PIERRE GUERIN
Process Vessels

When innovation meets tradition

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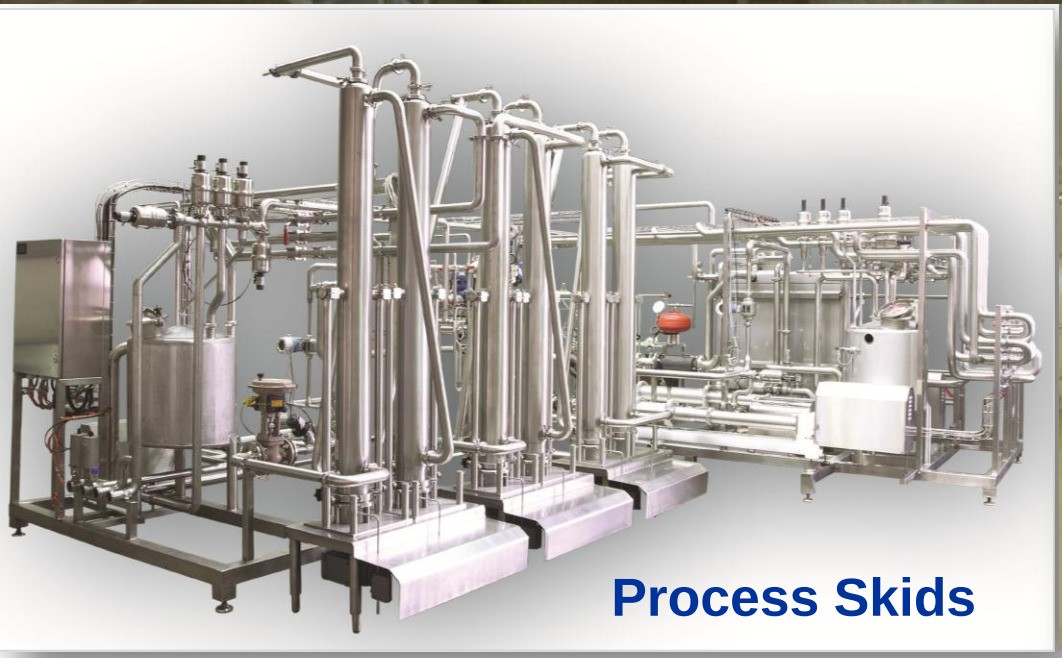
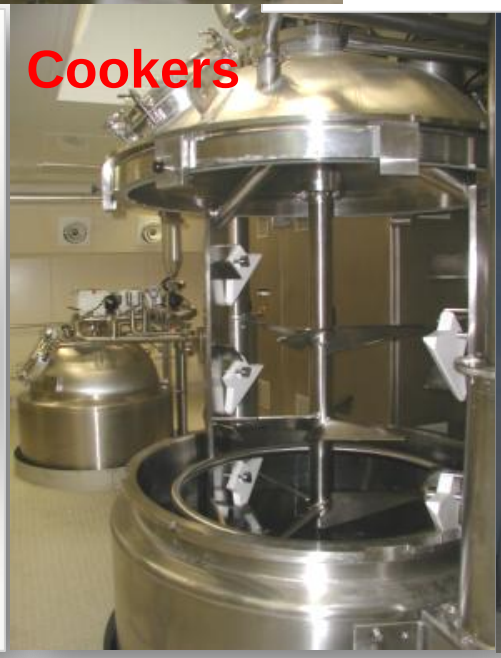
Process Vessels





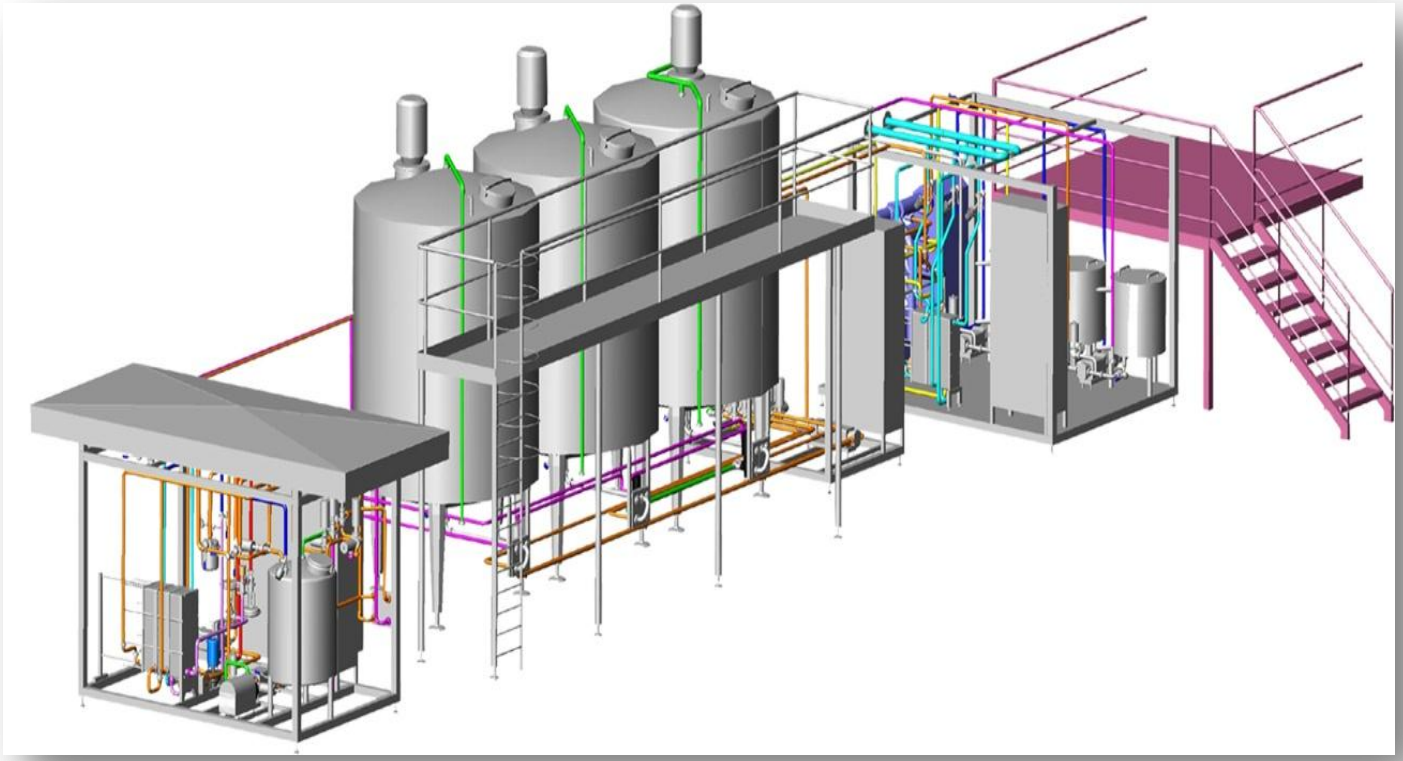
Together bring Life to your Projects, when innovation meets innovation

To achieve your expected functionality and performance, comply with your URS and the regulatory requirements, ensure delivery on time of high quality equipment, Pierre Guerin provides you with:

- Process and technological expertise utilizing a team of process engineers specialized in your applications
- Significant design resources, up-to-date design tools
- Vertical integration in manufacturing: vessel & mixing, piping, automation
- Rigorous quality and test program based on ISO 9001 standards allowing for problem-free start up
- Effective Customer Service throughout our subsidiaries and partners network

Process Expertise

In the dairy Industry, Pierre Guerin know-how starts with the reception and the storage of the raw milk to end with the feeding of the filling and conditioning machines



Process Expertise

Pierre Guerin offers you the knowledge of numerous applications gained from more than 60 years experience, in particular for the production of:

- Milk (Raw milk, pasteurized, UHT)
- Cream and butter
- Yoghurts (set, stirred, drinking, thermized)
- Desserts (egg flan, flavoured gelified milk, dessert cream, rice and semolina pudding)
- Fresh cheese (plain, sweetened, flavoured, with fruits)
- Any dairy products, ripened or not
- Any products utilizing similar technology (Jelly, Soya milk based products)
- Hard and soft cheese

Process expertise

Pierre Guerin provides you with experience and know how for the following unit operations :

- Raw-milk reception and storage
- Filtration
- Standardization / mixing
- Homogenization
- Storage / ripening
- Pasteurization
- Sterilization / cooking
- Concentration
- Fermentation / Curdling
- Separation
- Curd treatment / smoothing
- Crystallization
- Whipping
- Transfer / Dosing
- Nizo process
- Cleaning In Place

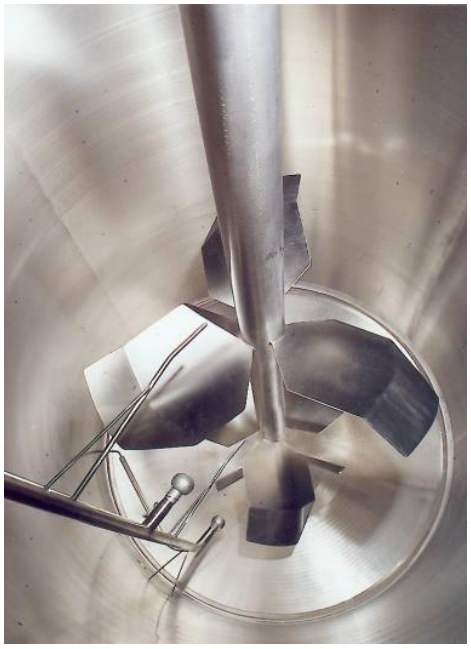
Process Expertise - Reception / Storage

- Off gazing
- Cooling
- Counting
- Sampling
- Transfer
- Storage

With Pierre Guerin you get benefit of 60 years experience in the design and manufacturing of tanks for the Dairy industry

Process Expertise – Standardization / Mixing

- Melting
- Dosing of ingredients
- Standardization
- Blending
- Mixing

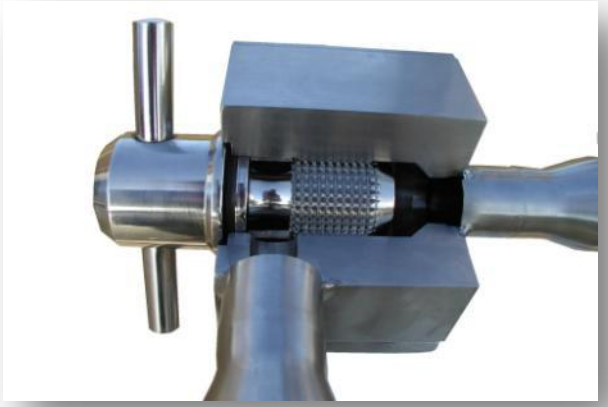


Pierre Guerin designs & manufactures an extended range of vessels, agitators and process components : melting & blending tanks, HTPG4™ agitator, POLYMEL™ Blending system..

Process Expertise - Homogenization

- Homogenization
- Smoothing
- Dispersion
- Emulsion

HTA™, the unique combination of the Pierre Guerin HTPG4™ propeller and the SC™ Saw disc turbine, for your dispersion operations



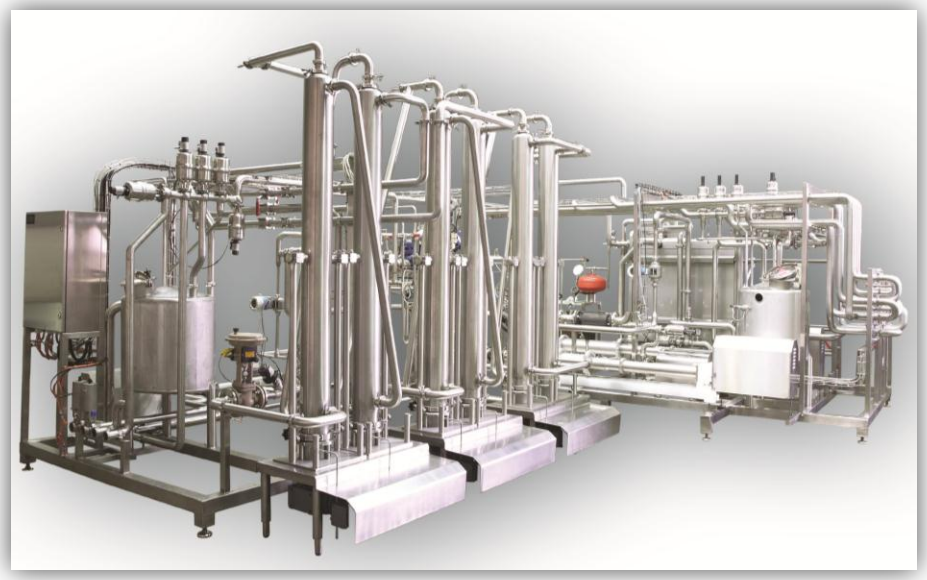
Alm™, smoothing head with 10 ultrasonic effects

Process Expertise - Pasteurization

- Pasteurization
- Standardization
- Temperature holding
- Off gazing via vacuum

Stand alone or integrated units available in manual or full automatic versions

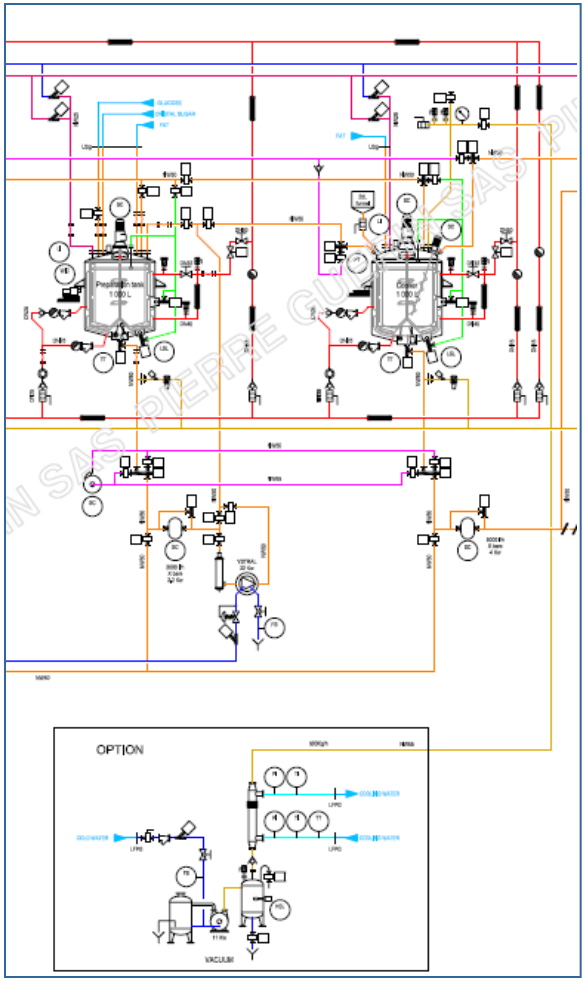
Process Expertise - Sterilization



Thermal treatment into vessels or via heat exchanger

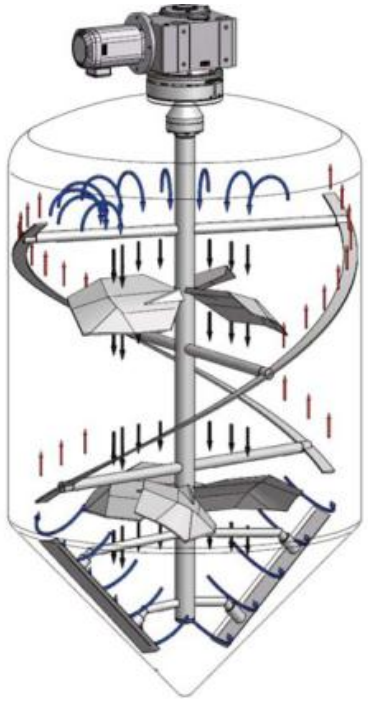
Process expertise: cooking / concentration

- Vacuum Cooking
- Vacuum concentration



Process Expertise - Fermentation / Maturation

- Starter production
- Fermentation
- Maturation
- On line injection of starters
- Storage under controlled atmosphere
- Aseptic storage



EOLE 4, an innovative agitation for the mixing of fragile and viscous products

Process Expertise – Traditional cheese activity

Pierre Guerin offers a complete range of cheese vats from 10 to 18000L and with flat or conical bottoms

Process Expertise – Traditional cheese activity

In addition to cheese vats our program includes:
- manual pre-pressing vats
- tubular moulding machines
- moulders cleaning machines

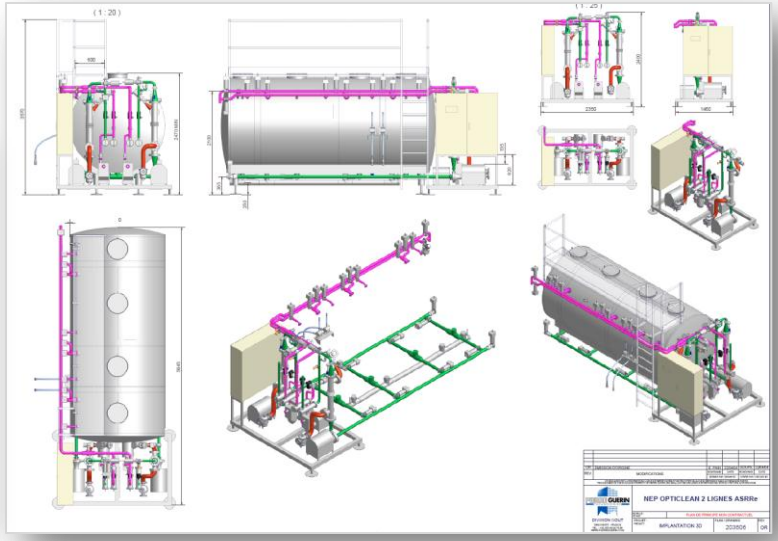
Technological Expertise – Our CIP units also take into consideration your environmental constraints

Single tank CIP Unit OPTICLEAN™

Multiple tank CIP Unit MULTICLEAN™

Mobile CIP unit MOBICLEAN™

3D model



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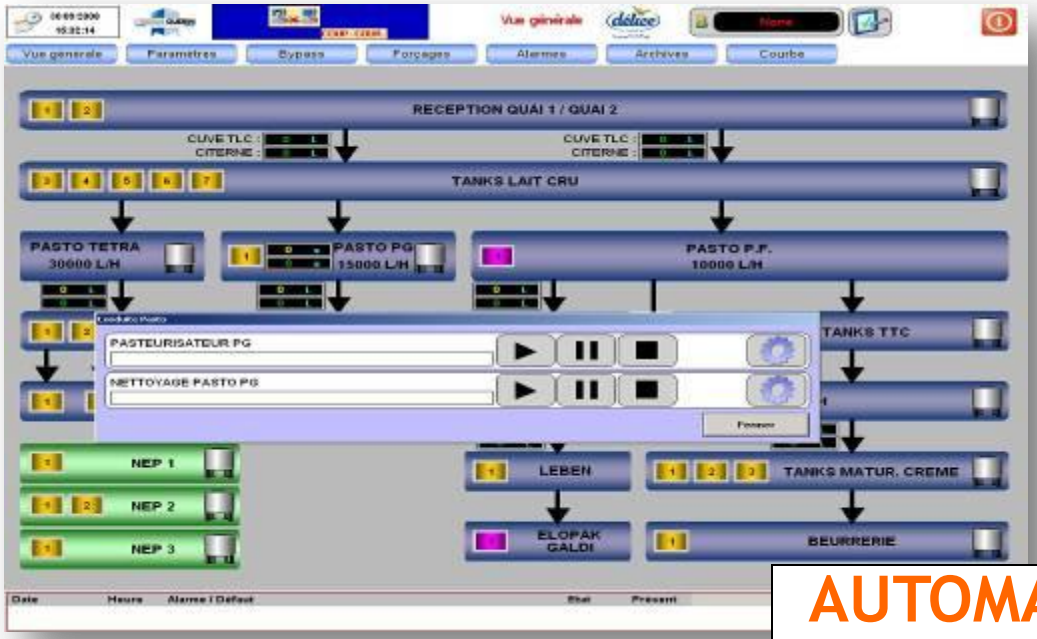
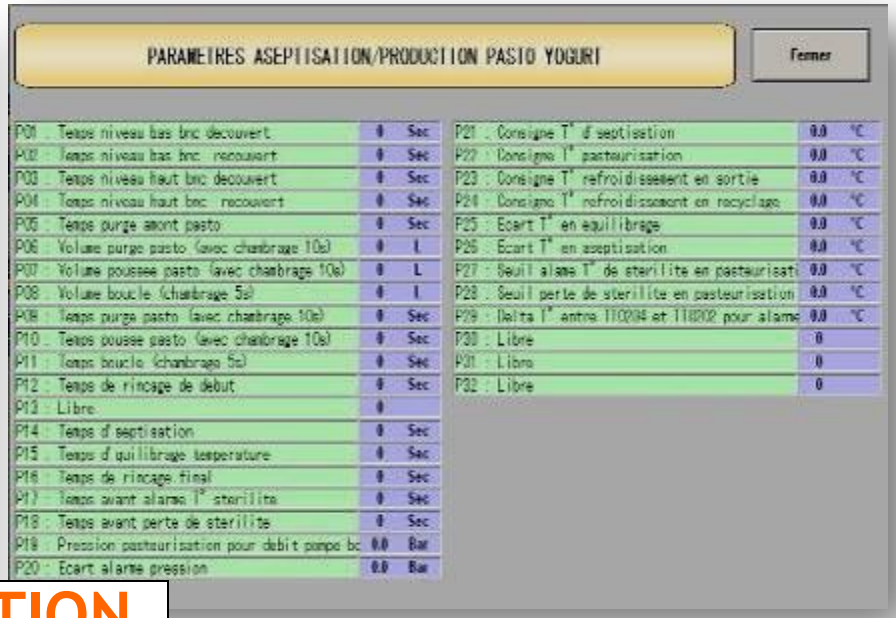
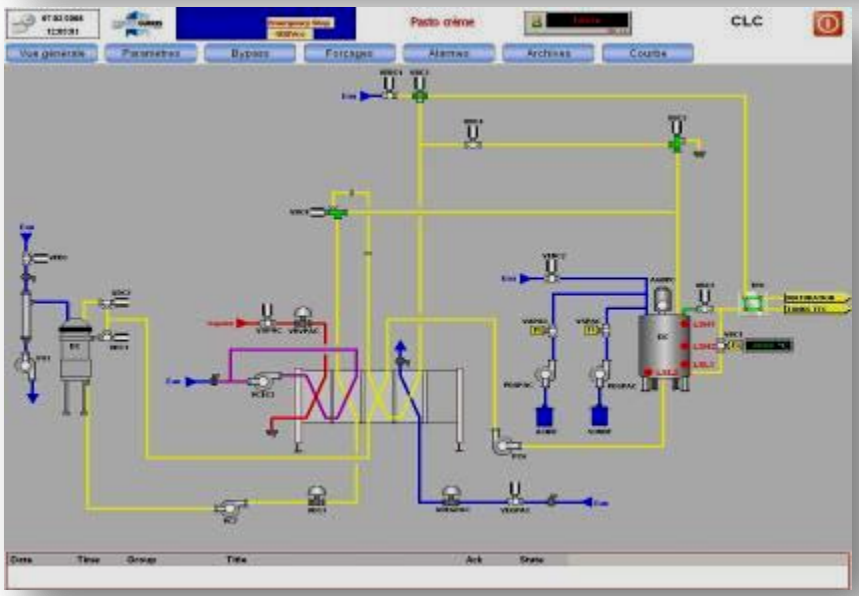
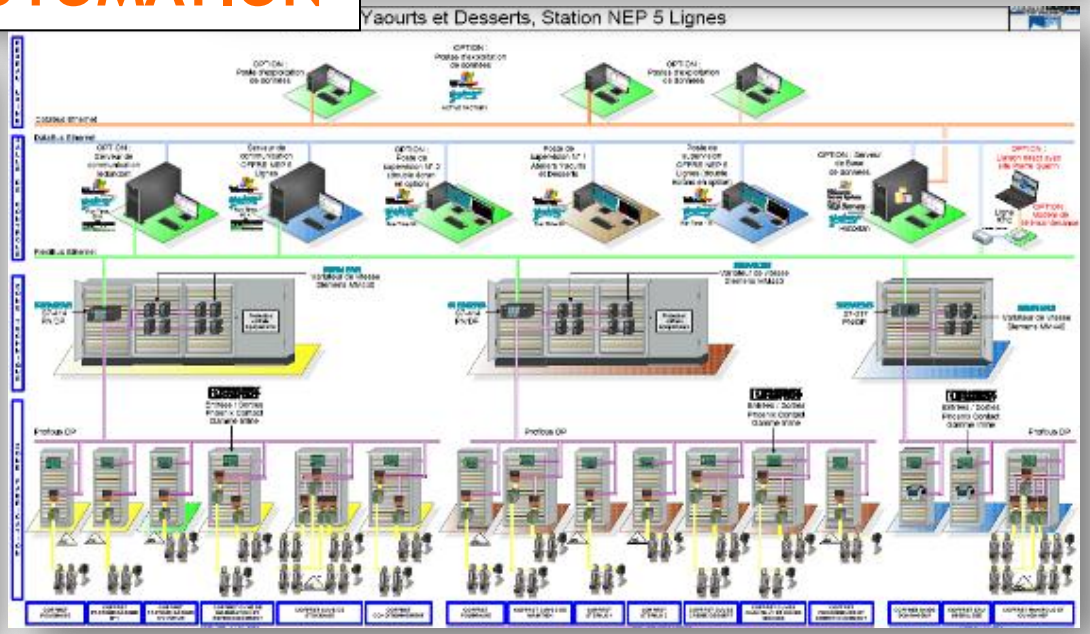


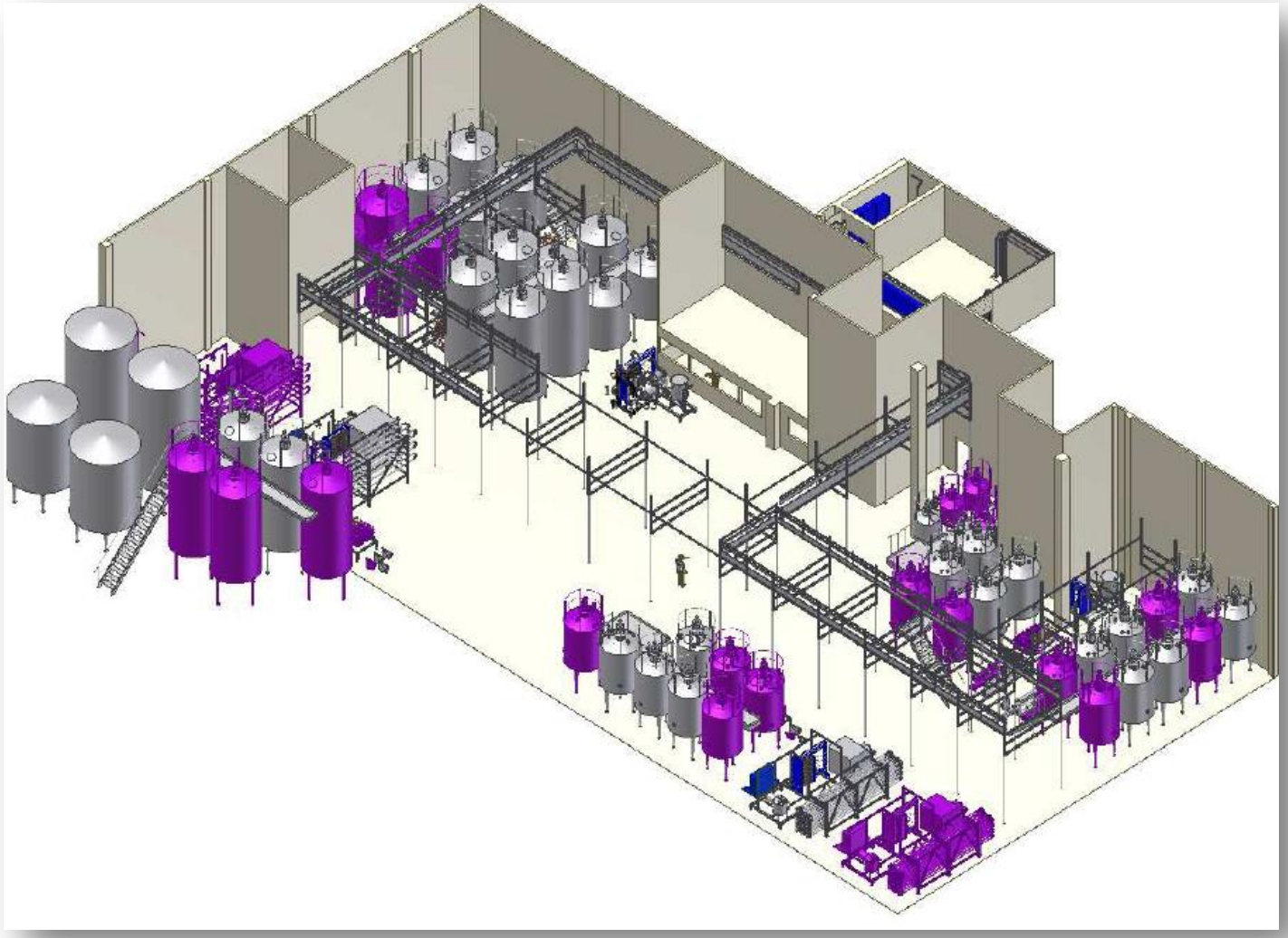


AUTOMATION





Our process expertise and industrial capabilities for the management of your turn-key units



Turnkey plant for the production of dairy desserts and fresh products

Design & manufacturing

Our aim is to provide you with flexible / innovative design and robust / reliable manufacturing

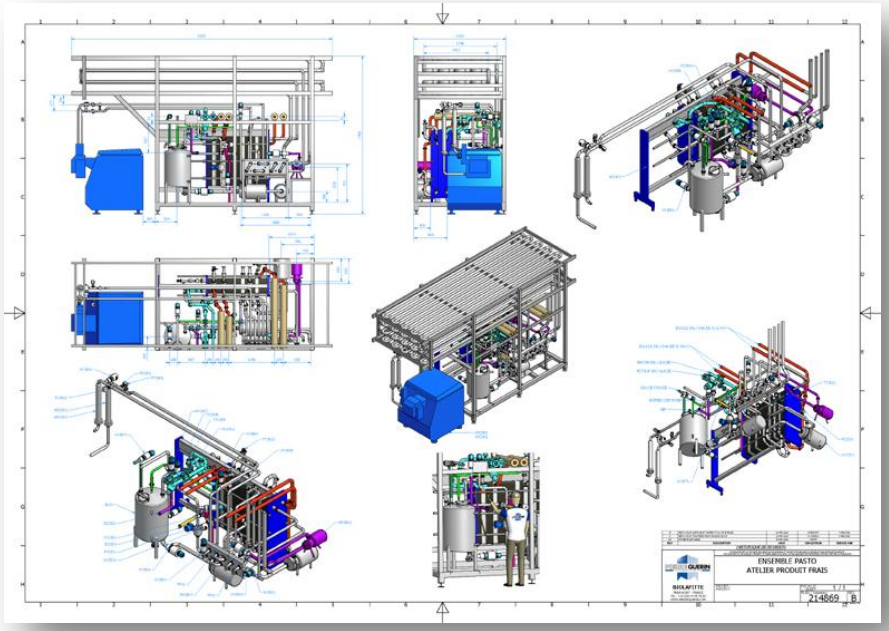
Depending on projects, two types of design can be proposed:

- Design with site piping
- Modular design with Factory pre-mounted, pre-wired and pre-tested skids (Generally 1 skid per unit operation)

Design & manufacturing

We design the equipment in accordance with your URS while taking care of the following criteria:

- Sanitary Security
- Product Security
- Equipment Security
- Human Security
- Easy maintenance
- Equipment reliability
- Upgradability of the equipment



Design and manufacturing also complies with :

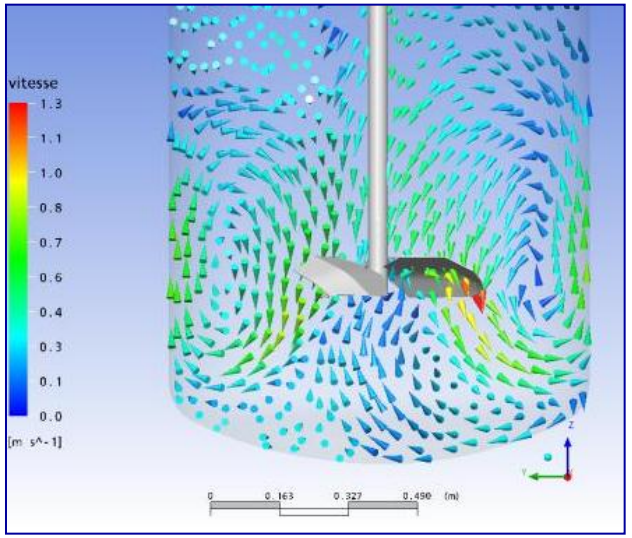
- Current EEC regulations
- 3A, FDA, EHEDG, PMO, IFS Standards

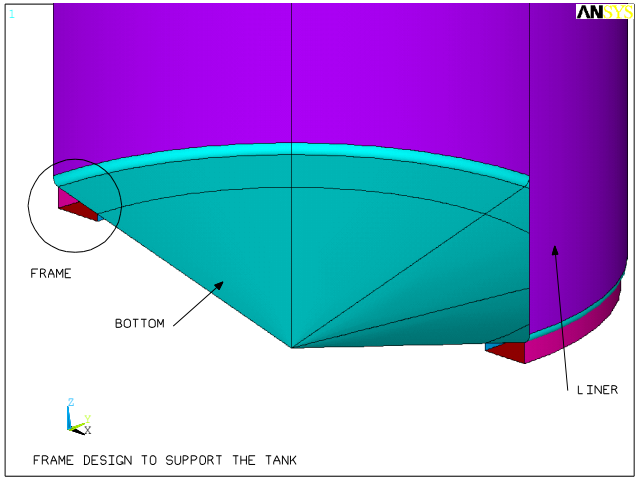
Design & manufacturing

Pierre Guerin handles advanced design and calculation tools to achieve required performances and comply with regulations.

That includes:

- INVENTOR CAD system for full 3D design of vessels and piping
- Vessel calculation Software according to various construction codes: CODAP, AD-MERKBLATT, BS5500, ASME Codes and 97/23/EC
- SOLID WORKS for the calculation of mechanical constraints
- Thermal transfer calculation tools
- Mixing and cleaning flow models
- Seismic calculation tools





Design & manufacturing

Vertical integration of manufacturing that includes production of vessel & agitation, piping assembly, wiring & automation, ensures:

-Product quality

-Smooth project management

-On time delivery

Quality and test program

From the initial quotation through product design, manufacturing, installation and support, **Pierre Guerin** full-service approach ensures that your expectations are met. Our internal processes were created to provide our customers with complete turn key solutions. They are supported by a Quality Assurance System based on ISO 9001 but also the GAMP V5 for project management and automation development methodology.

Experience gained from our Life Sciences activity allows for meeting your highest requirements in particular for material / welding traceability and tests.

Quality and test program

PV 4075 ind. N du 01/12/04

Dossier de traçabilité Cuve
(Vessel Traceability book)

Revision :	C
Date :	27-02-2007
Page :	3/16

Client : *(Customer)*
Equipement : *(Equipment)*
N°de fabrication : *(Series Number)* H1M60211-1 FE2200
Capacité : *(Capacity)* 128 L
N°du plan : *(Drawing #)* 207551
N°d'affaire : *(Order #)* NA

Repère (Item)	Désignation (Description)	Matière (Material)	Fabricant (Manufacturer)	N°de coulée ou d'identification (Heat or identification #)	N°d'annexe (Appendixe #)	Nbre pages (page Qty)	indice de l'annexe (Appendi revision)
1	LINER Th5 VIROLE EP5	1.4404 EN 10028-7	OUTOKUMPU	41558-5	001	1	OR
2	HEMISPHERICAL BOTTOM FOND HEMISPHERIQUE DI 500	1.4435 EN 10028-7	OUTOKUMPU	451941	002	3	OR
3	BODY FLANGE BRIDE DE CUVE-COUVERCLE – FLAT COVER	1.4435 EN 10028-7	ISENBURGER GROBBLECH	491642	003	6	A
4	HEMISPHERICAL BOTTOM FOND HEMISPHERIQUE DI 525	1.4307 EN 10028-7	ACERINOX	6TL4	004	2	A
5	JACKET LINER DOUBLE ENVELOPPE TOLE EP2.5	1.4307 EN 10028-7	TKAST	0403388	005	1	OR
6	CIRCLE OF CONNECTION CERCLE DE JONCTION TOLE EP3	1.4307 EN 10028-7	TKAST	0570854	006	1	OR
7	SHEET JACKET CHICANE DOUBLE ENVELOPPE TOLE EP2	1.4307 EN 10028-7	TKAST	0572657	007	1	OR
8	ROUND ROND D10	1.4307 EN 10088-3	UGITECH	546011	008	2	OR
9	ROUND ROND D10	1.4307 EN 10088-3	UGITECH	546011	008	2	OR
10	SHEET COLLERETTE EP5	1.4307 EN 10028-7	OUTOKUMPU	50540	009	1	OR
11	SHEET COLLERETTE EP5	1.4307 EN 10028-7	OUTOKUMPU	50540	009	1	OR

Traceability file

Test & Inspection report *(PV de contrôle)*
Phases execution tests (complete)
(Contrôle d'exécution des phases (complet)

MI 12/028 | Rev : F | Date : 11-Mai-2005 | Page : 2/3

Customer : *(Client)*	Project : *(Affaire)*	Project N° : *(Projet Maître N°)*
Purchase Order : *(Ref Client)*	Equipment : *(Equipement)*	
Refer to instruction N° *(Se référer à l'instruction)*	MI 12/027	

Phase number *(Numéro de la phase)*	
Phase name *(Libellé de la phase)*	
Software version of customer project *(Version logicielle Projet client)*	V

Function (Fonction)	Acceptance criteria (Critères d'acceptation)	Result (Résultat) Conforme (Pass)	Non conforme (Fail)	Non applicable (N.A.)
Set points *(Consignes)*	The set point sheet below is correctly checked and all tests are correct. *(La feuille de test des consignes, ci avant, est correctement remplie et conforme).*			
Parameters *(Paramètres)*	The parameters table below is correctly checked and all tests are correct. *(La feuille de test des paramètres, ci avant, est correctement remplie et conforme).*			
Alarms and faults *(Alarmes et défauts)*	The fault table sheet below is correctly checked and all tests are correct. (La feuille de test des alarmes et défauts, ci avant, est correctement remplie et conforme).			
Flow chart *(Grafcet)*	The flow chart sheet below is correctly checked and all tests are correct. *(Le contrôle du grafcet, ci avant, est correctement rempli et conforme).*			
Operator messages *(Messages opérateur)*	The operator messages sheet below is correctly checked and all tests are correct. *(Le contrôle des messages opérateur, ci avant, est correctement rempli et conforme).*			
Specific actuators management and remarks *(Asservissements spécifiques et remarques)*	The specific actuators management and remarks sheet below is correctly checked and all tests are correct. *(Le contrôle des asservissements spécifiques et remarques, ci avant, est correctement rempli et conforme).*			
Actuators control *(Actionneurs)*	The sequential control sheet below is correctly checked and all tests are correct. *(La feuille de contrôle séquentielle, ci avant, est correctement remplie et conforme).*			
Status and exceptions *(Etats et exceptions)*	The status and exceptions sheet below is correctly checked and all tests are correct. *(La feuille des états et exceptions, ci avant, est correctement remplie et conforme).*			

	Date (Date)	Initials (Paraphe)	Worksheet (Page de test)
Tester (Testeur)			/

FAT protocol and test report