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**Hand-held power tools — Impulse
wrenches — Dimensions and tolerances
of interface to power socket**

*Machines portatives — Clés à impulsion — Dimensions et tolérances
de l'interface pour douille-machine*



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Foreword

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Introduction

When power sockets for hand-held pulse wrenches are centred on the cylindrical surface of the spindle, several advantages are achieved.

Through this centred engagement

- vibrations and wobbling are reduced, in turn reducing the risk for injury and improving operator ergonomics,
- torque accuracy is increased, improving the quality of the production, and
- energy loss is reduced, saving energy.

The variety of dimensions on the spindle diameter has created a need for standardization of the interface between these pulse tools and power sockets. Because of the existence of differently designed impulse wrenches, the need for two options, A and B, for the series of values for the spindle and the internal socket diameters, has also been perceived.

This document has been published as a technical specification (see Foreword) in order to discourage the development of yet more designs, and enable the usage of each of the two series to be monitored, with the eventual aim of standardizing one of them.

Hand-held power tools — Impulse wrenches — Dimensions and tolerances of interface to power socket

1 Scope

This Technical Specification specifies the dimensions and tolerances for the interface between impulse wrenches and their power sockets: output spindle of power tool–female drive end of power socket. This interface is based on the principle of a socket centred on the cylindrical spindle. Alternative dimensions and tolerances for two options, A and B, are provided. It is applicable to both pneumatically and electrically driven impulse tools, and could also be used in other applications.

2 Terms and definitions

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

2.1

female drive end

part of a power socket at which the spindle of a power tool is attached

2.2

male spindle end

cylindrical and square part of the spindle of a power tool

2.3

power socket

part for the transmission of the torque from the spindle of a power tool to the fastener

2.4

impulse wrench

air-hydraulic impulse wrench

hydraulic pulse tool

impulse tool

oil pulse wrench

pulse tool

power tool with hydraulic pulse action for the installation of threaded fasteners

EXAMPLE Pulse nutsetter/nutrunner, pulse screwdriver.

2.5

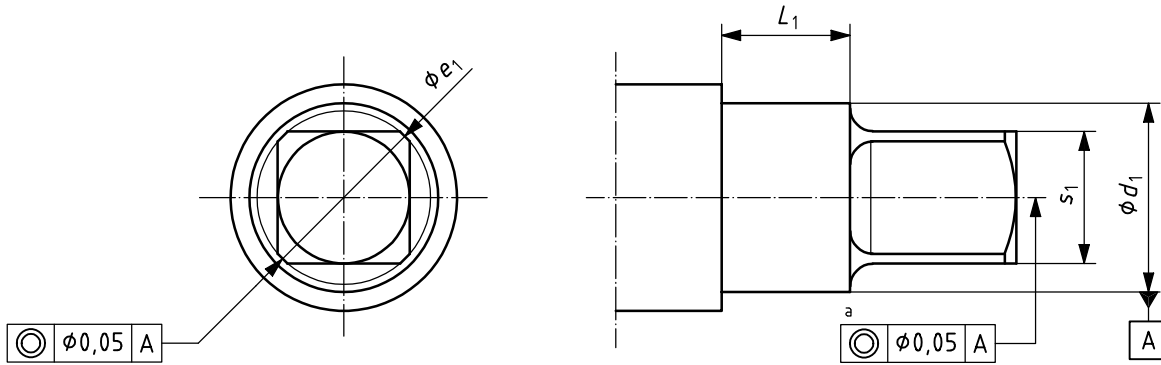
spindle

shaft of the power tool from which the torque is transmitted

3 Dimensions and tolerances

3.1 Male spindle end

The dimensions and tolerances for the male spindle end of the impulse wrench shall be in accordance with Figure 1 and Table 1.



Key

- d_1 spindle diameter
- e_1 diameter across square
- L_1 spindle length
- s_1 width across flats of square
- ^a Refers to centre of square.

Figure 1 — Dimensions and tolerances — Male spindle end

Table 1 — Dimensions and tolerances — Male spindle end

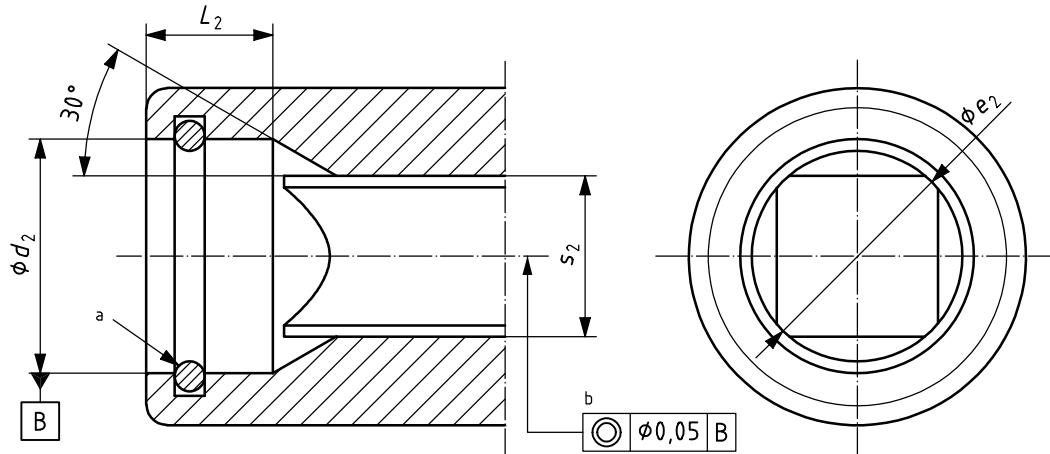
Dimensions in millimetres

Nominal square dimension	s_1^a		e_1			d_1 h7		L_1 min.
	max.	min.	^a max.	Option A ^a min.	Option B min.	Option A	Option B	
6,3	6,35	6,29	8,4	8	8	8,4	8,4	9
10	9,53	9,47	12,7	12,2	11,8	13	12	11
12,5	12,70	12,63	16,9	16,3	15,8	18	16	11
16	15,88	15,81	21,2	20,4	19,6	22	20	11
20	19,05	18,97	25,4	24,4	24,2	25	25	11
25	25,40	25,32	34	32,4	31,8	34	33	11

^a Dimension according to ISO 1174-2.

3.2 Female drive end

The dimensions and tolerances for the female drive end of the power socket shall be in accordance with Figure 2 and Table 2.



Key

- d_2 socket internal diameter
- e_2 diameter across square
- L_2 length of socket internal diameter
- s_2 width across flats of square
- a Rubber O-ring: may be used to take up the clearance to the male spindle.
- b Refers to centre of square.

Figure 2 — Dimensions and tolerances — Female drive end

Table 2 — Dimensions and tolerances — Female drive end

Dimensions in millimetres

Nominal square dimension	s_2^a		e_2^a min.	d_2 F8		L_2 0 -0,5
	max.	min.		Option A	Option B	
6,3	6,5	6,41	8,5	8,4	8,4	8
10	9,67	9,58	12,9	13	12	10
12,5	12,87	12,76	17,1	18	16	10
16	16,04	15,93	21,4	22	20	10
20	19,24	19,11	25,6	25	25	10
25	25,59	25,46	34,3	34	33	10

^a Dimension according to ISO 1174-2.

Annex A
(informative)

Application example

An application example showing a long power socket for impulse wrenches is given by Figure A.1.

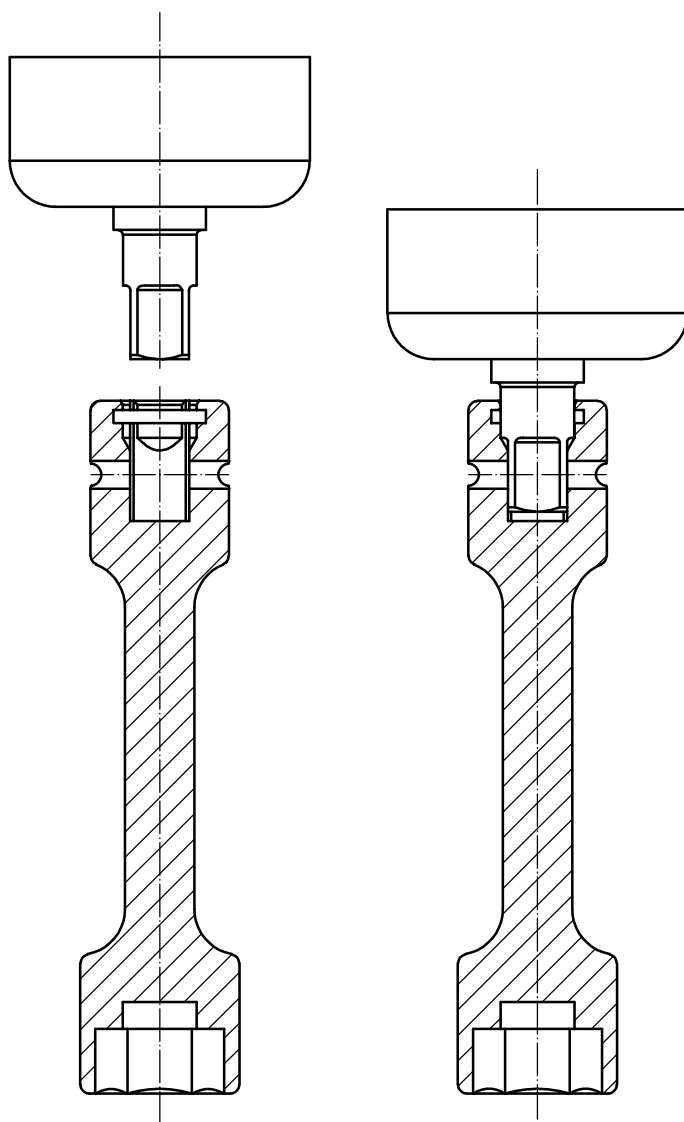


Figure A.1 — Example of long power socket for impulse wrenches

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- [2] ISO 5391:2003, *Pneumatic tools and machines — Vocabulary*
- [3] EN 792-6:2000, *Hand-held non-electric power tools — Safety requirements — Part 6: Assembly power tools for threaded fasteners*

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