

Vacuum Forceps

Description

Vacuum Forceps, also known as **Ventouse Delivery Forceps**, are specialized obstetric instruments used to assist in **vaginal delivery** of a baby by creating **suction on the fetal scalp** using a cup attached to a vacuum source. This traction aids the mother in the second stage of labour when natural pushing is insufficient or complications arise.

They are considered **less invasive than traditional metal obstetric forceps**, and are commonly used in both **human obstetrics** and **veterinary obstetrics** (especially large animals like bovines and equines).

Specification

- **Type:** Vacuum-assisted delivery instrument
- **Cup Sizes:** 40 mm to 60 mm diameter
- **Cup Material:** Soft silicone, rigid plastic, or metal
- **Handle:** Ergonomic, pistol grip or T-shaped handle
- **Vacuum Source:** Manual pump or electric suction
- **Suction Control:** Pressure gauge or release valve
- **Tube Length:** 1 to 1.5 meters (silicone tubing)
- **Autoclavable Components:** Yes (non-disposable types)

Sizes & Cup Shapes

Cup Size (mm)	Material Type	Application
40 mm	Soft silicone	Preterm, low-risk deliveries
50 mm	Semi-rigid plastic	Average term fetal heads
60 mm	Rigid metal	Difficult deliveries, occiput posterior

Cup Shapes:

- **Malmstrom Cup:** Rigid metal, deep suction – surgical use
- **Soft Cup:** Silicone – preferred for reduced scalp trauma
- **Bell-shaped or Mushroom Cup:** Prevents slippage
- **Funnel Cup:** Better grip on fetal scalp

Types

- **Manual Vacuum Forceps:** Uses hand pump
- **Electric Vacuum Extractor Set:** Hospital-grade machine
- **Reusable Forceps:** Stainless steel + detachable cup
- **Disposable Kits:** Pre-assembled sterile sets
- **Veterinary Vacuum Extractors:** Designed for large animals with longer cups and tubing

Material

- **Reusable:**
 - Stainless steel body
 - Silicone or metal cups
- **Disposable:**
 - Polycarbonate or medical-grade plastic tubing and cup
 - Pre-sterilized, one-time use

Category

- Obstetric Delivery Instruments
- Assisted Vaginal Delivery Tools
- Vacuum Extraction Devices

Product Form

- Suction cup with flexible tubing
- Handle or pump assembly
- Vacuum release switch or safety valve
- Complete set comes in sterile packaging or surgical tray

Usage

- Assist vaginal delivery when maternal effort is insufficient
- Rotation of fetal head during labour
- Alternative to forceps or C-section in mild fetal distress
- Reduce time in second stage of labour

Advantages

- Less traumatic to maternal tissue than traditional forceps
- Soft cups reduce risk of scalp injury
- Allows gentle traction with controlled vacuum pressure
- Easy to learn and handle
- Can be used in low-resource settings with manual pump

Disadvantages

- Cannot be used if fetal head is not engaged
- Risk of **cephalohematoma** or scalp enema
- Not suitable for **preterm babies or breech presentations**
- Vacuum loss can occur if improperly applied
- Requires monitoring of fetal heart rate during use

Precautions

- Ensure the cervix is fully dilated and membranes ruptured
- Cup must be placed on the **flexion point** (midline occiput)
- Do not exceed recommended suction pressure (500–600 mmHg)
- Avoid more than 3 traction attempts
- Sterilize reusable components thoroughly after use

HS / HSN Code

- **HS Code:** 9018.90 – Instruments and appliances for medical/surgical use
- **HSN Code (India):** 9018.90.99 – Other obstetric and surgical instruments

Handling & Sterilization Details

- **Reusable Models:**
 - Disassemble and wash with enzymatic detergent
 - Sterilize by autoclave at 121°C for 15–20 mins
 - Dry and store in sterile packaging

- **Disposable Sets:**
 - Use once, discard in biohazard bin
 - Pre-assembled and sealed, ready for emergency use

Human and Veterinary Application

Veterinary Application

- Used in **assisted parturition** in animals like **cows, horses, and goats**
- Helps in difficult deliveries where traction is needed
- Vacuum cups designed for **large fetal heads** with flexible tubing for mobility
- Often combined with other obstetric tools like **calving jacks or ropes**
- Essential for **field veterinarians in livestock management**

Human Application

- Used in **obstetric units, labour rooms, and maternity hospitals**
- Aids in vaginal delivery during **maternal exhaustion, fetal distress, or prolonged labour**
- Preferred over forceps in many modern obstetric settings
- Used by trained obstetricians under fetal monitoring conditions
- Can reduce the need for **emergency cesarean section** when used correctly

? FAQ's (Frequently Asked Questions)

Q1: What is the primary function of vacuum forceps?

A1: To assist in vaginal delivery by applying suction to the baby's head for controlled traction.

Q2: Is vacuum delivery safer than forceps?

A2: Generally, yes. It causes less maternal trauma but may have a higher chance of minor scalp injuries.

Q3: Can vacuum forceps be used in veterinary practice?

A3: Yes, especially for assisted delivery in large animals like cows and horses.

Q4: Are there disposable versions available?

A4: Yes, complete sterile vacuum delivery sets are available for one-time use, ideal for emergencies or mobile clinics.

Q5: How is it sterilized after use?

A5: Reusable vacuum cups and tubing should be disassembled, cleaned with enzymatic solution, and autoclaved; disposable units are discarded after one use.