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Earth-moving machinery — Hydraulic Breakers — Terminology and commercial specifications —

Part : Terminology and commercial specifications

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Foreword

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This document was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*, Subcommittee SC 4, *Terminology, commercial nomenclature, classification and ratings*.

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Earth-moving machinery — Hydraulic Breakers — Terminology and commercial specifications —

Part : Terminology and commercial specifications

1 Scope

This document establishes the terminology and content of commercial specifications for hydraulic breakers which are mounted as an attachment on a carrier, typically earth-moving machinery such as an excavator, backhoe loader, skid steer loader, and compact loader as defined in ISO 6165; or mounted on a rig, pedestal boom system, demolition robot, etc., at the end of an arm.

Hydraulic breakers are typically used to demolish or break rock, concrete, brickwork, asphalt, etc.

This document does not cover breakers powered by pneumatic, thermomechanical, or electromagnetic energy. This document also does not cover portable or hand-held breakers.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 6165, *Earth-moving machinery — Basic types — Identification and terms and definitions*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

carrier

machine, typically an excavator, backhoe loader, skid steer loader, compact loader, rig, pedestal boom system, demolition robot, etc

3.2

attachment

assembly of components that can be mounted onto the carrier for specific use

Note 1 to entry: Attachments for hydraulic excavators normally are the working tool attached to the end of the arm or a telescopic boom that provides the digging, cutting, grabbing and processing function of the excavator.

[SOURCE: ISO 6746-2:2003, 3.5, modified — The term “base machine and equipment” has been replaced with “carrier”.]

3.3

hydraulic breaker

percussive hydraulic attachment used for breaking up concrete, rock, brickwork, asphalt, etc

3.3.1 Accumulator

3.3.1.1

hydraulic accumulator

pressure storage reservoir that enables a hydraulic system to cope with extremes of demand and to smooth out pulsations

3.3.1.2

piston accumulator

energy storage chamber charged with nitrogen into which the upper end of the piston reciprocally projects and which imparts stored energy onto the upper surface area of the piston to assist with piston acceleration

3.3.2

back head

device that closes upper end of cylinder and has a space into which the upper end of piston reciprocally projects

3.3.3

bracket

side plate

device that supports the main body which includes mounting holes to either bolt on to the carrier mounting adapter or to connect directly to the mounting flange holes on the carrier

3.3.4

tool

device that transmits the impact energy of reciprocating piston to the material to be broken

3.3.5

front head

device that attaches to lower end of the cylinder to guide and support the tool

3.3.6

housing

device that encloses the power cell (on all sides) and has mounting holes or is connected to the carrier with a mounting adapter

Note 1 to entry: Types of housings can be side-mount open, top-mount open, side-mount closed, and top-mount closed.

Note 2 to entry: Reference to open or closed refers to whether the power cell is exposed or not, respectively.

3.3.7

power cell

assembly generating impact energy, having piston, piston control valve, front head and back head

3.3.8

piston

device that transfers the energy of pressurized fluid and optionally nitrogen by moving reciprocally to impact the tool generating an impact force

3.3.9

through bolt

tie rod

device that ties the parts of the power cell together

3.3.10

piston control valve

device that controls the reciprocating motion of the piston

3.3.11**mounting adapter**

device that connects the hydraulic breaker to the carrier for adapter-type hydraulic breakers

3.4 Masses**3.4.1****carrier operating mass**

mass of the carrier in its most usual configuration as specified by the manufacturer, with the operator (75 kg), full fuel tank and all fluid systems (e.g. hydraulic oil, transmission oil, engine oil, engine coolant) at the levels specified by the manufacturer; and, when applicable, with sprinkler water tanks half full

[SOURCE: ISO 6016:2008, 3.2.1, modified — The term “carrier” has been added to the term being defined, and in the definition the term “based machine” was replaced by “carrier” and “i.e.” was replaced by “e.g.”]

3.4.2**breaker operating mass**

total assembled mass, including breaker, mounting adapter and mounting hardware, if applicable, and tool but excluding hydraulic hose, hydraulic tubing and mounting pins

3.4.3**power cell mass**

mass of power cell

3.4.4**breaker mass**

mass of breaker including power cell and bracket or housing, but excluding tool, hydraulic hoses, mounting adapter, mounting hardware and mounting pins

3.5 Working condition**3.5.1 Hydraulic fluid****3.5.1.1****flow rate**

flow rate of hydraulic fluid supplied from the carrier

3.5.1.2**flow rate range**

permitted inlet flow rate range

Note 1 to entry: Determined under normal operating conditions according to the manufacturer specifications.

3.5.1.3**hydraulic fluid temperature range**

permitted hydraulic fluid temperature range

Note 1 to entry: Determined under normal operating conditions according to the manufacturer specifications.

3.5.2 Hydraulic pressure**3.5.2.1****operating pressure range**

permitted inlet operating pressure, measured as close to the breaker inlet port as possible

Note 1 to entry: Determined under normal operating conditions according to the manufacturer specifications.

3.5.2.2

maximum allowed return flow back pressure

maximum permitted hydraulic outlet pressure, measured as close to the breaker outlet port as possible

Note 1 to entry: Determined under normal operating conditions according to the manufacturer specifications.

3.6 Dimensions

See [Figure 1](#).

3.6.1

overall length

*L*₁

distance from the tool tip when retracted in the power cell to the top of the hydraulic breaker including bracket or housing but not including mounting adapter

3.6.2

overall length without tool

*L*₂

overall length excluding tool

3.6.3

power cell length

*L*₃

length without bracket, housing and tool

3.6.4

power cell width

*W*₂ and *W*₄

width without bracket, housing and tool.

Note 1 to entry: The power cell width can be different at the top and the bottom dependent upon the design.

3.6.5

effective length of tool

*L*₄

exposed length of tool from hydraulic breaker when contact pressure is applied

3.6.5.1

working length of tool

*L*₄

exposed length of tool from hydraulic breaker when the tool is fully extended

3.6.6

tool diameter

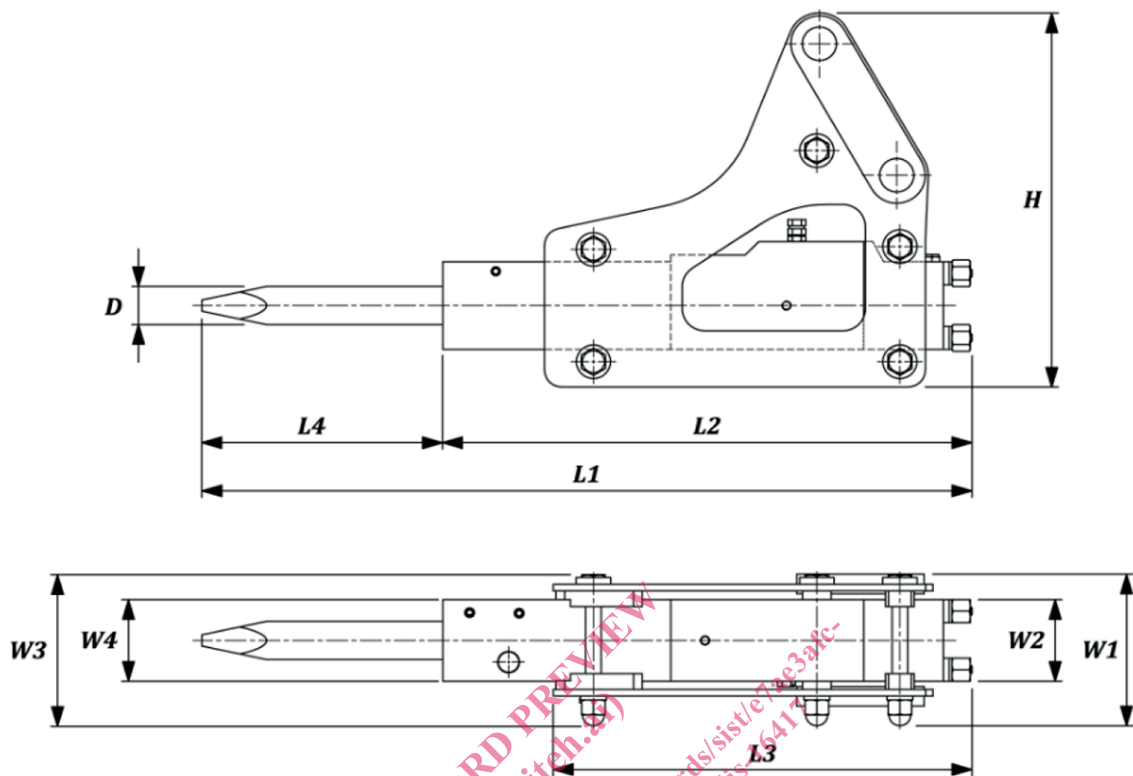
D

dimension of the tool that is outside the breaker

3.6.7

shank diameter

dimension of the tool that goes inside the breaker

**Key**

$L1$	overall length	H	overall height
$L2$	overall length without tool	$W1$	overall width (top)
$L3$	power cell length	$W2$	power cell width (top)
$L4$	effective length of tool	$W3$	overall width (bottom)
D	tool diameter	$W4$	power cell width (bottom)

Figure 1 — Dimensions of a hydraulic breaker

4 Types and classifications

Mount types (side or top) are divided by mounting direction and mount methods are divided by using mounting adapter refer to [Table 1](#). For each type, the housing of the power cell may be either open or closed.