

BIOVESSEL™

STORAGE & FILLING VESSELS

100 to 40.000 L w/v

Innovative solutions and support



PIERRE GUERIN

TECHNOLOGIES



TOGETHER BRING LIFE TO YOUR PROJECTS

BIOVESSEL™

FOR THE FORMULATION AND TRANSFER OF YOUR PRODUCTS

EXPERIENCE & INNOVATION

Expert of sterile forms in GMP environment, PIERRE GUERIN has developed a range of vessels dedicated to the formulation, the storage and the transfer of liquid and pastry pharmaceutical products.

The **BIOVESSEL™** range offers a wide range of options that allow for customizing the vessel design to your processes and to the regulatory requirements.



BENEFITS

- ❑ Configurable and evolutive design in accordance with BPE recommendations
- ❑ High quality manufacturing
- ❑ Wide choice of agitators to meet all mixing needs (PIERRE GUERIN supplier, others on request)
- ❑ Possible integration of an electrical cabinet for local or remote control of the vessel
- ❑ Comprehensive documentation, including inspections and tests reports, supporting your qualification

QUALITY AND TEST PROGRAM

- ❑ Rigorous quality and test program including full material traceability of product-contact parts, welding log, coverage and drainability tests
- ❑ Equipment fully tested prior to delivery
- ❑ Project Quality Plan, Inspection and test file, FAT protocol and associated documentation to support your qualification activities

TECHNICAL FEATURES

- ❑ Cylindrical, vertical vessel, ratio height / Internal diameter for the w/v of 1:1 to 1,2:1
- ❑ Standard volumes ranging from 20 to 10 000 L and up to 70 000 L on request
- ❑ Material: stainless steel EN 1.4404 (316L) for the product-contact parts, stainless steel EN 1.4307 (304 L) for the others parts – Low ferrite content on request and others materials on request
- ❑ Internal finishes: $R_a \leq 0.4 \mu\text{m}$ as standard (electro-polishing as option) - External finishes: surfaces polished to indicative $R_a < 1.2$ / welds brushed (polishing as option)
- ❑ Working pressure for the vessel and the jacket: 3 bar g. steam as standard and up to 10 bar g. as option
Special features on request

VESSEL CONFIGURATION

MAIN FEATURES

Code	Working Volume	Selection	Code	Working Volume	Selection
020	20 L		1000	1000 L	
050	50 L		2000	2000 L	
100	100 L		3000	3000 L	
200	200 L		5000	5000 L	
300	300 L		8000	8000 L	
500	500 L		10000	10000 L	
700	800 L		xxx	Autre volume :	
Code	Top head design	Selection	Code	Bottom head design	Selection
C1	Head plate		F1	Dished bottom	
C2	Dished head with manhole		F2	Conical bottom 30°	
Code	Calculation Code	Selection	Code	Calculation Code	Selection
N1	CODAP		N3	AD-Merkblatt	
N2	ASME		N4	British Standard	
Code	Options				Selection
10A	Jacketed vessel - 1/3 of the liner height				
10B	Jacketed vessel – Full liner height				
10C	Jacketed vessel – Liner and bottom				
11A	Insulation of the liner				
11B	Insulation of the liner and bottom				
12	Mobile vessel				
15A	Internal finishing with electro-polishing				
15B	External finishing with all welds polished				
	Other / comments:				



ACCESSORIES

Code	Norme	Selection			
O	Piping norm: OD / Imperial				
I	Piping norm: ISO				
Code	Liner top mounted accessories	Quantity			
T1	Manhole - Diameter:				
T2	Manometer	Ferrule		PG Connect	
T3A	Pressure relief valve	Ferrule		PG Connect	
T3B	Bursting disc with switch	Ferrule		PG Connect	
T4	Gas inlet / outlet	Ferrule		PG Connect	
T5A	Static spray ball	Ferrule		PG Connect	
T5B	Rotating spray ball	Ferrule		PG Connect	
T6	Instrumentation	Ferrule		PG Connect	
T7	Spare	Ferrule		PG Connect	
T8A	Sight glass	On manhole		On top head	
T8B	Illumination lamp				
T8C	Sight glass with illumination lamp				
T9A	Product inlet	Ferrule		PG Connect	
T9B	Anti-foam product inlet	Ferrule		PG Connect	
T9C	Dip tube	Ferrule		PG Connect	
Code	Liner bottom mounted accessories	Quantity			
S1	Instrumentation	INGOLD		PG Connect	
S2	Spare	INGOLD		PG Connect	
S3A	Sampling valve	Standard		Sterilisable	
S3B	Sampling device	Membrane		Novaseptum	
S4	Sight glass	Round		Vertical	
Code	Bottom mounted accessories	Quantity			
B1	Harvest connection				
B2	Harvest valve	Standard		NA Type	
	With steam valve	Manual		Pneumatic	
B3	Socket for temperature probe	Yes		No	
B4	Baffle				
B5	Spare	INGOLD		PG Connect	
	Other / comments:				



Manometer on PG Connect (T2)



Anti-foam product inlet on PG Connect (T9A)



INGOLD port (B5)



Harvest valve Standard and NA type (B2)

Additional or specific accessories on request

AGITATION (optional)

- Agitation system allowing for VFD control
- Top driven agitator with single mechanical seal as standard – Options: double mechanical seal , rotating device for easy maintenance (Replacement of mechanical seal without removal of the gear-motor)
- Bottom driven magnetic mixer

Code	Options agitator	Selection		
A10	Bottom driven magnetic mixer PG-MAG™	Welded		On flange
A11	Top driven agitator with three blades impeller HTPG4™	Offset		Centered
A12	Top driven agitator with high speed turbine HTA™ (for powder dissolving)			
A13	Option : rotating device for easy maintenance of top driven agitators			
A14	Option : double mechanical seal for top driven agitators (liquid or gas lubrication)			
	Others (rotor-stator turbine, RUSHTON-PG turbine, scrapper, top driven magnetic mixer, ATEX version ...) / comments :			

PG-MAG
Mixer
(A10)



HTPG4
Impeller
(A11)



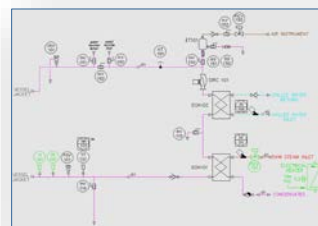
HTA
Turbine
(A12)



TEMPERATURE CONTROL (optional)

- Temperature control by circulation of steam / hot and cold water into the jacket
- Valves manifold fitted with pressure relief valve, manometer, vent breaker

Code	Options temperature control	Selection
C20A	Manual valves	
C20B	Pneumatic valves	
C21	Direct injection of steam / cold and hot water	
C22	Jacket loop with circulating pump	
	C23 Cooling via Glycol water heat exchanger	
	C24A Heating via steam heat exchanger	
	C24B Heating via electrical heater	
	Other / comments :	



INSTRUMENTATION (optional)

Code	Options instrumentation	Selection
I40	Temperature probe and transmitter	
I41	Pressure transmitter	
I42	High level switch	
I43	Low level switch	
I45A	Weighing system	
I45B	Continuous level measurement utilizing a capacitive probe	
I45C	Continuous level measurement utilizing differential pressure transmitter	
I48	Real speed measurement	
I50	pH probe and transmitter	
	Other / comments:	



CONTROL CABINET (optional)

- Stainless steel cabinet
- Attached to the vessel frame or the liner

Code	Options control cabinet	Selection
E1	Local control cabinet utilizing switches and digital controllers	
E2	Local junction cabinet for remote control	
E3	VFD integrated in the agitator	
E4	Digital chart recorder – 6 channel	
	Other / comments:	