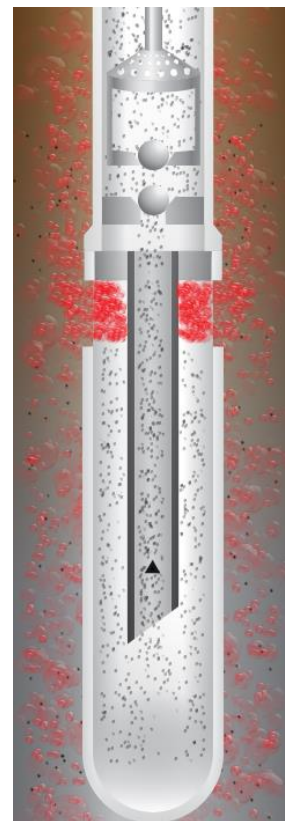


Improved Collar-Size Gas Separator

- INCREASE OIL AND GAS PRODUCTION
- IMPROVE EFFICIENCY OF LIFT SYSTEM
- CORRECT ARTIFICIAL LIFT PROBLEMS CAUSED BY INCOMPLETE PUMP FILLAGE
- REDUCE OPERATING COST



Capacities, Dimensions, and weights

PART NUMBER	COLLAR SIZE (1/8" Thin Wall EUE Epoxy-Coated)	LIQUID CAPACITY (BPD)	SEPARATOR SIZE (OD × Length, in)	WEIGHT (LBS)
EQ1930	2-3/8" Collar-Size Gas Separator	275	3.125 × 84	45
EQ1935	2-7/8" Collar-Size Gas Separator	443	3.750 × 85	60
EQ1940	3-1/2" Collar-Size Gas Separator	644	4.500 × 86	80

Improved Collar-Size Gas Separator

The Echometer Downhole Improved Collar-Size Gas Separator is installed when a well is operating at low efficiency due to poor natural gas separation or an inefficient downhole gas separator. It is used when the downhole pump is placed **in the producing zone** or **above the producing zone**.

Inefficient gas separation can be identified by:

- Incomplete pump fillage
- A high gaseous liquid column above the pump intake
- Acoustic liquid level tests indicating gas-cut fluid above the pump
- Dynamometer analysis showing incomplete fillage

Periodic acoustic liquid level tests and dynamometer measurements should be performed to verify separator performance.

Common improper field practices used to combat poor gas separation — all of which increase operating cost — include:

1. Tapping bottom with the pump
2. Running the pumping unit at excessive speed
3. Operating the pumping unit for excessive periods
4. Increasing tubing or casing pressure

The correct procedure is to **identify the problem** and **install the Improved Collar-Size Gas Separator** properly.

Specifications

Echometer Improved Collar-Size Gas Separators are designed with:

- **Thin-wall tubing**
- **Large ports**
- **Minimum lengths**

These features optimize gas separation from the liquid entering the pump and provide **greater liquid and gas capacities** than other separators.

Construction:

- Standard: **Carbon steel**
- Optional: **Full stainless steel**

Design features:

- OD matches tubing collar OD
- Top collar attaches to pump seating nipple
- Optimum-size dip tube permanently mounted inside
- Half-collar at bottom with bull plug
- Optional solids chamber by adding tubing below the half-collar
- Approximate length: **5.5 ft**

Collar-Size Gas Separator Selection

Select a separator **equal to tubing collar size**, unless pump capacity exceeds separator capacity — then choose a larger separator.

Design considerations include:

- Pump liquid capacity
- Dip tube liquid capacity
- Annular area liquid capacity
- Large port liquid entry
- Annular gas flow rate

Liquid capacity can be calculated using Echometer's free **Qrod** wave-equation software. Casing annulus gas flow rate can be determined using:

- Acoustic liquid level instrument
- Surface pressure gauge
- SPE 14254 procedure
- Automatically via Echometer Well Analyzer

Example

A **2-7/8" separator** has:

- Liquid capacity: **415 BPD**
- Gas capacity in 5-1/2" casing at 1 ATM: **≈51 MCF/D**

Gas capacity increases proportionally with pump intake pressure.

Installation Instructions

- Use a pipe wrench **only on the collars** at each end.
- Do **not** place a wrench on the thin 1/8" center barrel.
- Install at least **two joints below a tubing anchor**.
- Do **not** use a strainer nipple or dip-tube below the pump — the separator already includes one.
- A debris chamber can be added by installing tubing below the separator and sealing with a bull plug.
- Ensure **no perforations** exist below the separator's large ports.
- For top hold-down pumps, install a non-perforated tubing joint below the seating nipple, slightly longer than the pump, and mount the separator at the bottom.

Seminars and Technical Papers

Echometer provides training seminars covering:

- Downhole gas separation principles
- Pump placement strategies
- Separator design and performance
- Liquid and gas capacity analysis

Technical papers and seminar schedules are available at: www.echometer.com

Shipping and Dimensions

Example:

- **2-7/8" Collar-Size Gas Separator**

- Weight: **60 lbs (27.3 kg)**
- Ships as one package, approx. **7 ft long**

Additional dimensions and weights available upon request.

Guarantee

The Improved Collar-Size Gas Separator is guaranteed for **one year** against defects in material and workmanship. The guarantee is limited to replacement of parts and materials.

