HEGI
High Efficiency Gas Induction Impeller

www.mixion.com
Need for Gas Induction Impeller System

In the chemical process industries, several reactions involve the use of pure gas to accomplish desired chemical reactions. Thus, effective gas-liquid contact is of prime importance to achieve optimum results. More often than not in such processes, the conversion of gas is fairly poor, and a substantial amount of gas leaves the reaction bulk unreacted. The treatment of unreacted gas for reuse or for disposal is expensive in the capital and operating costs and even objectionable due to its toxic nature. In such cases, where it becomes desirable to recycle the unreacted gas back from the reactor vapour-space, a gas induction type impeller system is the most favourable solution.

The High-Efficiency Gas Induction Impeller (HEGI), offered by Mixion, consists of a patented* design which helps the induced gas to get well dispersed into the reaction bulk enhancing the gas-liquid mass transfer rates.

APPLICATIONS

• Alkylation
• Ethoxylation
• Ammonolysis
• Hydrogenation
• Chlorination
• Oxidation
• Carboxylation

CERTIFICATIONS


U stamp and U2 stamp by ASME for the manufacturing of pressure vessel.
NB stamp for National Board Registration of U & U2 stamped vessel

AD 2000-Merkblatt HP0 by TUV Nord for the manufacture of Pressure Vessels including mixers

DIN EN ISO 3834-2 (EN 729-2) by TUV Nord as welding workshop in the product range of Pressure Equipment

Pressure Vessels A1 (single Layered High-Pressure Vessels only), A2 by Special Equipment Licensing Office (SELO) for the supply of pressure vessels to the People's Republic of China

*Patent Application No. 201821028388
**Salient Features**

- Three times higher gas hold-up and better volumetric mass transfer coefficient ($k_{La}$) compared to traditional induction impellers*

- A multi impeller system along with HEGI ensures uniform suspension of catalysts such as Raney nickel or Palladium which is critical to optimum batch yield

- HEGI's performance surpasses varied impeller designs available for given specific power input**

- Enhances batch performances for Gas-Liquid or Solid-Liquid-Gas mixing processes having challenges of low per pass conversion of gases

---

**Impeller design validated by Institute of Chemical Technology, Mumbai**

---

**PERFORMANCE CURVE**

- GMM Pfaudler - HEGI Flow Rate
- Sarvana & Joshi (1997) - Stator Type Impeller
- Aldreich and Denventer (1994) - Pipe and Turbine Impeller

---

*Under laboratory test conditions**

**The peak efficiency of HEGI has been validated and lab tested for the gas hold-up, superficial gas velocity and mass transfer coefficient
MAGD

Magnetic Drive Assembly

SUPPLY RANGE

MOTOR RATINGS (kW): 5-120
SHAFT DIAMETER (mm): 40-250

MATERIALS:
SS 316/316L, Duplex and Special Alloy Steel

OPERATING PRESSURE
Full Vacuum to 100 bar

It is recommended that a Magnetic Drive is used for critical chemical processes carried out in hazardous environments, where a hermetic sealing is required between the external environment of agitator installation and process fluid.

Mixon offers a magnetic drive design with a fail-safe concept which is reliable even in the event of major breakdown conditions of the agitator.

AUTOMATION

Mixon offers not only the reactor vessel and HEGI impeller but also complete Hydrogenation Automation which includes:

- Reactor Pressure Leakage Test
- Material Charging to the reactor
- Catalyst addition/charging
- Hydrogen Purging/Addition
- Filtrate Collection and/or Charging Catalyst through filtration vessel
- Reactor Temperature Control

Mixon offers alternate designs for varied process conditions.
Please contact our sales office at sales@gmpfaudler.com for further information.