International Standard ISO 5053/1

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Powered industrial trucks — Terminology — Part 1 : Classification and nomenclature

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Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

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It has been approved by the member bodies of the following countries :

Australia	India	Romania
Austria	Italy	South Africa, Rep. of
Belgium	Japan	Sweden
Bulgaria	Korea, Dem. P. Rep. of	Switzerland
Chile	Korea, Rep. of	Turkey
Czechoslovakia	Libyan Arab Jamahiriya	United Kingdom
Denmark	Netherlands	USSR
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The member bodies of the following countries expressed disapproval of the document on technical grounds :

Germany, F. R.
Spain

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Powered industrial trucks — Terminology — Part 1 : Classification and nomenclature

1 Scope and field of application

This International Standard establishes a nomenclature for powered industrial trucks based on their classification, and on a list of components and basic terms.

2 Classification of trucks

2.1 Classification of trucks by mode of action

2.1.1 Fixed height load carrying trucks (fixed platform trucks)

2.1.2 Towing and pushing tractors

2.1.3 Lift-trucks

2.1.3.1 Stacking (high lift)

2.1.3.1.1 Counterbalanced lift trucks (for example fork lift trucks)

2.1.3.1.2 Reach trucks (with retractable mast or fork)

2.1.3.1.3 Straddle trucks

2.1.3.1.4 Pallet stacking trucks

2.1.3.1.5 Platform trucks

2.1.3.1.6 Trucks with elevatable operating position

2.1.3.1.7 Side-loading trucks

2.1.3.1.8 Rough terrain trucks

2.1.3.1.9 Lateral stacking trucks

2.1.3.1.10 Lateral and front stacking trucks

2.1.3.1.11 Straddle carriers

2.1.3.2 Non-stacking

2.1.3.2.1 Pallet trucks

2.1.3.2.2 Platform and stillage trucks

2.1.3.2.3 Straddle carriers

2.1.3.2.4 Order-picking trucks

2.2 Classification of trucks by power source

2.2.1 Internal combustion

2.2.1.1 Petrol

2.2.1.2 Liquefied petroleum gas (LPG)

2.2.1.3 LPG/petrol

2.2.1.4 Diesel

2.2.2 Electric

2.2.2.1 With storage battery

2.2.2.2 External source

2.2.3 Internal combustion engine : electric

2.3 Classification of trucks by types of wheel

2.3.1 Wheels with pneumatic tyres

2.3.2 Wheels with pneumatic shaped solid tyres

2.3.3 Wheels with solid tyres

2.3.4 Wheels with metal rims

2.4 Classification of trucks by mode of control

2.4.1 Rider control

2.4.1.1 Sit-on

2.4.1.1.1 Facing forward

2.4.1.1.2 Other than direction of travel

2.4.1.2 Stand-on

2.4.1.2.1 Facing forward

2.4.1.2.2 Other than direction of travel

2.4.2 Pedestrian controlled[1)]

2.4.3 Remote controlled

2.5 Classification of trucks by height of lift

2.5.1 Non-lifting

2.5.2 Low lift (non-stacking trucks)

2.5.3 Medium lift (stacking trucks and non-stacking trucks)

2.5.4 High lift (stacking trucks and non-stacking trucks)

2.6 Classification of trucks by mode of travel

2.6.1 Free travel

2.6.1.1 Uni-directional

2.6.1.2 Bi-directional

2.6.1.3 Multi-directional

2.6.2 Guided travel

2.6.3 Free or guided travel

3 Components of trucks

3.1 Chassis and associated components

3.1.1 Chassis

3.1.2 Counterweight

3.1.3 Ballast containers

3.1.4 Additional ballast weights

3.1.5 Bodywork

3.1.6 Driving position

3.1.7 Stabilizers

3.2 Axles

3.2.1 Drive

3.2.2 Steer

3.2.3 Drive-steer

3.2.4 Load

3.3 Driving and steering unit

3.4 Wheels[2)]

3.4.1 Function of wheels

3.4.1.1 Drive

3.4.1.2 Steer

3.4.1.3 Drive-steer

3.4.1.4 Load

3.4.1.5 Stabilizer

3.4.1.6 Guide

1) Some trucks may have facilities for rider control.

2) See ISO 2163, *Industrial trucks — Wheels and castors — Vocabulary.*

3.4.2 Arrangement of wheels

3.4.2.1 Number of wheels at any mounting

3.4.2.1.1 Single (1)

3.4.2.1.2 Twin (2)

3.4.2.1.3 Multiple (> 2)

3.4.2.2 Mounting of wheels

3.4.2.2.1 Cantilever

3.4.2.2.2 Fork

3.4.3 Construction of wheels

3.4.3.1 Wheel made from only one material (monobloc, for example metal, plastic, rubber)

3.4.3.2 Bonded tyred wheel

3.4.3.3 Pressed-on tyred wheel

3.4.3.4 Split rim for removable solid tyres — flat base

3.4.3.5 Split rim for removable solid tyres — conical base

3.4.3.6 Wheels for pneumatic and pneumatic-shaped solid tyres

3.4.4 Suspension mountings

3.4.4.1 Articulated

3.4.4.2 Springloaded

3.4.4.3 Bogie

3.4.4.4 Tandem

3.5 Other means of support

3.6 Power units

3.6.1 Electric motor

3.6.2 Internal combustion engine[1)]

3.6.2.1 Petrol

3.6.2.2 Liquefied petroleum gas (LPG)

3.6.2.3 LPG/Petrol

3.6.2.4 Diesel

3.6.3 Dual fuel

3.7 Transmission — systems

3.7.1 Hydraulic

3.7.1.1 Hydrodynamic

3.7.1.2 Hydrostatic

3.7.2 Mechanical

3.7.3 Electric

3.8 Electrical equipment

3.8.1 Electric trucks

3.8.1.1 Traction battery

3.8.1.2 Charging set (built in or not)

3.8.1.3 Control devices, controllers, contractors, resistances, electronic control systems

3.8.2 Engine powered trucks

3.8.2.1 Starter battery

3.8.2.2 Charging equipment (dynamo, alternator, etc.)

3.8.2.3 Starter motor

3.8.3 Ancillary electrical equipment (for all types of trucks)

3.8.3.1 Lighting

3.8.3.1.1 Driving-lights (regulation lights)

3.8.3.1.2 Working lights

1) See ISO 2710, *Reciprocating internal combustion engines — Vocabulary*

3.8.3.2 Instruments

3.8.3.2.1 Recording (ampere hour meter, time recorder, etc.)

3.8.3.2.2 Indicating (fuel, temperature, battery discharge, etc.)

3.8.3.3 Accessories (connectors, wires, etc.)

3.9 Fuel supply system for IC engine

3.9.1 Petrol

3.9.2 Supply system for liquefied petroleum gas (LPG)

3.9.2.1 Removable container

3.9.2.2 Fixed container with filling valve

3.9.2.3 Pressure reducer

3.9.2.4 Gas-air mixer (vaporizer)

3.9.2.5 Valves

3.9.2.6 Safety-valves

3.9.2.7 Piping

3.9.3 Diesel

3.10 Steering system

3.10.1 Control elements

3.10.1.1 Wheel

3.10.1.2 Lever

3.10.1.3 Tiller

3.10.1.4 Oscillating platform

3.10.2 Types of system

3.10.2.1 Mechanical

3.10.2.2 Hydraulic

3.10.2.3 Pneumatic

3.10.2.4 Electric

3.10.2.5 Composite

3.10.3 Types of control

3.10.3.1 Manual

3.10.3.2 Power assisted

3.10.3.3 Fully assisted

3.11 Braking system

3.11.1 Types of brakes

3.11.1.1 Service

3.11.1.2 Parking (or immobilising)

3.11.1.3 Emergency

3.11.2 Types of systems

3.11.2.1 Mechanical

3.11.2.2 Hydraulic

3.11.2.3 Electric

3.11.2.4 Pneumatic

3.11.2.5 Composite (or power assisted)

3.11.2.6 Power reversal

3.11.3 Types of control

3.11.3.1 Mechanical

3.11.3.2 Power assisted

3.11.3.3 Fully powered

3.12 Load bearing attachments

3.12.1 Fork arms

3.12.1.1 Hook mounted[1)]

1) See ISO 2331, *Fork lift trucks — Hook-on type fork arms — Vocabulary*.

3.12.1.2 Shaft mounted

3.12.1.3 Bolted or welded

3.12.1.4 Special (for example rotating, folding, etc.)

3.12.1.5 Extension for the fork arms

3.12.2 Load platform

3.12.2.1 Fixed

3.12.2.2 Elevating

3.12.2.3 Tipping

3.12.3 Other attachments

3.12.3.1 Types of attachments

3.12.3.1.1 Fixed with respect to the fork carrier (crane-arm, boom, etc.) or with respect to the chassis (container, tank, etc.)

3.12.3.1.2 Load bearing attachment or part, movable with respect to the fork carrier (fork truck) or with respect to the chassis (other trucks)

3.12.3.1.2.1 Mechanical (drop bottom container or scoop, etc.)

3.12.3.1.2.2 Hydraulic (clamp, side-shift, rotating head, etc.)

3.12.3.1.2.3 Pneumatic (vacuum, etc.)

3.12.3.1.2.4 Electric (electro-magnet, etc.)

3.12.3.2 Modes of action of equipment

3.12.3.2.1 Simple clamping device for engaging the load (for example stabilizer, squeeze clamp attachment)

3.12.3.2.2 Simple equipment for engaging and imparting movement to the load (for example side shift, push-pull, rotating head)

3.12.3.2.3 Multiple equipment (rotating clamp, etc.)

3.13 Components associated with movements of the load (excluding travel)

3.13.1 Common components

3.13.1.1 Motor or engine (see 3.6)

3.13.1.2 Hydraulic components (pump, control valve, piping and accessories)

3.13.2 Lifting assembly

3.13.2.1 Mast

3.13.2.1.1 Non-telescopic (simple)

3.13.2.1.2 Telescopic

3.13.2.1.2.1 Double (simple telescopic)

3.13.2.1.2.2 Triple

3.13.2.1.2.3 Quadruple

3.13.2.1.3 Lifting jack

3.13.2.1.4 Lifting chain or cable

3.13.2.2 Articulated arms

3.13.2.2.1 Non-telescopic

3.13.2.2.2 Telescopic

3.13.2.2.3 Control jacks

3.13.2.3 Other components

3.13.2.3.1 Fork arm carrier

3.13.2.3.2 Fork arm (or other attachments) (see 3.12.1)

3.13.2.3.3 Tilting system

3.13.2.3.4 Reach system

3.13.3 Other lifting systems (for example cranes on fixed height load carrying trucks)

3.13.3.1 Screw

3.13.3.2 Winch

4 Terms relating to truck data

4.1 Service weight (mass)

4.2 Shipping weight (mass)

4.3 Weight (mass) of the traction battery unit

4.4 Load per axle (front, rear) of the truck in working order, unladen

4.5 Load per axle (front, rear) of the truck in working order, with its rated load

4.6 Load per wheel (front, rear) of the truck in working order, unladen

4.7 Load per wheel (front, rear) of the truck in working order, with its rated load

4.8 Front and reat track

4.9 Wheel base

4.10 Rated capacity and load diagram

4.11 Load centre distance

4.12 Overall dimensions

4.12.1 Height

4.12.1.1 Mast retracted

4.12.1.2 Mast extended

4.12.1.3 Overhead guard or over cab

4.12.2 Length without fork arms

4.12.3 Width

4.13 Free lift height

4.14 Maximum lift height at rated load

4.15 Overall maximum lift height

4.16 Overhang : front, reat, lateral

4.17 Ground clearance under mast

4.18 Ground clearance at centre of wheel base

4.19 Ramp angles

4.20 Minimum outiside turning radius

4.21 Width of theoretical minimum intersecting aisle with and without load

4.22 Width of theoretical minimum aisle for right angles stacking with and without load

4.23 Draw bar pull[1)]

4.24 Maximum negotiable gradient { laden / unladen }

4.25 Maximum inclination of the mast, forward and backward

4.26 Maximum travel speed on the level, with and without load

4.27 Stopping distance

4.28 Maximum lift speed with and without load

4.29 Maximum lowering speed with and without load

5 Specific operating terms

5.1 Engaging the load — disengaging the load

5.2 Lifting the load — lowering the load

5.3 Stacking — unstacking

5.4 Tiering — untiering

5.5 Tilting the mast (or fork arms) forward - backward

5.6 Extension or retraction of the mast or fork arms { forward / laterally }

5.7 Travelling

5.8 Inching

5.9 Towing

5.10 Coupling — uncoupling

5.11 Rotating (attachments)

5.12 Pivoting (mast or attachments)

1) See ISO 1084, *Industrial tractors — Definition and nominal rating.*

5.13 Load push — load pull

5.14 Side shifting

5.15 Spreading the fork arms

5.16 Rotating (fork arms)

5.17 Clamping — unclamping

5.18 Load stabilization

5.19 **Scooping — emptying**

5.20 Lowering stabilizers — raising stabilizers

5.21 Tipping

5.22 Order picking

6 Safety features

6.1 Stability

6.1.1 Static

6.1.1.1 Longitudinal

6.1.1.2 Lateral

6.1.2 Dynamic

6.1.2.1 Longitudinal

6.1.2.2 Lateral

6.2 Brakes

6.3 Safety equipment

6.3.1 Guards for driving position

6.3.2 Overhead guard

6.3.3 Load — backrest

6.3.4 Spark-arrester (internal combustion engine)

6.3.5 Water-muffler

6.3.6 Exhaust gas purifier (for example catalyser)

6.3.7 Flameproofing equipment

6.3.8 Load indicator

6.3.9 Horn

6.3.10 Safety lock (switch key)

6.3.11 Safety switch (seat or pedal)

6.3.12 Safety reverser

6.3.13 Driving mirror

6.3.14 Electrical overload device

6.3.15 Anti-collision device (remote controlled trucks)

6.3.16 Operator restraining device

6.3.17 Warning lights (flashing beacon, etc.)