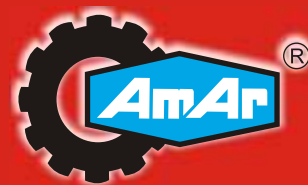


Autoclaves

High Pressure Systems



Pressure Reactor Specialist™

Your Research Partner



Our Profile

Experience

The company was founded in 1974 by Mr. Naresh Shah (Managing Director & Chairman) after completing B.Tech. Mechanical from IIT Mumbai & Masters of Science from University of Michigan, United States. He was later joined in 1998 by his son Mr. Vishal Shah who graduated with a bachelors' degree in Mechanical Engineering from V.J.T.I Mumbai. Ever since 1974, Amar has built its foundation on a strong technical team with a blend of vast experience & technological / commercial understanding.

The Journey

The beginning journey was with general fabrication of large pressure reactors, vessels, heat exchangers etc. Today, we specialize in high pressure autoclaves / reactors / systems, magnetic drive coupling & flow reactors. Our vision is to provide import substitutes in India & new technologies globally, while maintaining quality & costs. Through high pressure systems Amar can offer customized turnkey solution for virtually all applications from high pressure chemical reactors, corrosion testing, supercritical fluid extraction system etc for chemical, pharmaceutical, oil & gas, defence, educational & chemical research purposes.

Certifications

We are a ISO 9001 – 2008, CE – PED, ASME U, U2 certified company offering products with Explosion proof (Ex), ATEX, UL, CSA, CRN certified systems on request.

Facilities

We have complete in-house setup well-equipped to design, manufacture & test all the products & components with latest gauges, measuring instruments & machines including:

- CNC turning centre
- Vertical machining centre (VMC)
- Conventional lathes
- Plasma cutting machine
- Overhead EOT cranes
- Buffing / polishing / cleaning equipment
- Laser marking
- Cutting machines
- Calibration instruments
- Drilling machines
- Welding machines
- Grinding machines
- PMI machine
- Packaging machines etc.

Team

We are a team of around 125 people with qualified staff, skilled workers including a core team of 30 highly skilled & experienced professional engineers, required to produce the desired quality with accuracy & precision as per international quality standards & design codes.

Vision

- To provide import substitutes in India & new technologies globally, while maintaining quality & costs
- To become a leading global player in manufacturing & supply of all our products
- To continuously upgrade the quality of our products and always offer the latest & the best
- To build products that are technically complete, physically reliable, economically competent & ergonomically superior

Mission

- To develop technically complex, challenging, customised turnkey solutions
- At Amar, we strongly follow Hon. Indian Prime Minister Narendra Modi's campaign of MAKE IN INDIA

Global Footprints

Pioneers & largest manufacturer of high pressure reactor, magnetic drive couplings & continuous flow reactor in India year after year for over 40 yrs with around 75% market share in India and substantial share globally. Over 5000 successful installations world over with more than 1000 delighted customers. Exports to more than 50 countries worldwide with presence of local distributors & 5 distributors in different parts of India for local support.

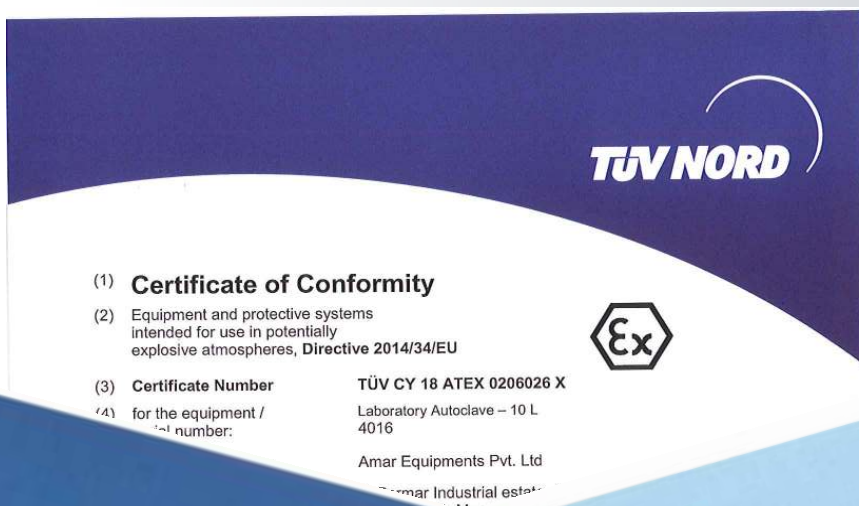
Product Range

- High Pressure Autoclaves
- High Throughput Catalyst Screening
- Automated Parallel Autoclaves
- Gas Induction Reactors
- Glass Autoclaves
- Non Stirred Pressure Vessels
- HPHT Corrosion Testing
- Supercritical Fluid Extraction
- Reaction Calorimeters
- Gas Hydrate System
- Acid Digestion Bombs
- Shaker Hydrogenator
- Pilot Plants
- CSTR
- Fixed Bed Tubular Reactors
- Continuous Flow Micro Reactors
- Photo Chemical Flow Reactors
- Magnetic Couplings / Stirrers
- Heating & Cooling Circulators
- Lab Agitated Nutsche Filters



Certifications & Approvals

- An ISO-9001-2008 certified company.
- All our pressure vessel designs are as per **ASME** codes-section VIII Div 1 / Div 2.
- Our welders are qualified as per **ASME** section IX codes for welded pressure vessels.
- **PED, U/U2 Stamp, CRN for Canada, ASA 1210 for Australia & DOSH for Malaysia** certified systems.
- CE, UL / CSA certified systems offered on request.
- Explosion proof / flame proof systems with Class 1 Div. 2, ATEX Zone I Ex electrical & mechanical certified system for hazardous area.
- DQ, IQ, PQ, OQ documentation can be given on special request.



A1000 series (50 ml, 100 ml & 250 ml)

Salient Features

- 50 ml to 250 ml net filling volume
- Pressures upto 350 bar & temperatures upto 500°C
- Material: SS-316/316L, Hastelloy B/C, Monel, Inconel, Nickel, Titanium, Zirconium, Tantalum etc.



250 ml autoclave



250 ml table top autoclave



100 ml with manual raising & lowering

Standard models for 50 ml volume

Model No.	A 1213	A 1215	A 1223	A 1225	A 1233	A 1235
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	40					
Vessel Internal Height (mm)	63					
Min. Stirrable Volume (ml)	20					

Standard models for 100 ml volume

Model No.	A 1313	A 1315	A 1323	A 1325	A 1333	A 1335
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	40					
Vessel Internal Height (mm)	83					
Min. Stirrable Volume (ml)	20					

Standard models for 250 ml volume

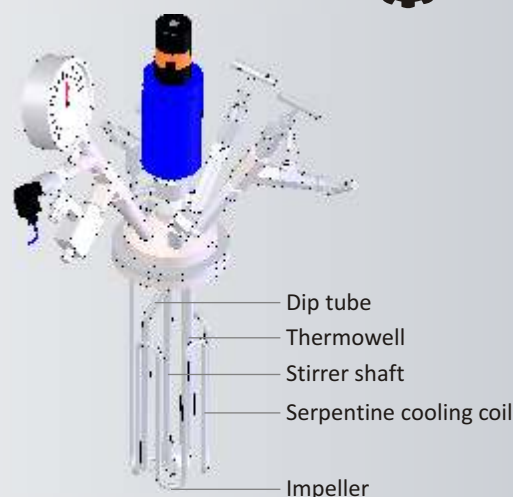
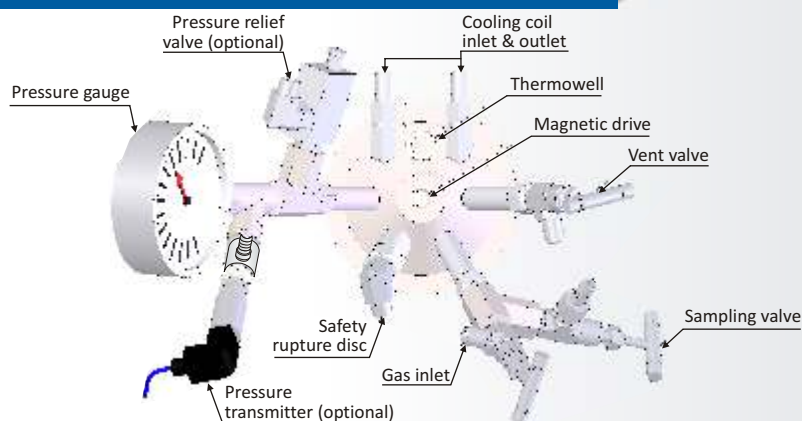
Model No.	A 1413	A 1415	A 1423	A 1425	A 1433	A 1435
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	65					
Vessel Internal Height (mm)	80					
Min. Stirrable Volume (ml)	50					

Note: The above ratings are only for SS316, Hastelloy C & Inconel materials, for other materials the ratings will change depending on its stress values & maximum allowable temperature as per ASME code for which refer page 21 in material of construction.

Technical Specifications for 50 ml, 100 ml & 250ml standard models

Sr.	Description	Specification
A	Material of Construction	SS 316 wetted parts
B	Head Mounting Style	Removable head and vessel design
C	Heating Type	Electrical ceramic band heater with cladding & insulation & heater temperature control for 500°C
D	Motor	1/8 hp AC motor with 100-1450 RPM
E	Shaft Sealing	Zero leakage magnetic drive coupling M8 with 0.8 Nm torque
F	Stirrer	4 bladed turbine stirrer
G	Standard Nozzles, Valves & Fittings	External Valves & Fittings: Pressure gauge, safety rupture disc, gas inlet and liquid sampling needle valve with common dip tube, solenoid valve at inlet of cooling coil, vent needle valve (All needle valves 1/8" size) Internal Fittings: Serpentine cooling coil, dip tube, thermowell with RTD PT100 temperature sensor
H	Gasket	PTFE up to 300°C and metallic grafoil gasket up to 500°C
I	Closure Type	Split clamp with clamp bolts
J	Control Panel	SS control panel with programmable PID temperature controller with high temperature alarm and variable frequency drive for motor speed control
K	Power Supply	1 Ø, 220 V AC, 50 / 60 Hz
L	Mounting & Dimensions (W x D x H)	SS Table Top with 240mm x 310mm x 800mm for reactor assembly & 275mm x 275mm x 300mm for control panel

Nozzle orientation & internals for A1000 series



Enquiry guide for 50 ml, 100 ml & 250 ml customized models

Enquiry code structure is **Standard Model no-A-B-C-D2-D3-E-F-I-J-L-M** where A, B, C, D2, D3, E, F, I, J, L & M options can be selected from below tables. The below options will be in place of standard supply. For example 100 ml, 100 bar, 300°C, Hastelloy C, fixed head autoclave with ATEX Zone1 certified, heater, motor & panel will read as **A 1313-HC6-K-EZ-AZ-ATP**

Options

A Material of Construction

SS 316 L	316L	Inconel 625	IN5
Hastelloy C 276	HC6	Nickel 200	NK2
Hastelloy C 22	HC2	Titanium Gr. 2	TI2
Hastelloy B	HB	Zirconium 702	ZR7
Monel 400	MN4	Tantalum	TAN
Inconel 600	IN6		

B Head Mounting Style

Fixed head with manual vessel raising lowering	K
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C Heating Style

Electrical ex-proof, IIB + H, certified	EA
Electrical ex-proof ATEX Zone1 certified	EZ
Electrical ex-proof Class 1 Div 2	EC
Welded SS 304 jacket with insulation	JS
Welded SS 304 jacket with electrical ceramic heater	JH
Peltier cooler for -25 to 150°C	PL

D2 RPM

Up to 3000 rpm	RT
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D3 Motor Type

¼ hp ex-proof gas group IIB (Zone 1)	XB
¼ hp ex-proof gas group IIC (Zone 1)	XC
¼ hp ex-proof CE ATEX certified II 2G Ex de IIC T4	AZ
¼ hp ex-proof CSA certified Class 1 Div 2 group A, B, C, D	CD
1/8 hp compact in-line brushless DC motor	BD

E Mag Drive Torque

2 Nm	M20
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F Stirrer Options*

Hollow shaft with gas induction Impeller	SH
Ruston turbine	SR
Paddle	SD
Propeller	SP

I Closure Type

Threaded cap with FKM (Viton)'O' ring up to 225°C	CV
Threaded cap with FFKM (Kalrez) 'O' ring up to 275°C	CK

J Control Panel

Ex-proof gas group IIA/IIB zone 1 certified	F2B
Ex-proof gas group IIC zone 1 certified	F2C
Ex-proof ATEX zone 1 certified	ATP
Ex-proof class 1 div. 2 certified	C12
Touch screen	TSP

L Mounting & Overall Dimensions (WxDxH)

Trolley	1010 mm x 410 mm x 1300 mm	TL
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M Certifications**

Design approval as per ASME code by notified body	DAC
CE-PED 2014/68/EU	PED
ASME U/U2 stamp coded	ASU
ATEX certified reactor 2014/34/EU	ASA
CE marked panel & electrical parts	ECE
UL/CSA marked panel & electrical parts	USC

Note: 1) Customer is advised to select best suited options for most optimized price & delivery.

2) For other optional accessories please refer page 44.

3) All above options may not be available / possible with all models.

4) Customization of volume, material, pressure, temperature etc. may be possible on request.

5) Different power supply options may be possible on request.

6) Overall dimensions are indicative, they may change depending on the optional accessories or specific design modifications opted.

*Stirrer options can be in place of standard or additional multiple interchangeable.

**Country specific certification like CRN for Canada, AS1210 for Australia & DOSH for Malaysia can be offered on request.

A2000 series (500 ml, 750 ml, 1 ltr, 2 ltr, 5 ltr)

Salient Features

- 500 ml to 5 ltr net filling volume
- Pressures upto 350 bar & temperatures upto 500°C
- Material: SS-316/316L, Hastelloy B/C, Monel, Inconel, Nickel, Titanium, Zirconium, Tantalum lined etc.



1 ltr table top model
with in-line motor



500 ml table top



2 ltr trolley model



5 ltr floor stand model



2 ltr U stamp autoclave with
pneumatic raising & lowering



5 ltr trolley model



500 ml
autoclave



750 ml
autoclave



1 ltr
autoclave



2 ltr
autoclave



5 ltr
autoclave

Standard models for 500 ml autoclave

Model No.	A 2113	A 2115	A 2123	A 2125	A 2133	A 2135
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	75				65	
Vessel Internal Height (mm)	118				158	
Min. Stirrable Volume (ml)	60				50	

Standard models for 750 ml autoclave

Model No.	A 2213	A 2215	A 2223	A 2225	A 2233	A 2235
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	75					
Vessel Internal Height (mm)	193					
Min. Stirrable Volume (ml)	60					

Standard models for 1 ltr autoclave

Model No.	A 2313	A 2315	A 2323	A 2325	A 2333	A 2335
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	101.6				75	
Vessel Internal Height (mm)	163				273	
Min. Stirrable Volume (ml)	130				60	

Standard models for 2 ltr autoclave

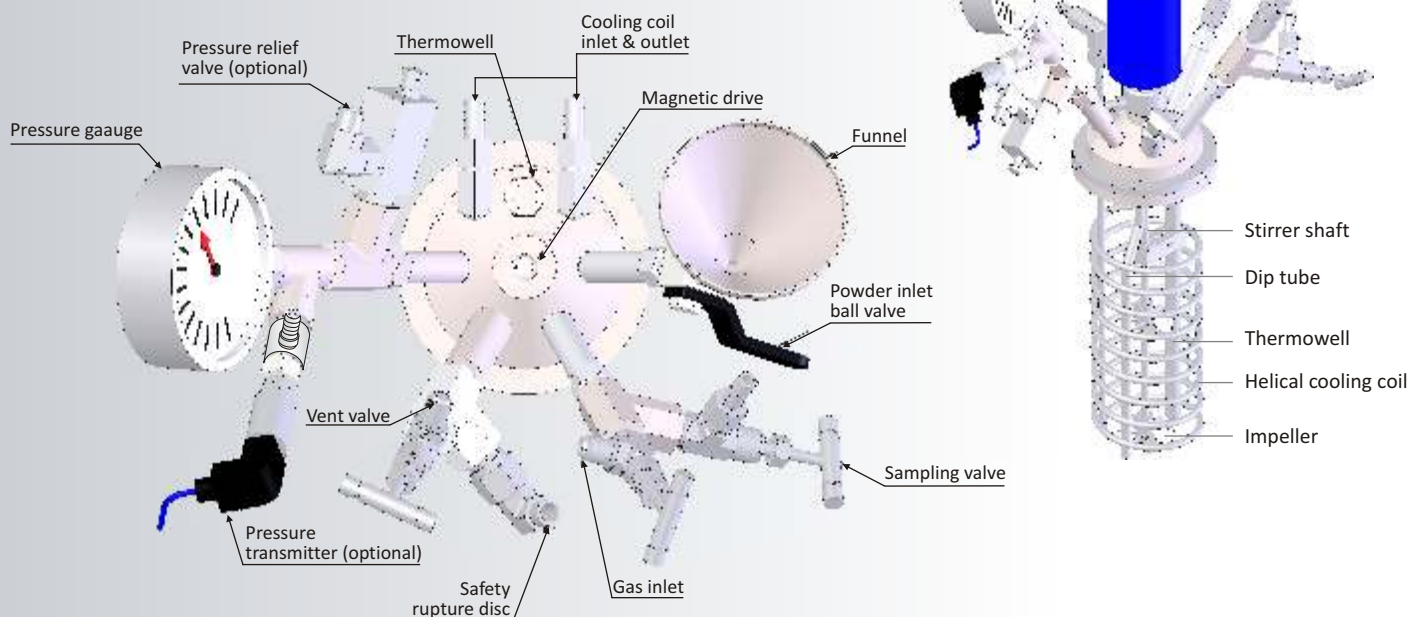
Model No.	A 2413	A 2415	A 2423	A 2425	A 2433	A 2435
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	101.6					
Vessel Internal Height (mm)	303					
Min. Stirrable Volume (ml)	130					

Standard models for 5 ltr autoclave

Model No.	A 2513	A 2515	A 2523	A 2525	A 2533	A 2535
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	152					
Vessel Internal Height (mm)	310					
Min. Stirrable Volume (ml)	360					

Note: The above ratings are only for SS316, Hastelloy C & Inconel materials, for other materials the ratings will change depending on its stress values & maximum allowable temperature as per ASME code for which refer page 21 in material of construction.

Nozzle orientation & internals A2000 series



Technical Specifications for 500 ml, 750 ml, 1 ltr, 2 ltr, 5 ltr standard models

Sr.	Description	Specification								
A	Material of Construction	SS 316 wetted parts								
B	Head Mounting Style	Removable head and vessel design								
C	Heating Type	Electrical ceramic band heater with cladding & insulation & heater temperature control for 500°C								
D	Motor	¼ hp AC motor with 100-1450 RPM								
E	Shaft Sealing	Zero leakage magnetic drive coupling M20 with 2 Nm torque								
F	Stirrer	2 stage 6 bladed turbine stirrer								
G	Standard Nozzles, Valves & Fittings	<p>External Valves & Fittings: Pressure gauge, safety rupture disc, gas inlet and liquid sampling needle valve with common dip tube, vent needle valve (all needle valves are ¼" size)</p> <p>Internal Fittings: Helical cooling coil, dip tube, thermowell with RTD PT 100 sensor</p>								
H	Gasket	PTFE up to 300°C and metallic grafoil gasket up to 500°C								
I	Closure Type	Split clamp with clamp bolts								
J	Control Panel	SS control panel with programmable PID temperature controller with high temperature alarm and variable frequency drive for motor speed control								
K	Power Supply	1 Ø, 220 V AC, 50 / 60 Hz								
L	Mounting & Dimensions (WxDxH) mm	SS Trolley								
		<table border="1"> <thead> <tr> <th>Reactor Volume</th> <th>Dimensions with control panel</th> </tr> </thead> <tbody> <tr> <td>500 ml & 750 ml</td> <td>1010 x 410 x 1340</td> </tr> <tr> <td>1 ltr & 2 ltr</td> <td>1040 x 410 x 1350</td> </tr> <tr> <td>5 ltr</td> <td>1100 x 410 x 1350</td> </tr> </tbody> </table>	Reactor Volume	Dimensions with control panel	500 ml & 750 ml	1010 x 410 x 1340	1 ltr & 2 ltr	1040 x 410 x 1350	5 ltr	1100 x 410 x 1350
Reactor Volume	Dimensions with control panel									
500 ml & 750 ml	1010 x 410 x 1340									
1 ltr & 2 ltr	1040 x 410 x 1350									
5 ltr	1100 x 410 x 1350									

Interchangeable autoclave: 50 ml & 100 ml or 500 ml & 750 ml or 1 ltr & 2 ltr interchangeable vessels, heater & internal fittings with common head, external fittings, panel, motor, mounting etc. can be offered. However diameter being same the higher volume model can do the minimum stirrable volume of lower volume vessel hence there is no advantage.



50ml & 100ml interchangeable reactors with fixed head design

Enquiry guide for 500 ml, 750 ml, 1 ltr, 2 ltr, 5 ltr customized models

Enquiry code structure is **Standard Model no. A-B-C-D1-D2-D3-E-F-G-I-J-L-M** where A, B, C, D1, D2, D3, E, F, G, I, J, L & M options can be selected from below tables. The below options will be in place of standard supply. For example 500 ml, 100 bar, 300°C, Hastelloy C, fixed head autoclave with ATEX Zone1 certified, heater, motor & panel will read as **A 2113-HC6-K-EZ-AZ-ATP**

Options

A Material of Construction

SS 316 L	316L	Inconel 625	IN5
Hastelloy C 276	HC6	Nickel 200	NK2
Hastelloy C 22	HC2	Titanium Gr. 2	TI2
Hastelloy B	HAB	Zirconium 702	ZR7
Monel 400	MN4	Tantalum	TAN
Inconel 600	IN6	Tantalum lined	TNL

B Head Mounting Style

Fixed head with manual vessel raising lowering (500 ml & 750 ml)	K
Fixed head with pneumatic vessel raising lowering	P
Fixed head with manual vessel raising lowering & tilting (500 ml & 750 ml)	KT
Fixed head with pneumatic vessel raising lowering & tilting	PT

C Heating Style

Electrical ex-proof, IIB + H ₂ certified	EA
Electrical ex-proof ATEX Zone1 certified	EZ
Electrical ex-proof Class 1 Div 2 certified	EC
Welded SS 304 jacket with insulation	JS
Welded SS 304 jacket with electrical ceramic heater	JH

D1 Motor HP

½ hp	H05
1 hp	H10

D2 Motor RPM

Up to 3000 rpm	RT
Gear box up to 440 rpm	R4

D3 Motor Type

¼ hp ex-proof gas group IIB (Zone 1)	XB
¼ hp ex-proof gas group IIC (Zone 1)	XC
¼ hp ex-proof CE ATEX certified II 2G Ex de IIC T4	AZ
¼ hp ex-proof CSA certified Class 1 Div 2 group A, B, C, D	CD
1/8 hp compact in-line brushless DC motor	BD

E Mag Drive Torque

4 Nm	M40
8 Nm	M80
12 Nm (only for 1 to 5 ltr)	M120
20 Nm (only for 5 ltr)	M200

Note: 1) Customer is advised to select best suited options for most optimized price & delivery.

2) For other optional accessories please refer page 44.

3) All above options may not be available / possible with all models.

4) Customization of volume, material, pressure, temperature etc. may be possible on request.

5) Different power supply options may be possible on request.

6) Overall dimensions are indicative, they may change depending on the optional accessories or specific design modifications opted.

*Stirred options can be in place of standard or additional multiple interchangeable.

**All option specified in G are add-ons & multiple/ all of them can be availed at the same time.

***Country specific certification like CRN for Canada, AS1210 for Australia & DOSH for Malaysia can be offered on request.

F Stirrer Options*

Hollow shaft with gas induction impeller	SH
Anchor (Serpentine cooling coil, max 100 rpm)	SA
Spiral (No cooling coil, max 100 rpm)	SS
Ruston turbine	SR
Paddle	SD
Propeller	SP

G Valves & Fittings**

Serpentine cooling coil	SCC
Ball valve powder inlet (¼") with funnel	BVP
Flush bottom valve (10 mm)	FBV
Baffle (with serpentine cooling coil)	BFL

I Closure Type (upto 100 bar)

Split clamp with 'O' ring-FKM (Viton) up to 225°C	CV
Split clamp with 'O' ring FFKM (Kalrez) up to 275°C	CK

J Control Panel

Ex-proof group IIA/IIB zone 1 certified	F2B
Ex-proof group IIC zone 1 certified	F2C
Ex-proof ATEX zone 1 certified	ATP
Ex-proof class 1 div. 2 certified	C12
Touch screen	TSP

L Mounting & Overall Dimensions (WxDxH)

Mounting	Volume	Reactor size mm	Panel size mm	Code
Table Top	500 ml	280 x 350 x 900	275 x 275 x 300	TT
	750 ml	280 x 350 x 900		
	1 ltr	355 x 400 x 925		
Floor Stand	500 ml	280 x 350 x 1240		FS
	750 ml	280 x 350 x 1240		
	1 ltr	355 x 400 x 1250		
	2 ltr	355 x 400 x 1250		
	5 ltr	420 x 420 x 1250		

M Certifications***

Design approval as per ASME code by notified body	DAC
CE-PED 2014/68/EU	PED
ASME U/U2 stamp coded	ASU
ATEX certified reactor 2014/34/EU	ASA
CE marked panel & electrical parts	ECE
UL/CSA marked panel & electrical parts	USC

A3000 series (10 ltr, 20 ltr, 25 ltr, 50 ltr & 100 ltr)

Salient Features

- 10 ltr to 100 ltr net filling volume
- Pressures upto 350 bar & temperatures upto 500°C
- Material: SS-316/316L, Hastelloy B/C, Monel, Inconel, Nickel, Titanium, Tantalum lined, Zirconium etc.





50 ltr autoclave with electrical heater



50 ltr autoclave internals



100 ltr autoclave

Standard models for 10 ltr volume

Model No.	A 3113	A 3115	A 3123	A 3125	A 3133	A 3135
Design Pressure	100 bar		200 bar		350 bar	
Design Temperature	300°C	500°C	300°C	500°C	300°C	500°C
Vessel I/D (mm)	183					
Vessel Internal Height (mm)	420					
Min. Stirrable Volume (ltr)	1					

Standard models for 20 ltr volume

Model No.	A 3213	A 3215	A 3223	A 3225
Design Pressure	100 bar		200 bar	
Design Temperature	300°C	500°C	300°C	500°C
Vessel I/D (mm)	248			
Vessel Internal Height (mm)	495			
Min. Stirrable Volume (ltr)	2.6			

Standard models for 25 ltr volume

Model No.	A 3313	A 3315	A 3323	A 3325
Design Pressure	100 bar		200 bar	
Design Temperature	300°C	500°C	300°C	500°C
Vessel I/D (mm)	248			
Vessel Internal Height (mm)	595			
Min. Stirrable Volume (ltr)	2.6			

Standard models for 50 ltr volume

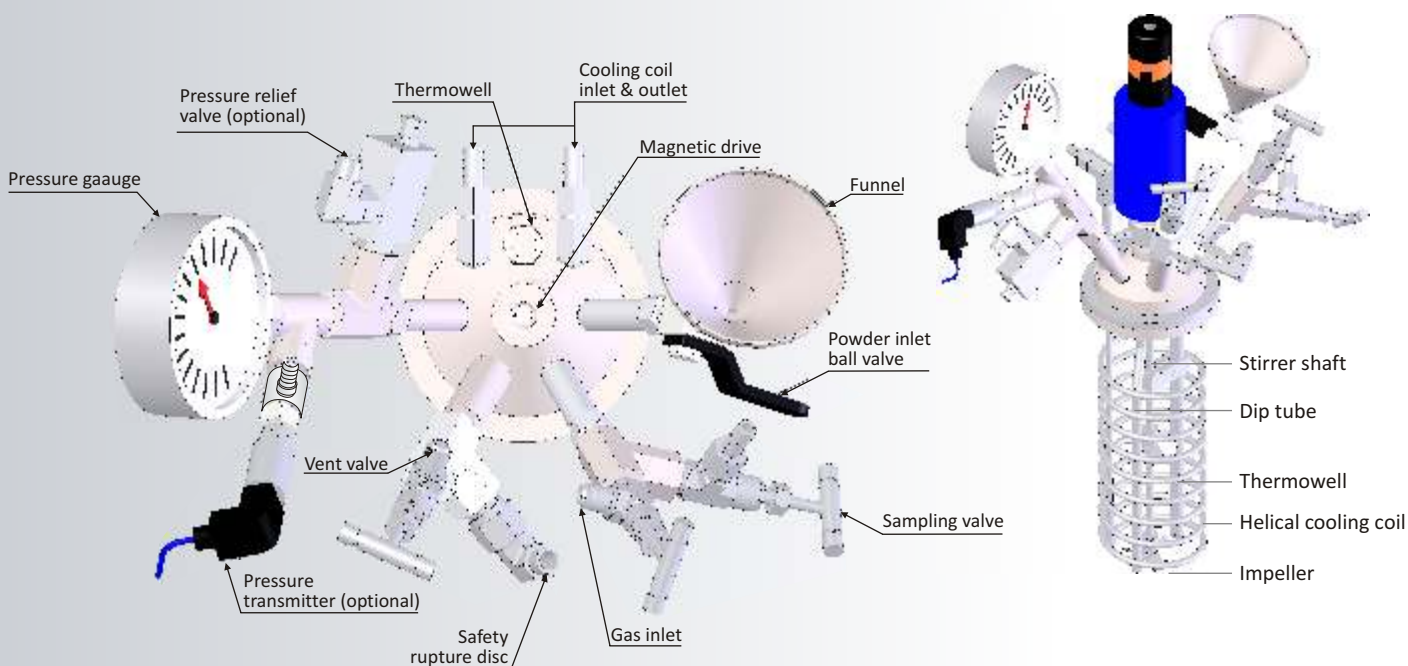
Model No.	A 3403	A 3405	A 3413	A 3415
Design Pressure	50 bar		100 bar	
Design Temperature	300°C	500°C	300°C	500°C
Vessel I/D (mm)	355		343	
Vessel Internal Height (mm)	558		600	
Min. Stirrable Volume (ltr)	6			

Standard models for 100 ltr volume

Model No.	A 3503	A 3505	A 3513	A 3515
Design Pressure	50 bar		100 bar	
Design Temperature	300°C	500°C	300°C	500°C
Vessel I/D (mm)	456		440	
Vessel Internal Height (mm)	699		735	
Min. Stirrable Volume (ltr)	12			

Note: The above ratings are only for SS316, Hastelloy C & Inconel materials, for other materials the ratings will change depending on its stress values & maximum allowable temperature as per ASME code for which refer page 21 in material of construction.

Nozzle orientation & internals A3000 series



Technical specifications for 10 ltr, 20 ltr, 25 ltr, 50 ltr & 100 ltr standard models

Sr.	Description	Specification			
A	Material of Construction	SS 316 wetted parts			
B	Head Mounting Style	Removable head and vessel design			
C	Heating Type	Electrical ceramic band heater with cladding & insulation & heater temperature control for 500°C			
D	Motor	½ hp AC motor for 10 ltr, 20 ltr & 25 ltr locked to 750 rpm 1 hp AC motor for 50 ltr & 100 ltr locked to 500 rpm			
E	Shaft Sealing	Zero leakage magnetic drive coupling M80 with 8 Nm torque for 10 ltr to 25 ltr & M120 with 12 Nm torque for 50 ltr & 100 ltr reactor			
F	Stirrer	2 stage 6 bladed turbine stirrer			
G	Standard Nozzles, Valves & Fittings	External Valves & Fittings: Pressure gauge, safety rupture disc, gas inlet and liquid sampling needle valve with common dip tube, vent needle valve, ball valve for powder/ liquid inlet with funnel, flush bottom valve			
		Size	Needle valve	Ball Valve	FBV
		10 - 25 ltr	¼"	¾"	15 mm
		50 - 100 ltr	½"	1"	25 mm
		Internal Fittings: Helical cooling coil, dip tube, thermowell with RTD PT100 temperature sensor, baffles			
H	Gasket	PTFE up to 300°C and metallic grafoil gasket up to 500°C			
I	Closure Type	Split clamp with clamp bolts			
J	Control Panel	SS control panel with programmable PID temperature controller with high temperature alarm and variable frequency drive for motor speed control			
K	Power Supply	1 Ø, 220 V AC 20 amp, 50 / 60 Hz for 10 ltr			
		3 Ø, 440 V AC, 25 amp, 50 / 60 Hz for 20 ltr - 100 ltr			
L	Mounting & Dimensions (W x D x H) mm	SS Trolley			
		Reactor Volume	Dimensions with control panel		
		10 ltr	1310 x 585 x 1550		
		20 ltr	1310 x 585 x 1700		
		25 ltr	1310 x 585 x 1800		
		50 ltr	1500 x 675 x 2350		
100 ltr	1500 x 780 x 2350				

Enquiry guide for 10 ltr, 20 ltr, 25 ltr, 50 ltr, 100 ltr customized models

Enquiry code structure is **Standard Model no. A-B-C-D1-D2-D3-E-F-G-J-L-M** where A, B, C, D1, D2, D3, E, F, G, J, L & M options can be selected from below tables. The below options will be in place of standard supply. For example 10 ltr, 100 bar, 300°C, Hastelloy C, fixed head autoclave with ATEX Zone1 certified, heater, motor & panel will read as **A3113-HC6-K-EZ-AZ-ATP**

Options

A Material of Construction

SS 316 L	316L	Inconel 625	IN5
Hastelloy C 276	HC6	Nickel 200	NK2
Hastelloy C 22	HC2	Titanium Gr. 2	TI2
Hastelloy B	HB	Zirconium 702	ZR7
Monel 400	MN4	Tantalum lined	TNL
Inconel 600	IN6		

B Head Mounting Style

Fixed head with pneumatic vessel raising lowering (10 ltr to 25 ltr)	K
Fixed head with hydraulic vessel raising lowering (50 ltr & 100 ltr)	H
Fixed head with pneumatic vessel raising lowering & tilting (10 ltr to 25 ltr)	KT
Fixed head with hydraulic vessel raising lowering & tilting (50 ltr & 100 ltr)	HT

C Heating Style

Electrical ex-proof, IIB + H ₂ certified	EA
Electrical ex-proof ATEX Zone1	EZ
Electrical ex-proof Class 1 Div 2 certified	EC
Welded SS 304 jacket with insulation	JS
Welded SS 304 jacket with electrical ceramic heater	JH
Limpet Coil SS 304 with insulation (20 ltr & 100 ltr)	LC

D1 Motor HP

1 hp (for 10-25 ltr)	H10
2 hp	H20
3 hp	H30

D2 RPM

Gear box up to 440 rpm	R4
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D3 Motor Type

Ex-proof gas group IIB (Zone 1)	XB
Ex-proof gas group IIC (Zone 1)	XC
Ex-proof CE ATEX certified II 2G Ex de IIC T4	AZ
Ex-proof CSA certified Class 1 Div 2 group A, B, C, D	CD
¼ hp compact in line brushless DC motor (10-25 ltr)	QD

E Mag Drive Torque

12 Nm (for 10-25 ltr)	M120
20 Nm (up to 750 rpm, for 10-25 ltr)	M200
40 Nm (up to 750 rpm)	M400

F Stirrer Options*

Hollow shaft with gas induction Impeller	SH
Anchor (Serpentine cooling coil, max 100 rpm)	SA
Spiral (No cooling coil, max 100 rpm)	SS
Ruston turbine	SR
Paddle	SD
Propeller	SP

G Valves & Fittings

Serpentine cooling coil	SCC
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J Control Panel

Ex-proof group IIA/IIB zone 1 certified	F2B
Ex-proof group IIC zone 1 certified	F2C
Ex-proof ATEX zone 2 certified	ATP
Ex-proof class 1 div. 2 certified	C12
Touch screen	TSP

L Mounting & Overall Dimensions (WxDxH)

Mounting	Volume	Reactor size mm	Panel size mm	Code
Floor Stand	10 ltr	585 x 560 x 1550	275 x 275 x 300	FS
	20 ltr	585 x 560 x 1700	400 x 380 x 340	
	25 ltr	585 x 560 x 1800		
	50 ltr	675 x 675 x 2350		
	100 ltr	780 x 780 x 2350		

M Certifications**

Design approval as per ASME code by notified body	DAC
CE-PED 2014/68/EU	PED
ASME U/U2 stamp coded	ASU
ATEX certified reactor 2014/34/EU	ASA
CE marked panel & electrical parts	ECE
UL/CSA marked panel & electrical parts	USC

Note: 1) Customer is advised to select best suited options for most optimized price & delivery.

2) For other optional accessories please refer page 44.

3) All above options may not be available / possible with all models.

4) Customization of volume, material, pressure, temperature etc. may be possible on request.

5) Different power supply options may be possible on request

6) Overall dimensions are indicative, they may change depending on the optional accessories or specific design modifications opted.

*All option specified in F are in place of standard or add-ons & multiple/ options can be selected at the same time.

**Country specific certification like CRN for Canada, AS1210 for Australia & DOSH for Malaysia can be offered on request.

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