



Yuken India Limited
A Group Company of
Yuken Kogyo Co. Limited, Japan

Presentation on Chip Compactor

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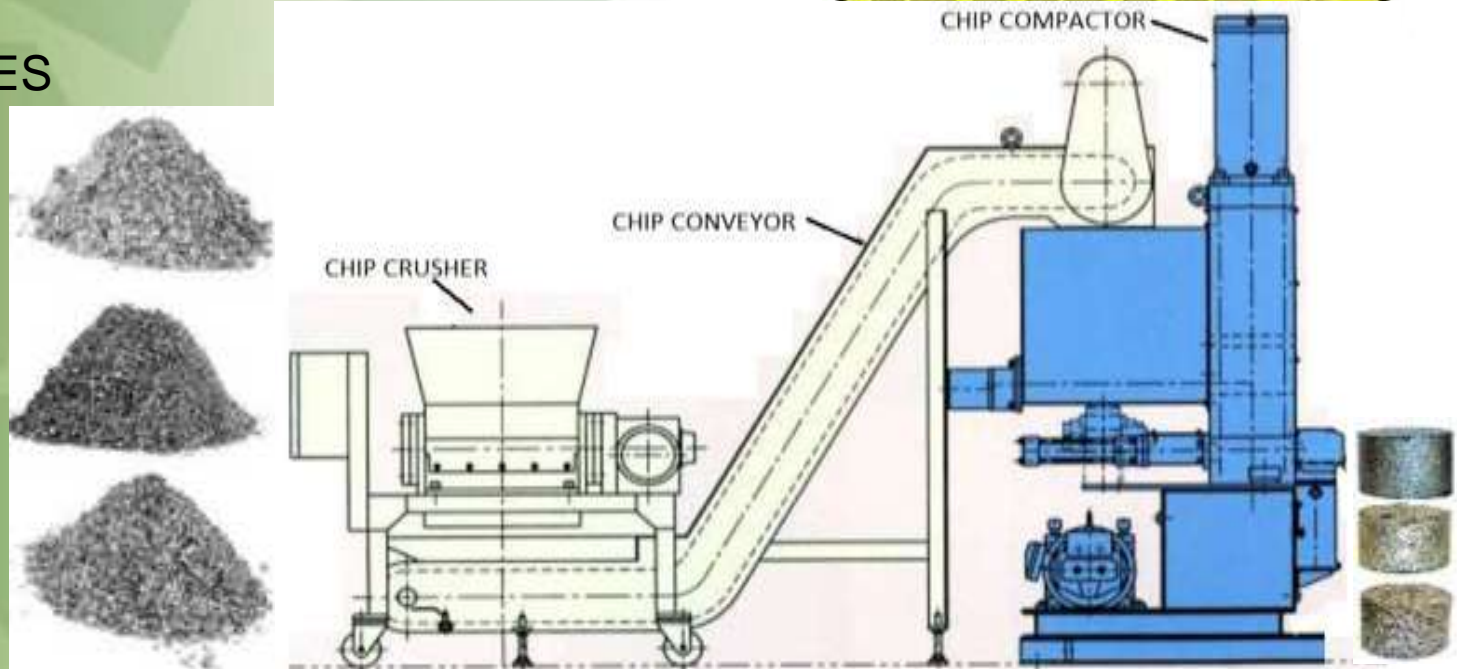


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AUTOMATIC CHIP COMPACTOR

KIRIKO





Brief Outline of Yuken India Limited

Established	: 1976
Production	: 1978
Team	: 400 Members
Registered office	: Whitefield, Bangalore
Main Plant	: Malur, Kolar District
Main Product	: Hydraulic Power Packs, Hydraulic Elements
Share	: 40% by Yuken-Japan, 60% Indian Promoters & Public.



Chips Storage:





Chips Storage:





Chips Transportation:





Cast Iron



Steel



Non Ferrous

**Machined Chips –
Input condition**



**Briquettes –
Output
condition**



Cast
Iron



Steel



Aluminum



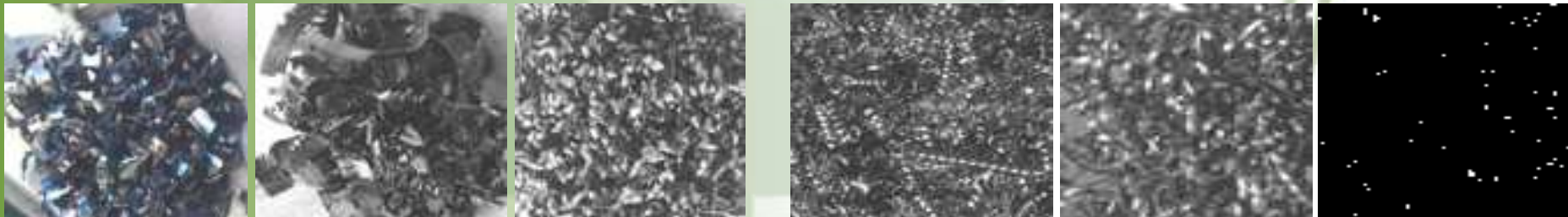
CHIP MATERIAL TYPES :-

- ❖ Cast Iron
- ❖ Aluminium
- ❖ Brass
- ❖ Copper
- ❖ SG Iron
- ❖ Steel & Alloy Steel
- ❖ Titanium
- ❖ Silver

Chip type	Verities	Size (LxWxT) in mm	
		Minimum	Maximum
Broken Chips – Milling & Drilling	>15 types	Smallest including powder	40x15x0.3
Spiral Bunch Chips - Turning	> 15 types		350x350x250

Broken Chips:

Spiral Bunch Chips:



Working with Different Varieties of Chip



Needle chips



Elemental chips



Loose Arc chips



Can be directly feed into chip compactor



Variety 1

Variety 2

Working with Different Varieties of Chip



Spiral Conical chips



Spiral Snarled chips



Tubular Long chips



Washer type Helical chips

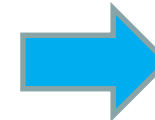


Conical Helical long chips



Bundled Long chips

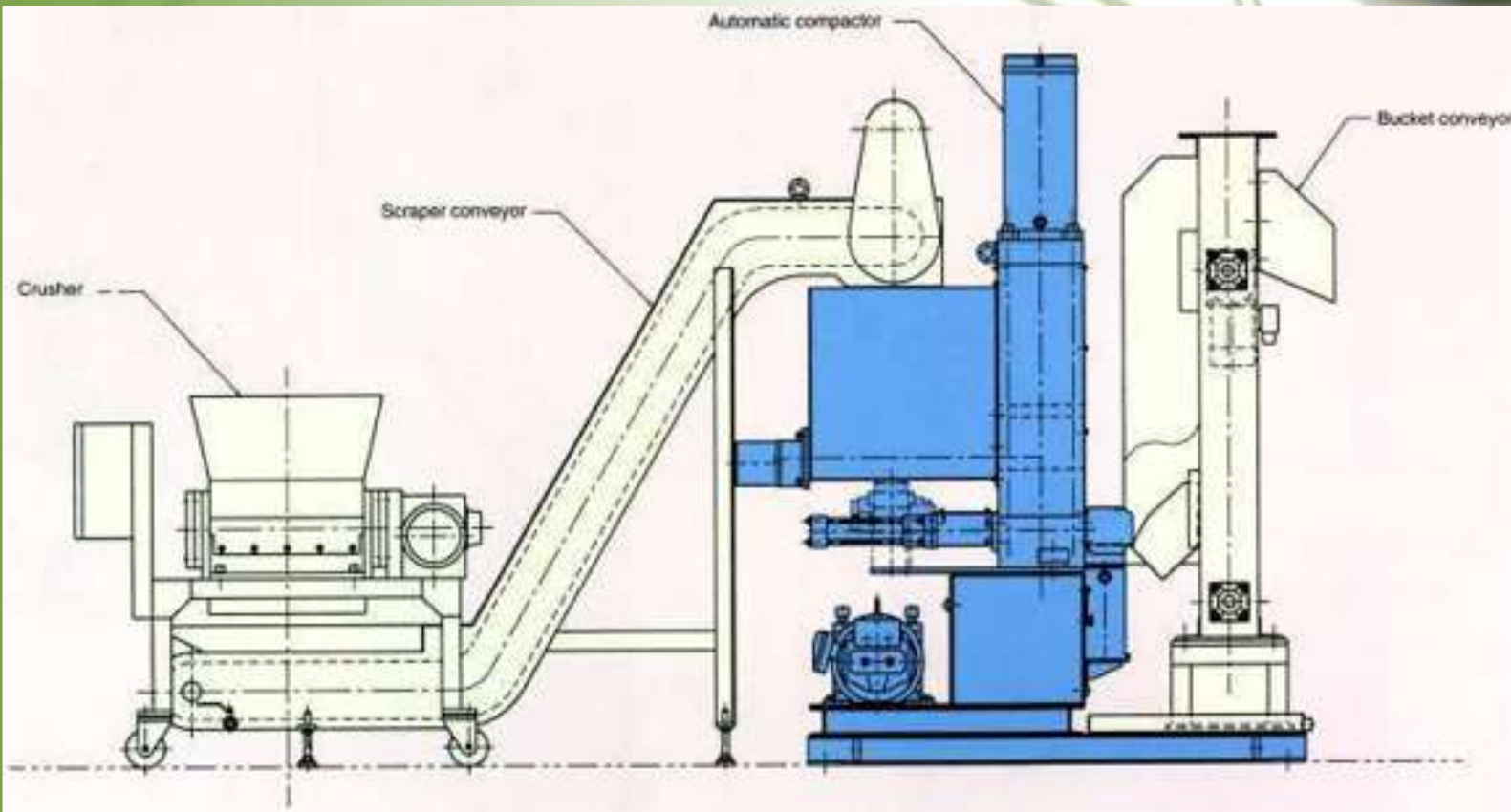
To be feed into chip Crusher



Crushed chips then feed into compactor



TYPICAL CHIP COMPACTING LAYOUT FOR BUNDLED CHIPS



CHIPS BEFORE COMPACTING



CHIPS AFTER COMPACTING



Compacting Machine - Kiriko :-

Salient Features...

- ❖ Robust in design, Proven over decades, very few moving parts
- ❖ PLC based can be made Semi Automatic & Fully Automatic
- ❖ Easy to Operate
- ❖ Converts Chips in to briquettes and Separates Oil & Coolant
- ❖ Oil/Coolant collected in a Separate Tank
- ❖ Can be integrated with centralized Chip Conveying System
- ❖ This m/c supports in going towards Green Manufacturing Facility







CHIP COPMACTOR BENIFITS :-

A. Machining Shops :-

- ❖ Safety
- ❖ Supports Green Manufacturing
- ❖ Accountability of the Chips
- ❖ Storage space reduction from 4 : 1 for steel and up to 20 :1 for depends on the chips
- ❖ Hygienic Chip Storage Area & Shop Floor Area
- ❖ Recovery & Reuse of Cutting Oil and Coolant
- ❖ 80 % Reduction in Chip Handling & Logistics Cost
- ❖ ~10 to 100% Increase In Chip Selling Price



CHIP COPMACTOR BENIFITS :-

B. For Smelters/Melters :-

- ❖ Less surface area to oxidize and become slag.
- ❖ 80% of the briquette is submerged in the melting bath, so the material does not have a chance to become slag. This typically produces yields of up to 96% – against 70 - 90% for clean and dry Chips
- ❖ Will reduce melting time which increases Furnace Utilization
- ❖ Reduction in Power Consumption
- ❖ Fumes & Blasts are avoided
- ❖ Contribute to reduce pollution drastically
- ❖ Reduce Storage area, Handling Cost

CHIP COPMACTOR BENIFITS :-

C. For Nation :-

- ❖ With dry Briquettes there is a reduction of fumes by 95% against feeding furnace with wet chips
- ❖ Reduction in fumes means clean environment
- ❖ Reduction in environmental pollution will lead to healthy living
- ❖ Extraction of Coolant & oil at the source will reduce contamination of water resources
- ❖ Saving of power is nothing but power generation
- ❖ Reduction in accidents in the factory lead to increase in productivity
- ❖ Accidents causing due to metal chips falling on road during transportation will come down
- ❖ Annually around 4 to 5 lakh tons of metal will yield by Briquetting
- ❖ Resources used to produce 4 to 5 lakh tons of material will be saved





AUTOMATIC CHIP COMPACTOR VARIANTS :-

- Maximum Operating Pressure is 200bar for all variants

CHIP COMPACTOR VARIENTS					
Model	Load	Avg. Cycle time	Briquette Size	Compacting Force	~ Compactor Output
40V	40Tons	30 sec	Ø70mm x 50mm	1000 Kgf/cm ²	25 to 50Kgs/hr
80V	80Tons	30 sec	Ø100mm x 50mm	1000 Kgf/cm ²	60 to 110Kgs/hr
			Ø80mm x 50mm	1600 Kgf/cm ²	50 to 90Kgs/hr
			Ø70mm x 50mm	2000 Kgf/cm ²	40 to 70Kgs/hr
80VHS	80Tons	11 sec	Ø100mm x 50mm	1000 Kgf/cm ²	140 to 280Kgs/hr
			Ø80mm x 50mm	1600 Kgf/cm ²	120 to 240Kgs/hr
			Ø70mm x 50mm	2000 Kgf/cm ²	110 to 220Kgs/hr



CHIP CRUSHER VARIANTS :-

- Maximum Operating Torque is 4200Nm for all variants

CHIP CRUSHER / SHREDDER VARIANTS

Model	Blade thickness	Motor rating	~ Crusher Output
CCU 100	18mm	3.7 kW	100Kgs/hr
	15mm	3.7 kW	100Kgs/hr
CCU 200	18mm	5.0 kW	200Kgs/hr

CHIP COMPACTOR ACCESSORIES :-

- Chip Conveyor
- Bucket Elevator
- Chip Driers



Key Customers....





Case Study :-

Honda Cars India Ltd., Bhiwadi

Used for Crank Shaft, Connecting rod and Engine block machining chips





Case Study :-

Honda Cars India Ltd., Bhiwadi

Used for Crank Shaft, Connecting rod and Engine block machining chips

Material	Steel 12 Varieties, Aluminum 6 Varieties of chips
No. of Shifts	Steel 2 Shifts + Aluminum 3 shifts per day
Weight of Chips compacted	Steel ~ 2000 kgs, Aluminum ~ 4000 kgs
Number of Machines	High Speed machines 2 for steel & 2 for Aluminum
Benefits	
Increase in Scrap price	~10 % for steel & ~12.5% for Aluminum
Handling Cost	Reduced by 70%
Storage Space	Reduced by 90%
Cutting oil & Coolant recovered	~ 200 lts per day ~Coolant ~ 400 lts per day
ROI	< 1 year



Case Study :

Grotek Enterprises Pvt Ltd, Bengaluru

Products : CI & SG Iron Castings

Used to Briquette CI chips ..

Material	CI Machined Chips & MS Chips
No. of Shifts	2 Shifts
Chips compacted	~ 2500 kgs per shift
Melting Charge	1000 kgs / charge
Benefits derived	20% Reduction in Melting time
Power Saving	~ 15%
Melting out put	+ 8% by weight
Handling Cost	Reduced by 70%
Storage Space	Reduced by 70%

Case Study :-

Rapsri Engineering Products Company Ltd., Bengaluru

Products : Self Lubricating Bushes,
Sealing Parts, Connectors etc



Material	Aluminum Bronze
No. of Shifts	2
Quantity of Chips compacted	~ 2000 kgs in 2 shifts
Number of Machines	One HS m/c + Crusher + Conveyor
Benefits	
Melting time	20% Reduction
Power Saving	~ 12.5%
Melting out put	increased 6% by weight
Handling Cost	Reduced by 70%
Storage Space	Reduced by 90%
ROI	< 6 months



Case Study :

Shakthi Precion, Bengaluru

Products : Steel & Aluminum Auto Components

Material	Steel 12 Varieties, Aluminum 6 Varieties of chips
No. of Shifts	Steel 2 Shifts + Aluminum 2 shifts per day
Weight of Chips compacted	Steel ~ 1000 kgs, Aluminum ~ 1000 kgs
Number of Machines	Standard machines one for steel & one for Aluminum
Benefits	
Increase in Scrap price	~10 % for steel & ~12.5% for Aluminum
Handling Cost	Reduced by 70%
Storage Space	Reduced by 90%
Cutting oil & Coolant recovered	~ 100 lts per day ~ 100 lts per day
ROI	< 6 months
Other Benefits	
Working Environment	Bad smell of coolant and oil eliminated resulting in healthy working Environment

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Thank You...

Comprehensive Hydraulic Solutions