

High-Efficiency Gas Induction Impeller (HEGI)

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.

Mostly in such processes, the conversion of gas is fairly poor, and a substantial amount of gas leaves the reaction bulk unreacted.

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 favorable solution.

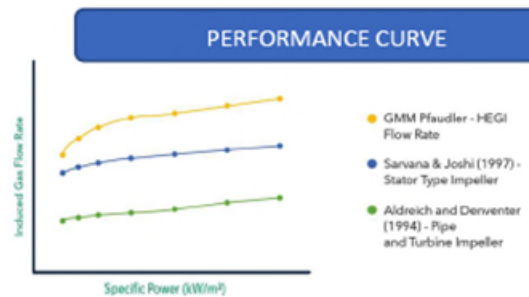
The High-Efficiency Gas Induction Impeller (HEGI), offered by GMM Pfaudler, consists of a patented¹ design which helps the induced gas to get well dispersed into the reaction bulk enhancing the gas liquid mass transfer rates.

HEGI offers a threefold gas hold-up and better volumetric mass transfer coefficient (k_{La}) compared to traditional induction impellers². Its performance surpasses varied impeller designs available for given specific power input³.

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.

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

Use of HEGI is beneficial for reactions involving pure gas such as Alkylation, Ammonolysis, Chlorination, Carboxylation, Ethoxylation, Hydrogenation, Oxidation, and such others in Agrochemical, API and Specialty Chemical Industries.



1. Patent Application No. 201821028388

2. Under laboratory test conditions

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

It is recommended to use a Magnetic Drive for critical chemical processes carried out in hazardous environments, where hermetic sealing is required between the external environment of agitator installation and process fluid. GMM Pfaudler offers a magnetic drive design with a fail-safe concept which is reliable even in the event of major breakdown conditions of the agitator.

Supply Range

- Motor Ratings (kW): 5 - 120
- Shaft Diameter (mm): 40 – 250
- Materials: SS 316/316L, Duplex and Special Alloy Steel
- Operating Pressure: Designed up to 100 bar

GMM Pfaudler 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, and Reactor Temperature Control.

[Watch the video here](#)

Contact Pfaudler today to learn more (anil.advani@gmmpfaudler.com)

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