# Collapsible Anvil for Circular Surgical Stapler

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## Technology description

### The Need

Roux-en-Y laparoscopic gastric bypass is regarded as the ‘gold-standard-of-care’ for morbidly obese patients, classified as individuals with a body mass index (BMI) > 40. During the procedure, the surgeon creates a small hole, called an anastomosis, to reconnect the newly created stomach to the small intestine. Current State-of-the-Art Roux-en-Y anastomosis devices consist of two pieces:
Anvil that provides a stable backing for stapling and cutting of the tissue
Handle that houses and deploys the cutting blade and staples.
Two major problems exist with the current circular stapling devices that perform the anastomosis procedure. First, the 25-30 mm anvil head is bulky and rigid, which makes proper placement of the device within the body difficult. Second, the anvil and stapling head of the device must be connected inside the body, which proves difficult due to poor depth perception and visibility. According to the surgeons at The Ohio State University Wexner Medical Center for Minimally Invasive Surgery, both issues add approximately 30 to 40 minutes to the surgery.

### The Technology

A student team at The Ohio State University developed a collapsible anvil for the circular surgical stapler. This one-piece system incorporates a collapsible anvil head that can be directly inserted through holes in the small intestine and stomach and subsequently opened. Surgeons at the Center for Minimally Invasive Surgery at The Ohio State University Wexner Medical Center estimate that this technology would reduce the operation time by 20-30 minutes, which results in a savings of $3,000 to $4,500 per procedure.

## Application area

Endoscopic Surgery: Roux-en-Y, colorectal, urinary, and blood vessel surgeries

## Advantages

Anvil does not need to pass through the esophagus or through an additional hole in the stomach

Incorporates a more efficient anastomosis procedure
Anvil can be refolded for easy removal
Decreases surgery time
Improves safety of surgery
An improved device for surgical end-to-end anastomosis, a procedure common in Roux-en-Y gastric bypass

## Institution

Ventech Solutions

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