of applications.

DISCLOSURE OF INVENTION

Embodiments of the present invention seek to provide a starting valve which, in a vacuum system, may prevent the operating machine working in conditions of excessive overload with consequent energy saving, or working at values below those relative to the optimum process operating conditions.

Embodiments of the present invention also seek to provide a vacuum system comprising at least one above-mentioned starting valve.

According to an aspect of the present invention, there is provided a starting valve for a fluid operating machine working in a vacuum system; a starting valve wherein there are provided: a valve body, which is provided with at least one opening to let a gas in; and an actuating piston, which is splined on a stem, which is free to slide in guide means; said actuating piston defining a chamber together with a portion of said valve body; said actuating piston being subject to the action of a deformable diaphragm, wherein a calibrated throttling hole in series with a through hole are provided, ~~which longitudinally extend~~said through hole extending longitudinally through said stem; said holes establishing a fluid connection between said chamber and a fluid-dynamic line of said vacuum system; and wherein the starting valve comprises, furthermore, a shutter, which is also splined on said stem; said shutter being suited to close a gas passage opening as a function of the pressure difference existing between said chamber and said fluid-dynamic line; starting valve wherein said calibrated throttling hole and said through hole establish a fluid communication between ~~the space enclosed by~~ a connection and a space defined by a covering element positioned ~~in the upper part of said~~adjacent a cover of the valve body; and in that said space and said chamber are in fluid communication between each other by means of an air passage orifice.

CLAIMS

1. A starting valve for a fluid operating machine working in a vacuum system;
a starting valve wherein there are provided:

- a valve body, which is provided with at least one opening to let a gas in; and
- an actuating piston, which is splined on a stem, which is free to slide in guide means;

said actuating piston defining a chamber together with a portion of said valve body; said actuating piston being subject to the action of a deformable diaphragm, wherein a calibrated throttling hole in series with a through hole are provided, ~~which longitudinally extend~~said through hole extending longitudinally through said stem; said holes establishing a fluid connection between said chamber and a fluid-dynamic line of said vacuum system;
and wherein the starting valve comprises, furthermore, a shutter, which is also splined on said stem; said shutter being suited to close a gas passage opening as a function of the pressure difference existing between said chamber and said fluid-dynamic line;
starting valve wherein said calibrated throttling hole and said through hole establish a fluid communication between ~~the space enclosed by~~ a connection and a space defined by a covering element positioned ~~in the upper part of said~~adjacent a cover of the valve body;
and wherein said space and said chamber are in fluid communication between each other by means of an air passage orifice.

2. Starting valve, according to claim 1, wherein said through hole has a diameter greater than or equal to 1 mm (in particular 2 mm), while the calibrated throttling hole has a diameter ranging from 0.10 mm to 3 mm (in particular 0.20 mm).