

The present invention relates to a system for increasing the conversion yield and reducing energy consumption in heterogeneous synthesis reactors, in particular for ammonia synthesis. Such reactors conventionally consist of an external shell, usually formed of a single piece, and of an internal cartridge which contains granular catalyst set in one or more catalyst beds arranged between an external cylindrical wall formed of parts of the cartridge, an internal cylindrical wall formed of parts of an internal transfer pipe for fresh synthesis gas, and a perforated bottom, the upper cross section of each bed being open and fed by the synthesis gas in an axial flow.