Wire Saw

📋 Description

A **Wire Saw** is a specialized surgical instrument made from a **flexible, durable wire**, often with abrasive coatings, used for **cutting bone** or other hard tissues where traditional saws can't easily reach. It's commonly used in **orthopaedic surgeries**, **veterinary amputations**, and **emergency field operations** to provide precise bone cuts with minimal trauma.

⚙️ Specification

Feature	Detail
Material	Stainless steel wire with abrasive grit or carbide coating
Length	Typically 50 cm – 70 cm
Wire Diameter	0.8 mm – 1.2 mm
Handle	May have plastic or metal handles or be used manually with two fingers
Flexibility	High, can be bent to cut at various angles
Packaging	Sterile, single-use or reusable versions

📐 Sizes & Shapes

- Standard straight wire saw length: 50 cm, 60 cm, 70 cm
- Wire diameter varies with intended use: thinner for delicate bone, thicker for larger cuts
- May come with handle attachments or as bare wire

🏷️ Types

- **Manual Wire Saw** – Basic wire without handles, requires manual pulling
- **Handle-attached Wire Saw** – Comes with ergonomic handles for better grip
- **Carbide-coated Wire Saw** – Enhanced cutting power for harder bones
- **Disposable Sterile Wire Saw** – Single-use, sterile-packed for infection control

Material

- High tensile **stainless steel wire**
- Abrasive coating (carbide grit or diamond dust) on the wire surface
- Handles made of plastic or stainless steel for grip

Category

- Orthopaedic Instruments
- Surgical Bone Cutting Tools
- Veterinary Surgical Instruments

Product Form

- Flexible wire loop or strand
- Used by pulling in a **back-and-forth sawing motion**
- Sterile packaging for single use or reusable after sterilization

Usage

- Cutting bone during **orthopaedic surgery**
- Veterinary amputations and complex bone procedures
- Emergency field surgeries where electric saws are unavailable
- Removal of casts or implants by specialized techniques

Advantages

- Flexible and can cut in hard-to-reach areas
- Portable, lightweight, and easy to carry in surgical kits
- Can be sterilized and reused (depending on model)
- Allows controlled, precise bone cutting with minimal heat generation

👎 Disadvantages

- Manual operation requires skill and time
- Not suitable for very large or thick bones without assistance
- Risk of wire breakage if improperly used
- Single-use versions generate medical waste

⚠️ Precautions

- Use appropriate tension to avoid wire snapping
- Ensure sterile environment to prevent infection
- Do not reuse disposable wire saws
- Handle with care to avoid injury from sharp wire edges
- Keep wire taut and steady during cutting

📦 HS / HSN Code

- **HS Code:** 9018.90 (Instruments & appliances used in medical, surgical, dental or veterinary sciences)
- **HSN Code (India):** 9018.90.30

🧴 Handling & Sterilization

- Clean after use with enzymatic detergents
- Sterilize using autoclaving (if reusable) as per manufacturer guidelines
- Store in dry, sterile packaging
- Dispose of single-use wire saws following biomedical waste protocols

Veterinary Application

- Used in **animal orthopaedic surgeries** (fracture repair, amputations)
- Ideal for **field veterinary surgeons** due to portability
- Used for **cutting bone during limb salvage or removal** procedures
- Suitable for **large and small animal surgeries**

Human Application

- Used in **human orthopaedic and trauma surgeries**
- Useful in surgeries involving complex bone cutting, especially in confined spaces
- Used in field hospitals or emergency surgeries where electric saws are unavailable
- Applied in **maxillofacial and neurosurgical bone cutting** as well

❓ FAQ's (Frequently Asked Questions)

Q1: Can wire saws be reused?
A1: Some models are reusable after proper sterilization; however, many are single-use for infection control.

Q2: What materials are wire saws made of?
A2: Typically stainless steel wire coated with abrasive carbide or diamond grit for cutting efficiency.

Q3: Are wire saws painful to use on animals?
A3: Wire saws are used under anaesthesia during surgery, so the animal feels no pain.

Q4: How do I prevent the wire from breaking during use?
A4: Maintain steady tension and avoid excessive bending or twisting.

Q5: Can wire saws be used on thick bones?
A5: Yes, but it may require more time and effort; thicker bones might need specialized or powered saws.