
**Downhole equipment for petroleum and
natural gas industries — Progressing
cavity pump systems for artificial lift —**

**Part 1:
Pumps**

*Équipement de fond de trou pour les industries du pétrole et du gaz
naturel — Pompes de fond à cavité progressive pour activation des
puits —*

Partie 1: Pompes



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 15136 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15136-1 was prepared by Technical Committee ISO/TC 67, *Materials, equipment and offshore structures for petroleum and natural gas industries*, Subcommittee SC4, *Drilling and production equipment*.

ISO 15136 consists of the following parts, under the general title *Downhole equipment for petroleum and natural gas industries — Progressing cavity pump systems for artificial lift*:

- *Part 1: Pumps*
- *Part 2: Drive heads*

Annexes A and B form a normative part of this part of ISO 15136. Annexes C, D, E and F are for information only.

Introduction

This part of ISO 15136 has been developed by users/purchasers and suppliers/manufacturers of progressing cavity pumps (PCP) for artificial lift use in the petroleum and natural gas industries worldwide. This part of ISO 15136 is intended to give requirements and information to both parties in the selection, manufacture, testing and use of progressing cavity pumps. Further, this part of ISO 15136 addresses supplier/manufacturer requirements, which set the minimum parameters with which suppliers/manufacturers must comply to claim conformity with this part of ISO 15136.

A progressing cavity pump comprises two helical gears, one rotating inside the other. The stator and rotor axes are parallel and spaced between each other. The external helical gear (stator) has one more thread (or tooth) than the internal helical gear (rotor). Whatever the number of threads of the two elements, they must always differ by one. The fluid moves from suction to discharge. The discharge and the suction are always isolated from each other by a constant length seal line. Definitions of the accessories, engineering methodology and description of the PCP system, including illustrations, are provided in annexes D, E and F respectively.

Users of this part of ISO 15136 should be aware that further or differing requirements might be needed for individual applications. This part of ISO 15136 is not intended to inhibit a supplier/manufacturer from offering, or the user/purchaser from accepting, alternative equipment or engineering solutions. This may be particularly applicable where there is innovative or developing technology. Where an alternative is offered, the supplier/manufacturer should identify any variations from this part of ISO 15136 and provide details.

Downhole equipment for petroleum and natural gas industries — Progressing cavity pump systems for artificial lift —

Part 1: Pumps

1 Scope

This part of ISO 15136 provides guidelines and requirements for subsurface progressing cavity pumps (PCP) used in the petroleum and natural gas industries for the production of single and multiphase fluids, based on the principle defined in [2].

This part of ISO 15136 is applicable to the subsurface progressing cavity pump. It refers to, but is not applicable to, intermediate components and accessories that are necessary to make a complete pumping unit. It does not include requirements for shipping, loading and transportation.

2 Terms and definitions

For the purposes of this part of ISO 15136, the following terms and definitions apply (for illustration, see annexes D, E and F).

2.1 cavity

lenticular, spiral, separate volume created between the pump stator and rotor when they are assembled

2.2 displacement

volume of fluid pumped in one revolution of the rotor in the stator

2.3 drive string

device transmitting power (usually sucker rods) between the drivehead and the PCP

2.4 dynamic level

fluid level under standard conditions of temperature and pressure when the PCP is in operation

NOTE Standard conditions, unless otherwise indicated, are 15 °C and 0,101 3 MPa.

2.5 flowrate

volume of fluid pumped per time unit

2.6 head rating

maximum allowable differential pressure of the PCP