

# KOMATSU

HM  
400



HM400-1

## HM400-1

### ARTICULATED DUMP TRUCK

**NET HORSEPOWER**  
321 kW 430 HP

**MAXIMUM PAYLOAD**  
36,5 tonnes

**HEAPED CAPACITY**  
22,3 m<sup>3</sup>

## WALK-AROUND

### Wide, spacious cab

- The wide cab offers a comfortable operator environment
- Viscous mounts support the cab while absorbing vibrations and noise
- Interior noise level ISO 6396 79 dB(A)

### Tiltable cab

can be tilted rearward to provide easy service.

### High performance and environment-friendly SAA6D140E-3 engine

- NET horsepower 321 kW 430 HP
- Meets stage II directive 97/68/EC EU emissions

### Fully hydraulic articulated steering

- Light and easy operation
- Minimum turning radius 8,7

### Differential locks for excellent traction in rough terrain.

Cooled multiple-disc interaxle lock can be turned on and off during travel. In addition, the limited slip differentials prevent the tires on either side from slipping on soft ground for maximum traction.





## Komatsu designed electronically controlled transmission for a comfortable ride.

F6-R2 counter-shaft type transmission with K-ATOMiCS (Komatsu Advanced Transmission with Optimum Modulation Control System).

**NET HORSEPOWER**  
321 kW 430 HP @ 2000 rpm

**MAXIMUM PAYLOAD**  
36,5 tonnes

**HEAPED CAPACITY**  
22,3m<sup>3</sup>

## Easy-to-Load Body

- Heaped capacity 22,3 m<sup>3</sup>
- Low loading height 2970 mm
- Robust body constructed of thick wear-resistant steel with 400 Brinell hardness



## All terrain Hydro-pneumatic Suspension.

The hydro-pneumatic suspension assures a comfortable ride even over rough terrain.

## Maintenance-free oscillating pivot

means lower operating costs by eliminating the need for pivot lubrication.

## Reliable wet type multiple-disc brake and retarder

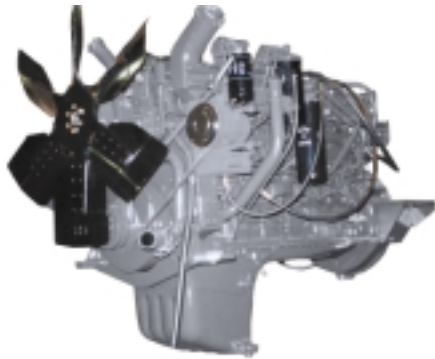
- Fully hydraulic controlled wet multiple-disc brake
- Retarder Absorbing Capacity (continuous descent)  
405 KW 544 hp  
583 kw 782 hp (with engine exhaust brake)  
Meets ISO 3450 - 1996, SAE S1473

# PRODUCTIVITY FEATURES

**The combination of high travel speeds and an efficient engine with low emissions delivers maximum productivity at the lowest cost.**

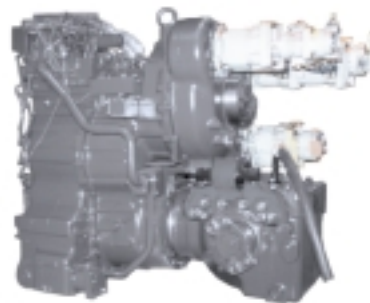
## High Performance SAA6D140E-3 Engine

This engine delivers faster acceleration and higher travel speeds with the highest horsepower per ton in its class. Advanced technology, such as high-pressure electronic controlled injection system (CRI), air to air aftercooler, and an efficient turbocharger enabling the engine to meet the European stage II emission requirements. High torque at low speed, impressive acceleration, and low fuel consumption ensures maximum productivity.



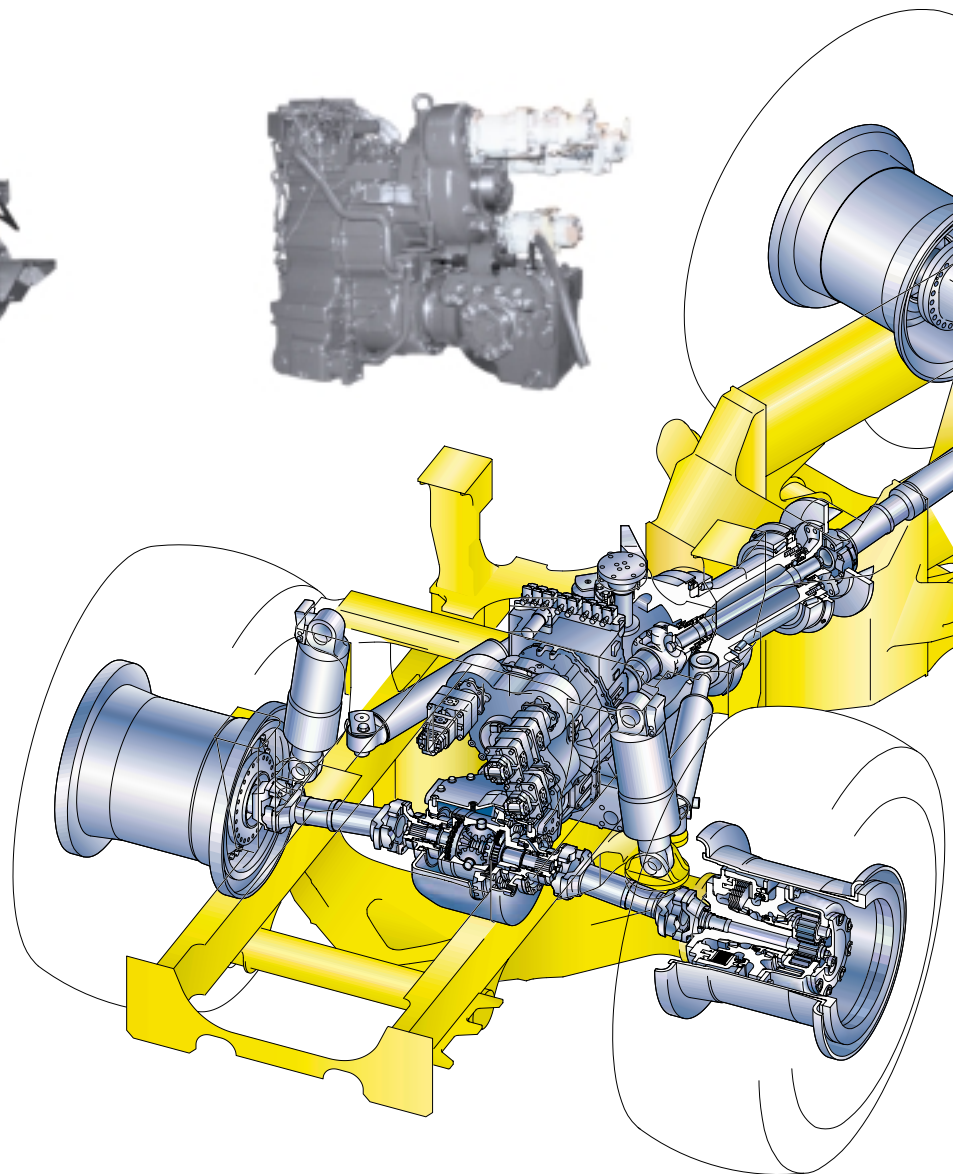
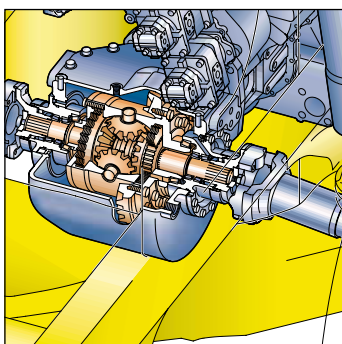
## Komatsu Designed Electronically Controlled Transmission

The Komatsu designed Electronically Controlled Transmission called K-ATOMiCS has been successfully employed in Komatsu's rigid dump trucks. The electronic clutch modulation system ensures proper clutch pressure when the clutch is engaged. The total control system controls both the engine and transmission by monitoring the vehicle conditions. This high technology system assures smooth shifts without shock.



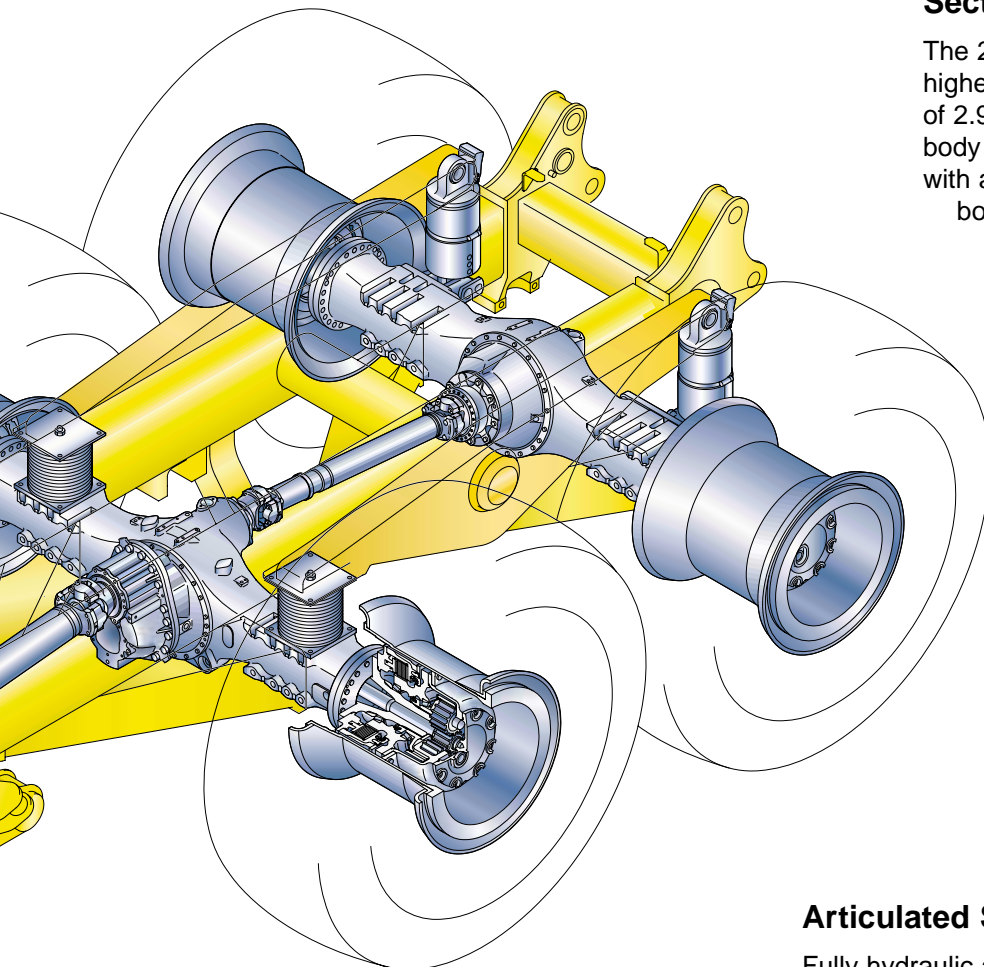
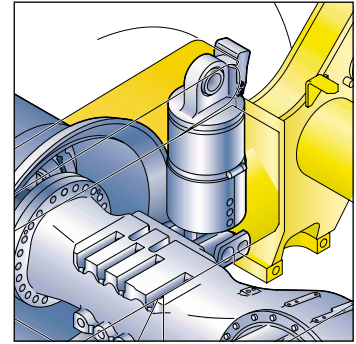
## Komatsu Designed Differential Locking Systems

The full-time six-wheel drive system reduces slippage. A wet multiple-disc interaxle clutch also locks the three axles in unison for greater traction. The interaxle can be switched on and off while the truck is travelling, thereby boosting productivity. In addition, limited slip differentials prevent the tires on either side from slipping on soft ground.



## Hydro-pneumatic Suspension

The hydro-pneumatic suspension has been proven on Komatsu's rigid dump trucks. The front axle suspension employs "De Dion" type design, allowing the machine to ride more smoothly over bumps. The rear-axles are mounted on a dynamic equalizer structure equipped with hydropneumatic suspension. The entire vehicle's suspension delivers a comfortable ride and maximizes the productivity.



## Large Capacity Body and Box Section Frame Structure

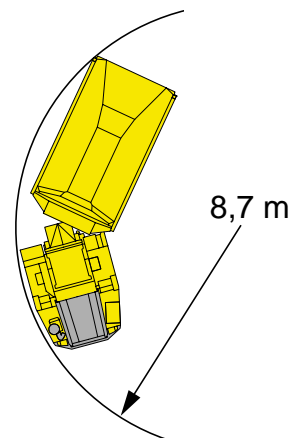
The 22,3 m<sup>3</sup> heaped capacity is among the highest in its class. The low loading height of 2.970 mm enables easy loading. The body is built of thick wear-resistant steel with a Brinell hardness of 400, and the body shape provides excellent load stability. Rugged enough for the toughest jobs, the HM400's frame is designed using a rigid box structure with high strength low alloy steel.

## Fully Hydraulically Controlled Wet Multiple-Disc Brakes and Retarder

Wet multiple-disc brakes have been proven on Komatsu rigid dump trucks and wheel loaders. They ensure highly reliable and stable brake performance.

## Articulated Steering

Fully hydraulic articulated steering offers low-effort operating performance and maneuverability. A minimum turning radius of only 8,7 m provides the freedom to move about in confined areas.





## OPERATOR ENVIRONMENT

**Komatsu has developed a state-of-the-art, wide comfortable cab. The low level of vibration and noise ensure maximum productivity from the operator.**

### Wide, Spacious Cab

The wide cab provides a comfortable space for the operator and a full size trainer seat with underseat storage space. Large electrically operated windows and the operator's seat positioned to the left side ensures superior visibility.

### Ergonomically Designed Cab

The ergonomically designed operator's compartment makes it very easy and comfortable for the operator to use all the controls. The result is more confident operation by operators and greater productivity

### Easy-to-See Instrument Panel

The instrument panel makes it easy to monitor critical machine functions. In addition, a caution light warns the operator of any problems that may occur. Problems are recorded in the monitor and indicated as service codes. This makes the machine very friendly and easy to service.



### Steering Wheel and Pedals

Low effort pedals reduce operator fatigue when working continuously for long periods. The tiltable, telescopic steering column enables operators to maintain the optimum driving position at all times.



## Built-in ROPS/FOPS

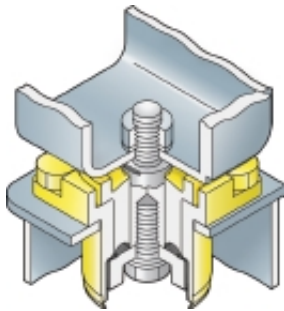
These structures conform to ISO 3471 and SAE J1040-1988 standards.

## All Terrain Hydro-pneumatic Suspension

The hydro-pneumatic suspension assures a comfortable ride even over rough terrain and ensures maximum productivity and operator confidence.

## Viscous Cab Mounts

Viscous mounts reduce the noise transmitted to the cab and achieve 79 dB(A) noise level. (ISO 6396)



## Air Suspension Seat

The air suspension, fabric-covered seat which is adjustable to the operator's weight is provided as standard. The air suspension seat dampens vibrations transmitted from the machine and reduces operator fatigue as well as holding the operator securely to assure confident operation.

## Electric Body Dump Control Lever

The low effort lever makes dumping easier than ever.

## Supplementary Steering

Supplementary steering is a standard feature.

Meets: ISO 5010-1992, SAE J1511





## EASY MAINTENANCE

The HM400-1 has been designed to keep service time down and productivity up by having a maintenance-free oscillating pivot, a reduced number of grease points, easy access to filters, and longer intervals between oil changes.

### Tiltable Cab

The cab can be tilted rearward to provide easy maintenance/service for the engine and transmission.



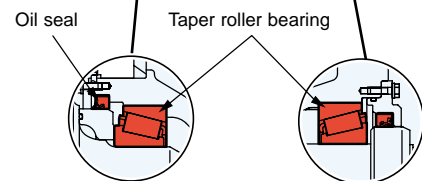
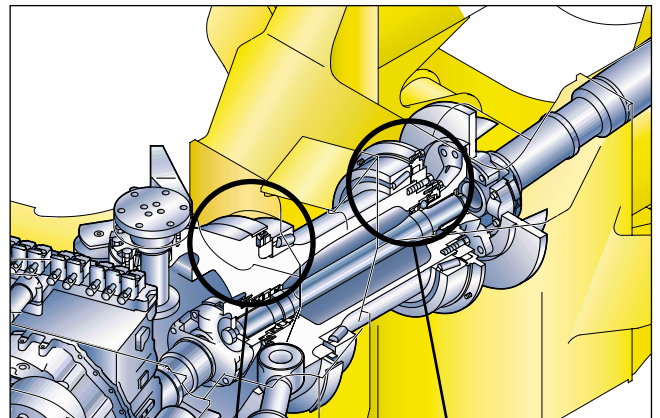
### Fewer Grease Points

The number of grease points are minimized by using maintenance-free rubber bushings and a maintenance-free oscillating hitch.

### Extended Service Intervals

In order to minimize operating costs, service intervals have been extended:

- Engine oil 500 hours
- Transmission oil 1.000 hours
- Engine and transmission filters 500 hours



### Supplementary Protection

The following guards are provided as standard:

- Protective grill for rear window
- Engine underguard
- Transmission underguard
- Propeller shaft guards
- Exhaust thermal guard
- Fire prevention covers

### Easy acces for filters and lubricants





# SPECIFICATIONS



## ENGINE

Model ..... Komatsu SAA6D140E-3  
 Type ..... Water-cooled, 4-cycle  
 Aspiration ..... Turbo-charged and air-to-air after-cooled  
 Number of cylinders ..... 6  
 Bore ..... 140 mm  
 Stroke ..... 165 mm  
 Piston displacement ..... 15,2 ltr  
 Performance:  
 Gross horsepower ..... 331 kW 444 HP  
 Flywheel horsepower ..... 321 kW 430 HP  
 Rated RPM ..... 2000 RPM  
 Maximum torque ..... 1990 Nm  
 Fuel system ..... Direct injection  
 Governor ..... Electronically controlled  
 Lubrication system  
 Method ..... Gear pump, force-lubrication  
 Filter ..... Full-flow type  
 Air cleaner ..... Dry type with double elements and precleaner, plus dust indicator



## TRANSMISSION

Torque converter ..... 3-elements, 1-stage, 2-phase  
 Transmission ..... Full-automatic, counter-shaft type  
 Speed range ..... 6 speeds forward and 2 reverse  
 Lockup clutch ..... Wet, single-disk clutch  
 Forward ..... Torque converter drive in 1st gear, direct drive in 1st lockup and all higher gears  
 Reverse ..... Torque converter drive and direct drive in all gear  
 Shift control ..... Electronic shift control with automatic clutch modulation in all gear

	FORWARD						REVERSE	
	1	2	3	4	5	6	1	2
Gear	1	2	3	4	5	6	1	2
Km/h	7,2	11,0	16,9	25,8	39,4	58,6	7,4	17,5
miles/h	4,5	6,8	10,5	16,0	24,5	36,4	4,6	10,9



## AXLES

Full time all wheel drive with limited slip differential in all axles.  
 Final drive type ..... Planetary gear  
 Ratios:  
 Differential ..... 3,417  
 Planetary ..... 4.941



## SUSPENSION SYSTEM

Front ..... Hydro-pneumatic suspension  
 Rear ..... Combined hydro-pneumatic and rubber suspension system



## STEERING SYSTEM

Type ..... Articulated type, fully hydraulic power steering with two double-acting cylinders.  
 Supplementary steering ..... Automatically actuated, electrically powered (meets SAE J695B)  
 Minimum turning radius, wall to wall ..... 8,7 m  
 Articulation angle ..... 45° each direction



## BRAKES

Service brakes ..... Full-hydraulic control, oil-cooled multiple-disc type on all wheels  
 Parking brake ..... Spring applied, caliper disc type  
 Retarder ..... Front and center axle brakes act as retarder  
 Secondary retarder ..... Engine exhaust



## MAIN FRAME

Type ..... Articulated type, box-sectioned construction on front and rear



## BODY

Capacity:  
 Struck ..... 16,5 m<sup>3</sup>  
 Heaped (2:1, SAE) ..... 22,3 m<sup>3</sup>  
 Payload ..... 36,5 metric tons  
 Material ..... 130 kg/mm<sup>3</sup>, hardness 400 BRINELL, high tensile strength steel  
 Plate thickness:  
 Bottom ..... 16 mm  
 Front ..... 8 mm  
 Sides ..... 12 mm  
 Target area  
 (inside length x width) ..... 5629 mm x 3194 mm



## HYDRAULIC SYSTEM

Hoist cylinder ..... Twin, 2-stage telescopic type  
 Relief pressure ..... 20,6 Mpa 210 kg/cm<sup>2</sup> 2.990 psi  
 Hoist time ..... 12 sec



## ENVIRONMENT

Engine emissions ..... Fully complies with European stage 2 exhaust emission regulations  
 Noise levels at operators ear inside cabin (dynamic) ..... LpA 79 dB(A) ISO 6396

## SPECIFICATIONS



### CAB

Dimensions comply with ISO 3471 and SAE J1040-1988c ROPS (Roll-Over Protective Structure) standards



### TIRES

Standard tire . . . . . 29,5 R25



### WEIGHT (APPROXIMATE)

Empty weight . . . . . 30.170 kg  
 Gross vehicle weight . . . . . 66.745 kg  
 Weight distribution:  
 Empty: Front axle . . . . . 55,4%  
           Center axles . . . . . 22,3%  
           Rear axles . . . . . 22,3%  
 Loaded: Front axle . . . . . 28,4%  
           Center axles . . . . . 35,8%  
           Rear axles . . . . . 35,8%



### SERVICE REFILL CAPACITIES

Fuel tank . . . . . 495 ltr.  
 Engine oil . . . . . 52 ltr.  
 Torque converter, transmission and retarder cooling . . . . . 115 ltr.  
 Differentials (total) . . . . . 54.5 ltr.  
 Final drives (total) . . . . . 35 ltr.  
 Hydraulic system . . . . . 180 ltr.  
 Suspension (total) . . . . . 28.4 ltr.



### GROUND PRESSURE

At 75 mm ground penetration and with specified weights and tire pressures:

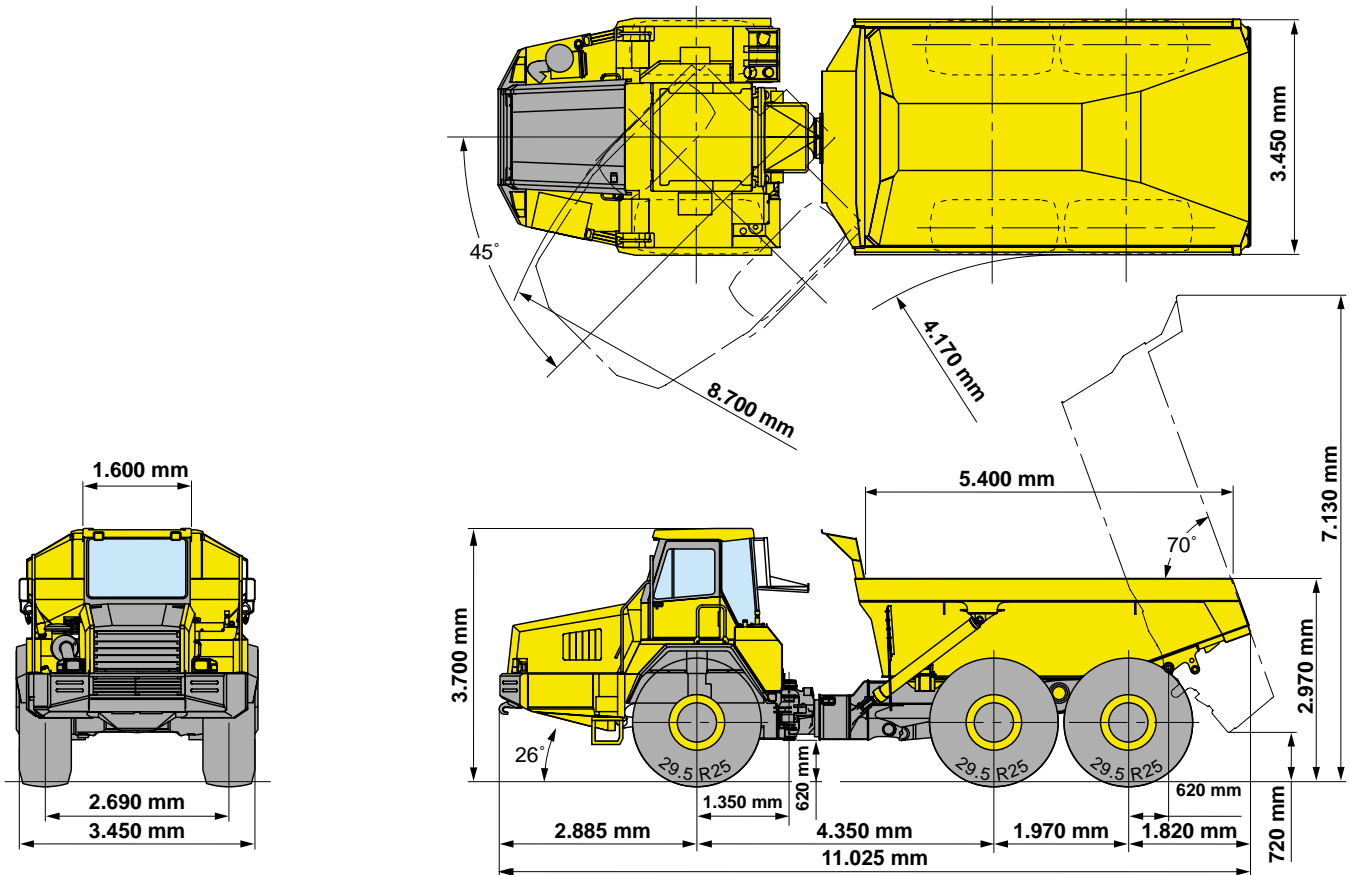
With tires	29.5 R25	875/65 R29
<i>Unloaded</i>		
Front	120 kpa	110 kpa
Rear	80 kpa	70 kpa
<i>Loaded</i>		
Front	160 kpa	120 kpa
Rear	170 kpa	160 kpa







### DIMENSIONS

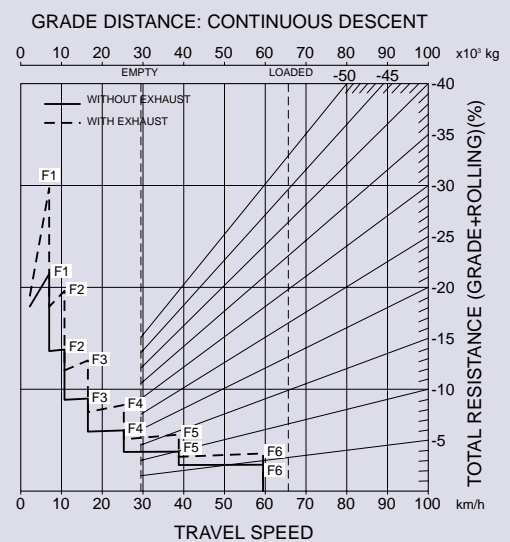


Increase in width by using 875/65R 29 tyres = 180 mm.

### TRAVEL PERFORMANCE



### BRAKE PERFORMANCE



# ARTICULATED DUMP TRUCK



## STANDARD EQUIPMENT

### ENGINE

- Alternator 75/A24V
- Dual element air cleaner
- Batteries, 170 Ah/2 x 12V
- Electric Governor
- Komatsu SAA6D140E-3 engine
- Exhaust muffler with stack
- Fully automatic K-ATOMIC transmission
- 11 KW starte
- Fuel/water separator

### CAB

- Dual entry
- Air suspension seat with 78mm seat belt
- Trainer's seat
- Air conditioner/heater/defroster
- Provision for Radio Cassette
- Electric windows

- 12 Volt Electrical Outlet
- Cigarette Lighter & Ashtray
- Cupholder
- Hazard Warning Lights
- Electronic Hoist control
- Telescopic & Tilting Steering Wheel
- EMS Instrument Panel
- Tilttable cab for easy serviceability
- Windscreen washer and wiper – front and rear

### LIGHTING SYSTEM

- Reverse light
- Hazard light system
- Headlights with dimmer switch
- Stop, tail and turn signal lights
- Front working lights
- Side working lights

### MACHINE PROTECTION/ SECURITY

- ROPS/FOPS
- Transmission Guard
- Engine UnderGuard
- Front Propshaft Guard
- Rear Propshaft Guard
- Rear Window Guard
- Supplementary steering
- Emergency Brake
- Overturn warning system
- Underview Mirror
- Rearview Mirrors
- Retarder /brake system continuously cooled

### GENERAL

- Spare Parts for First Service
- General Tool Kit
- Cap & Overall

### BODY

- 22.3m<sup>3</sup> body
- Muffler No body heating
- Mudflaps in front of leading rear wheels

### STANDARD TYRES

- Michelin 29.5 R25 XADN tyres

### MACHINE

- Cab tilt Cylinder
- Central greasing
- Limited Slip Differentials in all axles
- Back up alarm
- Platform hand rails
- Electric horn
- Interaxle lock clutch type
- Ladders, left & right sides

## OPTIONAL EQUIPMENT

### TIRES

- Michelin 29.5 R25 XADT tires
- Michelin 875.65 R29 tires

### LIGHTS

- Fog Light
- Light for Ladder
- Flashing Amber Beacon

### BODY

- Quarry Body 22.3 m<sup>3</sup>
- Heated Body
- Wire Operated Overhung Tailgate
- 20cm side extensions
- Body wear plates

### SECURITY

- Rear view TV Monitor
- Fire Extinguisher
- Additional rearview mirrors

### MACHINE

- Tachograph
- Revograph
- Maintenance Monitor

- Electric Fan
- Cold Arrangement (-30)
- Hot and Sandy Arrangement
- Automatic lubrication system
- Engine Oil & Coolant Heater
- 30 Ton Jack
- Suspension Gas Tool
- Differential Lock
- Engine Exhaust brake

# KOMATSU

## Komatsu Europe International NV

Mechelsesteenweg 586  
B-1800 VILVOORDE (BELGIUM)  
Tel. +32-2-255 24 11  
Fax +32-2-252 19 81  
www: komatsueurope.com