

New Technology

New Machine

HITONE[®]

Making history for asphalt paved roads



Advanced technology for asphalt transforming in a single pass process

Concept and design developed by the collaboration of

GreenARM, Hitachi, Sumitomo, Showa Shell, Hikari Kogyo - all of Japan.

Machine is manufactured by **Hitachi and Sumitomo**.

New Technology

Hot In-Place Transforming[®]

Dense asphalt ahead of HITONE[®], porous permeable asphalt behind

New Machine

Cutting-edge design for economical asphalt transforming

New Results

Silent road, improved driving safety and environmental protection

Two-layered well bonded composition of transformed asphalt pavement

HIT: Hot In-Place Transforming[®]

Typical asphalt road above – standard dense graded pavement, shown during rain, water stays on the surface, visible deterioration

Transformed by HITONE[®] below –visible differences –no water, rougher, perfect surface.

HIT technology does not recycle pavement,

HIT makes it new.

HIT done pavement composes two layers, porous permeable on top and mastic gap at the bottom, bound in a single step operation of HITONE[®].



Road before and after HIT
(Sept.'05 OKINAWA)

Preheater

Hot In-Place Transforming® (HIT) starts with heating asphalt to a desired process temperature. Heat generated by the preheater is efficiently transferred through the asphalt depth.

The heating system, under application for patent(Japan Patent Application No.2005-363989), combines two heat transfer methods: conduction of heat from hot air mat presence kept on top of the surface and radiation from the heating structure.

Heat energy is conserved by recirculating hot gas reflected from the asphalt surface.



Many design features incorporated into this machine implement the results of development work and gained experience accumulated from working with the earlier recycling machine models with customers worldwide.

MAIN FEATURES

Flexibly adjustable heating width



Heater burns diesel oil for operation safety



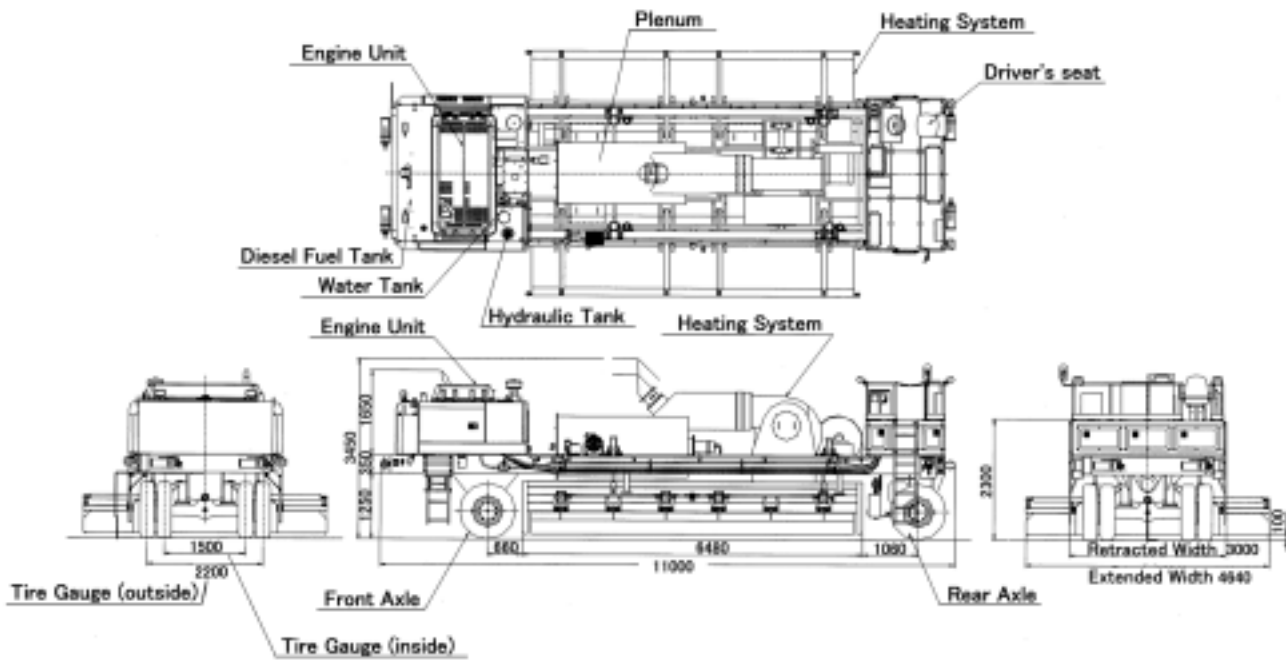
Powerful proven engine of Isuzu



Operator friendly machine controls



PREHEATER



TECHNICAL SPECIFICATION	
Model	PREHEATER
Weight	22,300kg
Performance	
Engine Power/Speed	184KW / 1,900min
Make/model	ISUZU/ 6HK1XQA
Travel Speed High	0-100m/min
Travel Speed Low	0-50m/min
Minimum Turning Radius	11,100mm
Dimensions	
Transportation Length	11,000mm
Transportation Width	3,000mm
Transportation Height	3,150mm
Working Height	3,150-3,450mm
Working Width	3,000-4,640mm
Heating System	
Heating Width	2,860-4,500mm
Heating Bed Length	6,000mm
Tread	
Front/Rear Tire (outside)	2,200mm(center to center gauge)
Front/Rear Tire (inside)	1,540mm(center to center gauge)
Wheelbase	8,200mm
Tank Capacity	
Hydraulic Oil Tank	240L
Diesel Fuel Tank	1600L
Water Tank	200L

Heater Miller

Heated asphalt pavement is milled to loosen the asphalt mixture by a tandem of grinders. Front grinder may extend both sides from the centerline of the miller making flexible milling width possible. The millers heating system guarantees milling of pavement without aggregate breakage. Heater Miller can be easily simplified for regular HIR technologies.



For additional supply of admix needed for HIT, the wheel driven hopper is attached to the front of the miller.

MAIN FEATURES

Grinders drive design allows milling to road curb



Universal heating system for service advantage



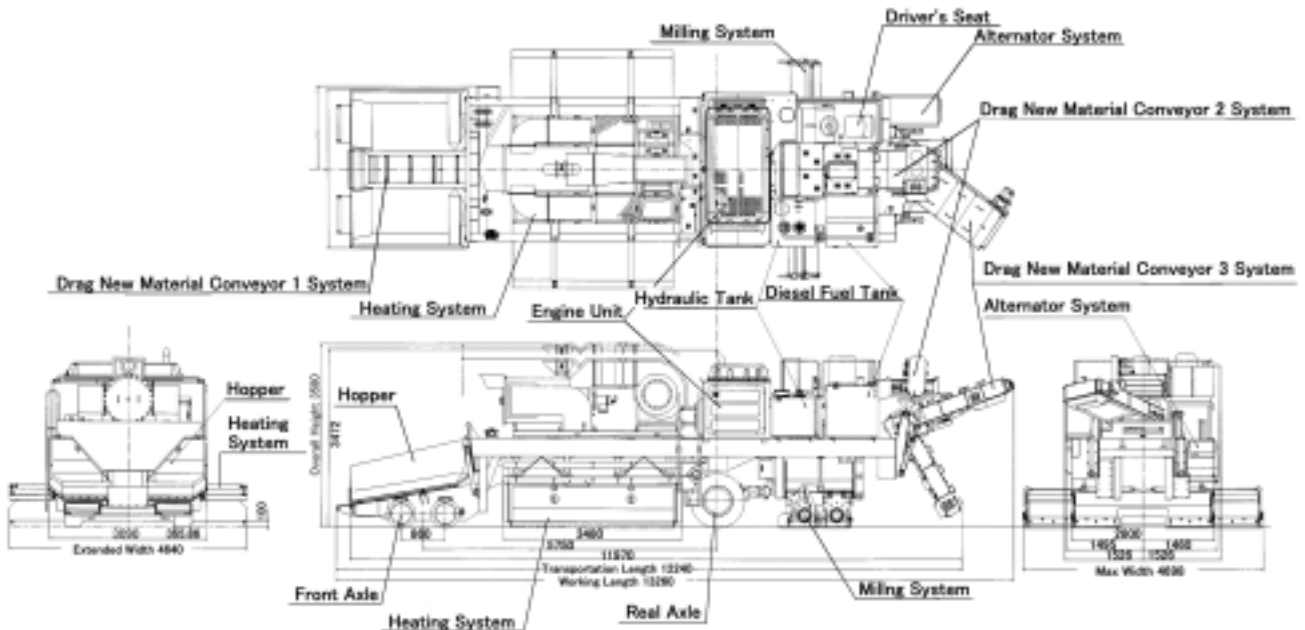
Industry best hopper emptying



Heat is captured by flexible screen and air knife



HEATER MILLER



TECHNICAL SPECIFICATION	
Model	HEATER MILLER
Weight	28,170kg
Performance	
Engine Power/Speed	202KW / 1,900min
Make/model	ISUZU/ 6HK1XQA
Travel Speed High	0-50m/min
Travel Speed Low	0-11.5m/min
Minimum Turning Radius	15,750mm
Dimension	
Transportation Length	12,240mm
Transportation Width	3,000mm
Transportation Height	3,472mm
Working Height	3,472-3,574mm
Working Width	3,000-4,640mm
Front Tire Gauge	2,134mm
Rear Tire Gauge (outside)	2,200mm
Rear Tire Gauge (inside)	1,540mm
Front Tire Width	356mm
Wheel Base	5,750mm
Heating System	
Heating Width	2,860-4,500mm
Heating Bed Length	3,000mm
Milling System	
Milling Width	2,570-4,400mm
Milling Depth	0-50mm
No of Milling Drums	3
Tank Capacity	
Hydraulic Oil Tank	500L
Diesel Fuel Tank	900L

Separator

The separator provides a key function of this new technology. Dense asphalt is classified into predetermined aggregate fractions which are then transferred for further processing.



A number of heated conveyors deliver material to processing points along the machine. The fine and oversized fractions laid on the road which will form the bottom layer is mixed by following machine- mixer paver. The coarse fractions are mixed in the pugmill and then transferred to the mixer. Material input is under automatic control.

MAIN FEATURES

Screen design adapted for asphalt processing



Tandem of vibrators located for service access



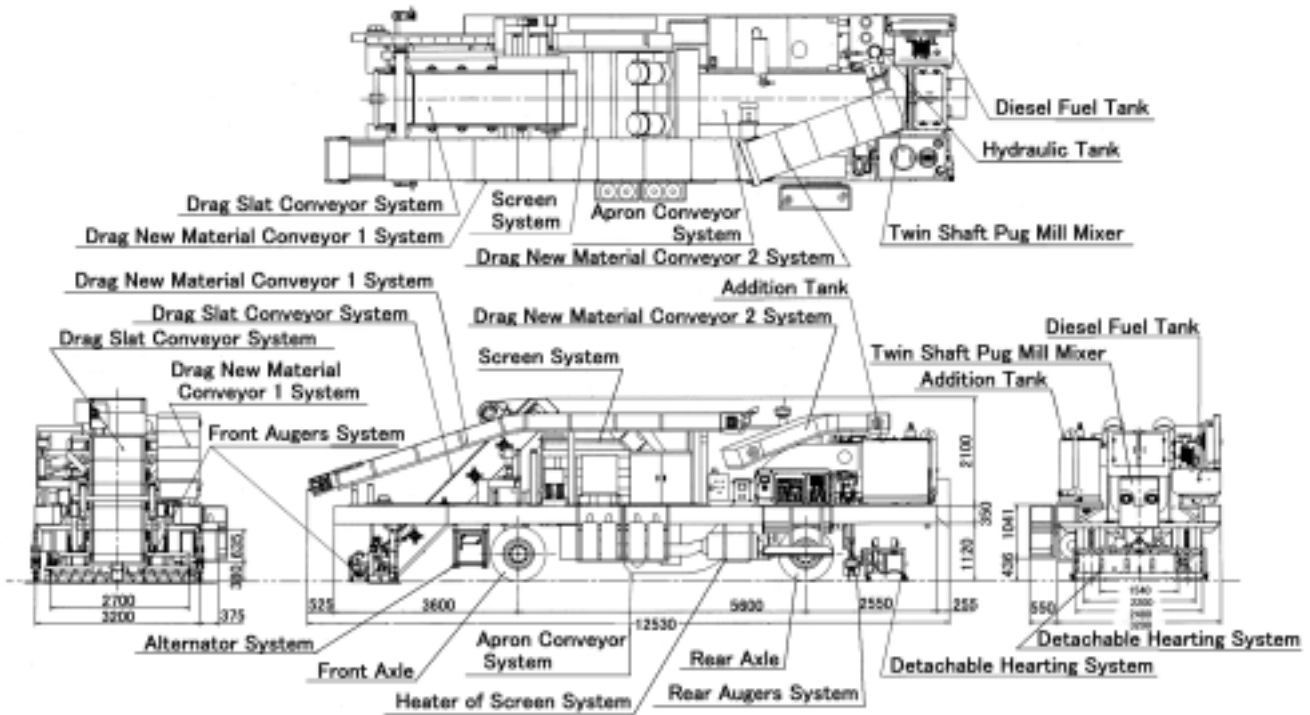
Open end pugmill for mixing coarse fractions



Adjustable scrapers clean the road



SEPARATOR



TECHNICAL SPECIFICATION	
Model	SEPARATOR
Weight	29,500kg
Performance	
Engine Power/Speed	205KW / 1,900min
Make/model	CAT / C9
Travel Speed High	0-60m/min
Travel Speed Low	0-30m/min
Minimum Turning Radius	8,000mm
Dimension	
Transportation Length	12,505mm
Transportation Width	3,200mm
Transportation Height	3,340mm
Front Tire Gauge (outside)	2,200mm
Front Tire Gauge (inside)	1,540mm
Rear Tire Gauge (outside)	2,200mm
Rear Tire Gauge (inside)	1,540mm
Wheel Base	5,600mm
Tank Capacity	
Hydraulic Oil Tank	520L
Diesel Fuel Tank	450L

Mixer Paver

The final 2-layered pavement is made by the tandem screeds. Prior to placing on the road, the contents of the denser layer are mixed by the internal pugmill. The coarse layer, already mixed with new admix in the separator, is then placed over top of the denser bottom layer creating final pavement composition.



Quality of the pavement is controlled by a system of sonic sensors.

MAIN FEATURES

Screeds are designed for paving width change



Two Isuzu engines drive hydraulic pumps



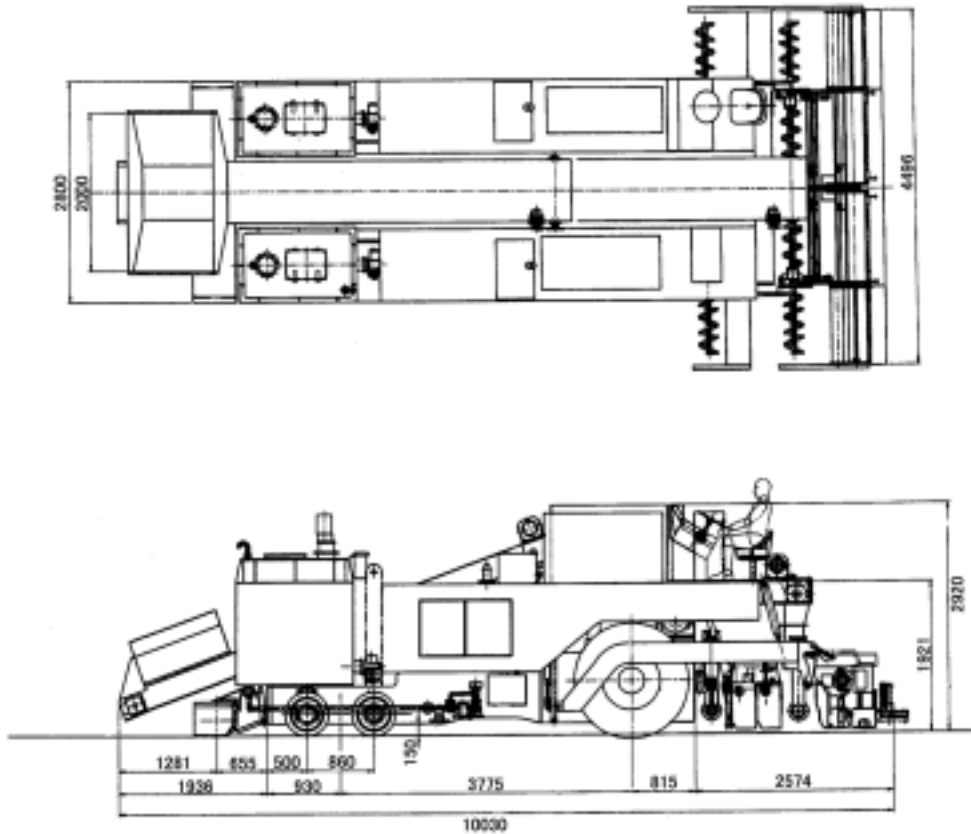
Independently run generators provide electrical power



Mixer is operated from operators station



MIXER PAVER



TECHNICAL SPECIFICATION	
Model	MIXER PAVER
Weight	25,600kg
Performance	
Rated output	78.3kW x2 Engine
Engine Make/model	Mitsubishi / S6S-E4DT (x2)
Paving width	2,500-4,500mm
Travel Speed High	0-50m/min
Travel Speed Low	1-10m/min
Minimum Turning Radius	10,000mm
	(Center of front outside wheel)
Paving Performance(3m/min)	
Process	Dense Graded Asphalt to Porous Asphalt
Production Surface lay	max 90 ton/h
Production Base lay	max 100 ton/h
Dimension	
Transportation Length	10,110mm
Transportation Width	2,800mm
Transportation Height	2,920mm
Wheel - base	3,775mm
Tank Capacity	
Hydraulic Oil Tank	216L(108Lx2)
Diesel Fuel Tank	260L(130Lx2)