

HEAVY MACHINERY REFERENCE MANUAL

A Bedrock Knowledge Base Document

1. FORKLIFT – GENERAL OVERVIEW

Purpose

A forklift is designed to lift, carry, and transport palletized loads over short distances.

Key Features

- Forks that slide under pallets
- Hydraulic lifting mast
- Counterweight for stability
- Tight turning radius
- Operator seat with overhead guard

Common Applications

- Warehousing
- Manufacturing
- Logistics hubs
- Retail stock rooms

Typical Specifications

- Lifting Capacity: 1–5 tons
 - Maximum Lift Height: 3–6 meters
 - Fuel Types: Electric, LPG, diesel
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2. BULLDOZER – GENERAL OVERVIEW

Purpose

A bulldozer pushes, spreads, and grades large volumes of soil, rock, debris, or sand.

Key Features

- Large front blade (straight, U-blade, semi-U)
- Heavy-duty tracks for stability
- Rear ripper for breaking hard ground
- Strong torque for pushing materials

Common Applications

- Land clearing
- Mining
- Earthmoving
- Road construction

Typical Specifications

- Operating Weight: 15–90 tons
 - Engine Power: 150–850 hp
 - Blade Capacity: 5–30 m³
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3. EXCAVATOR – GENERAL OVERVIEW

Purpose

Excavators are used for digging, trenching, demolition, and heavy lifting.

Key Features

- Hydraulic boom, stick, and bucket
- 360° rotating cab
- Steel or rubber tracks
- Optional attachments (hammer, auger, grapple)

Common Applications

- Foundation digging
- Trenching
- Demolition

- Material handling

Typical Specifications

- Operating Weight: 10–80 tons
 - Engine Power: 100–500 hp
 - Bucket Capacity: 0.2–4 m³
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4. DUMP TRUCK – GENERAL OVERVIEW

Purpose

Dump trucks haul large loads of soil, aggregates, and mining material.

Key Features

- Hydraulic dump bed
- Heavy-duty suspension
- Large carrying capacity

Common Applications

- Mining
- Quarry operations
- Earthmoving
- Road building

Typical Specifications

- Payload: 20–400 tons
 - Engine Power: 300–3,000 hp
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5. WHEEL LOADER – GENERAL OVERVIEW

Purpose

A wheel loader scoops and transports large quantities of loose materials.

Key Features

- Front-mounted wide bucket
- High dumping height
- Large wheels for mobility

Common Applications

- Loading dump trucks
- Stockpile management
- Sand, gravel, soil handling

Typical Specifications

- Operating Weight: 5–40 tons
 - Bucket Capacity: 1–7 m³
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6. BACKHOE LOADER – GENERAL OVERVIEW

Purpose

A versatile machine with both a front loader and a rear backhoe arm.

Key Features

- Bucket in front, backhoe at rear
- 2-wheel or 4-wheel steering
- Suitable for tight-space work

Common Applications

- Urban construction
- Pipe laying
- Landscaping
- Light excavation

Typical Specifications

- Operating Weight: 7–10 tons
- Engine Power: 70–120 hp

7. CRANE – GENERAL OVERVIEW

Purpose

Cranes lift and position heavy materials vertically and horizontally.

Key Features

- Telescopic or lattice boom
- Counterweights
- Hydraulic lifting system
- Outriggers for stability

Common Applications

- High-rise construction
- Bridge building
- Industrial installation

Typical Specifications

- Lifting Capacity: 10–1,500 tons
- Maximum Boom Length: 20–100 meters

8. SKID STEER LOADER – GENERAL OVERVIEW

Purpose

Compact machine used for digging, grading, and material handling.

Key Features

- Small footprint
- Zero-radius turning
- Many attachments (forks, auger, trenchers)

Common Applications

- Landscaping

- Indoor demolition
- Agriculture

Typical Specifications

- Operating Weight: 2–4 tons
 - Engine Power: 50–100 hp
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9. MOTOR GRADER – GENERAL OVERVIEW

Purpose

Motor graders create smooth, flat surfaces for road construction.

Key Features

- Long adjustable blade
- High precision leveling
- Articulated steering

Common Applications

- Road grading
- Fine leveling
- Snow removal

Typical Specifications

- Engine Power: 120–250 hp
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10. COMPACTOR / ROAD ROLLER – GENERAL OVERVIEW

Purpose

Compactors compress soil, gravel, or asphalt to increase density.

Key Features

- Steel drum or pneumatic tires
- Vibratory mechanism

- High compaction force

Common Applications

- Road paving
- Foundation preparation
- Landfill operations

Typical Specifications

- Operating Weight: 3–20 tons