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Hydraulic fluid power — Design methodology for energy efficient systems

Transmissions hydrauliques — Méthodologie de conception de systèmes à haut rendement énergétique

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Foreword

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This document was prepared by Technical Committee ISO/TC 131, *Fluid power systems*, Subcommittee SC 9, *Installations and systems*.

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Introduction

As environmental impact is a common challenge for all products and as natural resources become scarce, environmental performance criteria for hydraulic systems need to be defined and the use of these criteria needs to be specified.

Based on relevant considerations, ISO 18464 is focused on environmental impacts related to the energy consumed by hydraulic systems during operation and defines a design process for hydraulic systems including energy consumption as a key criterion.

Energy consumption of hydraulic systems is primarily defined by the type of machine, e.g. lathes, injection moulding machines and excavators, their duty cycles and the architecture of hydraulic systems.

Additionally, the level of energy consumption is a function of the requirements of the machine, duty cycle and frequency of use by the operator. It is only when the machines are adapted for specific applications (e.g. working cycle, control precision, level of automation) in an optimal manner, that energy efficient concepts can have the most positive impact.

Typical applications for hydraulics in machines are:

— clamping applications with high force;
— press applications with high force;
— motion, acceleration and braking of heavy loads;
— hydraulic ~~weight~~mass compensation; and
— hydrostatic transmission.

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