EKATO RMT

EKATO COMBINED GASSING SYSTEM

EKATO combined gassing system

High efficiency, operating safety and reliability

EKATO 气体处理优化系统

高效，安全，可靠

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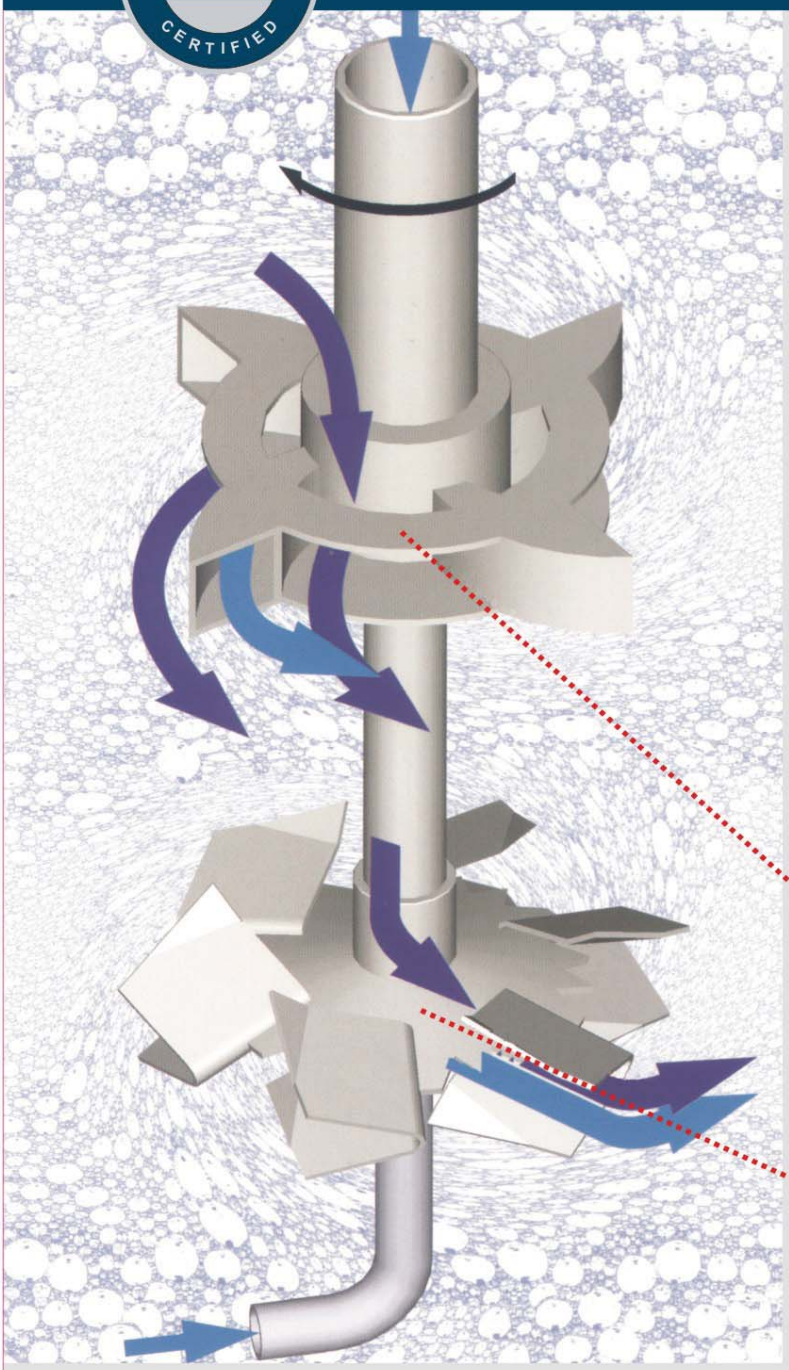
DIN EN ISO 9001 EKATO CERTIFIED

Advanced Process Solutions



The application 应用

Reactions using purified gases call for:
- Complete utilization of the gas
- High productivity
- Reliable containment of the gas and the products of reaction

使用纯气体的反应过程，要求：
- 气体得到充分利用
- 高产出
- 稳定可靠的气体及反应产物控制

The EKATO solution
EKATO提出的解决方案

High productivity in a simply constructed reactor with the EKATO combined gassing system:
- Combined action of two different impeller types
- Primary dispersion by the EKATO PHASEJET®
- Recirculation by the EKATO GASJET®
- Low concentrations of feedstock in the reactor due to high local rates of chemical conversion and short mixing times

在一结构简单的反应容器中通过EKATO气体处理优化系统得到高产出：
- 两种不同类型桨叶的优化组合
- 通过EKATO PHASEJET®使气体得到充分分散
- 通过EKATO GASJET®使气体再循环
- 由于高速反应及极短的混合时间反应物在反应器内处于低浓度状态

The EKATO GASJET®

- Recirculation of reactant gas from the headspace with no external compressor
- Intensive mixing of feedstock and reactant gas in the impeller discharge zone
- High heat transfer rates

- 无须外部压缩机使容器上部的反应气体得到再次循环
- 物料和反应气体在叶轮排料处得到强力搅拌
- 高传热速率

The EKATO PHASEJET®

- Gas introduced via rotating gas sparger
- High flooding limits
- Little change in power draw between ungassed and fully gassed conditions
- Homogeneous suspension of the catalyst

- 通过旋转的气体分布器导入气体
- 高液泛点
- 在无气体及全通气状态下功率消耗变化很小
- 催化剂均匀悬浮

The EKATO combined gassing system ensures:

- High operating safety and reliability
- Low instrumentation and control costs
- Productivity boost through high mass transfer rates
- Minimum number of components

EKATO 气体处理优化系统确保:

- 高操作安全性及可靠性
- 通过提高传质速率，产量大幅提高
- 低仪表及控制成本
- 最少的部件设计

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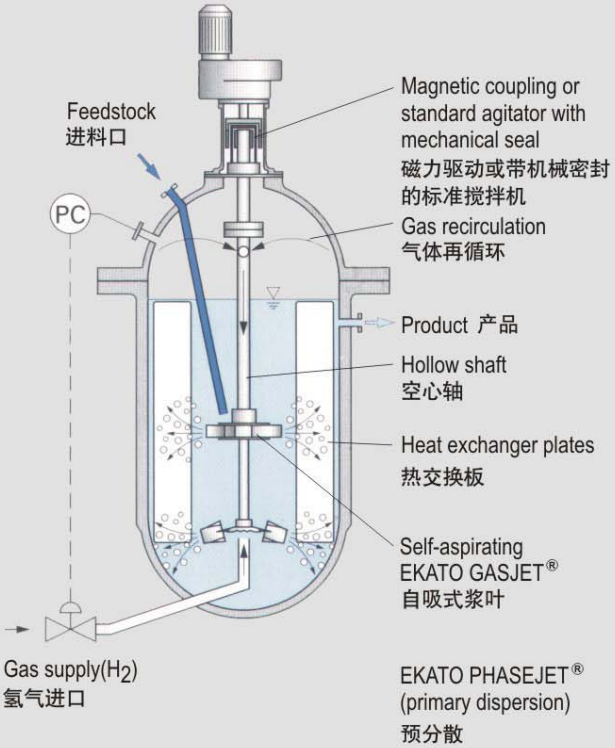
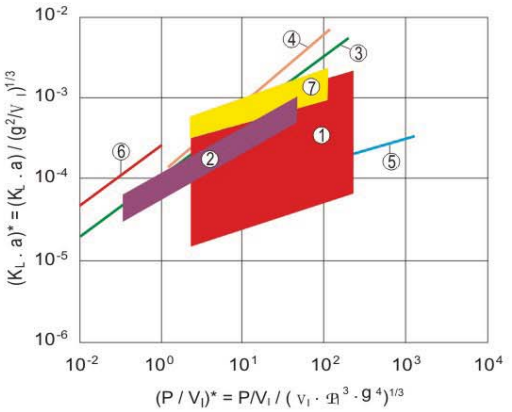


Comperative performance of various glas-liquid reators
不同种类的气液反应器性能比较

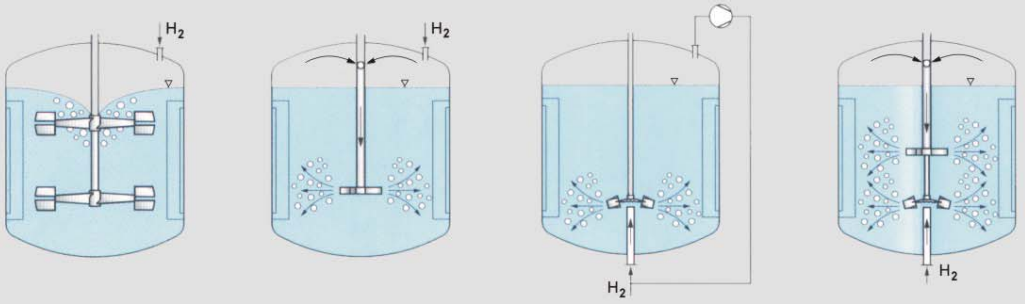


① Stirred loop reactor
带搅动的环式反应器
② Stirred reactor with flat blade disk turbine
平板涡流桨叶搅拌反应器
③ Stirred reactor with hollow impeller
自吸入式桨叶搅拌反应器
④ **Stirred reactor with EKATO combined gassing system**
EKATO 气体处理优化系统反应器
⑤ Venturi jet scrubber
纹丘里反应器
⑥ Mixing nozzle reactor (non-coalescent)
喷嘴混合反应器
⑦ Loop reactor (mixing nozzle)
环式反应器

Typical applications 典型应用

- Hardening of fats:
  Specified iodine number reached in one third of the time.
  脂肪硬化:
  达到指定碘价数所需时间由3小时降为1小时
- Production of Sorbitol:
  In a batch time of 1.5 hours the residual glucose content can be reduced to 1,000-2,000 ppm.
  山梨醇制造:
  在1.5小时内残余的葡萄糖浓度可以降低到1,000-2,000 ppm
- Reduction of aromatic nitro compounds:
  Doubling of productivity.
  在硝基芳香化合物的还原过程中产量成倍增加

Different types of gassing for agitated reactors
在搅拌釜中不同种类的气体分散方式



Surface gassing with vortex
旋涡将表面气体带入液体内

Self-aspirating impeller
自吸入式桨叶

Sparged gassing with external recirculation
外循环将气体分散

Sparged gassing with internal recirculation
内循环将气体分散