

HTPG4[®] agitators

The reference for the mixing
of fragile products



PIERRE GUERIN
TECHNOLOGIES

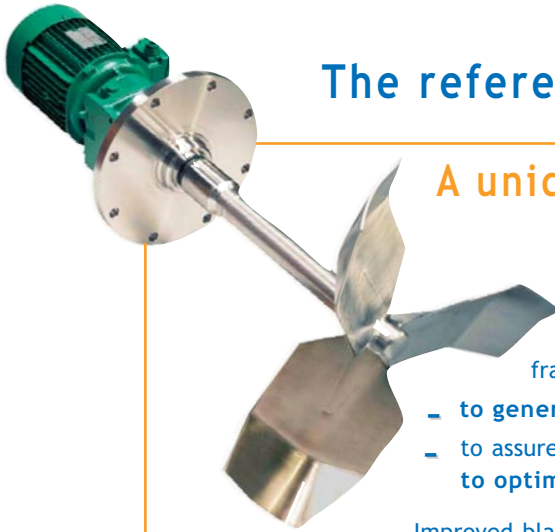
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HTPG4® agitators

The reference for the mixing of fragile products



A unique design: “the axial flow propeller “by excellence”

The design of the patented propeller HTPG4® originated from work focusing on two hydrodynamics mixing characteristics, essential when applied to any fragile fluid based products:

- to generate a minimum shearing effect
- to assure a maximum efficiency between circulation rates/power consumption, in order to optimize production periods and to minimize electrical consumption.

Improved blade designs and measurement of hydrodynamic impact with various sophisticated studies, in addition to numerical simulation, torquemeter and coloured tracer, generated the generation of PIERRE GUERIN Triple Impeller: HTPG4® (patented design).

Flow efficiencies of HTPG4 blades are unique...

- the design assures a minimum shearing in order to maintain compatibility with fragile product structures (fat matter, proteins, cells cultures, etc...)
- the design induces an oriented flux, avoiding radial leaks and generating two distinct upward and downward flows. HTPG4® generates an optimal circulation rate optimizing productivity and time efficiency
- the flow resistance is very low, minimising power consumption and energy costs associated with the installation.

Comparison of efficiency between HTPG4® and traditional large blade impellers

Number of anti-rotation blades	Improvement of HTPG4® compared to a traditional large blade impeller		
	Power	Mixing time	Shearing
2	0	-21	-21
0	-13	-62	-67

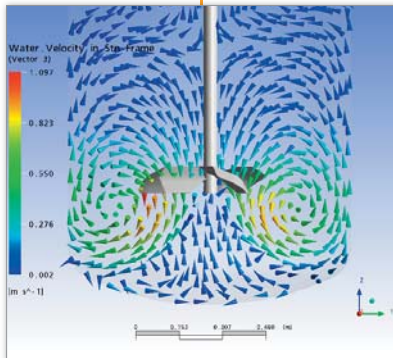
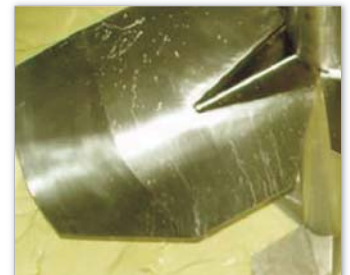
Mixing applications

HTPG4® allows for the following mixing operations:

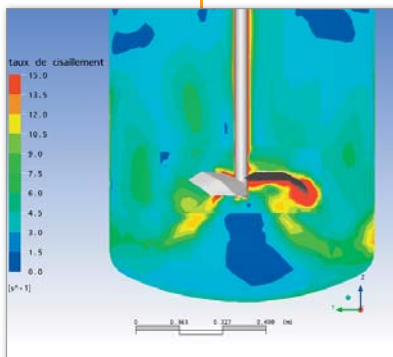
- homogeneous blending of liquid product
- mixing and re-suspension of solids/liquids
- dissolving of readily soluble powder easily in liquids
- heat transfer improvements

Examples of applications

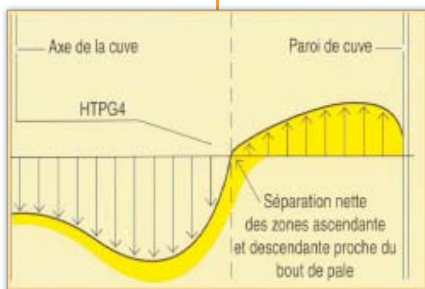
- cell culture
- bacterial fermentation
- milk maturation and standardisation
- milk fermentation, curd breaking
- crystallisation
- fruit juices and flavoured water preparation
- sugar syrup preparation
- homogeneous preparation of ready cooked meals components
- processed eggs preparation
- blending oils
- brine preparation
- wines assembling & tartaric precipitation



Speed distribution in tank



Measurement of shearing rates in the different tank zone



Laser measurement of speed configuration

Why choose the PIERRE GUERIN solution?

- _ because it is one of the most efficient commercially available impellers
- _ because of our understanding of process and products
- _ because of the well defined flow properties of HTPG4® for all tank designs

Control and knowledge of agitation principles in your field of application combined with the HTPG4® efficiency brings the solution to your mixing requirements.

Standard - HTPG4® agitators - Top head mounting

PIERRE GUERIN production methods allow the manufacturing of HTPG4® configurations with diameters of up to 2.4 meters and shaft lengths of up to 12 metres.

With 1, 2, 3 or even 4 impeller stages, we are able to make hydrodynamic calculations that will ensure you selected to the most appropriate dimensioning to your needs.

HTPG4® top mounted agitators are suitable for vessel capacities up to 120 m³.

Our agitation engineering office carries our mechanical strain calculations (torque and flexion), is able to recommend the ideal location and system assembly thus assuring equipment longevity.

Various mechanical mounting solutions are proposed depending on the running conditions, with flange or screwed couplings, seal with simple or double gaskets, with double



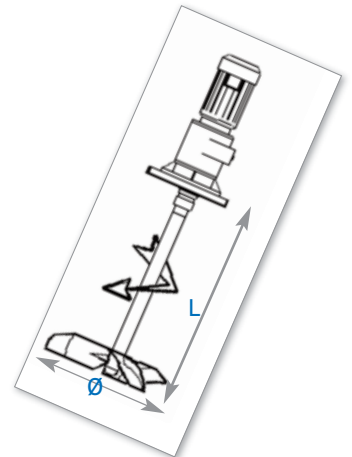
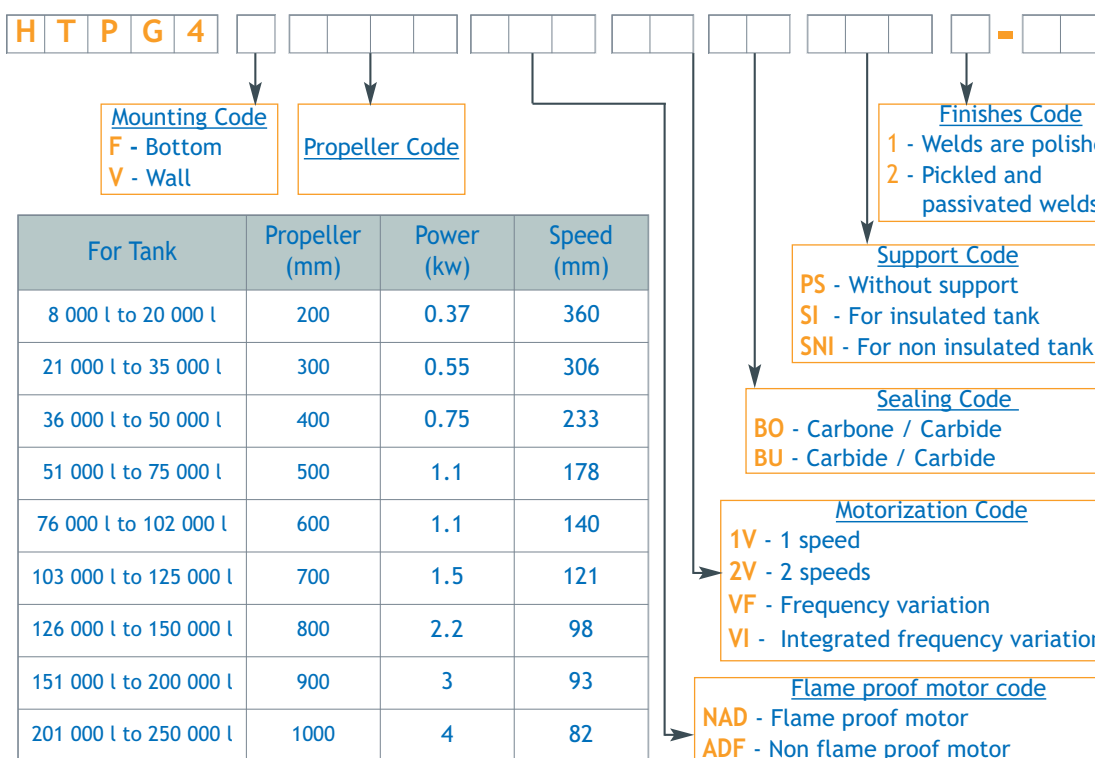
Standard - HTPG4® agitators - Tank wall and bottom mounting

Technical characteristics

- _ IP55 gearbox motor, 400 or 230/400 volts three-phase supply voltage, 50 Hz
- _ three-blade welded impellers from Ø 200 to Ø 1 000 mm
- _ all finishes available on request
- _ tank fixation by stainless steel flange with a leakage detection slot
- _ sealing by mechanical seal lubricated by the product



Selection guide for homogenous storage



HTPG4	L
Ø 200	200
Ø 300	300
Ø 400	400
Ø 500	500
Ø 600	600
Ø 700	700
Ø 800	800
Ø 900	900
Ø 1000	1000

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