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PRODUCT DATA SHEET
Catalogue reference for product evaluation

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Flapper Nozzle System | Prozessi PX 23

Category: Process Engineering Technology · **Order Code:** PX 23 · **Country of Origin:** India

Product Overview

The Flapper Nozzle System Prozessi PX 23 demonstrates the conversion of mechanical motion to pneumatic pressure signals. This Flapper Nozzle System uses a precision flapper-nozzle mechanism with two pressure gauges and a 1 micron dial gauge for measuring displacement-pressure relationships. Two experiments cover flapper-nozzle system operation and gain calculation. Compact design, 300W x 150D x 250H mm, requires clean compressed air at 2 Bar, 50 LPH.

View this product online: https://scienticoindia.com/product/flapper-nozzle-system-prozessi-px-23/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Flapper Nozzle System Prozessi PX 23 — Technical Specifications

Specification	Value
Product Code	PX 23
Dial Gauge	Least count 1 micron
Air Regulator	Range 0-2 kg/cm2
Pressure Gauge 1	Range 0-2.5 kg/cm2
Pressure Gauge 2	Range 0-2.5 kg/cm2
Overall Dimensions	W 300 x D 150 x H 250 mm
Air Supply Required	Clean, oil and moisture-free air, 2 Bar pressure, 50 LPH consumption

Technical Data

Flapper-Nozzle Mechanism Components

Component	Specification
Flapper Element	Precision pivoted mechanism
Nozzle	Fixed orifice with controlled restriction
Gap Adjustment	Variable nozzle-flapper separation
Movement Measurement	Micron dial gauge, 1 micron resolution

Pressure Measurement and Control

Component	Specification
Air Regulator	Range 0-2 kg/cm2, controls input supply pressure
Pressure Gauge 1	Range 0-2.5 kg/cm2, monitors supply pressure
Pressure Gauge 2	Range 0-2.5 kg/cm2, monitors output pressure
Pressure Measurement Principle	Differential pressure across restriction varies with flapper gap

Air Supply Requirements

Requirement	Specification
Air Quality	Clean, oil and moisture-free
Supply Pressure	2 Bar nominal
Consumption	50 LPH
Filtration	Oil removal and moisture control required

Key Features

Key Features

- Flapper Nozzle System: fundamental pneumatic control device principle demonstration
- Micron dial gauge with 1 micron least count for precision flapper displacement measurement
- Two pressure gauges for simultaneous monitoring of supply and output pressure
- Air regulator for controlled input pressure adjustment
- Compact and simple to operate design
- Direct observation of pressure-displacement relationship
- Industrial standard mechanism used in proportional control valves

Experiments

- Study of Flapper-Nozzle system
- Gain calculation of Flapper-Nozzle system

Construction and Design

The Flapper Nozzle System Prozessi PX 23 is built on a compact assembly measuring 300W x 150D x 250H mm. At the heart of the system is a precision flapper-nozzle mechanism where a pivoted flapper element is positioned above a fixed nozzle opening. Regulated air supply, typically pressurized over 20 psig, flows through a restriction toward the open nozzle. Air escapes through the variable gap between the flapper and nozzle tip, creating a back-pressure that varies inversely with the gap size. As the flapper moves mechanically, the gap changes, modulating the output pressure. A precision dial gauge with 1 micron least count measures flapper displacement directly. Two pressure gauges (0-2.5 kg/cm2 range each) display supply pressure and output pressure simultaneously, allowing students to observe the pressure-motion relationship. An air regulator (0-2 kg/cm2 range) controls input air supply, enabling gain variation studies. The system requires clean, oil and moisture-free compressed air at 2 Bar pressure, consuming 50 LPH. An optional support table (800W x 800D x 750H mm) is available for secure laboratory mounting.

Operating Principle

The Flapper Nozzle System converts mechanical flapper displacement into proportional pneumatic pressure output. As flapper-nozzle gap increases, air escapes more freely, reducing back-pressure. As the gap decreases, air escape is restricted, increasing back-pressure. This linear or near-linear relationship between displacement and pressure is the fundamental operating principle of pneumatic proportional control devices and pilot-operated regulators.

Scope of Delivery

- Flapper Nozzle System Prozessi PX 23 complete assembly
- Precision flapper-nozzle mechanism with adjustable gap
- Dial gauge, least count 1 micron
- Air regulator, range 0-2 kg/cm2

- Pressure gauge, range 0-2.5 kg/cm2 (first unit)
- Pressure gauge, range 0-2.5 kg/cm2 (second unit)
- Air inlet and outlet connections
- Base assembly, 300W x 150D x 250H mm
- User documentation and experimental manual
- Air supply hose connections

Optional Accessories

- Support table, size 800W x 800D x 750H mm
- Mini compressor for independent air supply
- Replacement dial gauge unit

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1: What is the purpose of the Flapper Nozzle System?
A: The Flapper Nozzle System demonstrates how mechanical motion (flapper displacement) is converted into proportional pneumatic pressure signals, a fundamental principle in industrial control devices.

Q2: How does the flapper-nozzle mechanism work?
A: As the flapper moves closer to the nozzle, the gap decreases, restricting air escape and increasing back-pressure. As the flapper moves away, air escapes more freely, decreasing pressure. This creates a proportional relationship between displacement and pressure.

Q3: What is the resolution of the dial gauge?
A: The dial gauge has a least count of 1 micron, allowing precise measurement of very small flapper displacements.

Q4: What does the Flapper Nozzle System gain calculation measure?
A: The gain calculation measures how much the output pressure changes for a given change in flapper displacement, typically expressed as pressure change per unit displacement (kg/cm2 per micron).

Q5: What air supply is required for the Flapper Nozzle System?
A: The system requires clean, oil and moisture-free compressed air at 2 Bar pressure with a consumption of 50 LPH. Air must be filtered to remove oil and moisture.

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