

## **ESA Position Statement on Machinery Directive 98/37/EC and its applicability to Mechanical Seals.**

The Machinery Directive 98/37/EC defines applicable 'machinery` using the following definitions:

- an assembly of linked parts or components, at least one of which moves, with the appropriate actuators, control and power circuits, etc., joined together for a specific application, in particular for the processing, treatment, moving or packaging of a material,
- an assembly of machines which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole,
- interchangeable equipment modifying the function of a machine, which is placed on the market for the purpose of being assembled with a machine or a series of different machines or with a tractor by the operator himself in so far as this equipment is not a spare part or a tool.

**After consultation it is the judgment of the ESA Mechanical Seals Division that the above definition does not apply to *mechanical seals*. They shall be classified as machinery elements or components when applicability to the Machinery Directive is considered and conformance is not required.**

### **A. DEFINITIONS**

**Mechanical Seal;** a mechanical seal is a device which prevents leakage of fluids along rotating shafts. Primary seal function is at right angles to the axis of rotation between one stationary ring and one rotating ring.

**Seal System;** this is the component mechanical seal or assembly of the component mechanical seal in a cartridge arrangement with or without any auxiliary system. The auxiliary system is used to assist with the reliability of the seal or containment capability of the process fluid in the machine.

### **B. ESSENTIAL HEALTH AND SAFETY REQUIREMENTS FOR MACHINERY AND SAFETY COMPONENTS**

*Mechanical Seals* are used in equipment that may be classified as a 'Machine' and Conformance to the Machinery Directive, 98/37/EC would be thus required. The manufacturer of the machine is under an obligation to meet the Essential Health and Safety Requirements in Annex 1 of the Machinery Directive. The *mechanical seal* supplier has a responsibility to provide a safe *seal system* and advise the machine manufacturer what safety related risks in installing, operating and maintaining the seal may need to be considered. This will be achieved in the following ways;

- The order specification from which the seal system is designed and supplied. Some examples of relevant International Standards are given in the References in this document.
- The Instruction Manual supplied by the Seal supplier with the Seal System.

## **ESA Position Statement on the new Machinery Directive 2006/42/EC and its applicability to Mechanical Seals.**

Directive 98/37/EC will be repealed and this new Directive will be transposed from 29<sup>th</sup> December 2009. The definition of applicable "Machinery" will change to the following definitions;

- an assembly, fitted with or intended to be fitted with a drive system other than directly applied human or animal effort, consisting of linked parts or components, at least one of which moves, and which are joined together for a specific application,
- an assembly referred to in the first indent, missing only the components to connect it on site or to sources of energy and motion,
- an assembly referred to in the first and second indents, ready to be installed and able to function as it stands only if mounted on a means of transport, or installed in a building or a structure,
- assemblies of machinery referred to in the first, second and third indents or partly completed machinery referred to in the definition below which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole,
- an assembly of linked parts or components, at least one of which moves and which are joined together, intended for lifting loads and whose only power source is directly applied human effort.

"partly completed machinery" means an assembly which is almost machinery but which cannot in itself perform a specific application. A drive system is partly completed machinery. Partly completed machinery is only intended to be incorporated into or assembled with other machinery or other partly completed machinery or equipment, thereby forming machinery to which this Directive applies.

**It is the judgment of the ESA Mechanical Seals Division that the above definition does not apply to *mechanical seals* and the Position remains unchanged from that described as applicable to Directive 98/37/EC.**

### **REFERENCES**

1. EN ISO 21049:2004, "Pumps-Shaft Sealing Systems for Centrifugal and Rotary Pumps", International Organization for Standardization, Geneva, Switzerland. This is identical to ANSI/API Standard 682 3<sup>rd</sup> Edition, Sept 2004
2. EN ISO 9905:1998, "Technical specifications for centrifugal pumps – Class I", International Organization for Standardization, Geneva, Switzerland.
3. EN ISO 5199:2002, "Technical specifications for centrifugal pumps – Class II", International Organization for Standardization, Geneva, Switzerland.
4. EN ISO 9908:1998, "Technical specifications for centrifugal pumps – Class III", International Organization for Standardization, Geneva, Switzerland.
5. ISO 13709:2003, "Centrifugal Pumps for Petroleum, Petrochemical and Natural Gas Industries", International Organization for Standardization, Geneva, Switzerland. This is identical to ANSI/API Standard 610 11<sup>th</sup> Edition.
6. EN 809: 1998, "Pump and Pump Units for Liquids – Common Safety Requirements", European Committee for Standardization (CEN), Brussels, Belgium
7. ASME B73.1/2-2001, "Specification for Horizontal End Suction Pumps for Chemical Process", The American Society of Mechanical Engineers, New York, USA