Technology Offer

Proportional reversible hydraulic pump

Summary

A Romanian research institute has invented a rotative hydraulic pump with radial pistons at which the geometric volume can vary proportionally to the intensity of the electric control current. Although in the concept stage, the invention will be to provide a continuously adjusted output flow according to an electrical parameter. The research institute is looking for research, academic and industrial partners for developing the product and for technological transfer.

Creation Date	23 June 2014
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Reference	TORO20140618002

Details

Description

A Romanian research institute has developed a proportional reversible hydraulic pump which consists of a housing, a rotor with radial pistons, a sliding rectangular rolling track and an incorporated mechanism for switching and control. The mechanism has several spring pushed pistons, a valve placed on a port in a slide valve, pressed by an electromagnet, which generates a proportional pressure of external drive that can be applied to a piston, so as:
- to obtain a displacement through the offsetting of the rolling track;
- to make a movement of the working fluid between the two supply ports proportional to an electric control current.
To reverse the circulation direction of the fluid between the two supply ports, by keeping the original sense of rotation of the drive shaft, the switching and control mechanism comprises a distribution bush that can be actuated by an electromagnet and brought back by a spring, which by its sliding over a slide valve can cause the external control pressure to reach a piston through the holes in the housing, through a circular hole in the cap and radial holes in the threaded plug, causing the rolling track slide in the opposite direction.

Advantages and Innovations

As compared to other present technical solutions, the proportional reversible hydraulic pump:
- provides a continuously adjusted output flow according to an electrical parameter, which can also control the direction of the fluid flow;
-simple and compact design, extremely reduced dimensions - in a reduced overall size housing is mounted a radial piston rotor, running on a track that can slide transversely under the action of two symmetrical pistons, controlled by an external pressure, by an electrical switching and control embedded mechanism;
- displacement is adjustable on both sides by the same proportional valve, according to an electric control current;
- low cost price.

Stage of Development

Concept stage

IPR Status

Patents granted

Keywords

Technology

05003001	Vibration and Acoustic engineering

Market

08003006	Power transmission equipment (including generators & motors)

NACE

M.72.1.9	Other research and experimental development on natural sciences and engineering

Network Contact

Issuing Partner

NATIONAL INSTITUTE OF RESEARCH AND DEVELOPMENT FOR OPTOELECTRONICS

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Open for EOI : Yes

Dissemination

Send to Sector Group

Creative Industries

Client

Type and Size of Organisation Behind the Profile

R&D Institution

Year Established

0

Already Engaged in Trans-National Cooperation

No.

Languages Spoken

English

Client Country

Romania

Partner Sought

Type and Role of Partner Sought

The partners sought are:
- research institutes and universities willing to develop new applications for the product, to test it in laboratory and in real conditions and
- SMEs able to introduce it in the manufacturing process.

Type and Size of Partner Sought

SME 11-50,University,R&D Institution,SME 51-250

Type of Partnership Considered

Technical cooperation agreement
Research cooperation agreement