



*Projects and Plants
for the Chemical Industry*



More than 400 industrial plants have been designed in the heart of Europe



BIAZZI, leader in the field of nitration technology since 1936 and also leader in the field of catalytic hydrogenations and other gas/liquid reactions.

At our headquarters overlooking the lake of Geneva, near Montreux, more than 400 complex industrial plants have been successfully developed for customers throughout the world.

Technologies and Processes available from BIAZZI

BIAZZI is world leader in the fields of:

- *Explosives (since 1936, >250 plants)*
- *Nitration (since 1946, 48 plants)*
- *Hydrogenation & other gas/liquid reactions (since 1991, 64 plants)*





Explosives

BIAZZI started its activity 1936 by the commercialization of a continuous process for the manufacture of nitroglycerine (NG). Today, more than 110 NG or similar product manufacturing plants spanning the five continents bear the BIAZZI name, associated with an outstanding safety record.

BIAZZI's expertise and know-how include safe and efficient plants and processes for the manufacture of:

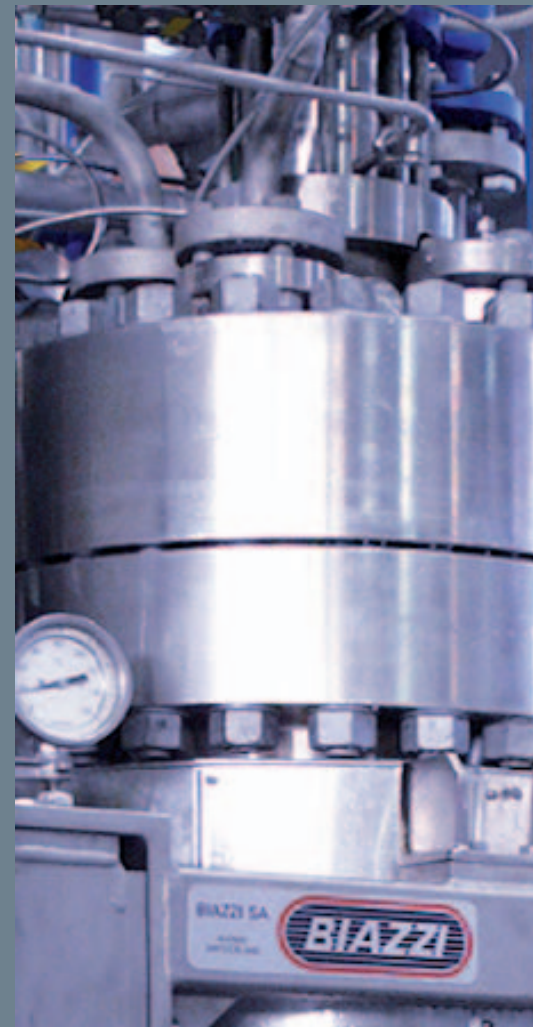
- *Liquid nitrate esters (pure or co-nitrated) like:
NG, DEGDN, TEGDN, PGDN, BTTN, TMTN*
- *PETN*
- *HMX/RDX*
- *Others*



Explosives

Special equipment for:

- *Mixing and kneading of explosives*
- *Drying of explosives*
- *Manufacture of safety fuses and detonating cord*
- *Cartridging of explosives*
- *Dynamic separation*
- *Filtration*
- *Various other operations*





Nitration

Processes and plants for the manufacture of:

- *o-, p-and m-nitrotoluene (ONT/PNT/MNT)*
- *Dinitrotoluene (DNT)*
- *o-and p-nitrochlorobenzene (ONCB, PNCB)*
- *Nitroxylenes, nitrocumenes, other nitro aromatics*
- *Ethylhexyl- and isooctyl nitrate (EHN/ION)*
- *Others upon request*



Hydrogenation



*Processes and plants for
the manufacture of:*

- *Toluidine(s)*
- *Toluenediamine (TDA)*
- *Chloraniline(s)*
- *Xylidine(s), cumidine(s), other aromaticamines*
- *Phenylenediamine(s)*
- *Cyclohexylamine*
- *Furfuryl and tetrahydrofurfuryl alcohol*
- *Sorbitol and other polyols*
- *Others upon request*



Hydrogenation

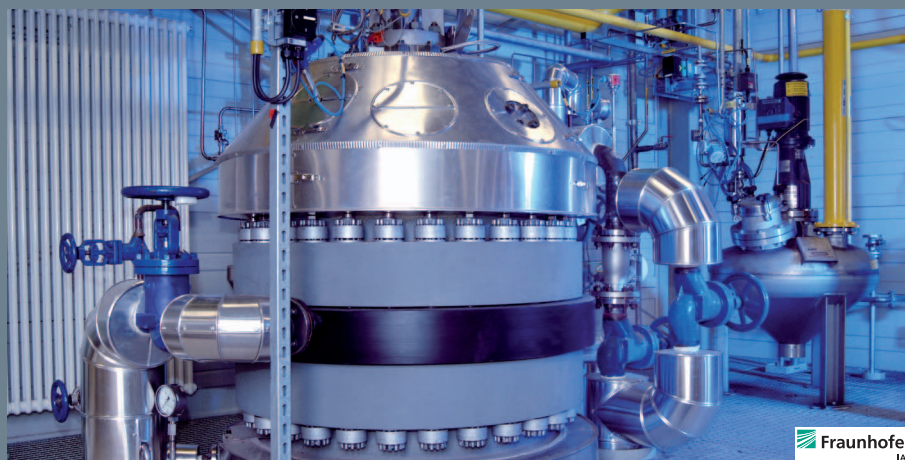


Advanced G/L High Performance Reactor (BIAZZI) shortest time to market due to a direct scale-up from Lab to industrial plants.

BIAZZI's hydrogenation plants sized up to 50 m³ (=1200 Gal) and operated up to 150 barg (=2250 psig) have become central for the success of its clients in the pharma business as well as in the production of specialities and of bulk chemicals.

From batch to continuous, from lab to production, scale-up guaranteed in shortest time in full confidence is the answer to a more and more demanding market requiring novel solutions and services.

Hydrogenation



Technologies and Plants offered for the Manufacture of:

- *Delivery of GMP plants for pharma and food products manufacture*
- *TDA for TDI*
- *Aromatic amines*

- *Hydrogenated Sugars/Polyols (e.g. Sorbitol, Xylitol, etc.)*
- *Furfuryl alcohol and THFA*
- *Alcohols from aldehydes or ketones**
- *Amines from nitriles, nitrocompounds or others**
- *Partially or fully saturated compounds**
- *Carbonylated derivatives**
- *Oxidized derivatives**
- *Others**

** based on customer's or jointly developed processes*

Process development, optimization and other services available.

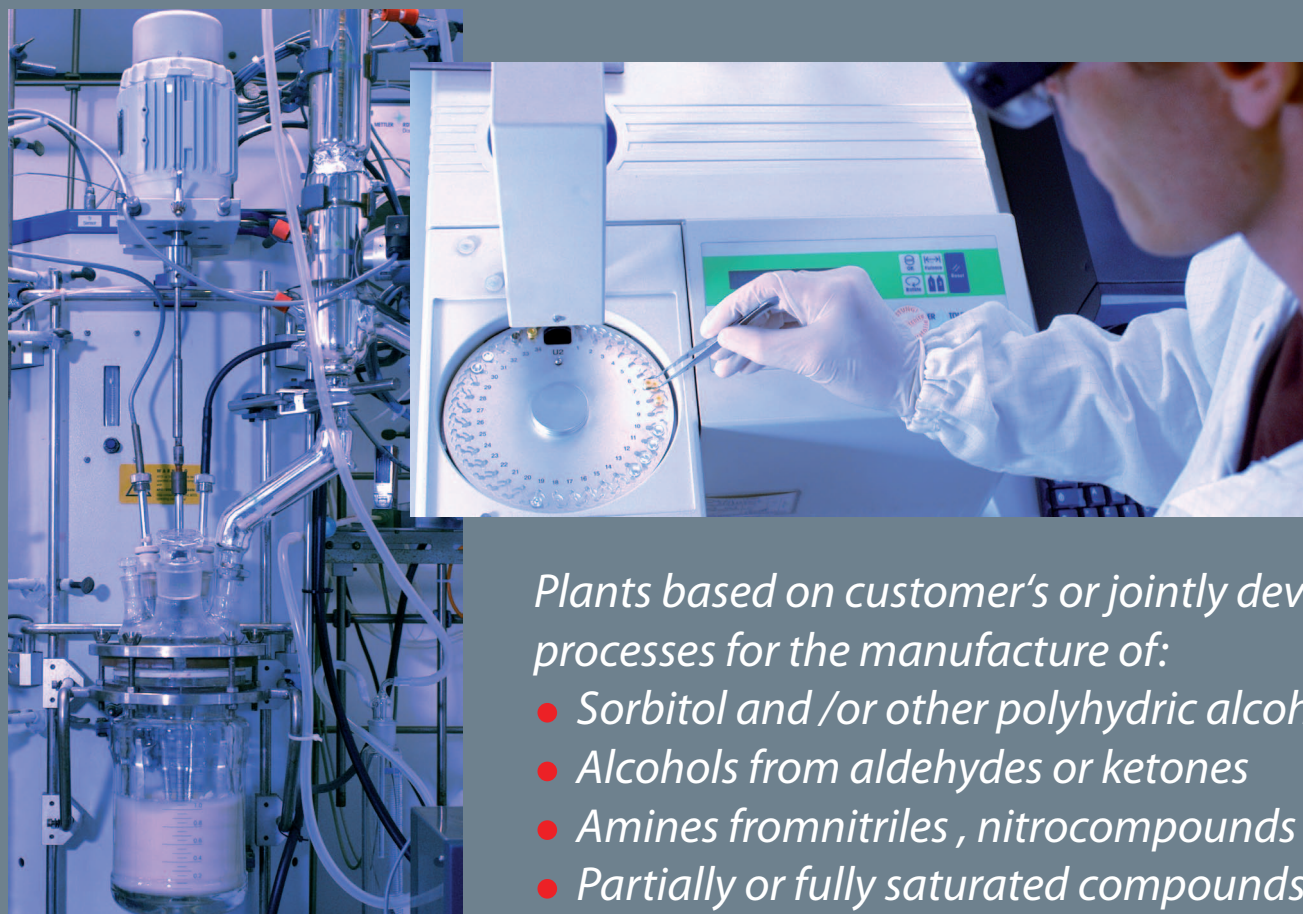


cGMP Execution

- *Self-draining execution*
- *Internal finish $Ra < 0.8\mu m$*
- *Absence of dead spaces*
- *Reactor and other process equipment equipped with cleaning nozzles*



Process Development



Plants based on customer's or jointly developed processes for the manufacture of:

- *Sorbitol and /or other polyhydric alcohols*
- *Alcohols from aldehydes or ketones*
- *Amines from nitriles , nitrocompounds or others*
- *Partially or fully saturated compounds*
- *Scale-up guarantees for tested processes*
- *Others*



*Projects and plants for the
chemical industry.*

*Looking forward to
meeting your requirements.*