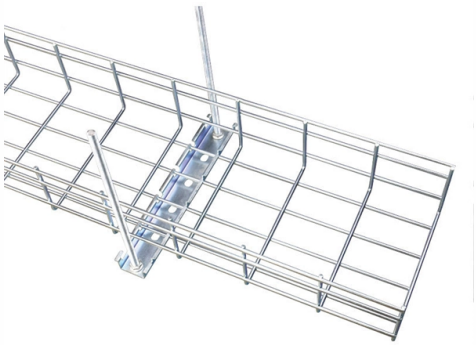
The function of the cam divider in a spectrometer



Overview

The monochromator slit width used in a spectrophotometer is expressed not as the slit width dimension but as the value of the resolution achieved.

Key Takeaways

A cam divider is a precision mechanical device that provides accurate intermittent rotation, ideal for positioning optical components in spectrometers.

Overview

A cam divider, also known as a cam indexer, intermittent divider, or cam intermittent machine, is a mechanical device that converts continuous rotational motion into precise, stepwise angular motion. It is widely used in precision machinery, automation, and optical instruments where exact angular positioning is required. In a spectrometer, a cam divider can rotate diffraction gratings, filters, or sample holders in controlled increments, ensuring reproducible measurements.

Key Features

High Segmentation Accuracy: Cam dividers can achieve precise angular steps, often with self-locking mechanisms to prevent drift. Smooth Operation: Designed for minimal vibration and noise, which is critical in sensitive optical measurements. Intermittent Motion: The device allows the output shaft to rotate in discrete steps, which can be synchronized with measurement cycles.

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Versatile Mounting: Many models feature flanges, threaded holes, and positioning pins for secure integration with spectrometer components. Durability and Reliability: High-quality cam dividers are engineered for long-term operation with balanced rotation and minimal wear.

Types and Mechanisms

Globoidal Cam Splitters: Use clearance-free engagement between a solid cam and a driven roller, similar to worm transmission, providing smooth and precise motion.

Platen-

Type and Flange Output Dividers: Suitable for compact installations or disc-shaped components, often used in automated optical setups.

Assembly and Press-

In Devices: Some cam dividers include mechanisms for precise assembly of flange rings and intermittent rotation, enhancing accuracy and repeatability.

Manufacturers and Sources

Shandong Luning Machinery: Specializes in cam dividers, turntables, and hollow rotating platforms for precision applications. Dongguan Shangren Automation Equipment: Offers high-speed precision indexing dividers with comprehensive pre- and post-sales support.

HONEPA

N: Produces cam indexers and rotary tables with ISO 9001 certification, suitable for automated and laboratory equipment. Zhucheng Kewei Machinery: Provides precision cam intermittent dividers with self-locking and high-speed intermittent transmission features.

Considerations for Spectrometer Use

When selecting a cam divider for a spectrometer: Step Angle Accuracy: Ensure the device meets the angular resolution required for your measurements. Load Capacity: Verify that the cam divider can support the weight of optical components without affecting precision. Integration: Check flange compatibility, mounting options, and whether the device can be coupled with motors or automated control systems.

Maintenance: Regular lubrication and proper handling extend the life and maintain accuracy. Using a cam divider in a spectrometer setup ensures precise, repeatable positioning of optical elements, which is essential for high-quality spectral analysis and automated measurement processes.

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Article Content

Monochromators : Shimadzu (Europe)

The monochromator slit width used in a spectrophotometer is expressed not as the slit width dimension but as the value of the resolution achieved. Setting the slit width to 1 nm, sets the monochromator

Working principle of cam divider

The cam divider is mainly composed of cam, follower and output shaft. The cam is usually irregular in shape, the follower is in contact with the

The Structure of a Spectrophotometer

The monochromatic light that leaves the spectrometer is split into two beams before it enters the sample compartment. A spectrophotometer in which only one beam passes through the sample

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The self-assembly of proteins is an essential process for a variety of cellular functions including cell respiration, mobility and division. On the other hand, protein or peptide misfolding and aggregation is

How Do Spectrometers Work? Spectrometer vs. Spectrophotometer

An optical spectrometer, like the Ossila USB spectrometer, is the most common type. They take light, separate it by wavelength and create a spectrum which shows the relative intensity of these separate

Appendix: Support manual for prism spectrometer

In a spectrometer, since the collimator is usually fixed, the angle of incidence can be varied by turning the prism table so that the apex angle of prism, A, moves either towards the collimator or away from it.

Spectrometer

Optical spectrometers (often simply called "spectrometers"), in particular, show the intensity of light as a function of wavelength or of frequency. The different wavelengths of light are separated by refraction

Classification And Working Principle Of Cam Divider

The arc cam divider, the parallel cam divider and the cylindrical cam divider all use a specific cam to drive the index plate (slave shaft) to move, thereby transforming continuous and uniform input motion

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Components of a Spectrophotometer

While component types and devices vary from brand to brand, the core principle of how a spectrophotometer works stays largely the same. Listed below are some of the key components that

Explain the parameters and definitions of the cam divider

There are many professional predicates and definitions for cam dividers. Next, the manufacturers of precision intermittent cam dividers summarize, let''s take a brief look.

How Cam Dividers Affect Speed and Accuracy

The cam divider helps control both speed and accuracy in these machines. In this article, we will explain how cam dividers work, how they affect the speed and accuracy of machines, and

Spectrometers – Intro Physics for Living Systems

The spectrometer measures the amount of light (as a function of wavelength) relative to a blank (a transparent sample) and displays either the amount

In ultrasonic welding equipment, what is the function of cam divider ...

Cam indexer is a very accurate and extremely dependable motion control device extensively utilised in many automation equipment, particularly in ultrasonic welding equipment,

Parts and functions of the spectrometer

Parts and functions of the spectrometer Slit The slit of the spectrometer determines the angle and amount of light that enters the optical bench. Without the slit, the position of the spectral line would

The workings of a spectrometer | Description, Example & Application

The Workings of a Spectrometer A spectrometer is an instrument that measures the amount of light absorbed or emitted by a sample as a function of wavelength. It is a useful tool in

How Does a Spectrometer Work?

How Does a Spectrometer Work? A spectrometer is a scientific instrument used to analyze the light properties of a luminous object or reflected light. The instrument measures these properties of light

Spectrometer Construction, Working and Uses

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An apparatus for recording and measuring spectra, particularly as an approach of analysis. A spectrometer is a scientific tool used to split light into an array of various colors, called a

Accurate positioning application of cam divider in welding production ...

Modular design helps the cam divider to rapidly adjust to various welding production lines, therefore lowering the equipment modification costs. Basically, because of its great precision, great

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