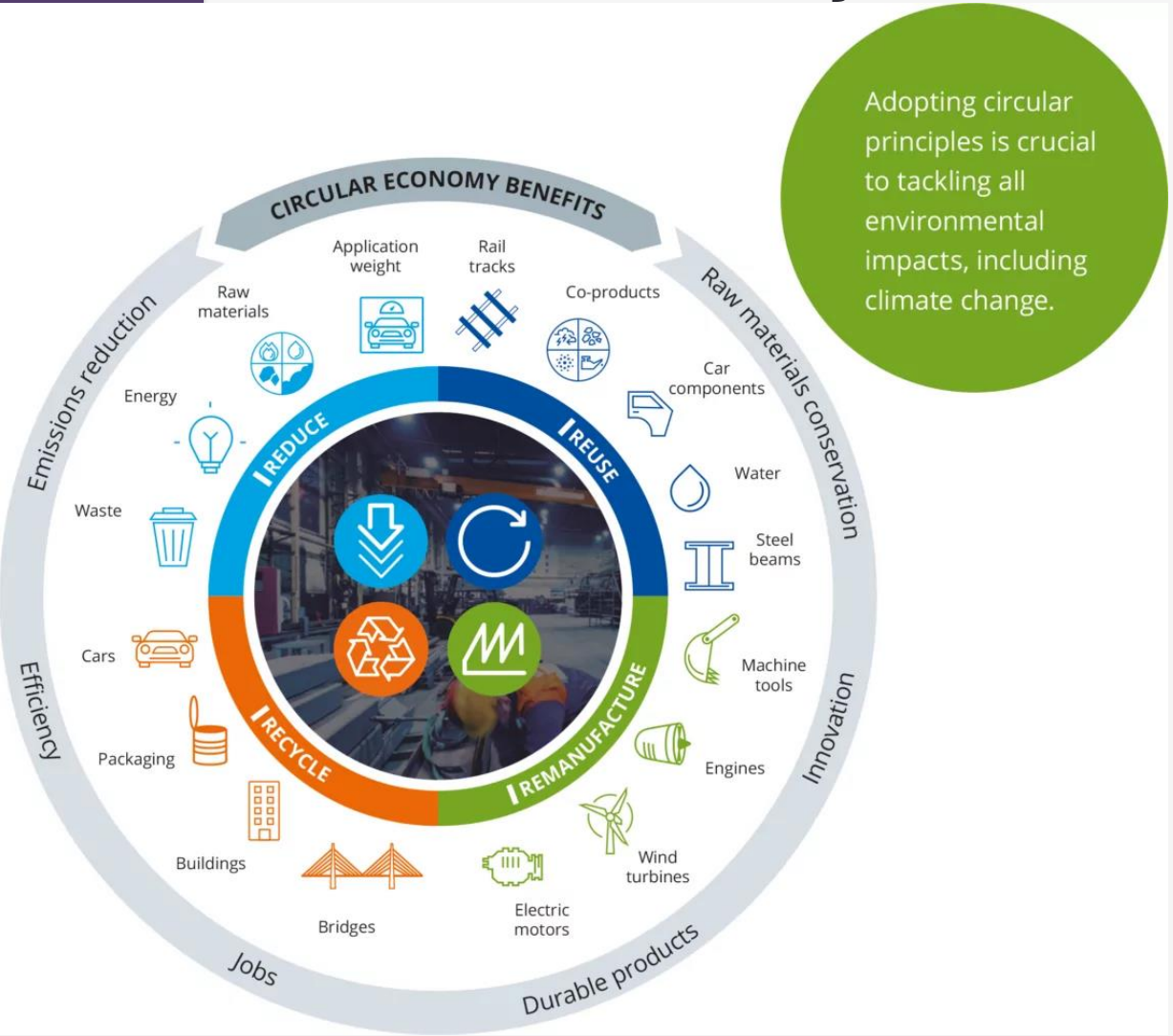
DynaTek: Revolutionizing the Circular Economy through Plasma Arc DC Innovation

A Proman Group Initiative Turning Industrial Waste into Sustainable Value

Disruptive Technology

Strategy

Circular Economy Value



Adopting circular principles is crucial to tackling all environmental impacts, including climate change.

DynaTek reclaims waste, moving past linear models to maximize raw material potential.

Traditional Metallurgy Crisis

The metallurgical industry is trapped between rising resource costs and tightening environmental regulations, struggling with efficiency, emissions, and scarcity.

Rising Waste

- Accumulating industrial dust and ores are discarded due to processing limits.
- The waste grows as techniques fail to recycle materials, creating environmental impacts and losing operational potential.

High Emissions

- Traditional furnaces are notoriously energy-intensive, contributing significantly to global industrial CO2 emissions.
- These systems demand high power, making it difficult for the industry to meet modern climate regulations and sustainability targets.

Resource Lack

High-grade raw materials are scarce. Unfortunately, traditional smelting processes cannot efficiently handle low-grade alternatives, leaving the industry with limited feedstock options and threatening long-term production capabilities and supply stability.

Economic Woes

- High energy consumption and low recovery rates squeeze profit margins across steel and recycling sectors.
- Operational inefficiencies drive up costs, making it harder to remain competitive in a market that demands lower costs and sustainable production.

DynaTek a Proman Group

Proman Group's DynaTek pioneers' sustainable metallurgy through industrial-scale plasma technology.

DynaTek Proman Group engineering arm dedicated to plasma technology.

Legacy of Innovation
Global pioneers in Plasma Arc DC furnace development.

Circular Mission
Sustainable metallurgical solutions for the circular economy.

Engineering Excellence
Bridging plasma physics with industrial-scale production.

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Features

The Super Plasma DC Arc

SPAF transforms metal recovery through advanced technology, enabling efficient processing of low-grade iron ore, industrial dust, slag, and waste streams.

Direct Smelting
Processes low-grade iron ore and industrial dust without extensive pre-treatment needs.

Versatile Feed
Handles complex waste streams, including industrial slag, fine dust, and various tailings.

Patented Technology
Uses high-intensity plasma to reach temperatures impossible in traditional furnaces.

Modular Design
Compact footprint allows for integration into existing industrial recycling or production.

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Red Mud		Chemical Composition of Smelted Red mud in SPAF	
Component	Value (%)	Element	% Value
NiO	3.48	Ni	0.0084
SiO_2	2.56	Si	0.261
TiO_2	0.08	Ti	0.0036
Fe_2O_3	**45.16**	**Fe**	**98.5**
CaO	4.2	Ca	0.0006
MnO	14.6	Mn	0.0134
P	0.014	P	0.078
S	0.1	S	0.039
Cr_2O_3	18.8	Cr	0.03
MgO	2.25	C	0.96
Al2O3	1.83	Al	<0.0020
K_2O	0.95	Mo	0.0089
ZnO	7.7	Zn	0.015
Ce	<0.0010	Cu	0.0152
		Nb	<0.0010
		V	0.0059
		W	<0.0200
		Pb	<0.0050
		Sn	<0.0015
		As	<0.0030
		Zr	<0.0015
		B	<0.0010

Achieving Metal Recovery Economically

DynaTek's Plasma Furnace sets benchmarks for high efficiency.

>97.5%
Metal Recovery

>70%
Carbon Reduction

>15%
Power Savings

20%
Cycle Speed

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Technical Superiority

DynaTek's plasma tech enables faster melting, high precision, and superior metallurgical output.

High-Temp Precision
Plasma arc provides concentrated heat for rapid breakdown of complex mineral structures.

Waste Stream Integration
Processes industrial waste directly, eliminating logistics and energy costs for transport.

Atmospheric Control
DC arc enables precise control over chemical environment, reducing oxidation and loss.

Superior End- Products
Uniform heating and rapid processing create metallurgical output superior to old methods.

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Recovering Iron Ore Dust Waste

DynaTek used the SPAF to process iron ore dust. With above 97% recovery rate, waste becomes high-quality steel feedstock, reducing the need for virgin ore.

The Challenge

- Traditional methods failed to recover value from fine iron dust.
- This resulted in significant material waste and created substantial disposal costs for the manufacturing facility.

The Solution

- The team deployed the Super Plasma Arc Furnace to enable direct smelting of the fine dust stream.
- This advanced processing technology allows for efficient and continuous material recovery.

The Result

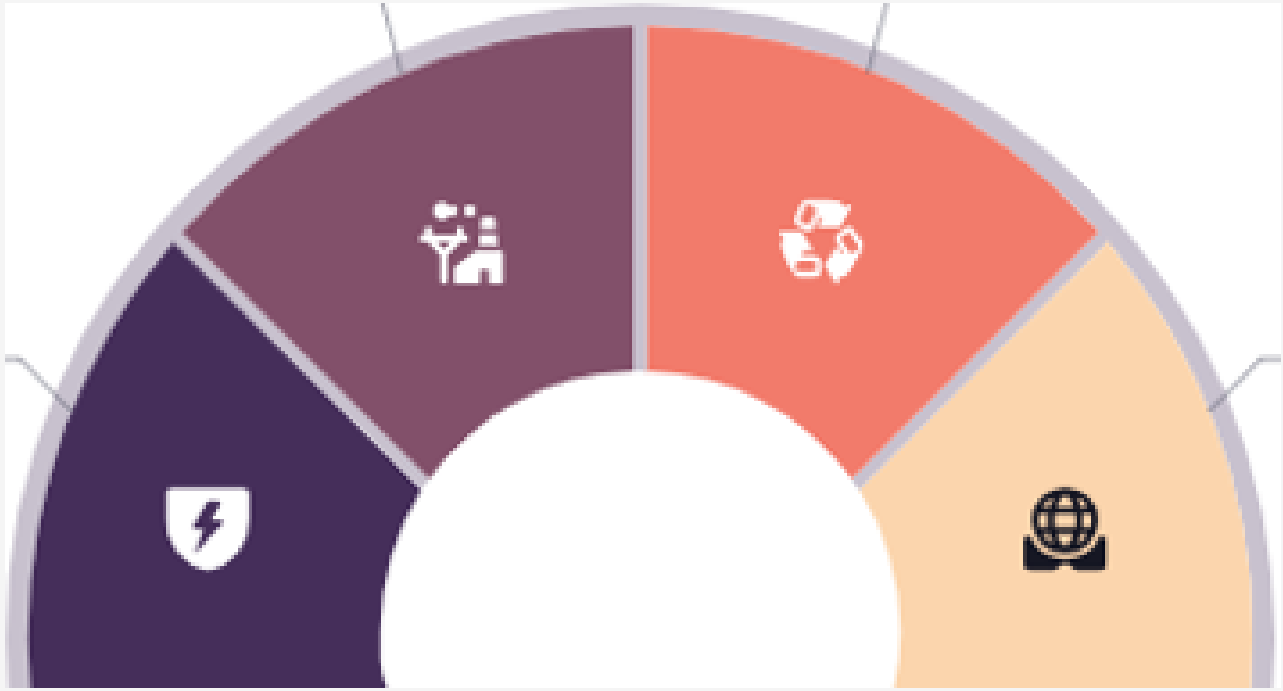
- The process achieved a 97% recovery rate, converting waste into high-quality steel feedstock.
- This circular approach reduces virgin ore reliance and eliminates material disposal issues.

UN/Country (INDIA) **Sustainable** Goals

DynaTek aligns metallurgical solutions with critical development goals to drive global progress.

Industry
Building resilient and sustainable industrial infrastructure through breakthrough tech.

Waste
Promoting resource efficiency and significantly reducing chemical waste in production.



Energy
Reducing the total energy load required for metallurgical processing and industrial work.

Climate
Directly tackling the carbon intensity of the steel and metals industry to reduce impact.

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Plasma Arc Furnaces: The Standard for Profitable Metallurgy

01

Standard-Setting
Our Benchmark
- Global Benchmark
- Resource Recovery
- Industry Standard

02

Profitable Sustainability
Value creation
- Low Envi Impact
- Boosts Eco Value
- Reclaiming assets

03

Scalable Impact
Market ready
- Global scaling
- Recycling Sector
- Clean energy focus

04

Proman's Commitment
Our vision
- Circular-Economy
- Carbon neutral
- Industry leader

Sustainability and profitability coexist in the next generation of metallurgy. With DynaTek's furnace, we invite you to shape our collective future.

Partner with DynaTek a Proman Group

Thank You,
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