

ISO 15086-3:2022-07 (E)

Hydraulic fluid power - Determination of the fluid-borne noise characteristics of components and systems - Part 3: Measurement of hydraulic impedance

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Symbols	2
5	Test conditions and accuracy of instrumentation	3
5.1	Test conditions (permissible variations)	3
5.1.1	General	3
5.1.2	Fluid temperature	4
5.1.3	Fluid density and viscosity	4
5.1.4	Mean fluid pressure	4
5.1.5	Mean flow measurement	4
5.2	Instrumentation precision	4
5.2.1	Steady-state accuracy class	4
5.2.2	Dynamic-state accuracy class	4
6	Measurement of the impedance of a single-port passive component	4
6.1	Local impedance -- Measurement principle	4
6.2	Hydraulic impedance	5
6.2.1	Measurement principle	5
6.2.2	Simplified algorithm for determining the component of the local hydraulic impedance	6
6.3	Factors influencing the accuracy of the impedance measurement	6
6.3.1	General	6
6.3.2	Pulse generator	6
6.3.3	Pressure transfer function measured by the PTx/PT3 pressure transducers and the calibration correction	7
6.3.4	Numerical value of terms A and B of the pipe section admittance matrix used for the indirect determination of the pulsed flows	7
6.4	Measurement of local impedance	9
6.4.1	Test circuit	9
6.4.2	Test procedure	10
7	Measurement of the admittance matrix and impedance matrix of a two-port passive hydraulic component	14
7.1	Definitions and principles of measurement of the admittance matrix and impedance matrix of a two-port passive hydraulic component	14
7.1.1	General	14
7.1.2	Principle of the method of measuring the admittance matrix	14
7.1.3	Algorithm for determining the admittance matrix of a two-port, passive component for identical dimensions of upstream and downstream pipes	17
7.1.4	Measurement result presentation	20
8	Test report	23
8.1	General	23

8.2	General information	23
8.3	Test data	23
9	Identification statement (reference to this document)	24
	Bibliography	25